NORTH LANARKSHIRE LOCAL DEVELOPMENT PLAN

MODIFIED PROPOSED PLAN

GREEN NETWORK OPPORTUNITIES BACKGROUND REPORT

NOVEMBER 2018

North Lanarkshire Council

Enterprise and Communities

CONTENTS

1.   Introduction

1.1   This background report on Green Network Opportunities in North Lanarkshire is the evidence base that supports North Lanarkshire's commitment, through the Modified Proposed Plan, to contribute to the delivery of the Central Scotland Green Network.

1.2   The Opportunities Mapping methodology was used to identify the spatial priorities in the first Glasgow Clyde Valley Strategic Development Plan (GCVSDP), and subsequently refined for Clydeplan, and has been used to identify local priorities in Local Development Plans.

2.   Green Network Opportunities Maps for North Lanarkshire

2.1   Opportunities Maps for North Lanarkshire were created for each of the four Green Network priorities:

•   Health and Wellbeing
•   Climate Change Adaption
•   Access to Greenspace
•   Habitat Connectivity

2.2   Each of the Opportunities Maps were assessed to identify strategically important areas that represent the greatest opportunity for delivering each the priorities.

2.3   In North Lanarkshire, where there is a strong correlation of locations or where a relationship already exists, these have been taken forward as where there is an opportunity to realise multiple Green Network benefits through the prioritisation of delivery. This has resulted in six locations being identified as North Lanarkshire's Strategic Delivery Areas (SDA) for the Green Network:

•   Broadwood
•   Gartcosh
•   Holytown/Mossend
•   Ravenscraig
•   Gowkthrapple/Wishaw
•   Waterloo

2.4   Appendix 1 contains a copy on the Glasgow Clyde Valley Green Network – Green Network Opportunities Mapping for: North Lanarkshire Local Plan.

gcv green network
connecting our quality spaces

Green Network Opportunities Mapping for:
North Lanarkshire Local Development Plan

Contents

1 Background

The planning process is the primary mechanism through which the Green Network should be delivered. It is therefore critical that strategic planners have robust and defensible evidence for the decisions they make in the targeting of effort and resource. The Green Network Opportunities Mapping analysis undertaken for the emerging North Lanarkshire Local Development Plan provides that evidence base to support strategic decision making.

The Green Network Opportunities Mapping approach employs Geographical Information Systems (GIS) based analysis which identifies correlations and adjacencies between a range of Green Network related data. Geographical locations where a strong correlation or relationship exists are taken to be areas where there is an opportunity to realise multiple Green Network benefits through the prioritisation of delivery.

The analysis for North Lanarkshire uses the methodology developed to identify Green Network Priorities for the second Glasgow and Clyde Valley (GCV) Strategic Development Plan (Clydeplan) Main Issues Report.

The Opportunities Mapping methodology used to identify the spatial priorities in the first GCV Strategic Development Plan, and subsequently refined for Clydeplan, was well received by partners and has been used extensively at a local authority level across the GCV to identify local priorities for Local Development Plans, Supplementary Guidance and action planning.

North Lanarkshire Main Issues Report (MIR) states that delivery of the Central Scotland Green Network remains a council priority. This report provides support to the council in how best to align opportunities and resources through the planning process to deliver on that commitment.

2 Introduction to the Methodology

Since the first tranche of local authority Opportunities Mapping was completed, the Green Network Partnership (the Partnership) has created or acquired new and improved data, and thinking on the role of the Green Network across a range of agendas has developed. To reflect this, a revised and refined methodology has been developed which was first used in the identification of Green Network spatial priorities for the Clydeplan.

The identification of Green Network spatial priorities in North Lanarkshire employs this refined methodology and draws upon improved data including new data on climate change, health and vacant and derelict land, meaning that seven data layers have been used in the analysis for North Lanarkshire. These are set out in Table 1 below.

Table 1 – Data layers used in the North Lanarkshire analysis

Data layer	North Lanarkshire
Vacant & Derelict Land	In-house produced dataset based on 2014 national vacant and derelict land data which identifies sites with potential for naturalisation or creation of either temporary or permanent greenspace.
Built Development	Flagship Regeneration Areas, Community Growth Areas, significant residential developments
Underperforming	Interpretation of local authority open space qualitative

Greenspace	data
Health & Wellbeing	In-house produced dataset based on hospital admissions for heart disease and strokes and prescription levels for depression, anxiety and psychosis at a datazone level.
Climate Change Adaptation	In-house produced dataset incorporating priority areas for surface water flooding and air quality.
Access to Greenspace	In-house network analysis to identify areas out with a 400m walking network of multifunctional, useable open spaces
Habitat Connectivity	SNH's priority habitat creation areas derived from the Integrated Habitat Network (IHN) model

The methodology uses Geographical Information Systems (GIS) based analysis to identify locations across North Lanarkshire where there are interactions between the above datasets. Areas where there is significant interaction are taken to represent the opportunity to derive multiple benefits through delivery of the Green Network.

The methodology has four stages:

1. **Data layer identification**

2. **Data preparation**

3. **Analysis of opportunities against priorities to derive Opportunities Maps**

4. **Combine Opportunities Maps to identify Strategic Delivery Areas**

Each of the stages is described in detail below.

3   Data Layer Identification

Since the Opportunities Mapping approach was developed to identify Green Network priorities for the first GCV Strategic Development Plan, the extent and quality of Green Network related data has improved. There has also been a growing recognition across a number of sectors of the role the Green Network can play in delivering social, health, environmental and economic benefit. The analysis used to identify Green Network priorities for North Lanarkshire has therefore drawn on this new and improved data.

The way in which the Partnership defines opportunities and priorities associated with the Green Network has also developed. Figure 1 below illustrates the three land use based opportunity data layers and the four Green Network delivery priority data layers used in the analysis for North Lanarkshire.
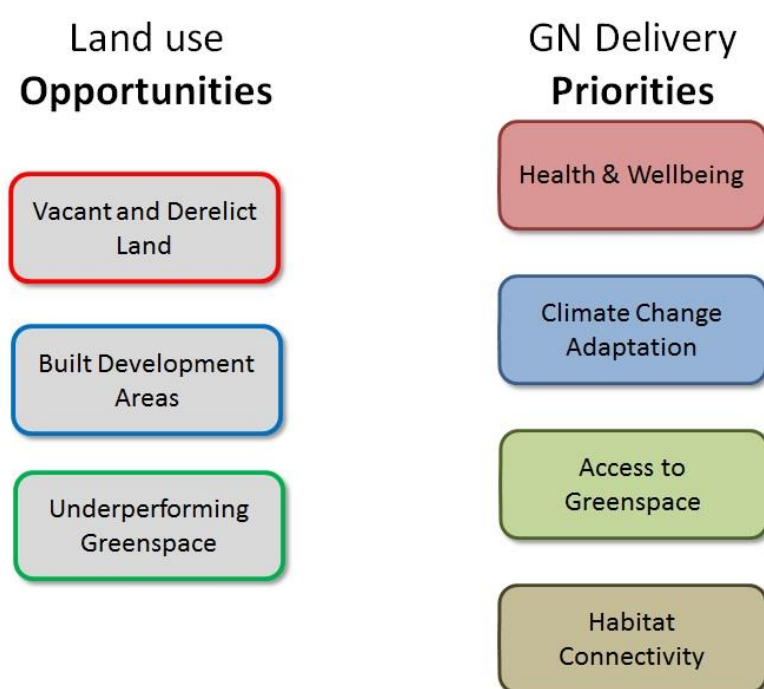

Figure 1. The seven data layers used in the North Lanarkshire analysis.

For the data which underpins the North Lanarkshire analysis these are defined as:

Land use opportunities (Opportunities) – locations where the opportunity exists to deliver or enhance the Green Network through land use change:

- **Built Development**: new built development and areas of regeneration of a scale significant enough to deliver Green Network components

- **Vacant and Derelict Land**: V&D registered land with potential to add to the Green Network

- **Underperforming Greenspace**: greenspaces with potential for significant improvement

Green Network delivery priorities (Priorities) – locations where the expansion or enhancement of the Green Network has the potential to deliver the greatest benefit for a range of outcomes:

- **Health & Wellbeing**: providing spaces for recreation and active travel in areas characterised by low activity levels

- **Climate Change Adaptation**: providing resilience to the impacts of climate change

- **Access to Greenspace**: addressing access to open space deficits

- **Habitat Connectivity**: addressing habitat fragmentation

The paragraphs below explain the purpose, rationale and data sources for each data layer used in the Opportunities Mapping analysis.

3.1 Vacant and Derelict Land

Purpose
The purpose of this data layer is to identify land which is on the Scottish Vacant and Derelict Land register and has the potential to become a greenspace, temporary greenspace or open mosaic habitat.

Rationale
The third National Planning Framework (NPF3)[1] has identified that one of the priorities for the lead organisations in the Central Scotland Green Network (CSGN) should be "*addressing vacant and derelict land*". NPF3 also states:

"Well-designed green infrastructure can support regeneration efforts within our towns and cities, and improved attractiveness and environmental performance can act as a catalyst for economic investment. Temporary uses for vacant and derelict land, for example for community growing or supporting biodiversity, can also help to attract investment in specific sites or wider areas. Whilst re-use of vacant land remains a priority, in some cases greening initiatives could be the best permanent solutions for sites where built development is unrealistic for cost or other reasons".

