Urban

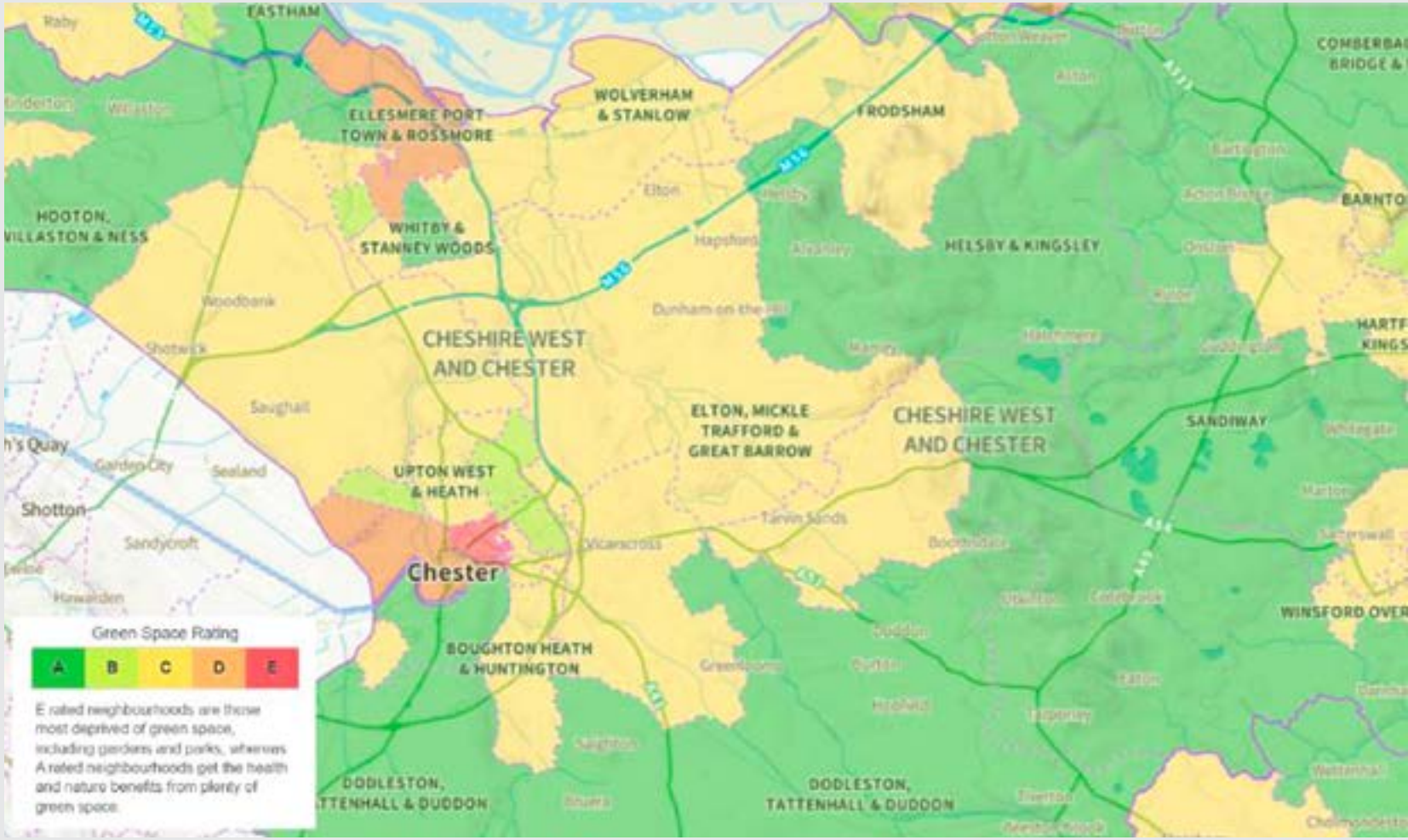
Cheshire and Warrington's urban, post-industrial landscape includes a variety of habitats, which many rare species have colonised. Cheshire and Warrington contain disused quarries, old industrial sites, former railway sidings and landfill sites, often located in the urban centres and fringes. As industrial and manufacturing processes changed during the mid to late 20th century, the road network dramatically expanded, and railways became important linear wildlife corridors. Some of our brownfield sites have evolved into rare open mosaic habitats, becoming home to nationally scarce species. The salt and sandstone industry also left areas of unique habitat, such as flashes and lime beds. Wealthy industrialists also helped to invest in formal parks, gardens, arboretums and much of the green infrastructure we benefit from today.

