



West Dunbartonshire Green Network Opportunities Mapping Report

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1 Summary

The Central Scotland Green Network is a National Development as identified in National Planning Framework 2 and as such its delivery must be considered and planned for at regional and local authority levels when producing planning policy and in development management decision making.

The GCV Green Network Partnership developed a GIS based approach to identifying strategic regional opportunities for delivery of the Green Network in the Glasgow and Clyde Valley (GCV) Strategic Development Plan. The analysis uses a range of Green Network related datasets to identify strategic locations where the planning process and the targeting of resources can deliver multiple Green Network benefits.

The approach was recognised by West Dunbartonshire Council as having the potential to identify Green Network Opportunities at a local authority scale. The methodology, and the datasets used, were refined and adapted to reflect West Dunbartonshire's particular circumstances and outputs produced which identify Strategic Opportunities to enhance and expand the Green Network across the council area. These "hotspots" for Green Network activity are:

- 1 Renton/Alexandria
- 2 Bonhill/Pappert Hill
- 3 Townend/ Dumbarton Golf Course and Common
- 4 Milton/Mobil Site

This report describes the approach, interprets the outputs generated through the analysis. It also recommends that the outputs should be used to:

- Develop robust and defensible Green Network policies for the Local Development Plan
- Target limited resources and planning gain effectively
- Inform masterplanning and development management
- Develop Green Network Strategies for opportunity areas identified through analysis
- Inform Strategies which support the Local Development Plan e.g. Open Space, Biodiversity and Access Strategies
- Set Single Outcome Agreement Targets and measures

introduction



2 Introduction

2.1 What is the Green Network Vision?

The Green Network is a large scale and ambitious initiative that will, through planned and co-ordinated local action which delivers a strategic vision, transform Central Scotland by improving local communities, promoting healthier lifestyles, connecting and enhancing natural habitats, transforming perceptions and by attracting and retaining investment in the area.

The Green Network will deliver a range of 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

2.2 What Comprises the Green Network?

The Green Network is a network of high quality connected green and open space which delivers a range of multiple benefits as described and is designed and maintained to deliver these benefits now and into the future.

The form, size and function of its individual elements will vary significantly however, the combination of these individual 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. Historically suburbs had regular public and private squares set amongst densely developed terraces. The development of Green Network Stepping Stones can provide incomplete corridors linking larger areas of greenspace. This could include the planting of street trees, improved roadside verges or garden improvement.

Isolated Greenspaces

- 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.

Green Network Cores/Hubs, Corridors and links, and stepping stones may be comprised of any number of types of greenspace as defined in PAN 65 'Planning and Open Space'.



2.3 Policy Context and Rationale

The difficulty often for practitioners, whether planners, land managers or developers, is to interpret national policy and guidance into local policy and guidance, but more importantly into delivery on the ground in the form of quality places in which people will want to live, work and recreate.

This “golden thread” of national policy into local delivery is what this document seeks to help deliver by assisting local authorities to set locally derived and sensitive Green Network priorities which help to deliver the GCV Green Network - a regional component of the Central Scotland Green Network (a National Development) as set out in National Planning Framework 2.

The hierarchy of policy context within which this will be achieved is outlined below.

2.3.1 Scottish Policy Framework

Scottish Planning Policy (SPP)

Scottish Planning Policy (SPP) is the statement of the Scottish Government’s policy on nationally important land use planning matters and supersedes the previous individual documents.

Of particular relevance to the delivery of the Green Network are the sections relating to the preparation of Development Plans, Development Management and a number of the individual subject policies including:

Open Space and Physical Activity

“Green networks which provide opportunities for physical activity and access to the outdoors, and increase accessibility within settlements and to the surrounding countryside, should be promoted and safeguarded through the development plan”

Landscape and Natural Heritage

“A strategic approach to natural heritage...linked together in integrated habitat networks can make an important contribution to...biodiversity”

“Planning Authorities should seek to prevent further fragmentation and isolation... and identify opportunities to restore links”

Flooding and Drainage

“Water courses should not be culverted as part of a new development...and existing culverts should be opened where possible. In all cases opportunities for habitat restoration or enhancement should be sought.”

National Planning Framework 2 (NPF 2)

NPF2 lays out the spatial development of Scotland to 2030. It recognises that Strategic Planning for the city regions:

“provides the opportunity to develop extensive **green networks** connecting our inner urban areas with their surrounding rural environments, providing a wide range of social, health and environmental benefits”.

It identifies the Central Scotland Green Network as one of fourteen “National Developments” in recognition that its delivery “offers the opportunity to effect a step change in environmental quality, woodland cover and recreational opportunities. It will make Central Scotland a more attractive place to live and do business, help to absorb CO2 and promote healthier, more active lifestyles”.

NPF2 recognises that the Glasgow and Clyde Valley Green Network Partnership is delivering this National Development in the west Central Belt by “taking forward a programme of greenspace enhancement designed to promote healthier lifestyles, better environments, greater biodiversity, stronger communities and economic opportunity.”

Other National Policy and Strategy and Documents

Other national policy and strategic documents of particular relevance to the GN Programme include:

- Designing Places (Scottish Government 2008)
- Designing Streets (Scottish Government 2010)
- People and Places : Regeneration Policy; (Scottish Government 2006)
- Closing the Opportunity Gaps; (Scottish Government 2007)
- Scottish Forestry Strategy; (Forestry Commission Scotland 2006)
- Scottish Biodiversity Strategy; (Scottish Government 2004)
- Smart, Successful Scotland; (Scottish Government 2001)
- Green Jobs Strategy. (Scottish Government 2005)
- Equally Well (Scottish Government 2008)
- Good Places, Better Health (Scottish Government 2008)

2.3.2 Regional Policy Framework

GCV Joint Structure Plan (2006)

The 2006 GCV Structure Plan identified the creation of a high quality Green Network as a key success factor in delivering a successful City Region.

This concept of a Green Network provides a regional framework for the development of sites of many different types, delivered and managed on the ground by many different organisations. The aim is to achieve a quantum shift in the scope, scale and quality of greenspace work taking place across the area, giving priority to:

- greenspace associated with the living and working environment of local communities;
- greenspace supporting key strategic objectives, such as economic development, regeneration, biodiversity, sustainable development and environmental education; and
- greenspace linked to flagship development initiatives.

Strategic Development Plan and Main Issues Report

Supporting the Strategic Community Plan, the GCV Strategic Development Plan (SDP) provides an overarching planning framework for the development of infrastructure across the region. The SDP supersedes the Joint Structure Plan and is a much more focussed document representing priorities and opportunities spatially. As with the earlier Joint Structure Plan delivery of the GCV Green Network remains a cornerstone of the SDP.

The initial stage of delivering the SDP for the GCV area is the production of a Main Issues Report (MIR) which has a strategic focus and explores the key issues and spatial options at a strategic level. The MIR, and the subsequent SDP, propose, based on GIS analysis, 14 geographical areas across the GCV where strategic opportunities exist to deliver the Green Network. These 14 “hotspots” will in due course require to be reflected in the eight respective GCV Local Development Plans.

The development of this report with West Dunbartonshire Council will apply the SDP methodology to the local authority scale in order to identify local Green Network Opportunities.

2.3.3 Local Policy Framework

West Dunbartonshire references the Green Network in its current Local Development Plan under policy ENV 1, however, in line with new planning policy, West Dunbartonshire Council (WDC) has to prepare a Local Development Plan (LDP) which reflects the priorities identified in the SDP. The starting point for this process is the gathering of evidence, preparation of the Monitoring Statement and the identification of the key issues, priorities and opportunities in a Main Issues Report.

The new style LDP will therefore require to incorporate policies which seek to ensure a robust and defensible Green Network. This document will inform the development of those policies.



2.4 The Role of Planning in Delivery

The planning system is one of the most important means of realising the Green Network vision. 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 quality places in which to live and work.

It can help ensure that the right Green Network components, of the right quality, are created in the right place, and that the widest possible range of benefits result.

2.5 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.

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

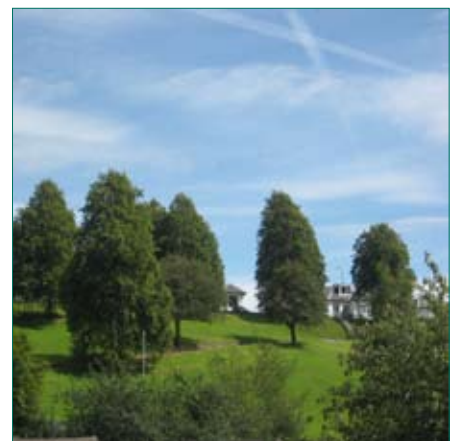
The Green Network should be integrated into the design process for all developments. All development presents an opportunity to deliver the Green Network. The greatest Green Network benefits are likely to be achieved if Green Network design elements (i.e. surface water management, habitat networks, access 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.

2 **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.

