Glasgow and the Clyde Valley Strategic Development Plan

Proposed Plan
Background Report 08
Green Network Spatial Priorities

June 2011

08

Contents

Introduction

This background paper supports references to the GCV Green Network in the GCV Strategic Development Plan (GCVSPD). It provides an explanation of the Green Network, how the planning system should be used to help deliver the Green Network and the benefits a strategic high quality Green Network can provide.

It also provides explanation of the analysis undertaken to identify GCV Green Network spatial priorities, as shown in the GCVSDP. This new analysis provides rich data which should be valuable to strategic planners, local plans and site specific masterplans to identify the location and type of green network provision required to deliver the GCV Green Network.

1. What is the GCV Green Network?

The GCV Green Network is a large scale and ambitious initiative that will transform Glasgow and the Clyde Valley by improving local communities, promoting healthier lifestyles, connecting and enhancing natural habitats, transforming perceptions and by attracting and retaining investment in the area.

BENEFITS OF GREEN NETWORK

The Green Network will deliver a range of beneficial outcomes including:

Enterprise Development
The economy will benefit from the Green Network because it provides:
- attractive locations in which existing businesses will wish to remain as they develop and grow
- vibrant communities that will attract new business investment, and encourage staff recruitment and retention
- new opportunities for innovative enterprises to help manage the Green Network

Health Improvement
People will benefit from the Green Network because it will provide:
- attractive locations in which to exercise or relax
- safe spaces that encourage well-being and community spirit
- cleaner living environments of which local people can be proud

Stronger Communities
Communities will benefit from the Green Network because it will:
- provide well-designed, sustainable places in which to live
- empower local communities to take ownership and help create the safe, attractive places that they want
- provide spaces that people can be proud of and which will help develop a community spirit

Biodiversity and the Environment
People, wildlife and environment will benefit from the Green Network because it:
- provides robust diverse habitats, linking across the metropolitan area
- reduces human impact on the environment
- reduces the impact of climate change on the urban population

WHAT COMPRISES THE GREEN NETWORK?

The form, size and function of the Green Network's individual elements will vary significantly across the Glasgow Clyde Valley; however, the combination of these disparate elements is what will create the Network.

In thinking about the development of the Green Network, it is helpful to distinguish between

- **Green Network cores/hubs** – large areas of existing or new greenspace which already deliver a wide range of Green Network benefits. The aim should be to protect and expand these areas, to create new cores/hubs, create visual connections and, critically, to develop corridors to link them

- **Green Network corridors and links** – continuous corridors of greenspace along rivers, disused railways, paths and cycleways and existing railways and roads which serve to connect Green Network cores/hubs. Many of these corridors are incomplete, or provide a limited number of functions, so a key aim is to increase the number, continuity, visual interaction and functionality of these corridors

- **Green Network stepping stones** – it may not always be necessary or appropriate to create a continuous corridor of greenspace. Many plant and animal species, for example, are able to move short distances between areas of habitat. The development of Green Network stepping stones can functionally connect habitats without them being physically connected and provide respite from hard development as they move through the urban environment. Stepping stones could include the planting of street trees, improved roadside verges creation of local pocket parks or enhancement of private gardens

- It is likely that there will always be some **isolated greenspaces** which are difficult to connect to the wider Green Network. While the functions of such spaces are likely to be more limited, they still have potential to provide considerable benefits to local communities

2. The Planning System and the Green Network

The creation of high quality, fit for purpose Green Network should be a fundamental objective for everyone involved in planning for the future of the Glasgow metropolitan region and more than an after-thought or a by-product of the development process.

The objective of creating a high quality network of the Green Network should run through the entire length and breadth of the planning system. It should be recognised as a priority - from the preparation of local development plan policies to individual decisions on planning applications. The Green Network should be integrated throughout the development plan – with links to its wider spatial, economic and social objectives.

This requires an understanding of the links between the Green Network and other areas of planning policy. It also needs a planning process which identifies spatial priorities and opportunities and which reflects these in policy and planning decisions.

THE ROLE OF PLANNING IN DELIVERING GREEN NETWORKS

The planning system is one of the most important means of delivering the Green Network. It can ensure that development respects and enhances the Green Network. It can provide the broader spatial perspective to co-ordinate individual actions in order to create and reinforce the network of walking and cycling routes, recreation areas, habitats, green corridors and townscapes. It can help ensure that the right kinds of green space are created in the right place, and that the widest possible range of benefits results.

