

# Delivering Net Gain – Tresham Garden Village in Northamptonshire

**Dr Jim Rouquette**

**Ecosystems Knowledge  
Network webinar**



**24<sup>th</sup> May 2018**

# Natural capital and the development sector

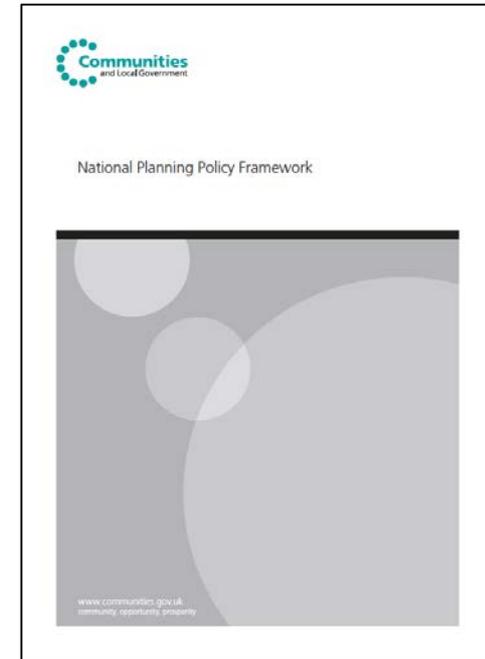
## UK Government's National Planning Policy Framework (2012)

“The planning system should contribute to and enhance the natural and local environment by [...] recognising the wider benefits of ecosystem services”

## UK Government's 25 year environment plan (2018)

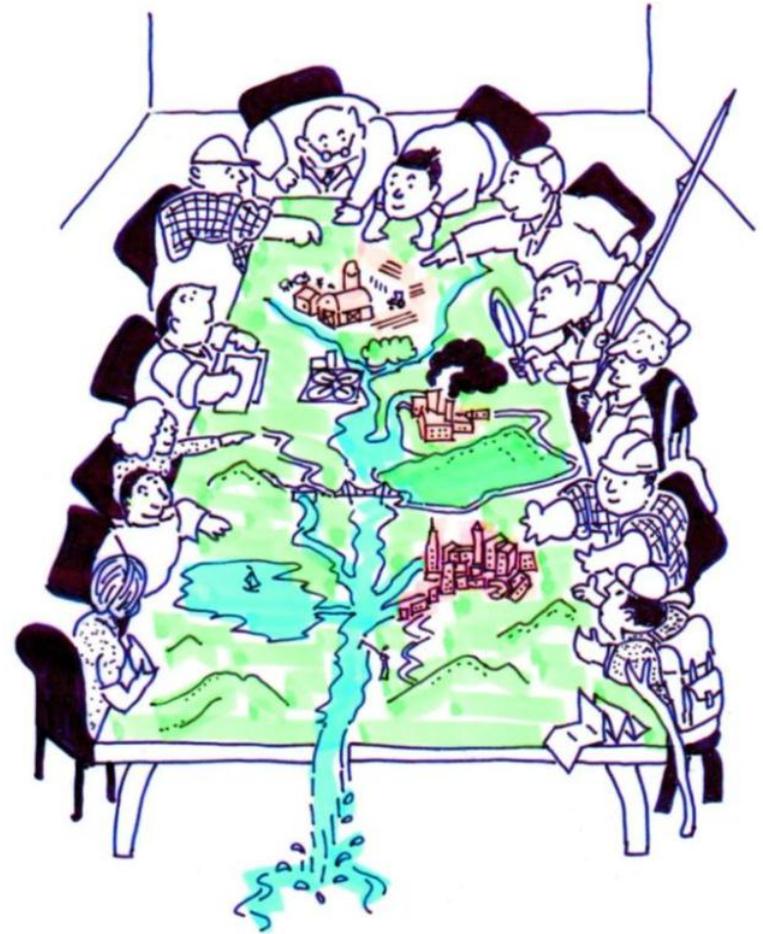
“Embedding an ‘environmental net gain’ principle for development, including housing and infrastructure”

“..expand the net gain approaches used for biodiversity to include wider natural capital benefits such as flood protection, recreation and improved water and air quality”



# But how?

- There remains a big gap between policy and practice in applying the natural capital concept
- There is no standard way of applying natural capital in the planning and development sector (or other sectors)
- **How can the natural capital approach be applied in practice?**
- How can we use the approach to enhance development design and assess environmental net gain?
- Case study: natural capital impact assessment at a development site



# Tresham Garden Village

- Proposed new garden village development near Corby in East Northamptonshire.
- Plans includes 1500 houses, schools, employment zones, and associated infrastructure. Also green space and large areas of new woodland.



# Tresham Garden Village

- Proposed new garden village development near Corby in East Northamptonshire.
- Plans includes 1500 houses, schools, employment zones, and associated infrastructure. Also green space and large areas of new woodland.
- What will be the impact of the development on natural capital and ecosystem services?
- Can the masterplan be improved to deliver more?
- What lessons can be learned to guide uptake of the approach?



# Assessing natural capital and ecosystem services at Tresham

1. Map natural capital assets prior to development
2. Model and map ecosystem service flows prior to development
3. Model and map natural capital assets and ecosystem service flows after development
4. Run stakeholder workshop to determine priorities and enhance design
5. Re-run ecosystem services models to determine if new designs have improved outcomes



## Key habitats - baseline

### Legend

-  Tresham boundary
-  Arable
-  Improved grassland
-  Semi-natural grassland
-  Marshy grassland
-  Woodland and scrub
-  Water
-  Road or track
-  Built up areas

0 300 600 Metres



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## Key habitats - masterplan

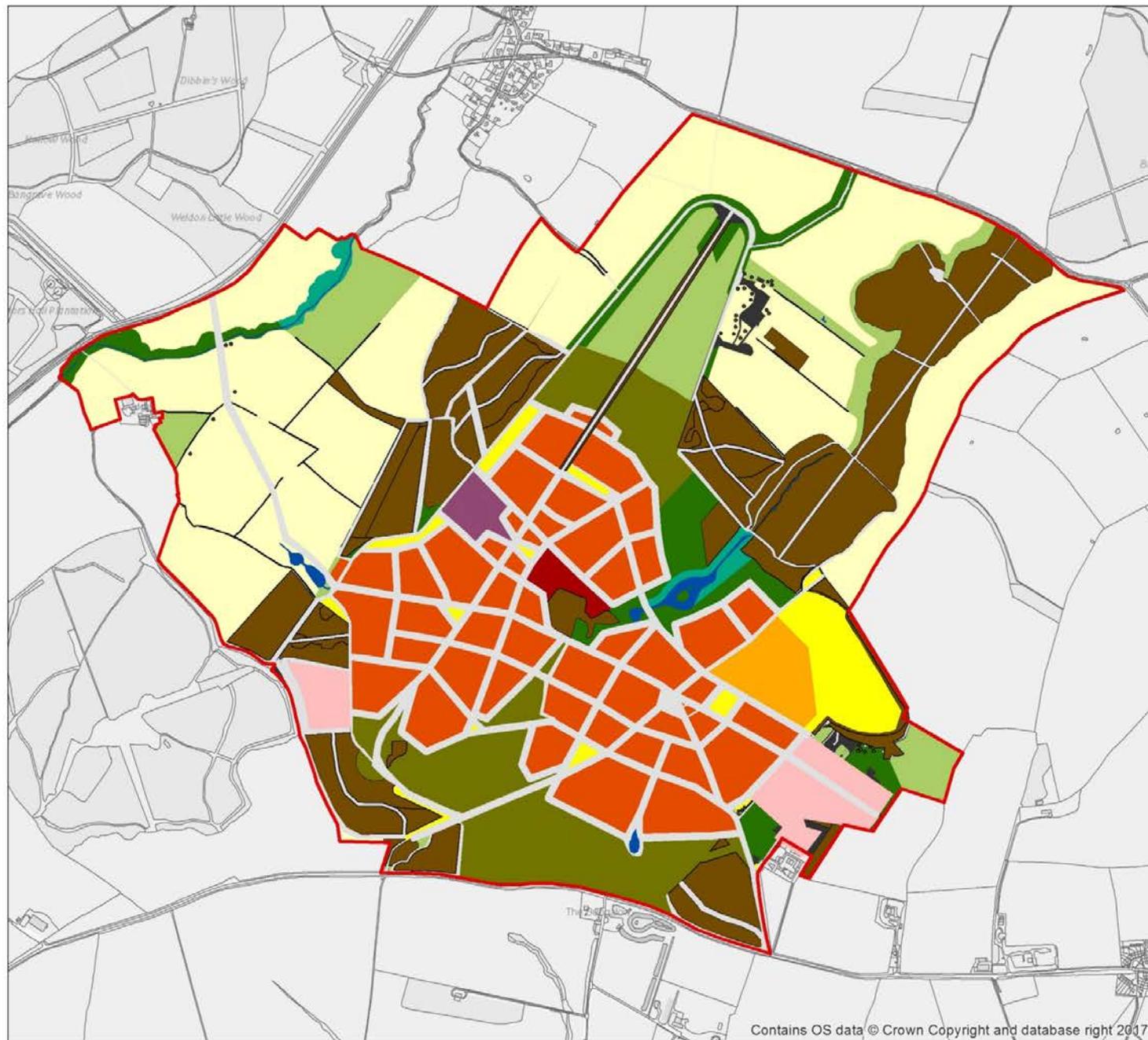
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-  Parkland
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0 300 600 Metres