3 **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.





methodology

3 Methodology

The methodology which has been applied to the identification of Green Network Opportunities Mapping in West Dunbartonshire was originally developed in response to guidance from planners for the need to represent strategic Green Network opportunities spatially and graphically within the GCV Strategic Development Plan (SDP) Main Issues Report (MIR).

Although originally conceived to identify strategic opportunities across the Glasgow metropolitan region it was recognised from the outset that the resultant data could also be interrogated at a finer resolution for more localised opportunities.

Additionally, by replacing regionally based datasets with West Dunbartonshire specific datasets, outputs which were more relevant and useful to the local authority context could be produced. The resultant outputs will be used by West Dunbartonshire Council in two ways:

- a **To identify local priorities for action and what that action might be to deliver maximum and multiple benefit; and**
- b **To inform the development of LDP Green Network policies and supporting technical documentation and, if required, supplementary planning guidance.**

3.1 Approach

The development of the methodology began by seeking to address the following questions:

- 1 What Green Network resource currently exists and where are the opportunities to improve it?
- 2 Where are the priority areas to expand the Green Network for?
 - a Biodiversity habitat networks?
 - b Public access to greenspace?
- 3 Where are the major areas of land use change and social need?

A series of datasets were identified which could provide answers to these questions both at the regional scale for the SDP and at a local scale for West Dunbartonshire.

3.1.1 Datasets

The GIS based analysis considered four data layers which collectively spatially represent the GCV Green Network, key strategic locations where future land use change present opportunities for delivery and where opportunities exist for the expansion of connectivity for people and wildlife. The data layers were:

Layer 1 Existing Greenspace Provision, Path Network and Potential for Enhancement

SDP	West Dunbartonshire
GCV wide greenspace dataset based on PAN 65 typologies produced in 2006	WDC Open Space Audit qualitative scores (LUC 2008)
Core Path Plans from each of the eight GCV local authorities. Datasets weighted to reflect potential for improvement.	WDC Core Path Plan (adopted 2010)

Layer 2 Strategic Biodiversity Priorities

SDP	West Dunbartonshire
GCV wide Integrated Habitat Network priorities modelling	WD wide Integrated Habitat Network priorities modelling

Layer 3 Strategic Access Priorities

SDP	West Dunbartonshire
Strategic Outdoor Recreation and Active Travel Opportunities dataset produced by Central Scotland Green Network showing supply mapped against demand and need.	WD wide Network for People priorities modelling

Level 4 Strategic Development Opportunities, Land Use Change Opportunities and Areas of Social Need

SDP	West Dunbartonshire
Flagship Regeneration Areas and Community Growth Areas across the GCV	WD Development and Regeneration Sites
Scottish Social Indices of Multiple Deprivation	

3.1.2 Weighting of Datasets

In order to rank and prioritise the GN opportunities identified by each of the datasets, and to aid the GIS analysis, a system of weighting was applied. The weightings, and the rationale for them, as applied to the West Dunbartonshire datasets are detailed below:

Existing Greenspace and Core Paths

The Green Network is in essence a range of types of green and open space and the paths and links which connect them. In 2008 West Dunbartonshire Council undertook a comprehensive Open Space Audit which detailed the quantity and quality of its greenspace resource according to their PAN 65 typology. When combined with the local authority's Core Path Plans, these two datasets can be taken as a good representation of the current Green Network.

However, not all greenspace presents the same opportunity for enhancement or increased functionality and therefore delivery of the Green Network. Weighting was therefore applied to the Open Space Audit qualitative scores to reflect the differing potentials as follows:

Lowest scoring 10%, 11-20% and 21-30% of sites were weighted 3, 2 and 1 respectively.

Core paths were taken as having limited ability to deliver more to the GN and therefore weighted as 1 (although it is recognised that some paths may fall short of a desirable quality).

Strategic Biodiversity Opportunities

The Integrated Habitat Network (IHN) Model uses GIS to spatially represent grassland, wetland and woodland habitats and the ability of species to move between those habitats and through the adjacent landscape.

The IHN Model represents the current status of habitats and how they are 'functionally connected'. However, it doesn't show where best effort and resources should be targeted to increase the size and number of habitat networks.

New software, employing a series of assessment criteria, was applied to a 100m grid of cells covering West Dunbartonshire and used to identify locations where intervention would yield the greatest benefit in terms of improving habitat connectivity.

The top scoring 10%, 11-20% and 21-30% of assessment cells were weighted as 3, 2 and 1 respectively in the final analysis.

Strategic Access Opportunities

New work was commissioned by the GCV Green Network Partnership which would use a similar approach to habitat opportunity modelling but would instead analyse the urban environment in terms of its permeability for human accessibility from homes to greenspace and path networks.

Firstly, a Networks for People (N4P) model was developed which uses GIS to accurately map the distances people have to travel from their houses to either greenspace or a core path. Any household which is modelled as being further than 250m from a space of over 0.3h is considered to be disconnected from the Green Network.

Secondly, as for strategic habitat opportunities modelling, software applied a series of assessment criteria to 100m cell grid of cells covering West Dunbartonshire and those hexagons

which consistently scored lowly in terms of adjacency and connectivity to greenspace and path networks were identified as high opportunity to improve the network.

The lowest scoring 10%, 11-20% and 21-30% of assessment cells were weighted as 3, 2 and 1 respectively in the final analysis.

Strategic Development Opportunities & Areas of Need

In consultation with West Dunbartonshire Council Officers, a series of development and regeneration sites were identified as having the potential to deliver the Green Network.

These sites were weighted as 3 in the final analysis i.e. they offered a high potential for delivery.

Note: In discussion with West Dunbartonshire Council Officers it was agreed that the analysis should focus purely on the physical aspects of the Green Network and not include SIMD as had been done for the SDP. It was felt that analysis of the correlation between the Green Network Opportunities outputs and SIMD, as well as other health, social and economic factors, could be carried out by the Green Network Partnership on behalf of WDC at a later date for specific purposes.

3.1.3 Analysis and Outputs

GIS analysis was employed to overlay the weighted datasets detailed above and to identify geographical locations across West Dunbartonshire where there was strong correlation between them. These areas of correlation were taken as locations where opportunities exist to deliver multiple Green Network benefits through the targeting of effort and resources.

The output from the analysis was a map based spatial representation of the three highest scoring clusters of 100m cells across West Dunbartonshire.

Note on Methodology Development: In the first run of the analysis it became apparent that there was little correlation between the highest scoring areas for the individual datasets i.e. there were very few areas identified which could be said to offer the opportunity to deliver multiple Green Network benefits.

The main reason for this was identified as an issue with the Networks for People dataset. When investigated in more detail it revealed that the analysis predicted that very many more houses in West Dunbartonshire were within 250m of greenspace or path networks than would have been expected i.e. there was very little opportunity to improve the situation. Closer inspection revealed the reason to be the inclusion of all greenspace, such as very small and unusable areas of amenity greenspace, in the analysis.

This was resolved by introducing a lower size threshold for greenspace of 0.3ha into the analysis. This gave a much more realistic interpretation of the situation on the ground in terms of access to usable greenspace. Additionally, application of weighting to the PAN 65 typologies to reflect their potential to offer more to the Green Network was found at the local level to be too blunt a tool. West Dunbartonshire Council's Qualitative Open Space Audit was utilised instead to give much more locally responsive results.

The analysis was rerun with the revised datasets with the resultant output displaying a much greater degree of coincidence between GIS layers.

3.2 Analysis Outputs

The outputs from the GIS analysis are:

- 1 Individual GIS layers showing:
 - a The top 10, 20 and 30% priorities for habitat creation (for combined and individual habitat types)
 - b The top 10, 20 and 30% priorities for access enhancement
 - c Weighted development/regeneration opportunities
- 2 Combined analysis of the above layers identifying areas of greatest opportunity to deliver multiple Green Network benefits.



A photograph of a residential street. In the foreground, there is a large, healthy green tree with a full canopy of leaves. To the left of the tree is a grassy area and a paved road. In the background, there are several houses with red brick walls and white sections. A few cars are parked on the street. The sky is overcast with grey clouds. The text "interpretation of analysis" is overlaid in white at the bottom of the image.

**interpretation
of analysis**

4 Interpretation of Analysis

4.1 Overview

Figure 1 below (also included as Appendix 1) shows the strategic Green Network Opportunities output identifying those areas across West Dunbartonshire which have the potential to deliver maximum, multiple benefits for investment of effort and resources.

At first glance the output may appear to suggest that there are large areas of West Dunbartonshire where there is little or no opportunity. However, two things should be borne in mind when considering the outputs. Firstly, the analysis is focussed on urban areas and, given that large areas of West Dunbartonshire are rural in nature, these areas will not feature in the analysis. Secondly, the output only demonstrates correlation between the highest scoring cells for each layer and therefore represents only the very highest opportunities.

The analysis underlying the output can, however, be viewed at any resolution and different thresholds may be set for viewing the data if a more detailed breakdown is required for a particular area. The individual layers are interpreted in more detail below.