The planning policy context for the Green Network is well defined at national and strategic levels. It has express and implicit links with a range of policy sectors. Quality green and open space has the potential to improve and enhance most developments and it should be a key consideration under any topic area.

Two of the key roles for the planning system in delivery of the Green Network vision are that:

1. **Planning should promote the development of multi-functional Green Networks** – accommodating combinations of uses and different patterns of benefits. While it is sometimes easier for the planning process to deliver particular types of greenspace (a playing field, or a nature reserve), some of the best examples are where sites accommodate a number of functions and deliver a wider range of Green Network benefits. Sustainable Drainage Systems (SUDS), for example, can be designed to provide a range of recreation, landscape and biodiversity benefits in addition to their primary purpose of flood management. Equally, the creation of new local greenspace can help promote community involvement, healthier lifestyles and biodiversity, while providing new opportunities for local people to become involved in volunteering, training initiatives and ultimately, employment.

2. **Planning should promote the Green Network as a key contributor to place-making and the enhancement of local distinctiveness**. Open space in all its forms has a key role to play in reinforcing the character and quality of urban and rural landscapes. It

can provide continuity that extends beyond an individual site or area and can help emphasise key features such as the River Clyde corridor, or surrounding areas of high ground. Place-making is central to the environmental and economic transformation of Glasgow and the Clyde Valley – and perceptions of the area among investors, potential employees and visitors. Again, this requires that the Green Network is considered from the outset and at a broader scale than individual sites. Short term and temporary greening of future development sites can be as important as longer term solutions. The planning system therefore has a key role to play in delivering the place-making agenda.

KEY PRINCIPLES FOR PLANNING THE GREEN NETWORK

The following principles should be considered by planners to help ensure that development of the Green Network is embedded within Glasgow and the Clyde Valley's planning system.

- **The Green Network should be integrated into the design process for all developments.**

- **Planning for the Green Network must be based on spatial analysis.**

- **The quality and function of greenspace and how it will be sustained should be considered from the outset.**

The Green Network should be integrated into the design process for all developments.

All development presents an opportunity to deliver the Green Network. The greatest Green Network benefits are likely to be achieved if Green Network design elements (i.e. surface water management, habitat networks, access networks, green and open space and stewardship) are considered as an integral part of the development design process, rather than dealt with as an afterthought once other elements of the scheme have become 'fixed'. For major developments the opportunities to deliver the Green Network should feature in a design brief.

Planning for the Green Network must be based on spatial analysis.

It is vital that the planning process looks beyond the boundaries of individual development sites, however large, to consider the broader spatial context; helping to create a more coordinated and joined up network. It needs to consider two dimensions of the Green Network. Firstly, how does a given site relate to the wider Green Network? Secondly, what kinds of Green Network benefits are most appropriate in that location? Aims and objectives defined in local authority Open Space Strategies should be a key consideration.

The quality and function of greenspace and how it will be sustained should be considered from the outset.

The Green Network can deliver a range of benefits. In order to deliver the required mix of benefits and to sustain delivery there is a need to focus on ensuring that high quality greenspace of the right kind is delivered in the right place. Many of the problems associated with existing open spaces reflect a shortage of funding for effective management of green infrastructure. The planning process should encourage solutions which take future management and maintenance issues into account, and use planning conditions and agreements to facilitate ongoing site management.

3. GCV Green Network Opportunities Mapping

The Strategic Development Plan includes a map of the spatial priorities for delivery of the GCV Green Network (Diagram 16). This section explains the analysis undertaken to identify those spatial priorities and the background to the development of the approach.

