Title: Biodiversity net gain **IA No:** **RPC Reference No:** RPC-4277(1)-DEFRA-EA **Lead department or agency:** Defra **Other departments or agencies:** Natural England	**Impact Assessment (IA)** **Date:** 21/11/2018 **Stage:** Consultation **Source of intervention:** Domestic **Type of measure:** Primary legislation **Contact for enquiries:**

Summary: Intervention and Options

RPC Opinion: GREEN

Cost of Preferred (or more likely) Option (2016 prices, 2017 present value)				
Total Net Present Value	**Business Net Present Value**	**Net cost to business per year** (EANDCB in 2016 prices)	**One-In, Three-Out**	**Business Impact Target Status**
£-520.4m	£-520.4m (£-52m indirect)	£60.5m (£6m indirect)	In scope	Qualifying provision

What is the problem under consideration? Why is government intervention necessary?

The current planning system does not provide a level-playing field for developers to deliver 'net gain', defined as an overall increase in habitat area or quality following a new development. While there is some adoption of net gain approaches, it is not sufficient to deliver net gain at a national level. This leads to overall loss and damage of habitat, biodiversity and other environmental goods. Current government ambitions on house building and infrastructure is likely to accelerate land use change, with implications for habitat and the wider environment. Placing the environment at the heart of planning and development will support Defra's 25 year environment plan ambitions and the wider government agenda.

What are the policy objectives and the intended effects?

The primary aim is to secure a measureable improvement in habitat for biodiversity whilst streamlining development processes. The objectives which have guided policy development to date are that net gain: (1) delivers habitat creation, meeting the government's ambition to ambition to leave the environment in a better state than it inherited it for the next generation; (2) is simple, streamlined and certain for developers, easy to understand and will not prevent, delay or reduce housebuilding; and (3) is of clear benefit to people and local communities.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

Option 0 – Business as usual / voluntary approach (baseline) - existing voluntary approaches continue, in line with the revised National Planning Policy Framework.

Option 2 – Mandatory tariff with biodiversity metric (recommended) - this approach mandates net gain through the use of a specified biodiversity metric to development in scope of the Town and Country Planning Act, and adds a tariff component for compensation that cannot be delivered on the site or locally.

A number of options were considered at the long list stage (please see **Section 4** for details). However, we have not taken forward options that: (1) enhance existing voluntary approaches, as this does not support the wider delivery of net gain or provide a level playing field; (2) add burdensome regulation(s) that would not easily be mitigated by streamlining processes elsewhere, and could potentially add new and unfamiliar processes; and (3) are not compatible with or undermine the mitigation hierarchy.

Will the policy be reviewed? It will/will not be reviewed. **If applicable, set review date:** Month/Year

Does implementation go beyond minimum EU requirements?		N/A		
Are any of these organisations in scope?	**Micro** Yes	**Small** Yes	**Medium** Yes	**Large** Yes
What is the CO_2 equivalent change in greenhouse gas emissions? (Million tonnes CO_2 equivalent)		**Traded:** N/A	**Non-traded:** N/A	

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible SELECT SIGNATORY: ..... Date: .....

Summary: Analysis & Evidence

Policy Option 2

Description: Mandatory tariff with biodiversity metric (recommended)

FULL ECONOMIC ASSESSMENT

Price Base Year 2017	PV Base Year 2018	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: -1,102.8	**High:** -214.6	**Best Estimate:** -549.2

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	Optional		£24.9m	**£214.6m**
High	Optional		£128.1m	**£1,102.8m**
Best Estimate			£63.8m	**£549.2m**

Description and scale of key monetised costs by 'main affected groups'

Developers: delivery of on-site and off-site habitat creation as part of their developments. The estimated direct costs is £63.8m per year (2017 prices). However, this falls to £6.4m after applying 90% pass-through of costs to land prices. For the purposes of this analysis, this is considered an indirect effect, and is not presented in the headline figures which captures direct impacts only.

Other key non-monetised costs by 'main affected groups'

Central and local government: transition and ongoing costs of policy delivery to account for familiarisation, training, monitoring and enforcement. There is likely to be an impact on Section 106 contributions, which is currently used to deliver net gain and other environmental improvements in a discretionary manner.

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	Optional		Optional	**Optional**
High	Optional		Optional	**Optional**
Best Estimate				

Description and scale of key monetised benefits by 'main affected groups'

No benefits have been monetised at this stage. However, the Natural Capital Committee has demonstrated that benefit-cost ratios of natural capital investments are competitive (and sometimes exceed) other capital investments such as road and rail.

Other key non-monetised benefits by 'main affected groups'

Local and national habitat creation will deliver a range of natural capital benefits, contributing to delivering a clear benefit to people and local communities. Developers and local planning authorities (LPAs) will benefit from certainty and a level playing field, resulting from a standardised approach to delivering biodiversity net gain across LPAs. The streamlining of the process could potentially result in savings for developers.

Key assumptions/sensitivities/risks — **Discount rate (%)** 3.5

Estimated costs are based on the housing sector only, although other developments (e.g. commercial, industrial) are within scope of the policy. Secondly, our baseline assumption is that 29% of housing development already delivers net gain. We also assume that off-site habitat creation is more costly compared to on-site due to land purchase. Finally, we assume that land prices absorb 90% of costs imposed on developers. Please see **Section 6** and the **Annex** for more details.

BUSINESS ASSESSMENT (Option 2)

Direct impact on business (Equivalent Annual) £m:			Score for Business Impact Target (qualifying provisions only)
Costs:	**Benefits:**	**Net:**	

1 Problem under consideration

1.1 The strategic context: 25 year environment plan

The 25 Year Environment Plan[1] (25YEP) sets out how the government will achieve its ambition to leave the environment in a better state than it inherited it for the next generation.
As we leave the EU, we have a once-in-a-generation chance to change our approach to managing our land so that we secure and enhance the benefits of the environment far into the future. The 25YEP puts forward new approaches to using and managing land sustainably, that recognises good practice that build up and bolster natural and heritage assets. It will account for the negative effects of various land uses and activities, and require a balance of incentives and regulations. This will influence decisions so that we use land in a way that supports cost-effective sustainable growth.

The 25YEP recognises the Government's ambitions for a major increase in housebuilding (300,000 new homes per year by the middle of next decade), as set out in the Housing White Paper[2]. This is in addition to significant infrastructure investment in transport, energy and utilities, outlined in the National Infrastructure and Construction Pipeline[3]. While these have significant importance for people's lives and economic growth, this represents a significant land use change and will directly impact the environment. The aim is to put the environment at the heart of planning and development to create better places for people to live and work, whilst supporting the wider government agenda.

In addition, the 25YEP sets out commitments on protecting and recovering nature, given the significant habitat loss over the last 50 years. This is driven in large part by historic land use change and pollution. In order to help leave the environment in a better condition for the next generation, we need to restore and create areas of wetland, woodland, grassland and coastal habitat, to provide the greatest opportunity for wildlife to flourish and to promote the wider economic and social benefits that healthy habitats offer. The 25YEP sets out commitments for publishing a new strategy for nature (building on Biodiversity 2020[4] commitments) and developing a Nature Recovery Network.

Finally, the 25YEP recognises that there is unequal access to nature and green spaces, and sets out commitments to better connect people with the environment to improve health and wellbeing.

1.2 Trends in development and land use change

With a land surface of 13 million hectares, England is the largest country of the United Kingdom (53.5% of the UK land area). It is also home to more than 55 million people, making it one of the world's most densely populated countries. Uplands cover approximately 17% of England, improved agricultural land comprises 52%, woodland 10%, and urban areas 11%[5].

[1] https://www.gov.uk/government/publications/25-year-environment-plan

[2] https://www.gov.uk/government/collections/housing-white-paper

[3] https://www.gov.uk/government/publications/national-infrastructure-and-construction-pipeline-2017

[4] https://www.gov.uk/government/publications/biodiversity-2020-a-strategy-for-england-s-wildlife-and-ecosystem-services

[5] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/673492/25-year-environment-plan-annex1.pdf. All data in this paragraph is taken from the 25YEP evidence report. Please see Section 2.6 on land, soil and geological assets.

Development for housing, commercial, industry, and infrastructure makes a significant contribution to land use change, and to the loss of natural habitats that reduces biodiversity. The State of Nature Partnership rates development as the 6th greatest pressure on biodiversity, with significant losses in biodiversity, including the extent and quality of habitat, over the past 50 years[6,7]. Furthermore, habitat loss often occurs most rapidly near to urban populations, where natural capital[8] is most valuable.

Recent trends in land use change and house building (i.e. net additional dwellings) in England are shown in **Tables 1, 2, 3** and **4**.

Table 1: Average annual land use change in England between 2013 and 2016 (hectares)

	Land use changing to:	
Land use changing from:	Developed Uses (ha)	Non-Developed Uses (ha)
Developed Uses (ha)	13,800	4,600
Non-Developed Uses (ha)	16,800	129,000

All figures are rounded.

Definitions

- **Developed land use:** This includes, but not limited to: residential, transport, utilities, industry, commerce, defence and community buildings.
- **Non-developed land use:** This includes: agriculture land and buildings, forestry and woodland, rough grassland and bracken, natural and semi-natural land, water, outdoor recreation, vacant land not previously developed, residential gardens, and undeveloped land in urban areas.

Data source

MHCLG, Live tables on land use change statistics. https://www.gov.uk/government/statistical-data-sets/live-tables-on-land-use-change-statistics

Table 2: Annual land use change to developed uses in England (hectares)

Year	**Residential** (ha)	**Industry and Commerce** (ha)	**Minerals and Landfill** (ha)	**Transport and utilities** (ha)	**Other** (ha)	**Total**
2013-14	3,600	7,100	1,400	2,400	12,400	**26,900**
2014-15	4,800	8,300	1,100	2,800	19,100	**36,200**
2015-16	4,600	5,800	700	3,700	14,000	**28,800**
Annual average	4,300	7,000	1,100	3,000	15,200	**30,600**

All figures are rounded, so sub-totals may not equate to stated totals and averages. See **Table 1** for sources and definitions.

Table 3: Land use change from non-developed to developed uses in England (hectares)

Year	**Residential** (ha)	**Non-residential** (ha)	**Total** (ha)
2013-14	2,100	11,400	**13,500**
2014-15	3,100	18,400	**21,400**
2015-16	3,300	12,100	**15,400**
Annual average	2,800	14,000	**16,800**

All figures are rounded, so sub-totals may not equate to stated totals and averages. See **Table 1** for sources and definitions.

[6] https://www.rspb.org.uk/globalassets/downloads/documents/conservation-projects/state-of-nature/state-of-nature-uk-report-2016.pdf

[7] http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx. See Chapter 4 on biodiversity in the context of ecosystem services.