According the Scottish Vacant and Derelict Land Survey 2012, there is around 4,500 hectares of vacant and derelict land (V&DL) in the GCV region. A recent study completed by the Partnership on behalf of the Central Scotland Green Network Trust[2] identified the extent of V&DL sites, within the CSGN area, with potential to become new permanent greenspaces, temporary greenspaces or temporary biodiversity habitats within a wider Green Network.

Data sources
The primary data source was:

- The Scottish Vacant and Derelict Land Survey (2014)

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[1] http://www.scotland.gov.uk/Publications/2014/06/3539
[2] Hislop M., Corbett A. (2014), 'Costing the CSGN – Capital cost estimates for the major components of the CSGN', The CSGN Trust and the GCV Green Network Partnership

This was supplemented by information extracted from the following report:

- Open mosaic habitats on previously developed land: survey and recommendations for habitat planning and management in Scotland (commissioned by SNH and written by Buglife, 2013)

3.2 Built Development

Purpose

The purpose of this data layer is to identify areas of North Lanarkshire where regeneration programmes within existing urban areas or planned new development will provide the opportunity to integrate green network delivery within masterplans and planning applications.

Rationale

Scottish Planning Policy (SPP)[3] states:

"Planning should direct the right development to the right place. This requires spatial strategies within development plans to promote a sustainable pattern of development appropriate to the area."

SPP goes on to state that one of the policy principles that should guide decision making should be the consideration of:

"…whether the permanent, temporary or advanced greening of all or some of a site could make a valuable contribution to green and open space networks, particularly where it is unlikely to be developed for some time, or is unsuitable for development due to its location or viability issues."

In relation to green infrastructure as part of development proposals, SPP states:

"Planning should protect, enhance and promote green infrastructure, including open space and green networks, as an integral component of successful placemaking. The planning system should consider green infrastructure as an integral element of places from the outset of the planning process."

Data sources

The data was sourced from North Lanarkshire Council Planning Officers.

3.3 Underperforming Greenspace

Purpose

The purpose of this data layer is to identify existing open space which is currently underperforming and has a significant potential to deliver greater public benefit in relation to the outcomes of the Green Network.

Rationale

SPP states that local development plans should:

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[3] http://www.scotland.gov.uk/Publications/2014/06/5823

- *"identify and protect open space identified in the open space audit and strategy as … capable of being brought into use to meet local needs."*

- *"seek to enhance existing … green infrastructure, …through a design-led approach, applying standards which facilitate appropriate provision, addressing deficits or surpluses within the local context."*

Planning Advice Note 65 (PAN65) 'Planning and Open Space'[4] states:

"Development plans should safeguard important open spaces from development in the long term and identify spaces that require significant improvement."

A recent study completed by the Partnership on behalf of the Central Scotland Green Network Trust[5] estimated that approximately 2000 hectares of greenspace with the GCV region is failing an acceptable quality standard.

Data sources
North Lanarkshire's recently completed Open Space Audit which includes a qualitative assessment of sites was used.

3.4   Health & Wellbeing

Purpose
The purpose of this data layer is to identify neighbourhoods where the resident community displays high levels of health conditions indicative of inactivity.

Rationale
SPP states that one of the principles that should guide policies and decisions is:

"improving health and well-being by offering opportunities for social interaction and physical activity."

The Chief Medical Officer's Annual Report for 2011[6] states:

"Inactivity accounts for at least 2,500 deaths each year in Scotland… Increased physical fitness would reduce premature death by 30% and can help prevent and treat more than 20 chronic diseases. Getting Scotland fit would increase life expectancy by almost a year. Furthermore, physical activity offsets much of the health problems of obesity - releasing cash and improving health outcomes at scale."

The report goes on to say that increased physical activity levels (around 30 minutes of brisk walking, 5 days per week) can reduce the risk of many illnesses, including: heart attack and stroke (20 -35% reduction); diabetes (30 – 40% reduction); and, depression and dementia (20 – 30% reduction).

Recent research undertaken by the partner organisations in the GreenHealth Project[7] reported that:

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[4] http://www.scotland.gov.uk/Publications/2008/05/30100623/0
[5] Hislop M., Corbett A. (2014), 'Costing the CSGN – Capital cost estimates for the major components of the CSGN', The CSGN Trust and the GCV Green Network Partnership
[6] http://www.scotland.gov.uk/Publications/2012/12/7521

"international studies have found that green space levels and use are associated with physical and/or mental health benefits."

The GreenHealth Project team's analysis of Scottish statistics revealed that:

"more green space in urban neighbourhoods was associated with a lower risk of mortality for working-age men in the poorest two income deprivation quartiles; those resident in the greenest urban areas were 16% less likely to die than those in the least green urban areas…. Such an association is absent for women of all income groups …, and is likely linked to lower green space use."

The team's analysis of the Scottish urban population found that socio-economic inequalities in cardiovascular and respiratory mortality were narrower in urban areas with relatively more green space than in those with relatively less, though the associations were not statistically significant[8].

The team's analysis of Scottish Heath Survey data found that:

"those who used woods and forests for physical activity enjoyed some mental health benefits. In particular, they had a lower risk of poor mental health than non-users of these types of green spaces, whilst regular use of woods and forests appeared to be more protective of mental health than exercising in the gym or streets."

The team also looked at the relationship between an objective measure of stress (salivary cortisol) and levels of green space and found that higher green-space levels in deprived urban neighbourhoods were associated with lower stress levels amongst men and women.

Data sources

The physical health components of the data were downloaded from the Scottish Neighbourhood Statistics web site. These were:

- Number of hospital admissions with a main diagnosis of Coronary Heart Disease at a datazone level (2011)
- Number of hospital admissions with a main diagnosis of Cerebrovascular Disease at a datazone level (2011)

The mental health and well-being component of the data was extracted from the Scottish Indices of Multiple Deprivation. This was:

- Estimated proportion of population being prescribed drugs for anxiety, depression or psychosis at a datazone level (2010)

All three data components were then joined to a base datazone shapefile for North Lanarkshire to allow spatial representation of the data.

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[7] http://www.hutton.ac.uk/sites/default/files/files/projects/GreenHealth-InformationNote7-Contribution-of-green-and-open-space-in-public-health-and-wellbeing.pdf

[8] Mitchell R., Popham F. (2008) Effect of exposure to natural environment on health inequalities: an observational population study. The Lancet 72(9650): 1655-1660

3.5 Climate Change Adaptation

Purpose

The purpose of this data layer is to identify areas that are likely to be affected by predicted climatic changes to the region (flooding and air pollution) and where adaptive measure may be necessary.

Rationale

In 2007, all 32 Scottish local authorities showed their commitment to acting on climate change by signing Scotland's Climate Change Declaration. This represented a voluntary commitment to take action and report annually on work to reduce emissions and adapt to the unavoidable impacts of climate change.

The duties for public bodies contained in Part 4 of the Climate Change (Scotland) Act 2009 require that:

"a public body must, in exercising its functions, act in the way best calculated to contribute to the delivery of emissions reduction targets (known as 'mitigation'), in the way best calculated to help deliver any statutory climate change adaptation programme, and in a way that it considers is most sustainable"

Scottish Planning Policy states that one of the principles that should guide policies and decisions is:

"supporting climate change mitigation and adaptation including taking account of flood risk."

The Scottish Climate Change Adaptation Programme, 'Climate Ready Scotland'[9] states that:

"climate change and extreme weather events have already impacted many aspects of our natural environment and our society, including buildings and property, health, agriculture, forestry, transport, water resources and energy demand."

"Planning for, and managing the risks posed by the impacts of climate change supports the Scottish Government purpose of increasing sustainable economic growth."

"The most obvious reason for taking action to prepare and adapt to the changing climate is to minimise the disruption or damage – and associated cost – caused by the changing climate."

The European Environment Agency's report 'Urban adaptation to climate change in Europe'[10] states:

"Adaptation relates strongly to using and expanding green infrastructure such as parks, forests, wetlands, green walls and roofs, wherever feasible and sustainable. Such infrastructure serves to provide a cooling effect on cities as well as playing a role in managing floods. Measures which combine grey and green infrastructures have the potential to deliver robust and flexible solutions over a long period."

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[9] http://www.scotland.gov.uk/Publications/2014/05/4669/downloads
[10] http://www.eea.europa.eu/publications/urban-adaptation-to-climate-change

Two of the data components were created by and sourced from SEPA. These were:

- Low probability (1:1000 year or 1:200 + climate change) surface water flooding extents (2013)
- Air Quality Management Areas (2014)

3.6 Access to Greenspace

Purpose
The purpose of this data layer is to identify locations where the resident population lives more than a five minute walk (400m) to a good quality greenspace and can therefore be described as deficient in greenspace provision.

Rationale
The 'Scotland's People and Nature Survey 2013/14'[11] reveals that Scotland's urban residents value greenspaces as attractive places where children can play, where it is safe to be physically active, and where it is possible to relax and unwind. However, the same survey reveals that 45% of Scotland's urban residents live more than a five minute walk from their local greenspace.