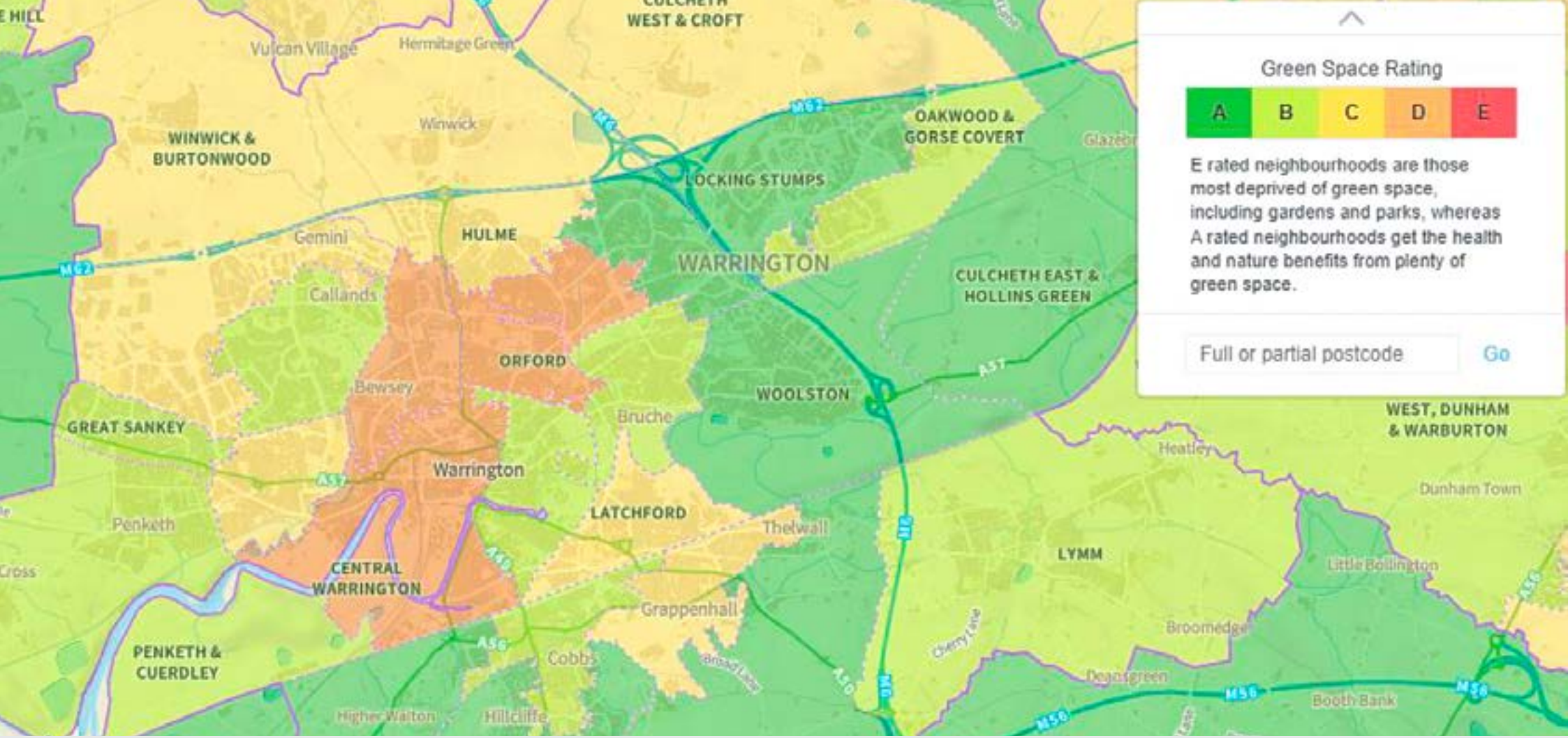
Our urban areas are vital for nature's recovery, and we can gain multiple benefits from acting for nature while also improving our air quality, reducing heat and flood risk, improving spaces for leisure and recreation and helping improve residents' health and wellbeing.