DEVELOPMENT OF THE APPROACH

The origins of the Green Network Opportunities Mapping stem from draft Green Network Planning Guidance developed in 2009. Through liaison with planning authorities, it became clear that there was a desire for a spatial representation of the opportunities for delivery of the Green Network through the planning system. In order to identify Green Network spatial opportunities it is necessary to be able to have spatial data which can answer the following questions:

1. **What Green Network resource currently exists and where are the opportunities improve the resource?**
2. **Where are the priority areas to expand the Green Network to increase public access to greenspace and enlarge biodiversity habitat networks?**
3. **Where are the major areas of land use change and social need?**

Existing and new Geographical Information System (GIS) datasets were collated which provide the ability to spatially represent the answers to these three questions. These datasets came together in four separate GIS layers. The final GIS output resulted from a merging of the four layers to identify 'hotspots', which represent those areas where most public benefit will be derived from delivery of the Green Network (Figure 1). This output was the basis for the illustrative map published in the Strategic Development Plan (Diagram 16)

An outline of the methodology is given below. Individual GIS outputs from the analysis can be viewed at Appendix 1: Map Layers and Final Output.

METHODOLOGY

Four GIS data layers were created using new and existing datasets. The creation and collation of the data layers is described here and the final analysis the allowed identification of the 14 'hotspots' which are priorities for delivery of the Green Network in the GCV region and shown in the SDP

1. **What Green Network resource currently exists and where are the opportunities improve the resource?**

A GIS dataset for the GCVSDP authority area was extracted from the Greenspace Mapping exercise completed in March 2011 (AECOM for greenspace scotland). The audit identifies all green and open space categorised according to its PAN 65 typology. Weighting values were attributed to each of the typologies which reflect its potential to enhance to the Green Network (Table 1).

Table 1. Types of Greenspace weighted according to potential to enhance the Green Network (3 = high potential, 2 = moderate potential, 1 = low potential)

PAN65	DESCRIPTION	POTENTIAL
6.1	Public Park & Gardens	3
6.22	School Grounds	1
6.23	Institutional Grounds	2
6.31	Amenity Green Space - Residential	3
6.32	- Business	3
6.33	- Transport	2
6.4	Playspace for Child & Teens	1
6.5	Sports Area	2
6.6	Green Corridor	3
6.7	Natural/Semi Natural Green Space	3
6.8	Other functional Green Space	1
6.9	Civic Centres	1

Core Path Network information was collated for all 8 local authorities and, to reflect the limited opportunities these present to further contribute to the Green Network, an importance weighting value of 1 was allocated. In this way, the presence of core path(s) can indicate a simple opportunity to achieve connection to other sites and encourage access.

Together, the weighted Open Space Audit and the Core Path Network dataset formed the first layer of the analysis (Figure 2).

2. Where are the priority areas to expand the Green Network to increase public access to greenspace and enlarge biodiversity habitat networks?

a) Enlarge biodiversity habitat networks

A GIS based Integrated Habitats Network (IHN) model was developed for the GCV region in 2008 and updated in 2011 (Forest Research for the GCV Green Network Partnership, Forestry Commission Scotland and SNH). The IHN model maps existing woodland, wetland and grassland habitats and their functional networks[1].

For the SDP a new analysis of the IHN model was undertaken by Forest Research to identify those areas which represent priorities for expansion of habitats. Using GIS, the software assessed the entire region (divided into 100m diameter analytical 'cells') using a series of assessment criteria to analyse and rank each cell for its potential to expand existing habitat networks. Those cells which ranked in the top 5, 10 and 15% as priority areas to enlarge habitat networks were weighted 3, 2 and 1 respectively.

The output from this dataset formed the second layer of the analysis (Figure 3).

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[1] http://www.gcvgreennetwork.gov.uk/component/option,com_docman/Itemid,55/gid,142/task,cat_view/

b) Increase public access to greenspace

The third layer in the analysis identified strategic access priorities using a similar modelling technique as that employed for the Integrated Habitats Networks.

A new dataset was created for the SDP based on a recent study 'Green Networks for People' (Forest Research for the GCV Green Network Partnership and SNH). The GIS dataset provides a spatial representation of people's access to greenspace by analysing those homes which are within 250m of public greenspace from individual homes. The threshold distance of 250m is measured using network analysis techniques (distances along paths and pavements, rather than 'as the crow flies').

The resulting 'access model' was further analysed to identify priority areas to increase access to greenspace using the same method employed to analyse the IHN model (see above). Assessment criteria were used to determine which communities and areas were most disconnected from the Green Network and therefore where the greatest opportunity lay. As for habitats a prioritised and ranked list of opportunities was produced and scored. Those cells which ranked in the top 5, 10 and 15% as priority areas to increase access to greenspace were weighted 3, 2 and 1 respectively.