Accessibility to greenspace is key component of the standards framework developed by SNH and greenspace scotland and published as guidance in 'Developing Open Space Standards'[12]. In the guidance it states:

"The accessibility standard is: Everyone will live within a 5 minute walk of a publicly usable open space of at least 0.2 hectares in size."

The guidance goes on to justify the accessibility standard:

"International research into the impacts of greenspace on health and on wider quality of life shows that having greenspace within a 5 minute walk of home is a strong indicator for health and quality of life benefits…. Generally, in urban design, a 5 minute walk is considered to equate to a distance of 400 metres 'door to space'."

The guidance also says:

"GIS software can assess walking distance using streets and paths to give a more accurate assessment of accessibility on the basis of 'network analysis'."

To develop this data layer we have used GIS network analysis to assess walking distance to greenspace from residential addresses to identify places where greenspace provision falls below the suggested accessibility standard.

Data sources
The data was created in-house using GIS network analysis and used the quantitative component of local authority Open Space Audits, including access point information. The network analysis was based on Ordinance Survey's Integrated Transport Network

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[11] http://www.snh.gov.uk/docs/A1471713.pdf
[12] http://www.greenspacescotland.org.uk/1greenspace-standards.aspx

3.7 Habitat Connectivity

Purpose

The purpose of this data layer is to identify those locations where habitat creation would deliver the greatest return in terms of habitat fragmentation reversal.

Rationale

Planning authorities, and all public bodies, have a duty under the Nature Conservation (Scotland) Act 2004 to further the conservation of biodiversity.

Scottish Government's '2020 Challenge for Scotland's Biodiversity' [13] explains the relationship between biodiversity and ecosystems:

"Biodiversity is all of life: animals, plants, fungi and microorganisms and their interactions with their environment. Together, these form living systems, called ecosystems, which sustain nature and upon which our own survival depends."

It then states that Scotland's ecosystems are widely degraded:

"ecosystems across Scotland are not meeting their full potential. It is not that they are close to collapse; rather the evidence suggests degradation across wide areas and so reducing their value."

It goes on to say that 'fragmentation of habitats' is one of the extensive issues that have led to the degradation of ecosystems, and that the Government want to reverse the trend by pursuing the Aichi target of restoring 15% of degraded ecosystems by 2020.

SNH[14] describe 'habitat fragmentation' as:

"the process where larger areas of habitat are split apart into smaller, separated areas."

The European Environment Agency's report 'Landscape Fragmentation in Europe' [15] describes the ongoing process of fragmentation and its relationship to ecological connectivity:

"Despite many improvements in legislation to better protect biodiversity, reduce pollution, and improve water quality, urban sprawl is still increasing and the construction of new transport infrastructure is continuing at a rapid pace. As a consequence, fragmentation of landscapes is rising and the remaining ecological network provides less and less connectivity."

The EU 2020 Biodiversity Strategy[16] states why habitat fragmentation is an important issue, not only because of its impacts on biodiversity, but because of the impact on ecosystem services upon which we all rely:

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[13] http://www.scotland.gov.uk/Publications/2013/06/5538/downloads
[14] http://www.snh.gov.uk/land-and-sea/managing-the-land/spatial-ecology/why-do-we-need-networks/
[15] http://www.eea.europa.eu/publications/landscape-fragmentation-in-europe
[16]

http://ec.europa.eu/environment/nature/info/pubs/docs/brochures/2020%20Biod%20brochure%20final%20lowres.pdf

"The EU is one of the most fragmented continents in the world. Thirty percent of the land is moderately to highly fragmented due to urban sprawl, infrastructure developments and changing land uses. This not only affects biodiversity but also undermines the many services that healthy ecosystems provide society, such as a clean water supply, protection against floods and erosion etc."

The EU 2020 Biodiversity Strategy goes on to extol the benefits of green infrastructure as part of the solution to fragmentation:

"Building a green infrastructure can help overcome many of these challenges. It can reconnect fragmented natural areas and improve their functional connectivity within the wider countryside. It can also encourage a better use of nature-based approaches to tackle climate change and to improve resource efficiency, for instance through more integrated spatial planning and the development of multifunctional zones that are capable of delivering benefits to both biodiversity, the land user, and to society at large."

Data sources
The data was extracted from the Integrated Habitat Network model data (2013) downloaded from SNH website. The data set priorities for five habitat types. These were:

- Broadleaved woodland
- Neutral grassland
- Acid grassland
- Fen, marsh and swamp
- Heathland

4 Data Preparation

4.1 Data buffering

The premise on which the GIS analysis is based is the identification of geographical locations where there is a relationship between the data layers. In some cases the relationship is such that this is best defined through direct correlation i.e. they both occupy the same area of land. For example, this would be the case between the habitat connectivity priorities and underperforming open space where habitat creation could be part of the open space enhancement.

In other cases the relationship is defined more by proximity and adjacency than by direct correlation. For example, the role that the Green Network can play in reducing surface water flooding could be through the interception of water and temporarily storing it away from the area which actually floods. Similarly, the Green Network delivered through a Community Growth Area has the potential to provide benefits not only within the red line boundary of the development but also to adjacent communities, perhaps by addressing an existing open space deficit.

In the two cases cited above the core datasets for climate change adaptation and new built development, were buffered to reflect their "sphere of influence" in the analysis. The rationale for the buffer thresholds used is set out below. Note - The opportunities mapping analysis is based on 100m x 100m cells and therefore any buffering must be created in 100m increments.

Climate change adaptation – For climate change adaptation in urban areas, where the primary benefit is likely to be flood reduction, the density of the urban form combined with complex topography means that a relatively tight buffer of 100m metres was chosen. There may be cases where the Green Network can provide adaptive capacity at greater distances but it was felt that the greatest benefits were likely to be in closer proximity to the area at risk of flooding.

New built development – Large scale new development which abuts existing urban areas can, with considered masterplanning and design, deliver benefits to existing communities as well as to new residents. Given the distance threshold of 400m for access to greenspace has been used in other parts of the analysis (see 3.6 above for rationale), a 400m buffer was applied to the boundaries of the Flagship Regeneration and Community Growth Areas to reflect the scale of their potential. Smaller scaler developments were buffered by 100m to reflect their lesser relative potential.

4.2 Data weighting

To reflect the relative potential of the seven data layers to deliver on their associated Green Network benefits, each was given a high or medium weighting (see Table 2 below). The actual numbers attributed to the data layers don't relate to a calculable value and are used only to demonstrate relative importance.

In the first run of the analysis all data was weighted as either 2 or 1, however, when areas identified as high scoring were examined more closely some were revealed to consist only of opportunities with no priority data. Given the aim of the analysis was to identify correlations

between the four priorities and the three opportunities an alternative approach was required to ensure each run of the analysis contained a priority and high scores were not based solely on coincidence of opportunities.

A solution was found by applying even weightings to the opportunities and odd weightings to the priorities. In this way high scoring areas with odd scores could be certain to contain a priority and only these were considered on the final outputs.

Table 2-weighting of the data layers

Opportunities	Component	Weighting	Rationale
Vacant & Derelict Land	Creation of permanent greenspace on VDL in urban areas	4	The removal of vacant and derelict land from the register to create new permanent greenspace in urban areas has the potential to deliver significant Green Network benefits
	Naturalisation of rural VDL	2	Naturalisation of rural VDL and the creation temporary greenspace on VDL have the potential to deliver some Green Network benefit but of less significance than permanent, urban greenspace
	Creation of temporary greenspace on VDL	2	
Built Development	Flagship Regeneration Areas (FRA)	4	FRAs and CGAs are locations of major land use change and represent a significant opportunity for delivery of the Green Network.
	Community Growth Areas (CGA)	4	
	Significant residential development for North Lanarkshire	4	Developments of 50 houses of more offer significant potential to deliver Green Network elements
Underperforming greenspace	Local authority greenspace quality audit and standards	2	Even poor quality greenspace generally already provides some benefit associated with the GN priorities set out below. Additionally urban greenspace is often of limited size and therefore the opportunities may be limited. A medium weighting has therefore been applied.
Priorities	Component	Weighting	Rationale
Health & Wellbeing	Mental health	3	Research shows a stronger link between access to open space and mental well-being than with improvements to physical health.
	Heart disease and stroke	1	
Climate Change Adaptation	Flooding	3	The Green Network can play a role in improving air quality however, the greatest adaption potential is in reducing surface water flooding.
	Air Quality	1	
Access to Greenspace	All priority areas	3	All communities which don't have access to good quality greenspace are of equal importance

| Habitat Connectivity | All habitats | 3 | All habitats and habitat networks are of equal importance |

