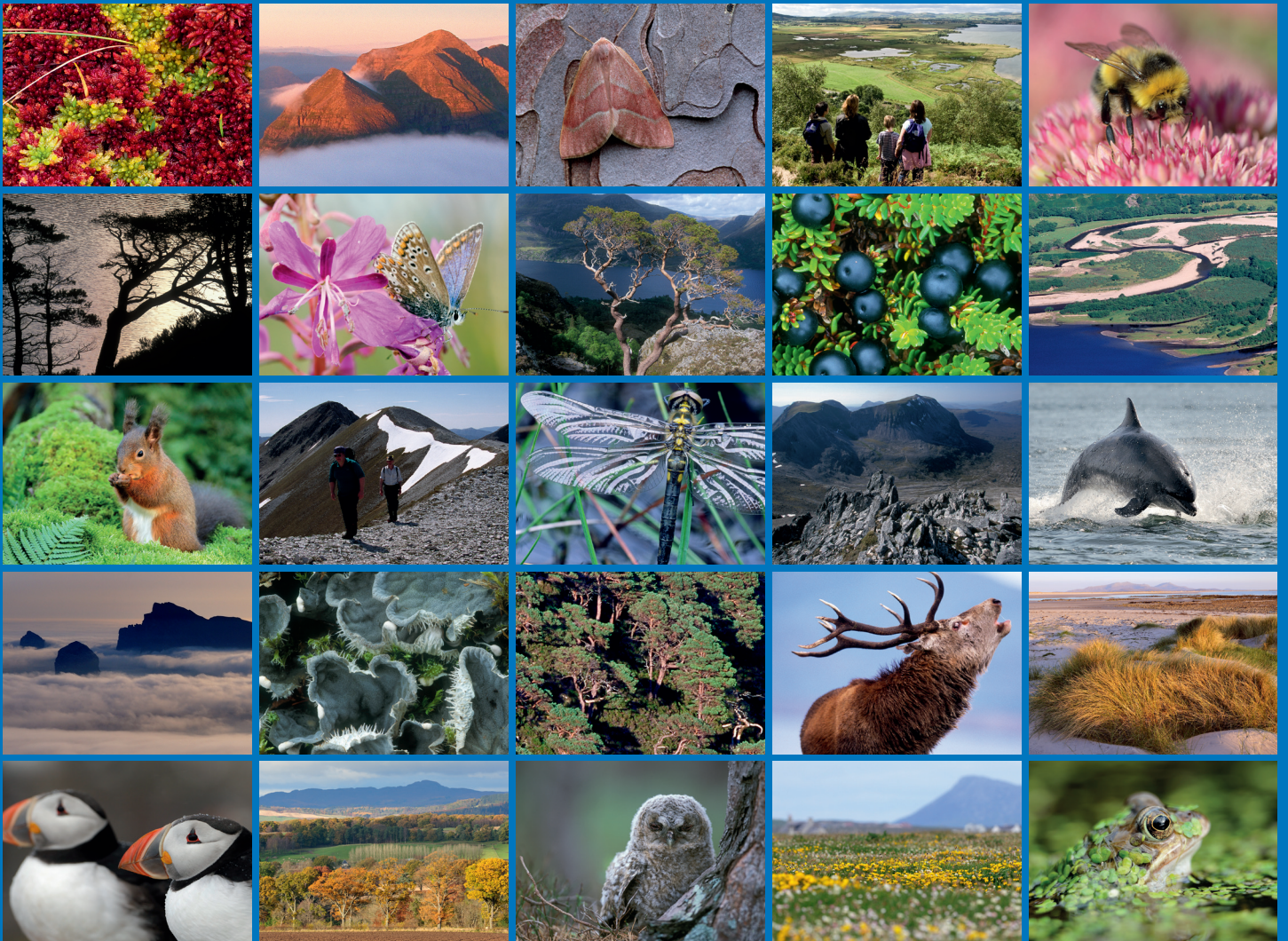


# Maximising the benefits of green infrastructure in social housing





**Scottish Natural Heritage**  
**Dualchas Nàdair na h-Alba**

All of nature for all of Scotland  
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# RESEARCH REPORT

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**Research Report No. 1046**

## **Maximising the benefits of green infrastructure in social housing**

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## RESEARCH REPORT

# Summary

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## Maximising the benefits of green infrastructure in social housing

**Research Report No. 1046**  
**Project No: 016821**  
**Contractor: MainStreet Consulting**  
**Year of publication: 2018**

### Keywords

Green infrastructure; social housing; affordable housing; tenant benefits; green space; housing associations; registered social landlords; local authorities; SUDs.

### Background

MainStreet Consulting was commissioned to undertake research into the opportunities to deliver multiple benefits through the good design and maintenance of Green Infrastructure (GI) associated with new and existing social housing in Scotland.

### Main findings

The research was undertaken through desktop research of GI literature, interviews with over 40 key stakeholders, a survey targeted at development staff working for social housing providers, and three multi-disciplinary workshops.

The main findings are that:

- There are few examples in Scotland of social housing that fully maximise the potential of GI to deliver multiple benefits for tenants and the wider urban environment;
- GI has the potential to deliver significant benefits for tenants and adjacent communities;
- There is a general lack of awareness of GI, its costs and its benefits amongst social housing providers;
- Existing GI guidance can be jargon-heavy, and needs to be more accessible;
- The current delivery process for social housing development is not conducive to the inclusion of GI, principally because GI is not considered early enough in the process;
- Well-designed GI integrated into development is a good example of preventative spend for other parts of the Scottish public sector;
- Retrofitting of existing stock could be undertaken during planned maintenance;
- There will be an opportunity cost (to the NHS and from climate change related events) from not including GI in housing developments.

The research identifies several recommendations including:

- Establish a stronger business case for GI;
- Ensure easy access to GI advice and good practice case studies;

- Raise awareness amongst social housing providers of the benefits of GI to tenants and the wider community;
- Provide support to social housing providers in the early stages of procurement to enable them to establish a design brief that maximises the benefits from GI;
- Promote GI as a means of maximising the wider benefits of the More Homes Scotland investment;
- Consult with SG on promoting GI as part of the housing grant process and include GI as a measurable indicator in its Value for Money tool for new affordable housing;
- Embed GI standards within both planning and social housing policy.

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SFHA and Architecture and Design Scotland (A&DS) allowed us to use their office space for the workshops and this was very much appreciated.

Finally thank you to the members of the steering group for their time and effort in support of the research work.

# 1. INTRODUCTION

## 1.1 Background

Social housing providers account for around a quarter of new builds in Scotland each year. Social housing attracts a significant amount of public funding and the Scottish Government (SG) has committed £3 billion between 2016 and 2021 to fund the delivery of 50,000 affordable homes through the More Homes Scotland programme. As well as ensuring value for money on individual projects, the programme aims to maximise wider benefits including economic, environmental and social benefits such as health and social care, education and tackling homelessness.

Green Infrastructure (GI) has the potential to deliver a range of the economic, environmental and social outcomes that the More Homes Scotland programme is seeking to achieve. Consequently, MainStreet Consulting was commissioned by Scottish Natural Heritage (SNH) to undertake research into the opportunities to deliver multiple benefits through the good design and maintenance of GI associated with new and existing social housing in Scotland.

A steering group comprising the Scottish Federation of Housing Associations (SFHA), Architecture and Design Scotland (A&DS), the Central Scotland Green Network Trust (CSGNT), the Glasgow and Clyde Valley Green Network Partnership (GCVGNP), and the Scottish Government Planning and Architecture Division (SGPAD) supported the project. The recommendations from this research are expected to support policy development and the better delivery of elements of *'A Nation with Ambition: The Government's Programme for Scotland'*<sup>1</sup> relevant to housing, health and the environment.

SNH is currently managing a Green Infrastructure Strategic Intervention Project, an investment programme funded by the European Regional Development Fund (ERDF). The fund will support up to 15 substantial projects across Scotland that improve or create 140 hectares of urban GI and deliver benefits relating to the following five outcomes:

1. Nature, biodiversity and ecosystems.
2. Environmental quality, flooding and climate change.
3. Involving communities and increasing participation.
4. Increasing place attractiveness and competitiveness.
5. Improving health and wellbeing.

These projects are focussed on areas of multiple deprivation and on improving existing greenspaces. The fund has supported projects relating to the green space around social housing<sup>2</sup>.

This research is being carried out against the background of some recent worrying trends in terms of the quality of our wider urban environment including:

- In October 2016, the World Health Organisation (WHO) tested the air quality of 44 UK cities: Glasgow was found to have the highest level of air pollution in the UK, with implications for public health<sup>3</sup>;
- A 2017 Greenspace Scotland Use and Attitude survey<sup>4</sup> found that half of people living in deprived areas believed their local greenspaces had declined in the last five years. The

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<sup>1</sup> <http://www.gov.scot/Resource/0052/00524214.pdf>

<sup>2</sup> <https://www.greeninfrastructurescotland.scot/our-projects-0>

<sup>3</sup> <http://www.bbc.co.uk/news/uk-scotland-glasgow-west-41816722>

<sup>4</sup> [http://www.greenspacescotland.org.uk/Data/Sites/1/survey/greenspacesurvey2017finalreport\\_021017.pdf](http://www.greenspacescotland.org.uk/Data/Sites/1/survey/greenspacesurvey2017finalreport_021017.pdf)



report stated (p1) that: *'These downward trends closely mirror cuts in local authority budgets: annual expenditure by Scottish Councils on parks and greenspace has fallen from £190 million in 2010/11 to £167 million in 2014/15';*

- A recently published report, the *Third State of Scotland's Greenspace*, revealed that Scottish residents living in towns and cities are using public gardens and parks less than before with a deterioration in the quality of council-owned outdoor areas blamed for the trend. The Greenspace Use and Attitude Survey shows most respondents (74%) said they were satisfied to some extent with the quality of their local greenspace. However there has been a significant decrease in those saying that greenspace meets their needs with only 23% of residents feeling very satisfied with the quality of local green areas<sup>5</sup>.

## 1.2 Objectives & scope of the research

The main objective of the project is to explore opportunities to deliver multiple benefits through the good design and maintenance of GI associated with new and existing social housing in Scotland. The focus is on GI within the footprint of social housing; however, the study also considers the role of adjacent GI and green spaces likely to be regularly used by tenants. The research considers how to deliver better GI in new social housing, but also explores how GI could be 'retrofitted' to existing social housing or integrated into the regeneration/improvement of existing schemes. We also assess the opportunities to engage residents/tenants in the design and operations/maintenance of GI, as well as opportunities for residents/tenants organisations and community organisations to use urban land reform legislation to gain influence over how GI is managed.

## 1.3 Green infrastructure and social housing definitions

For the purposes of this research, GI is defined as:

*The use of greenspaces and any vegetated land or water to deliver benefits for people and nature. GI includes parks, open spaces, playing fields, woodlands, wetlands, floodplains, road verges, allotments and other growing spaces, private gardens, green roofs, green walls as well as blue infrastructure such as sustainable drainage systems, ponds, swales, rain-gardens, wetlands, rivers and canals.*

A key feature of most GI is that it is multifunctional. For example a sustainable urban drainage system can provide a habitat for wildlife, a place for people to connect with nature and can help make a place distinctive, as well as providing a means of managing surface water.

Green Networks are connected areas of GI and open space that together form an integrated and multi-functional network.

Social housing is defined by SG as follows:

*Social Housing in Scotland is housing owned and managed by public authorities (mainly councils) and housing associations (registered social landlords or RSLs).*

A glossary of terms used in this research paper is included at Appendix A and a bibliography is at Appendix B.

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<sup>5</sup> Scots using public parks and gardens less as quality deteriorates under council cuts, The Scotsman, Thursday 1 February 2018, page 3.

## 1.4 Benefits of green infrastructure

Green Infrastructure can provide a range of benefits for social housing tenants. A key feature of GI is that it is multi-functional. This means the same piece of land can perform a range of functions and provide several benefits for tenants and the wider community. This is particularly relevant in the context of social housing, where residents often do not have the means to access alternative green spaces.

Table 1. Benefits from the inclusion of GI in social housing

Benefits	Description
Place making	<p>For most people, GI is visually pleasing and improves the local landscape: its presence attracts people. Good GI can help make a place distinctive and welcoming. This is particularly important where social housing is located in areas of deprivation and/or near areas of vacant and derelict land.</p> <p>The quality and prevalence of GI has also been shown to attract businesses to an area<sup>6</sup>, leading to investment, and creating jobs.</p>
Economic	<p>Reduced heating costs - trees, living walls, and green roofs can have a positive thermal effect through providing insulation and shelter. This can reduce the energy costs for residents and help to tackle fuel poverty.</p>
Climate change	<p>Cities are warmer than rural areas due to the urban heat island effect. GI such as trees, living walls and green roofs can lower urban air temperatures through the evaporation of water and the provision of shade.</p> <p>Climate change has increased flooding risk and GI such as green roofs, rain gardens and trees can be used to manage surface water<sup>7</sup>. Sustainable urban drainage systems, swales and wetlands can be used to achieve water attenuation, and reduce the impact on Scottish Water's infrastructure.</p>
Environmental	<p>GI provides opportunities for people to connect with nature with consequent positive effects on mental health. This is particularly important in poor quality urban environments with a prevalence of vacant and derelict land, and in developments where residents do not have access to private gardens.</p> <p>GI can have an important beneficial role in improving air quality in urban areas by absorbing gaseous pollutants. Given the health consequences of air pollution, any reduction will have a positive impact on the health outcomes of Scotland's people, and reduce the financial burden on NHS Scotland.</p> <p>Green infrastructure provides a habitat for wildlife and a means of enabling movement and dispersal of species between urban and rural habitats. Consequently good GI also supports objectives of the Scottish Biodiversity Strategy and other</p>

<sup>6</sup> Fabian Society, 2016. Green Places, Fabian Policy Report, Fabian Society, London

<sup>7</sup> Forest Research, 2010. Benefits of green infrastructure. Report by Forest Research. Forest Research, Farnham.

	related initiatives such as the Scottish Government's Pollinator Strategy <sup>8</sup> .
Community and social	GI can provide a range of social benefits including improved community cohesion, reductions in crime, <sup>9</sup> and can bring people together through its use for community events. Another important benefit of GI is its ability to help increase social inclusion and so combat loneliness, which is often higher in areas of social deprivation <sup>10</sup> . GI can also provide a pleasant space for people to meet informally and offers opportunities for natural outdoor play.
Health and wellbeing	<p>Good quality, accessible green space and infrastructure can provide many potential health and wellbeing benefits<sup>11</sup>. The most significant are increased life expectancy and reduced health inequality, improvements in physical activity and health, and promotion of mental health and wellbeing.</p> <p>Communities with access to allotments or community growing areas have reported a range of benefits including increased levels of exercise and a greater tendency to eat more vegetables.<sup>12</sup></p>



Figure 1. A raingarden in social housing in Malmo, Sweden (image credit: SNH)

<sup>8</sup> <https://news.gov.scot/resources/pollinator-strategy>

<sup>9</sup> Fabian Society, 2016. Green Places, Fabian Policy Report, Fabian Society, London.

<sup>10</sup> [http://www.gowellonline.com/assets/0000/3722/GoWell\\_Briefing\\_Paper\\_BP\\_22\\_Loneliness.pdf](http://www.gowellonline.com/assets/0000/3722/GoWell_Briefing_Paper_BP_22_Loneliness.pdf)

<sup>11</sup> Forest Research, 2010. Benefits of green infrastructure. Report by Forest Research. Forest Research, Farnham.

<sup>12</sup> <http://researchbriefings.parliament.uk/ResearchBriefing/Summary/POST-PB-0026#fullreport>

## 2. METHOD

The methodology for this research is shown in the following table:

*Table 2. Methodology*

Tasks	Activities
<p><b>Review current practice</b> in delivering multiple benefits through incorporating GI in social housing developments.</p>	<ul style="list-style-type: none"> <li>• Desktop research of GI in social housing developments;</li> <li>• Desktop research of social housing policy &amp; practice (see paragraph 2.1);</li> <li>• Interviews with approximately 40 stakeholders from organisations such as Registered Social Landlords (RSLs), local authorities, GI organisations, landscape architects, planners, and SG ('The Interviews') (See paragraph 2.2 and Appendix C for more details.)</li> </ul>
<p><b>Identify good practice</b> in designing (including retrofitting), delivering and maintaining GI associated with social housing to deliver multiple benefits.</p>	<ul style="list-style-type: none"> <li>• Analysis of desktop research of GI in social housing developments;</li> <li>• The Interviews.</li> </ul>
<p><b>Identify barriers</b> to delivering housing that maximises the benefits of GI.</p>	<ul style="list-style-type: none"> <li>• The Interviews;</li> <li>• A structured online survey undertaken by 36 individuals, largely development officers in RSLs and local authorities (see paragraph 2.3);</li> <li>• Three structured multi-stakeholder workshops with 39 attendees including tenants, RSL officers, local authority officers, steering group organisations, landscape architects, development consultants, Scottish Government officers, GI organisations, and academics (see paragraph 2.4 and Appendix C).</li> </ul>
<p><b>Provide recommendations</b> to help deliver more social housing that maximises the benefits of GI and ensures those benefits are sustained.</p>	<ul style="list-style-type: none"> <li>• As above, with further desktop research and consultation with the stakeholders at the workshops;</li> <li>• Consultation and discussion with the steering group members.</li> </ul>
<p><b>Identify possible pilot projects</b> to test new ways of working and demonstrate best practice.</p>	<ul style="list-style-type: none"> <li>• The survey and the workshop asked for organisations to consider whether any of their future developments could be used as pilot projects.</li> </ul>

### 2.1 Desktop research

Desktop research of various GI related books, reports, articles, academic papers and websites was undertaken to identify current thinking in terms of barriers to GI, good practice, case studies, cost information, planning and social housing developments. This was not a full literature review and was, in part, an iterative process guided by the steering group.