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# Mapping ecosystem services

The following ecosystem services were mapped and assessed:

1. Carbon storage
2. Carbon sequestration
3. Air quality regulation
4. Noise regulation
5. Water flow
6. Water quality
7. Pollination
8. Agricultural production
9. Timber production
10. Accessible nature
11. Biodiversity

Maps show current capacity (supply), and (where possible) demand for ES

  
**EcoServ-GIS**

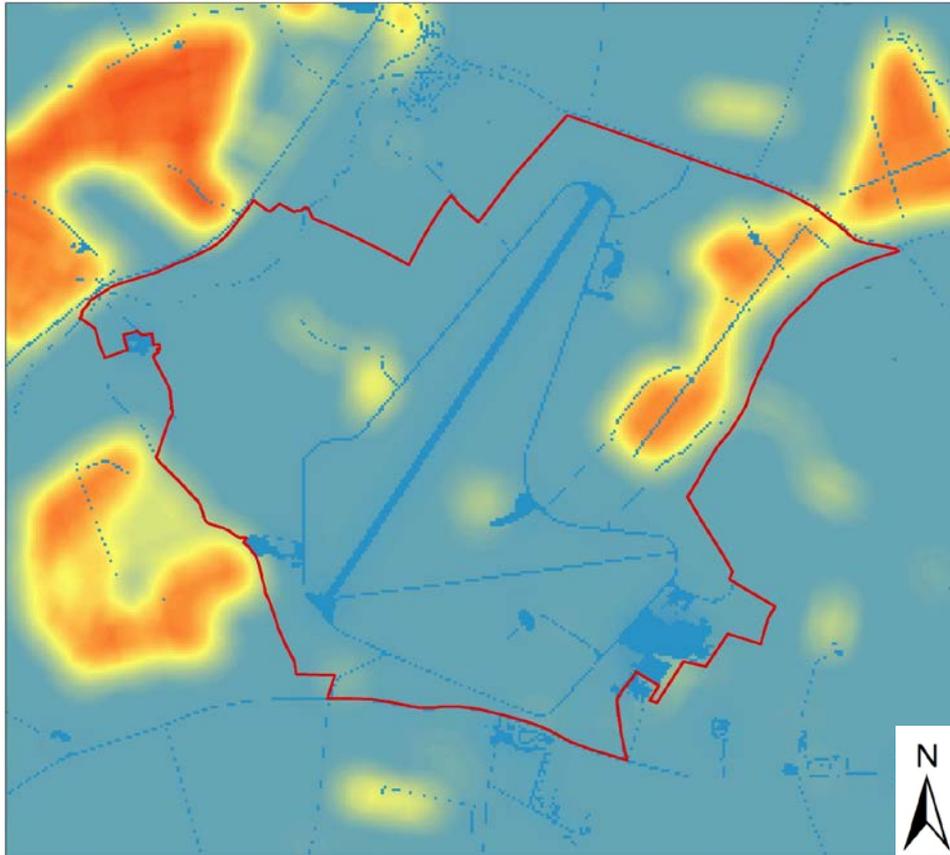
**Version 3.3**  
A toolkit for mapping ecosystem services in England,  
Scotland and Wales (GB)

