Report for Resolution

Report to	Sustainable Development Panel 27 July 2011	**Item** 6
Report of	Head of Planning Services	
Subject	Development Management Policies DPD – Options for a greener design policy	

Purpose

This report has been prepared in response to member discussion at the June panel relating to design policies in the emerging Development Management Policies Plan. Particular representations to the plan considered that its main design policy (policy DM3) would benefit from a significantly stronger emphasis on "greening" the built environment. This report sets out three possible options for an amended policy and assesses the implications of those options.

- **Option 1** would involve a strengthened criteria-based policy for green design and biodiversity enhancements which could be supported by detailed guidance in SPD.
- **Option 2** would require all significant developments within designated green corridors and critical drainage areas to make provision for enhanced green design (including green and brown roofs, green walls and other building design features to encourage wildlife, promote biodiversity and mitigate against flood risk).
- **Option 3** would require green roofs in significant new development and green design and biodiversity enhancements in all new development across the city. The "green design credit" approach to the assessment of individual proposals is discussed as a possible means of achieving improved green design standards.

Recommendations

Members are asked for their views on the above policy options and whether they are preferable to the draft policies considered in June 20011 as the basis for further policy development.

Financial Consequences

The financial consequences of this report and the subsequent work programme for the Development Management Policies DPD are covered by the LDF budget.

Risk Assessment

If the ongoing statutory challenge to the Joint Core Strategy succeeds to the extent that key strategic policies are removed, there could be a weaker basis for adopting a strong local policy for integrating green infrastructure into design. This could pose a risk for the soundness of the proposed policy approach.

Similarly if green design issues are devalued in the emerging national planning policy framework, such a local policy could be rendered out of conformity with national planning advice and hence unsound.

Having stricter requirements for green design in policy DM3 may require more substantive research and evidence-gathering to support the policy and there is a likelihood of extended debate on these issues at examination, adding to the overall cost of plan preparation.

A policy which incorporated a mandatory requirement for green roofs and other green design features could result in significantly increased costs to the council's planning service from protracted negotiation with developers on submitted schemes, longer determination periods for planning applications and potentially a greater number of appeals against refusals of planning permission on design grounds. .

Strategic Priority and Outcome/Service Priorities

The report helps to meet the strategic priority "Strong and prosperous city – working to improve quality of life for residents, visitors and those who work in the city now and in the future" and the service plan priority to deliver and implement the local development framework for Norwich.

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Appendix 1 Current draft policy DM3

Background Documents

None

Other relevant documents:

LDF documents:

Development Management Policies Plan (Regulation 25 draft for consultation)
http://www.norwich.gov.uk/internet_docs/docs/Consultations/Devpt_management_policies_plan/Draft_DM_Policies_doc_Jan11.pdf
Development Management Policies Plan contents page
http://www.norwich.gov.uk/internet_docs/docs/Consultations/DM_policies_plan_contents_page.pdf
Joint Core Strategy
http://www.gndp.org.uk/content/wp-content/uploads/downloads/2011/03/JCS-text-version-CLEAN-v3.0-reduced.pdf

Evidence Base

Green Infrastructure Study and Delivery Plan (available from)
http://www.gndp.org.uk/resources/document-finder/?downloadIndex=G

Other documents:

Sheffield City Council: Climate Change and Design SPD and Practice Guide
http://www.sheffield.gov.uk/planning-and-city-development/planning-documents/sdf/supplementary-planning-documents/climate-change-and-design-spd
London Mayor's policy on living roofs and walls
http://www.london.gov.uk/thelondonplan/policies/4a-11.jsp

Report

Introduction

1. This report has been prepared in response to member discussion at the previous panel meeting (29 June 2011) relating to design policy DM3 in the emerging Development Management Policies Plan. Some representations to the plan made during the consultation from January to March 2011 considered that the policy would benefit from a significantly stronger emphasis on "greening" the built environment. At the meeting officers undertook to investigate the issue further and to report back on possible options for strengthened policy content. This report sets out three possible options for an amended policy and assesses the implications of pursuing those options.

2. Relevant representations on this policy from members included:
   Councillor Carlo – requests specific consideration is given to incorporating wildlife friendly features into new development construction where possible and practicable, including green roofs on all commercial development; also bird friendly features in new buildings such as installing prefabricated swift bricks into the fabric of walls during construction or placing internal nest boxes behind fascias. Assurance was sought that a requirement for landscaping would not result in developments being approved which were dominated by hard landscaping. The necessity of comprehensively "greening" development was stressed.
   Councillor Little (on behalf of the Green Party Group) requests a specific policy encouraging the installation green roofs and walls as part of developments. The group also considered that planning policy should be linked to a comprehensive citywide biodiversity survey which would make specific reference to species and put these in the context of existing and potential biodiversity links. This could then inform the degree of protection afforded to particular gardens and public open spaces or flora species chosen for landscaping new areas. In advance of a comprehensive survey, species specific and detailed biodiversity appraisals could be required for individual schemes so that built development could deliver maximum benefits in connecting to and establishing or re-establishing habitat links and enhancing green infrastructure

3. Natural England and a number of other commentators argued for stronger integration of green infrastructure and biodiversity issues into the policy.