The output from this dataset formed the third layer of the analysis (Figure 4).

3. Where are the major areas of land use change and social need?

There are a number of legacy elements from the current Structure Plan which are continued in the Proposed Plan. These legacy elements include Flagship Development Areas and Community Growth Areas and these strategic development projects offer a real chance to ensure Green Network thinking is embedded in plans for change from the outset and an integral part of masterplanning and development briefs in regeneration and green field development. Flagship Development Areas and Community Growth Areas were included in the analysis and given a weighting value of 3 to reflect the opportunity they represent to deliver the Green Network.

The Scottish Index of Multiple Deprivation was also employed to identify areas where there are communities which may most benefit from the delivery of a high quality functional Green Network. As for previous layers the top 5, 10 and 15% areas were weighted 3, 2 and 1 respectively.
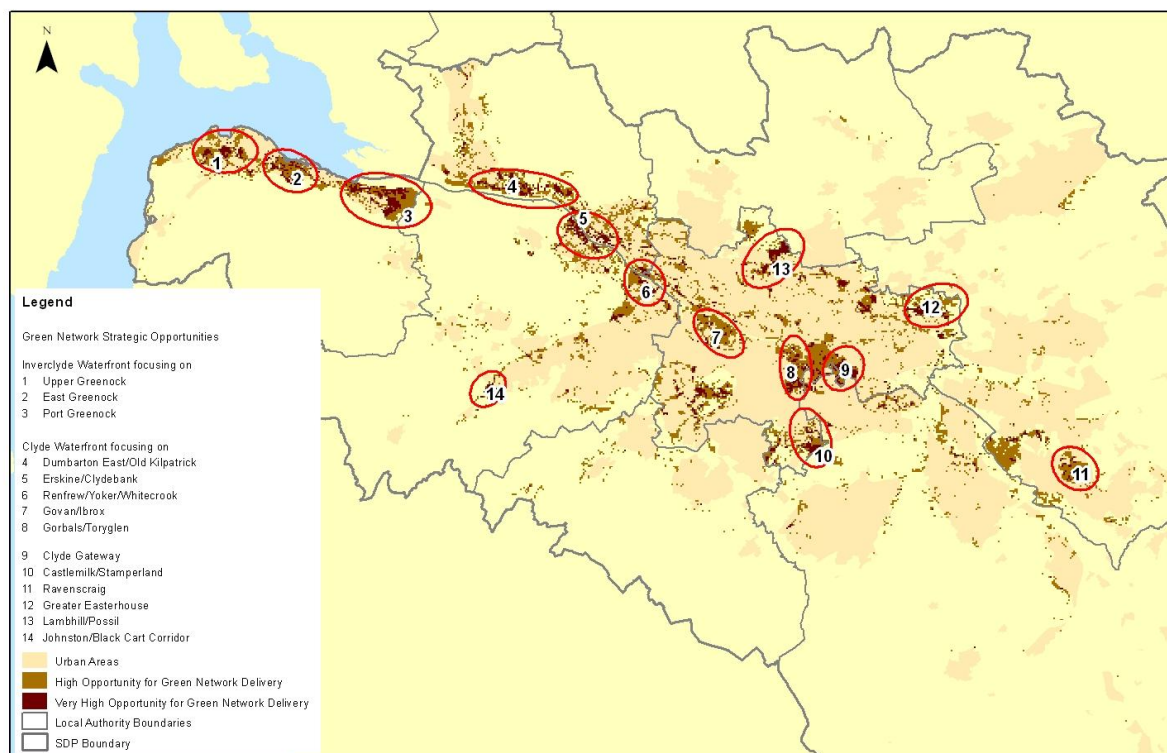
These spatial datasets comprise the fourth layer of the analysis (Figure 5).

Final analysis

These datasets were collectively analysed using GIS to identify areas of coalescence between Green Network opportunities. A correlation of high opportunity between datasets led to the identification of geographical locations of strategic importance for the delivery of multiple benefits. Sites identified as geographically important scored highly in at least two of the datasets i.e. habitat networks, access networks, greenspace improvement, SIMD or development opportunity. A schematic of the technical methodology and an illustrated

example of the scoring system is provided in Appendix 2. The above approach resulted in the identification of 14 regional strategic Green Network opportunities or "hotspots" and these are shown in Figure 1.