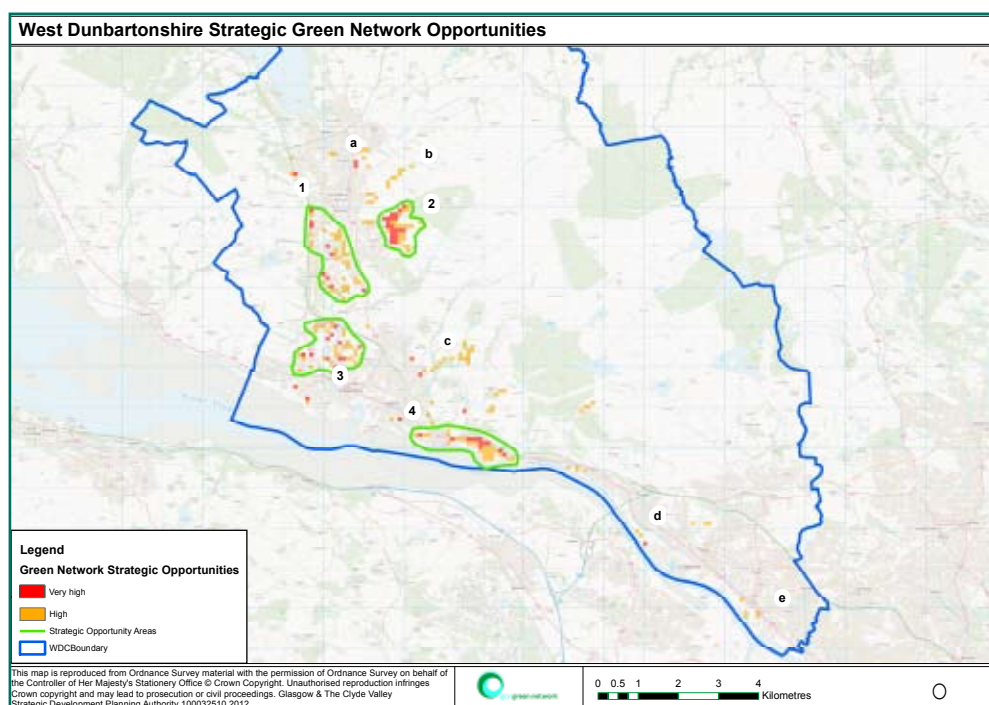


Figure 1 - Strategic Green Network Opportunities
 (Note: 1-4 and a-e in Figure 1 are described in 4.2)

For the 100m x 100m cells upon which the analysis is based to score in the highest opportunity band (shown in red), they must have at least maximum scoring correlation between two of the datasets plus one other score i.e. a score of 7 and above. These will be referred to as very high opportunities. For the cells to score in the high band (shown in orange) they must have a maximum scoring of 3 in at least two cells i.e. a total score of 6.

Areas where there are clusterings of cells can be taken to be geographical locations where the opportunity exists to deliver multiple Green Network benefits. An example of one cluster is shown below.

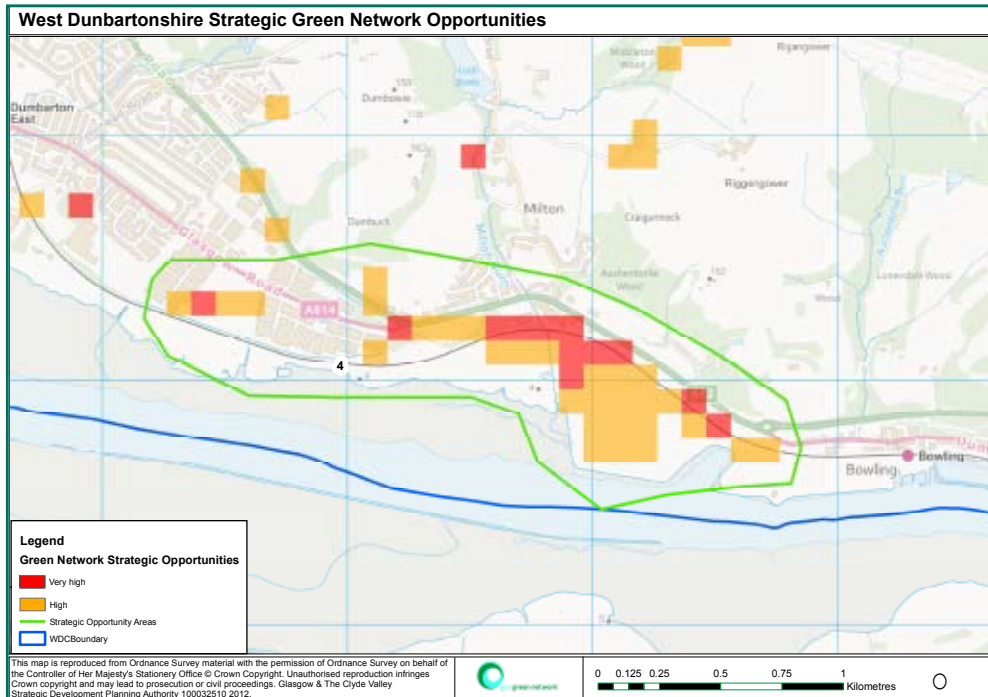


Figure 1a - Extract from Strategic Green Network Opportunities Map

4.2 Headline Findings

70 cells score in the **very high band** and 198 cells score in the **high band** with significant clustering of activity around:

- 1 Renton/Alexandria
- 2 Bonhill/Pappert Hill
- 3 Townend/Dumbarton Golf Course and Common
- 4 Milton/Exxon Mobil site

These clusters represent the greatest opportunity to deliver multiple Green Network benefits through the targeting of resources or through the planning process.

Additionally, single very high and high scoring cells, which do not correlate with significant clusters, are distributed throughout West Dunbartonshire. These cells still represent significant opportunity for delivery, particularly when adjacency of high scoring baseline layer cells is considered, and should be considered through the planning process, geographically targeted resources or funding applications.

4.3 Specific Green Network Opportunities

The specific Green Network Opportunities which relate to each of the four identified clusters are:

1 Renton/Alexandria

- Open space enhancement combined with woodland, wetland and grassland habitat mosaic creation.
- Open space enhancement combined with access enhancement.

2 Bonhill/Pappert Hill

- Open space enhancement combined with woodland and grassland habitat mosaic creation. Some wetland creation to the south of the cluster.

3 Townend/Dumbarton Golf Course and Common

- Development opportunity to deliver woodland, wetland and grassland habitat mosaic creation (west of cluster).
- Open space enhancement combined with woodland and grassland habitat mosaic creation (east of cluster).

Note: Opportunity may exist to enhance the quality of adjacent core path through development, dependent on current condition of path.

4 Milton/Mobil Site

- Development opportunity to deliver woodland, wetland and grassland habitat mosaic creation. **Significant impact on habitat networks**

Note: Opportunity may exist to enhance the quality of adjacent core path through development, dependent on current condition of path.

Additional singular high scoring cells are located at:

a Jamestown

- Development opportunity to deliver wetland, woodland and grassland habitat mosaic.
- Development opportunity to deliver access enhancement.

b South of Auchincarroch Road

- Open space enhancement combined with creation or expansion of woodland habitat and grassland habitats.

c Garshake and Gruggies Burn

- Open space enhancement combined with creation or expansion of woodland habitat.

d Clyde Corridor south of Erskine Bridge

- Development opportunity to deliver enhanced access.
- Development opportunity to deliver woodland, grassland and wetland habitat mosaic.

e East Clydebank Waterfront


- Development opportunity to deliver enhanced access.

Any land use change through planning or regeneration processes or through the specific targeting of resources within these 4 areas should consider how to incorporate the Green Network Opportunities identified at each site.

Note: Where core path enhancement is suggested above it is acknowledged that no qualitative path data was included in the analysis and the potential may not exist if the core path is currently of a high quality.





A lush green forest scene with a stream flowing through it. The foreground features a wooden railing and dense green vegetation. The background is filled with tall trees and sunlight filtering through the canopy.

**analysis
of individual
datasets**

5 Analysis of Individual Datasets

The previous analysis describes the outputs as an aggregation of the 4 baseline datasets however, the individual datasets when viewed and manipulated singly provide extremely valuable information. The individual datasets outputs can be used to guide decisions on habitat creation and access enhancement at a strategic local authority scale, at a settlement scale and at a site scale.

5.1 Strategic Habitat Priorities

Figure 2 below (full map included as Appendix 2) shows an extract from the top 30% of habitat creation priorities for West Dunbartonshire generated from the Integrated Habitat Network Model output 2011.