Policy Context

4. Planning policy at a national level has long acknowledged the importance of respecting and enhancing the green environment, promoting biodiversity and locating and designing development to resist the effects of climate change. All of these are important considerations in the overall policy agenda toward achieving sustainable development and must be taken into account when determining planning applications. Key national policy and guidance which provides a context for local green design policy includes:

- ***PPS1*** *Delivering Sustainable Development* (including its Climate Change Supplement) – requires development to be planned and located to promote accessibility, minimise the need to travel and address the relevant impacts of climate change.

- ***PPS9*** *Biodiversity and Geological Conservation* – encourages local planning authorities to maximise opportunities to build in beneficial biodiversity or geological features as part of good design.

- ***PPG17*** *Planning for Open Space, Sport and Recreation* – encourages local authorities to identify and protect local open spaces for their amenity and recreational value (particularly those benefiting wildlife and biodiversity). Opportunities should also be sought in new development to improve the local open space network, to create public open space from vacant land, and to incorporate open space within new developments on previously-used land.

- ***PPS25*** *Development and Flood Risk* – advises local authorities to minimise flood risk to and from new development through location, layout and design, incorporating sustainable drainage systems (SUDS). They should also use opportunities offered by new development to reduce the causes and impacts of flooding including making the most of the benefits of green infrastructure for flood storage.

Policy 1 of the Joint Core Strategy already gives a strong strategic policy basis for a green design approach which is climate change resistant and improves the resilience of ecosystems to environmental change. It promotes sustainable drainage and promotes and protects biodiversity and ecological networks, aiming to ensure that green infrastructure is satisfactorily integrated into new development. It establishes the Yare and Wensum Valleys and Mousehold Heath as the core biodiversity areas within Norwich, providing a hub for ecological networks. The role of the DM policy is to give further detail if necessary to supplement higher level policies. Very detailed issues would be best dealt with through a Supplementary Planning Document, which could interpret either the JCS or the DM policy, or elements of both.

Other green design policy examples

5. The London Mayor's policy on living roofs and walls has been cited as an example of best UK practice that Norwich could learn from. It forms part of a suite of strategic policies seeking to combat climate change across London. The Green Roofs policy (Policy 4A.11) states :

   The Mayor will and boroughs should expect major developments to incorporate living roofs and walls where feasible and reflect this principle in DPD policies. It is expected that this will include roof and wall planting that delivers as many of these objectives as possible:

   - *Accessible roof space*
   - *Adapting to and mitigating climate change*
   - *Sustainable urban drainage*
   - *Enhancing biodiversity*
   - *Improved appearance.*

In relation to the London policy, livingroofs.org have commented that *"Although it is too early to see what the effect of the new policy [will be], green roofs have been delivered on an increasing scale in the capital over the last 8 years and the new Plan should lead to an increase in delivery".*

6. Sheffield City Council are also bringing forward a proactive green design policy to combat climate change, having recently (March 2011) adopted a detailed supplementary planning document and practice guide to support its core strategy policies on climate change, sustainable design and renewable energy. The adopted SPD gives further technical advice and practice examples on all of these issues including green roofs. The parent policy in the Core Strategy (CS64, Climate Change, Resources and Sustainable Design of Developments) refers to green roofs in its supporting text, stating
"*Green roofs can be used as a sustainable drainage technique, to minimise surface water run-off and therefore help to reduce the risk of flooding*.

7. It should be noted here that despite exploring a number of options which would have made green roofs mandatory for certain categories of development, there is no *universal* requirement for green roofs and walls either in the Sheffield Core Strategy or in the authority's emerging City Sites and Policies DPD. Rather, the authority has developed a holistic, multi-disciplinary approach to green roofs policy which involves raising awareness of the benefits of such technologies through public sector flagship projects, stakeholder engagement and the support of the academic and professional community, alongside detailed and positive guidance in SPD and a planning team willing to take a proactive and persuasive approach to negotiation with developers on the issue. It is apparent that this approach – which relies very much on persuasion and education rather than compulsion – is already reaping benefits for the city.