4.1 Data layer creation

After weighting and buffering the data as detailed above, the layers were converted from feature classes to raster format at a 100m grid resolution to allow the analysis to be undertaken. Each of the final data layers from the data preparation process, which were used in the final analysis is shown below.
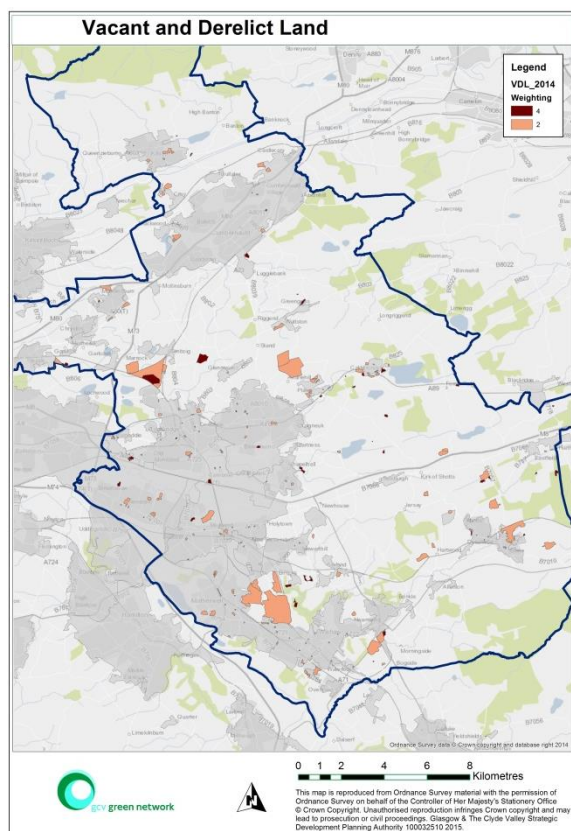

Figure 2 Vacant and Derelict Land opportunities with high and medium weighting
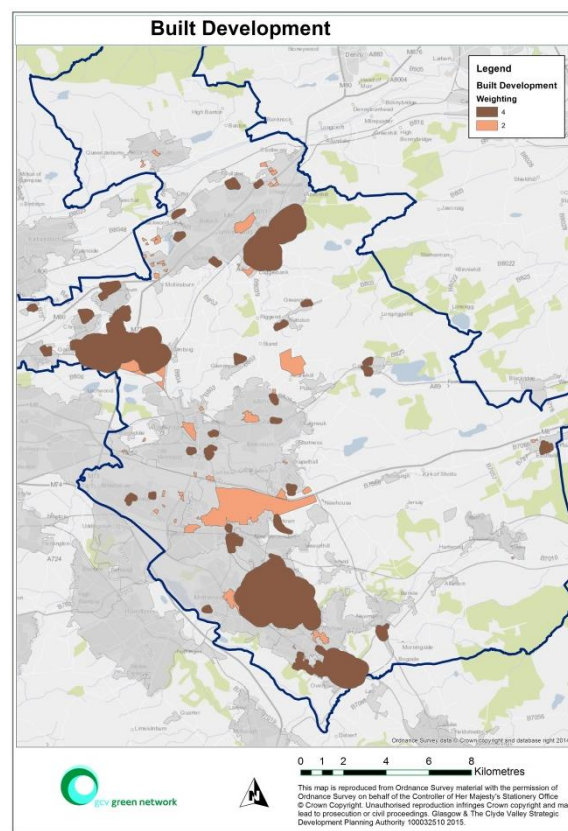
Figure 3 Built development priorities with high and medium weighting
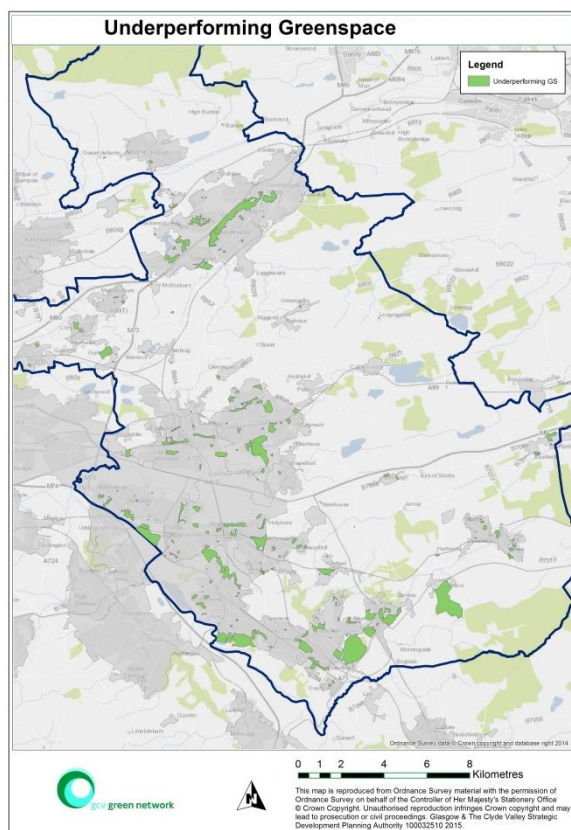
Figure 4 Underperforming Greenspace opportunities with medium weighting
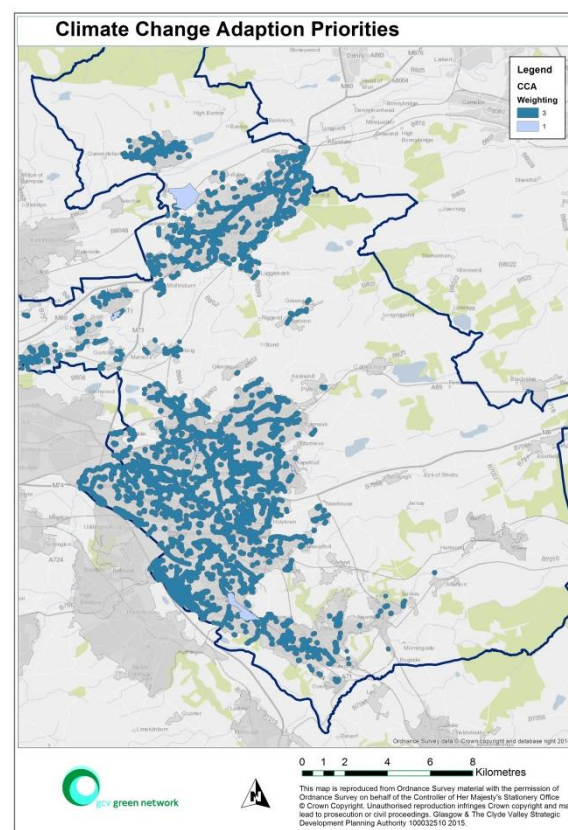
Figure 6 Climate change adaptation priorities with high and medium weighting
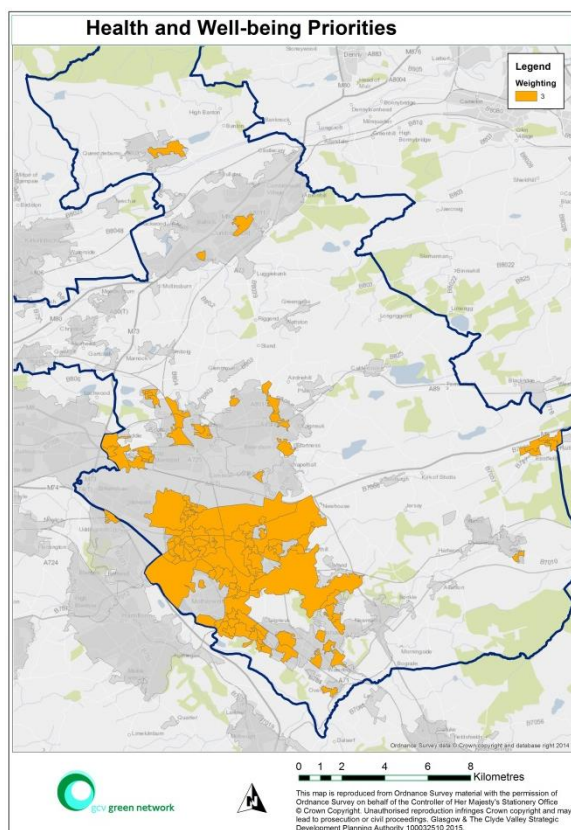
Figure 5 Health & Wellbeing priorities with high and medium weightings
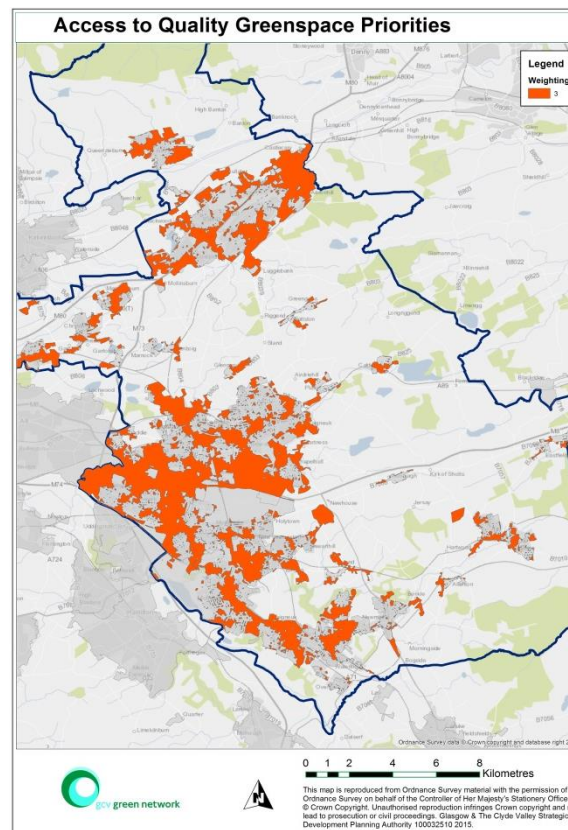
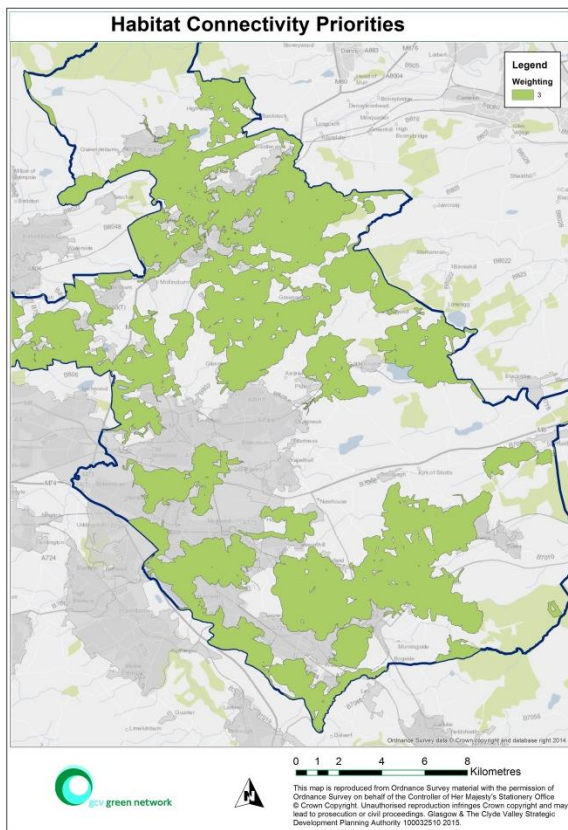**Figure 7 Access to greenspace priorities with high weighting**