We can also tackle some of the big inequalities and make sure everyone has access to nature including being able to access green space, woodland, rivers and grassland within a 15-minute walk of everyone's home.

Currently, according to Friends of the Earth's Green Space Rating[39] maps, people living in some of our urban areas are deprived of greenspaces including gardens and parks, including Ellesmere Port, Chester and Wharton, parts of Warrington and Macclesfield.

[39] Access to green space in England | Friends of the Earth





The same often goes for trees, the tree equity score from the Woodland Trust is based on the principle that all communities should have equitable access to the benefits of trees where they live. While some urban areas enjoy abundant greenery and tree cover, others lack these essential natural assets.

Studies show that trees and other green infrastructure in urban areas can:

- Reduce air pollution, quieten noise and keep cities shaded and cool.
- Improve ecosystems and boost biodiversity.
- Create a sense of place, beauty and heritage.
- Create attractive environments where businesses want to invest and people want to live, work and play.
- Alleviate stress, stabilise blood pressure, ease anxiety and depression, and provide opportunity for healthy, active lifestyles.

Urban tree cover varies significantly in Cheshire and Warrington, ranging from as little as 5% in some wards in Ellesmere Port, Chester and Warrington to 30% in some wards on the edge of our towns and villages.

Pressures on nature recovery in Urban areas

- Lack of understanding amongst urban residents about the benefits of wildflower meadows can lead to limited development of appropriate habitats for nature in the urban areas.
- Increase in development without consideration of nature already on the site.
- Low green infrastructure.
- Inappropriate development on floodplain areas (Low provision of SUDS).
- Litter pollution.
- Recreational disturbance.
- Water pollution from runoff.



Opportunities to recover nature and provide wider benefits in our Urban areas

- Ensure that multi-functional green spaces are planned into new developments and regeneration schemes.
- Manage our parks and open spaces for nature rich, climate adapted habitats.
- Make sure all our schools, care homes, hospitals and other buildings have nature-rich accessible green spaces for nature and people.
- Include green space and trees in any highways or infrastructure plans.
- As part of street lighting and lighting in public spaces, consider dimming, shielding and installing sensor activated lighting (subject to security considerations) and install warmer red-spectrum lights instead of the blue-white lights so often used.
- Support and encourage more people to make their gardens, driveways and land more nature friendly.
- Support community gardens and green spaces, for nature, food growing and climate.

Case Study: Warrington's Sky Garden

Culture Warrington's award-winning Sky Garden is based on top of a multi-storey car park in the town centre.

It was funded by Museum Development North and Hubbub, and is project managed by Warrington Museum. The idea behind the garden was to provide a space for nature in an urban environment, a space for schools to learn about botany and wildlife and a space for wider community engagement.

The site runs with help from a volunteer team and staff at Golden Square shopping centre, and free local food is grown for the community to be given away at events throughout the year.

Culture Warrington's Sustainability Officer also chairs a group of community green spaces across the borough. This is a growing community of green spaces across the Warrington area where people can share skills and resources to improve the environment and improve their health and wellbeing.

Key topic - Light Pollution

What is light pollution?

Light pollution is an issue first reported in the 1970's[40]. It is the presence of excessive artificial light in the environment, which can have various negative effects, caused by urbanisation and industrialisation, which contribute to issues of glare, light trespass and sky glow.