8. Internationally, a number of cities including Malmo (Sweden), Linz (Austria), Toronto, Tokyo and Vancouver have been in the vanguard of city authorities introducing mandatory planning policy requirements for green roofs in new development. Many other cities have introduced alternative or complementary measures such as financial incentives to developers for green roof provision and enhanced requirements for greening development implemented through local building regulations and byelaws. Seattle – one of the most forward-looking US authorities – has pioneered a successful planning policy to encourage greener development by assessing and scoring development proposals according to their green credentials. This includes factors such as the area of the site devoted to landscaping and tree planting, inclusion of green roofs and walls, use of climate change resistant plant species, sustainable drainage and other green design features. These are aggregated to produce an overall "Green Factor" score (similar to the Building For Life scoring system). Seattle's policy requires development in identified commercial and residential areas to achieve a minimum Green Factor score. Malmo are adopting a similar Green Factor approach within a new district of the city, requiring developers to make provision for biodiversity by assigning points for various positive biodiversity features in development schemes and choosing to implement 10 out of 35 "Green Points" from a specified list.

Green Roof and Wall Examples in Norwich

9. The largest but perhaps not immediately obvious example of a green roof within Norwich is Castle Green, the 3.8 hectare city centre park which forms the landscaped and planted roof deck to Castle Mall (completed in 1993). The Chapelfield development (2005) also incorporates a number of areas of semi-public open green space along the residential frontage to Chapelfield Road which are constructed on top of the containment structure for the centre's underground car park. The new extension to the Marks and Spencer store nearing completion at Rampant Horse Street incorporates a green wall to its Malthouse Road frontage. The consented but unimplemented Duke's Wharf scheme incorporates a green wall, as does the emerging proposals at Anglia Square.

10. Although the use of green roofs and walls in Norwich is not widespread, smaller examples of green roofs have been accepted on residential extensions and domestic garages and on community buildings: for example on the changing room block adjoining the Carrow Park games area at Kerrison Road. Green roofs are proposed to be included within new development proposals currently under consideration at Town Close Preparatory School (Ipswich Road) and at the Julian Hospital (Bowthorpe Road) and it is expected that major development allocations such as the Deal Ground and Bowthorpe Three Score will offer significant opportunities for the inclusion of green roof technologies.

Development Management Policies DPD – Where we are now

11. The principal design policy within the consultation draft of the DM Policies DPD (issued for public consultation in January) is Policy DM3. This supplements Joint Core Strategy Policy 2 and seeks to promote sustainable, secure and inclusive design by setting out a series of design principles which should be addressed in all new development. In response to representations, it may be appropriate to integrate aspects of present policy DM4 on energy efficiency in design into policy DM3, and merge present clauses (i) [Green Infrastructure] and (j) [Landscaping] into a single clause to give a stronger and more obvious focus to green design issues within the policy.

12. Since the last meeting of the panel, the Norwich Surface Water Management Plan (SWMP) (part of the evidence base for the LDF) has been issued in final draft prior to publication. It includes a number of suggestions on how policies in the draft DM Policies plan – including design policy DM3 and flood risk policy DM5 – might be strengthened to incorporate its recommendations in relation to surface water management in flood vulnerable areas.

13. Any amended policy approach following discussion at the panel would (as noted at the previous meeting), be taken forward alongside other policies and finalised for inclusion in the Regulation 27 version of the plan for further consideration, cabinet approval and public consultation in January 2012, prior to final submission to the Secretary of State.

The policy options

14. The following section sets out three potential options on how green design policy requirements might be strengthened in Policy DM3, both in terms of promoting biodiversity and combating climate change. Examples of possible policy wording for each option are included although it is stressed that these are a basis for discussion and do not constitute a commitment for any particular form of wording to be included in the Regulation 27 version of the plan.

Option 1 – A stronger criteria based policy

15. The first option follows officer's original recommendations and proposes a strengthened criteria-based policy which combines the clauses on green infrastructure and landscaping and incorporates the requirements to achieve energy efficiency in design currently in draft policy DM4. A requirement for development to include design features which promote sustainable drainage and help to ameliorate the urban heat island effect would be included within this new energy efficiency and climate change clause. There would, however, be no mandatory requirement for development to incorporate green roofs or green walls. The policy would instead give general encouragement to proposals which included such features.

16. It should be noted that the emerging legal requirement for drainage permissions under the Floods and Water Management Act will make sustainable drainage a mandatory requirement and therefore the final iteration of this policy (and flood risk policy DM5) may not need to retain an explicit reference to sustainable drainage.

Costs and Benefits

17. Additional short-term costs arising from this option are likely to be minimal, however the adoption of a flexible policy which relies on persuasion and encouragement may lead to greater uncertainty among prospective developers as to precisely what green design measures the policy requires. As in Sheffield, a criteria-based policy could be supported by a detailed SPD and practice guide with technical advice on a number of related green design issues including green roofs. This could be tied in with any other city council strategic documents covering related issues, such as open space. However the constraints on resources within the planning service and the council as a whole may make this difficult to progress. In the longer term the lack of a detailed and specific policy requiring green roofs in new development may delay the beneficial take-up of these options. The key objectives of the Joint Core Strategy to combat climate change, enhance green infrastructure and promote biodiversity might take longer to achieve on the ground in these circumstances. This could call the effectiveness of the policy into question and could undermine its soundness.