Figure 8 Habitat Connectivity priorities with high weighting

5 GIS Analysis to derive Opportunities Maps

Opportunities Maps were created for each of the four Green Network priorities by analysing their relationship with collective land use based opportunities. **Error! Reference source not ound.** below illustrates the process of analysis to derive the four Opportunities Maps.
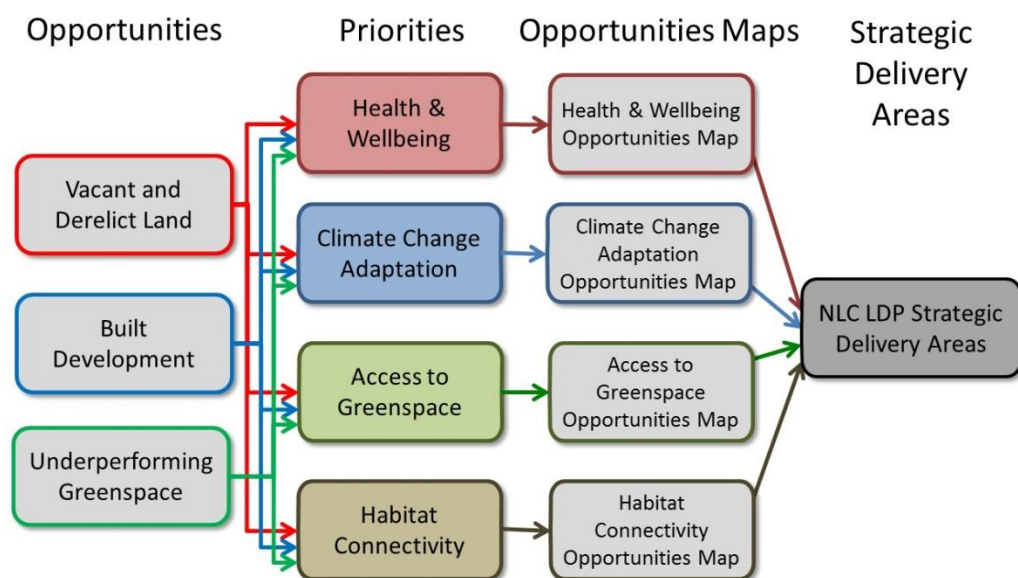

Figure 9 Concept diagram of how seven data layers were analysed and combined to identify the Green Network Strategic Delivery Areas

The analysis was based on a 100m square resolution on which the weighted datasets were overlain to identify any relationships. Figure 3 below illustrates how the land use opportunity data layers were analysed against the Health and Wellbeing priorities data layer to derive the Health and Wellbeing Opportunities Map. A similar analysis was undertaken for the Climate Change Adaptation priorities, Access to Greenspace priorities and Habitat Connectivity priorities.
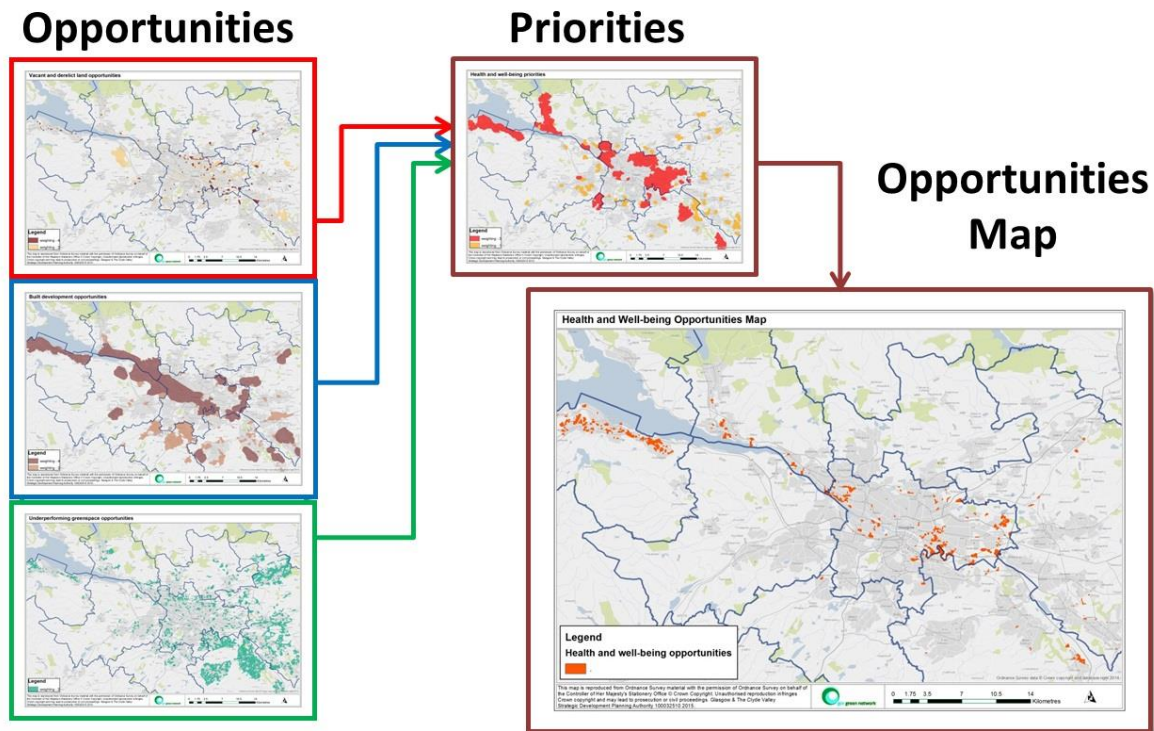
Figure 10 An illustration of the GIS analysis of land use opportunities against health and wellbeing priority areas to derive the Health and Wellbeing Opportunities Map.

5.1 The Green Network Opportunities Maps

The Green Network Opportunities Maps are the outputs of the analysis, illustrated in Figure 10 above. Maps for each Green Network delivery priority assessed against the combined land use opportunities are shown in the paragraphs below.

The outputs show the 100m cells on which the analysis is based that have the top three possible scores when the weighted datasets are overlain. For a cell to be shown it must also contain the priority which is being considered i.e. the score cannot just comprise opportunities.