[8] https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/uknaturalcapital/ecosystemserviceaccounts1997to2015. Natural capital refers to the physical natural resources and the benefits that these resources provide through ecosystem services. Ecosystems provide many services which contribute to human well-being, such as food, water, air filtration and recreation.

Table 4: Net additional dwellings in England

Year	Per Local Authority	All Local Authorities
2013	385	124,700
2014	420	136,600
2015	525	170,700
2016	580	189,600
2017	665	217,300
Annual Average	515	167,800
% change over whole period (2013-17)		74.3%
% annual change (2013-17)		14.9%

All figures are rounded. Reflects net additional dwellings for all 326 local authority districts in England. The range of net dwellings delivered varies considerably across local authorities and over the period analysed.

Data source

MHCLG, Live tables on housing supply: net additional dwellings.
https://www.gov.uk/government/statistical-data-sets/live-tables-on-net-supply-of-housing

Recent trends show that:

- Although average annual land use change is around 164,000 ha (equivalent to the size of Greater London[9]), nearly 80% of this change is within non-developed uses;
- Over three times more non-developed land is developed annually on average (16,800 ha) compared to vice versa (4,600 ha);
- 4,300 ha of land is developed for housing annually, an area equivalent to the size of Luton[10]. Around 65% takes place on previously undeveloped land;
- Average annual land use change to developed uses is 30,600ha, an area equivalent to the size of Milton Keynes[11]. Around 55% occurs on previously non-developed land; and
- House building has increased significantly (14.9% per year) in the last 5 years, and is set to further increase in line with government ambitions.

Provisional analysis of mapping data shows that between 2007 and 2015, the majority of individual habitat loss by urban development tends to be at the micro level (i.e. at 100 ha square level), but has occurred in a very large number of areas across England[12]. In other words, individual cases of habitat loss are small in scale but many in number.

Considering recent trends, and in light of the strategic context (300,000 new homes per year by the middle of next decade), pressure on land, habitat and biodiversity is likely to increase. This is in addition to the 25YEP ambition to develop a Nature Recovery Network with 500,000 ha of additional wildlife habitat[13,14].

[9] https://ons.maps.arcgis.com/home/item.html?id=a79de233ad254a6d9f76298e666abb2b

[10] https://ons.maps.arcgis.com/home/item.html?id=a79de233ad254a6d9f76298e666abb2b

[11] https://ons.maps.arcgis.com/home/item.html?id=a79de233ad254a6d9f76298e666abb2b

[12] https://www.ceh.ac.uk/services/information-products. Analysis of Land Cover Map data from 2007 and 2015, available from the Centre for Ecology & Hydrology.

[13] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf

[14] https://www.nationaltrust.org.uk/documents/assessing-the-costs-of-environmental-land-management-in-the-uk-final-report-dec-2017.pdf. A joint report by the Natural Trust, RSPB and The Wildlife Trusts estimate the annual need for habitat creation is around 27,000 ha.

1.3 Net gain and development

The National Planning Policy Framework[15] (NPPF) provides protections for important sites and wildlife (e.g. SSSIs, species licensing), and makes provisions for the delivery of biodiversity net gain. The government recently published a revised version of the NPPF, which strengthens policy wording on biodiversity net gain[16,17] as well as incorporating policy proposals from the 'Housing White Paper' and 'Planning for the right homes in the right places'[18].

1.3.1 What is biodiversity net gain?

Biodiversity net gain in development is a means of ensuring that, for a given site, there is an overall increase in habitat area or quality following a new development. This is often assessed by using a metric, such as a Defra biodiversity metric[19] which uses habitats as a proxy for biodiversity. It was designed to support the offsetting pilots[20], which ran between 2012 and 2014.

The metric, and its derivatives, use three criteria to score a given area of habitat:

- **Distinctiveness:** whether the habitat is of high (e.g. native broadleaf woodland) or low (e.g. improved/amenity grassland) value to wildlife;
- **Condition:** whether the habitat is a good example of its type, for example whether a woodland is full of invasive species or is overcrowded or whether it is in peak condition (which might mean it can better support rare species); and
- **Area:** simply the area, generally in hectares, that the habitat occupies.

To achieve net gain, a development must have a higher biodiversity unit score after completion, than the baseline score before development. An illustrative example of how this works is set out in **Section 4.2.2**.

Net gain approaches adhere to the 'mitigation hierarchy', which operates under the following principles set out in the NPPF[21]:

- **Avoidance:** can significant harm to wildlife species and habitats be avoided for example through locating on an alternative site with less harmful impacts?
- **Mitigation:** where significant harm cannot be wholly or partially avoided, can it be minimised by design or by the use of effective mitigation measures that can be secured by, for example, conditions or planning obligations?

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[15] https://www.gov.uk/government/publications/national-planning-policy-framework--2

[16] https://www.gov.uk/government/publications/national-planning-policy-framework--2. Key references in paragraph 8, 32, 170(d), 174(b), and 175(a).

[17] http://webarchive.nationalarchives.gov.uk/20180608214848/https://www.gov.uk/guidance/national-planning-policy-framework/11-conserving-and-enhancing-the-natural-environment. The previous NPPF refers to biodiversity net gain in paragraph 109: "*...minimising impacts on biodiversity and providing net gains in biodiversity where possible*".

[18] https://www.gov.uk/government/consultations/planning-for-the-right-homes-in-the-right-places-consultation-proposals

[19] https://www.gov.uk/government/publications/technical-paper-the-metric-for-the-biodiversity-offsetting-pilot-in-england

[20] https://www.gov.uk/government/collections/biodiversity-offsetting

[21] https://www.gov.uk/government/publications/national-planning-policy-framework--2 Please see paragraph 175(a) which states: *"if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused".*

- **Compensation:** where, despite whatever mitigation would be effective, there would still be significant residual harm, as a last resort, can this be properly compensated for by measures to provide for an equivalent value of biodiversity?

1.3.2 Current policy and practice

Net gain is implemented in various ways by local planning authorities[22] (LPAs). In most cases net gains are sought in a discretionary manner, and according to LPA negotiation, and usually secured through Section 106[23] (S106) agreements. This can create uncertainty for developers, who are unable to accurately plan to meet requirements, and who can face requests for additional surveys or modifications later in the process due to their unfamiliarity with local planning approaches. This sometimes becomes a protracted negotiation, with staggered design changes and reporting requirements throughout the scheme's delivery.

To provide consistency, a small number of LPAs, including Warwickshire and Lichfield, have introduced mandatory net gain policies. Other public and private bodies have also created voluntary policies.

1.3.2.1 Public infrastructure bodies

Network Rail[24] have implemented a net positive biodiversity scheme for their major infrastructure projects. Examples of application are the Bermondsey Dive Under Project, the Thameslink programme and a commission for WSP Parsons Brinckerhoff to implement net gain for phase 2 of the East West Rail project. Highways England[25] have committed to no net loss in biodiversity by 2020 and a net gain by 2040.

1.3.2.2 Industry

Of the nine largest housing developers (which together account for 52% of residential completions), six have some form of habitat mitigation and creation policy[26], ranging from partial to comprehensive. These six account for 29% of residential completions.

Redrow and Barratt have developed net gain policies. Berkley Group[27] committed in May 2017 to provide on-site net gain in biodiversity, stating that "*there will be more nature on every site afterwards than before we began"* and *"Of the developments that completed during 2016/17, 86% were on brownfield land and 91% incorporated features designed to enhance ecology".*

In 2016, Balfour Beatty, CIRIA, IEMA and CIEEM created a set of good practice principles[28]. These emphasise the mitigation hierarchy, funding long-term management, and true additionality. Balfour Beatty are already using a net gain model and in April 2018 published *A Better Balance: A Roadmap to Biodiversity Net Gain*[29]. They have advocated mandatory metric-

[22] Local planning authorities are the public authority whose duty it is to carry out specific planning functions in a particular area. The planning system includes three tiers of local government in England, but in this instance the focus is on district councils and London borough councils (whether two tier or unitary authorities) as Local Planning Authorities (county councils, Broads authority, national park authorities and the Greater London Authority are identified separately).

[23] Refers to Section 106 of the Town and Country Planning Act 1990. This is the primary legislation under which local planning authorities are able to secure planning obligations as a signed agreement between the developer and the LPA.

[24] https://www.cieem.net/news/161/network-rail-launch-first-net-positive-biodiversity-offset-scheme

[25] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/441300/N150146_-_Highways_England_Biodiversity_Plan3lo.pdf

[26] Completion figures and policies taken from 2017 annual reports from Barratt, Bellway, Berkley, Bovis, Crest Nicholson and Redrow.

[27] https://www.berkeleygroup.co.uk/sustainability/sustainable-development-goals

[28] https://www.cieem.net/data/files/Publications/Biodiversity_Net_Gain_Principles.pdf

[29] https://www.balfourbeatty.com/news/a-roadmap-to-biodiversity-net-gain/

based net gain in the UK's planning policies such as the NPPF, alongside qualitative site assessments to preserve the mitigation hierarchy, and local offsetting.

Currently, there is no formal mechanism for monitoring whether net gain negotiated through planning consents is delivered in practice. There is data on the value of environmental improvements secured through S106 agreements, worth £115m in 2016-17[30]. However, there is no breakdown by type and location of improvement, or on the losses that trigger these contributions. This means it is difficult to determine whether net gain is delivered or whether small losses in habitat result in a significant loss of habitat, both at a local and national level.

1.3.2.3 International current practice

Currently, 69 countries have a national policy in place or under development for biodiversity offsetting[31]. In 2016 France introduced a law requiring no net loss[32]. German law has required avoidance and mandatory offsetting since 1976.

Several territories in Australia have offsetting laws[33], including Victoria's 14-year-old system of mandatory traded offset credits. A consultation paper shows that this has improved developer behaviour - developers cite 'reducing offset costs' as a major reason for their actions to minimise biodiversity impacts.[34] Habitat banks sell 'over the counter' credits, and developer reports suggests this has streamlined the process.

Wetland habitat compensation has been mandatory in the USA since 1972. There is a developed credits-based system with over 1,000 wetland banks. Third parties also help developers with the offsetting process[35].

1.4 Summary of key issues

The current planning system does not provide a level-playing field for developers for delivering net gain. The inconsistencies can also create delays and uncertainty for developers. The lack of policy certainty is specifically cited by planners and ecologists when discussing barriers to delivering net gain. While there is some adoption of net gain approaches, it is not sufficient to deliver net gain at a national level. As a result, there is overall loss and damage of habitat, biodiversity and other environmental goods due to development[36,37].

Furthermore, the current government ambitions on house building and infrastructure is likely to accelerate land use change, with implications for habitat and the wider environment. Placing the environment at the heart of planning and development will support our 25YEP ambition to create better places for people to live and work, as well as the wider government agenda on house building and infrastructure.