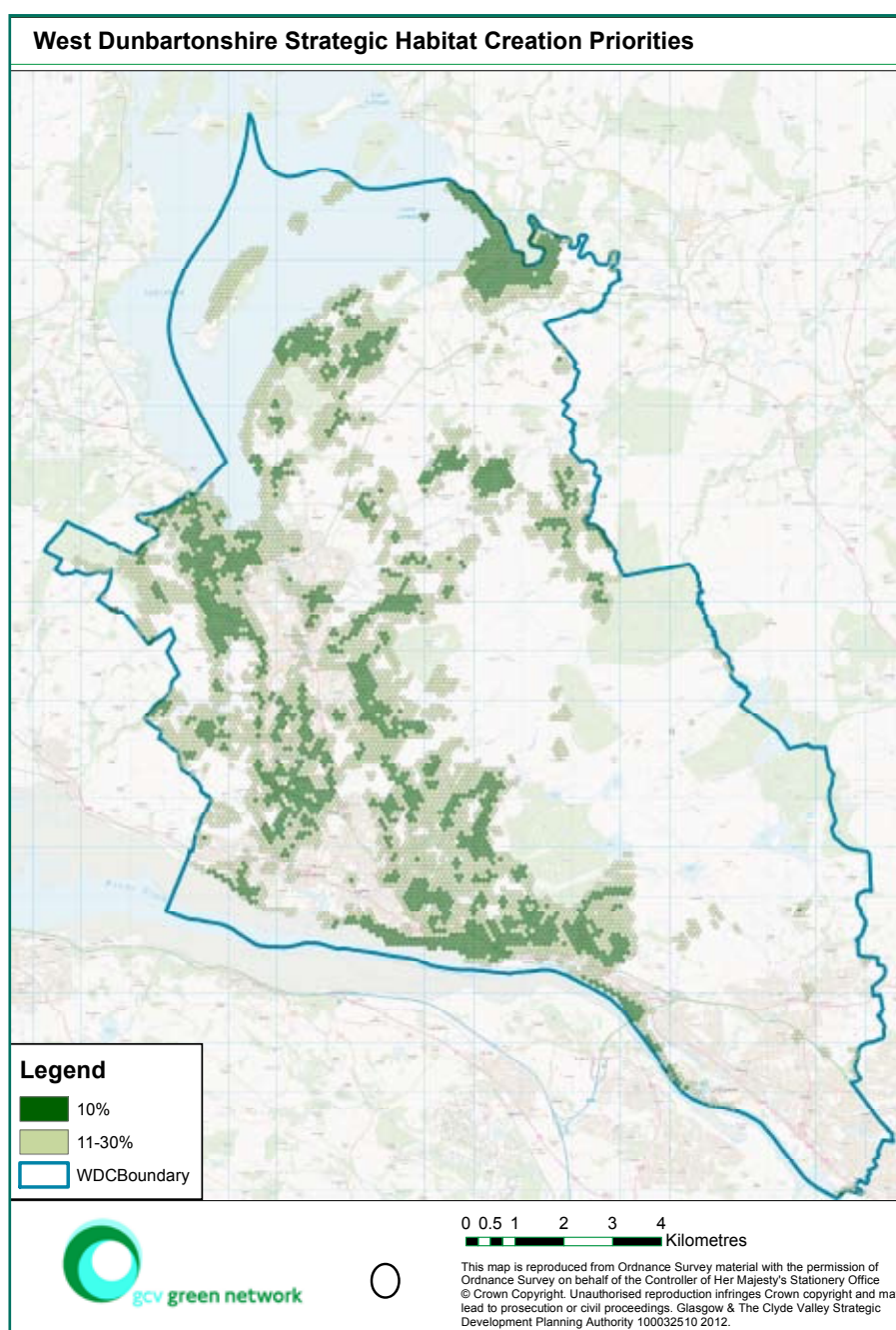


Figure 2 – General Habitat Creation Priorities

The habitat priorities maps below and on the previous page do not show existing habitat but rather where the greatest benefit can be achieved in terms of habitat connectivity by creating new woodland, wetlands and grasslands.

The top 30% habitat creation priorities which were used for the Opportunities Mapping analysis in Section 3 were clipped to the settlements to align with the Networks for People and open space quality datasets. The output above shows the top 30% for the whole of West Dunbartonshire including rural areas.

Figure 2 shows general habitat creation priorities, however, the data can be further analysed to determine the specific habitat to which the priority relates: broadleaved woodland, neutral grassland and/or wetland.

Examples of the individual habitat priorities are shown below with the full maps included as Appendices 3-5.

Note: The shaded hexagons on the maps do not represent existing habitat but rather geographical areas which would give the best return in terms of habitat networks and ecological connectivity for creation of new habitat at those locations.