*User Guide September 2015*

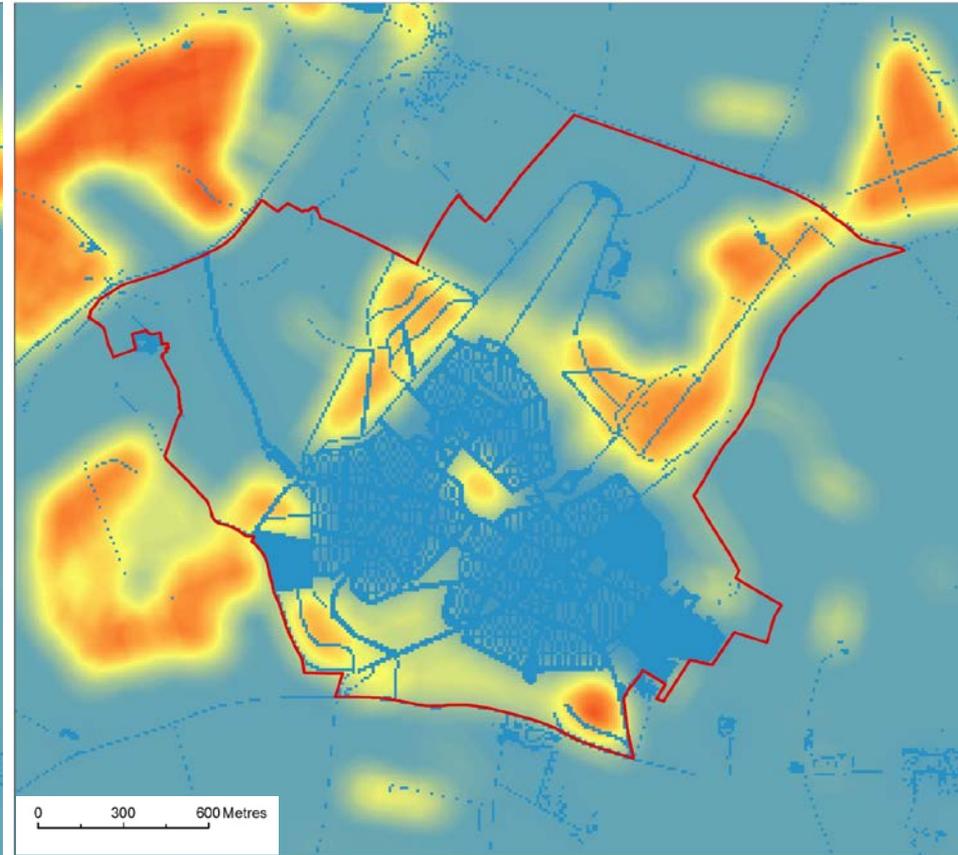
    

# Noise regulation capacity

## Baseline

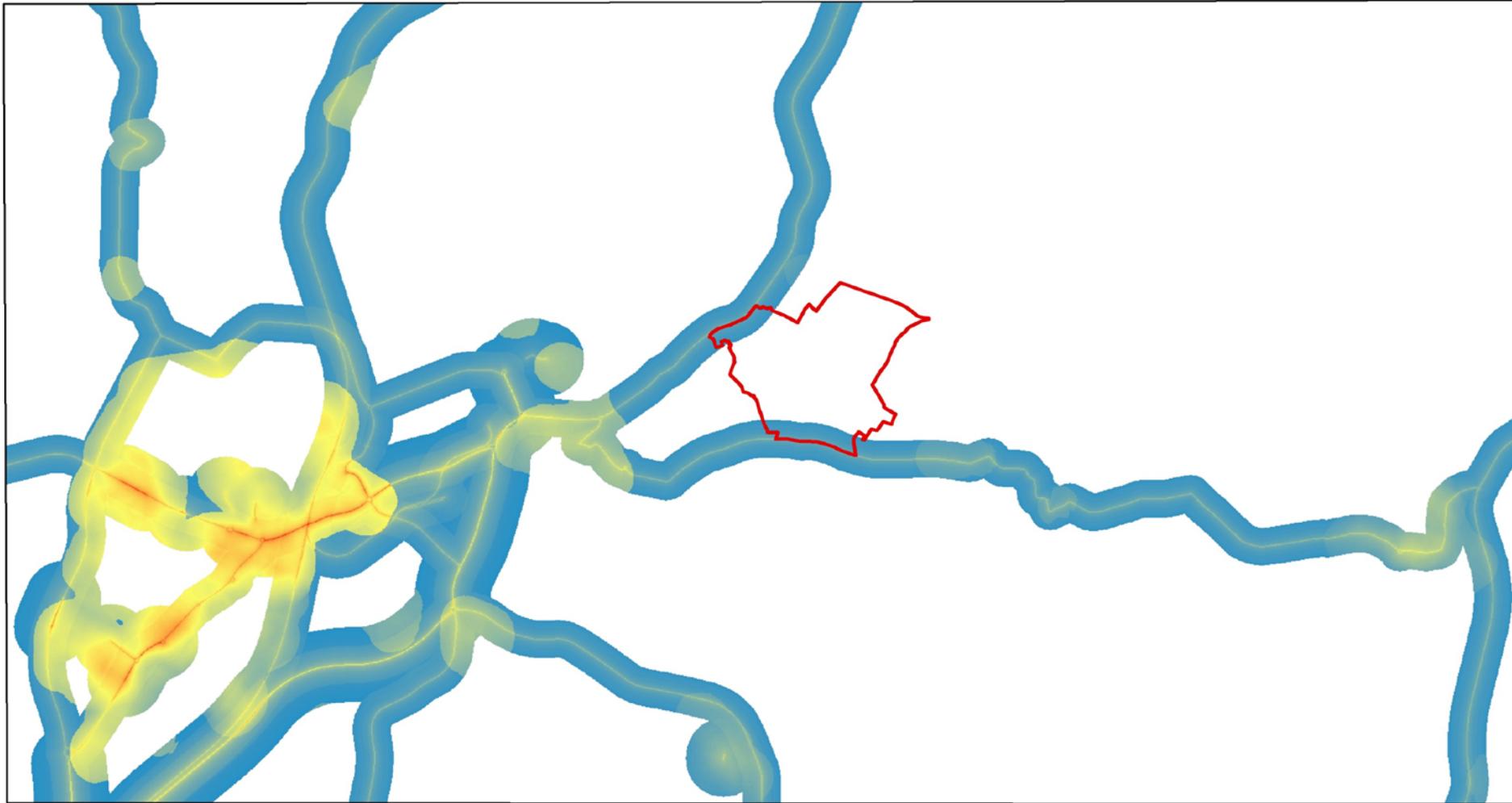


## Masterplan



Estimates the relative ability of vegetation to diffuse and absorb noise pollution

# Noise regulation demand - baseline



 Tresham boundary

**Noise regulation demand**

 High : 100

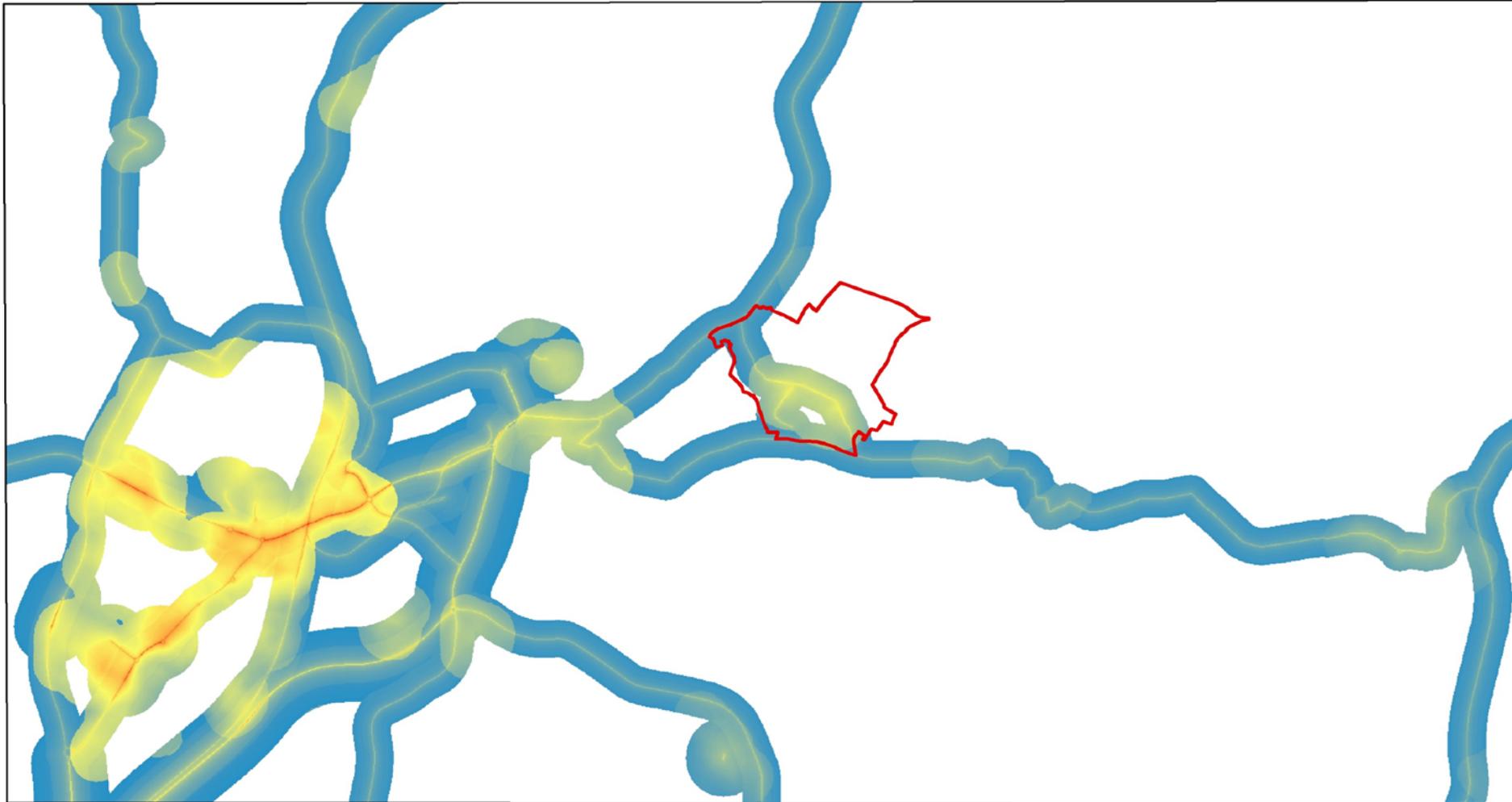
 Low : 1

0 2 4 km



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# Noise regulation demand - masterplan



 Tresham boundary

## Noise regulation demand

 High : 100

 Low : 1

0 2 4 km



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# Carbon sequestration capacity