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30 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685301/Section_106_and_CIL_research_report.pdf See Table 3.1.

31 http://www.wsp-pb.com/Globaln/UK/WSP%20Biodiversity%20whitepaper.pdf

32 http://www.environmentbank.com/news/post.php?s=2016-10-15-frances-new-biodiversity-law

33 Biodiversity Offsetting Green Paper, 2013

34 http://www.wsp-pb.com/Globaln/UK/WSP%20Biodiversity%20whitepaper.pdf

35 http://www.wsp-pb.com/Globaln/UK/WSP%20Biodiversity%20whitepaper.pdf

36 https://www.rspb.org.uk/globalassets/downloads/documents/conservation-projects/state-of-nature/state-of-nature-uk-report-2016.pdf

37 http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx. See Chapter 4 on biodiversity in the context of ecosystem services.

2 Rationale for intervention

This section outlines the key market failures with reference to supporting evidence in **Section 1**, and summarises the government's rationale for intervention.

2.1 Public goods

Definition: *goods and services that are non-rivalrous and non-excludable are subject to non-provision by the market alone.*

Habitats are a major component of our natural capital, with the biodiversity it supports underpinning all ecosystem services[38]. Many ecosystem services are non-excludable and non-rivalrous, and are not directly rewarded financially by the market. Lack of coordination and incentives leads to significant under provision (or no provision) by the market. Habitat creation is likely to be underprovided by developers, as demonstrated by the inconsistent adoption of net gain approaches across the planning system.

2.2 Externalities

Definition: *there are wider positive (negative) impacts on others which are not taken into account by the individual making the decision, leading to under (over) provision.*

Land use change through development imposes a range of negative environmental externalities (e.g. habitat loss, pollution). However, these impacts are not fully internalised in development decisions, leading to habitat loss and other environmental damage. This is demonstrated by historical trends in biodiversity and habitat loss.

Habitat creation and biodiversity deliver ecosystem services (e.g. carbon sequestration, water quality, pollinators) that both mitigate negative externalities and deliver positive externalities[39]. While the delivery of net gain has financial costs (e.g. on-site habitat creation) and potential financial benefit (e.g. through house prices), the non-financial benefits (i.e. ecosystem services) are not fully internalised in development decisions, leading to under provision. This is demonstrated by the inconsistent adoption of net gain approaches across the planning system.

2.3 Information asymmetries

Definition: *people lack good information about the quality of relevant goods or services which may cause them to make wrong choices.*

The lack of a level playing field across planning system means the 'wrong' choices are more likely to be made. The current system of inconsistent and optional developer measures reduces market efficiency by creating information asymmetries and increasing transaction costs. For examples, LPAs and developers often have different information on site characteristics, expectation for habitat delivery and development viability (i.e. financial constraints). This is demonstrated by the fact that few LPAs and developers have adopted variations of net gain approaches, with differing uses of the Defra biodiversity metric. In addition, industry guidance that advocates net gain approaches is voluntary.

[38] http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx. See Chapter 4 on biodiversity in the context of ecosystem services.

[39] http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx

2.4 Equity

Definition: *inequalities exist that have not been addressed by the market. Refers to differential impacts on individuals across a range of socioeconomic and demographic characteristics.*

Unequal access to nature and greenspace most affects those that live in the most deprived areas of England[40]. This extends to access where people live as well as visit. This is demonstrated by the variations in net gain approaches across the planning system, which leads to inconsistent provision of on-site (and local) creation of nature and green spaces through developments. This further exacerbates inequality of access to nature.

2.5 Summary

Overall, the provision and conservation of habitats and biodiversity suffer from market failures. They are public goods, and produce positive externalities whilst mitigating negative externalities produced by development. These characteristics lead to too little new habitat creation, and too much habitat loss and damage respectively. The current system of inconsistent and optional developer measures reduces market efficiency by creating information asymmetries and increasing transaction costs, and in some cases may create perverse incentives against creating habitat-rich places.

There is a clear rationale for government to create a level playing field across the planning system, ensuring the socially optimal delivery of habitats, mitigating and preventing unnecessary habitat loss, and providing more equitable access to nature.

3 Policy objectives

The primary aim is to secure a measureable improvement in habitat for biodiversity whilst streamlining development processes. A measurable net gain is necessary to achieve both the conservation outcomes (i.e. to improve the environment in a generation) and to deliver the streamlining and community support objectives (i.e. support for development is unlikely to grow if the aggregate impact of development on nature remains negative). Net gains for biodiversity are also already sought, but not always delivered, through planning policy in the National Planning Policy framework and so any weaker objective would be counterproductive. For further information on why a marginal gain, as opposed to 'no net loss', is required see **Section 5.1.1**.

The objectives which have guided policy development to date are that net gain:

- Delivers habitat creation, meeting governments ambition to ambition to leave the environment in a better state than it inherited it for the next generation;
- Is simple, streamlined and certain for developers. It is easy to understand and will not prevent, delay or reduce housebuilding; and
- Is of clear benefit to people and local communities.

A successful policy requiring net gain in habitat from development could correct the market failures outlined in **Section 2**. It would require market participants to internalise the costs and benefits of land use change in decision making, and restore and create habitats that add value to society[41]. It would also improve market efficiency through greater transparency and certainty

[40] https://www.gov.uk/government/publications/25-year-environment-plan

[41] https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/uknaturalcapital/ecosystemserviceaccounts1997to2015. The latest (release date 30th January 2018) partial asset value of UK natural capital is estimated to be £761 billion in 2015.

in planning processes, creating a level playing field with better information. It would also streamline the planning process through standardised requirements, saving developers' time and money. Finally, it could facilitate the growth in the market for offset credits (i.e. habitat banking) to allow 'off the shelf' offsetting, which has potential to be an efficient and scalable option for developers.

4 Options

4.1 Multi-criteria analysis

4.1.1 Details of longlist

We have considered a range of regulatory and non-regulatory options. These were:

Option 0: Business as usual / voluntary approach
Option 1: National schedule tariff
Option 2: Mandatory tariff with biodiversity metric
Option 3: Regulatory approach (no tariff)
Option 4: Enhanced voluntary approach

4.1.1.1. Option 0: Business as usual / voluntary approach

This is continuation of business as usual, in line with the NPPF. This option is assessed in more detail in **Section 4.2.1**.

4.1.1.2. Option 1: National schedule tariff

This works as a simple charge to developers according to the type of habitat their development boundary includes. In terms of general habitat and biodiversity requirements, this payment is all the developer needs to do to satisfy general biodiversity requirements.

A developer would conduct a habitat survey within the area they are developing on. They would then be charged for the per hectare cost (with a potential levy) of replacing that habitat type. Under this option, the developer would have no duty to provide any habitat creation or enhancement on site. Using the raised charges, a delivery body would invest in habitat creation at the national level.

For protected sites or areas with protected species, a simple tariff would inaccurately reflect the environmental losses. In these locations either development would have to be prohibited or a bespoke tariff would need to be arranged with the national delivery body.

4.1.1.3. Option 2: Mandatory tariff with biodiversity metric

This approach applies the existing Defra biodiversity metric to development and adds a tariff component for compensation that cannot be delivered on the site or locally. This metric makes an assessment of a habitat's value to wildlife and allows retained, enhanced and created habitat to be taken into account when assessing development plans. A tariff (which could be consistently applied in £s per biodiversity unit for each habitat type) is then applied to any shortfall against the net gain target.

The developer would conduct a baseline assessment using the Defra biodiversity metric, which monitors the amount of habitat type on site, its distinctiveness and its condition (scored on a simple scale) to give a biodiversity unit score (continuous variable). The developer then draws up their plans indicating changes to these measures and the resulting score. It would be the

duty of the developers to restore the biodiversity score to pre-construction levels, and delivering net gain of 10%.

The developer can satisfy the requirement in three ways:

(1) Improving the extent, distinctiveness or condition of habitats on site;
(2) Finding a local site on which to enhance / create equal or more valuable habitat (possibly another of the developer's sites); or
(3) Paying a tariff to a habitat delivery body.

In order to align with the mitigation hierarchy but also provide flexibility for developers, paying the tariff (3) would be available as a last resort under this option. However, a variation of this option may involve mandating the biodiversity metric as currently practiced by some LPAs and developers, with no 'last resort' tariff option to achieve net gain.

This option is assessed in more detail in **Section 4.2.2**.

4.1.1.4. Option 3: Regulatory approach (no tariff)

Net gain would be administered and regulated by independent experts, who will determine mitigation and compensation on a discretionary basis within a stronger regulatory framework for net gain.

As in current planning policy, a case-by-case approach is applied in where the developer proposes their plans (having initially identified detriments using e.g. the Defra biodiversity metric). The planning authorities would consult "independent experts", who might be employed by Natural England or the Environment Agency. There is then an assessment and an agreement to first modify proposals where the design of the development can have less negative environmental impacts, and then pay compensation, if the permission is granted.

To reduce the potential for financial bias (the developer selects and pays the ecological consultants directly under the current system), the developer would pay a public body for ecological surveys and mitigation. The compensation could be determined by the expert panel (potentially with reference to the biodiversity metric, however they would not be bound) and paid to a public delivery body where it would form part of a Nature Fund to deliver offsetting improvements and enhancements.

4.1.1.5. Option 4: enhanced regulatory approach

This approach sees Defra continue to support industry and LPA delivery of net gain. Progress and uptake could be expected to accelerate due to the 25YEP policy content and the slightly strengthened wording in the revised NPPF text.

LPAs would continue to set bespoke policies for net gain, choosing what level of net gain to require, which metric to use, and which development it will apply to.

Natural England and Defra would support:

- Promotion of net gain uptake through the updated NPPF and its stronger wording on net gain
- Industry guidance for net gain
- Development of BSI standards for net gain
- Update metrics for biodiversity and natural capital

Stronger incentives for LPAs could mean:

- Reporting on their NERC duty in general
- Reporting on net gain / loss annually – could be consolidated into national league tables
- Requirement for strategic net gain

Stronger incentives for developers could mean:

- Mandatory use of the Defra metric (but not mandatory requirements for score) as part of their application
- Increase planning fees for non-measured net gain (reflecting added non-NG assessment burden)
- Require all developers to report on their biodiversity net gain (assuming net loss for all developments if not quantified)

4.1.2 Criteria and assessment

The options were compared using multi-criteria analysis, a qualitative assessment of the options, based on the judgement of various experts across a weighted set of criteria. The approach assumes option 0 is the baseline. This assessment enabled a clear ranking of the options; supported discussions on the relative merits of each option, and helped shape our rationale for the short list of options.