## **2.2 Interviews**

Interviews were held with over 40 stakeholders in a wide range of roles relevant to GI and social housing. Interviews were undertaken to help build a picture of the current situation relating to GI in Scotland as well as to assist the development of the online survey and the structured workshops. The interviews, each of which lasted approximately an hour, focussed on the interviewees' roles and responsibilities, their involvement with GI and social housing, their thoughts on current practice relating to GI, and experience of the barriers to maximising GI benefits. A common question set was used for the interviews but this was tailored to suit interviewees' specific roles. A summary of interview notes is included at Appendix D.

## **2.3 Online survey**

MainStreet developed the structured online survey with input from SNH and the steering group members. Development staff in RSLs and local authority housing departments were invited to participate over a four-week period in September/October 2017. The survey included questions related to:

- Understanding of GI;
- Level of awareness of the benefits of GI;
- Inclusion of GI in recent developments;
- Type of GI included in recent developments;
- Reasons why GI was not included in recent developments;
- Stages of the delivery process in which GI was considered;
- Awareness of GI information/guidance and opinions on levels/quality of guidance;
- Level of tenant demand for GI;
- Barriers encountered when considering GI inclusion in developments;
- Potential for their developments to be used to show best practice.

## **2.4 Multi-stakeholder engagement workshops**

In November and December 2017, MainStreet facilitated three structured workshops that brought together a wide variety of different stakeholders including tenants, RSL officers, local authority officers, key agencies, landscape architects, development consultants, Scottish Government officers (Planning & Architecture Division), and research professionals. The workshops were used to develop and test emerging themes from the interviews and the survey based on barriers to GI, ways of overcoming the barriers and opportunities to maximise GI in social housing developments.

## **2.5 Forming the recommendations**

Following the workshops further feedback and commentary from the steering group allowed the development of a series of detailed recommendations.

The interim and final versions of the report were developed following challenge, feedback and commentary from the steering group. This informed the final recommendations to help maximise the benefits of GI in social housing.

### 3. SOCIAL HOUSING IN SCOTLAND – POLICY & PRACTICE

#### 3.1 National policy

Social housing policy is a devolved area and so is the responsibility of SG, which set out its affordable housing funding priorities in its *Plan for Scotland: The Government's Programme for Scotland 2016-17*<sup>13</sup>. This plan details SG's ambition to deliver 50,000 affordable<sup>14</sup> homes in Scotland by 2021 backed by funding of over £3 billion. Of the 50,000 affordable homes, 35,000 will be available for social rent. It is likely that most of this will be delivered by housing associations and local authorities, and will be partially (the average figure is approximately 42%) grant funded by SG.

Grants are managed through the Affordable Housing Supply Programme. This forms part of the More Homes Scotland approach, which aims to increase and accelerate the supply of homes across all tenures. The Programme supports local authorities in delivering their affordable housing priorities (in partnership with RSLs) by providing quality homes in mixed communities that fit local need.

#### 3.2 Local housing strategy

Table 3. Summary of policy/evidence basis for local housing delivery

<b>Document:</b>	Housing Needs and Demand Analysis (HNDA)	Local Housing Strategy (LHS)	Local Development Plan (LDP)	Strategic Housing Investment Plan (SHIP)
<b>Basis:</b>	Demographic / economic/ housing market statistics	HNDA	HNDA/ LHS/ Housing Land Audit	HNDA/LHS/LDP
<b>Output:</b>	Estimate of Housing Need and Demand	Strategy for delivering housing and housing related services	Housing land requirement	Social housing delivery in a council area

Local authorities are strategic housing authorities and, under The Housing (Scotland) Act 2001, have a statutory obligation to carry out a housing need and demand analysis (HNDA)<sup>15</sup>. The HNDA is a key part of the evidence base, will inform both the Local Housing Strategy (LHS) and the Local Development Plan (LDP), and should form the basis for setting the Housing Supply Target (HST).

The purpose of the HNDA is to provide a robust, shared and agreed evidence-base for housing policy and land use planning, and to ensure that both LHSs and LDPs are based upon a common understanding of existing and future housing requirements. The HNDA estimates the number of additional homes needed to meet existing and future housing need and demand. It also captures information on the operation of the housing system to assist

<sup>13</sup> <http://www.gov.scot/Resource/0050/00505210.pdf>

<sup>14</sup> SPP and PAN 2/2010 broadly define affordable housing as "...housing of a reasonable quality that is affordable to people on modest incomes. In some places, the market can provide some or all of the affordable housing that is needed, but in other places it is necessary to make housing available at a cost below market value to meet an identified need".

<sup>15</sup> <http://www.gov.scot/Topics/Built-Environment/Housing/supply-demand/chma/hnda>

local authorities to develop policies on new housing supply, management of existing stock and the provision of housing-related services.

The 2001 Act also places a statutory requirement on local authorities to produce an LHS, which should set out the joint and strategic approach of the local authority and its partners to delivering high quality housing and housing related services across all tenures, to meet identified need in its area.

Alongside the development of the HNDA and the LHS, local authorities also have to develop a Strategic Housing Investment Plan (SHIP) that sets out, on a rolling five-year basis, how social housing will be delivered. This is expected to include both local authority and RSL developments.

### **3.3 Local Planning Policy**

Planning authorities produce a Local Development Plan (LDP)<sup>16</sup> that describes the vision for how communities will grow and how the development of land will be undertaken in the future. Where the housing need and demand assessment and local housing strategy identify a shortage of affordable housing, it should be addressed in the development plan as part of the affordable housing policy and its approach to allocating land for housing. This provides certainty for communities about where development should and should not take place, and outlines the necessary supporting infrastructure.

The LDP should also highlight, with respect to particular allocations, where developers may be subject to planning obligations requiring investment in infrastructure such as schools, roads, and open space. In addition, they may be required to provide some affordable housing as part of their overall development. In many cases, this means new private housing developments will include an element of affordable housing to meet the planning obligation as part of the site. Alternatively, the obligation can be met through providing land, homes or payment of a commuted sum equivalent to the value of what is required by the planning obligation. In this scenario, affordable housing is either built by the developer or an arrangement is made with a housing association that builds and then owns the units.

### **3.4 Social housing providers**

The two main types of social housing providers are registered social landlords (RSLs) and local authorities. In 2016, there were 278,000 dwellings owned by RSLs, which made up 11% of Scotland's total dwellings; in addition, local authorities owned 317,000 dwellings or 12% of the national total.

#### *3.4.1 Scottish Registered Social Landlords*

The Scottish Housing Regulator (SHR) defines RSLs as:

*Independent housing organisations including a variety of housing associations and co-operatives, Abbeyfield societies<sup>17</sup> and co-ownership societies that are regulated by the Scottish Housing Regulator.*

According to the SHR, there are approximately 160 RSLs in Scotland. The vast majority of these are Scottish based and only operate in Scotland but the total also includes a few

<sup>16</sup> <http://www.gov.scot/Topics/Built-Environment/planning/Development-Planning/Local-Development>

<sup>17</sup> Abbeyfield Houses are run by voluntary organisations and offer supported housing for between 6 and 12 older people. A majority are owned and managed by independent local Abbeyfield Societies.

housing associations such as Places for People that are headquartered in England but operate throughout the UK.

RSLs vary in size, the number of units they own and the number of staff they employ. Table 4 provides a summary of the range of RSLs operating in Scotland.

Table 4. Breakdown of RSLs

Size	Units	Communities they operate in	Staff	Number in category	Turnover
Very small	<800	Single	<8-15	66	<£4m
Small	800-1,500	Possibly multiple	15-30	38	£4m-£7m
Medium	1,500-3,000	Multiple	30-70	32	£7-£16m
Large	3,000-12,000	Multiple	>70	24	>£16m
Very Large <sup>18</sup>	>12,000	Many	>250	1	>£60m

Within Scotland, not every RSL has the capacity or ability to deliver new developments and many are mostly involved with maintaining their existing stock. It is more common for the larger RSLs to be active developers with a focus on increasing their stock through new build. Some RSLs take a lead developer role and deliver new housing for neighbouring/ partner RSLs. Overall, between 2011 and 2015, RSLs developed approximately 19,000 homes.

According to a 2017 report by the SHR<sup>19</sup>, in 2011, 72% of RSLs developed new homes but this percentage dropped to just over half by 2016 as development became more difficult due to *'risks associated with funding, procurement, capacity and contract management'*. In FY16/17, the ten most prolific RSL developers delivered 1,344 units (52% of all new RSL affordable homes built), with the biggest five RSL developers responsible for 36% of the total. The most active RSL developers in Scotland are: Glasgow Housing Association (GHA); Hillcrest; Link Group; Home in Scotland; and, Castle Rock Edinvar, all of which had in excess of 100 completed units in FY16/17. Figure 2 shows the top ten RSL developers by units completed in FY 16/17.

<sup>18</sup> In Scotland, the Wheatley Group is the only RSL in this category

<sup>19</sup> <https://www.scottishhousingregulator.gov.uk/sites/default/files/publications/Development%20Thematic%20-%20Report%20-%202022%20March%202017.pdf>



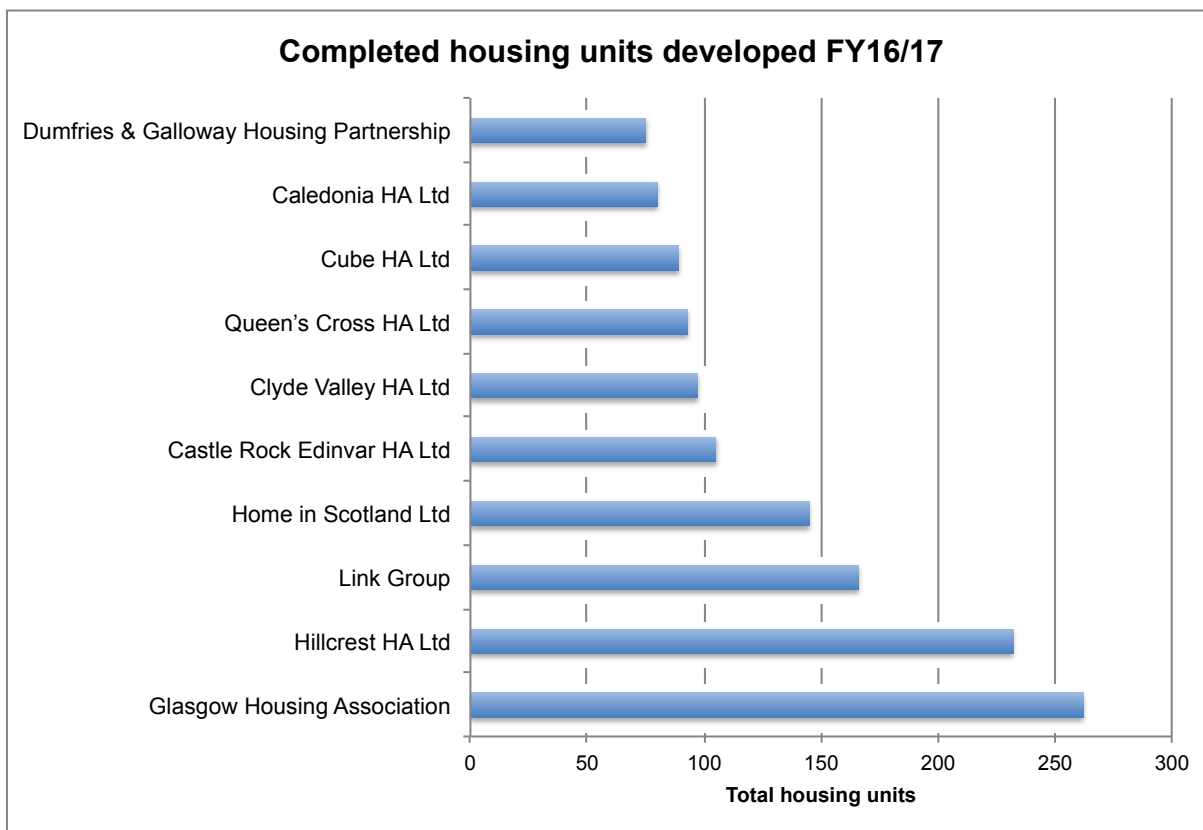


Figure 2. Top ten RSL developers by units completed in FY 16/17

### 3.4.2 Funding

RSLs fund their developments through a combination of sources. Scottish RSLs can apply to SG for grant funding to subsidise their development. On average, this covers approximately 42% of their development costs meaning they have to meet the difference from their own capital reserves, through a bank loan, from an investment by an insurance company or, for those big enough, by issuing a bond in the market<sup>20</sup>.

To secure grant funding, SG stipulates<sup>21</sup> various minimum standards that must be met relating to the size of the units, adherence to building legislation, flexibility of accommodation and certain design specifications. Whilst the guidance stresses the importance of placemaking, there is no specific condition relating to the provision of GI.

Recent figures from the SHR<sup>22</sup> show that, in FY16/17, RSLs increased their spending on development by 24% to £807m with capital grant funding from SG up 32% to £336m and net borrowing by RSLs up by 47% to £371m.

Some RSLs also fund 'wider role' projects. These are undertaken to help tackle socio economic issues affecting their local communities that go beyond immediate housing need. This includes areas such as digital inclusion, welfare advice, employability, community cohesion, and local place-making initiatives, such as the establishment of allotments. To

<sup>20</sup> <http://www.wheatley-group.com/>

<sup>21</sup> <https://beta.gov.scot/publications/affordable-housing-supply-programme-process-and-procedures-mhdgn-201802/>

<sup>22</sup> <https://www.scottishhousingregulator.gov.uk/news/regulator%E2%80%99s-analysis-shows-large-increase-rsl-development-spend>

fund this activity, RSLs can make applications to the Scottish Government's People and Communities Fund (FY16/17 budget of £10.8m<sup>23</sup>).

### 3.4.3 Governance and management

RSLs have an important responsibility to manage and maintain their housing assets, including the open space around the building. Depending on the arrangements in place, this work will either be undertaken by contractors or specialist in-house staff.

The size of a RSL's staff is dependent on its revenue, which is mainly based on the number of units it owns. An average RSL will own approximately 1000 units, have 25 staff split into the following departments:

- Housing Management – typically manages the core housing operations of allocating homes to applicants, taking rent payments, managing homes and neighbourhoods and directing tenants to other support agencies;
- Development – this team is responsible for all aspects of delivering the association's new build programme. This responsibility may be undertaken by the CEO or if the RSL is active, there could be a small team (perhaps 2-4 people) who manage third party consultants (landscape architects, architects, quantity surveyors, clerk of works, mechanical and electrical consultant) and procure a building contractor to undertake the actual works;
- Maintenance – managing reactive repairs to tenants' homes (probably through a contractor) and providing an asset management service including planned maintenance, cyclical maintenance and improvement works either through in-house teams or contractors; this team may also be involved with mandatory energy efficiency initiatives such as the Energy Efficiency Standard for Social Housing (EESH);
- Finance and Corporate Services (including ICT, HR, procurement) – responsible for all the necessary support services to keep the association operating correctly.

Larger RSLs will have a bigger development team with more project management resource and some in-house consultancy capability. They may also provide a development function to other neighbouring RSLs e.g. Kingdom HA is the lead developer for the Fife Housing Alliance and undertakes most of the development for the other three Fife RSLs.

A Management Committee or a Board of Management undertakes the governance of housing associations: this has traditionally been made up of tenants but more recently, there has been an increase in non-tenant representation. Apart from some of the very largest national RSLs, being part of an RSL's Board is voluntary and not remunerated. In smaller RSLs, the Board normally oversees development directly, but in larger associations, this may be delegated to a specific development sub-committee of the Board.