## Baseline

## Masterplan

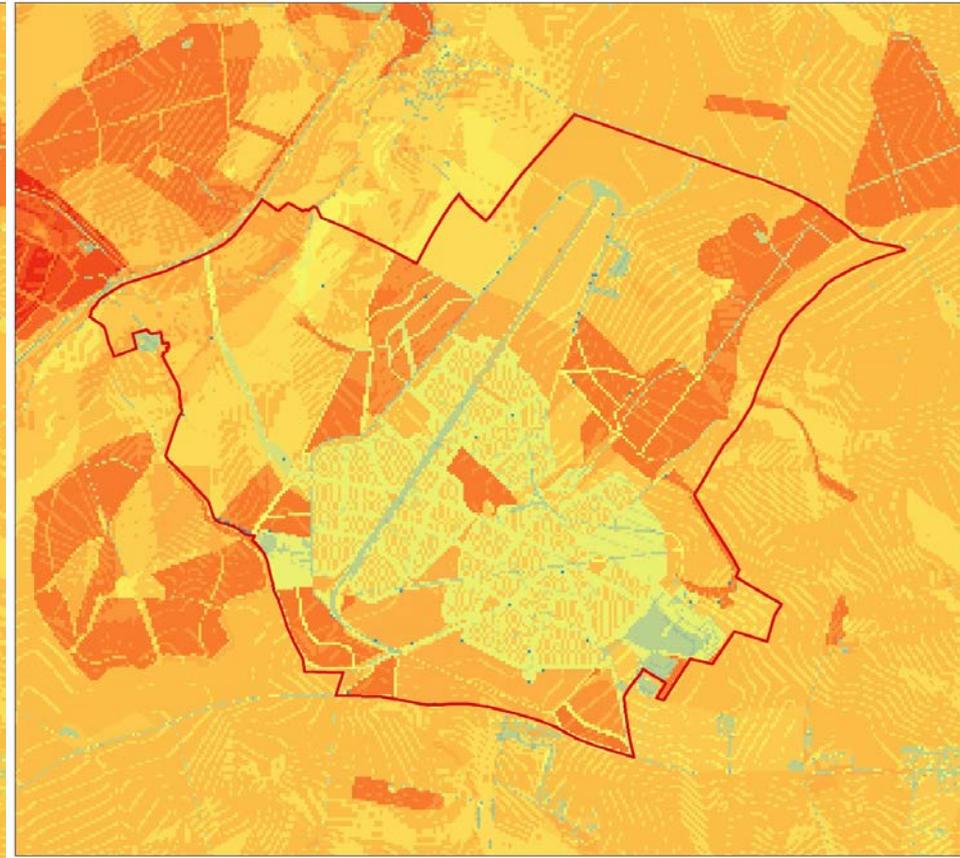
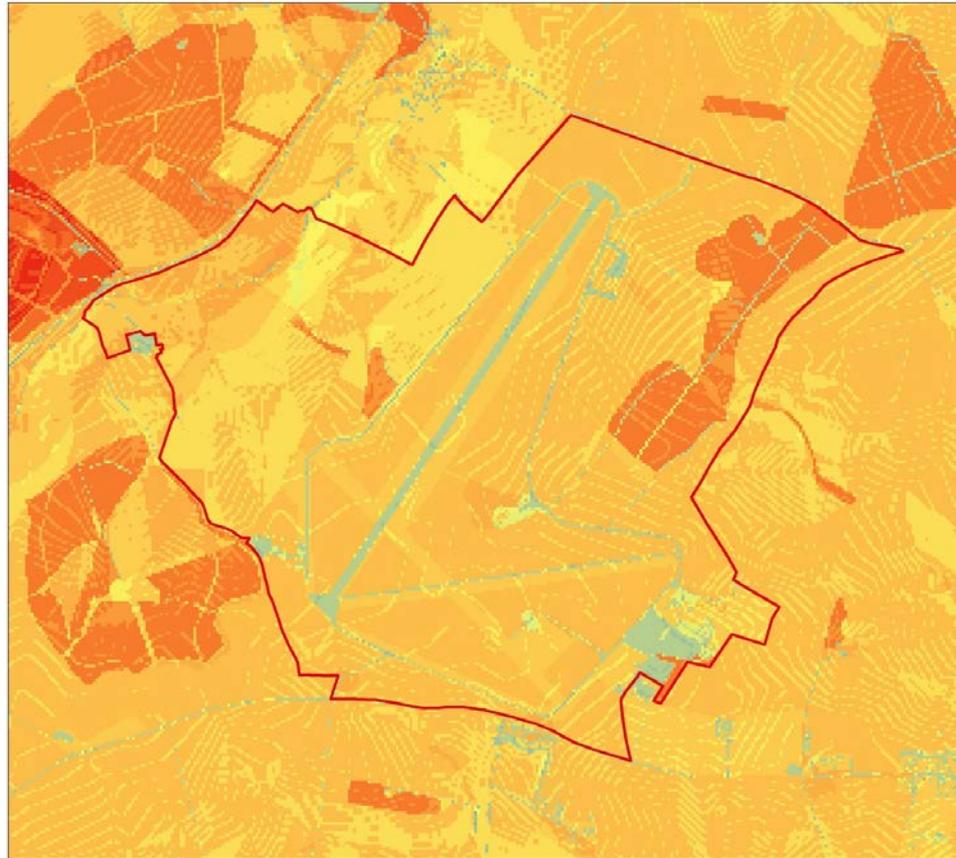


Calculates mean annual carbon sequestration based on UK Carbon Code figures

# Water flow capacity – natural flood risk management

**Baseline**

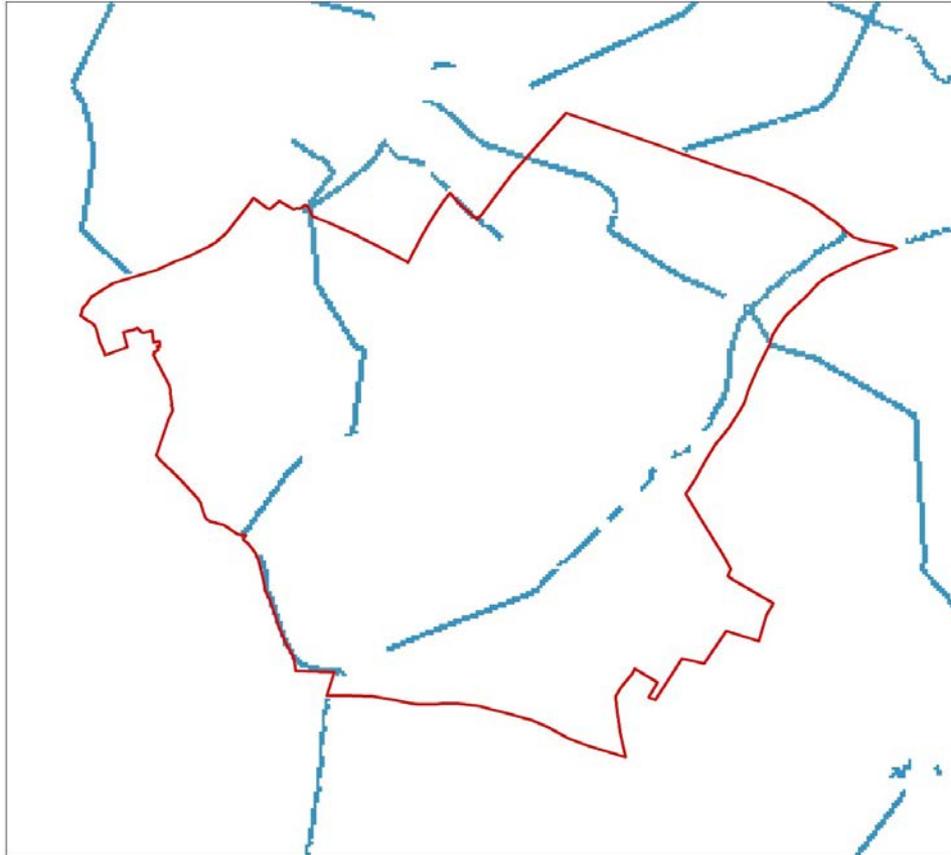
**Masterplan**



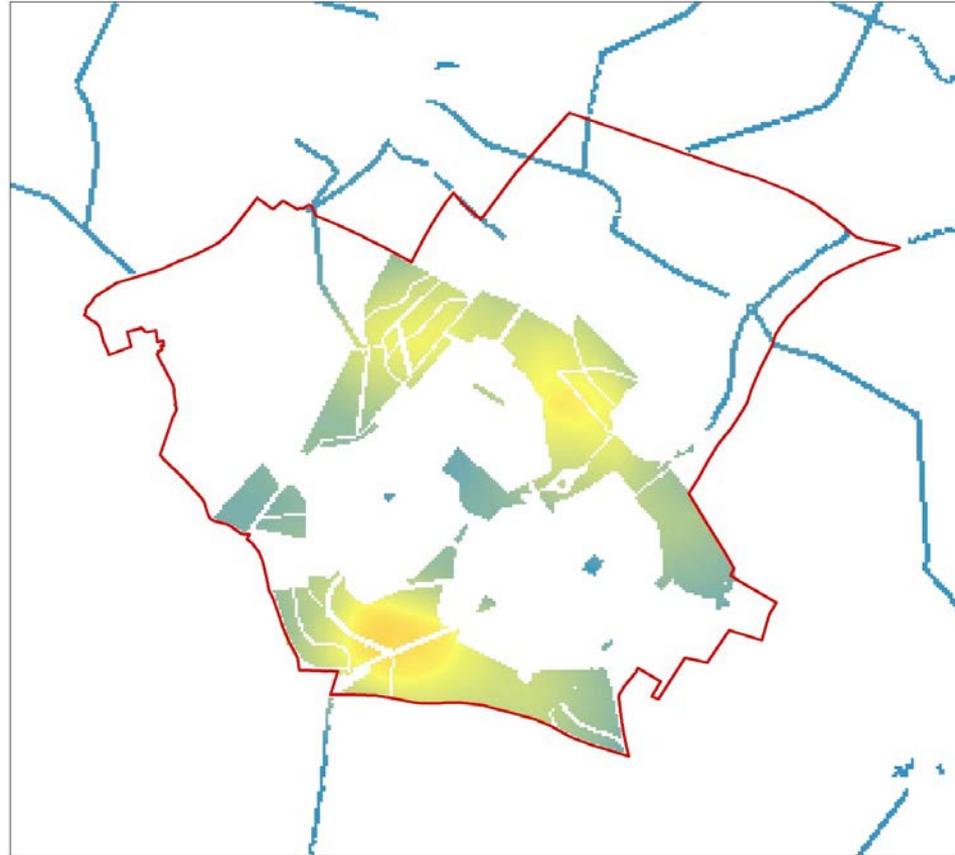
Models the capacity of land to reduce runoff and downstream flood risk