The criteria, split between environmental and delivery considerations, were used to assess the options are given below, where the percentage in brackets indicates the percentage weighting given.

<u>Environmental (60% total)</u>

(1) Likely delivery of biodiversity net gain and wider environmental benefits at a national and local level (40%)
(2) Compatibility with the 'mitigation hierarchy' (20%)

<u>Delivery (40% total)</u>

(3) Relative magnitude of additional costs and regulatory burdens to industry, compared to business as usual (12.5%)
(4) Certainty and predictability for developers (i.e. level playing field) and scope to streamline regulations (12.5%)
(5) Relative magnitude of additional costs of delivery to government, compared to business as usual (5%)
(6) Familiarity of implemented processes to industry and LPAs (5%)
(7) Likely public and stakeholder support for the policy and development (5%)

On the basis of their scores in this analysis and further policy discussions, option 1 (national tariff schedule), option 3 (regulatory approach) and option 4 (enhanced voluntary approach) were dropped at this stage.

Option 1 provided certainty and predictability for developers and was deemed to be more likely to produce environmental benefits compared to the baseline (option 0). It also expected to keep costs and regulatory burden to developers similar to that of business as usual. However, the option was judged to be incompatible with mitigation hierarchy since it does not incentivise avoidance or mitigation. This option would also risk incentivising the removal of green space from developments. It would also be an unfamiliar process of industry, and unlikely to have stakeholder support. These factors meant that the weighted score was similar to the baseline, while failing to achieve key policy objectives.

Option 3 was judged to be compatible with mitigation hierarchy and likely to deliver biodiversity net gain – two key policy objectives. This option fell short, though, due to: the additional costs placed on both government and industry (e.g. through development and assessment of cases); being unfamiliar to current industry practice process (causing high familiarisation costs); and could increase uncertainty for developers (e.g. regarding whether they will be able to get approval in a largely discretionary system). Overall, this option does not achieve key objectives in streamlining process and supporting house building.

Option 4 was compatible with mitigation hierarchy and would have been familiar to industry processes. However, this approach was deemed unlikely to deliver sufficient habitat creation to deliver environmental outcomes and smooth development processes. This is supported by the evaluation for the Biodiversity Offsetting pilots, which recommended that a future offsetting system would need to be mandatory to achieve desired outcomes[42]. In addition, an important policy objective is to streamline processes for both LPAs and developers, which a voluntary approach would fail to achieve – a voluntary approach would risk the continued proliferation of varying metrics and policy requirements across LPA boundaries.

Option 2 was taken forward on the basis that it scored significantly better than the baseline and performed well against all selection principles. To ensure sufficient flexibility for small and constrained sites, the option includes a tariff mechanism as a last resort mechanism for achieving net gain. The tariff would raise revenue that enables strategic habitat delivery via a delivery body.

Overall, we are not taking forward options that:

- Augment or enhance existing voluntary approaches, as this does not support the wider delivery of net gain; provide a level playing field, or adopt the recommendation from the Biodiversity Offsetting pilots for a mandatory approach;
- Add burdensome regulation(s) that would not easily be mitigated by streamlining processes elsewhere, and could potentially add new and unfamiliar processes; and
- Are not compatible with or undermine the mitigation hierarchy.

[42] http://sciencesearch.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18229

4.2 Description of options considered

4.2.1 Option 0 – Business as usual / voluntary approach (baseline)

Existing voluntary approaches continue, in line with the revised NPPF[43]. This strengthens wording which drives provision of net gain in the planning system, and supports the use of metrics (albeit not a specific one) by calling for measurable change in biodiversity. The development process is summarised in **Figure 1**.

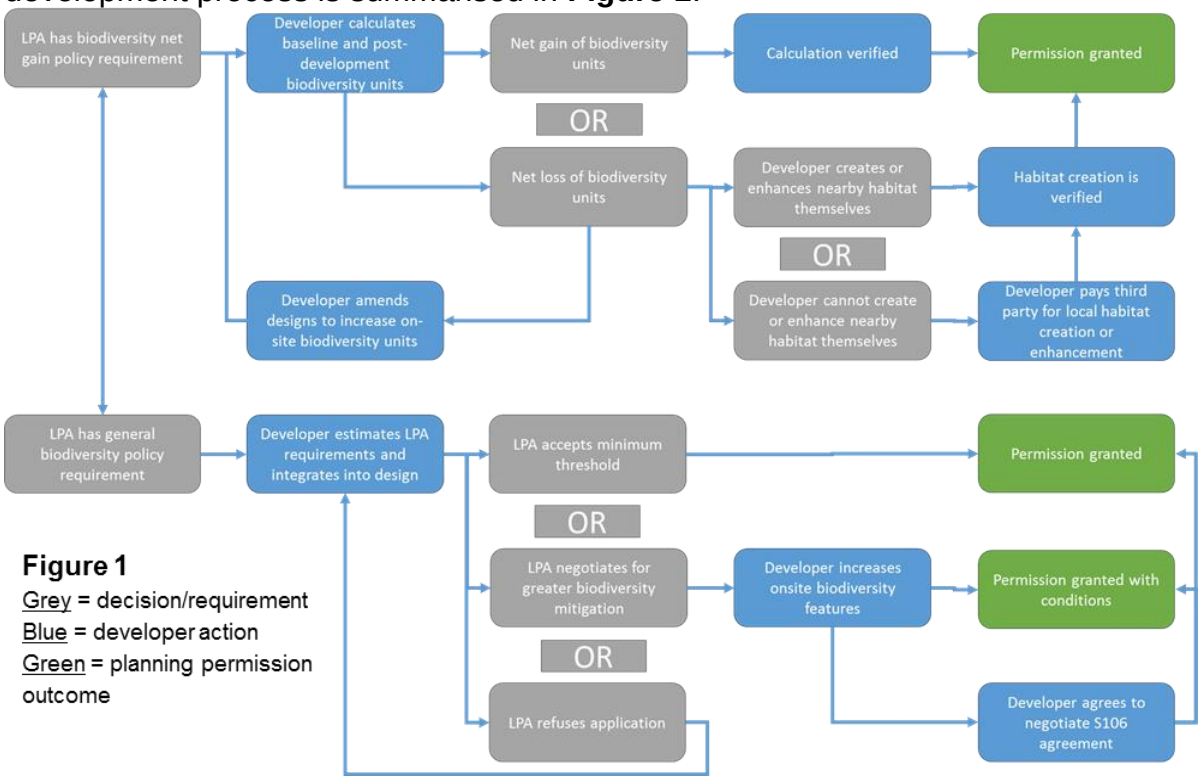

Figure 1
Grey = decision/requirement
Blue = developer action
Green = planning permission outcome

However, many of the issues discussed in **Sections 1 and 2** remain, particularly the lack of the level playing field. It is unlikely to achieve the policy objectives set out in **Section 3**. Furthermore, it would still mean the majority of LPAs have a general biodiversity policy rather than specific requirements to achieve net gain.

4.2.2 Option 2 – Mandatory tariff with biodiversity metric (recommended)

4.2.2.1 Outline and scope

Delivering net gain for biodiversity will be mandated for new development in scope of the Town and Country Planning Act 1990[44] . This includes buildings and structures for any use including commercial, industrial, institutional, leisure, housing or other accommodation, where these require permission from local planning authorities. The scope does not include permitted development[45] or specific development on infrastructure land by providers (statutory undertakers) or nationally significant infrastructure[46], which would not be granted planning permission by a local planning authority. Developments that would not result in measurable loss

[43] https://www.gov.uk/government/publications/national-planning-policy-framework--2

[44] https://www.legislation.gov.uk/ukpga/1990/8/contents

[45] Development does not in all instances require a planning application to be made for permission to carry out the development. In some cases development will be permitted under national permitted development rights. http://www.legislation.gov.uk/uksi/2015/596/contents/made

[46] https://www.legislation.gov.uk/ukpga/2008/29/contents

or degradation of habitat, for instance change of use of or alterations to buildings and many house extensions, would not be in scope.

We have considered what, if any, exemptions to a mandatory biodiversity net gain policy might be made to developments by size, sector or site location (see **Section 7** for more details). Exemptions would either prevent net gain from being achieved across the system or require other development types to deliver higher gains to offset the exemptions. The consultation will test whether this is the most appropriate approach and will seek views and justification on what, if any, exemptions should be made.

This approach mandates the use of a specified biodiversity metric to development and adds a tariff component for compensation that cannot be delivered on the site or locally. Net impacts are measured in terms of biodiversity units lost and/or gained. To maintain compatibility with the mitigation hierarchy, lost units should be mitigated on-site through habitat creation first (i.e. through site design and on-site mitigation), with the use of a cash tariff as a last resort. The tariff could raise revenue for environmental benefits at a local and national level. Under this approach, developers would be required to deliver **10% net gain**. The level of net gain required is further explored in **Section 5.1.1**.

However, the following issues are out of scope:

- Green belt land as there is the potential for seeking greater net gains from land with very low existing development potential due to strong green belt policy;
- Protected species – these species require specific provision to meet legal requirements, including for some, development licences. District licensing is, for now at least, distinct from a biodiversity net gain approach. However, habitats created or enhanced to meet a species licensing requirement can be included in biodiversity net gain calculations; and

4.2.2.2 Process

This section set outs the development process for this option, which is outlined in **Figure 2**, and is subject to consultation.