How does it affect us and wildlife?

- **Threatens the natural life cycles of both humans and wildlife, including reproductive and metabolic systems.[41]**
- **Due to artificial light, people can now work throughout the day, but this has led to a rise in cancer cases and mental health impacts (i.e. depression, mood disorders and cognitive impairment).[42]**
- **Further to the effects on humans, wildlife is adversely impacted by direct and indirect lighting. This includes feeding habits, reproductive success, distribution and abundance. Note that this is in the aquatic and terrestrial ecosystems.[43] [44]**

What is currently being done about it?

In Cheshire and Warrington, each local authority follows the Bat Conservation's guidance on street lighting[45] and further guidance have been created internally specifically for developers when considering lighting settings. As LED technology improves, we are hoping that the brightness and colour of lighting can be adjusted to benefit both wildlife and people. There are plans to trial and test other lighting methods, which could further deliver cost savings, reductions in crime and help biodiversity.

How can the LNRS support minimising light pollution?

Local authorities and planning applicants must have regard to LNRS. LNRS provides the necessary evidence base for developers through the associated information within the appendices and the priorities and actions set out in the document.

[40] Light Pollution
[41] Environmental Impacts of Artificial Light at Night
[42] Artificial light at night and risk of mental disorders: A systematic review
[43] Light pollution from illuminated bridges as a potential barrier for migrating fish
[44] Artificial light at night - pollution alters bat lunar chronbiology
[45] Bats and artificial lighting at night