18. The benefits of this option can be seen mainly in terms of flexibility which would allow development management officers to negotiate appropriate solutions in individual cases dependent on the scale and complexity of the scheme. This would allow for the viability and practicability of incorporating green roofs and other features to be considered as part of the overall appraisal of development

viability.

19. A policy redrafted along these lines might look like this:

OPTION 1

Policy DM3 – Sample policy wording (new clauses i and j)

i) Green infrastructure and design
All new development will be expected to make appropriate provision for both the protection of existing and the provision of new green infrastructure as an integral part of the overall design which complements and enhances the development. Careful consideration must be given to the choice of hard and soft landscaping and boundary treatments.

Where practicable, provision should be made within developments for new and enhanced green infrastructure and for built and natural features which help to:

a) safeguard and enhance wildlife habitats, habitat links and natural features of geodiversity and biodiversity importance
b) enhance the appearance and character of the built and natural environment of the site and its surroundings;
c) create a biodiversity-rich environment through the use of native plant species; and
d) link new areas of wildlife habitat into the existing network of habitats.

j) Energy efficiency and climate change

All new development will be expected to
a) achieve the highest practicable standards of energy efficiency in design by means of internal and external layout, orientation, massing, materials, insulation, heat recovery, natural ventilation, shading and landscaping.
b) utilise construction techniques and incorporate design features which help to ameliorate the urban heat island effect;
c) promote and facilitate sustainable drainage and mitigate against flood risk from surface water runoff as required by policy DM5.

A Supplementary Planning Document will provide further detail on implementation of this policy.

Option 2 – Mandatory enhanced green design requirements for development in specified areas

20. The second option would be to introduce a mandatory requirement for enhanced green design for particular categories or scales of new development in specified priority areas. These areas would include

    a) the critical drainage areas identified within the Surface Water Management Plan, where there is a significantly higher risk of flooding from surface water runoff.
    b) the river valleys and major areas of green space (Green Infrastructure

Priority Areas or GIPAs) identified in the Green Infrastructure Strategy;

c) the identified "Norwich Urban Green Grid" within the Strategy, comprising a series of green corridors which link key areas of open space within the city and connect them with the river valleys and the open countryside beyond. These might be usefully described as "Green Opportunity Corridors"; A map showing the corridors will be available at the meeting.

21. It is envisaged under this option that green walls and roofs would be required for non-residential and residential developments (excluding change of use) within the critical drainage areas and strongly encouraged within green opportunity corridors..Other design features with particular benefit to wildlife and ecology would be required in these areas under the provisions of clauses c) and d) rather than simply encouraged as in Option 1. Development in residential gardens would be restricted in the critical drainage areas and a flood risk assessment would be required. A caveat would need to be included to allow for exceptional circumstances where it was not practicable or feasible for developers to make such provision or where the inclusion of such features would affect development viability such as to compromise wider regeneration objectives.

22. The benefits of green roofs include:

- Reduction of the urban heat island effect through more effective control of heat absorption and heat loss from buildings.

- Biodiversity – providing a habitat for a variety of wildlife and plant species.

- Water – significantly reducing surface water runoff volumes and rates of water leaving roofs, protecting against intense rainfall events. Green roofs can also improve water quality by filtering pollutants and enabling rainwater harvesting.

- Thermal Performance - Green roofs have been shown to reduce the need for air conditioning in summer and can provide a degree of insulation in winter.

- Sound Insulation – the combination of soil, plants and trapped layers of air within green roof systems can act as a noise insulation barrier.

- Enhanced protection of waterproofing - Green roofs have been shown to double if not triple the life of waterproofing membranes beneath the green roof

- Air Quality – airborne particles and pollutants are filtered from the atmosphere by the substrates and vegetation on a green roof.

- Amenity Space – in dense urban environments there is often a lack of green space for residents. Roof gardens and rooftop parks provide important green spaces to improve the quality of life for urban residents.

- Urban Agriculture - roofs, where strong enough, provide a space for urban food growing. Although many large flat roofs may not have the loading capabilities to hold food growing some roofs will, and the many balconies in

urban areas are ideal.

Costs and Benefits

23. It is reasonable to expect that a policy requiring essentially minor modifications to the design and construction of buildings to incorporate wildlife friendly features would not add significantly to the overall cost of development. However, as noted in discussion at the previous meeting, officers consider that a requirement for specific wildlife friendly features such as nesting boxes and swift bricks would not be appropriate to include in a policy at this level but could be included in relevant SPD.

