

User Guide

Nature-based solutions: Evidence Base



Nature Based Solutions (NBS), such as green roofs and walls, streets, sustainable drainage systems (SuDS) and green spaces, provide a range of benefits, which can help us to tackle a variety of urban challenges, such as flooding, drought and heat waves, as well as improving air quality, biodiversity, productivity and our health and wellbeing.

Over the past 30 years, academic research and demonstration projects have built up a wealth of evidence on the multiple benefits which can be delivered through our green infrastructure and the installation of new Nature Based Solutions or NBS.

The IGNITION Nature-based solutions evidence base brings together this evidence to help policy officers, planners, developers, land-owners, charities and local residents to promote and install green solutions across GM.

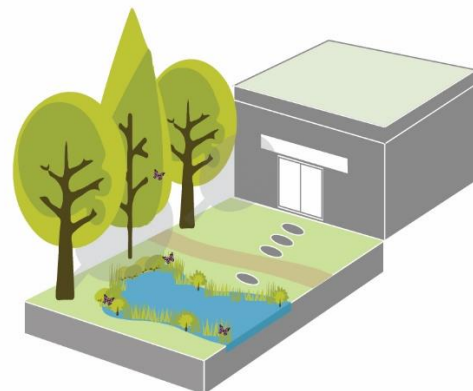
This document provides a brief user guide for the IGNITION NBS evidence base.



Purpose and scope

The IGNITION NBS evidence base is a catalogue of evidence on the benefits of five different types of NBS:

- **Green roofs**
- **Green walls**
- **Street trees**
- **Sustainable drainage systems (SuDS)**
- **Green spaces**





The NBS Evidence Base

For the five different NBS types, the evidence base contains over 1000 evidence items across 12 different benefit types, covering environmental and socio-economic areas. The databases contain:

- Headline evidence summaries
- Detailed quantitative and qualitative data
- Detailed list of evidence sources

How was it created?

To produce the NBS Evidence Base the IGNITION team undertook a rapid-review of the existing evidence, including academic research, demonstration projects, technical reports and policy documents. The approach to the collection of evidence was made as systematic as possible by following a protocol for searching of evidence items, using common key search terms, and consistently recording quantitative and qualitative evidence in a structured database. A range of evidence types were used in order to minimise bias.

The review team then screened the results of the structured search to ensure that the database provided the most evidence relevant for GM. The screening procedure prioritised evidence which met the following criteria:

1. quantitative data
2. published since 2000
3. produced in the UK or Europe
4. similar climate zone to GM
5. relevant to the urban areas

The outputs

The result of this process was a database for each of the five target nature-based solutions, containing over 1000 evidence items across twelve benefits types. The benefit types covered include:

- Air quality
- Carbon storage and sequestration
- Water quantity
- Water quality
- Energy use
- Temperature
- Noise
- Amenity
- Biodiversity
- Local economic growth
- Health and wellbeing
- Land and property values

For each evidence base the quantitative benefits have been summarised where possible to provide headline figures on the estimated performance of nature-based solutions across the benefits. These headline summaries have then been used to develop brief fact sheets and reports.

The evidence base was compiled by researchers from GMCA and BITC as part of the UIA funded IGNITION project.





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Using the databases

1. To explore the evidence database first download the latest relevant excel spreadsheet for the NBS type you are interested in from www.ignitionGM.com
2. When you open the database the first tab of the spreadsheet, 'Type', details the definition of the NBS used for the evidence review, and any 'types' of solutions that sit underneath the definition
3. The second tab, 'Evidence profile', breaks down the quantity of evidence items and sources against each benefit for that NBS
4. The third tab summarises the headline quantitative evidence reported across the 12 benefits types for that NBS
 - a. Headline figures are generally reported as the average, mean or the range
 - b. Where there is no quantitative data was available no headline figures are provided
5. Each of the subsequent tabs enables the user to explore the evidence recorded for each of the benefit types in more detail

Adding to the evidence base

The IGNITION NBS evidence base is designed as a live repository of knowledge. The simple format adopted allows for additional evidence to be added to databases throughout the life of the IGNITION project and beyond. If you have evidence you think should be added to the databases please contact: pmo.ignition@manchesterfire.gov.uk.

Referencing the evidence base

If you are using evidence from a specific study, use the study reference as provided in the database. When referencing the summary pages data reference: *IGNITION project nature-based solutions evidence base, *Insert NBS type* summary (July 2020 edition) – Available on the [Ignition GM website](http://www.ignitionGM.com).*





For further information contact pmo.ignition@manchesterfire.gov.uk or www.ignitiongm.com