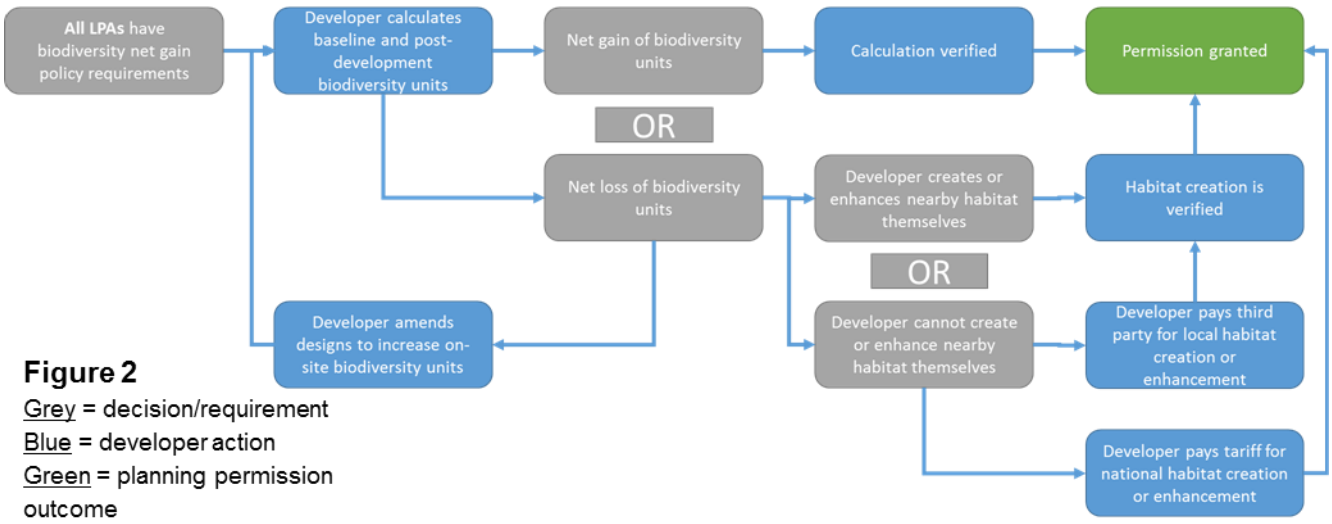

Figure 2
Grey = decision/requirement
Blue = developer action
Green = planning permission outcome

The developer conducts a baseline assessment of the development site using a biodiversity metric. For example, if a developer were to build on 1 ha of woodland and grassland, the following might apply:

Table 5

Habitat type	Area of habitat in development boundary *(ha)*	Habitat type distinctiveness *(score 1-3)*	Habitat condition *(score 1-3)*	Biodiversity units 'score' for habitat type
Grassland (unimproved neutral)	0.5	2	1	1
Woodland (broadleaf)	0.5	3	2	3
Total	**1**	**-**	**-**	**4**

The above is based on principles of the Defra biodiversity metric methodology and is strictly illustrative. The scores are not accurate, nor are the scoring scales.

The metric estimates there are **4 biodiversity units**. The developer then draws up their plans, which include the extension of the woodland, but the loss of the grassland:

Table 6

Habitat type	Area of habitat in development boundary (ha)	Habitat type distinctiveness (score 1-3)	Habitat condition (score 1-3)	Biodiversity units 'score' for habitat type
Grassland (unimproved neutral)	0	2	1	0
Woodland (broadleaf)	0.6	3	2	3.6
Housing (no green space)	0.4	0	0	0
TOTAL	**1ha**	**-**	**-**	**3.6**

The above is based on the Defra biodiversity metric methodology and is strictly illustrative. The scores are not accurate.

Under this option, the LPA would require developers to provide 10% net gain. The developer therefore needs to achieve a total of **4.4 biodiversity units**. They have already covered some of this by extending the woodland by 0.1ha, but have a remaining **0.8 biodiversity units** to acquire. The developer can satisfy this requirement by:

- Changing the spatial configuration of the site to retain more habitat;
- Improving the condition or size of the woodland on site;
- Finding a local site on which to enhance / create equal or more valuable habitat (possibly another of the developer's sites); or
- Paying a tariff to a habitat delivery body.

This range of options gives the developer flexibility, whilst supporting adherence to the mitigation hierarchy. Where a developer can demonstrate net gain on site (as we would expect of many developments on arable or developed land) there are no further charges for habitat or biodiversity.

Compensatory habitat creation and/or enhancement could be carried out by the developer, by a third-party broker or provider. The tool will incentivise the agent to deliver their compensation according to a local or national spatial nature strategy.

If the developer cannot provide net gain on site or find a local provider of biodiversity units, the developer would pay a fixed sum per biodiversity unit for each habitat to a habitat delivery body. The body would then collect payment and use the investment to create or enhance habitats across England. Developers would pay the tariff amount, calculated in a metric and agreed with the LPA, to the body who would then seek to maximise the biodiversity units delivered using the sum raised.

A sequential spatial approach could be developed, whereby developers are incentivised (through multipliers in the net gain metric tool) to deliver new habitat on site, then locally, then regionally, then nationally. This would help to improve the environmental quality of new development and community support for proposals, and would help to protect against the growth of regional pockets of habitat loss.

The biodiversity unit approach could, in time, could also be extended to account for wider environmental benefits.

5 Policy Design Considerations

For a biodiversity net gain requirement to achieve the objectives of improving environmental outcomes and avoiding costs or delays to housing development, we need to consider a number of characteristics, which are subject to consultation.

5.1 Requirements

5.1.1 Level of net gain required

Two primary factors were considered in selecting a suitable level of net gain:

- The capability of the policy to deliver genuine gains for nature (and thereby give confidence of enhancement/no-loss to communities in receipt of development)
- The capability of the development sector (and others) to meet the requirement without significantly affecting development rates or inhibiting economic growth

Compensation habitat creation undertaken through schemes around the world are reportedly delivered with success rates that range from 0% ecologically functioning to 74% in long-term established offsetting schemes[47]. Other studies have found complete success rates of between 6 and 20%[48]. It is therefore desirable to set a higher initial requirement for net gain to increase the likelihood that these schemes will deliver net enhancement, or at least prevent loss of biodiversity. Setting a higher level means that gains can be achieved with a lower level of scrutiny and monitoring of individual sites (and the costs that such extensive monitoring and enforcement would incur). Evidence on success rates in literature suggest that a rate between 10% (making a conservative estimate that the 94-100% of schemes which might not be successful incur an average habitat loss of just 10%) and infinity would be appropriate to avoid net loss in biodiversity.

[47] Bull et al., Biodiversity offsets in theory and practice. *Oryx,* Volume 47, 2013

[48] Maron et al., Faustian bargains? Restoration realities in the context of biodiversity offset policies. *Biological Conservation,* Volume 155, 2012

Sources of uncertainty in offset policy include scientific sources, such as measurement error and narrow scope of measurements, and communicative sources such as under-specificity (because the metrics are highly simplified relative to the depth of ecological information that would be necessary for net gain in the strictest sense) streamline the development experience)[47]. Further process uncertainties include the risk of habitat degradation before application submission (i.e. baseline alteration), allowances for imperfect enforcement, the risk of insolvency of offset providers and/or developers, the risk of systematic undervaluation of habitats and wider (indirect) pressures of development on general biodiversity from light, sound, predation by pets and recreational use.

The time lags in between development and compensatory habitat reaching equivalent biodiversity are also significant, it can take centuries for compensation habitats to acquire ecological communities that are equivalent to lost habitats across different measures of biodiversity[49]– this is not practical in the design of compensation habitat within desirable development timeframes and so a more achievable multiplier is included in the biodiversity metric. The permanence of offsets (i.e. the expectation that not all compensation habitat will exist as long as the development it is compensating for, further discussed in **Section 5.1.2**) represents another factor by which overall gains might be undermined in the medium to long term.

In summary, there are a number of factors that make halting biodiversity loss through development an unlikely prospect with any level of gain which is close to 0%. The department therefore favours as high a level of net gain as is feasible, taking into account any costs for the development sector above the value of benefits delivered through net gain approaches. Industry evidence from developers and LPAs implementing biodiversity net gain approaches suggest that the average gains achieved on developments vary widely, between a few percent and over 300%. The analysis undertaken in this IA indicates that the level of requirement makes relatively little difference to the costs of mitigating and compensating for impacts (see **Section 6.4**).

The majority of the costs associated with net gain are incurred to correct for the initial loss of biodiversity through development (i.e. achieving only ‘no net loss’). When remediation of development’s impacts is incorporated, a 10% net gain could be seen as a requirement to deliver approximately 110% of the total lost biodiversity (approximately because the 10% is applied to the gross biodiversity value of the development site, rather than only those in the structures’ footprint). The 10% gain therefore represents a small proportion of overall habitat creation/enhancement requirements.

The planning authority for Lichfield District requires a net gain of 20% on new development, and experience to date suggests that developers are able to meet this requirement and often achieve much greater levels of biodiversity net gain. Advice to the department from some Natural Capital Committee members[50] suggests that a level of net gain at or above 10% is necessary to give reasonable confidence in halting biodiversity losses.

10% has therefore been selected as a reasonable level of gain to consult upon, given that it provides a small margin to account for process, epistemic and linguistic uncertainties (for which the literature recommends much greater levels of gain) whilst operating within the parameters of

[49]Curran, Hellweg and Beck, Is there any empirical support for biodiversity offset policy? *Ecological Applications*, Volume 24, 2014

[50] Pers. comm. 2018

established and successful net gain planning policies which are not thought to significantly affect development rates or viability. In simple terms, it is the lowest level of net gain that the department could confidently expect to deliver genuine net gain, or at least no net loss, of biodiversity and thereby meet its policy objectives. This IA examines the costs and benefits of implementing net gain at a 10% level.

5.1.2 Permanence

Developments typically remove habitats permanently. If offset habitats are established temporarily, with no guarantee that they will be retained beyond a fixed period, the result will be a net loss of habitat. This is also true when the habitat is protected for a second fixed term by offsetting from a second development elsewhere. This is because over time, a single hectare of offset habitat will have been used to offset multiple hectares of lost habitat elsewhere. A discussion of the issue in the evaluation of the biodiversity offsetting pilots illustrates that there is a current lack of guidance. The pilots prepared management plans of 25-30 years in the absence of guidance on the meaning of 'in perpetuity' for offset sites[51].

We have so far assumed developer responsibility for management is time-bounded to 30 years. But permanence of land use change, with another entity responsible for long-term management, is being considered. International evidence shows that an existing policy in France requires offsetting for as long as the impacts occur. Options to achieve this include giving land to a Public Land Trust or designating land as a protected area[52]. The U.S.A and Australia[53] also mandate offsets which last either as long as the development itself, or for perpetuity.

Concerns over perpetuity have centred on deliverability. The solutions most commonly seen are to purchase land, with a conservation non-governmental organisations (NGO) or local authority assuming responsibility for long-term management, or habitat banking using unproductive or marginal land offered by landowners who are happy to keep it as habitat indefinitely.

Conservation covenants may facilitate this (see **Section 5.2.2**). We are exploring the impact that this requirement would have on deliverability.

5.1.3 Consistency of requirements across developers

Currently, a wide range of approaches and mechanisms used to assess biodiversity impacts are being used differently by different parties, which is resulting in an uneven playing field and variable outcomes.

Evidence suggests that the transparency and level playing field effects of the policy are strongest when what is required for a given plot of land is consistent across all potential developers. There is scope for some flexibility between LPAs, so long as the requirements that apply to a particular geographical location aren't ambiguous and don't vary from developer to developer, or between development types. For example, the metric used could be weighted (or LPAs could impose other requirements) to meet goals such as proximity or reflect relative scarcity of a habitat type locally.

[51] http://sciencesearch.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18229

[52] http://bbop.forest-trends.org/documents/files/frances_new_biodiversity_law_and_implications_for_no_net_loss_of_biodiveristy.pdf

[53] https://www.ncbi.nlm.nih.gov/pubmed/19924472

5.1.4 Flexibility in how requirements are achieved

It may be sufficient to mandate what is required and to allow developers to achieve this in the most suitable way: for example, through onsite mitigation; habitat banking with legally compliant sites; working with landowners; purchasing land; contributing to a national or local tariff scheme (if implemented); or working with the Wildlife Trusts or similar organisations.

