Research summary 18: Creating sustainable grey infrastructure: a guide for developers, planners and project managers

'Projects that are focused mainly on delivering economic benefits have the potential to bring environmental improvements as well, but it is necessary to use appropriate expertise to ensure these "green" benefits are optimised.'

Key messages

- Green infrastructure can deliver a range of economic benefits to any development, as well as helping to offset the potential environmental harm such development can cause.
- Although green infrastructure is often embedded in 'grey' infrastructure projects - for example, a verge alongside a motorway – it is often not designed to deliver optimal benefits.
- Sometimes a small adjustment in design and delivery can result in increased benefits for very little cost.
- At every level, grey infrastructure development is subject to policies that put a high priority on climate change adaptation. Green infrastructure can do much to help developments comply in this area.

The context

Grey infrastructure consists of **constructed assets** that occupy land, such as motorways, factories, or sewers. Green infrastructure, on the other hand, consists of **natural assets** such as parks, woodland and allotments.

Grey infrastructure is generally and traditionally the vehicle for delivering socio-economic benefits. Examples include buildings and plant for manufacturing, infrastructure to move goods and people, and the distribution of energy. Green infrastructure is often thought of as delivering socio-environmental benefits, such as increasing biodiversity, reducing flooding and providing areas for recreation, but it also delivers economic benefits as well.

There is growing pressure on those involved in the delivery of grey infrastructure to mitigate some of the damage it causes to the environment. At the same time, there is increasing awareness that quite simple **environmental actions** can often be a potent way of addressing the problem.

This is reflected in policy at all levels. Nationally, for example, the government strategy for sustainable development, *Securing the Future*, states that socio-economic progress must be delivered without damaging the environment. Regionally, strategies such as the North West Regional Economic Strategy and the Regional Spatial Strategy reinforce the message that economic and environmental integration is obligatory.

A guide produced for Natural Economy Northwest[1] aims to help developers, planners and project managers involved in the development of grey infrastructure. It is intended to provide a framework that can be used to identify the additional environmental benefits that projects primarily focused on delivering economic outputs can deliver at the same time. It offers:

- a deeper understanding of the environmental benefits of economically focused projects
- guidance on how to incorporate socio-environmental objectives into economic projects
- guidance on how an economic project can support and show evidence of conformity to national and regional policies, and help to demonstrate an integrated approach to funders, stakeholders and partners
- signposting to useful sources of advice, research, good practice and case studies

The advice

National, regional and local policies, strategies and plans increasingly make the case for developing green infrastructure. Recent evidence, particularly from government, provides a clear message that future economic development will need to avoid negative impacts on the environment.

Climate change provides a further spur to action - in particular the rising frequency and impact of extreme weather events, which often affect thousands of citizens.

It is vital to understand the '**multifunctionality**' of green infrastructure. What this means is that many functions that seem to be primarily environmental or social will also have significant economic consequences. For example, planting trees in a town centre will improve urban biodiversity but can also encourage tourism by

improving the 'visitor experience'; help to mitigate the effects of storm water run-off; and lower temperatures. Such multifunctionality is central in identifying the added socio-economic benefits delivered by the natural environment.

Mapping is an invaluable way of highlighting the intricate relationship between grey and green infrastructure, and of identifying opportunities to deliver both in a planned and integrated manner. The guide provides examples of mapping at different scales and describes how Geographic Information Systems can be used to provide an evidence base to demonstrate the value of the grey infrastructure to all partners and stakeholders.

Because green infrastructure is multifunctional, a project designed to incorporate it will usually help fulfill policies that seek to ameliorate some of the adverse effects of expanding populations, resource consumption and economic growth. Organisations preparing economically driven projects should therefore consider how appropriate use of green infrastructure could help achieve such **policy objectives**.

The guide gives a brief overview of policy areas where green infrastructure has a role to play in the design, development and delivery of grey infrastructure projects. These range from national policy on sustainable development to elements of the Regional Spatial Strategy, such as flooding and water management.

In practice

Natural Economy Northwest has developed a **methodology** for assessing the potential for green infrastructure development within grey infrastructure projects. The methodology uses an algorithmic approach that can be applied to a wide variety of potential projects to weigh up the likely effects of a range of green infrastructure interventions.

In effect, it represents a framework for dealing with a complex array of variable conditions that the project in question might be likely to display. For example, if a large industrial estate is being developed on the urban fringe, the algorithm allows the project to be designed and developed in a way that optimises the use of green infrastructure alongside the grey. The guide describes this methodology in more detail and a hypothetical case study is used to demonstrate its effectiveness.

As part of its work, Natural Economy Northwest selected eight regeneration projects and used them to demonstrate how green infrastructure can increase the overall benefit of grey infrastructure. More information about these **demonstration projects** can be found on the NENW website (see panel).

Find out more

Natural Economy Northwest
www.naturaleconomynorthwest.co.uk

Securing the Future
www.defra.gov.uk/sustainable/government/publications/uk-strategy/

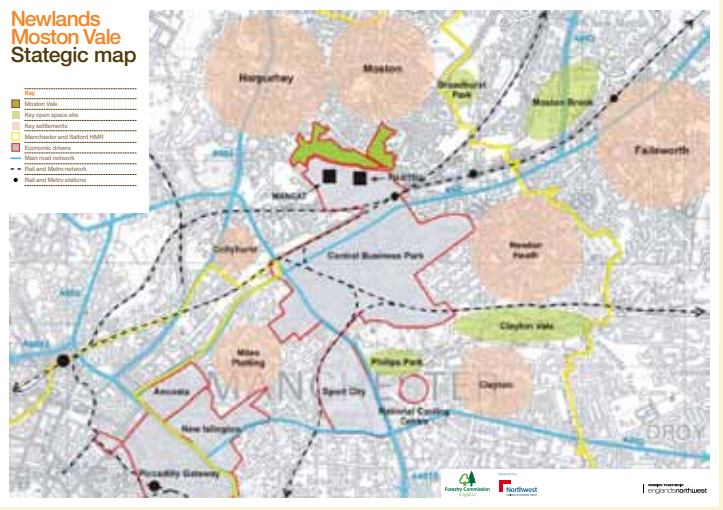
North West Regional Spatial Strategy
www.gos.gov.uk/gonw/Planning/RegionalPlanning

North West Regional Economic Strategy
www.nwda.co.uk/publications/strategy/regional-economic-strategy-200.aspx

Department of Energy and Climate Change
www.decc.gov.uk

Climate Change Northwest
www.climatechangenorthwest.co.uk

[1] *Putting the green in the grey: Creating sustainable grey infrastructure.* A guide for developers, planners and project managers
www.naturaleconomynorthwest.co.uk/resources+reports.php



Moston Vale, Manchester: showing how grey and green infrastructure can work together.