### 3.4.4 Local authorities

Local authorities also develop social housing and between 2001 and 2015, delivered approximately 5000 new council houses in Scotland. Development appears to be increasing to support SG's target and, in FY16/17, 20 councils developed 1143 new houses as shown in the following table:

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<sup>23</sup> <https://beta.gov.scot/policies/community-empowerment/empowering-communities-fund/>

Table 5. Completed and planned developments by developing local authorities

Local Authorities who developed in FY16/17 and/or have future plans to develop	Total Completed Developments (FY16/17)	Planned Developments Number of Units (completion)
Aberdeenshire	24	-
Angus	7	-
Clackmannanshire	36	-
Dundee City Council	-	300 (FY17/18)
East Ayrshire	27	600 (by 2022)
East Dunbartonshire	44	296 (by 2020)
East Lothian	100	52 (FY17/18)
City of Edinburgh	68	-
Falkirk	18	-
Fife	266	3500 (by 2022)
Highland	74	2500 (by 2020)
Midlothian	59	-
Moray	16	48 (by 2018)
North Ayrshire	8	217 (by 2022)
North Lanarkshire	50	1800 (by 2026)
Orkney	24	-
Perth & Kinross	20	-
South Ayrshire	57	27 (by 2019)
South Lanarkshire	92	1000 (by 2022)
Stirling	22	700 (by 2022)
West Lothian	131	54 (by 2018)
<b>Scotland</b>	<b>1143</b>	<b>11094 (by 2026)</b>

### 3.4.5 Applying for social housing

People who wish to secure a home from a council or a housing association complete an application form. This is then assessed on a points basis to establish the applicant's priority and dictates their place on a housing register. Some local authorities have a common housing register (CHR) which is a joint waiting list for council and housing association properties based on a particular geography (e.g. the Fife Housing Register includes Fife Council and the housing associations that operate in Fife).

### 3.4.6 Scottish Housing Regulator

Social housing in Scotland is regulated by the SHR, which was set up in 2011 under the Housing (Scotland) Act 2010, to meet a single statutory objective:

*"To safeguard and promote the interests of current and future tenants of social landlords, people who are or may become homeless, and people who use housing services provided by registered social landlords (RSLs) and local authorities".*

It regulates social landlords to protect the interests of people who receive services from them by assessing and reporting on:

- How social landlords are performing their housing services;
- RSLs' financial well-being;
- RSLs' standards of governance.

The SHR assesses RSLs against the Scottish Social Housing Charter<sup>24</sup>, published by SG, with the aim of improving the quality and value of services provided by social landlords. It has 16 outcomes against which RSLs are assessed based on equalities, communication, participation, quality of housing, repairs, maintenance and improvements, estate management, housing options, access to social housing, tenancy sustainment, homeless people, value for money, rents and service charges, and gypsies/travellers. In the Charter none of the outcomes relates explicitly to GI. The closest is outcome six which states that *'tenants and other customers live in well-maintained neighbourhoods where they feel safe'*.

The Social Housing Charter also includes a requirement for social housing to help meet the obligations of the Climate Change Act by reducing energy consumption, fuel poverty and greenhouse gas emissions. All RSLs have to report their progress in this area to the SHR and this requirement has driven considerable sector wide activity in this area.

Based on the level of risk it perceives, the SHR will adopt a low, medium or high level of engagement with each RSL. Where it determines a requirement to do so, the SHR intervenes to secure improvements to RSLs.

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<sup>24</sup> <https://beta.gov.scot/publications/scottish-social-housing-charter-april-2017/>

## 4. GREEN INFRASTRUCTURE – POLICY & PRACTICE

### 4.1 National policy

The National Planning Framework (NPF3) sets the context for development planning and provides a framework for how development will take place over the next 20-30 years: NPF3 (2014) supports four key planning outcomes for Scotland:

- A successful sustainable place – supporting economic growth, regeneration and the creation of well-designed places;
- A low carbon place – reducing our carbon emissions and adapting to climate change;
- A natural resilient place – helping to protect and enhance our natural cultural assets and facilitating their sustainable use;
- A connected place – supporting better transport and digital connectivity.

NPF3 recognises the need to significantly enhance green networks, particularly in and around our cities and towns. It states that *‘Well-designed GI 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.’*

The Central Scotland Green Network (CSGN) will change the face of Central Scotland, by restoring and transforming the landscape of an area stretching from Ayrshire and Inverclyde in the west, to Fife and the Lothians in the east. The goal of CSGN is by 2050, Central Scotland has been transformed into a place where the environment adds value to the economy and where people’s lives are enriched by its quality. CSGN involves public agencies and stakeholders working together to align their policies, programmes and actions to achieve a common aim.

Scottish Planning Policy (SPP) sets out the national planning priorities and principles relating to GI<sup>25</sup>. These include:

- Protecting, enhancing and promoting GI, (Paragraph 220);
- Including open space and green networks, as a key component of successful place making, (Paragraph 220);
- Assessing current and future needs and opportunities of GI (Paragraph 221);
- Facilitating the provision and long-term integrated management of GI (Paragraph 221);
- Providing easy access to and from GI areas (Paragraph 221);
- It also suggests *‘Local development planning should seek to enhance existing and promote the creation of new GI, which may include retrofitting. They should do this through a design led approach, applying standards, which facilitate appropriate provision, addressing deficits or surpluses within the local context.’* (Paragraph 225).

In addition to the SPP and NPF, SG has issued additional relevant guidance: *Designing Places; Designing Streets; PAN 65 Planning and Opens Spaces*; and, *PAN 83 Master-planning*. These all have relevance to GI planning.

SG has also published a useful document, *‘Green Infrastructure Design and Placemaking’* as part of their *‘Practical Projects’* suite of guidance, which provides a comprehensive list of GI benefits<sup>26</sup>. The document is aimed at planners, landscape architects and developers and

<sup>25</sup> <https://beta.gov.scot/publications/scottish-planning-policy/pages/7/>

<sup>26</sup> <http://www.gov.scot/Resource/Doc/362219/0122541.pdf>

gives practical guidance on planning for GI at a variety of spatial scales including the use of masterplans to articulate how GI should be integrated into place-design. In addition, the CSGN Valuing work also includes a long list of GI benefits.<sup>27</sup>

## 4.2 Local planning policy & related strategies and standards

The statutory development plan for any area of Scotland currently comprises:

1. Strategic Development Plan (SDP) – required for the four main city regions.
2. Local Development Plan – required for each council area and National Parks.
3. Supplementary guidance – this can form part of the statutory development plan. This provides further information or detail on the policies or proposals that are in the development plan, and can cover specific topics areas such as GI, or be more spatial in nature relating to how particular areas should be developed in the form of masterplans or development frameworks.

A full policy review was beyond the scope of this research; however the Glasgow and Clyde Valley Green Network Partnership has recently reviewed GI policy in the 19 authorities that are part of the CSGN area against some emerging examples of ‘GI standards’ and benchmarks. The report concludes that although none of the plans contains the ‘full set’ of policies likely to deliver against the standards/ benchmarks, taken as whole there are examples of policies that provide a comprehensive ‘coverage’ of the elements that should be included in a ‘comprehensive’ GI policy.

In our review, we found that LDPs typically refer to GI within the context of their approach to green networks, rather than as a critical element of good place-design. For example, West Lothian Council’s LDP (paragraphs 5.102 to 5.105) has a specific chapter entitled *Green Infrastructure and Green Networks*,<sup>28</sup> with the context primarily focusing on developing green networks. Similarly, Midlothian Council’s LDP focuses significantly on its green network and explains that: ‘the *Green infrastructure requirements are identified as part of the local delivery of the Central Scotland Green Network*’.

Glasgow City Council’s LDP places a stronger emphasis on GI within its green belt and network policy. It specifies that: ‘the *Green Network consists of a variety of elements – from strategic hubs ...down to small scale elements such as local open spaces, hedgerows or green roofs*’.<sup>29</sup> It uses stronger wording such as ‘critical’ in relation to GI: ‘it is *critical that new development should enhance, wherever possible, the functionality, quality, connectivity and accessibility of the Green Network, and its role as green infrastructure*’.

There are variations across local authorities in the extent to which supplementary guidance on GI is developed to support LDPs. Some local authorities have limited information while others have developed comprehensive guidance on what is expected. For example Perth and Kinross Council’s supplementary guidance provides a very clear and strong message on the requirements of GI for new developments: ‘*Green infrastructure should be integrated into the overall design process and considered at every scale of development from individual buildings through to masterplanning for strategic development areas. All development, regardless of scale, has the potential to make some contribution to enhancing, protecting and / or providing green infrastructure*’.<sup>30</sup>

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<sup>27</sup> <http://www.centralscotlandgreennetwork.org/delivering/costing-valuing-and-resourcing-the-csgn>

<sup>28</sup> <https://www.westlothian.gov.uk/media/9837/Proposed-Plan/pdf/CONSOLIDATED-ProposedPlan-FINAL.pdf>, p34

<sup>29</sup> <http://www.glasgow.gov.uk/CHttpHandler.ashx?id=35882&p=0>, p69

<sup>30</sup> [http://www.pkc.gov.uk/media/26463/Green-Infrastructure-Supplementary-Guidance/pdf/Draft\\_Green\\_Infrastructure\\_Supplementary\\_Guidance](http://www.pkc.gov.uk/media/26463/Green-Infrastructure-Supplementary-Guidance/pdf/Draft_Green_Infrastructure_Supplementary_Guidance), p38.

Perth & Kinross Council's guidance also highlights the good practice of considering GI from the outset and throughout the development process: *'green infrastructure should be considered right at the start of the planning of a new development site alongside other 'grey' infrastructure requirements such as roads, drainage and power supplies. Early consideration of all the infrastructure requirements together at this early stage will allow opportunities to be identified for combining grey and green infrastructure, or for replacing grey with a green solution'*.<sup>31</sup>

It also goes further and explains the level of GI expected to be submitted with a planning application by a developer, depending on the scale of development: *'...the Planning Authority may request the provision of one or more of the following alongside the submission of a planning application:*

- *A site plan which details existing green infrastructure on the site including connections beyond the site boundary;*
- *A layout plan indicating proposed green areas, features and spaces and how these will connect to wider networks beyond the site boundary;*
- *A landscape plan detailing the proposed planting;*
- *Proposals for mitigating adverse impacts on existing green infrastructure;*
- *Arrangements for the ongoing long term maintenance and management of new green areas, features and spaces'*.<sup>31</sup>

#### Open space standards/ requirements

Generally, the LDPs refer to Planning Advice Note 65 to outline the standards to be applied to the assessment and future planning of open space, in terms of quality, quantity and accessibility; however, Greenspace Scotland reports that *'the review of work on audits and strategies found that local authorities were finding the process of developing appropriate standards very challenging. Over the last two years, with funding support from SNH, Greenspace Scotland has worked with five local authorities (Fife, North Ayrshire and West Dunbartonshire in year 1 and Dumfries and Galloway and Glasgow City in year 2) to develop a framework for producing local standards'*.<sup>32</sup> It goes on to explain that these standards are being incorporated into the relevant LDPs and Open Space Strategies.

Some local authorities, such as Midlothian (Policy Dev 9), clearly outline that open space standards are applied to proposed developments to ensure greenspace provision is included: *'we will assess applications for new development against the open space standards as set out in Appendix 4 of this Plan and seek an appropriate solution where there is an identified deficiency in any of the listed categories (quality, quantity and accessibility). Planning conditions will be applied and, where necessary, legal agreements sought to ensure that appropriate provision for open space is made to mitigate the impact of any proposed development. Any exemption from provision under this policy will have to be demonstrated to the satisfaction, and be at the discretion, of the Council. Unless otherwise stated, the standards will apply to public parks and gardens, amenity greenspace, play space, outside sports facilities and natural and semi-natural greenspace'*.<sup>33</sup>

East Ayrshire's draft LDP Supplementary Guidance on Open Space provides worked examples of how open space requirements should be calculated for different types of development. One of the worked examples is an affordable housing development in an area of green-space deficit. In the example it is concluded that the 'normal' requirement for open space should be waived due to the perceived impact on the financial viability of the

<sup>31</sup> [http://www.pkc.gov.uk/media/26463/Green-Infrastructure-Supplementary-Guidance/pdf/Draft\\_Green\\_Infrastructure\\_Supplementary\\_Guidance](http://www.pkc.gov.uk/media/26463/Green-Infrastructure-Supplementary-Guidance/pdf/Draft_Green_Infrastructure_Supplementary_Guidance), p35.

<sup>32</sup> <http://greenspacescotland.org.uk/1greenspace-standards.aspx>

<sup>33</sup> [http://midlothian-consult.objective.co.uk/portal/midlothian\\_local\\_development\\_plan\\_2017](http://midlothian-consult.objective.co.uk/portal/midlothian_local_development_plan_2017), p19.

development and in recognition of the social value of affordable housing. Whilst this local authority is entitled to take this approach, it does illustrate that GI is still considered a 'nice to have' in some areas, rather than a fundamental part of good design. It is also an example of applying lower open space standards to social housing than to private housing. Without additional measures, there is therefore a risk that this approach could perpetuate, rather than address social inequality.



## 5. SOCIAL HOUSING & GREEN INFRASTRUCTURE – CURRENT PRACTICE

### 5.1 Green infrastructure in existing social housing

This section reviews current practice relating to the inclusion of GI in existing and planned social housing developments.

In the initial interviews we asked about interviewees' roles and responsibilities, their involvement with GI and social housing, their thoughts on current practice relating to GI, their experience of barriers to maximising GI benefits, and whether they could give examples of what they considered best practice.

Following this, an online survey was developed. It was completed by 36 people including respondents from 11 councils (34% of all councils) and 16 RSLs (11% of all RSLs in Scotland); the other nine respondents were either additional responses from the same organisations or represented organisations that were not local authorities or RSLs. A summary of the survey analysis is included at Appendix E.

The survey included a question on types of GI that had been included in social housing developments and these are also included in the following table: We found very few examples of social housing in Scotland where the design maximised the full range of potential benefits of GI.

*Table 6. Types of GI included within social housing sites, as reported from interviews and survey respondents.*

Form of GI	Highlighted as the most popular/frequent in initial interviews	Respondents (27) to the research's social housing survey types of GI included (or planning to include) in social housing developments
Amenity planting		✓ (1)
Allotments	★	
Community allotment		✓✓✓(3)
Community growing	★	✓✓✓(3)
Community orchards	★	
Communal gardens		✓ (1)
Filtration beds		✓ (1)
Green roofs		
Hedging	★	
Open space		✓✓✓✓
Permeable paving		✓ (1)
Planting		✓✓✓✓(4)
Play areas	★	✓✓✓✓✓✓(6)
Private gardens	★	✓✓✓✓(4)
Rainwater harvesting		✓✓(2)
Sensory garden		✓ (1)
Shrubbery planting		✓ (1)
SUDs	★	✓✓✓✓✓✓✓✓(8)
Street trees	★	
Swales		✓✓✓✓(4)
Tree planting		✓ (1)
Wild flower meadows	★	

From this research, the most common types of GI included in existing social housing are SUDs, play areas, private gardens, swales, planting, and community growing/allotments.

A summary analysis of the survey responses can be found at Appendix E.

## 5.2 Current practice relating to GI in new social housing developments

Appendix G provides some recent examples where GI has been integrated into new social housing developments. They broadly reflect the findings reported in Table 6 above, with the most common types of GI including:

- SUDs;
- Green roofs;
- Placemaking;
- Community allotments;
- Community gardens/greenspace;
- Wetlands/burn restoration.

The respondents gave different reasons for the inclusion of each of these types of GI. Typically, the more small-scale GI elements such as green roofs seem to be driven by individual RSL development officers with an interest in the field and keen to secure local benefits from GI. Community allotments/growing tend to be developed by local community groups or tenants groups; and, the larger GI elements tend to be included in the design of the development as a default solution. Increasingly, RSLs are using SUDs as a simple way of managing surface water without the cost/difficulty of grey infrastructure and managing its connection to the Scottish Water network.



*Figure 3. Green roofs on social housing in Inverness (image credit: Caledonia Housing Association).*

### 5.3 Current support & advice

There are many organisations in Scotland (and the UK) that offer advice on some aspect of GI including:

- Scottish Government;
- SNH;
- Forestry Commission Scotland;
- Scottish Green Infrastructure Forum;
- Greenspace Scotland;
- Central Scotland Green Network Trust;
- Glasgow and Clyde Valley Green Network Partnership;
- Edinburgh & Lothians Greenspace Trust;
- Paths for All;
- Scottish Water;
- SEPA;
- PAS;
- Landscape Institute;
- Scottish Allotments and Gardens Society;
- NHS Scotland;
- Scottish Wildlife Trust;
- RSPB (UK);
- The Green Network Partnership (UK)
- Construction industry research and information association (CIRIA) (UK);
- Neighbourhoods Green (UK).