# Accessible nature capacity

**Baseline**

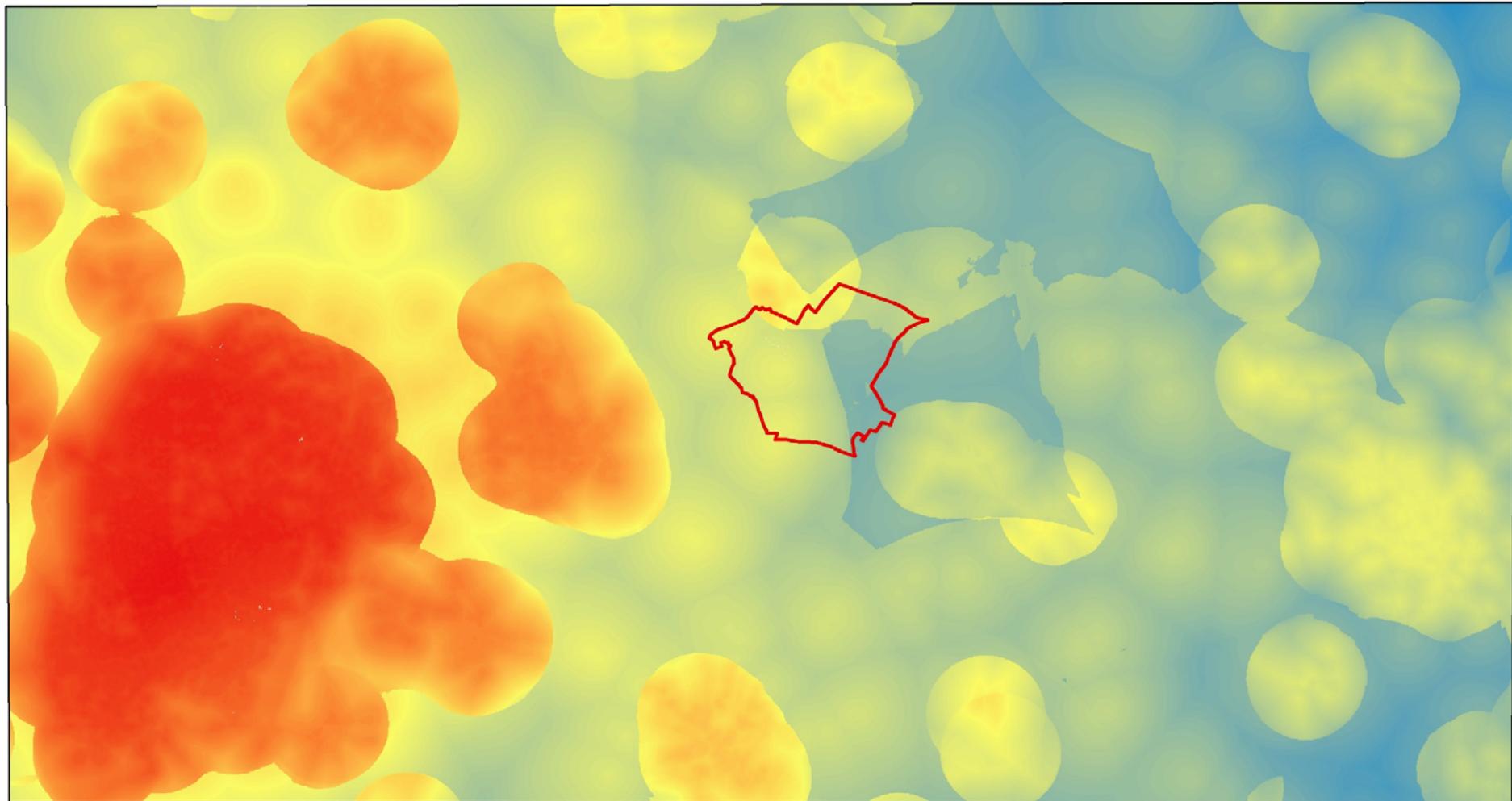


**Masterplan**



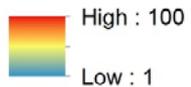
Models the perceived naturalness of the area and whether it is publicly accessible

# Accessible nature demand – baseline



 Tresham boundary

**Accessible nature demand**

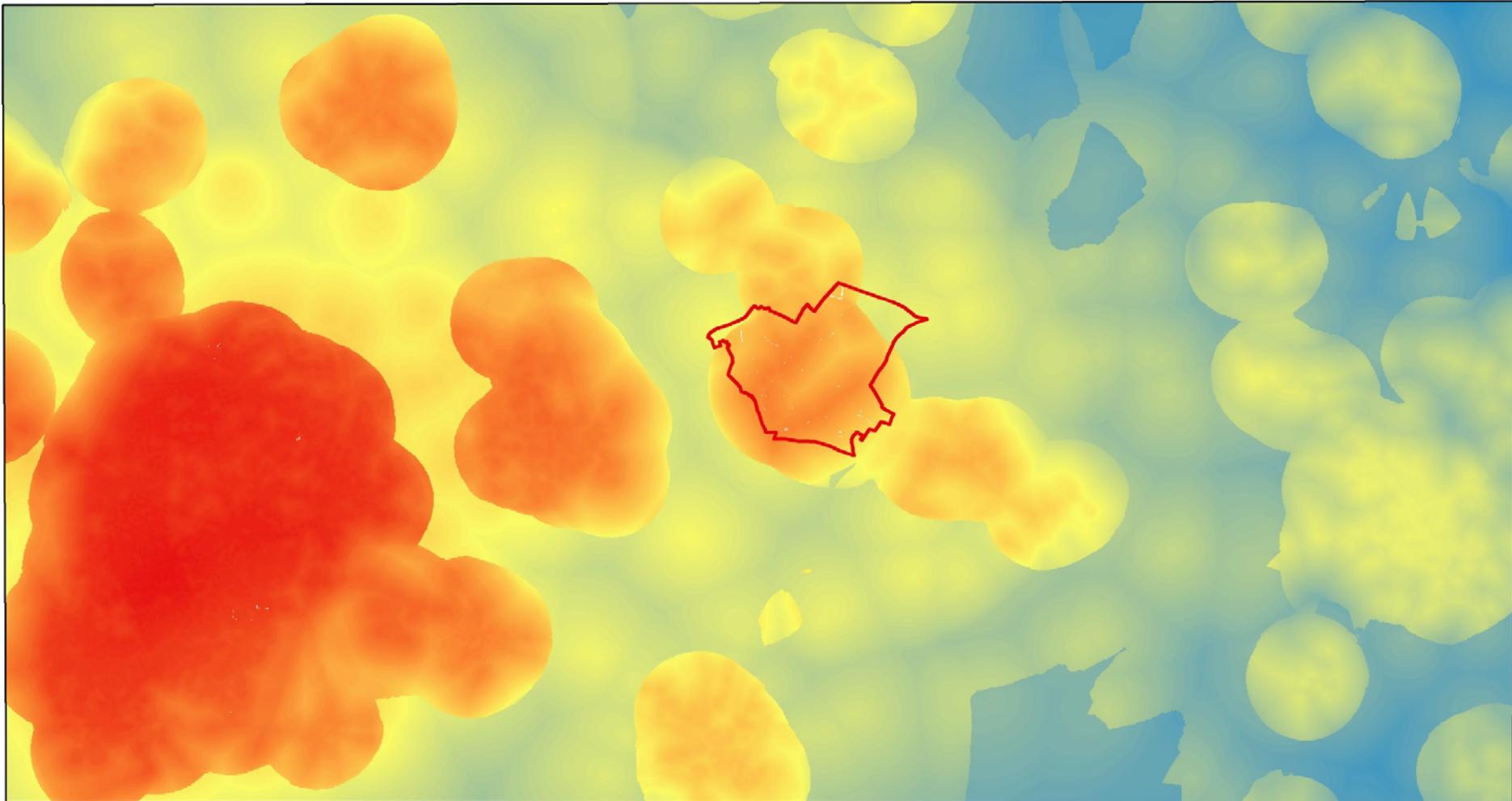


0 2 4 km



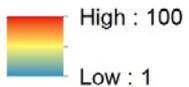
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# Accessible nature demand - masterplan