Priorities and actions for the Urban areas

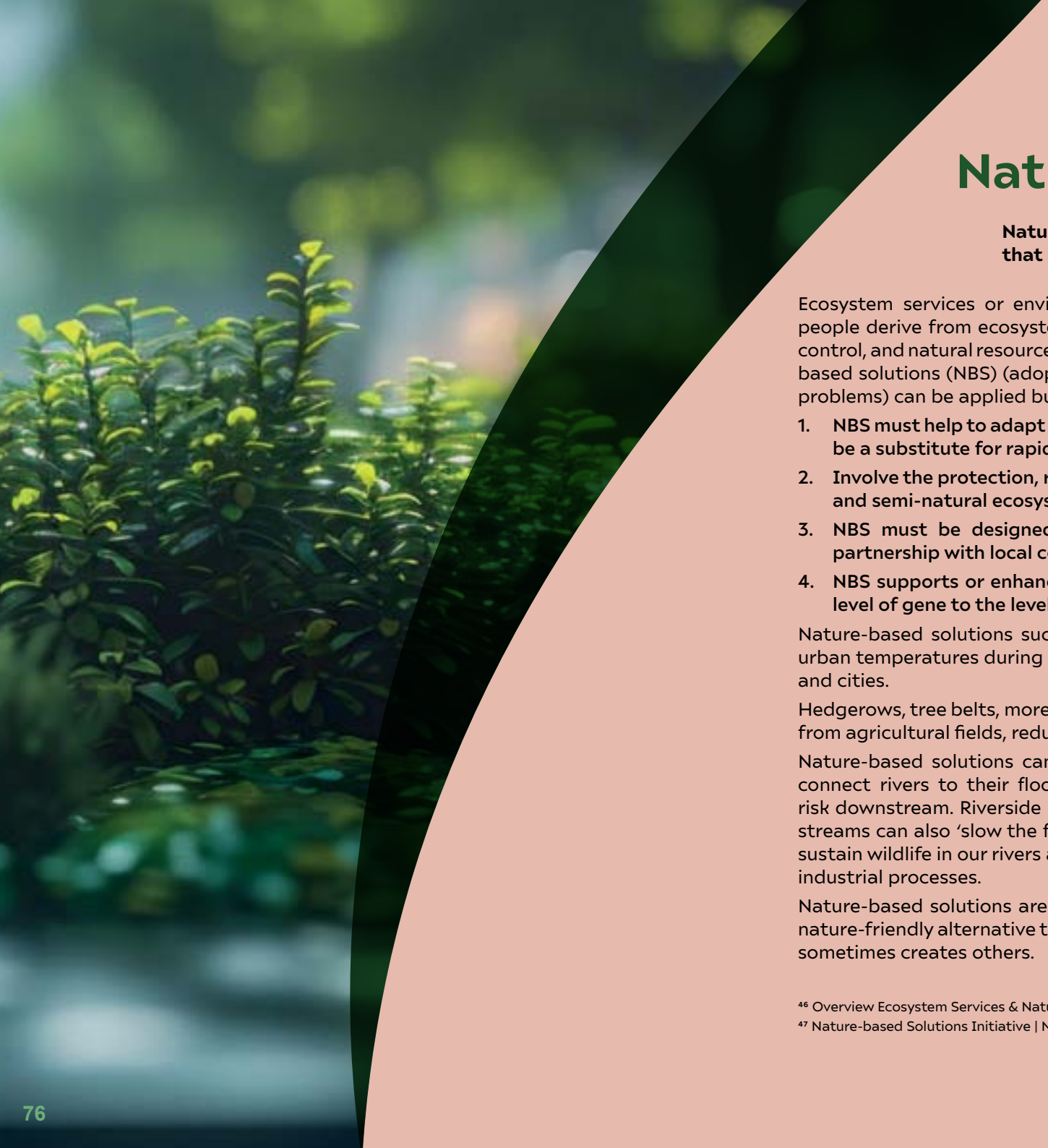
Priority	Actions
U1 Green and blue wildlife corridors between urban and rural Cheshire and Warrington, for species movement and opportunities for active travel, recreation and engagement with nature	• U1.1 Safeguard and expand nature corridors within urban areas, to connect with broader rural landscape corridors. • U1.2 Create more communal semi-natural greenspace and wildlife rich areas. • U1.3 Re-establish and improve wildlife culverts / underpasses along our transport infrastructure. • U1.4 Integrate nature into better urban placemaking including working towards increasing GI cover to at least 15%. • U1.5 All housing developments are promoted to include swift/bee bricks and hedgehog highways. • U1.6 Develop a sponge city network to reduce possible impacts of climate change. • U1.7 Improve the greenway and active travel network for nature and people. • U1.8 Where possible, invest in nature in brownfield sites that are not subject to development.

Species - the list of species and species assemblages that benefit from the above actions:

- Western European Hedgehog
- Badgers
- Mammals in urban areas assemblage
- Bats assemblage
- Open mosaic butterflies and moths

We can do this by using nature based solutions – for more on that, see the following section.





Nature-based solutions

Nature-based solutions are interventions based on nature that provide society with other beneficial outcomes.

Ecosystem services or environmental co-benefits are defined as "the benefits people derive from ecosystems such as clean water, food, forest products, flood control, and natural resources"[46]. To achieve the ecosystem services needed, nature-based solutions (NBS) (adoption of ecosystem services to address environmental problems) can be applied but must follow four principles:

1. **NBS must help to adapt and mitigate the effects of climate change but cannot be a substitute for rapid fossil fuel phase out.**
2. **Involve the protection, restoration or management of a wide-range of natural and semi-natural ecosystems on land and in the sea.**
3. **NBS must be designed, implemented, managed and monitored by or in partnership with local communities.**
4. **NBS supports or enhances biodiversity, that is, the diversity of life from the level of gene to the level of ecosystem[47].**

Nature-based solutions such as increasing tree cover can reduce pollution and urban temperatures during summers, helping to regulate the climate in our towns and cities.

Hedgerows, tree belts, more diverse grasslands and buffer strips can reduce runoff from agricultural fields, reducing soil loss and improving water quality in our rivers.