5.1.5 Designed to work with market dynamics

Evidence from industry suggests that competition when bidding for land and contracts will in many cases compel developers to take the minimum environmental measures required. We must ensure that the policy prevents a market which 'punishes' developers who would choose to spend resources on safeguarding habitat and risk being outbid or undercut.

The residual value of the land is assessed by considering the potential sales value of the development (the Gross Development Value), minus the development costs and risks, with an allowance for profit[54]. Research by Savills[55] states: *"When in competition with other developers and assuming discipline on appropriate profit margins, the winning bidder will typically be the one that pushes for a combination of the highest new build price, the highest density (subject to planning) and the lowest build cost (unless one offsets the other)."*

5.2 Supply of offset land

5.2.1 Measures carried out on land owned by others

Some past cases of offsite measures have taken place on land already owned by conservation NGOs or local government. For example, tree planting or habitat restoration on existing habitat which may be poorly maintained. It's difficult to understand whether this kind of offset is truly additional, because the owner may have sought funding elsewhere for the measures if a developer had not offered funding.

5.2.2 Conservation covenants

In 2014, the law commission made recommendations and a draft bill to allow conservation covenants in England[56]. These would allow a landowner to create a condition on sale and ownership of the land in perpetuity, such as that environmental features are maintained. Conservation covenants are recognised as a valuable tool to allow wildlife trusts and similar organisations to ensure conservation in perpetuity without needing to own the land.

The 25YEP includes a commitment to assess their potential and take forward the Law Commission's recommendations.

5.2.3 New habitat land currently used for other purposes

In some cases, land will be required to create new habitat for offsetting habitat loss for new development. This excludes measures taken on, for example, surplus public sector land, or improvements to land held in trust by NGOs.

[54] https://www.labcwarranty.co.uk/media/2694/land-development-report.pdf

[55] http://www.savills.co.uk/research_articles/229130/188996-0

[56] https://s3-eu-west-2.amazonaws.com/lawcom-prod-storage-11jsxou24uy7q/uploads/2015/03/lc349_conservation-covenants.pdf

For context, there are an estimated 11.6 million ha of undeveloped land in England[57]. We don't have an estimate of the proportion of this which borders towns and cities, but a lower-bound proxy is the area of green belt land: 1.6 million ha[58]. Based on the assumptions in this impact assessment (see **Table 7**), the area of new habitat required is very small relative to the available land area.

Mandatory, permanent biodiversity net gain requirements will create a new market for non-developable land, by creating demand for rural land to create habitat on. This will benefit landowners who wish to sell land but are unable to secure planning permission. It will also benefit landowners who want to create a legacy of habitat creation but need financial help to do this.

Landowners will also benefit in cases where they could host permanent habitat on marginal land, or on land which is economically unviable for agriculture. There may also be scope to convert low biodiversity value productive land to high biodiversity value productive land; traditional orchard or coppiced woodland, for example.

5.2.4 Creating economies of scale

Mandating net gain is also necessary to create sufficient demand to support a market which would bring economies of scale. The biodiversity offsetting consultation[59] states that: "*significant economies of scale kick-in with large-scale habitat restoration and recreation. For example, the RSPB estimates that the per hectare cost of a 250 ha project is half that of 100 ha project. Projects of this scale would only come forward if demand is high-enough".*

6 Cost benefit analysis

This section sets out the cost benefit analysis of **Option 2** against the baseline, **Option 0**. Gaps in the evidence base means that the analysis is illustrative at this stage, with quantified impacts indicating the likely order of magnitude as opposed to a best estimate. The only monetised cost is the impact on developers, and the methodology is set out in **Sections 6.1-4 and the Annex**. All other costs and benefits are stated qualitatively. Evidence gathered as part of the consultation and further policy development will be used to improve the analysis for the final impact assessment.

The cost benefit analysis only includes housing development, as this sector was the priority for understanding impacts and for which the most evidence is available. However, this policy will apply to development under the Town and Country Planning Act. We will continue to explore impacts on other development types (e.g. commercial, industry, and infrastructure) and gather evidence through the consultation. Furthermore, we do not analyse the unit value of a tariff, or estimate the potential revenue raised. This is captured within the gross impact on developers.

57 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/642684/Green_Belt_Statistics_England_2016-17.pdf

58 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/642684/Green_Belt_Statistics_England_2016-17.pdf

59 https://consult.defra.gov.uk/biodiversity/biodiversity_offsetting/supporting_documents/20130903Biodiversity%20offsetting%20green%20paper.pdf

We expect there will be a wide distribution of impacts, given that the costs and benefits will be highly dependent on the location and design of individual developments. However, it is likely that the costs will fall unevenly across developers. Those currently doing the most to benefit the environment should find that this provides certainty. As they already incur costs, the only change for them will be an easing of the planning process and greater consistency in expectations. The developers who currently cause high environmental damage and do little to offset this will face the highest additional costs.

Biodiversity net gain should, therefore, steer development towards the least environmentally damaging areas and design practices. The costs imposed may, however, be muted as most of the additional cost will be passed through to developable land prices.

6.1 Summary tables

Please see **Section 6.2** for further details on the assumption, and the **Annex** for details of the cost-benefit analysis calculations.

Table 7: Cost benefit analysis assumptions by scenario

Assumptions	**High cost**	**Central**	**Low cost**
Policy assumptions (figures not rounded)			
Net gain percentage	10%	10%	10%
% net gain achieved onsite	65%	75%	85%
Proportion of offsite measures on new land which require land purchase	60%	50%	40%
Years of habitat maintenance required	30 years	30 years	30 years
Baseline net gain delivery (% of developments)	20%	29%	40%
Additional cost pass-through % to land prices	90%	90%	90%
New housing development per year	9,600 ha	6,950 ha	4,300 ha
Estimated new land required for habitat creation	2,218 ha	956 ha	284 ha
Financial costs (2017 prices, figures not rounded)			
Costs of habitat creation: survey	£900	£900	£900
Costs of habitat creation: net present value of 30 years' creation and maintenance costs	£19,698	£19,698	£19,698
Price of rural land per hectare	£21,947	£21,947	£21,947

Table 8: Cost benefit analysis summary by scenario (2017 prices)

Item	High cost	Central	(£ millions) Low cost
Gross direct cost to developers (*annual*)	160.1	89.9	41.5
Net direct cost to developers (*annual, excluding baseline activity*)	128.1	63.8	24.9
Net present value *(annual, 10 year appraisal period excluding baseline activity, 3.5% discount rate)*	-1,102.8	-549.2	-214.6
Net indirect cost to developers *(annual, excluding baseline activity, and including 90% pass through to land prices)*	12.8	6.4	2.5
Net present value (*total, 10 year appraisal period, excluding baseline activity, and including 90% pass through to land prices, 3.5% discount rate*)	-110.3	-54.9	-21.5

6.2 Assumptions

Recent trends show that 4,300 ha of non-developed and brownfield land change use to residential developed use per year[60]. Over the same period, the average number of new dwellings completed was 155,000 per year[61]. This is set to increase to 300,000 per year based on the Government ambitions for housebuilding (see **Sections 1.1-2**), which implies the rate of land use change could double. Therefore, **we assume that land use change in the low scenario remains at current rates (4,300 ha per year) and doubles in the high scenario (9,600 ha per year). Our central scenario adopts a mid-point value of 6,950 ha per year**.

Developers carry out a proportion of mitigation onsite. Of the offsite mitigation, only some is carried out on new land purchased and converted to habitat, and the rest takes the form of restoration or enhancement measures on existing protected land. There is a lack of data here, but discussions with industry and cases cited in the literature imply a range of reasonable assumptions, as shown in **Table 7**.

Costs per hectare for both onsite and offsite measures are an assumed **£900 for surveys** and **30 years' creation and maintenance costs (£19,698)**, taken from a joint RSPB, National Trust and Wildlife Trusts study[62], discounted to a net present value (NPV) lump sum at the Green Book[63] rate of 3.5%.

[60] See Table 2.

[61] See Table 3. Annual average estimated for 2013 to 2016 only to match data presented in Table 2. The average presented in Table 3 includes 2017.

[62] https://www.nationaltrust.org.uk/documents/assessing-the-costs-of-environmental-land-management-in-the-uk-final-report-dec-2017.pdf

[63] https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-governent

For offsite measures on newly created habitat, rural land purchase costs are included. RICS data[64] gives an average 2017 price for agricultural land of **£21,947 per hectare.** We are exploring ways to incentivise or require local offsets. This has cost implications because the price of the land used for habitat creation will be above or below average depending on geographical location of the development.

For offsite habitat, the amount of land required to offset an area of development is uncertain, with different sources suggesting that this can be greater or less than 1:1. **We assume 1:1 ratio – that is 1 ha development is offset by 1ha of habitat creation off-site**. This increases to 1.1ha when the 10% net gain uplift is included.

For onsite mitigation, we assume that developers free up valuable space for housebuilding by integrating high quality habitat smartly and densely. **We assume a 3:1 ratio – that is a 1 ha development will include 0.25 ha of habitat creation on-site**. This increases to 0.275 ha when the 10% net gain uplift is included.

We use a central baseline estimate (what costs are being incurred to deliver net gain already) of 29%. Of the nine largest housing developers (which together account for 52% of residential completions), six have some form of habitat mitigation and creation policy[65], ranging from partial to comprehensive. These six account for 29% of residential completions. This does not include any measures taken by the 48% of completions unaccounted for by the nine considered, or the monetary value of current Community Infrastructure Levy[66] (CIL) and S106 agreement payments to LPAs.

6.3 Incidence: pass-through of costs

When we impose mandatory requirements which are transparent and clearly defined across all developers, developable land prices should fall to absorb the policy cost as developers 'pass through' the cost. Evidence from industry and academia supports the theory, showing that development costs are passed back through to land prices once the market has adjusted to the new policy. We may need a temporary exemption for developments in progress before an agreed cut-off date. House prices and developer profits appear inelastic with respect to extra costs, with land prices absorbing the change[67] [68] [69].

RICS data[70] gives a 2017 value for agricultural land of £21,947 per ha. The average value of residential land is £6.02 million per ha[71]. Once land is granted planning permission, there is often a value uplift of many multiples of the original value. The difference is largely due to 'scarcity rents' rather than new goods or services of economic value being produced. Therefore,

[64] The mean of RICS rural land market survey 2017 transaction- and opinion- based estimates of 2017 prices for agricultural land, converted from acres to hectares.

[65] Completion figures and policies taken from 2017 annual reports from Barratt, Bellway, Berkley, Bovis, Crest Nicholson and Redrow.