 Tresham boundary

**Accessible nature demand**



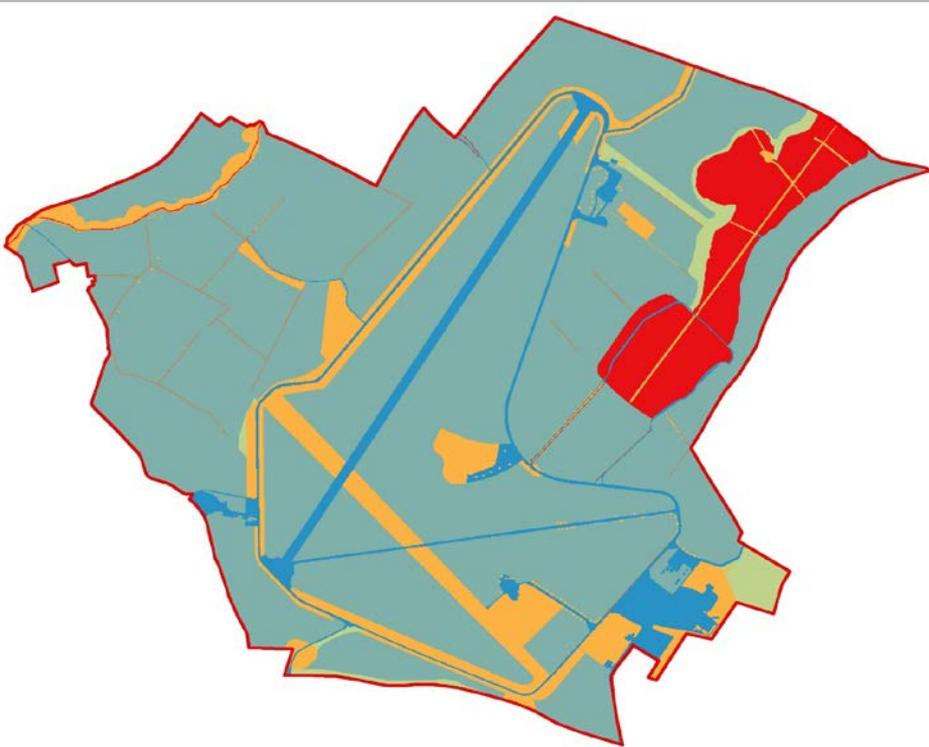
0 2 4 km



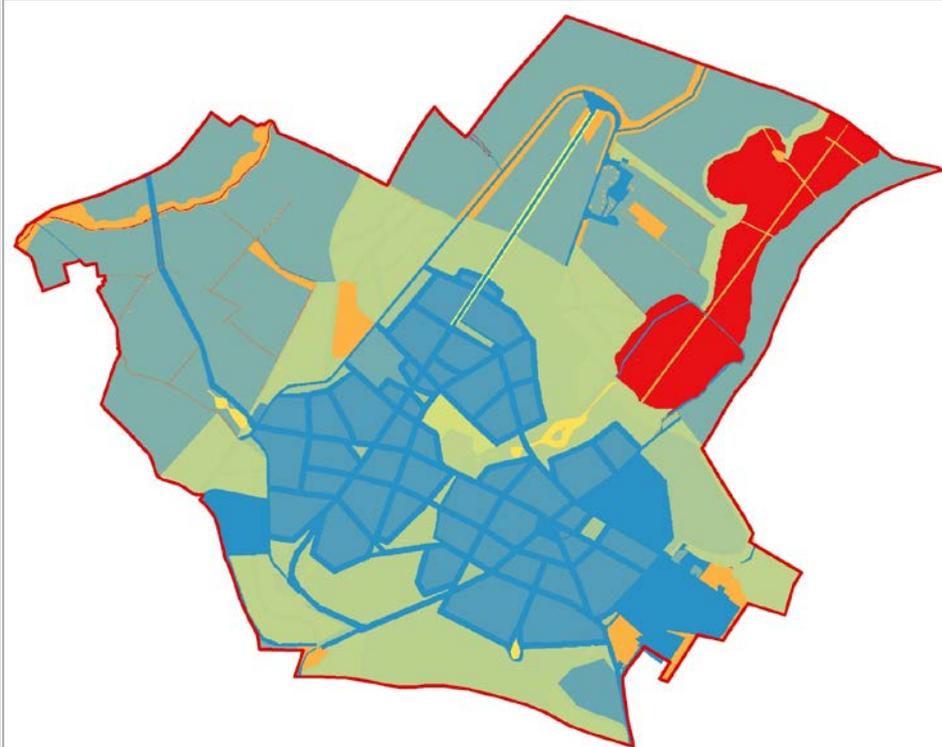
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# Biodiversity capacity

## Baseline

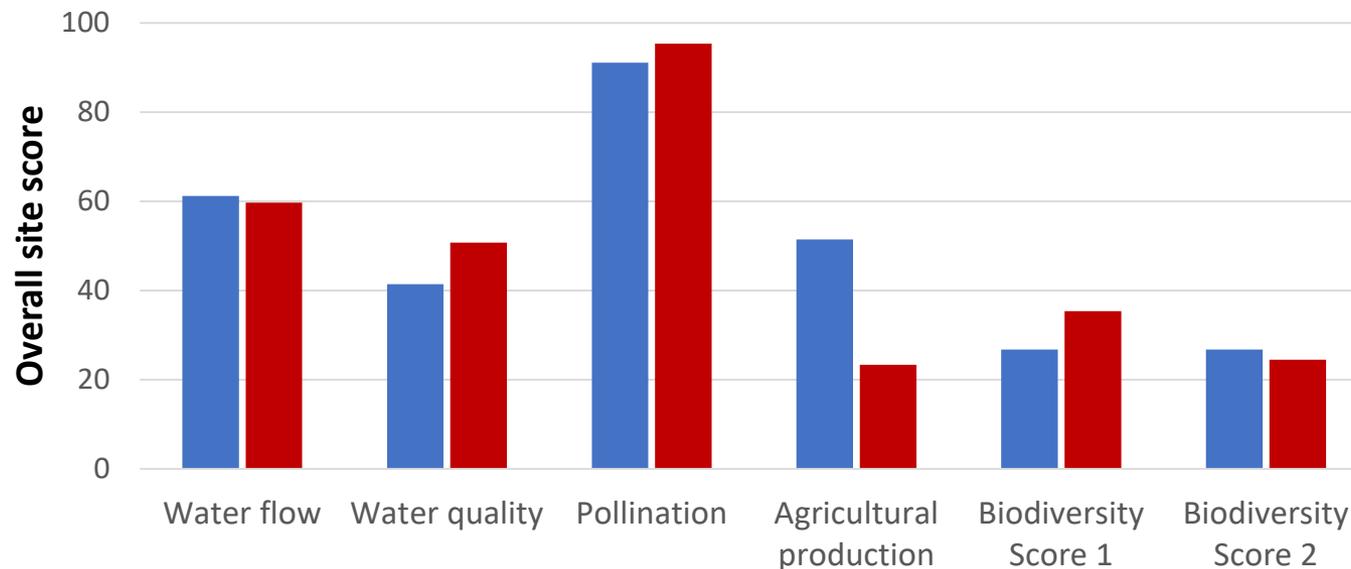
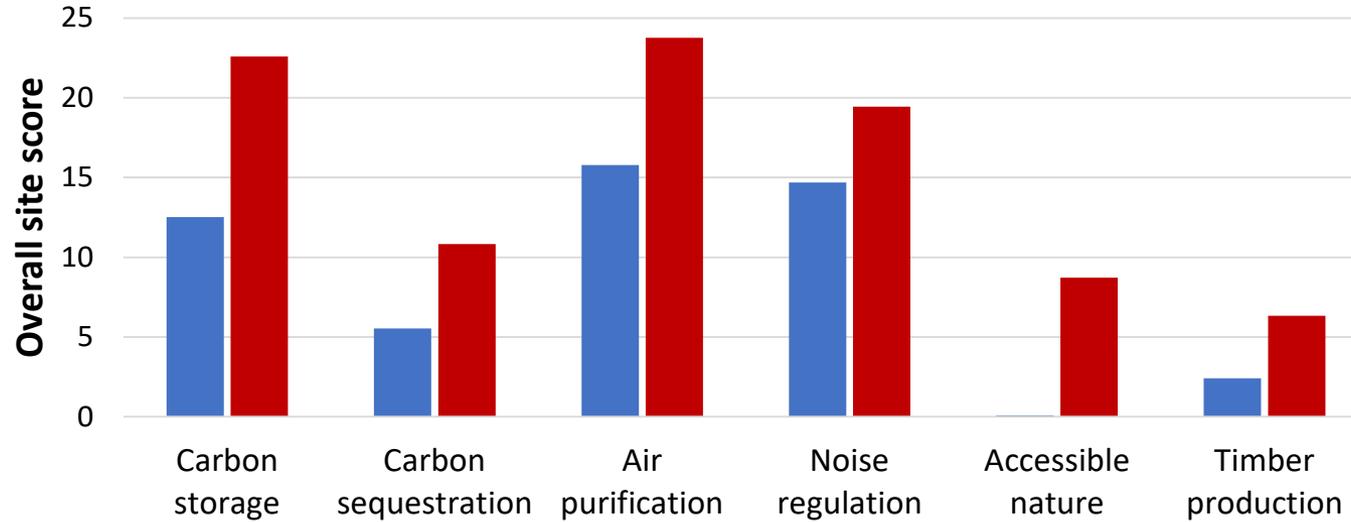