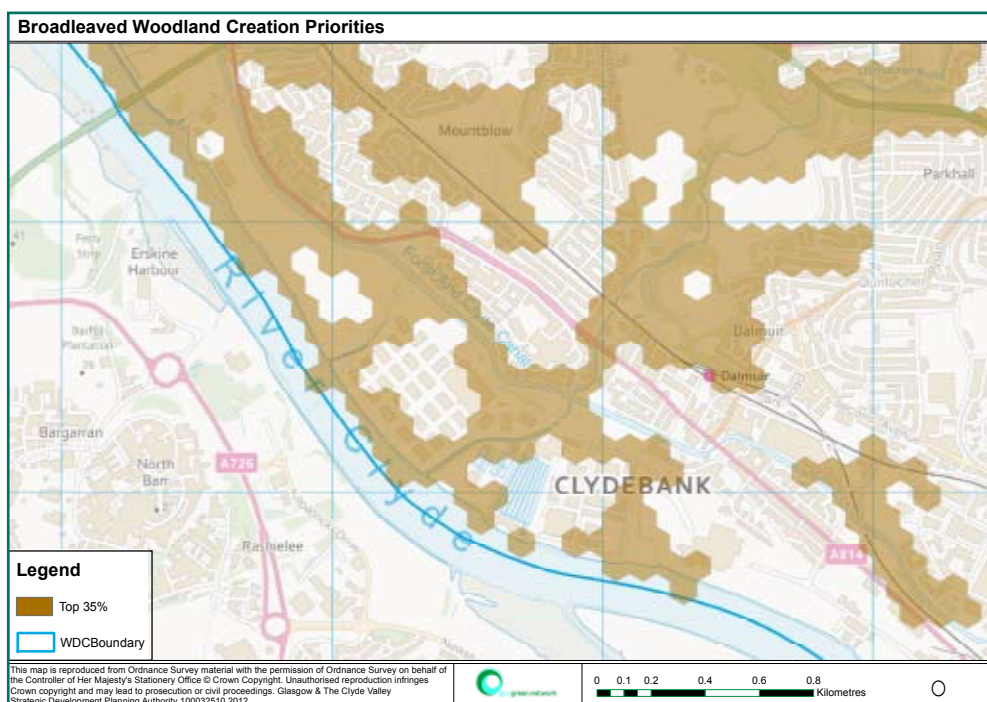


Figure 3 – Broadleaved Woodland Creation Priorities Mountblow/Dalmuir Extract

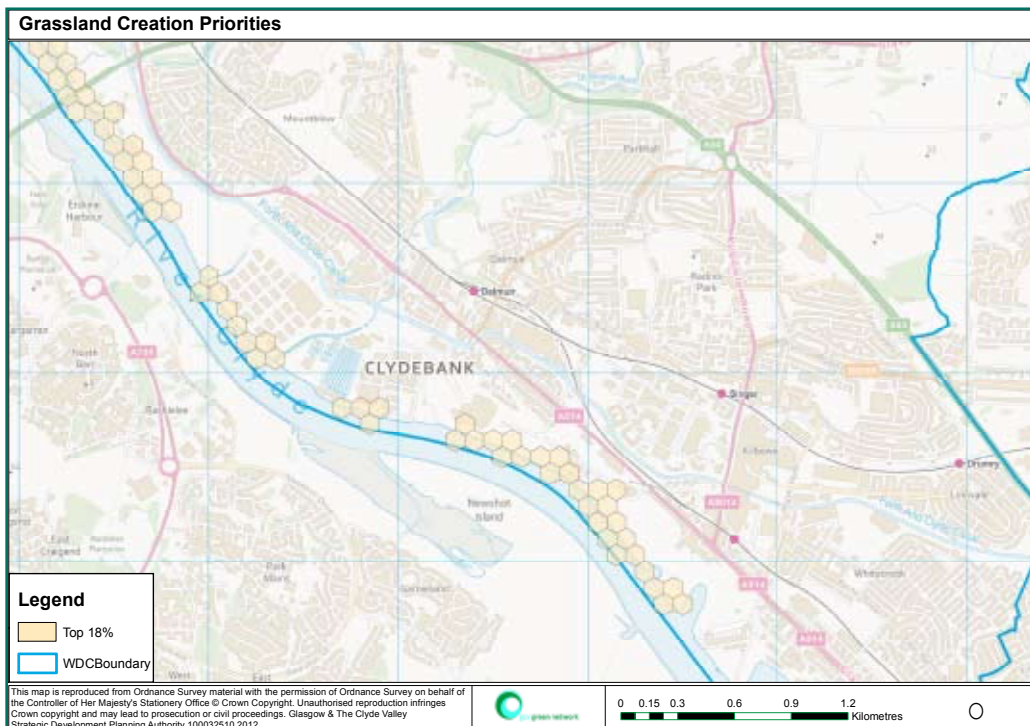


Figure 4 – Neutral Grassland Creation Priorities Moundblow/Dalmuir Extract

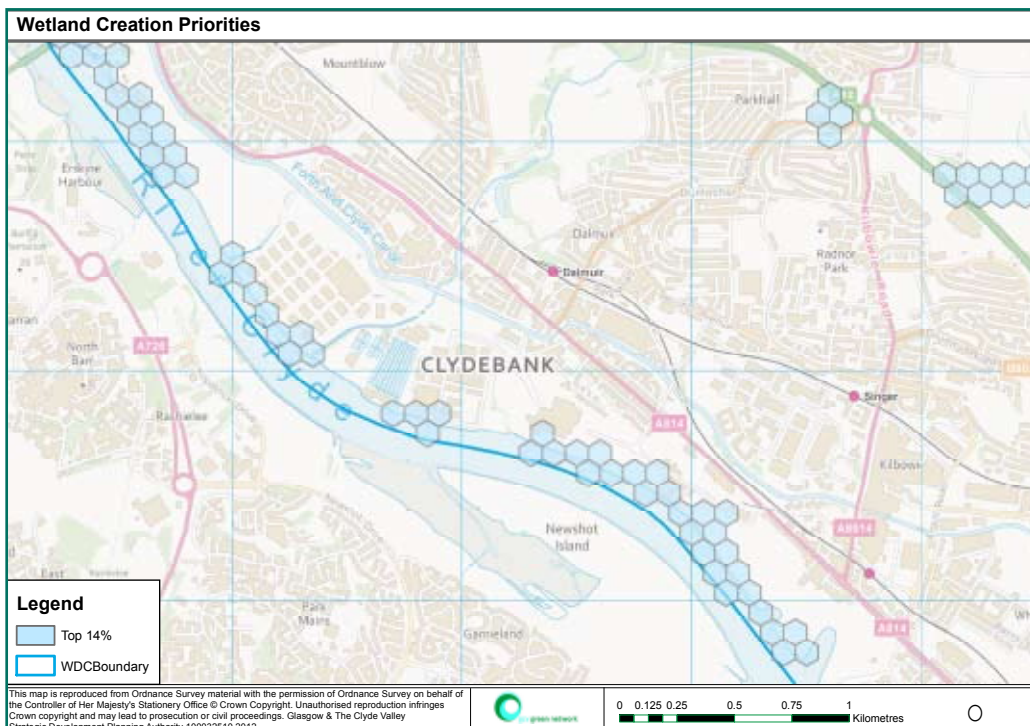


Figure 5 – Wetland Creation Priorities Moundblow/Dalmuir Extract

Note: Because of the way the data is classified the data has to be presented in natural groupings and therefore Broadleaved Woodland is presented as the top 35%, Neutral Grassland the top 18% and Swamp, Fen, Marsh the top 14%.

The breadth of the habitat creation opportunities identified through the outputs above are too extensive to be fully detailed in this report. The Green Network Partnership Executive Team would be happy to work with West Dunbartonshire Council Officers to develop a more detailed analysis of the opportunities.

Generally though, the habitat priorities outputs should be used to inform:

- Habitat creation mitigation for development/masterplanning
- Local authority management of its land resources
- SRDP/WIAT applications
- Encouragement of third parties to management their land resources for habitat enhancement

5.2 Strategic Access Priorities

As with habitat networks, the Networks for People datasets when viewed singly can be used to inform access enhancement decisions at a strategic local authority scale, at a settlement scale or at a site scale.

Figure 6 on the following page shows an extract from the dataset with the full map, included as Appendix 6, showing the top 30% of access enhancement priorities for West Dunbartonshire.

The shaded hexagons represent the communities in West Dunbartonshire which are the most disconnected from the Green Network. The network analysis applied has identified the shaded hexagons as being 250m or more from an open an open space, over 0.3ha in size, in West Dunbartonshire's Greenspace Strategy or from a core path. The darker the hexagon the more disconnected those areas are from the Green Network.

This output should be used to guide the targeting of development opportunity, planning gain or resources towards these areas to, wherever possible, connect them to the Green Network.

It is recognised that in some areas the opportunity won't exist to create new greenspace or path networks to connect communities. In such circumstances it is important to ensure that the spaces which are closest to those communities are of a sufficient quality that people would be willing to walk or cycle further to reach them. Consideration could also be given to "greening" the on-road journey to the spaces by adopting a Designing Streets (Scottish Government 2010) approach using measures such as street trees, cycle lanes and signage and prioritising pedestrian movement. These measures would make the local environment more permeable for non-vehicular movement.

The breadth of the access enhancement opportunities identified through the outputs above are too extensive to be fully detailed in this report. The Green Network Partnership Executive Team would be happy to work with West Dunbartonshire Council Officers to develop a more detailed analysis of the opportunities.

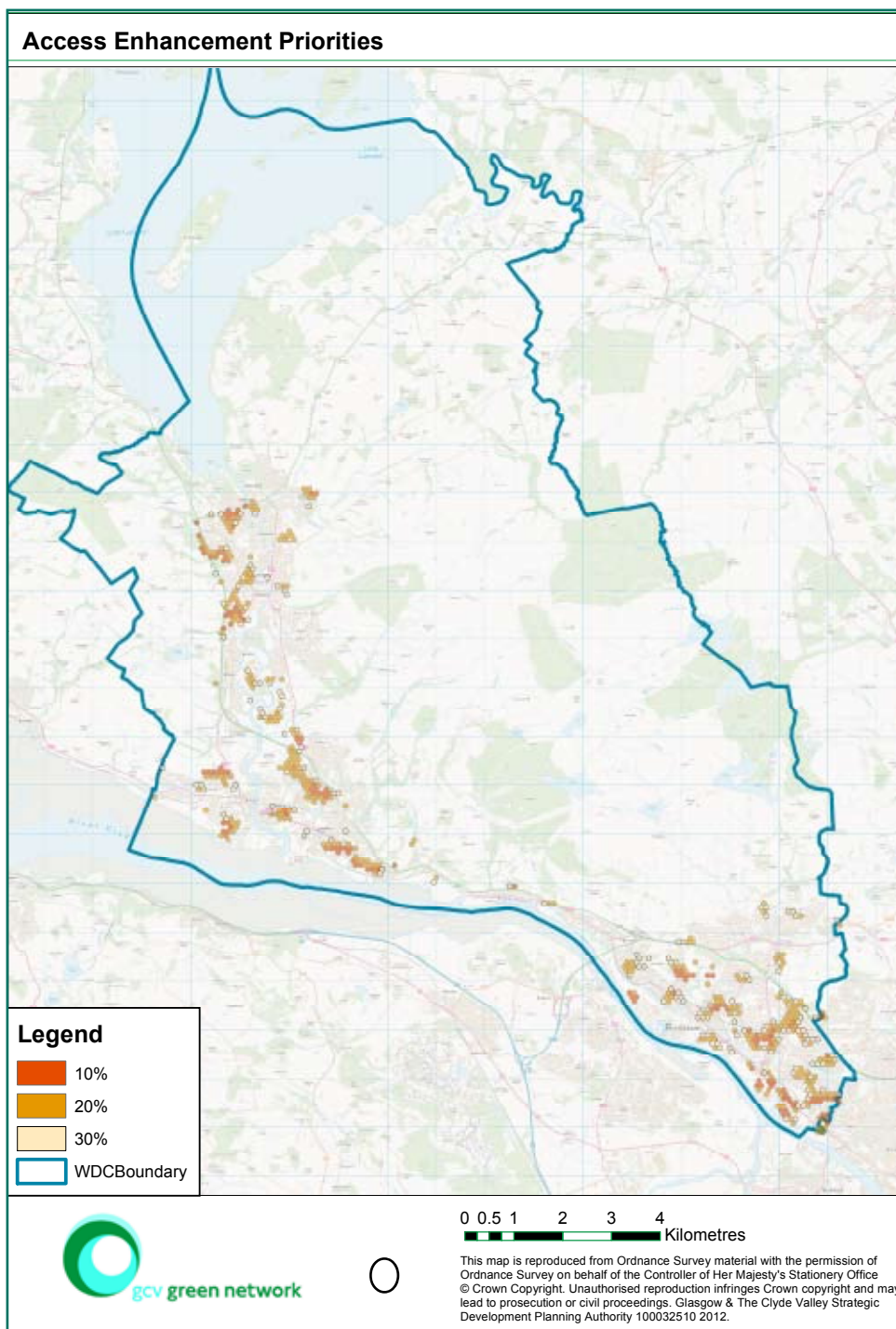


Figure 6 – Access Priorities Extract



conclusions

6 Conclusions

6.1 West Dunbartonshire Strategic Green Network Opportunities

The GIS based analysis used to identify Strategic Green Network Opportunities was originally developed for, and applied to, the Glasgow and Clyde Valley Strategic Development Plan. Subsequent modification for application to Local Development Plans has resulted in a robust and powerful decision support tool.