[66] The Community Infrastructure Levy is a tool for local authorities in England and Wales to help deliver infrastructure to support the development of the area.

[67] https://www.savills.co.uk/research_articles/229130/240942-0

[68] https://www.citymetric.com/politics/granting-planning-permission-massively-increases-land-values-shouldnt-state-get-share-1154

[69] https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1759-3441.1999.tb00944.x

[70] https://www.rics.org/uk/knowledge/market-analysis/ricsrau-rural-land-market-survey/. The mean of RICS rural land market survey transaction and opinion based estimates of 2017 prices for agricultural land, converted from acres to hectares.

[71] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/407155/February_2015_Land_value_publication_FINAL.pdf

this uplift can be dampened with no deadweight loss to productive activity. If the money is used to produce goods that society values, the net result is an increase in economic efficiency.

Developable land is valued using a residual land value calculation: the maximum revenue a developer could expect to receive from sales, minus the minimum cost needed to achieve this, risk factors, and a profit margin. The sale price is set externally by housing demand variables (including wages and interest rates). Profit margins are set largely by competition between developers. Therefore these things are unresponsive to cost increases, and land prices adjust instead.

For this reason, we would expect to see most of the monetisable costs (and benefits) to developers passed through to the price of land that has planning permission. In the case of additional development costs, this will revise down the result of a residual land value calculation: there will be a dampening effect on the uplift to the price of land following planning permission. Therefore, we anticipate that developers or house buyers should not bear the cost of biodiversity measures if they are mandatory and apply uniformly to all developers for a given piece of land.

Based on the above, **our assumption for this impact assessment is that 90% of costs to developers are passed through to the post-planning-permission uplift in developable land values**, which represents a loss to land owners. For the purposes of this analysis, we assume that the while the costs imposed on developers are **direct**, the pass through effect is **indirect**. Furthermore, the pass through effect is unlikely to be instantaneous and would take time to fully impact land prices. However, this would depend on how the policy is implemented, which is subject to consultation and further development.

6.4 Costs to developers (monetised)

The net direct costs to developers under these assumptions falls in the range of £24.9m - £128.1m per year. The central estimate is £63.8m per year. After applying 90% pass-through of costs to land prices, the **indirect cost to developers is £6.4m per year,** where the range is between £2.5m and £12.8m. The calculations are set out in the **Annex**.

The analysis also indicates that the level of requirement makes relatively little difference to the costs of mitigating and compensating for impacts. For example, doubling the net gain requirement from 10% to 20%, would increase the annual net direct costs to developers by around 9%[72]. This reinforces the view that the majority of the costs associated with net gain are incurred to correct for the initial loss of biodiversity through development.

Currently, the primary cost benefit analysis only includes housing development, as this sector was the priority for understanding impacts and for which the most evidence is available. However, there will be costs to all developments within scope of the policy as set out in **Section 4.2.2.1**. Using the annual land use change in **Table 2,** if the central scenario assumptions (6,950 ha per year for housing) are extended to commercial (i.e. commerce) and industrial development (an additional 7,000 ha per year), then the total annual development is 13,950 ha. Therefore the estimated:

- Annual net direct cost to developers is £128.1m *(£63.8m housing development only*); and

[72] Once not net loss (i.e. gross) impacts are included, the increase in the net gain level is from 110% to 120%, which represents a 9% increase (1.2/1.1 = 1.091).

- Net present value over 10 years is £-1.1bn (*£-549.2m*).

The key limitation is that the commercial and industrial development are distinct from residential development, which means extrapolating these assumptions is likely to be inappropriate. Therefore, these further estimates should be treated as indicative of the likely order of magnitude as opposed to a best estimate. We will continue to explore impacts on other development types and gather evidence through the consultation.

6.4.1 Costs to developers in context

The estimated GVA of developers[73] in England is £12.2bn, and with an annual turnover of £23.1bn[74]. In addition, the Government's National Infrastructure and Construction Pipeline up to 2020/21 includes over 600 infrastructure projects worth over £425 billion[75], although not all of this infrastructure will be within the scope of this policy.

6.4.2 Others costs to developers (non-monetised)

There are likely to be familiarisation costs to developers, although this will varying depending on the extent to which individual developers deliver net gain, as set at the start of **Section 6**. In addition, delivery of net gain delivery may interact with on-site delivery of housing and other green infrastructure. This is an effect that we wish to explore and gather evidence through the consultation.

6.5 Benefits to developers (not monetised)

Developers will benefit from certainty and a level playing field, resulting from a standardised approach to delivering biodiversity net gain across LPAs. The streamlining of the process could potentially result in savings for developers. A survey[76] found that developers rate the overall complexity and associated costs of dealing with this as the most significant cause of extra cost in the planning process. This is in addition to excessive and unpredictability of delays. However, we have little evidence to robustly quantify these benefits at this stage.

6.6 Indirect benefits to market participants (not monetised)

As transaction costs and information asymmetries in the development industry fall, economic theory suggests that market efficiency will improve and there may be unmonetised **indirect benefits** to other market participants such as the construction sector. These may include reduced delays and uncertainty.

6.7 Costs and benefits to government (not monetised)

There are likely to be transition and ongoing costs of policy delivery for central and local government, to account for familiarisation, training, monitoring and enforcement. There is likely to be an impact on developer contributions such as S106, which is currently used to deliver net gain and other environmental improvements in a discretionary manner (see **Section 1.3.2**).

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[73] https://www.ons.gov.uk/methodology/classificationsandstandards/ukstandardindustrialclassificationofeconomicactivities/uksic2007. As defined by the Standard Industrial Classification (Revised 2007), Section F 41.10: 'Development of building projects'.

[74] https://www.ons.gov.uk/businessindustryandtrade/business/businessservices/bulletins/uknonfinancialbusinesseconomy/previousReleases. Data missing for England on turnover, GVA and purchase of inputs, but available for the UK. UK values scaled down to 90.27% to estimate England values, as this is the ratio of England to UK number of enterprises (32,500 and 36,000 respectively).

[75] https://www.gov.uk/government/publications/national-infrastructure-and-construction-pipeline-2017

[76] https://www.fmb.org.uk/media/35090/fmb-house-builders-survey-2017.pdf

However, a nationally mandated policy will minimise ambiguity and create a level playing field for LPAs.

At this stage, we have no evidence on the potential quantified costs and benefits to central or local government, as policy is still being developed as part of the consultation. In particular, there is considerable uncertainty regarding the interaction of net gain delivery with developer contributions.

6.8 Benefits to society (not monetised)

The most significant benefit is local and national habitat delivery, and the accompanying natural capital benefits. This will contribute to delivering a clear benefit to people and local communities, and help achieve government ambitions on the environment. It will also alleviate the pressure of development on biodiversity and land use (i.e. slowing the overall rate of habitat and biodiversity loss).

The concepts of natural capital and ecosystem services[77], best illustrate the benefits that additional habitat and biodiversity, which underpin all ecosystem services, will bring:

- **Provisioning:** energy, both renewable and non-renewable sources; wild animals; minerals; wild plants; timber; navigation – use of waterways for transportation; agricultural production and caught fish; water
- **Regulating:** carbon sequestration; waste water cleaning; air pollution removed by vegetation; mediation of smell, noise and pollution removed by water; flood, erosion and landslide protection; temperature regulation; water flow control and water condition regulation
- **Recreation and cultural services:** setting for outdoor recreation (day trips by UK residents); scientific and educational interactions; heritage and aesthetic interactions; value place on nature simply existing (non-use and symbolic values); settings for outdoor physical activity (health benefits).

Additionally, there is a growing body of literature exploring the mental health and wellbeing benefits of access to green space[78]. A recent paper by Balfour Beatty[79] indicates that: *"…places with high quality "green infrastructure" – such as public parks, green spaces, green roofs and trees – have a positive impact on physical and mental wellbeing, have better air quality, are less likely to flood, and attract more investment".*

While the natural capital benefits delivered are highly dependent on the location and design of individual developments, they are difficult to capture at an aggregate level. Therefore, these benefits are not quantified at this stage. However, the Natural Capital Committee demonstrate that benefit-cost ratios of natural capital investments are competitive with (and sometimes exceed) other capital investments such as road and rail[80].

[77] https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/uknaturalcapital/ecosystemserviceaccounts1997to2015

[78] Sandifer, Sutton-Grier, Ward, Exploring connections among nature, biodiversity, ecosystem services, and human health and well-being: Opportunities to enhance health and biodiversity conservation, *Ecosystem Services*, Volume 12, 2015

[79] https://www.balfourbeatty.com/media/317352/balfour-beatty-a-better-balance-a-roadmap-to-biodiversity-net-gain.pdf

[80] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/516725/ncc-state-natural-capital-third-report.pdf

6.9 Net present value and equivalent annual net cost to business

Based on direct impacts to developers, the central net present value estimate over a 10 year appraisal period is **-£549.2m** (2017 prices), range between -£214.6m and -£1,102.8m), based on a discount rate of 3.5%[81]. The estimated equivalent annual net cost to business (EANDCB, 2016 prices) is **£60.5m**, based on the central scenario. As discussed in **Sections 6.3-4**, the pass through effect means that the impact on developers is likely to be significant lower (EANDCB is £6.0m per year). However, this effect is classed as indirect and not presented in the headline figures.

7 Small and micro business assessment

A small business is defined as one employing fewer than 50 full-time equivalent employees, and a micro-business as one employing up to 10 employees. There are 32,680 developers in England, with 45% located in London and the South East. In addition, 96.9% (31,665) and 3% (970) of developers are classed as micro and small business respectively. Only 45 developers can be classed as medium or large businesses[82].

While there is a lack of data on size of developer and sites, the data shows that 96% of small sites (less than 10 units) are built by developers which are responsible for 10 projects or fewer[83]. However, the data doesn't indicate how many of those developers with less than 10 projects are genuinely small, and how many are actually large developers operating under a different name. Therefore, exemptions in either direction could have unintended consequences, for example:

- Exempting small developers may exempt lots of small sites but not those by large developers.
- Exempting small sites may capture both small and large developers.

In addition, mapping data shows that the majority of habitat loss to urban development is small in scale but many in number (as discussed in **Section 1.2**). This means that the significant habitat loss of recent years is an accumulation of many small losses, each of which may not seem individually problematic. A 2014 study by Glenigan[84] found that the vast majority of residential planning applications are for small sites. Similarly, analysis of recent planning application data suggests that small sites cover 80% of permissioned sites, but only 12% of permissioned residential units[85]. However, the latter is not insignificant. Taking the central cost-benefit scenario as an example, an estimated 834 ha of housing development would be exempt annually[86]. This would negate the estimated 956 ha of new land required for off-site habitat creation, and undermine the delivery of net gain.