5.1.1 Health and well-being

Figure 11 below shows locations where there is the greatest correlation between priority areas for poor health and mental well-being and land use opportunities for the delivery of Green Network measures which could encourage healthier lifestyles i.e. underperforming open space, vacant and derelict land and new development.
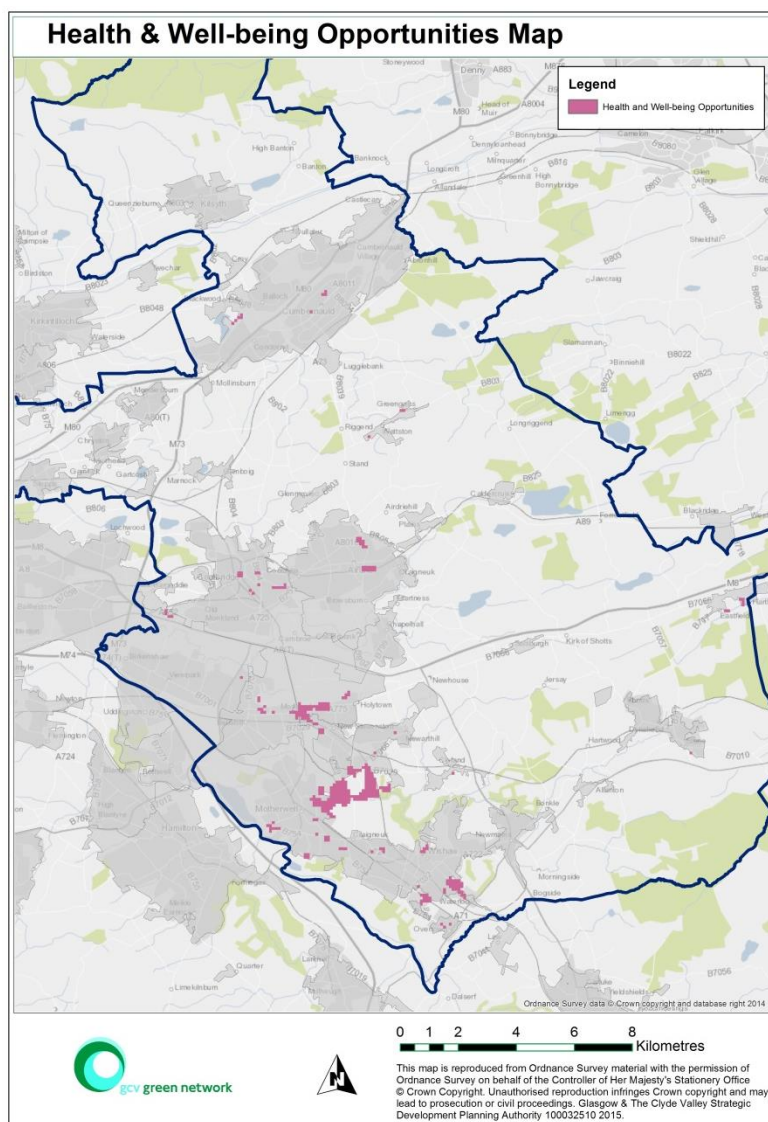

Figure 11 - Health and Wellbeing Opportunities Map

5.1.2 Climate change adaptation

Figure 12 below shows locations where there is the greatest correlation between priority areas for climate change adaptation measures and opportunities for delivery i.e. underperforming open space, vacant and derelict land and new development.
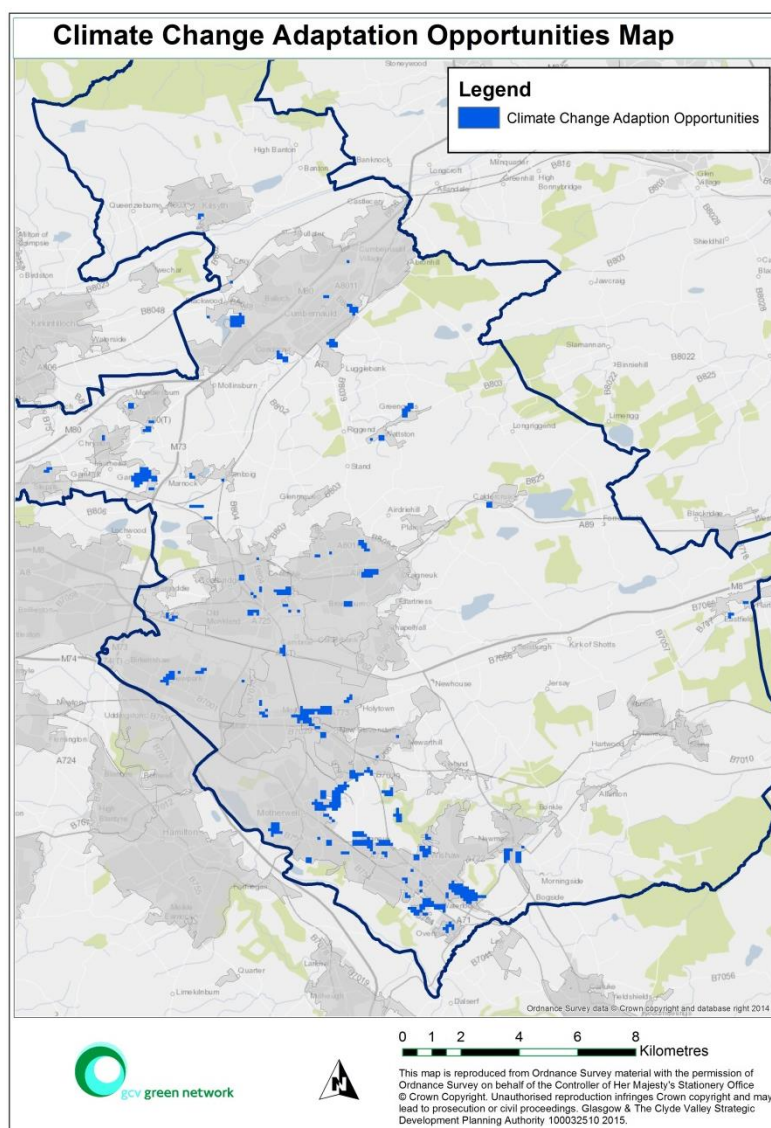

Figure 12 - Climate Change Adaptation Opportunities Map

5.1.3 Access to open space

Figure 13 below shows locations where there is the greatest correlation between priority areas for improved access to open space and opportunities for delivery i.e. underperforming open space, vacant and derelict land and new development.
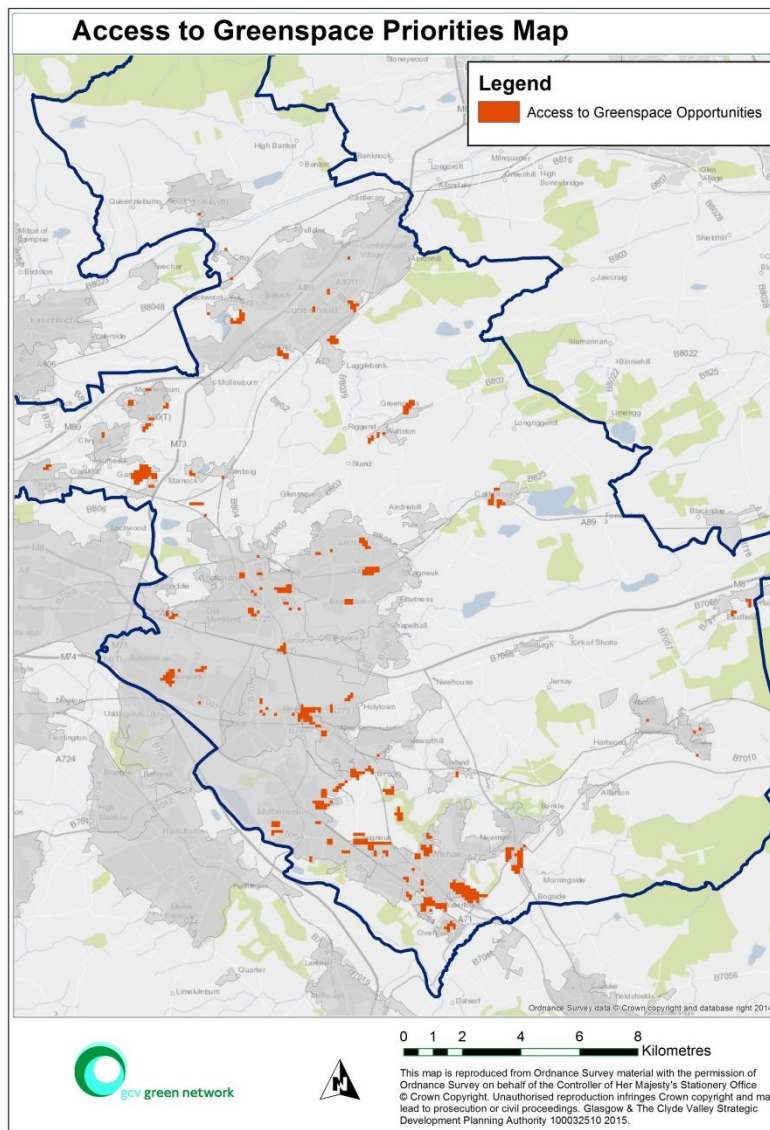