Respondents to the survey believed that it was not always clear where they could go for support and advice particularly for new build developments. From those that had sought support and advice, there were comments that although general information existed, there was little in the way of cost information available and this precluded informed comparison of GI with the normal grey infrastructure. Others felt that key stakeholders such as SNH, SFHA and SG should be doing more to promote GI, highlighting specific information on: case studies of successful projects; best practice examples; a design manual; and guidance on which system is the most effective in different circumstances.

The survey also asked respondents to list the sources of support and advice they had used in connection with their GI projects in social housing. The question allowed more than one response so the 33 respondents marked 60 responses with the top responses as follows:

- Local authorities 10/60;
- GI bodies (e.g. CSGNT, GCVGNP, E&LGT) 10/60;
- Web 8/60;
- Contractors/consultants 6/60;
- SG 6/60;
- Landscape architects 5/60;
- SNH 4/60.

From the research, it is clear that GI information is available but that it is not necessarily in an appropriate format to support the inclusion of GI in social housing development. Accessing GI advice is not as easy as it could be, particularly as there is neither a single site that provides a useful gateway to current information nor a site targeted at social housing developers. GI thinking is continually advancing and some of the advice available can be out-dated.

This highlights a related issue, which is that there is no single organisation leading on GI in Scotland. Consequently, different GI stakeholders provide advice based on their areas of interest resulting in some information overlaps and some information gaps. Some of the information used can also include jargon that practitioners understand but others may find perplexing.

We believe SG information<sup>34</sup> on GI is well done with clear explanations and pictorial examples. There would be benefit in increasing awareness of this guidance across the social housing sector.

#### **5.4 Costs versus benefits of GI in Social Housing Context**

One of the key barriers identified in the research was a lack of easily accessible information on the costs of GI relative to grey infrastructure. Being able to demonstrate that a business case exists for the inclusion of multi-functional GI in social housing is of significant importance. This is also a key factor when demonstrating the benefits of GI to the governing bodies of social housing providers.

In terms of financial benefits of GI, a Social Return on Investment (SROI) study<sup>35</sup> by Greenspace Scotland (O'Neil, 2009) found that for every £1 invested in the Greenlink project in Scotland, there was a social return of £7.63, which included physical and mental health benefits as well as social interaction, inclusion and community cohesion benefits. (p41)

Research<sup>36</sup> undertaken for the Welsh Government and published in January 2017 (Analysis of evidence including costs and benefits of SUDs construction and adoption), concluded the following:

*'Based on the evidence considered here, the capital costs of landscaped SUDs solutions are lower than the capital cost of comparable conventional solutions at every level. On average, our analysis suggests that the use of SUDs could save Wales over £9,000 per new home in capital costs alone.*

*Of those schemes examined in detail, the operational costs of landscaped SUDs solutions are also lower than the operational cost of comparable conventional solutions at every level...it does this by reducing the volume and flow of water contaminated with sewage that is pumped for treatment, thereby using less energy for pumping and treatment, freeing up capacity in the sewerage network to allow for new developments without the need for installing expensive new infrastructure, and reducing the risk of overflows and flooding.*

*This cuts the carbon footprint of sewerage undertakers, and reduces the costs of energy, and investment and maintenance in expensive traditional engineering solutions, savings, which can be passed on to water bill payers. The more natural SUDs systems such as wetlands, swales and vegetation can provide biodiversity, a more pleasant environment for local people, and encourage them to make use of the green spaces for recreational and sporting purposes.'*

Although there are some broad studies comparing green versus grey solutions, and individual elements of landscaping can be costed through reference to Spons<sup>37</sup>, there is currently no

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<sup>34</sup> <http://www.gov.scot/Resource/Doc/362219/0122541.pdf>

<sup>35</sup> [https://www.forestry.gov.uk/pdf/urgp\\_benefits\\_of\\_green\\_infrastructure\\_main\\_report.pdf/%24FILE/urgp\\_benefits\\_of\\_green\\_infrastructure\\_main\\_report.pdf](https://www.forestry.gov.uk/pdf/urgp_benefits_of_green_infrastructure_main_report.pdf/%24FILE/urgp_benefits_of_green_infrastructure_main_report.pdf)

<sup>36</sup> <http://gov.wales/docs/desh/publications/170209-suds-evidence-epc-exec-summary-en.pdf>

<sup>37</sup> Spon's External Works and Landscape Price Book, 2018.

<http://www.rics.org/uk/shop/Spons-External-Works-and-Landscape-Price-Book-2018-20685.aspx>

easily accessible source of 'whole-life' cost information that allows simple comparison between the costs of GI solutions and traditional grey infrastructure solutions at a specific site level. This in itself is a barrier to the inclusion of GI in social housing because there is no straightforward way of challenging perceptions that GI alternatives to grey infrastructure are more expensive to install and maintain.

Participants at the workshop, and in the steering group, suggested that a comparative costing exercise based on a 'pilot' social housing development in Scotland could provide a useful resource for 'selling' the benefits of GI to the social housing sector. Ideally, this would cover a wide range of GI types relevant to social housing.

### **5.5 Community/tenant involvement in GI - new build**

At present, direct community involvement in the design of GI in and around social housing developments is very limited. This is because, in most cases, the identities of the future tenants (and their specific needs/preferences) are unknown when design decisions are being made. However, in community-based RSLs, there will invariably be tenants on the management committee who are likely to be able to act in the interests of the new tenants and the local community. Provided levels of awareness of the benefits to tenants from GI can be raised within RSLs' governing bodies, the management committees could be powerful community champions of GI.

Despite the difficulties in engaging tenants in the design of GI, we found an example of efforts to engage tenants by EDI at their Greendykes North Park development at Craigmillar, Edinburgh. At this site, a planned communal garden at the development was only partially completed, as something of 'blank canvas', with funds set aside so when new residents moved in, they could decide how the site was to be enhanced. Although the outcome was disappointing because of a lack of engagement from residents, the method is being tried again in other social housing projects in Edinburgh.

### **5.6 Community/ tenant Involvement – refurbishment/ regeneration**

For refurbishment projects, and retrofitting of GI, the identity and needs of the tenants are more easily understood.

A good example of community involvement in a refurbishment project is Southside Housing Association's (SHA) Halfway Project. Despite not (at the time of initiation) having funding, SHA undertook a consultation with their tenants. 148 tenants participated and gave their views on how a large (mostly single-use) area of amenity grassland/lawn in front of their flats could be enhanced. Early appointment of landscape architects allowed further consultation on initial design ideas and the subsequent formation of 'friends of the park' group as a representative body for all tenants. Having secured funding, the GI work will take place in 2018. SHA is also planning a 'before and after' study to identify the benefits the new GI will provide to the wider local community.



*Figure 4. Initial design image for Southside Housing Association's Halfway Project (image credit: SHA).*

Further examples of community involvement are:

- Community Led Environmental Action for Regeneration (CLEAR) is a community group in Buckhaven, Fife that secured some funding from the CSGN Community Project Fund. Buckhaven is an area with several social housing providers and suffers from social deprivation. CLEAR's purpose is to help regenerate the area by improving the local environment and building civic pride and community engagement. They started 10 years ago with litter picking but developed into bulb and tree planting, community orchards and growing spaces, path building, heritage projects and recycling. One of their key aims is to connect different green spaces and they have led some charettes on the spatial masterplan of the area. They operate mainly with local volunteers but also have some part time staff;
- Almond Housing Association in Livingston, West Lothian. They established a tenant focus group to carry out inspections of open spaces owned and maintained by the association. The group recognised that green space was important for combatting pollution, creating clean air and providing green spaces for people who do not have access to their own garden. The group also mentioned the important social impact of children accessing the outdoors. The tenant group was keen on well-maintained grass areas, colourful flowers and shrub beds, mature trees, wild flowers and play parks. It was also mentioned that they would like the opportunity for growing their own fruit and vegetables. The most important features of green space to the focus group were good views and easy access. Whilst the group had an interest in greenspace and its general upkeep, they were not willing to pay for its maintenance. The group felt it would be useful to be consulted during the development of new properties and new green space;
- Caledonia Housing Association successfully applied for grant funding from the Big Lottery Environmental Placement Programme enabling them to engage a design student to consult with tenants to establish how their communal garden spaces could be enhanced. The ideas suggested included flower beds, space for growing

vegetables and herbs, improved walkways, quiet areas with benches, an automated watering system, handrails around the path, a summerhouse, bird feeders, compost bins, flower planting, solar lighting, a BBQ area, and a mural. After viewing the design plans, the response from staff and residents was overwhelmingly positive as they felt that the design reflected their ideas.

Some recent work from PAS<sup>38</sup>, included research on community GI priorities and found that there was some awareness of GI and its benefits and a willingness to improve GI locally. The common barriers raised by community groups were a lack of funds and a lack of technical capacity, particularly technical knowledge. Some community representatives felt that free access to technical expertise in specific areas of GI would be beneficial to them achieving their GI ambitions.

The key learning points from these examples of tenant consultations are:

- Community groups do not necessarily have the technical knowledge and will require support from within the GI sector;
- It is important to enthuse local volunteers and support them to expand their remit in a gradual way;
- It is worthwhile involving groups of tenants in auditing the GI in their own area to highlight what is valued and to identify future priorities;
- Once consultation has taken place, acting on tenants' priorities has a reinforcing effect that makes it more likely that involvement will be ongoing.

## **5.7 Urban land reform legislation**

The Community Empowerment (Scotland) Act 2015 extends the ability to register the right to buy to any land in Scotland (including in urban areas). The types of bodies that can use that power, and the criteria to be satisfied for registration have been extended and include the need to demonstrate sustainable development, a connection to the land, a level of community support, and a public interest. This legislation is relevant only when the owner seeks to sell the land/asset.

A further amendment to the Community Right to Buy (CRB) legislation, which will come into force later in 2018, is based on land that is abandoned or neglected, or where the use or management of the land results in harm to the environmental wellbeing of a relevant community. Based on similar criteria as above, this amendment gives a right for a community body to exercise its right to buy on a compulsory basis.

The Act also makes provision for community bodies to buy premises or land from a local authority and deliver a service that might normally have been provided by a local authority from those premises or land. When assessing the benefits of such an asset transfer, the relevant authority needs to assess whether it is likely to promote several factors relevant to GI including: public health; social wellbeing; environmental wellbeing; and reducing inequalities of outcome.

Given the recent introduction of the CRB legislation, there are to date very few examples; however, a group called Action Party was recently successful in its attempt to buy a church in Portobello, Edinburgh, whereas a group established to buy the former Sick Kids Hospital in Marchmont, Edinburgh was unsuccessful. In both cases, the groups reported a significant level of administrative work that had to be undertaken in short timescales.

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<sup>38</sup> PAS, 2017, Supporting Community Influence of Local Green Infrastructure through Community and Spatial Planning.

Within the social housing sector, it may be community based RSLs that have to consider establishing community bodies, supported by tenant groups, to pursue appropriate CRB opportunities; however, some lawyers in the field believe that once the legislation is in place, it could be that its existence makes it easier for community bodies to negotiate with owners to either influence the use of the land, or effect transfer without having to use the legislation. There may also be opportunities for RSLs or community groups to buy and manage adjacent land to provide GI benefits, particularly if that adjacent land is itself unsuitable for housing.

## **5.8 Pilot projects**

During the interviews, survey and workshops, requests were made to participants to consider if their forthcoming development projects could be used as pilot projects to test some of the findings of this research. In particular, the steering group was keen to explore whether some kind of 'GI advice service' could be provided by some of the key agencies/NGOs and be deployed at the early stages of a future proposal.

A few RSLs stated that they had suitable projects and would be open to a future request to participate. This should be followed up as soon as possible after the report has been published.

## **5.9 Delivering social housing – systems analysis**

Systems analysis of social housing development was an important way of identifying when, how and by whom key decisions are taken by social housing providers about the design of new social housing and the inclusion of GI.

As well as asking interviewees about their process for social housing development, our online survey asked respondents at what points in the development process GI was considered. Of the 35 responses, there were several that a majority highlighted as being important to the inclusion of GI (in order):

- Design (including landscape design);
- Planning consents;
- Development planning;
- Tenant/community consultation;
- Site appraisal.

To supplement this, a basic process diagram for social housing delivery was developed for discussion at the workshops (Appendix F). During the workshops, this process map was assessed and amended by participants to better reflect the 'typical' route by which social housing development is delivered in practice.

During the three workshops, participants were asked to amend the initial representation of the process and the main comments from this exercise for each stage of the process are shown in the table in Appendix F. These comments have been assessed and aggregated to help develop a 'typical' process map. This highlights existing barriers to GI, identifies where GI opportunities are often overlooked or where action is taken that results in the GI elements of the design brief being removed/compromised during the delivery process.

From a GI perspective, the key weaknesses in the existing process are:

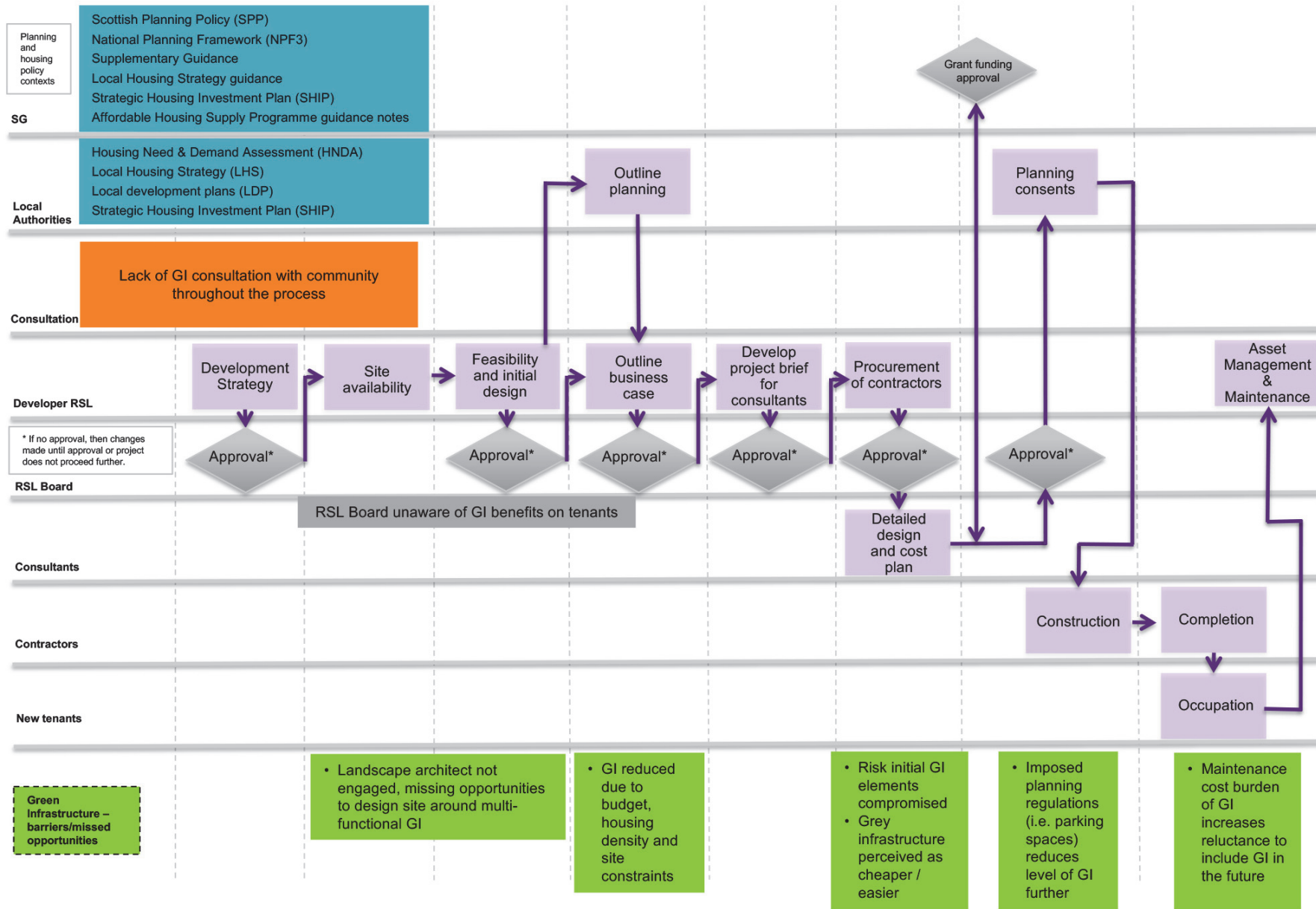
- Lack of consultation as to what GI is possible and what would maximise benefits for a specific site;
- No engagement with a landscape architect early in the process;



- Social housing providers lack control of key design decisions, especially in design and build models;
- GI is often sacrificed to improve the business case, increase housing densities or to meet planning conditions;
- Lack of awareness of the benefits of GI amongst developers;
- Perception that grey infrastructure is easier and cheaper;
- Ongoing maintenance burden of GI.