The West Dunbartonshire outputs demonstrate extensive scope for delivery of strategic Green Network priorities through the planning process and the targeting of resources. The analysis identified seven locations across West Dumbartonshire where intervention has a high potential to deliver multiple Green Network benefits. These strategic opportunity areas are:

- 1 **Renton/Alexandria**
- 2 **Bonhill/Pappert Hill**
- 3 **Townend/Dumbarton Golf Course and Common**
- 4 **Milton/Mobil Site**

The specific opportunities for each of the areas are detailed in Section 4.3 of the Report. A strong underlying theme across the areas is the creation or expansion of woodland, wetland and grassland habitat mosaics associated with open space enhancement and development and regeneration processes.

Given the strong association of the identified opportunities with development and regeneration the planning process can be utilised and robustly applied, through masterplanning and development management, to ensure the particular open space, access or habitat benefits are fully realised in proposals and seen through to delivery.

Recommendation 1

Use outputs from Green Network Opportunities Mapping to inform the delivery of Green Network benefits through the planning process in Strategic Opportunity Areas across West Dunbartonshire.

6.2 West Dunbartonshire Green Network Expansion Priorities

Sections 5.1 and 5.2 of the Report illustrate the value of using the individual datasets to inform expansion of the Green Network in terms of habitat and access.

The Integrated Habitat Network Priorities and Networks for People Priorities outputs can be interrogated at a range of scales: local authority wide, settlement wide or on a site by site basis and should be used to inform the work of Biodiversity, Access and Greenspace Officers as well as Policy and Development Management Planners.

More detailed analysis of the datasets and application of the findings would help ensure delivery of the Green Network is integrated into:

- 1 Complimentary strategies e.g. Open Space, Access and Biodiversity Strategies,
- 2 Land management decisions e.g. the design and maintenance of open space,
- 3 Funding applications e.g. Scottish Rural Development Programme, Central Scotland Green Network Development Fund

The GIS analysis has provided extremely detailed outputs which are too complex to fully elaborate within this Report. The Green Network Partnership Executive Team will continue to work with West Dunbartonshire Officers to interpret and apply the outputs.

Recommendation 2

Further analysis and application of the Integrated Habitat Network and Networks for People Priorities Outputs to inform delivery of the Green Network in West Dunbartonshire.

6.3 Future Applications of Outputs

6.3.1 Local Development Plan

The Central Scotland Green Network is a National Development identified in National Planning Framework 2 and as such its delivery has to be addressed in Local Development Plans.

West Dunbartonshire's Main Issues Report (MIR), the first stage in the replacement of the current Local Plan, is a consultative document which sets out a vision for future development across the local authority area.



This Report will inform the production of the MIR in relation to the Green Network. The Green Network Opportunities Mapping outputs should now be used to inform the writing of Local Development Plan policies which define, protect, expand and enhance West Dunbartonshire's Green Network, both as a valuable local resource and as part of the Central Scotland Green Network.

Recommendation 3

Use outputs From Green Network Opportunities Mapping and supporting datasets to develop robust and defensible Local Development Plan Green Network Policies

6.3.2 Masterplanning and Development Proposals

The integration of Green Infrastructure into masterplans and development proposals should be considered at the outset of the development process. The Green Network Opportunities Mapping and the Expansion Priorities outputs can be used in the early stages to ensure delivery of the Green Network is put on a comparable footing with other developmental considerations.

It is important to emphasise that the outputs should not be viewed as constraints to the development planning process but rather decision support tools which can assist in finding an optimal solution for built and green infrastructure.

Recommendation 4

Use outputs from IHN and N4P Priorities Mapping to inform the early stages of masterplanning and development proposals

6.3.3 Development Management

When considering planning applications Development Management planners have a range of issues to consider and ensure are reflected in site proposals. GIS datasets play an important supporting role in the process often in the form of “constraints” maps. The Central Scotland Green Network is now a National Development identified in National Planning Framework 2, and therefore its delivery must also be considered when appraising planning applications.

The outputs from the Green Network Opportunities Mapping, and the individual datasets which underlie the analysis, can be used to inform Development Management decision making and the targeting of planning gain. However, unlike other planning considerations, their use can highlight opportunities for delivery of the Green Network through development and not be viewed as a constraint to development.

To facilitate use in Development Management decisions, the output layers should be accessible to planners in West Dunbartonshire’s GIS system.

Recommendation 5

Mainstream the use of Green Network Opportunities Mapping and supporting dataset outputs in Development Management to identify Green Network opportunities and the targeting of planning gain

6.3.4 Green Network Strategy Development

The Green Network Partnership has produced Green Network Strategies for a range of locations across the Glasgow and Clyde Valley. The purpose of the Strategies is to develop a detailed understanding of spatial, social and economic interactions of a given area and to produce a strategic Green Network response which seeks to address those factors.

The West Dunbartonshire analysis identified four strategic locations across the local authority area for delivery of the Green Network. The production of Green Network Strategies for these locations would ensure that the full range of potential benefits would be delivered. As well as addressing the delivery of Green Network infrastructure, Strategies would integrate the health, social and economic agendas into proposals.

Recommendation 6

Develop Green Network Strategies for the Strategic Opportunities Areas identified through the Green Network Opportunities Mapping

6.3.5 Targeting of Resources

Public bodies have an obligation to deliver value for money and are increasingly expected to deliver an improving service with decreasing budgets. The effective targeting of resources therefore is more important than ever.

The Green Network Opportunities Mapping outputs provide a tool to target those limited resources effectively and for maximum return on investment. The outputs can be used to inform prioritised action planning and budget allocation for delivery of Green Network priorities.

Recommendation 7

Use Green Network Opportunities Mapping and Habitat and Access Expansion Priorities outputs to inform the targeting of budgets and action on the ground

6.3.6 Single Outcome Agreements

Single Outcome Agreements (SOA) set out the key outcomes and targets that local authorities and their partners commit to achieving in agreement with The Scottish Government. It can be difficult to identify appropriate targets in moving towards Outcomes and ways to measure whether the targets have been achieved.

The Integrated Habitat Network (IHN) Model provided detailed and measurable data on ecological connectivity, a cornerstone of sustainable management of the natural environment and mitigation against species ability to adapt to the effects of climate change. The model can be utilised to set and measure the success of meeting SOA targets on management of the natural environment.

The Networks for People (N4P) Model also has the potential to be used in setting accessibility targets for access to open space and natural environments and should be investigated more fully.

Recommendation 8

Use IHN Model to set and monitor SOA targets and investigate use of N4P model to set accessibility targets

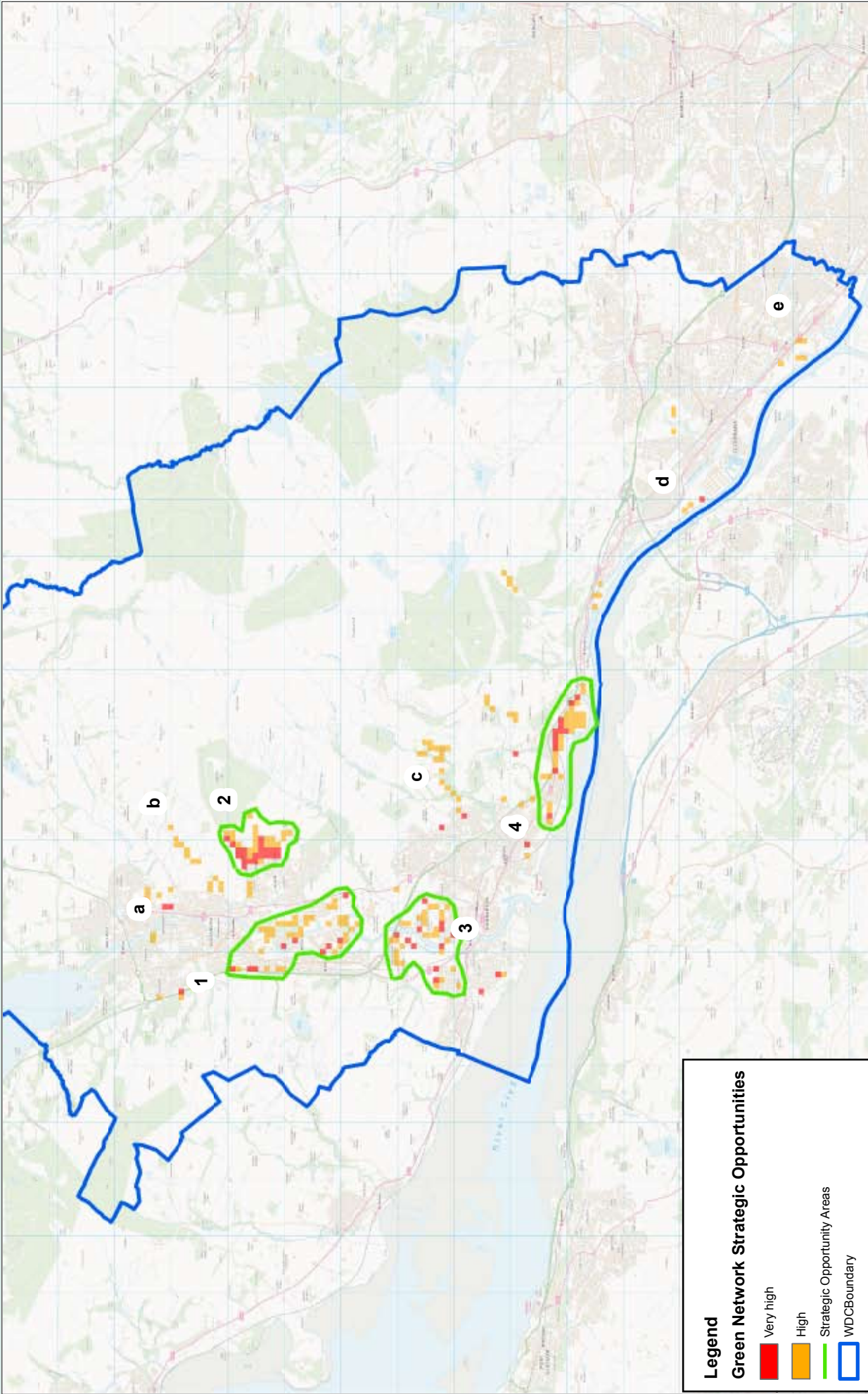
The GCV Green Network Partnership Executive Team would welcome the opportunity to work with West Dunbartonshire Council in the future to offer advice and technical support for all of the above.