Figure 13 - Access to Greenspace Opportunities Map

5.1.4 Habitat connectivity

Figure 14 below shows locations where there is the greatest correlation between priority areas for habitat connectivity interventions as defined by SNH and the opportunities for delivery i.e. underperforming open space, vacant and derelict land and new development.
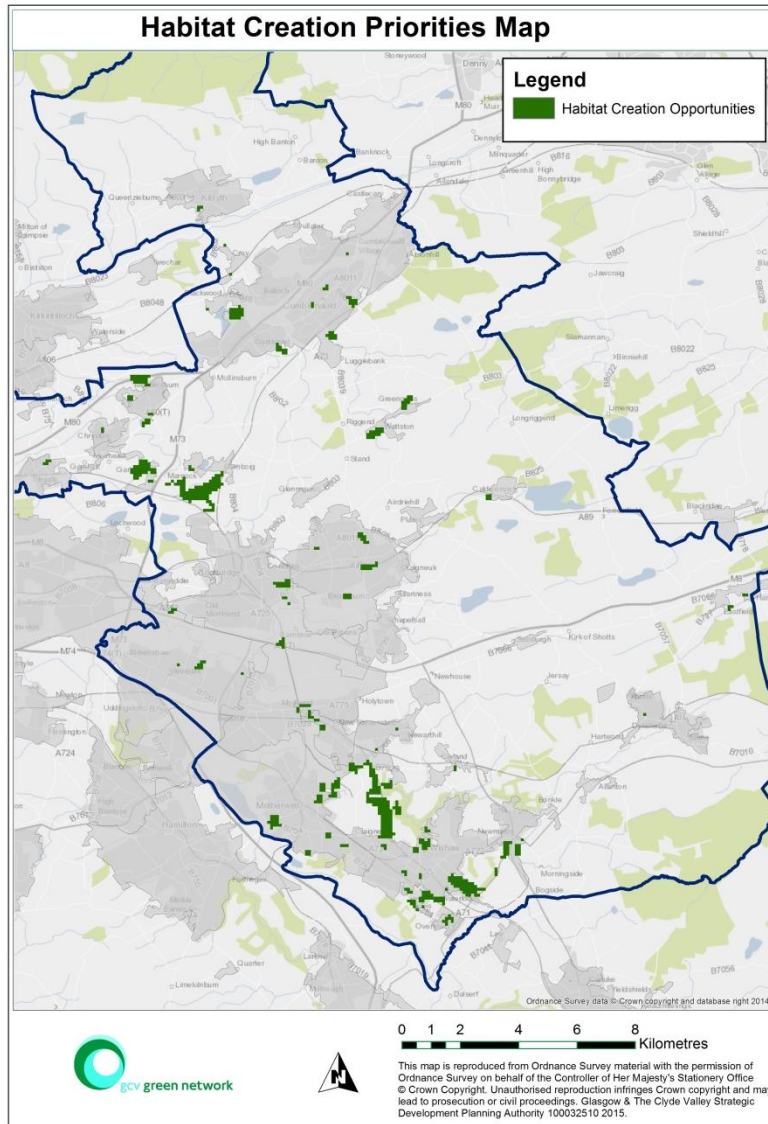

Figure 14 - Habitat Connectivity Opportunities Map

6 Identification of Strategic Delivery Areas

Each of the four Opportunities Maps were assessed to identify strategically important areas that represented the greatest opportunity for delivery of the particular priority. The outputs from the assessments of the Opportunities Maps are shown below.
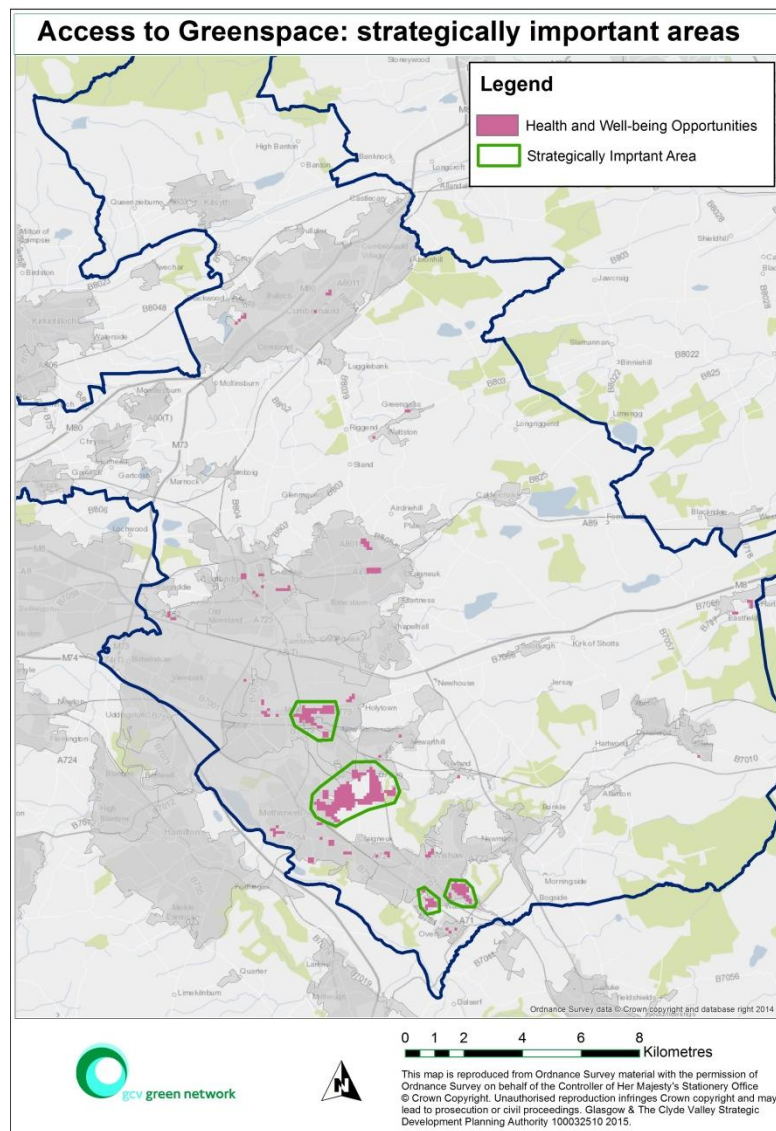

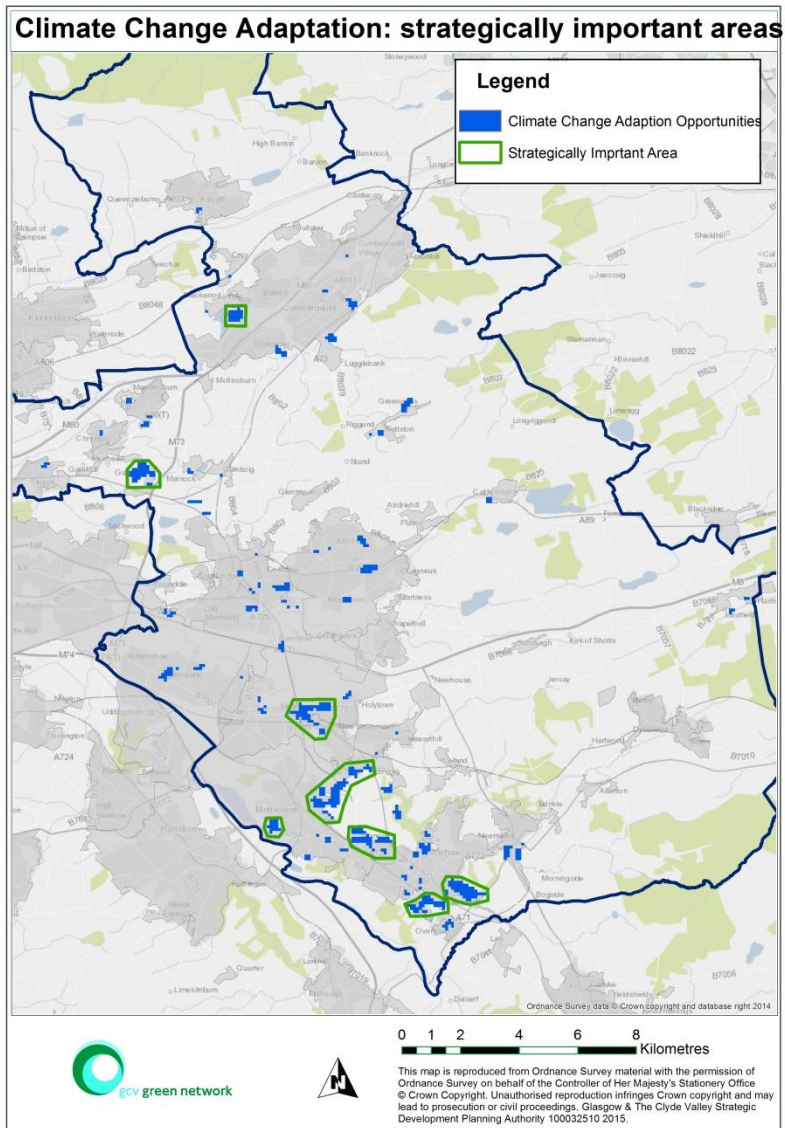**Figure 15. Strategically important areas for Health and Wellbeing priorities**