Nature-based solutions can help to combat the effects of climate change; re-connect rivers to their floodplains can increase flood capacity, reducing flood risk downstream. Riverside planting, buffer strips and even leaky dams in smaller streams can also 'slow the flow' to help increase water volume in drier months to sustain wildlife in our rivers and provide drinking water and sufficient provision for industrial processes.

Nature-based solutions are often a more natural, sometimes cheaper, and more nature-friendly alternative to hard engineering, which only solves one problem and sometimes creates others.

[46] Overview Ecosystem Services & Nature Based Solutions - Native Plant Conservation Campaign
[47] Nature-based Solutions Initiative | NbS Guidelines

Nature recovery opportunities for nature through Nature-based solutions in the Urban and Rural environment

- Strategic planning of a multi-functional nature-rich greenspace especially in new developments enables nature to recover and people to become more connected with nature.
- Encourage rural communities to plant clough woodlands in the uplands, to reduce flood risk, help to build flood resilience and enhance the woodland network in the uplands.
- Encourage more schools, preschools and nurseries to create richer and wilder green infrastructure spaces within their setting. Encourage students and staff to use these spaces in diverse ways such as forest schools, environmental education, outdoor classrooms and learning to foster positive relationships with nature from an early age.
- Use design standards and good practice, such as the **Building with Nature Standard** or actions outlined in Wildlife Trust's **Swift and Wild report**, to encourage new developments to be more nature-friendly.
- Encourage developers to join the **Homes for Nature** initiative to ensure that every new home built has a bird-nesting brick or box, and hedgehog highway as standard in addition to meeting Biodiversity Net Gain requirements.
- To reduce flood issues, require developers to install sustainable urban drainage systems such as swales, rain gardens and permeable surfacing that support wildlife and reduce flood risk.
- As part of installation, maintenance and replacement for street lighting or other lighting, we need to swap out blue-white public lighting and replace it with nature friendly lighting (warmer, lower wavelengths) in urban and rural environments to reduce impact on bird, bat[48] and other species. Also consider opportunities for ensuring lighting is no brighter than necessary or shielding street lighting subject to security and road safety considerations.
- Install wildlife-friendly green roofs and walls.
- Bat and bird boxes designed into buildings.
- Establish nature corridors to help invertebrates, reptiles, hedgehogs and other mammals to move between habitats.
- Planting should include native, locally sourced wildlife-friendly plants to reduce invasive species impact.
- Mandatory Biodiversity Net Gain is correctly implemented, monitored and strictly maintained.

[48] Guidance Note 8 Bats and Artificial Lighting | Institution of Lighting Professionals



Key topic - Sustainable Urban Drainage Systems (SuDS) & Natural Flood Management (NFM)

Reduced Flood Risk and Better Water Quality

What are SuDS and natural flood management?

SuDS (Sustainable urban Drainage Systems) are approaches to manage surface water, which take account of water quality (pollution), amenity, water quantity (flooding) and biodiversity (wildlife and plants). The key aspect of SuDS is to mimic nature and manage rainfall through natural geoprocesses[49]. The difference between SuDS and natural flood management is that SuDS help the urban areas mimic nature whereas NFM techniques refer to the restoration of natural ecosystems, such as wetland restoration or reforestation to help 'slow the flow' and helps with soil management[50].

Why are SuDS and NFM techniques important for society and the environment?

- By implementing SuDS in the urban area, the urban heat island effect is minimised along with a reduced flood risk and provides a habitat for biodiversity and natural flood management.
- NFM- providing more wetland areas in Cheshire would enable many rivers to store water and help with river recharge during droughts and reduce flooding impact on farming in the rural areas.
- NFM- work on NFM in Cheshire's rural landscape would provide farming businesses and rural residents more resilience to flooding, which will save money in terms of insurance and business costs.