24. Despite their perceived benefits a planning policy which incorporated a *mandatory* requirement for green roofs would add to the cost of all qualifying development to a much greater extent. Green roofs can range from relatively inexpensive “extensive” roofs involving a shallow layer of growing medium installed to a flat or shallow pitched roof suitable for mosses, grasses and herbs, to the complex multilayered drained deck structures which are essentially rooftop gardens; large enough to accommodate trees and shrubs and areas for informal recreation (“intensive” green roofs). Such roofs are increasingly common in major cities in the US and elsewhere characterised by high density development where private and semi-public open space is at a premium. “Semi-intensive” green roofs represent a middle ground between these two options. Intensive green roofs are likely to be cost-effective only on larger development schemes in Norwich.

25. Should members wish to progress a mandatory policy of this kind, it would be necessary to specify in some detail (through SPD) which green roof options and other forms of green design enhancements for biodiversity could be accepted for particular scales and forms of development. It would also be necessary for officers to balance the benefits of green roofs (in terms of climate change mitigation and biodiversity) against other considerations such as the need to protect the character and appearance of listed buildings, conservation areas and other heritage assets.

Does evidence justify it?

26. Norwich is one of the first areas nationally to benefit from a Surface Water Management Plan (SWMP) being undertaken to identify areas at risk from surface water flooding and to propose measures for reducing that risk. As such, , the SWMP is a key part of the evidence base for the Local Development Framework. It identifies those areas of Norwich most prone to surface water flooding as Critical Drainage Areas (CDAs) and gives particularly strong support to green roofs as a means of combating surface water runoff and managing the impacts of intense rainfall events, tied in with wider green infrastructure initiatives. It is intended that the CDAs would be shown on the proposals map. The SWMP states in relation to policy DM3 that:

> *Rainwater harvesting and decentralised stormwater management practices, such as green roofs, trees, rain gardens, and permeable pavements that can capture and infiltrate rain where it falls; reduce stormwater runoff and improve the health of surrounding watercourses. Green Infrastructure if appropriately designed can also facilitate surface water management. Such*

measures should be encouraged as part of all new development proposals, not just those in Surface Water Management Areas or Critical Drainage Areas.

27. There are two CDAs in Norwich which correspond with networks of former streams running to the north and west of the City centre

    a) An area running from the Outer Ring Road at Oak Lane and Catton Grove Road to the north end of Magdalen Street (Catton Grove and Sewell CDA) and

    b) An area between Dereham Road and Newmarket Road taking in much of Unthank Road and Earlham Road between the Inner and outer ring road (Nelson and Town Close CDA)

Maps showing these areas will be available at the meeting.

28. There is conclusive technical evidence to show that the higher risk of surface water flooding in these areas must be alleviated by increasing flood capacity wherever practicable by retrofitting SuDS and increasing areas of permeable surfacing to promote improved drainage. As development opportunities will be fairly limited in these already highly developed CDAs, the retrofitting of SuDs will generally be achieved by measures such as increasing the water storage capacity of existing open spaces and retrofitting SuDs to existing development. Nevertheless, requiring new development to include green roofs and other SuDS measures where practicable would be a further means of addressing these issues. A green roofs policy to reduce run-off in critical drainage areas is therefore strongly justified.

29. In relation to biodiversity, the evidence is not as straightforward. The Green Infrastructure Strategy has identified Green Infrastructure Protection Areas as detailed above (in Norwich, broadly the river valleys, Eaton Park and Mousehold Heath), together with a series of wildlife and biodiversity corridors connecting these and other key open spaces within the built-up area. The identification of these key “green opportunity corridors” is a prerequisite to ensuring that green infrastructure can be delivered and biodiversity enhancements provided in those areas of the city where they can be of most value. In effect this approach mirrors the “green links” concept in the present local plan, albeit that the links shown in the Green Infrastructure Strategy are more generalised and define movement patterns for wildlife and ecology rather than necessarily coinciding with publicly accessible roads, footpaths and cycleways.

30. The green infrastructure protection areas are for the most part already identified as open space and would be largely safeguarded from significant development by open space protection policy DM8 and other policies of the DM Policies Plan. For the green opportunity corridors, this is not always the case. The routes indicated in the Green Infrastructure Strategy would also overlay areas of private land and domestic gardens and would take in some parts of the city centre which are prioritised for retail- and office employment-led regeneration. This being so, it would be necessary to weigh the benefits of green roofs and widespread biodiversity enhancements in new development with the plan’s wider objectives for regeneration, retail expansion and

employment growth. Green roofs might be extremely difficult to negotiate and deliver where development viability is marginal, and to insist on substantial green design enhancements in major schemes might impact on viability to a degree that developers were unwilling or unable to deliver other critical planning obligation requirements within a scheme – such as affordable housing, for example.