## Masterplan



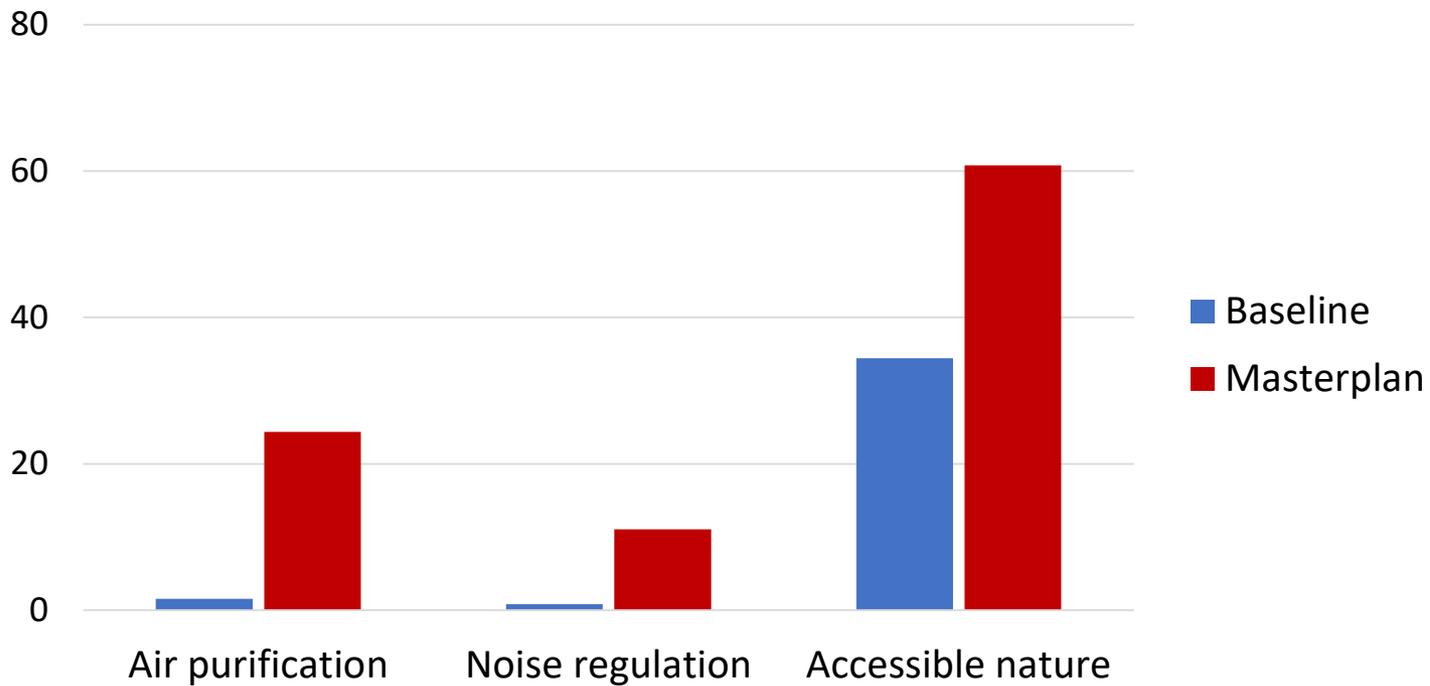
Uses the Defra biodiversity metric to score biodiversity value

# Overall supply of ecosystem services



■ Baseline  
■ Masterplan

# Overall demand for ecosystem services



## Key habitats - masterplan 2

### Legend

-  Tresham boundary
-  Arable
-  Improved grassland
-  Mixed use grassland
-  Semi-natural grassland
-  Marshy grassland
-  Allotments
-  Parkland
-  Orchard
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0 300 600 Metres



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New area of parkland now publicly accessible

Habitat changed to species-rich meadow, with full public access

Langley Coppice now fully publicly accessible

Wet grassland extended

Existing hedgerows retained

Open water SuDS channel

Thin woodland strip

Additional productive spaces (fruit & veg)

Species-rich meadow surrounds sports pitches

# Change in natural capital assets

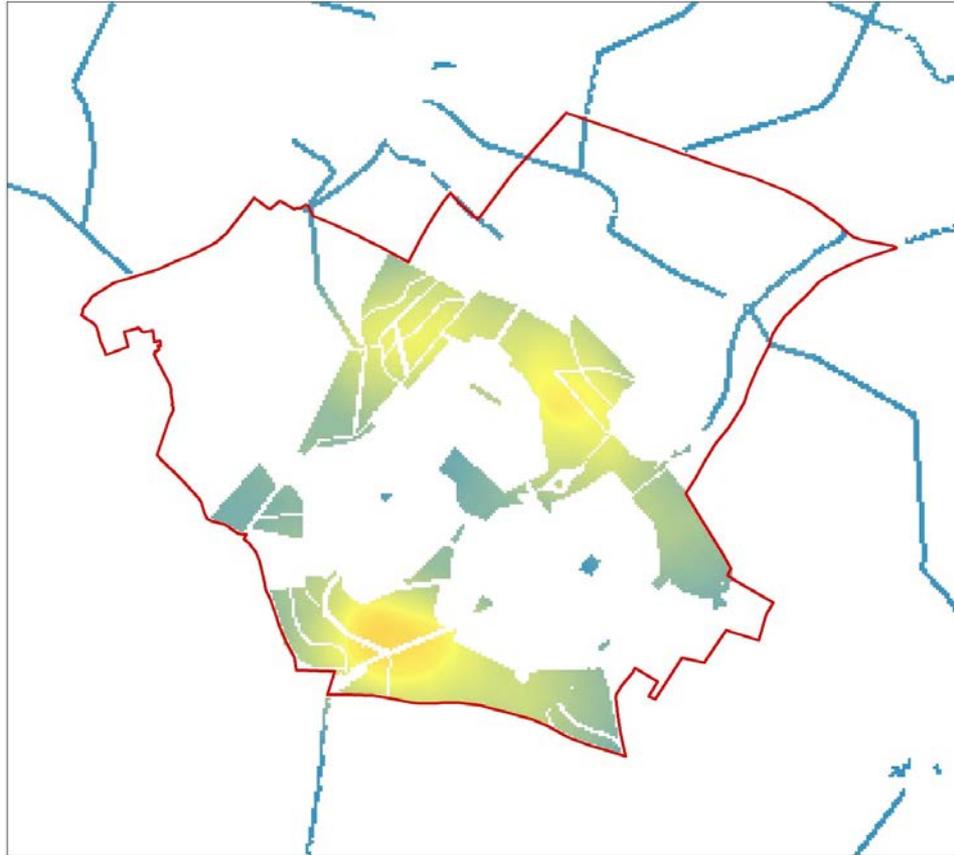


| Broad habitat type            | Change from Masterplan 1 to 2 (ha) |
|-------------------------------|------------------------------------|
| Arable                        | -7.4                               |
| Improved grassland            | -9.9                               |
| Mixed use (amenity) grassland | -6.2                               |
| Semi-natural grassland        | 12.0                               |
| Allotments                    | 1.4                                |
| Trees / Parkland              | 8.9                                |