Figure 1. GCV Green Network Spatial Priorities

Legend

Green Network Strategic Opportunities

Inverclyde Waterfront focusing on
1 Upper Greenock
2 East Greenock
3 Port Greenock

Clyde Waterfront focusing on
4 Dumbarton East/Old Kilpatrick
5 Erskine/Clydebank
6 Renfrew/Yoker/Whitecrook
7 Govan/Ibrox
8 Gorbals/Toryglen

9 Clyde Gateway
10 Castlemilk/Stamperland
11 Ravenscraig
12 Greater Easterhouse
13 Lambhill/Possil
14 Johnston/Black Cart Corridor

Urban Areas
High Opportunity for Green Network Delivery
Very High Opportunity for Green Network Delivery
Local Authority Boundaries
SDP Boundary

UTILISING THE OUTPUTS

The fourteen "hotspots" identified through the analysis are the highest cumulatively scoring geographic areas and should provide focus for local authorities in the targeting of policies, effort and resources at a regional strategic level.
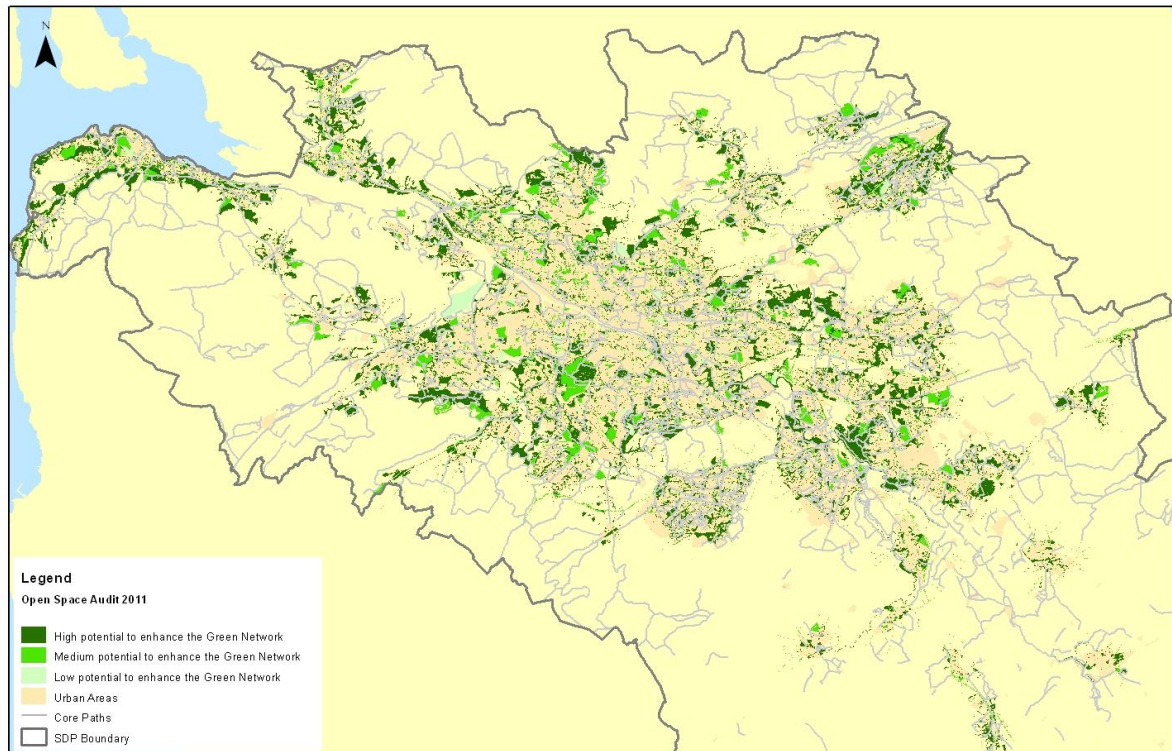
The data underlying the outputs exists, at a 100m resolution, for whole of the GCV area and therefore is a hugely valuable resource for local authorities and others in identifying more localised priorities outwith the "hotspots". The data can be interrogated either as an aggregation of the underlying datasets, to identify multiple benefit opportunities, or as a disaggregation to identify specific opportunities for access, habitat or greenspace.