31. The chief drawback of basing a policy requirement on such notional green corridors is that they are shown indicatively. A local development management policy at this level of detail might have to define such corridors more precisely by reference to land and property boundaries. In this scenario green design requirements could end up being stricter for one property than for its immediate neighbour, without an especially obvious justification why. In order to be found sound, a policy of this nature would need to be supported by strong evidence that the boundaries of the green opportunity corridors were the right ones. The Green Infrastructure Study provides some of this evidence but it may be that it could only be refined by the kind of comprehensive local biodiversity and species audit sought by some respondents..

32. Unfortunately such an audit could not be undertaken in-house within current budgets and staff resource constraints. A survey capturing detailed information on the distribution of species would presumably need to be carried out over a whole year in order to allow for seasonal variations (e.g. the differing incidence of migratory wildlife from season to season), and although desirable, would not be practical within the preparation timescale of this plan. Even if selective evidence gathering could be carried out in the community largely on a voluntary basis it would be necessary for officers to manage, quality control check and collate the survey evidence within a very short timescale in order to be able to submit it and have it considered at the examination of the DM Policies DPD in the early part of next year. It is doubtful whether such a survey could be commissioned and completed in time to accompany formal consultation on the Regulation 27 version of the plan in January 2012 (which it would have to be in order for the Inspector to consider it as part of the evidence base).

33. The absence of comprehensive evidence of this kind would not necessarily prevent the council from seeking to adopt such a policy – the Joint Core Strategy signals a clear obligation to safeguard and strengthen green infrastructure and protect and enhance biodiversity and ecological networks and avoid their fragmentation. These networks have to be identified in some form within Norwich if a policy is to have any useful geographical application. The Green Infrastructure Strategy evidence supports the policy approach in general by illustrating the “green grid” but does not define the green opportunity corridors precisely, which might lead to practical difficulties in implementing a mandatory policy for green roofs close to corridor boundaries. In critical drainage areas (as noted) the justification for green roofs in particular is stronger because of identifiable surface water flood risk. However to only require green roofs and biodiversity enhancements in those areas would leave the majority of the city without a strong policy in this area.

34. Should this option be pursued, a redrafted policy could look like this:

OPTION 2

Policy DM3 – Sample policy wording (new clauses i and j)

i) Green infrastructure and design

All new development will be expected to make appropriate provision for both the protection of existing and the provision of new green infrastructure as an integral part of the overall design which complements and enhances the development. Careful consideration must be given to the choice of hard and soft landscaping and boundary treatments.

Within the green infrastructure priority areas and green opportunity corridors identified on the proposals map, new development [qualify with threshold(s)] will be required to include new and enhanced green infrastructure and built and natural features which:

a) safeguard and enhance wildlife habitats, habitat links and natural features of geodiversity and biodiversity importance
b) enhance the appearance and character of the built and natural environment of the site and its surroundings;
c) create a biodiversity-rich environment through the use of native plant species; and
d) link new areas of wildlife habitat into the existing network of habitats

The use of green and brown roofs and walls will be encouraged on all suitable development sites within these areas and required for developments involving the construction of new buildings [within specified size thresholds] unless the developer can provide exceptional justification showing that their use would not be practicable or feasible within the constraints or configuration of the site [or would compromise wider regeneration objectives].

In all other areas of the city, development proposals which make provision for green infrastructure and utilise green design principles in accordance with the above criteria will be encouraged and accepted wherever they are reasonably practicable and are not in conflict with conservation of the historic environment. .

j) Energy efficiency and climate change

All new development will be expected to
a) achieve the highest practicable standards of energy efficiency in design by means of internal and external layout, orientation, massing, materials, insulation, heat recovery, natural ventilation, shading and landscaping.
b) utilise construction techniques and incorporate design features which help to ameliorate the urban heat island effect;
c) promote and facilitate sustainable drainage and mitigate against flood risk as required by policy DM5.

Within the critical drainage areas identified on the proposals map, development will be required be accompanied by a flood risk assessment. Development must, as appropriate, implement measures to manage flood risk to the development itself and to others, maximising the use of permeable materials to increase infiltration capacity and making use of green roofs and walls wherever reasonably

practicable. Green roofs and/or walls will be required for developments unless the developer can provide exceptional justification showing that their use would not be practicable or feasible within the constraints or configuration of the site [or would compromise wider regeneration objectives].
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Option 3 – A stronger mandatory policy for green roofs and biodiversity enhancements across the city

35. The third option would be to introduce mandatory requirements for green roofs on significant non residential (and potentially some residential) development. Other green design enhancements to promote biodiversity would be required within most development proposals involving new buildings or extensions.

36. The benefits of such a policy approach would be that developers would have certainty as to what was required (unlike Option 1), at least some biodiversity enhancements would be guaranteed in a majority of development in Norwich and significant green design improvements could be delivered on major schemes. The disadvantage of a universal requirement would be the likely resistance from developers on cost grounds, charges of inflexibility (in a planning climate where more flexible policies and less prescription is being encouraged) and a significant risk that such a policy would be found unsound at examination through lack of evidence to justify it outside the priority areas indicated in Option 2.