Figure 16. Strategically important areas for Climate Change Adaptation priorities
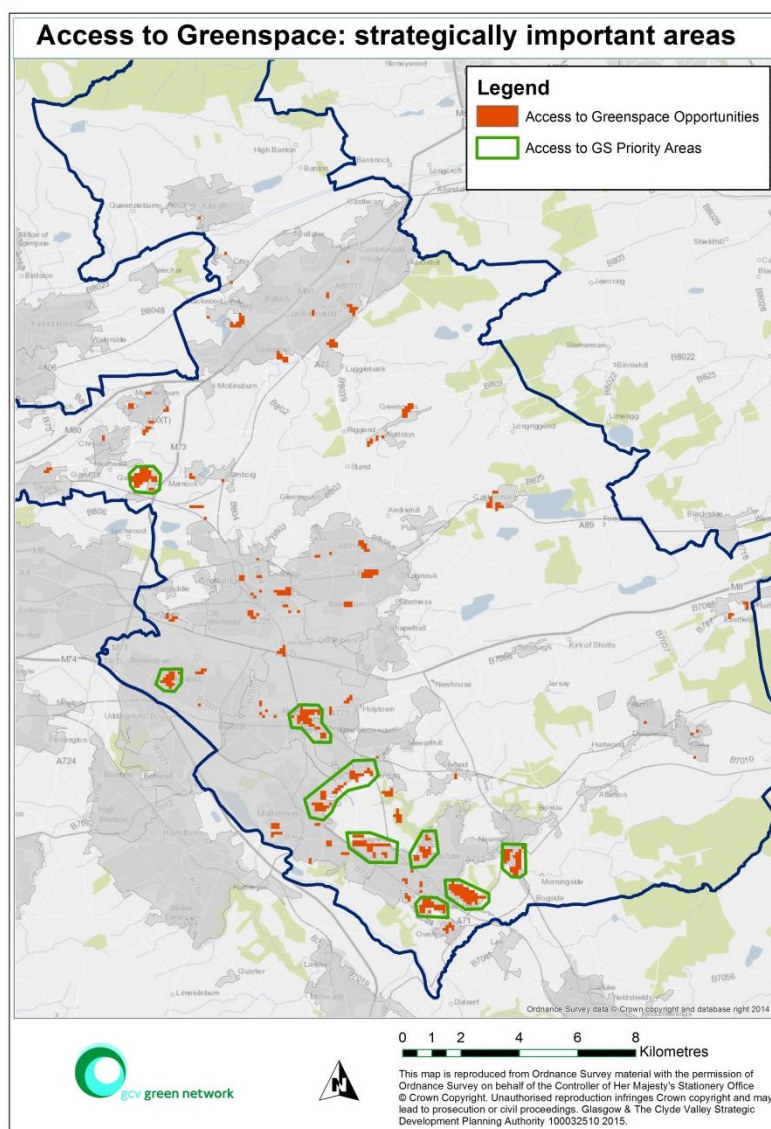
Access to Greenspace: strategically important areas

Legend
- Access to Greenspace Opportunities
- Access to GS Priority Areas

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0 1 2 4 6 8
Kilometres

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gcv green network

Figure 17 Strategically important areas for Access to Greenspace priorities

Habitat Creation: strategically important areas

Legend
■ Habitat Creation Opportunities
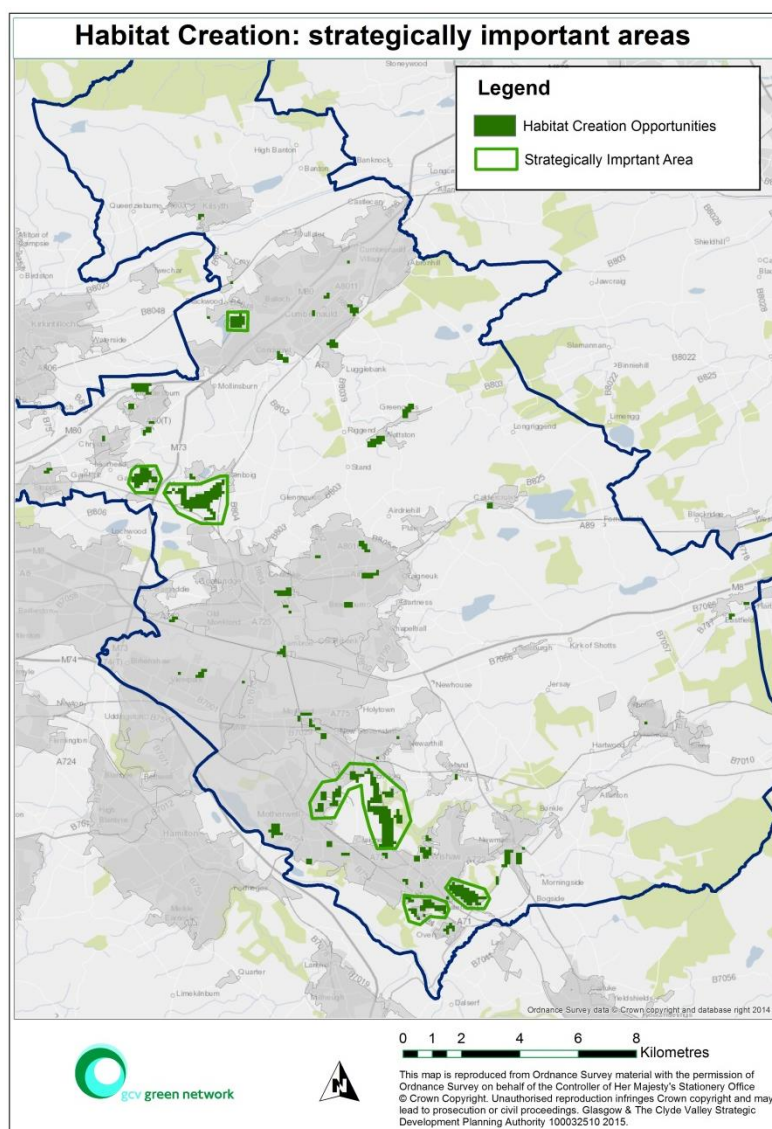□ Strategically Imprtant Area

Figure 18 Strategically important areas for Habitat Connectivity priorities

Six locations emerged from the analysis of strategically important areas and these are identified as North Lanarkshire's Strategic Delivery Areas (SDA) for the Green Network.

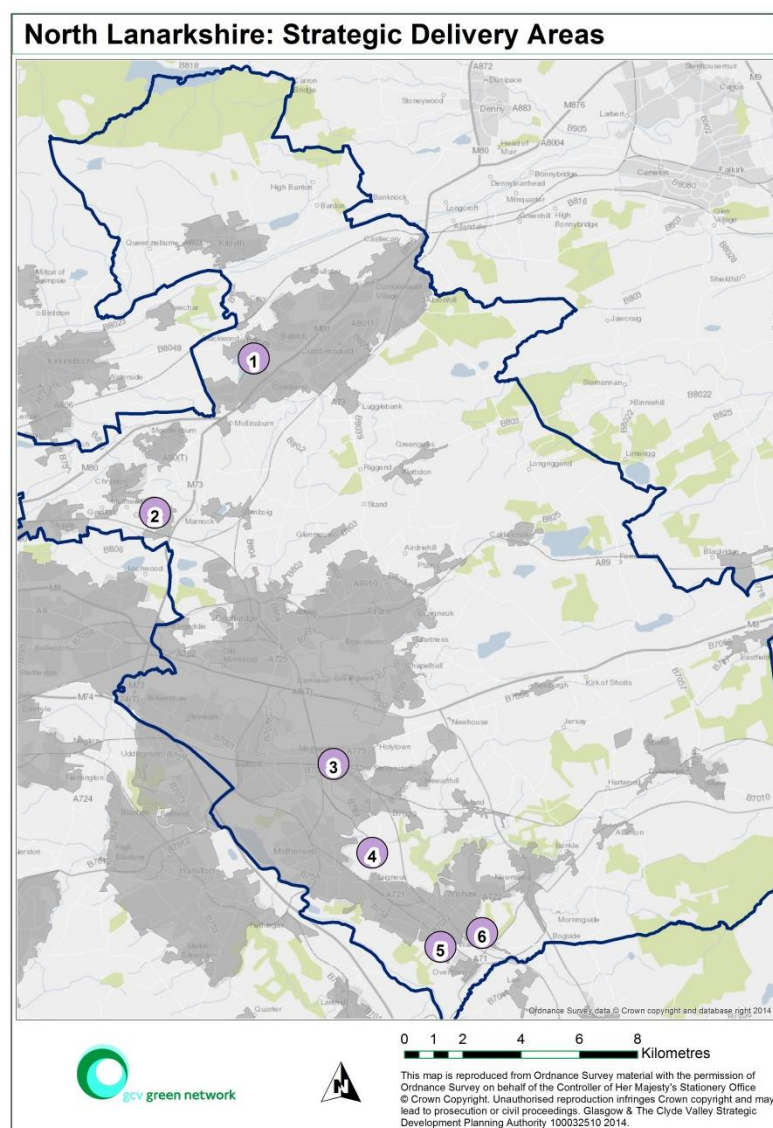North Lanarkshire's SDAs are presented in Figure 19 below.

Figure 19 - Green Network Strategic Delivery Areas

Table 3 below sets out the six SDAs in more detail and identifies the priorities that could be delivered in these areas though Green Network delivery on land use opportunities.

Table 3 - Strategic Delivery Areas

Strategic Delivery Areas	Green Network Priority			
	Health	Access	Climate change	Habitats
1. Broadwood			x	x
2. Gartcosh		x	x	x
3. Holytown/Mossend	x	x	x	
4. Ravenscraig	x	x	x	x
5. Gowkthrapple/Wishaw	x	x	x	x
6. Waterloo	x	x	x	x