



Natural Capital Planning Tool (NCPT)
Case Study Report

Black Country Garden City

Sandwell & Wolverhampton

Case Study Partner
Sandwell MBC & Wolverhampton City Council

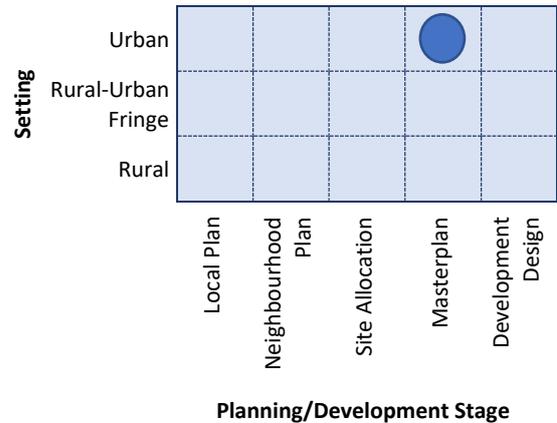
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As part of Natural England’s Black Country Garden City project, the NCPT was applied at two case study sites alongside green infrastructure mapping evidence. In Sandwell, the NCPT was used on an initial plan for a new housing development (>100 dwellings) on a greenfield site. In Wolverhampton, the NCPT was applied to a plan for a housing development (>250 units) on a brownfield site. Both Councils aim to improve the Natural Capital performance of the designs and will explore future NCPT opportunities to enhance sustainable designs more generally.

Case Study Context



Case study sites

The NCPT was applied at two sites, one in Sandwell and one in Wolverhampton, respectively. The assessments took place as part of Natural England's Black Country Garden City project.

The Sandwell assessment was for a lower density housing development of just under 100 dwellings on a 4.5 ha greenfield site in an already developed area of Sandwell.

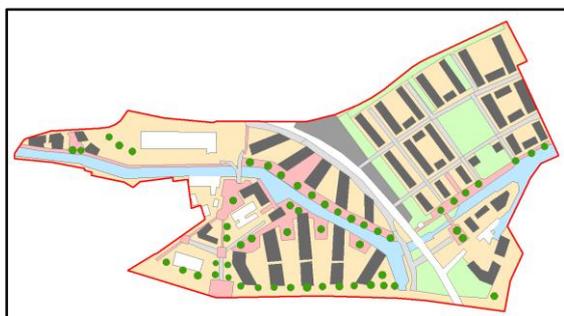
Initial Sandwell Masterplan



Source: Based on data provided by Sandwell MBC; digitalised by CEEP

In Wolverhampton, the NCPT assessment was for an initial masterplan for a development of just over 250 units of mixed density on a brownfield site of approximately 12 ha along a canal.

Initial Wolverhampton Masterplan



Source: Based on data provided by Wolverhampton Council; digitalised by CEEP

Why using the NCPT?

Both Councils are keen on delivering sustainable development and intend to use the NCPT outcomes to improve site designs along the development process. The case study assessments also serve as test for other development sites in the Black Country where NCPT assessments may be useful to drive sustainable design.

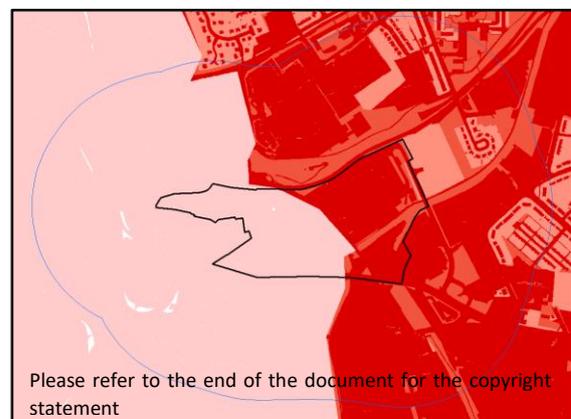
Natural England is interested to see how the NCPT performs to get the most benefits from green infrastructure within a design.

How was the NCPT used?

The NCPT assessments form part of 'Part B' of the Black Country Garden City project funded and lead by Natural England. The NCPT was used alongside the green infrastructure mapping evidence base produced by The Mersey Forest team and partners during 'Part A' of the project.

The NCPT outcomes were assessed against 'pinches' identified as part of 'Part A'. A 'pinch' is an area where at least one serious issue (e.g. health issues) exists pre-development that green infrastructure creation could help to tackle through the provision of related ecosystem services.

Example of a Mental Health pinch map in Wolverhampton



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Source: Based on GIS data provided by Natural England

Because the 'Part A' mapping evidence could not directly be translated into the ecosystem services framework used by the NCPT, an indicative relations assessment between the two frameworks was established.