Taking this a stage further the methodology allows for the regional datasets used for this analysis to be replaced by more locally relevant datasets such as Greenspace Audit data allowing identification of local authority scale opportunities and priorities. The GCV Green Network Partnership is working with local authorities in the development of the approach to inform Local Development Plan policies.
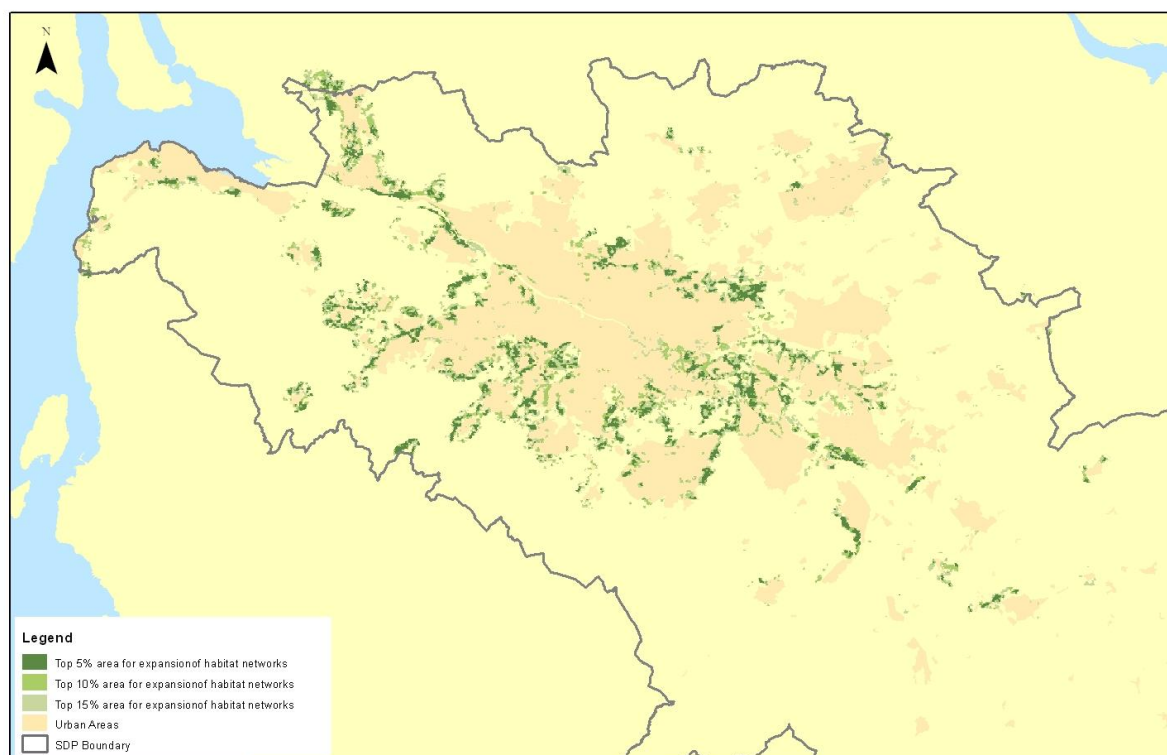
Appendix 1: Map Layers and Final Output

Figure 2. Weighted Open space and core paths according to potential to enhance the Green Network (Layer 1)

Figure 3. Priority areas for expansion of habitat networks in the GCV region (Layer 2)

Legend
- Top 5% area for expansionof habitat networks
- Top 10% area for expansionof habitat networks
- Top 15% area for expansionof habitat networks
- Urban Areas
- SDP Boundary