The typical process is shown in Figure 5 overleaf:

Figure 5. 'Typical' social housing GI development process



## 6. SOCIAL HOUSING & GREEN INFRASTRUCTURE – TOWARDS BETTER PRACTICE

Evidence from the interviews, research, survey, development of the case studies and the three workshops, has allowed us to develop a 'good practice' process map and this is shown overleaf in Figure 6.

The suggested process in Figure 6 sets out how the benefits of GI can be maximised when developing social housing. Key consultation steps in the process are shown in orange. In green, we suggest where there are opportunities in the decision making process to consider the role of GI in the overall design of the development.

### 6.1 Barriers to better practice

Our online survey asked respondents about the barriers they had encountered when considering GI in their developments. The most common barriers were:

*Table 7. Top barriers when considering GI in social housing developments, as reported by survey respondents*

Barrier	Percentage of respondents (33) that had faced the barrier
Perceived cost	55%
Size and location of site	46%
Lack of awareness of what was possible	42%
Social housing providers' required housing densities precluded GI	33%
Design team did not include GI expertise	27%

In the workshops, respondents were asked to identify the barriers that they had encountered and then develop potential solutions. Following the three workshops, the barriers and solutions have been brought together and refined. They can be summarised as follows:

- Perceived impact of GI on delivery of housing;
- Actual whole life costs of GI compared to grey infrastructure are largely unknown;
- Perception and awareness of GI is poor;
- There are difficulties engaging people as GI is not always a priority;
- Skills, guidance and support for GI could be improved within the sector;
- Social housing providers' policies and procedures are not always supportive of GI;
- GI is undervalued and not measured.

A complete list of the GI barriers along with appropriate recommended actions is shown in Table 8 overleaf.

In addition, a refined good practice process for incorporating GI into social housing developments is also shown overleaf in Figure 6.



Table 8. Identified barriers and recommended actions for incorporating GI in social housing developments

<b>Barrier: Perception and awareness</b>	
<b>Sub-barrier</b>	<b>Recommended actions</b>
<p><b>Lack of awareness of GI</b></p> <ul style="list-style-type: none"> <li>• GI means different things to different people;</li> <li>• Sector not sure what is possible;</li> <li>• Lack of appreciation of GI's benefits;</li> <li>• Costs assumed to be higher than grey infrastructure;</li> <li>• Social value of GI not emphasised or valued;</li> <li>• Why should RSLs pay for GI that benefits everyone;</li> <li>• Landscape architects are sometimes included at design stage but not later in process; consequently, GI can be removed from plans;</li> <li>• A view that not enough information is available for residents.</li> </ul>	<p><b>Develop a communications plan to brief social housing providers including RSL governing bodies, development teams and asset managers on the benefits to their tenants from multi-functional GI.</b> Initial efforts should focus on those large RSLs and local authorities responsible for most of the new development. The briefing should focus specifically on all the benefits to tenants. <b>The good practice process map (Figure 6) should be included in briefings to RSLs to help raise awareness of how GI can be maximised.</b></p> <p><b>Use SFHA GI forum, GI award and Building with Nature benchmark<sup>39</sup>, to promote benefits of GI.</b></p> <p><b>Explore the use of video cases studies to help promote best practice.</b></p> <p><b>Support RSLs and local authorities in the early stages of procurement to enable them to establish a design brief that maximises benefits from GI. This is particularly important for RSLs using 'design and build' routes to delivery.</b></p>
<p><b>Developer awareness</b></p> <ul style="list-style-type: none"> <li>• Tendency towards grey infrastructure as it is 'normal' and perceived as cheaper/easier;</li> <li>• Opportunities for multi-functional GI often missed eg SUDs fenced off rather than integrated;</li> <li>• Belief from some stakeholders that RSLs and LAs don't understand GI;</li> <li>• The benefits of GI will not all provide benefits to the developer / landlord.</li> </ul>	<p><b>See <i>lack of awareness</i> recommendations above.</b></p>

<sup>39</sup> <https://www.buildingwithnature.org.uk/>

<p><b>Public perception</b></p> <ul style="list-style-type: none"> <li>• Limited interest in GI due to lack of awareness;</li> <li>• Fear of the greater use of external spaces bringing anti-social behaviour close to tenants homes;</li> <li>• SUDs perceived as H&amp;S risk;</li> <li>• Belief that people are more interested in a driveway for their car;</li> <li>• Societal needs versus local interest needs.</li> </ul>	<p><b>Provide support to enable RSLs to champion the benefits of GI within the communities in which they operate and counter misperceptions.</b></p>
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<b>Barrier: Perceived impact on delivery of housing</b>	
<b>Sub-barrier</b>	<b>Recommended actions</b>
<p><b>Land availability</b></p> <ul style="list-style-type: none"> <li>• Concern that there is insufficient land availability for housing in some council areas;</li> <li>• Perception that GI impacts housing density and availability of parking;</li> <li>• Pressure to deliver houses results in GI being pushed to the side.</li> </ul>	<p><b>Support the development of pilot ‘exemplar designs’ and facilitate visits to reference sites.</b></p> <p><i>See public perception recommendations above.</i></p>
<p><b>The size and location of affordable housing development sites</b></p> <ul style="list-style-type: none"> <li>• Often small infill sites;</li> <li>• Perception that limited opportunity for GI.</li> </ul>	<p><b>Prepare a good practice guide that demonstrates how well designed GI suitable for small spaces can be incorporated into high-density housing developments.</b></p>
<p><b>Housing densities</b></p> <ul style="list-style-type: none"> <li>• Primary focus is on optimising housing density at expense of GI.</li> </ul>	<p><i>See size and location of affordable housing development sites recommendation above.</i></p>

<b>Barrier: Costs</b>	
<b>Sub-barrier</b>	<b>Recommended actions</b>
<p><b>Capital cost</b></p> <ul style="list-style-type: none"> <li>• Lack of whole life costing information that includes initial capital cost of GI and its ongoing maintenance costs;</li> <li>• Opportunity cost of not putting GI in place now includes costs</li> </ul>	<p><b>Undertake a comparative costing exercise based on a social housing development case study that demonstrates GI costs versus grey infrastructure costs.</b> On completion, raise awareness with developers of actual GI costs.</p>

to other parts of the public sector that could have been prevented, and a greater cost to implement the GI in the future.	<b>Consult with SG about how good GI design could be encouraged through affordable housing delivery and consider including GI as a measurable indicator in its Value for Money tool for new affordable housing.</b>
<b>Maintenance cost</b> <ul style="list-style-type: none"> <li>Burden of on-going management and maintenance costs of GI – who pays and does it risk increasing tenants' rents.</li> </ul>	<b>Undertake a comparative costing exercise based on a social housing development that shows GI maintenance costs versus grey infrastructure / 'traditional' maintenance costs.</b>
<b>Cost/benefit information on GI not widely available</b> <ul style="list-style-type: none"> <li>This makes it more difficult to justify GI ahead of grey infrastructure, the costs of which are well known.</li> </ul>	<b>Demonstrate the long-term economic and social benefits of GI to make the case to key stakeholders more compelling.</b>

<b>Barrier: Difficulties engaging people</b>	
<b>Sub-barrier</b>	<b>Recommended actions</b>
<b>Tenant consultation</b> <ul style="list-style-type: none"> <li>Mixed responses from tenants with some being very engaged e.g. forming 'friends of' groups while others are disinterested;</li> <li>Conflicting community views;</li> <li>Lack of community empowerment to influence landscape management;</li> <li>Tenant attitudes / actions.</li> </ul>	<b>See <i>public perception</i> recommendations above.</b>

<b>Barrier: Skills, guidance &amp; support</b>	
<b>Sub-barrier</b>	<b>Recommended actions</b>
<b>GI guidance is not easy to navigate</b> <ul style="list-style-type: none"> <li>There is a lot of guidance available but it needs to be more accessible and in plain language;</li> <li>Few cases studies on what others have done and with what success;</li> <li>GI is fast moving and some of the information is out of date.</li> </ul>	<b>Establish a single GI gateway website that enables access to good practice, particularly in including GI early in the process.</b>  <b>Provide materials to support the consideration of GI in the design and procurement of social housing.</b>

<p><b>Several GI groups co-exist</b></p> <ul style="list-style-type: none"> <li>• Confusing who does what;</li> <li>• No strong central influencing body;</li> <li>• Who is main point of contact for GI in Scotland;</li> <li>• Different interested stakeholders have different reasons for supporting GI.</li> </ul>	<p><b>Clarify the respective roles of stakeholders involved in GI in Scotland and identify a lead body for GI advice.</b></p>
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<b>Barrier: Sector capacity</b>	
<b>Sub-barrier</b>	<b>Recommended actions</b>
<p><b>Consultants/Contractors' capacity and role</b></p> <ul style="list-style-type: none"> <li>• Time/inclination to consider GI as a multi-functional team together during the design stage;</li> <li>• Some believe developers have a 'walk-away' culture that can detrimentally affect provision of GI;</li> <li>• Lack of design skills to integrate quality GI effectively;</li> <li>• Architect led projects – not enough focus on place making;</li> <li>• Poor process for who maintains GI elements;</li> <li>• More staff time to support GI – time with tenants.</li> </ul>	<p><b>Identify appetite for establishing a SFHA sponsored GI forum to allow RSLs and local authorities to share GI good practice relevant to social housing.</b> This could be built into existing RSL sector forums and local authority forums.</p>

<b>Barrier: Policy &amp; processes</b>	
<b>Sub-barrier</b>	<b>Recommended actions</b>
<p><b>Planning system</b></p> <ul style="list-style-type: none"> <li>• Planning requirements with respect to GI and open spaces are different in different council areas – there is no 'level playing field' for RSLs and local authorities;</li> <li>• A view of weak or incomplete GI policy;</li> <li>• LA Roads Officers have an input into planning and will often specify the number of car parking spaces relative to the number units, to the detriment of planned GI;</li> <li>• A view that Transport / Road regulations can limit impact of GI solutions;</li> </ul>	<p><b>Review the differences in local planning authority approaches relevant to GI and identify how a more consistent pan Scotland approach could be developed to Open Space and GI standards.</b></p> <p><b>The revised, combined Scottish Planning Policy and National Planning Framework should require that GI is included in all new developments as a way of delivering better places.</b></p> <p><b>Explore the potential for a national standard for GI.</b></p> <p><b>National Policy (SPP/NPF) should stipulate that there should not be a difference in minimum open space standards between</b></p>



<ul style="list-style-type: none"> <li>• Engagement with planning too late in the process;</li> <li>• Planners do not have the ability to pressure developers to include GI;</li> <li>• Some believe that the planning process is too prescriptive and a more evolutionary process is required;</li> <li>• Suggestion that planning should require more detail at pre-application stage rather than conditions;</li> <li>• Planners need more skills/training in GI and it would be beneficial if they were more confident in establishing design briefs for sites rather than reacting to applications;</li> <li>• Disconnect between place making and delivery of affordable housing through compromises to get developments done.</li> </ul>	<p><b>social housing and private housing.</b></p> <p><b>Develop a good practice guide relating to GI in the planning system</b></p> <p><b>Develop a training course to enable planners to appreciate the function of different types of green infrastructure and to integrate GI into masterplans and design briefs (appropriate to ‘place’) to deliver a range of benefits.</b></p>
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<b>Barrier: Surface water management</b>	
<b>Sub-barrier</b>	<b>Recommended action</b>
<p><b>Surface water management</b></p> <ul style="list-style-type: none"> <li>• SW is perceived by some to be a barrier although this may be starting to change; SG More Homes hold regular meetings with SW to discuss potential blockers to housing developments;</li> <li>• Tension between SW and LAs over surface water</li> <li>• SW - New Storm Water Management Strategy being developed which will include SUDs;</li> <li>• Climate change act – Scottish Government focus on CO2 but unclear how GI can achieve this and be measured;</li> <li>• SEPA viewed by some as a barrier, due to perceived level of objections;</li> <li>• No consistency of requirements within and across different local authorities;</li> <li>• Lack of processes to work with local authorities.</li> </ul>	<p><b>Consideration of the introduction of a single body responsible for surface water management in Scotland.</b></p>

<b>Barrier: GI undervalued and not measured</b>	
<b>Sub-barrier</b>	<b>Recommended actions</b>
<p><b>GI is undervalued</b></p> <ul style="list-style-type: none"> <li>• GI is competing against other things for public money; despite benefits and the potential for preventative spend;</li> <li>• Some believe that RSLs and tenants focus on the indoors and not the externals;</li> <li>• Mental health &amp; physical health issues of clients can be a barrier.</li> </ul>	<p><b>See lack of awareness recommendations above.</b></p> <p><b>Demonstrate the value of GI in terms of ‘preventative spend’ (e.g. health outcomes / flood prevention) to secure funding from a wider range of sources (e.g. NHS, local authorities, health &amp; social care partnerships, Scottish Water).</b></p>
<p><b>GI is not measured</b></p> <ul style="list-style-type: none"> <li>• No GI on KPI suite for new developments.</li> </ul>	<p><b>Consult with SG about how good GI design could be encouraged through affordable housing delivery and the inclusion of GI as a measurable indicator in its Value for Money tool for new affordable housing.</b></p>

## **7. IDENTIFYING GOOD PRACTICE**

Throughout our research, we identified several examples of good practice. These are detailed in cases studies in Appendix G. Further examples of good practice emerged in the interviews, the survey and the workshops. The examples demonstrated a number of concepts that help to maximise the benefits of GI including:

Some consistent good practice themes were as follows:

- Using new GI to connect communities to existing green networks;
- Consulting with communities as early as possible;
- Engaging a landscape architect at the start of the development process;
- Developing a clear well thought through brief that sets out the GI requirements explicitly;
- Supporting community groups that want to be involved in GI related projects;
- Multi-disciplinary masterplanning that includes GI and works new housing around it works well;
- For refurbishment or retrofitting projects, where homes are already occupied, early consultation with tenants is important: Delivering on their preferences builds trust and leads to enthusiasm for completed GI;
- Being ambitious about what can be achieved through good GI is often rewarded with good outcomes for tenants.

## **8. CONCLUSION**

This research has identified several barriers that are preventing the more widespread inclusion of GI in social housing. It has also highlighted the role of GI in providing high quality, successful places that support good health outcomes and can deliver a range of other social and environmental objectives. The multi-functional nature of GI means that a range of benefits can be provided from the same piece of land. This is particularly important in the context of social housing where residents often do not have the means to access alternative green spaces.

The lack of good GI in social housing is not a mere question of aesthetics. There is a significant opportunity cost of not maximising the value of GI. Poorly designed places are more likely to result in financial burdens on the Scottish public sector, whether that is through managing flooding from surface water run-off or managing the health consequences of living in environments that are not conducive to social interaction and mental wellbeing.