37. Much of the burden to deliver smaller scale improvements through such a policy would rest with individual development management officers through negotiation with applicants: even with a strict policy in place the time taken to negotiate and determine applications could increase and there would be a greater likelihood of successful appeals if proposals were refused through their lack of wildlife and biodiversity-friendly features or green design credentials.

Green Design Credits – would they work?

38. One option which has been suggested to help disseminate greener design standards throughout the city is the “green design credit” idea favoured by Seattle and Malmo. Under this system, major new development proposals would be assigned a score according to the number of green design enhancements (such as green roofs or sustainable drainage) or wildlife/biodiversity friendly features they included. To be acceptable, development would have to achieve a minimum score (or, as in Malmo’s pilot project, to incorporate a minimum number of chosen features from a prescribed list). This kind of checklist approach is already fairly well established in such areas as Code for Sustainable Homes and Building For Life.

39. Though superficially attractive, this idea would have serious practical difficulties in implementation for Norwich.

    - The planning system is already somewhat burdened with administrative process (much of it a statutory requirement and mandatory), involving systematic checking and monitoring. This occurs both at planning application stage (the validation checklist) and post-completion for the statutory annual monitoring report (systematic recording of development

completions, calculation of five-year housing land supply, Building For Life assessments). The addition of a further layer of “green auditing” for planning applications would add further to the workload of planning officers at a time when development management and technical staff have an already challenging caseload and further cost savings are necessary to balance budgets.

- Many of the more minor green design enhancements that might be beneficial in development would, typically, not be included in the main planning application, but would be the subject of subsequent applications to agree reserved matters or discharge conditions. If all these features had to be incorporated in the principal application and agreed “up-front” for a scheme to achieve its required green design credit score, this would inevitably add to the complexity of applications and the time taken to process them.

- The ongoing advice from central government is to streamline and speed up the planning process and reduce what is claimed as needless and wasteful bureaucracy in the system. A compulsory green design audit for planning applications – however commendable – is likely to be perceived as an unnecessary and burdensome obligation and would inevitably meet with strong resistance from developers.

- To undertake Building for Life assessments planning staff are required to be formally trained and certified with the relevant specialist design skills. It is suggested that a green audit process for planning applications would be no different - for the process to be seen as legitimate, officers would need to show that they had the necessary expertise to properly assess and score proposals for their green design credentials. In the current climate it would be difficult to either resource the additional training needed or identify staff with the capacity to undertake it.

40. For the reasons given above it is suggested that a mandatory policy for green design in all areas of the city could not be introduced without significant risk to the soundness of the plan and practical problems of implementation.

OPTION 3

Policy DM3 – Suggested policy wording (new clauses i and j)

i) Green infrastructure and design
All new development will be required to make appropriate provision for both the protection of existing and the provision of new green infrastructure as an integral part of the overall design which complements and enhances the development. Careful consideration must be given to the choice of hard and soft landscaping and boundary treatments.

Within the green infrastructure priority areas and green opportunity corridors identified on the proposals map, all new development will be required to include new and enhanced green infrastructure and built and natural features which:

a) safeguard and enhance wildlife habitats, habitat links and natural features of geodiversity and biodiversity importance

b) enhance the appearance and character of the built and natural environment of the site and its surroundings;
c) create a biodiversity-rich environment through the use of native plant species; and
d) link new areas of wildlife habitat into the existing network of habitats

Green and brown roofs and/or walls will be required on all developments involving the construction of new buildings [within specified size thresholds] unless the developer can provide exceptional justification showing that their use would not be practicable or feasible within the constraints or configuration of the site [or would compromise wider regeneration objectives].

j) Energy efficiency and climate change

All new development will be expected to
a) achieve the highest practicable standards of energy efficiency in design by means of internal and external layout, orientation, massing, materials, insulation, heat recovery, natural ventilation, shading and landscaping.
b) utilise construction techniques and incorporate design features which help to ameliorate the urban heat island effect;
c) promote and facilitate sustainable drainage and mitigate against flood risk as required by policy DM5.

Within the critical drainage areas identified on the proposals map, development will be required to achieve an exceptional standard of flood resilience, maximising the use of permeable materials to increase infiltration capacity and making use of green and brown roofs and walls wherever reasonably practicable. Where planning permission is required, development in residential gardens [above specified size threshold] leading to the loss of green space will not normally be accepted.
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Summary
Option 1 – This option consolidates and strengthens the existing draft policy. Whilst it allows for flexibility, it would relies on persuasion on the part of DM officers, which would encourage but would not guarantee the take up of green roofs or green design features. A policy along these lines would be more palatable to developers and would be likely to generate fewer objections at the Regulation 27 stage, thus is potentially more likely to be found sound at examination. It would need to be supported by detailed SPD and good practice advice to succeed. Sheffield have opted for this approach after considering and rejecting mandatory green roof policy options as unworkable.