Figure 4. Priority areas to increase access for people to greenspace in the GCV region (Layer 3)
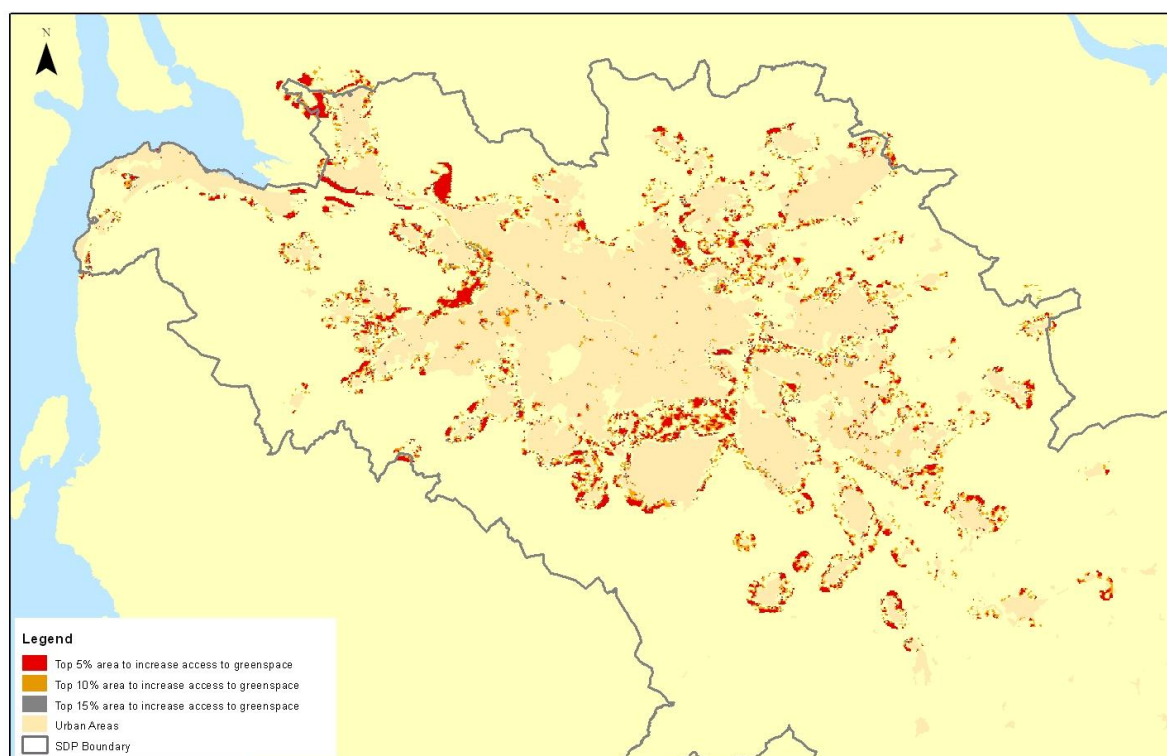
Legend
- Top 5% area to increase access to greenspace
- Top 10% area to increase access to greenspace
- Top 15% area to increase access to greenspace
- Urban Areas
- SDP Boundary

Figure 5. Areas of major land use change and social need in the GCV region (Layer 4)
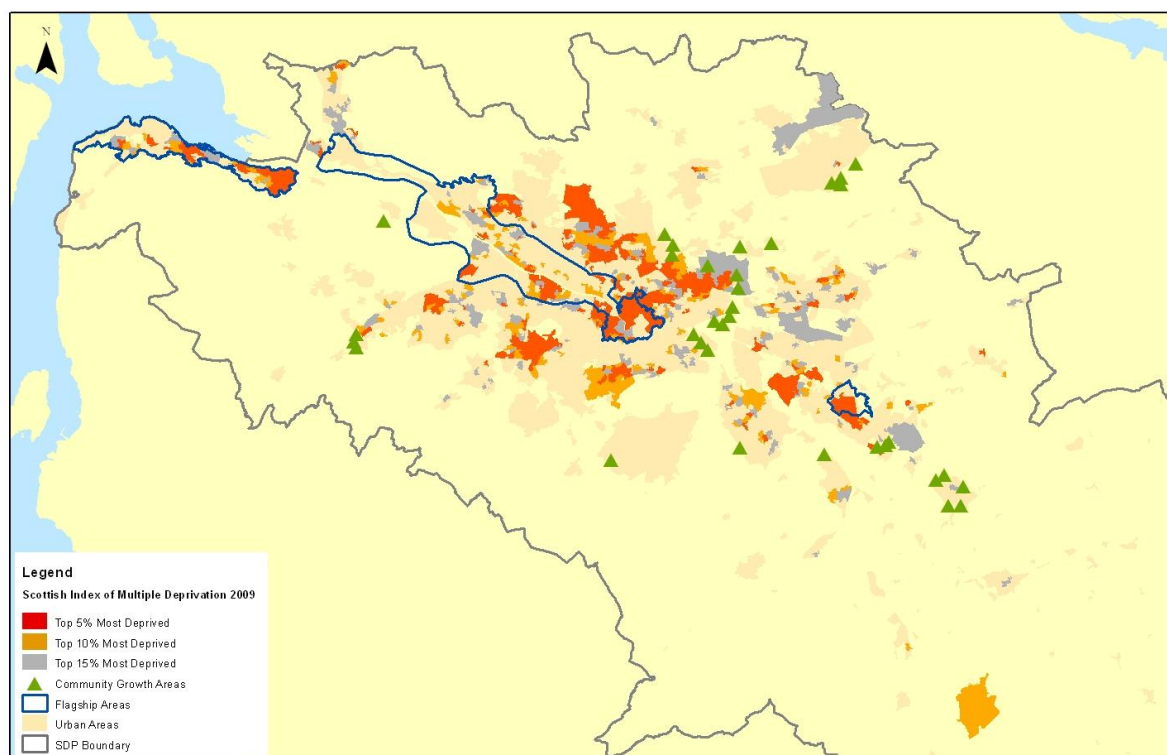
Legend