## 9. RECOMMENDATIONS

The suggestions generated at the workshops and through interviews were tested with the steering group and grouped/refined as follows:

Table 9. Recommendations

Grp	No	Recommendation	Social housing specific?
A		<b>Raise awareness of benefits of GI</b>	
	1	<b>Develop a communications plan to raise awareness with social housing providers including RSL governing bodies, development teams and asset managers on the benefits to their tenants from multi-functional GI.</b> Initial efforts should focus on those large RSLs and local authorities responsible for most of the new development. The briefing should focus on all benefits to tenants. The good practice process map (Figure 6) should be included in briefings to social housing providers to help raise awareness of how GI can be maximised.	Yes
	2	<b>Use SFHA GI forum, GI award and Building with Nature benchmark<sup>40</sup> to promote benefits of GI. Explore the use of video cases studies to help promote best practice.</b>	Yes
	3	<b>Establish / maintain relationships with ‘GI champions’ amongst social housing providers (including RSL governing bodies and development/ maintenance teams) able to promote the benefits and counter misperceptions.</b>	Yes
	4	<b>Support the development of ‘exemplar designs’ and facilitate learning visits to reference sites.</b>	Yes
	5	<b>Prepare a good practice guide that demonstrates how well designed green infrastructure suitable for small spaces can be incorporated into high-density housing developments.</b> This would also demonstrate the health and social benefits from GI.	Wider benefits
B		<b>Design briefs for all social housing should demonstrate how benefits from GI have been maximised</b>	
	6	<b>Support RSLs and other social housing providers in the early stages of procurement to enable them to establish a design brief that maximises benefits from GI.</b> This is particularly important for social housing providers using ‘design and build’ routes to delivery.	Yes
C		<b>Establish a stronger business case for GI</b>	
	7	<b>Undertake a comparative costing exercise based on a social housing development case study that demonstrates GI costs versus grey infrastructure costs.</b>	Wider benefits
	8	<b>Undertake a comparative costing exercise based on a social housing development that shows GI maintenance costs versus grey infrastructure / ‘traditional’ maintenance costs.</b>	Wider benefits
	9	<b>Demonstrate the long-term economic and social benefits of GI to make the case to key stakeholders more compelling.</b>	Wider benefits

<sup>40</sup> <https://www.buildingwithnature.org.uk/>

	10	<b>Demonstrate the value of GI in terms of ‘preventative spend’ (e.g. health outcomes / flood prevention) to help secure funding from a wider range of sources (e.g. NHS, Scottish Water).</b>	Wider benefits
<b>D</b>		<b>Use GI to maximise the wider benefits of the More Homes Scotland (MHS) investment</b>	
	11	<b>Ensure More Homes Scotland (MHS) Design Quality indicators incorporate measures of GI quality.</b>	Yes
	12	<b>Ensure early consideration of GI, supported through the MHS Procurement Improvement Programme.</b>	Yes
	13	<b>Consult with SG about how good GI design could be encouraged though affordable housing delivery and the inclusion of GI as a measurable indicator in its Value for Money tool for new affordable housing.</b>	Yes
	14	<b>Provide materials to be included as part of the housing grant application process to support/ encourage the inclusion of GI in the design and procurement of social housing.</b>	Yes
<b>E</b>		<b>Ensure easy access to GI advice</b>	
	15	<b>Establish a single GI gateway website that enables access to good practice, particularly in including GI early in the process.</b>	Wider benefits
	16	<b>Clarify the respective roles of stakeholders involved in GI in Scotland and identify a lead body for GI advice.</b>	Wider benefits
	17	<b>Identify appetite for establishing an SFHA sponsored GI forum to allow RSLs and other social housing providers to share GI good practice relevant to social housing. This could be built into existing SFHA forums and local authority forums.</b>	Yes
	18	<b>Identify a single body responsible for surface water management in Scotland.</b>	Wider benefits
<b>F</b>		<b>Embed GI standards within planning and housing policy</b>	
	19	<b>Review the differences in local planning authority policy approaches to GI and identify how a more consistent pan-Scotland approach to Open Space and GI standards could be implemented.</b>	Wider benefits
	20	<b>Develop a good practice guide relating to GI in the planning system.</b>	Wider benefits
	21	<b>National Policy (SPP/NPF) should stipulate that the same minimum open space standards should be applied to all housing types regardless of tenure.</b>	Yes
	22	<b>Develop a training course to enable planners to appreciate the function of different types of green infrastructure and to integrate GI into masterplans and design briefs (appropriate to ‘place’) to deliver a range of benefits.</b>	Wider benefits
	23	<b>Explore the potential for a national standard for GI.</b>	Wider benefits
	24	<b>The revised, combined Scottish Planning Policy and National Planning Framework should require that GI is included in all new developments as a way of delivering better places.</b>	Wider benefits
	25	<b>Review the Scottish Social Housing Charter to incorporate quality of place as well as quality of housing as an explicit outcome.</b>	Wider benefits

## **10. NEXT STEPS**

Implementing the recommendations in this report will help to embed GI in the design of new social housing and help the social housing sector to identify future opportunities to 'retro-fit' GI into their existing estate. This will help maximise the value of existing investments in Scotland's housing programme and ultimately enable more of Scotland's people to live in quality places that meet their needs. The most important next steps are to:

- Establish a broader implementation group based on the existing steering group;
- Develop an action plan to ensure that the recommendations are implemented.

## APPENDIX A – GLOSSARY AND LIST OF ABBREVIATIONS

Abbreviation	Term	Meaning
<b>A&amp;DS</b>	Architecture and Design Scotland	A&DS is an executive Non-Departmental Public Body (NDPB) in Scotland that supports the delivery of a wide range of buildings, places and regeneration schemes.
<b>CAPEX</b>	Capital expenditure	Funds used by an organisation to acquire, upgrade and maintain physical assets.
<b>CEC</b>	City of Edinburgh Council	The local authority for the City of Edinburgh.
<b>CHR</b>	Common housing register	A local authority's waiting list for social rented housing in the area. Usually developed in partnership with the RSLs in the area.
<b>CSGN</b>	Central Scotland Green Network	A national development identified in the National Planning Framework aimed at transformational greening of the Central Scotland area.
<b>CSGNT</b>	Central Scotland Green Network Trust	A local government & key agency partnership facilitating the delivery of the Central Scotland Green Network
<b>E&amp;LGT</b>	Edinburgh & Lothian Greenspace Trust	ELGT is an independent charity and social enterprise that care for the landscape and heritage of the green belt countryside and works to create and improve other urban greenspaces such as woodlands, community gardens, parks, play areas, school grounds and cycle paths in Edinburgh and the Lothians.
<b>ERDF</b>	European Regional Development Fund	Money given by the European Union for investment in areas that are less economically developed to support projects and activities that reduce the economic disparity within member states.
<b>D&amp;B</b>	Design & build	A project delivery system used in the construction industry whereby the design and construction services is contracted by a single entity known as the design and build contractor.
<b>GCVGNP</b>	The Glasgow and Clyde Valley Green Network Partnership	This Green Network provides green spaces throughout the Glasgow and Clyde Valley area.
<b>GI</b>	Green infrastructure	A network of multi-functional green space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities.
<b>H&amp;S</b>	Health and Safety	Regulations and procedures intended to prevent accident or injury in workplaces or public environments.

<b>HRA</b>	Housing Revenue Account	A ring fenced account used by local authorities relating to the income and expenditure of their direct provision of housing. See <a href="http://www.gov.scot/Topics/Government/Finance/spfm/locgovfin/locgovfinannex">http://www.gov.scot/Topics/Government/Finance/spfm/locgovfin/locgovfinannex</a>
<b>LA</b>	Local Authorities	Local government in Scotland comprises 32 unitary local authorities, responsible for the provision of a range of public services. Each local authority is governed by a council, made up of councillors directly elected by the residents of the area they represent. National Park authorities also provide some planning functions.
<b>NPF</b>	National Planning Framework	A spatial plan, which sets out how the Scottish Ministers consider development and use of land in Scotland should occur. It sets the context for development planning and provides a framework for the spatial development of Scotland as a whole.
<b>ONS</b>	Office for National Statistics	The executive office of the UK Statistics Authority, a non-ministerial department, which reports directly to the UK Parliament.
<b>OPEX</b>	Operational expenditure	The money an organisation spends on ongoing day-to-day basis in order to run the business.
<b>OSS</b>	Open space strategy	A document produced by a local authority, or other organisation that sets out how green spaces will be managed.
<b>PAS</b>	Planning Aid Scotland	A charity established to help people understand and engage with the planning system.
<b>RHA</b>	Ruchazie Housing Association	A community-based housing association in Ruchazie.
<b>RSL</b>	Registered Social Landlords	Independent housing organisations including a variety of housing associations and co-operatives, Abbeyfield societies and co-ownership societies that are regulated by the Scottish Housing Regulator.
<b>SCOTS</b>	Society of Chief Officers of Transportation	It is a strategic body comprising of transportation professionals from all the 32 councils and the seven regional transport partnerships. The society's work involves improving performance and innovation in the design, delivery and maintenance of transportation systems.
<b>SDP</b>	Strategic Development Plan	A development plan produced for one of the four largest city regions in Scotland to address land use issues, which cross local authority boundaries or involve strategic infrastructure.



<b>SFHA</b>	Scottish Federation of Housing Associations	The representative organisation for Scotland's Housing Association sector.
<b>SG</b>	Scottish Government	Scotland's devolved national government.
<b>SGPAD</b>	Scottish Government Planning and Architecture Division	A division of Scottish Government that operates the Scottish planning system and implements national policy on planning architecture and place.
<b>SHIP</b>	Strategic Housing Investment Plan	The Council's key statement setting out the strategic investment priorities for affordable housing.
<b>SHR</b>	Scottish Housing Regulator	A non-ministerial department whose objective is to safeguard and promote the interests of tenants of social landlords.
<b>SNH</b>	Scottish Natural Heritage	The public body responsible for the country's natural heritage.
<b>SPP</b>	Scottish Planning Policy	The statement of the SG on nationally important land use planning matters.
<b>SUDs</b>	Sustainable Urban Drainage System	A natural approach to managing drainage in and around properties and other developments.
<b>SW</b>	Scottish Water	A corporation that provides water and sewerage services across Scotland.
<b>WHO</b>	World Health Organisation	A specialised agency of the United Nations that is concerned with international public health.

## APPENDIX B – BIBLIOGRAPHY

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## APPENDIX C – STAKEHOLDERS

### Local authorities

Name	Role	Organisation
John Quinn	Head of Land & Property	Aberdeen City Council
Sam Verner	Project Manager 21st Century Homes	City of Edinburgh Council
Andrew Smith	Planner	City of Edinburgh Council
David Jamieson	Parks & Greenspace Manager	City of Edinburgh Council
Deborah Brady	Housing Development & Regeneration Manager	East Ayrshire Council
Alison Wood	Planning Officer	Fife Council
David Robertson	Affordable Housing & Regeneration Manager	Fife Council
Stephanie Little	Natural Heritage	Fife Council
Alec Miller	Housing Development Co-ordinator	North Lanarkshire Council
Gavin Kennedy	Project Officer, Housing	Stirling Council
Gillian Dick	Principal Place strategy and Environmental Infrastructure	Glasgow City Council

### Registered Social Landlord

Name	Role	Organisation
Andrew Kilpatrick	Asset Management Director	Caledonia Housing Association
Julie Watson	Development Manager	Kingdom Housing Association
Colin Culross	Director of Development and Asset Management	Link Housing Association
Gordon Cameron	Director of Development	Port of Leith Housing Association
Anthony Morrow	Community Development Officer	Sanctuary Group
Pauline Fletcher	Community Initiatives Manager	Southside Housing Association
Eleanor Derbyshire	Senior Development Officer	Sanctuary Group

### Others

Name	Role	Organisation
Sue Evans	Head of Development	Central Scotland Green Network Trust
Richard East	Director	City Design Co-operative
Charlie Cumming	Chief Executive	Edinburgh & Lothians Greenspace Trust
Rolf Roscher	Director	Erz Ltd
Max Hislop	Programme Manager	The Glasgow and Clyde Valley Green Network Partnership
Deryck Irving	Programmes Manager	Greenspace
Lisa Bullen	Planning Team Leader	More Homes Division, Scottish Government
Chris Sillick	Research and Projects Officer	Planning Aid Scotland
Lara Moir	Business Manager	Paths for All

<b>Kristen Anderson</b>	Senior Planner	Planning & Architecture Division, Scottish Government
<b>Mark Hunter</b>	Strategic Development Manager	Scottish Water
<b>David Stewart</b>	Policy Lead	Scottish Federation of Housing Associations
<b>Caroline Dicks</b>	More Homes Division	Scottish Government
<b>Elana Bader</b>	Green Infrastructure Project & Funding Officer	Scottish Natural Heritage
<b>Ivan Clark</b>	Plan & Placemaking Team Manager	Scottish Natural Heritage
<b>Ilene Campbell</b>	Chief Executive	Tenants Information Service
<b>Mark Turley</b>	Consultant	Working for More Homes Scotland, Scottish Government
<b>Swaantje Ridegh</b>	Landscape Adviser	Scottish Natural Heritage

### **Workshop One Attendees, Glasgow 17 November 2017**

<b>Name</b>	<b>Role</b>	<b>Organisation</b>
<b>Andrew Woodburn</b>	Development Consultant	Andrew Woodburn
<b>David Law</b>	Senior Arboricultural Officer	East Ayrshire Council
<b>Gillian Telfer</b>	Team Leader, Streetscene Technical Support	East Dunbartonshire Council
<b>Ivan Clark</b>	Planning Team Manager	Scottish Natural Heritage
<b>James Murray</b>	MGSDP Manager	Glasgow City Council
<b>Mark Brand</b>	Green Space Officer	East Renfrewshire Council
<b>Mark Hughes</b>	Community Projects Officer	Partick Housing Association
<b>Max Hislop</b>	Programme Manager	The Glasgow and Clyde Valley Green Network Partnership
<b>Melanie Huey</b>	Project Manager	Port of Leith Housing Association
<b>Sue Evans</b>	Head of Development	Central Scotland Green Network Trust
<b>Suzanne Topcu</b>	Technical Assistant (Development)	Paisley Housing Association

### **Workshop 2 Attendees, Edinburgh 22 November 2017**

<b>Name</b>	<b>Role</b>	<b>Organisation</b>
<b>Alister Scott</b>	Professor of Environmental Geography	Northumbria University
<b>Andrew Kennedy</b>	Senior Development Services Officer	Kingdom Housing Association
<b>Andrew Saunders</b>	Chief Executive	Ore Valley Housing Association
<b>David Welsh</b>	Chairman	Quay Initiatives, Port of Leith Housing Association
<b>Frazer McNaughton</b>	Landscape Architect	Scottish Natural Heritage
<b>Graham Marchbank</b>	Chartered Town Planner	Graham Marchbank
<b>James Renwick</b>	Trainee Development Officer	Eildon Group
<b>Jim MacDonald</b>	Chief Executive	Architecture & Design Scotland

<b>Kathie Pollard</b>	Development Officer	Lothian & Fife Green Network Partnership
<b>Kristen Anderson</b>	Senior Planner	Scottish Government
<b>Mary Taggart McMillan</b>	Tenant - Dunedin Canmore / Secretary	Triangle Community Garden, Oxfangs, Edinburgh
<b>Peter Hutchinson</b>	Planning and Renewables Unit Manager	Scottish Natural Heritage
<b>Sean Whittet</b>	Development Officer	Kingdom Housing Association
<b>Sharon Laidlaw</b>	Tenant – Dunedin Canmore / Chair	Triangle Community Garden, Oxfangs, Edinburgh

### **Workshop 3 Attendees Glasgow on 1 December 2017**

<b>Name</b>	<b>Role</b>	<b>Organisation</b>
<b>Alan Duff</b>	Town Planner	Glasgow City Council
<b>Alison Chisholm</b>	Partnership Manager	Lothian & Fife Green Network Partnership
<b>Colin Reid</b>	Energy and Sustainability Manager	Wheatley Group
<b>Daniel McKendry</b>	Principal Landscape Architect	Architecture and Design Scotland
<b>David Stewart</b>	Policy Lead	Scottish Federation of Housing Associations
<b>Heather Claridge</b>	Senior Project Officer	Glasgow City Council
<b>Ivan Clark</b>	Plan & Place-making Team Manager	Scottish Natural Heritage
<b>Jamie Mackie</b>	Place Making Team Leader	Renfrewshire Council
<b>Jim Whiston</b>	Director	Ayrshire Housing
<b>Pauline Fletcher</b>	Community Initiatives Manager	Southside Housing Association
<b>Ronnie Bell</b>	Development Officer	Shettleston Housing Association

## APPENDIX D – STAKEHOLDER INTERVIEWEE SUMMARY NOTES

<b>Role:</b>	Policy Lead
<b>Date:</b>	24/8/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• Persuading the SG More Homes team is a crucial part of promoting greater GI as they are key funders and there could be a perception within the sector that GI would lead to additional cost and complexity</li> <li>• Development in the sector driven by larger RSLs so there is an opportunity to influence a large number of units through a small number of RSLs</li> <li>• From this interviewee’s perspective, GI is important to help place making, improve quality of life and harness benefits particularly relating to health and wellbeing.</li> </ul>

<b>Role:</b>	Independent Consultant
<b>Date:</b>	28/8/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• Working on a post construction scorecard that measures housing development performance. Scotland Housing Network has developed a model that looks at cost, time and quality by surveying tenants 12 months after they have moved in to a new development</li> <li>• GI/place making is not included in the scorecard</li> <li>• SG is keen on maximising additional value from housing but cannot afford to jeopardise the 50k homes figure.</li> </ul>

<b>Role:</b>	Programme Manager
<b>Date:</b>	30/8/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• Helped estimate the cost of the CSGN at £2.8Bn by 2050 based on 17 components in six groups: Green space; GI; community growing; vacant and derelict land; habitats; and, active travel.</li> <li>• SG now has GI guidance included in supplementary guidance to which local authorities need to comply (although not statutory)</li> <li>• A major barrier is awareness and perception that it is difficult but need to change established methods in masterplanning so that GI is not seen as a nice to have instead of a fundamental design component: planning system should be used as a mechanism for greater GI.</li> </ul>