Appendices

- Appendix 1 West Dunbartonshire Strategic Green Network Opportunities**
- Appendix 2 General Habitat Creation Priorities**
- Appendix 3 Broadleaved Woodland Creation Priorities**
- Appendix 4 Neutral Grassland Creation Priorities**
- Appendix 5 Wetland Creation Priorities**
- Appendix 6 Strategic Access Enhancement Priorities**

West Dunbartonshire Strategic Green Network Opportunities

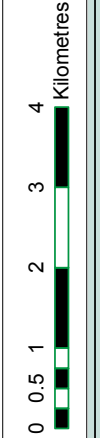


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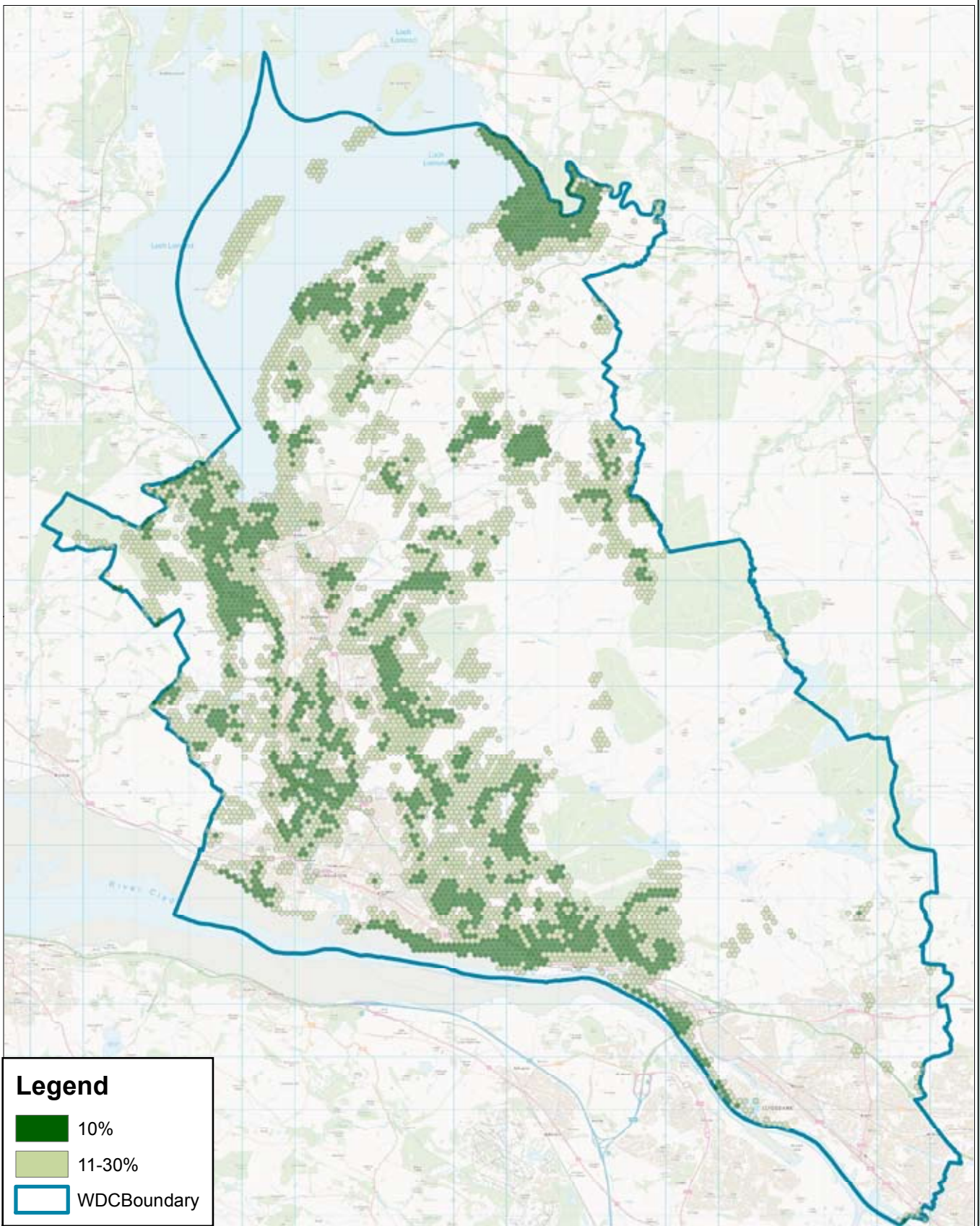
Green Network Strategic Opportunities

- Very high
- High
- Strategic Opportunity Areas
- WDC Boundary

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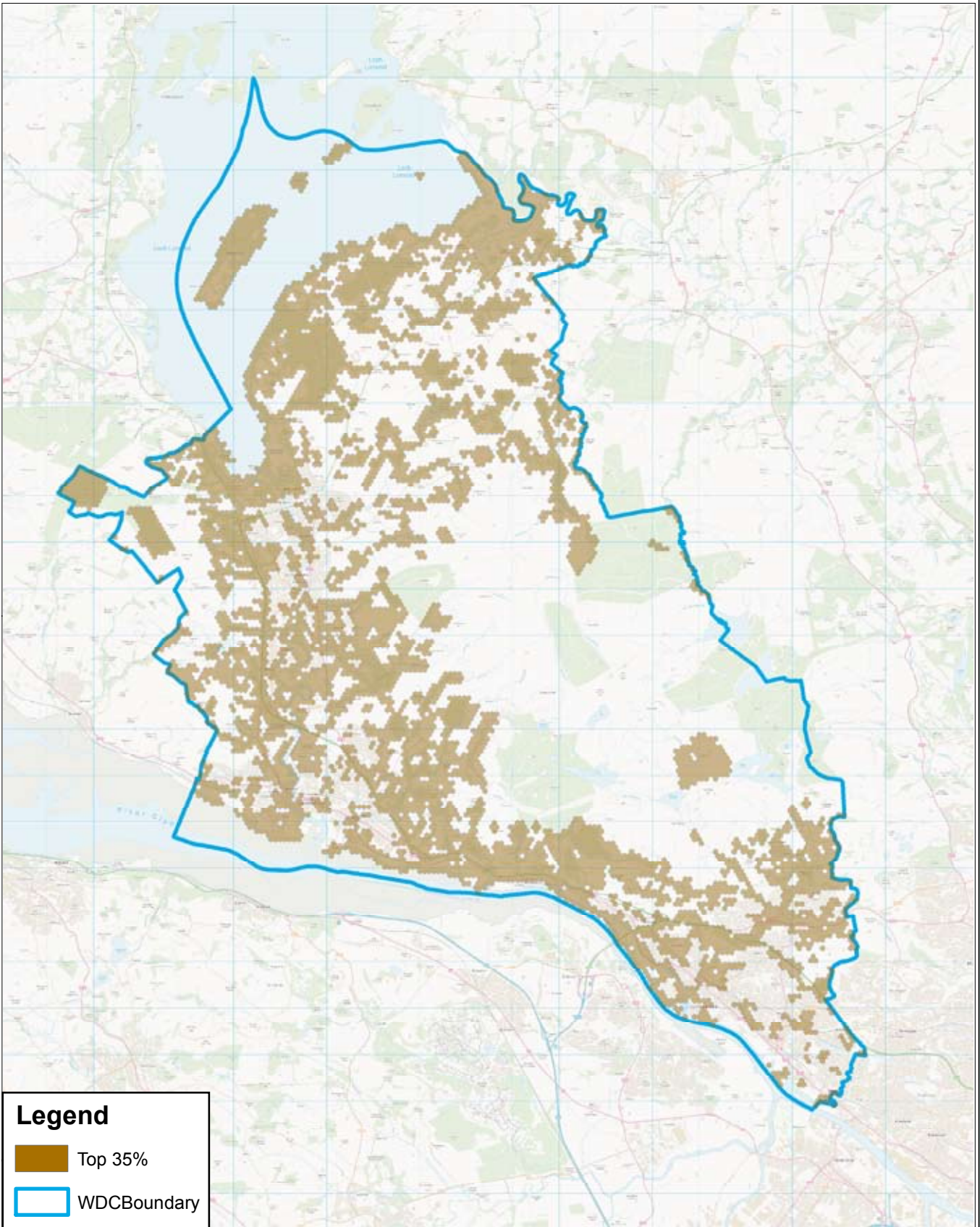
West Dunbartonshire Strategic Habitat Creation Priorities