Option 2 – This option requires green roofs and related measures for two reasons – to reduce flood risk and to promote biodiversity. There is a strong evidence based justification from SWMP for a policy requiring green roofs to alleviate flood risk in CDAs. The justification from the Green Infrastructure Strategy for green roofs and other wildlife and biodiversity enhancements in GIPAs, as well as a restrictive policy clause relating to garden development, is perhaps less clear. This results form the fact that the green opportunity corridors are necessarily notional and may need to be defined in greater detail through further evidence studies. A comprehensive biodiversity audit would enable refinement of boundaries, but there

is not the capacity or the resources to organise such a study in the time available before submission. However, it may be possible to draft the policy to enable such detail to be introduced through SPD at a later date.

Option 3 – This option creates a comprehensive requirement for green design enhancements throughout the city. Whilst this approach may seem to be attractive, it may prove very difficult to implement and is at high risk of being found unsound for lack of evidence by an Inspector. A green design credit system has no basis in existing support nationally in policy or guidance (unlike Building for Life or the CfSH). Hard pressed DM officers would be likely to find the extra work load required very challenging and there is likely to be strong opposition from the developer lobby. Such an approach would run counter to the current government's stated aim to cut bureaucracy and streamline the planning process. Finally, and perhaps most importantly, there would be a need to have the staff with the expertise to undertake such audits. This is likely to either require extensive training of existing staff, or employing extra staff. The Inspectors at the Joint Core Strategy accepted the requirement for Building for Life assessments, a nationally established standard for urban design, after it was made clear that existing staff were qualified to undertake the required assessments.

Appendix 1 Current draft DM3 policy

Policy DM3 – Design principles
Development must address the following design principles, where relevant.

a) Gateways
Development at or near the main gateways to the city, as defined on the proposals map, will only be permitted where they achieve a high standard of design, are appropriate to the location and respect the context of the gateway. New landmark buildings may be appropriate where they help define the entrance.

b) Views
The design of new buildings must pay careful attention to the need to protect and enhance the significant views identified in appendix 7 and those identified in conservation area appraisals.

c) Local distinctiveness and character
Proposals should respect and enhance the character and local distinctiveness of the area. The design of all development must have regard to the character of the surrounding neighbourhood in terms of the historic context of the site, historic street patterns, plot boundaries, block sizes, height and materials.

d) Layout and siting
The layout of a development should make efficient use of land, making best use of its topography and have a positive impact in terms of its appearance and the way it is used. Consideration should be given to orientation to improve energy efficiency and maximise solar gain. Proposals should provide a permeable and legible network of routes and spaces through the development which take account of public accessibility and link to existing routes and spaces. The public realm should be designed so it is attractive, overlooked and safe.
Well designed and defined private, semi-private and public open space should be incorporated for all development, as appropriate to the area. This must include sufficient space for bin and cycle storage in accordance with policies DM2 and DM31.

e) Density
The density of development should achieve a density in keeping with the existing character and function of the areas, taking account of heritage assets where appropriate. The density of residential development should accord with policy DM12.

f) Height, massing, scale and form
Developers should demonstrate that appropriate attention has been given to the height, scale, massing and form of new development. Significant new developments will be required to demonstrate in their design these relationships with their surroundings through assessments and analysis of visual impact and relationships from all main viewpoints.

g) Design of roads and streets
Roads and streets should be designed so they are an integral part of the development and relate to the surrounding buildings. Streets, routes and spaces are part of the public realm and should enhance the quality of the environment. The provision of car parking should not dominate streets. The roads, footways and pedestrian and cycle ways should be constructed from a palette of materials chosen to reflect the special character of the city.

h) Materials and details

Proposals for new development will be required to demonstrate that appropriate consideration has been given to the selection and choice of materials and decorative colour (including hard and soft landscape materials). In choosing materials developers should have regard to prevailing materials of the area. Sustainable and re-used materials should be used wherever possible.

i) Green infrastructure
Where practicable, provision should be made within developments for:
a) the safeguarding and enhancement of natural features of importance and wildlife habitats; and
b) biodiversity enhancements to improve and/or extend habitat links.

j) Landscaping
Landscaping of new development must be an integral part of the overall design which complements and enhances the development. Careful consideration must be given to hard and soft landscaping and boundary treatments. Landscaping schemes should:
a) enhance the appearance and character of the built and natural environment of the site and its surroundings;
b) create a biodiversity-rich environment through the use of native plant species wherever practicable;
c) link new areas of wildlife habitat into the existing network of habitats where possible; and
d) promote the use of sustainable drainage systems.