<b>Role:</b>	Planner
<b>Date:</b>	31/8/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• Local authorities are expected to take account of Scottish Planning Policy (SPP), which contains guidance on GI: <a href="http://www.gov.scot/resource/doc/300760/0093908.pdf">http://www.gov.scot/resource/doc/300760/0093908.pdf</a></li> <li>• There is often a balance between the inclusion of GI and site viability with GI sometimes being the first casualty: national minimum standards for greenspace were felt to be too restrictive and could prejudice the viability of some developments, particularly when they were urban brown field sites</li> <li>• It would be beneficial to have more skills/training for planners so that they are more confident in establishing design briefs for sites rather than reacting to applications.</li> <li>• Polnoon in East Renfrewshire is a great case study as its focus on GI and better connected spaces within the site actually increased the number of units possible.</li> </ul>

<b>Role:</b>	Local Authority Manager
<b>Date:</b>	31/8/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• In terms of policy, the Open Space Strategy is used as the basis for negotiations with developers but there isn't a specific policy in relation to social housing.</li> <li>• Our involvement is mainly confined to commenting on planning applications for new (larger) developments. There isn't any real discussion on the design of any new greenspace other than how it links to existing adjacent greenspace.</li> <li>• The city has an extensive and active network of Friends of Parks groups who get involved in the management and development of their local parks</li> <li>• The local authority housing team is doing or are planning to do an extensive consultation on the developing greenspace on Housing Revenue Account (HRA) land for other uses such as food growing, allotments, community orchards</li> <li>• Barriers to GI include: <ul style="list-style-type: none"> <li>○ Lack of specialist knowledge in the Council – particularly landscape architects.</li> <li>○ Misperceptions or lack of understanding about the value and benefits of green infrastructure and greenspace</li> <li>○ Lack of commitment</li> <li>○ Lack of resources.</li> </ul> </li> </ul>

<b>Role:</b>	Researcher
<b>Date:</b>	1/9/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• The organisation is conducting research into the potential to support communities that are interested in GI</li> <li>• A key barrier is that RSLs/housing developers do not understand GI and what can be achieved. This is exacerbated by the accessibility of information and the language in which it is written</li> <li>• Some communities are suffering from engagement fatigue where initiatives fail post consultation due to lack of funding.</li> </ul>

<b>Role:</b>	GI Organisation Officer
<b>Date:</b>	5/9/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• The organisation has undertaken GI related projects with RSLs: community gardening; woodland management; temporary greening. Believes that the areas of GI most likely to be associated with social housing are SUDs, street trees, tree planting, hedging, wild flower meadows, allotments, community gardens and community orchards</li> <li>• One of the key barriers is the planning system as planners don't seem to have the ability to pressure developers to include GI in site plans</li> <li>• Despite its preventative spend impact, GI is very undervalued and is competing against other things resulting in it being '<i>always down the list of priorities</i>'.</li> </ul>



<b>Role:</b>	Development Manager
<b>Date:</b>	6/9/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• The organisation agrees the SHIP with its local council and has regular meetings to review progress and identify issues. They work together to co-ordinate the programme</li> <li>• They undertake community consultation about all new developments and this will include greenspaces</li> <li>• Average size of their development is 20-25 units although currently onsite refurbishing an existing development of 103 units in first two phases.</li> <li>• Regularly use SUDs as they are cost effective and they are designed first dictating how many units can be fitted around the drainage strategy. Some tenants worry about the safety of SUDs so they try to raise awareness. This RSL always assumes that they will be responsible for the maintenance of the SUDs.</li> </ul>

<b>Role:</b>	GI Organisation Officer
<b>Date:</b>	6/9/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• Areas of social deprivation and poor greenspace go together so resources need to be directed there</li> <li>• Some barriers to GI: <ul style="list-style-type: none"> <li>○ Lack of management/maintenance leads to GI failure</li> <li>○ Planning system is very prescriptive and instead need a more evolutionary process that provides greater flexibility</li> <li>○ How best to engage tenant audience about GI?</li> </ul> </li> <li>• Types of GI that re fundable now include: safe routes to school; green active travel; SUDs; Multi-layered GI that maximises the benefits to local people; biodiversity impact; edible; and green roofs/walls</li> <li>• Not a huge amount of literature on GI cost/benefit; evidence of lower capital expenditure (CAPEX) costs but higher operational expenditure (OPEX) costs.</li> </ul>

<b>Role:</b>	Planner
<b>Date:</b>	6/9/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• The local authority has a design guide, and an Open Space Strategy (OSS) that promotes multi-functional GI – developers are expected to refer to both documents.</li> <li>• In brand new developments where there isn't an existing community the Design Guide and OSS have more prominence. In areas of social housing where a development is part of a wider regeneration of an area there tends to be a much greater degree of community engagement and therefore the views of tenants and residents have a greater influence on the design of green infrastructure than the Design Guide and OSS.</li> <li>• Grey infrastructure tends to be given greater priority than green although this is starting to change partly due to Scottish Government planning policy and the Council's own policy but also because there is '<i>a growing awareness that green infrastructure can offer more cost effective solutions particularly in relation to managing flood risk and surface water drainage</i>'.</li> </ul>

<b>Role:</b>	Housing Manager
<b>Date:</b>	7/9/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• As part of current SHIP (2017 – 22) the local authority is looking to deliver at least 600 units on a 50:50 basis between the Council and RSLs</li> <li>• It has GI guidance in its LDP and associated planning guidance, which gives tenure blind guidance on open space requirements although the supplementary guidance allows for open space requirements to be waived for affordable housing developments if the cost would have an unacceptable impact on the financial viability</li> <li>• The council gives consideration to GI instead of grey infrastructure although this depends on the local topography, flood risk maps and how any solution integrates with the local environment. Scottish Water and the capacity of local drainage infrastructure are critical dependencies.</li> <li>• As a general principle integration with and connectivity to existing local amenities including greenspace is important in the design of new housing developments.</li> <li>• It is usually the build or design of the new houses that will bring people out to consultation events but discussion will also encompass the impact on existing amenities and the provision of new ones including green space. The creation of new play areas is often a cause for concern because they are sometimes seen as places where young people congregate and cause anti-social behaviour. As a consequence, it is moving away from traditional play park provision to opportunities for natural or free play.</li> </ul>

<b>Role:</b>	Project Officer
<b>Date:</b>	6/9/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• This council builds approximately 60-70 units per annum. Its SHIP includes 700 units over the next five years with 400 being delivered by RSLs</li> <li>• Many of their developments are small scale and often on infill sites and so it is more likely that traditional grey infrastructure will be used; however SUDs schemes are used where the site and scale of the development allow</li> <li>• Cost is a consideration as the council receives a lower level of grant subsidy (£57k per unit) compared to RSLs but discussions with planning at the pre-application stage and consultation with the local community will try and accommodate design ideas as long as they are affordable</li> <li>• Maintenance is an issue: with so many units of new build affordable housing being delivered through the affordable housing policy, factoring charges (including maintenance of shared green space) can be an issue with factors' fees being in the region of £50 per month this can be problematic when so many tenants are in receipt of housing benefit. In some cases the Council will try to opt out of the developer's factoring arrangements</li> <li>• In general green space/infrastructure is not a top priority for tenants and residents and where it is an issue it tends to be focussed on play provision.</li> </ul>

<b>Role:</b>	RSL Development Officer
<b>Date:</b>	7/9/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• When they think about GI it is more related to carbon emissions and tackling tenant fuel poverty</li> <li>• They do try to do innovative 'green' things around new developments - including the proposed PASSIVHAUS (a low energy house with dramatically reduced requirement for heating) scheme and other Fabric First projects (focus is on watertight and airtight properties). They are also looking again at modular construction.</li> <li>• They struggle with their local authority's planning and building standards staff and/or policies. Their PASSIVHAUS idea was rejected and now subject to appeal due to wider air quality concerns. He also mentioned 'sash and case' windows contracts, which are poor for energy efficiency</li> <li>• Amenity spaces and quality of space are important to this RSL, especially for play and health improvement reasons. Consequently, they are looking at spaces for bikes, electric car charging, City Car Club spaces, and recycling facilities. They want to see big reductions in car parking spaces to increase open space but not keen on underground car parking because of cost</li> <li>• In terms of possible pilots, he mentioned that they will be doing a development on soon which will have a strong Fabric First theme. He also mentioned possible greening initiatives in their neighbourhood that might be suitable.</li> </ul>

<b>Role:</b>	Housing Manager
<b>Date:</b>	12/9/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• The council has a target of 1500 completions in its SHIP with local RSLs delivering a further 200 over the next five years</li> <li>• New build AH developments will be expected to comply with all planning policy and guidance. At the pre-application stage, discussions take place with Planning.</li> <li>• The Parks and Countryside service will also be consulted and this covers issues such as planting schemes and maintenance requirements although resource pressures have meant that <i>'there have been occasions where planting and other green features have had to be ripped out because Parks can't maintain them'</i>. Maintenance is a barrier to GI</li> <li>• The council's approach to features such as SUDs tends to be traditional with little consideration given to multi-functional uses such as recreation, amenity or bio-diversity. SUDs ponds often tend to be fenced off partly in response to community concerns about safety.</li> <li>• When developing, consideration is given to place making but the main focus is on delivery of the units of affordable housing. If the cost of green space provision or infrastructure did have an adverse impact on the cost of a development then it could be a barrier</li> <li>• The council holds community consultation events and tries to</li> </ul>

	involve the wider community in the design, including green space, but this will often depend on the capacity of the local community. In larger regeneration schemes consultants will be used to carry out more in-depth consultation on designs.
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<b>Role:</b>	Development Officer
<b>Date:</b>	13/9/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• The council has completed 400 units since 2009/10 but 2150 units are planned to be delivered by 2027 of which 1150 will be built by 2020.</li> <li>• Until recently new build council housing was procured on a Design and Build basis and, after consultation with colleagues, a design brief was worked up that included GI requirements. Now, the council is moving away from D&amp;B and instead will procure a works contract after the design stage. This will give greater control over the final design and the GI.</li> <li>• Some key issues encountered: <ul style="list-style-type: none"> <li>○ Small infill sites do not lend themselves to GI</li> <li>○ Some public resistance to SUDs due to aesthetics and perceived H&amp;S risk</li> <li>○ Traditional engineering approach is to locate SUDs in corner of site and fence off, losing recreation potential</li> <li>○ Adoption of SUDs is problematic meaning NLC retains maintenance liability</li> </ul> </li> <li>• Consultation takes place as part of the planning application process with Community Councils and residents/tenants groups</li> <li>• A key consideration is not creating a maintenance burden for colleagues in the grounds maintenance team.</li> </ul>

<b>Role:</b>	Planner
<b>Date:</b>	13/9/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• Within the council's GI related policies, its aims are: <ul style="list-style-type: none"> <li>○ Preservation and development of Green Networks</li> <li>○ Avoidance of green network fragmentation</li> <li>○ Multifunctional approach that can provide <ul style="list-style-type: none"> <li>▪ Flood prevention and drainage</li> <li>▪ Access to green space to promote physical and mental well being</li> <li>▪ Increases/protects bio-diversity</li> </ul> </li> </ul> </li> <li>• For all housing developments there will be recreational open space requirements unless the development is less than 250m away from existing green space (minimum of 0.2ha in size). There will also be requirements for buffer zones where a site is near existing woodlands or water features and to create/enhance links to existing GI.</li> <li>• Grey infrastructure tends to be preferred by developers. There seems to be a perception that it is easier to maintain. Trying to change this by allowing SUDs to be counted as part of the green space requirement for developers. There is also a reluctance for GI such as SUDs to be adopted for long-term maintenance by either FC or SW. In many cases SUDs are not utilised as a landscaped feature or for multi-functional use but instead are</li> </ul>

	<p>fenced off.</p> <ul style="list-style-type: none"> <li>• There is an emerging tension between what the Council aspires to for green space in its Planning policy and guidance and its need to provide more social rented housing as many of the sites proposed in the affordable new build programme are on green spaces owned by FC.</li> </ul>
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<b>Role:</b>	Local Authority Officer
<b>Date:</b>	13/9/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• The interviewee examines proposals for new developments, including new social housing, and assesses how well they take account of existing natural heritage through integrating it and/or enhancing it.</li> <li>• Connectivity to the green network is also important as well as benefit of bio-diversity, recreation, flood prevention /drainage.</li> <li>• There is a challenge in getting developers to see the site as a whole including existing natural heritage, how SUDs can be integrated into a site and enhance greenspace and the local green network and how the site relates to the wider environment rather than treating it as 'blank canvas'.</li> <li>• Cost is an issue with all housing developments but particularly with affordable housing and this can impact on treatment of GI.</li> </ul>

<b>Role:</b>	Utility Manager
<b>Date:</b>	14/9/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• The organisation has a complex system to operate with services: potable water; surface water; and wastewater. They try and operate the system at capacity. It tries to separate surface water and waste water particularly as there is considerable pressure on the sewerage system due to lack of capacity</li> <li>• It has been seen as a blocker to the development process but it has been trying to adopt a more enabling role</li> <li>• A new Storm Water Management Strategy is being issued and this will have a greater emphasis on green/blue solutions. SW views SUDs as part of the solution to its capacity issues and cited an example at Shawfair in Edinburgh where SUDs were put in place to reduce the existing surface water in the system to make capacity in the system for wastewater from the new development.</li> </ul>

<b>Role:</b>	Manager of charity
<b>Date:</b>	15/9/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• The charity is funded by SG to promote active travel by facilitating a network of 400 groups doing community walks; they also support community groups who are grant funding to build walking paths</li> <li>• They also have a policy role and try to influence SG on what the preferred policy should be</li> <li>• They believe that RSLs are good community connectors, and are interested in tenants' well-being: they are trying to build their presence amongst RSLs, particularly to identify what barriers exist to greater physical activity amongst tenants.</li> </ul>

<b>Role:</b>	Housing officer
<b>Date:</b>	18/9/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>Local authorities have statutory obligation to assess housing demand/need and this drives their local housing strategy and development plan. The SHIP is used to build consensus and local SG teams prioritise projects with grant funding given on a geographic basis with the level of subsidy dependent on developer, tenure and size of properties</li> <li>Barriers exist to achieving the 50k target particularly around capacity in the sector, and land availability/quality</li> <li>They are interested in GI, see it as a good thing and are supportive at a policy level but GI in social housing needs to be proportionate, and future maintenance obligations are a concern.</li> </ul>

<b>Role:</b>	RSL Development Officer
<b>Date:</b>	20/9/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>Plan to develop 3000 units over next five years and are currently developing in 12 local authority areas, which is challenging as they all have different policies</li> <li>GI is included in their design guide and they have included some GI such as Filterra trees, swales, SUDs, natural ponds, community tree planting. They use landscape architects on bigger developments</li> <li>Car parking remains an issue: on one development, they had included provision for 80% in the master-plan but the local authority insisted on 150% so space has to be found. The percentage of residents to car parking spaces is different across all local authorities</li> <li>Key barriers are: maintenance costs having an impact on rents; protecting GI from being the first casualty; and dealing with a packaged site from a developer through Section 75 and having to compromise on space.</li> </ul>

<b>Role:</b>	RSL Development Officer
<b>Date:</b>	21/9/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>In the past, driven by energy efficiency, the RSL has been innovative including solar panels, ground source heat pumps, and district heating in its development but this has not been hugely successful as the maintenance costs have been higher than expected</li> <li>They have also include green roofs in their developments but this was driven by an individual development officer who was interested in this area</li> <li>They are due to develop 1000 units over the next five years and, given the regulations to which they must adhere, they are having to adopt a much more commercial approach and so are less open to innovation.</li> </ul>

<b>Role:</b>	RSL Manager
<b>Date:</b>	26/9/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>Despite not having external funding this RSL undertook a consultation in 2014/15 to identify what green spaces tenants wanted when their flats were renovated. This meant that when</li> </ul>

	<p>funding did emerge, they had a master-plan ready and the project will go ahead in 2018</p> <ul style="list-style-type: none"> <li>• The new park will include lots of GI: toddler play area; play area; paths, trees/shrubs and community growing. Traffic will be re-routed to back of building. A 'friends of the park' group has been established</li> <li>• They are undertaking a before and after study to identify the difference the new GI has on locals.</li> </ul>
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<b>Role:</b>	Local Authority Officer
<b>Date:</b>	26/9/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• The council has a SHIP target of 1250 plus a Joint Venture with the national housing association Places for People to deliver 1000 affordable homes</li> <li>• GI is included in LDP and associated supplementary design guidance and open space strategy. This is part of a broader place-making approach to produce good quality places within an attractive environment – also council policy that affordable housing is predominantly located in areas that are well connected in terms of footpaths and cycle networks</li> <li>• When they undertake consultation, they find that green space features prominently</li> <li>• No significant barriers apart from when using developers who are concerned with densities but even then they are increasingly recognising that green space helps create visually attractive place.</li> </ul>