0 0.5 1 2 3 4 Kilometres

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Broadleaved Woodland Creation Priorities



Legend

-  Top 35%
-  WDC Boundary



0 0.5 1 2 3 4
 Kilometres





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Neutral Grassland Habitat Creation Priorities



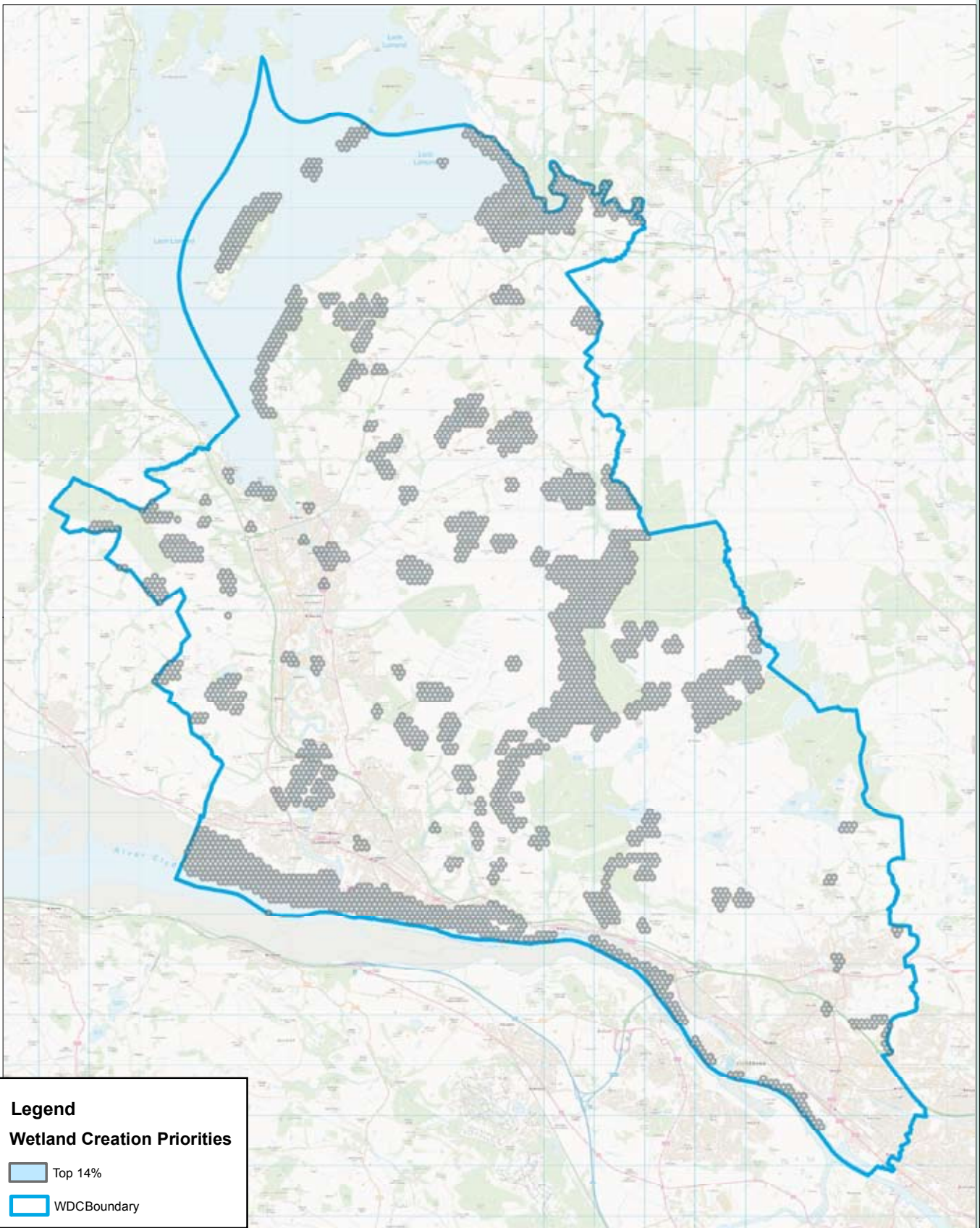
Legend

-  Top 18%
-  WDC Boundary





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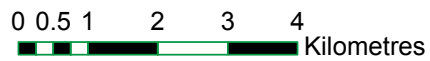
Wetland Creation Priorities



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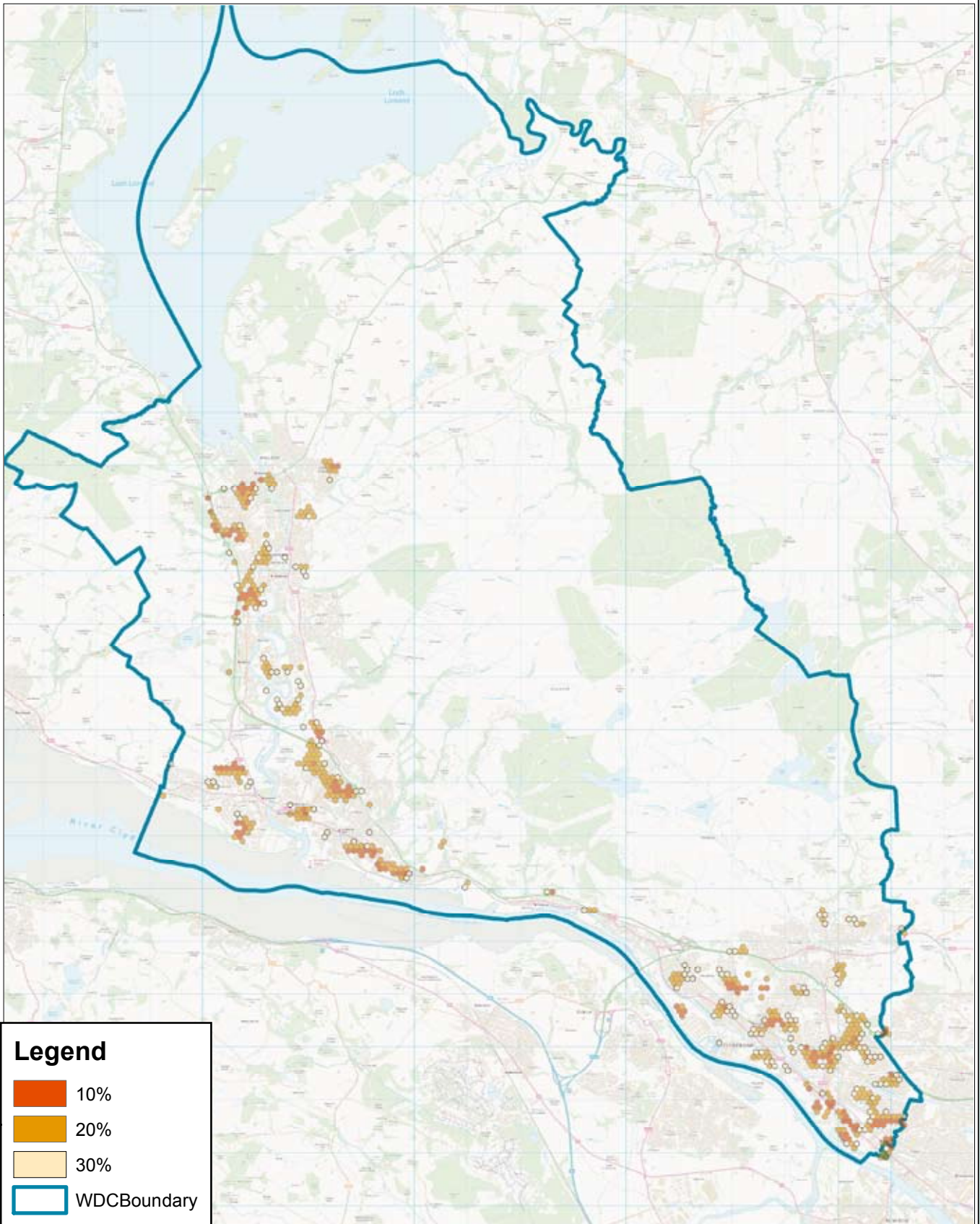
Wetland Creation Priorities

-  Top 14%
-  WDC Boundary



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Access Enhancement Priorities



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West Dunbartonshire
Green Network Opportunities Mapping
Interim Report

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December 2011



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