[49] Sustainable drainage

[50] Natural Flood Management (NFM) | The Flood Hub

Benefit Category	What it covers
Flood risk management	Impact on people and property
Water quality management	Surface water quality improvements to aesthetics, health, biodiversity etc.
Biodiversity and ecology	Sites of ecological value
Amenity	Attractiveness and desirability of an area
Air quality	Impact on health from air pollution
Building temperature	Thermal comfort, cooling (summer) or insulation (winter)
Carbon reduction & sequestration	Operational & embodied carbon reduction together with sequestrian (planting)
Crime	Crimes against people or property
Economic growth	Business, jobs & productivity
Education	Enhanced educational opportunities
Enabling development	Water infrastructure capacity (headroom) for housing / other growth
Flexible infrastructure / Climate change adaption	Improved ability to make incremental changes & adapt infrastructure no regrets
Groundwater recharge	Improved water availability or quality
Health & Wellbeing	Physical, emotional, mental health benefits from recreational aesthetics
Pumping wastewater	Reduced flows of wastewater to treatment works
Rainwater harvesting	Reduced flows into sewers, pollution or dependence on potable (mains) water
Recreation	Involvement in specific recreational activities
Tourism	Attractiveness of tourist sites
Traffic calming	Reducing risk of road accidents or increasing street-based recreational opportunities
Treating wastewater	Reduced volume of wastewater to treat from combined drainage systems

Priorities and actions for Nature-based solutions

Priority	Actions
NBS1. Nature, people and economy thriving through more, bigger, better and joined up Green and Blue Infrastructure	• NBS1.1 Hedgerow creation prioritised over fencing within new development with a min 1-1.5m width (see hedgerow actions). • NBS1.2 All individual trees removed should be replaced with at least two trees (removal of veteran or exceptional trees is not to be permitted unless risk is evidenced). • NBS 1.3 Create and/or retrofit new green roofs/walls and spaces where feasible. • NBS1.4 Mitigate the impacts of pollution from waste, transport and landfill for the benefits of nature and people. • NBS1.5 Design buildings and infrastructure with nature benefits and improved placemaking in mind. • NBS1.6 Increase urban tree canopy cover, to provide multiple benefits by working towards a 15% tree (or GI) cover target for all wards by 2035, prioritising action in wards of highest disparity. • NBS 1.7 Diversify amenity grassland in urban greenspaces to provide more semi-natural habitats and multi-functional greenspaces. • NBS1.8 Safeguard and expand blue/green corridors (for multiple benefits) in urban areas, to connect with broader rural landscape. • NBS1.9 Encourage more nature in school grounds, well-designed with maintenance in mind. • NBS1.10 Target habitat creation or enhancement in urban areas.
NBS2 Improved biodiversity by mitigating specific sources of pollution	• NBS2.1 Remove or mitigate against light pollution, particularly along the river and canal network. • NBS2.2 Mitigate pollution from agriculture, waste, industry and recycling management processes.
NBS3 Better functioning watercourses for nature, people and a thriving economy	• NBS 3.1 Create, enhance and celebrate nature-based solutions throughout catchments to ensure plentiful, clean water for wildlife, people and economy. • NBS3.2 Store water and slow the flow through upstream habitat investment. • NBS3.3 Promote the benefits of functional green and blue spaces for a vibrant economy.
NBS4. More sustainable drainage and natural flood management, making space for water in our catchments and communities	• NBS4.1 Install Sustainable Drainage Systems to deliver multiple benefits for nature, people and local businesses. • NBS4.2 Install permeable surfaces and green / blue infrastructure to manage surface water. • NBS 4.3 Identify areas of significant flooding and develop nature interventions and investment opportunities to reduce risk and impact. • NBS4.4 Develop Cross-county strategic design guidance that benefits nature, encourages more semi-natural greenspace and mitigates climate impacts.

Species - the list of species and species assemblages that benefit from the above actions

- Urban mammals assemblage (e.g. Western European Hedgehog, Badgers)
- Bats assemblage
- Open Mosaic Butterflies and moths assemblage
- Roof nesting birds assemblage
- Birds of prey assemblage
- Breeding wader assemblage