Our current view is that including a small developer or development (i.e. site) exemption carries a risk of making the policy ineffective, and would represent a weakening of existing NPPF policy. Therefore, we currently intend not to exempt, but will be testing this assumption through consultation. We also intend to improve our understanding of small sites and small developers

[81] https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-governent

[82] https://www.nomisweb.co.uk/. ONS data on number of enterprises by employment size band. Developers defined by the Standard Industrial Classification (Revised 2007) Section F 41.10: 'Development of building projects'.

[83] MHCLG analysis of Glenigan planning pipeline data

[84] https://www.glenigan.com/sites/default/files/Residential-Planning-Outcomes-and-the-NPPF-Apr-14FINAL.pdf?sid=37864

[85] Internal MHCLG analysis, based on planning application data provided by Glenigan for the year to 2018 Quarter 1.

[86] Estimated by calculating 12% of 6,950. This calculation is illustrative, based on the assumptions and calculations of the central scenario in Table 7 and the Annex respectively, and assume the density of all sites is uniform.

through consultation, and by continuing to work with other government departments (i.e. MHCLG) on this issue.

An exemption for small developments may also introduce an incentive to subdivide plots when trading land, to avoid biodiversity obligations and achieve higher prices. A further concern is that exempting some developers or developments would leave the maximum value of the land unaffected for some market participants: this would make cost pass-through to land values less likely, and also prevent a competitive level playing field.

A core policy objective is for environmental obligations in the planning system to be streamlined. We will be using this consultation to develop this policy to be as scalable, simple and administratively light as possible. For example, guidance on implementing onsite measures through good design; 'off the shelf' habitat banking; and integrating monitoring with existing surveys.

We also expect that small developments and developers should benefit from the streamlining of planning rules outlined in the cost benefit analysis. A survey[87] has raised concerns about the disproportionate cost and delay SME house builders report in bringing small scale developments through the planning system. These factors increase the risk of bringing forward applications and can be an inhibiting factor for many small firms.

8 Enforcement and implementation

The measurement of net gain would need to be standardised, or brought within the boundaries set by a defined standard, for mandatory implementation to be made feasible. The familiarity, and wide industry adoption, of the Defra biodiversity metric makes it a strong candidate. This metric is being updated by Natural England. Some LPAs and developers have adapted the metric to reflect local habitats and conditions.

The amount of net gain that developers must demonstrate is assumed to be 10%. This has been selected as it is a mid-point between 5%, as is often used in voluntary industry projects, and 20% which is the highest level of net gain known to be presently required by a local authority. Our analysis suggests that the level of net gain has relatively little impact on the overall costs when compared to the total cost of mitigating negative development impacts.

The means of charging is to be finalised through consultation evidence, but could take the form of local authorities collecting the tariff through existing mechanisms and channelling (protected/ring-fenced) funding into the strategic delivery body. This tariff collection would take place after on site mitigation, and after local/market offset brokering has taken place and been taken into account in the biodiversity unit requirements.

Where offsets are required, the required lifespan of this offset must be specified. Presently, it is common practice to deliver against a 25-30 year span. This duration is expected to give adequate time for habitats to become established and contribute to the conservation of biodiversity. The use of the site at the end of this lifespan, however, is not typically controlled by net gain agreements. The question of how improvements in perpetuity are best achieved, taking into account any associated limitations that this might impose on offset availability/location, will be resolved through consultation.

[87] https://www.fmb.org.uk/media/35090/fmb-house-builders-survey-2017.pdf

9 Monitoring & Evaluation

The Department is committed to developing an effective monitoring and evaluation strategy, to ensure that:

- We can assess whether the policy has achieved the environmental outcomes sought at a local and national level, as well as the impacts on developers and local communities; and
- There is a mechanism for reviewing and improving the implementation of net gain policy.

The consultation proposes mandating a biodiversity net gain requirement and that the Defra biodiversity metric is used to assess net gain delivery. Reports from industry and local planning authorities suggest that a consistent metric allows efficient processing of completed metric documents, provides a level playing field, reduces training and familiarisation burdens for tool users, and provides transparency for local communities and organisations to hold local authorities, developers and land managers to account in delivering environmental outcomes.

The standardised metric will assist with national monitoring: by aggregating site impacts through processing submitted metrics, it will be possible to gain local and national pictures of habitat change from all development. We will explore how to streamline collection of data from Local Authorities with a digital process and data standards for open access by stakeholders.

As well as monitoring net gain commitments at planning approval stage, we propose that delivery of habitat is monitored on the ground through random-sampling of post-construction development and compensation sites.

The consultation recognises that a mandatory net gain policy needs to establish a clear baseline for assessing the state of a habitat prior to development and seeks views on how to avoid the risk of habitat degradation before the site is assessed for habitat value. We will explore how more robust and comprehensive spatial habitat data, including through the use of satellite mapping, could provide opportunities to evaluate certain types of site remotely and with greater objectivity, provide greater certainty on the baselines, as well as a reduced assessment burden for developers.

We propose that policy reviews, with clearly defined scope, should assess the impacts on developers and local communities as well as the environment and provide evidence for refining, updating and adapting the policy, including in response to scientific and technological changes. This should include a review of the tariff rates, taking into account changes in land prices impacting the cost of habitat creation.

The final approach to monitoring and evaluation will depend on policy design, shaped by consultation, and will align with measurement of progress towards relevant goals[88] in the Government's 25YEP. We are keen to hear from stakeholders on the considerations proposed here for our monitoring and evaluation approach, as well as wider factors to take into account.

[88] https://www.gov.uk/government/publications/25-year-environment-plan. See Section 2 on "Putting the Plan into practice".

10 Summary of key evidence gaps

In order to make a robust assessment of the effects of the policy option, a number of key evidence gaps would need to be filled. These are summarised in the table below. We welcome responses from those consulted on all of these points.

Evidence Gap	What we would like from you	Addressing the gap
Transition and on-going delivery costs to central (e.g. Defra, Natural England) and local government (e.g. LPAs).	Evidence of how much a net gain approach costs to implement. We are aware of evidence from the biodiversity metric, but these costs included development of the approach and spatial strategies which are now better understood.	Subject to more detailed design of policy delivery and enforcement, informed by consultation responses and discussions with relevant public bodies and LPAs.
Interactions with other contributions such as Section 106 and Community Infrastructure Levy.	Evidence of whether a net gain requirement would affect wider developer contributions. If so, how significant would this effect be?	Data limitations expected. Would only be able to examine a small unrepresentative sample of LPAs (e.g. Warwickshire).
Distributional impacts of net gain on viability	Will a mandatory biodiversity net gain requirement affect some types of development disproportionately?	Data limitations expected. Viability is a site specific issue, although overall differences can be captured at a regional level.
Recent trends in habitat loss/gain due to development, likely habitat under threat due to future development, and expected habitat delivery though net gain.	What types of habitat are typically lost through development? Is development typically achieving no net loss of biodiversity, and is performance improving?	Analysis of various land use datasets and mapping tools, which vary in terms of coverage and spatial resolution.
Further detail on costs to small and large developers/developments, including familiarisation costs and impact of tariff.	Are there any further costs or benefits not identified in this document or the accompanying Impact Assessment? Please provide evidence of these costs or benefits.	Subject to policy design decision (i.e. implementation period, exemptions) taken forward post consultation.
The impact of biodiversity net gain delivery for: • commercial development; • public sector development; • industrial development; and • local infrastructure development	To what extent do these development types already achieve net gains, or no net loss of biodiversity, and is performance improving? What is the typical habitat type and condition on these sites and how does this differ from other types of development (i.e. residential)? Is there typically a greater net negative impact on habitats through development of these types, resulting in greater costs for net gain?	Consultation responses to identify any further reports, data and wider evidence.
Net gain interactions with on-site delivery of housing and other green infrastructure (e.g. parks, recreation)	Will biodiversity net gain negatively affect the quality of green space for recreation and enjoyment within new developments?	
Whether net gain approaches, where adopted, help to speed up and/or unlock development in previously borderline sites.	Can you provide examples of where net gain has helped to expedite planning processes? Can you provide examples of where a net gain approach has unlocked development that would otherwise be unacceptable (e.g. by mitigating or compensating for otherwise unacceptable impacts, or by achieving local support)?	

Annex: Cost benefit analysis calculations

All figures are unrounded. Costs are stated in 2017 prices.

Calculation line	Description	Scenario: High cost	Central	Low cost
(1) Land purchase cost per hectare for habitat creation, adjusted for % of offsite measures requiring purchase	*Price of rural land per ha (£21,947), multiplied by % of offsite habitat creation on new land which requires land purchase. Both assumptions in Table 7.*	£13,168	£10,974	£8,779
(2) Costs to developer of surveys	*Assumption in Table 7.*	£900	£900	£900
(3) NPV of habitat creation and maintenance costs per hectare	*Net present value (NPV) of habitat creation and maintenance costs (£1,070 per year) over 30 years.*	£19,698	£19,698	£19,698
(4) Offsite cost per ha of habitat created	*Sum of lines (1), (2) and (3). Off-site habitat creation includes land purchase.*	£33,766	£31,571	£29,377
(5) Onsite cost per ha of habitat created	*Sum of lines (2) and (3). On-site habitat creation does not include land purchase.*	£20,598	£20,598	£20,598
(6) Offsite cost for area required per ha of development, including net gain uplift	*Line (4) multiplied by 1.1. This accounts for 1:1 ratio between area of new development and habitat created offsite, uprated by 10% to include net gain.*	£37,143	£34,729	£32,314
(7) Onsite cost for area required per ha of development, including net gain uplift	*Line (5) multiplied by 0.275. This accounts for 3:1 ratio between area of new development and habitat created onsite, uprated by 10% to include net gain.*	£5,664	£5,664	£5,664
(8) Weighted average of offsite and onsite costs, per ha of development	*Lines (6) and (7) weighted by % on-site mitigation stated in Table 7.*	£16,682	£12,930	£9,662
(9) Net gain activity not in the baseline (%)	*1 minus the baseline activity figures stated in Table 7 (i.e. 1-0.2 = 80%).*	80%	71%	60%
(10) Additional cost of net gain delivery per ha of development	*Line (8) multiplied by (9).*	£13,345	£9,181	£5,797
(11) Land developed for housing per year (ha)	*Assumptions in Table 7.*	9,600 ha	6,950 ha	4,300 ha
(12) Annual additional cost to developers of net gain delivery (direct)	*Line (10) multiplied by (11)*	£128.1m	£63.8m	£24.9m
(13) Annual additional cost to developers of net gain delivery after 90% pass-through to land prices (indirect)	*Line (12) multiplied by 0.1, to account for 90% pass through.*	£12.8m	£6.4m	£2.5m