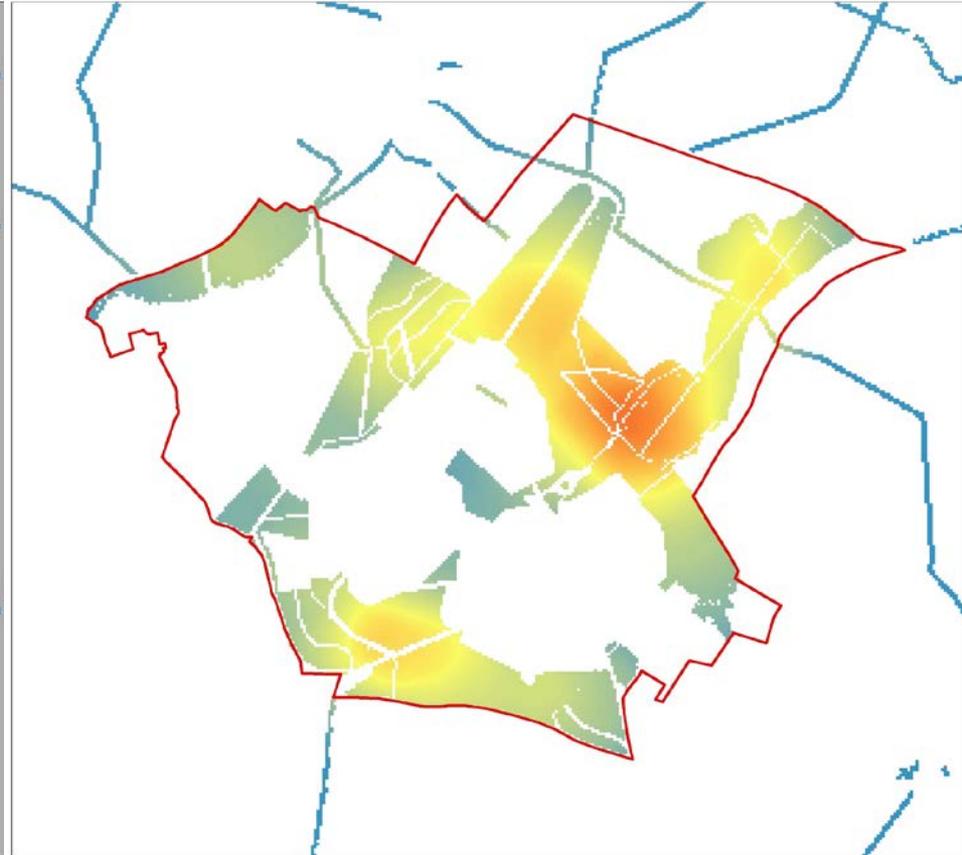


# Accessible nature capacity

## Masterplan 1

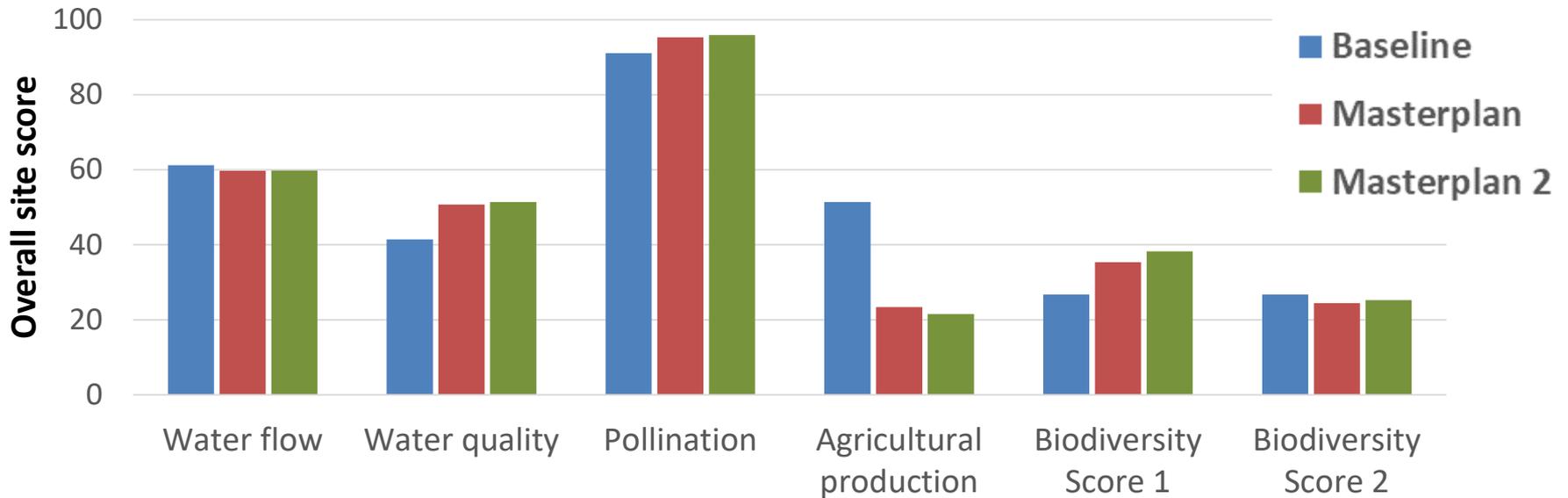
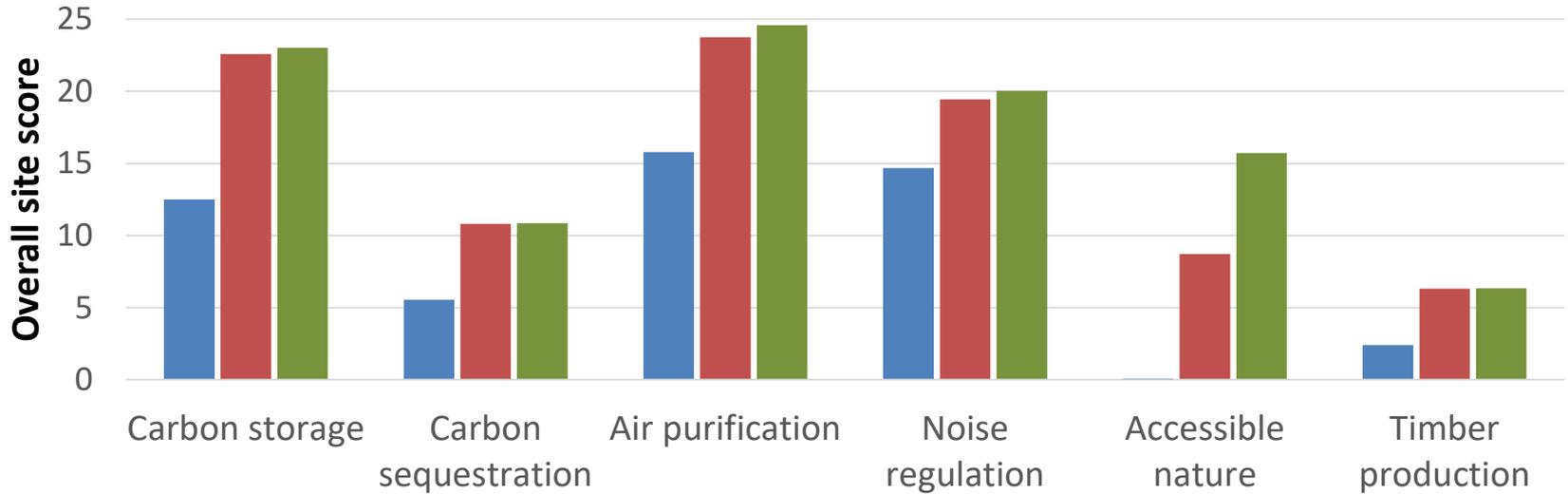


## Masterplan 2



Models the perceived naturalness of the area and whether it is publicly accessible

# Change in supply of ecosystem services



# Key points – Tresham

- The proposed development broadly increases both supply and demand for most ecosystem services
- New woodland planting surrounding core built zone is particularly beneficial
- Ecosystem service delivery was increased further – highlighted through assessment and stakeholder workshop
- Can be used to evaluate environmental net gain
- The approach used is applicable elsewhere in the planning and development sector



# Assessing and delivering net gain in planning and development

- A natural capital approach is embedded across multiple Government policies but little knowledge of how to do this in practice
- Likely to be a requirement for environmental net gain as part of all new developments
- Natural capital and ecosystem services can be assessed before and after proposed developments to determine net impact and enhance design
- Mapping can be used to highlight the spatial location and distribution of benefits (especially in relation to demand) to give a more complete insight and is an important component of stakeholder engagement
- Natural capital approaches (including valuation / accounting) are useful at highlighting the value of the natural environment in new developments, which may otherwise remain hidden.



## **Tresham Garden Village: A natural capital impact assessment**

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Recommended citation: Rouquette, J.R. (2017) Tresham Garden Village: A natural capital impact assessment. Natural Capital Solutions.



## Further information

- Full technical report containing all maps, methods and results available from (go to case studies page):  
[www.naturalcapitalsolutions.co.uk](http://www.naturalcapitalsolutions.co.uk)
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# The usability of Ecosystem Services assessment at the site specific level

- An engaged process with involvement from a wide variety of stakeholders, this created buy-in to the process.
- Applicant will be able to clearly demonstrate compliance with required policies in the local plan – including Ecosystem Services, GI and Place Shaping.
- Difference between large and medium developments compared to smaller sites. Workshops only applicable to larger developments.
- **Moving forward in North Northamptonshire**
  - ES maps plus new opportunity mapping to be embedded into local documents
  - Inclusion in the Place Shaping SPD the principles and options for delivery
  - Variety of case studies to demonstrate potential and possibilities

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