Assessment of relation between mapping evidence and NCPT

Ecosystem Service	Related Part A evidence base pinches												
	Air Quality	Culture	Flooding	Heat Stress	Heritage	Local Community	Mental Health	Nature	Physical Activity	Recreation	Sustainable Travel		
Harvested Products													
Biodiversity													
Aesthetic Values													
Recreation													
Water Quality R.													
Flood Risk Regulation													
Air Quality Regulation													
Local Climate R.													
Global Climate R.													

Some expected relation between pinch and ecosystem service
 Significant expected relation between pinch and ecosystem service

Source: Author assessment

The relations assessment was used to assess the NCPT findings against the identified 'pinches' as part of the mapping evidence. The pinches served to indicate if the enhancement of certain ecosystem services that could help to tackle identified issues should be prioritised.

It should be noted that both plans were initial proposals and unlikely to be the final designs for the assessed sites.

What were the NCPT findings and impact of the NCPT assessments?

For the Sandwell case study, the NCPT assessment indicated negative impacts on almost all ecosystem services. This was not surprising because no new Natural Capital (greenspace) was proposed as part of the initial plan and 'grey infrastructure' would replace existing greenspace.

Because the existing Natural Capital is not performing ecosystem services to a great extent, there is a potential to improve the

performance of the design which is also indicated by the maximum possible scores in the left-handed column which indicate the ecosystem services potential for the site.

NCPT findings for Sandwell case study

Development Impact Score			
Average Per-Hectare			
Ecosystem Services Impact Scores	Max Possible	Adjusted Scores	Min Possible
1. Harvested Products	+0.04	+0.01	+0.00
2. Biodiversity	+3.77	-1.04	-1.23
3. Aesthetic Values	+0.36	-2.89	-4.64
4. Recreation	+3.01	-1.96	-1.99
5. Water Quality Regulation	+0.47	-0.88	-1.83
6. Flood Risk Regulation	+7.62	-0.20	-0.38
7. Air Quality Regulation	+5.51	+0.30	-2.49
8. Local Climate Regulation	+4.05	-0.94	-1.81
9. Global Climate Regulation	+4.52	-0.24	-0.48
10. Soil Contamination		+0.00	
Development Impact Score	+29.34	-7.83	-14.84

After analysing and discussing the NCPT findings, Sandwell Council aims to update the plan to explore opportunities to create additional greenspace as part of the development to improve the ecosystem services performance with a specific focus on tackling identified pinches.

The outcomes of the Wolverhampton case study, on the other hand, were positive across the board as can be seen below.

NCPT findings for Wolverhampton case study

Development Impact Score			
Average Per-Hectare			
Ecosystem Services Impact Scores	Max Possible	Adjusted Scores	Min Possible
1. Harvested Products	+0.82	+0.11	+0.00
2. Biodiversity	+5.00	+0.11	+0.00
3. Aesthetic Values	+7.00	+1.31	+0.00
4. Recreation	+7.00	+0.23	+0.00
5. Water Quality Regulation	+2.39	+0.64	+0.00
6. Flood Risk Regulation	+8.00	+0.07	+0.00
7. Air Quality Regulation	+8.00	+1.33	+0.00
8. Local Climate Regulation	+7.16	+0.68	+0.00
9. Global Climate Regulation	+4.95	+0.14	-0.05
10. Soil Contamination		+0.00	
Development Impact Score	+50.32	+4.62	-0.05

This was also expected as no relevant Natural Capital was identified pre-development and some Natural Capital was proposed to be created as part of the development.

The minimum possible scores in the right-handed column of the findings figure indicate that the brownfield site has virtually no Natural Capital value to begin with which means that any greenspace creation would result in positive NCPT outcomes.

When assessing the actual scores against the maximum possible scores in the left-handed column, one can see that there is still great Natural Capital potential for the site over and above the performance of the already positive plan.

Wolverhampton City Council analysed the NCPT results together with CEEP and aims to use the NCPT as 'negotiation tool' to further improve the Natural Capital performance of future plans.

Both local authorities found the NCPT very useful and will explore further opportunities to use the NCPT for other plans and developments to improve the overall Natural Capital performance of future development in these growth areas.

Acknowledgements

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About the NCPT

The NCPT was released in March 2018. To access the tool, guidance, case studies and related services visit www.NCPTool.com or contact the tool developer Oliver Hölzinger directly: oliver.h.ceep@live.com.

Figure: 'Example of a Mental Health pinch map in Wolverhampton' Copyright Statement

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