Scottish Index of Multiple Deprivation 2009

- Top 5% Most Deprived
- Top 10% Most Deprived
- Top 15% Most Deprived
- ▲ Community Growth Areas
- Flagship Areas
- Urban Areas
- SDP Boundary

Figure 6. Priority areas for delivery of the GCV Green Network (Final Analysis)
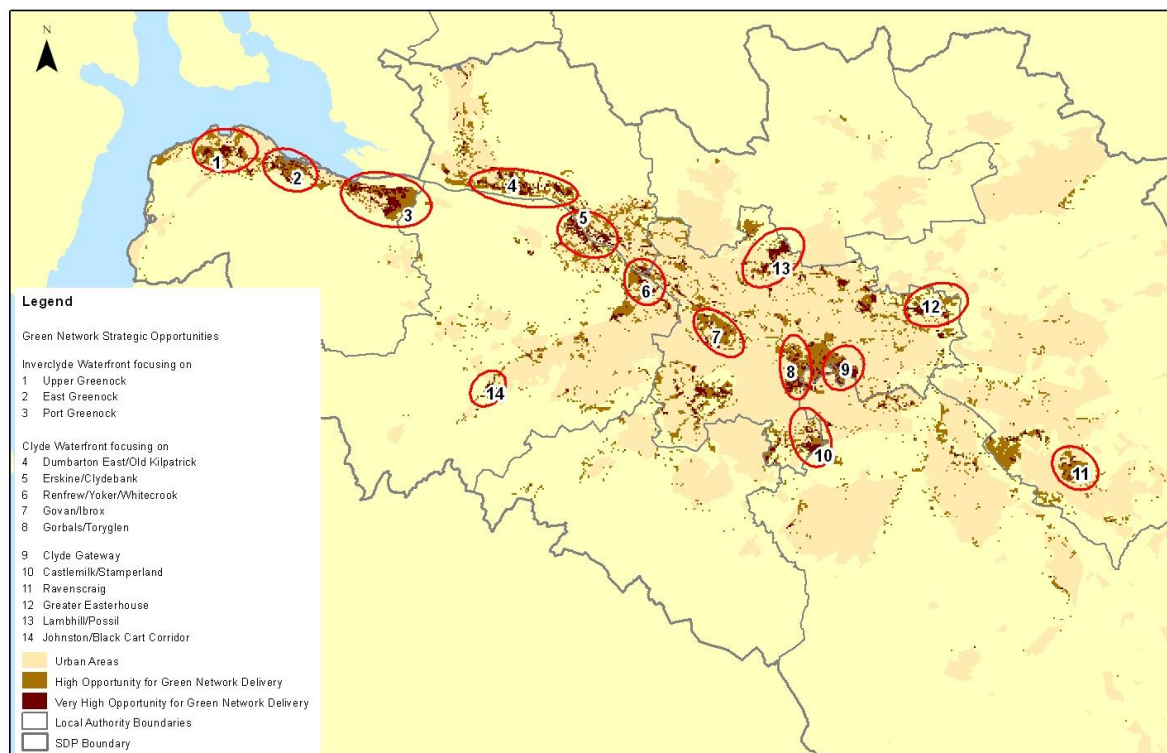
Appendix 2: Methodology Schematic