<b>Role:</b>	Project Officer
<b>Date:</b>	4/10/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• The organisation has two funding pots: GI Fund (major infrastructure projects) and the Community Engagement Fund (community GI focussed with an emphasis on mental health, community cohesion and active travel)</li> <li>• A major challenge is that people do not know what GI means and the sector jargon leads to communication issues. The outcome is recognition of GI and the benefits it brings to people's lives</li> <li>• In other countries, GI is much more integrated not just an add-on or a box ticking exercise.</li> </ul>

<b>Role:</b>	RSL Officer
<b>Date:</b>	04/10/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• Highlighted that he had limited involvement. Provided further contact with Development Manager.</li> <li>• In terms of community engagement, feels more could be done. For example limited engagement with schools.</li> <li>• Limited demand from tenants on GI – probably because a lack of knowledge or not interested.</li> </ul>

<b>Role:</b>	Programme Manager
<b>Date:</b>	5/10/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• Two main areas of responsibility: place-making and climate change resilience</li> </ul>

	<ul style="list-style-type: none"> <li>• People don't see GI as a priority but it has a really important role to play: a recent RSL development in Glasgow had no greenspace and this led to anti-social behaviour</li> <li>• Within RSLs, GI is seen as a part of wider role rather than development and many RSLs find it hard to include GI due to perceived cost both capital and revenue (maintenance is a perceived barrier)</li> <li>• An example of good practice is North Glasgow where the master-plan includes GI, and the canal will be used to provide an innovative solution to surface water management.</li> </ul>
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<b>Role:</b>	Local Authority Project Manager
<b>Date:</b>	9/10/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• The programme aims to build 10,000 new council houses over the next 10 years</li> <li>• The council has an open space strategy which aims to promote sustainable development, active travel, the green network and flood prevention</li> <li>• For new housing developments there is a consultation with planning as part of the site identification process that will include opportunities for active travel or enhancing the green network</li> <li>• In the programme D&amp;B and separate design and build are used: PM, planner and others discuss how the various design requirements (including GI) can be delivered. Ideally this happens at feasibility stage.</li> <li>• Examples of GI include pocket parks, allotments and the provision of a cycle way, community gardens and retention of existing planting.</li> <li>• Much greater awareness of SUDs and the council now has a preference for SUDs over grey infrastructure</li> <li>• On-going maintenance remains an issue with GI, particularly when the council's budgets are reducing: <i>'In the case of SUDs, as SW won't take responsibility for maintaining them and the council does not have the resources then often there is no maintenance carried out'</i></li> <li>• The extent of their consultation is relative to the size of the development and although there is less scope to influence the smaller developments, sometimes detailed design of the GI is left until residents have moved in so that they can have their say.</li> </ul>

<b>Role:</b>	Landscape Architect
<b>Date:</b>	11/10/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• Landscape Architects, established in Glasgow for 27 years</li> <li>• Main barriers: <ul style="list-style-type: none"> <li>○ Landscape Architects are not appointed early enough in projects, usually at bottom of project priorities</li> <li>○ Budgets – perception that Landscape Architects budget has reduced over the years. If QA goes astray, then Landscape Architect budget becomes a contingency</li> <li>○ Local Authority Planning Inputs – plans that are submitted not suitably detailed enough to determine landscape. Planners not having sufficient understanding on landscape. Resourcing problem in Planning Department - often planners don't follow up on landscape schemes after completed</li> </ul> </li> </ul>



	<ul style="list-style-type: none"> <li>○ Maintenance – often management and maintenance is poor, it is now affecting how we design schemes.</li> </ul>
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<b>Role:</b>	Landscape Adviser
<b>Date:</b>	18/10/17
<b>Key points:</b>	<ul style="list-style-type: none"> <li>• Sits on the SUDs working partnership with SW, SEPA, Landscape Institute, SG, SHR, housebuilders, SG planning, and the Society of Chief Officers of Transportation (SCOTS)</li> <li>• SW is the statutory authority for SUDs and sets the technical standard but has no direct responsibility. SW's guidance suits SW best and lacks flexibility for designers to create multi-functional SUDs. At present, developers just want to get through planning and SW to sign off their design</li> <li>• In Wales, there is a SUDs approval body and in England a surface water authority has been raised but not implemented. Would a Scottish Surface Water body help?</li> </ul>

<b>Role:</b>	Local Authority Officer
<b>Date:</b>	18/10/17
<b>Key points:</b>	<p>Community consultation approach for a specific project:</p> <ul style="list-style-type: none"> <li>• Old primary school demolished, new school built elsewhere. Initial plans were to sell the land for house building. Ground investigations identified the land was unsafe for this purpose, therefore the council found alternative use.</li> <li>• Engaged with the community on desired use for the land. First round of consultation involved letters issued to owners / occupiers within 300m of the land. Desire from the local community to engage stemmed primarily to understand the extent of contaminated land and secure reassurance rather than interest in greenspace. Subsequently, two workshops were held to explain the land issues and hold focus groups on what was desired from the community. Held second consultation around concept design. Landscape Architect appointed and secured funding. In October 2016 developed first outline design.</li> <li>• Have involved local schools in the development of the site, with a workshop held with the architect and the school children. Trying to establish Friends of the Park to get local community involved. Attempted in June 2017, limited success, attempted again end of 2017</li> <li>• Final site will include benches, play equipment, community garden, paths, forest school area, wild meadow area.</li> </ul>

<b>Role:</b>	Development Manager
<b>Date:</b>	25/10/17
<b>Key points:</b>	<p>Discussed project examples of GI / community engagement:</p> <ul style="list-style-type: none"> <li>• Project One - communal garden, semi-private, by people living around the block. Basic landscape was put initially in the courtyard. Set aside funds so when new residents moved in, they could enhance their site. Engaged with the residents 18 months after some had moved in. Involved CSGN and secured funding through Greenspace Scotland. Held workshops for residents, engagement take up was very low. Little enhancements were made to the space due to possible overdesign of the site initially (nicely planted), and that the group of residents were just not into</li> </ul>

	<p>gardening.</p> <ul style="list-style-type: none"> <li>• Project Two - similar idea, after completion of the flats, once residents are identified, they will engage with them and decide whether to develop a communal garden space or a community growing space.</li> <li>• Project Three - community garden was not typical communal space, more of a wider public space, 0.3 hectares, had good community engagement experience. Landscape Architect appointed (Here + Now Architects), then targeted groups, schools, community groups. Engagement was positive.</li> </ul>
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<b>Role:</b>	RSL Development Manager
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<b>Date:</b>	26/10/17
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<b>Key points:</b>	<ul style="list-style-type: none"> <li>• GI is a priority for this RSL</li> <li>• An initial requirement is to employ Landscape Architect, to have a high-quality design. The RSL's maintenance team maintains the gardens, and their maintenance team sign off the landscape design</li> <li>• Main barriers include costs, how much can they spend on GI? Also the Roads Department and local authority requirements for parking. Have to make a case to reduce parking to level to protect GI</li> <li>• Generally, people do not want to maintain the GI space.</li> <li>• Tenants are keen on allotments, young families want playparks, older people don't want playparks</li> <li>• Regeneration projects, engagement work well – people want to be involved.</li> </ul>
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<b>Role:</b>	Local Authority Officer
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<b>Date:</b>	6/11/17
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<b>Key points:</b>	<ul style="list-style-type: none"> <li>• Leads a project that seeks to bring life into cities and bring cities to life through multi-functional green, blue and grey infrastructure</li> <li>• Sites are designed the wrong way around: should be landscape first, then GI, then houses</li> <li>• It is possible to have cost neutral open spaces through GI but RSLs are predominantly focus only on the houses: more prescriptive GI policies would help</li> <li>• <i>'GI – it's not about the grass'</i></li> <li>• Whilst the council does use a place standard policy, greater benefits could come from economic, environmental and social land use, and they should be able to swap land types to maximise these benefits through intelligent conversation and an evidence base.</li> </ul>
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<b>Role:</b>	Landscape Architect
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<b>Date:</b>	6/11/17
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<b>Key points:</b>	<ul style="list-style-type: none"> <li>• An award winning landscape architecture company based in Glasgow.</li> <li>• Key barriers are: <ul style="list-style-type: none"> <li>○ Who funds and develops the area wide strategy?</li> <li>○ At master-planning stage, don't always consider all the things at the same time – GI needs to be included at the front end</li> <li>○ GI can be perceived as problematic in areas of deprivation so</li> </ul> </li> </ul>
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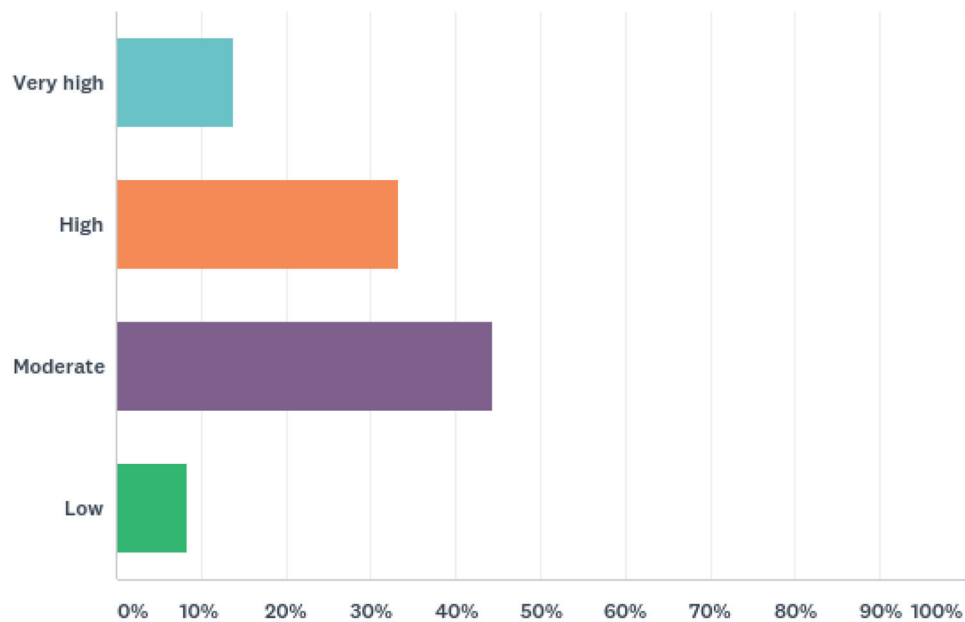
	<p>need the correct approach</p> <ul style="list-style-type: none"><li>○ Developer and engineer 'out of habit' go down a particular route but this does not always lead to the best solution</li><li>• Their role is to take the brief and develop what could be done to give a common understanding of the possibilities</li><li>• They have to contend with several socio-economic factors: overcoming scepticism, often faced with problems rather than solutions, landscape architecture can be an abstract concept, need consultation to make meaningful but sometimes this needs to be taken in small steps.</li></ul>
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## APPENDIX E – SURVEY RESULTS

As part of this research, MainStreet developed an online survey that was sent, primarily, to local authorities and housing associations in October and November 2017. The survey was completed by 36 people including development officers in 11 local authorities (34%) and 16 RSLs (11%). An overview of the survey findings follows.

### SNH Social Housing & Green Infrastructure Research Analysis Q2

How would you describe your understanding of what GI is?



SNH Social Housing & Green Infrastructure Research  
Comments Q2

I don't think Green Infrastructure is promoted by the Government, statutory authorities or industry bodies

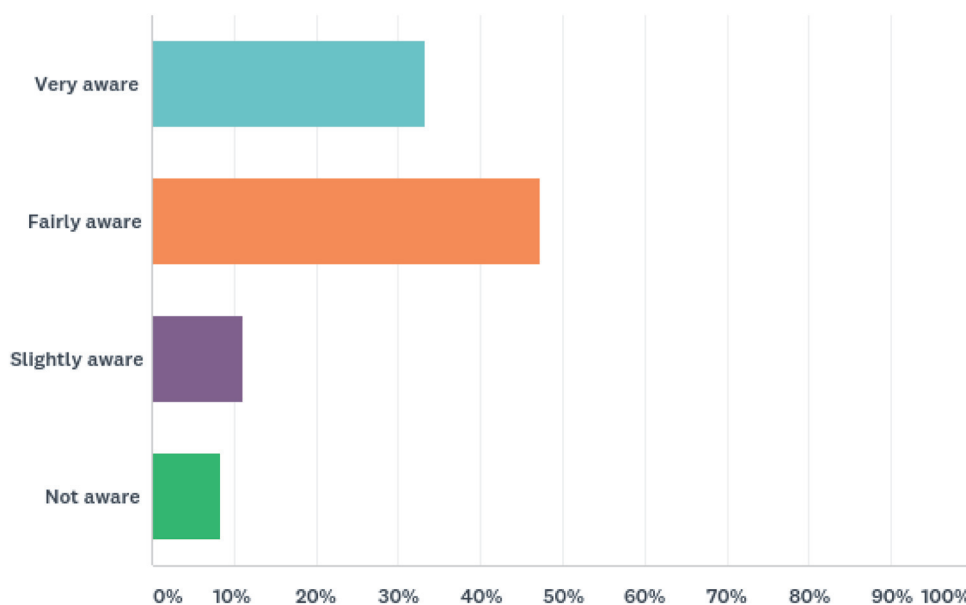
In affordable housing projects, the priority is to provide housing for those in need. Green infrastructure can be costly, take up space that may often be considered as more useful if built on.

Our organisation is heavily involved in the ownership, maintenance and upkeep of a large number of open spaces, play spaces, trees bushes, paths and walkways, woodland

Knowledge based on online research and advice from consultants.

SNH Social Housing & Green Infrastructure Research  
Analysis Q3

How would you describe your level of awareness of the benefits of GI?



SNH Social Housing & Green Infrastructure Research  
Comments Q3

The projects that have been developed have created neighbourhoods that previously didn't exist, offering opportunities for light physical exercise, socialising and increase community cohesion.

Always better to live in a park than a car park.

From tenant surveys we do pick up that quality of open spaces is a really important factor in determining how people feel about the area they live in.

My level of awareness is based on common knowledge rather than as a result of specific training/guidance or requirement to meet regulations.

SNH Social Housing & Green Infrastructure Research  
Analysis Q4

Has your organisation included GI in any developments/  
refurbishments?



SNH Social Housing & Green Infrastructure Research  
Comments Q4

What GI has been included?

Out of 26 (17 RSL, 9 LA) responses to this question, the top GI included were:

Type of GI	No.	Type of GI	No.
SUDS	8	Play areas	6
Private garden	4	Swales	4
Open space	4	Planting	4
Community allotment/ growing	3	Communal gardens	2

SNH Social Housing & Green Infrastructure Research  
Comments Q5

Why no GI included?

- *Size constraints or not deemed required*
- *High pressure area with limited space for housing development*
- *Not a current policy objective for us or the local planning system beyond traditional landscape work.*

SNH Social Housing & Green Infrastructure Research  
Analysis Q6

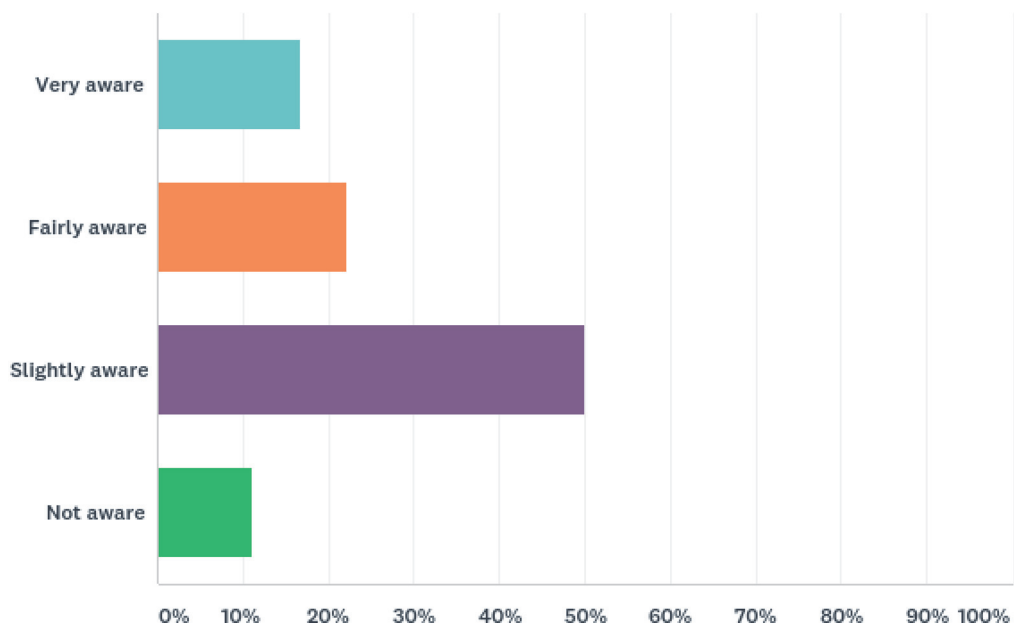
Generally, at what stages of your delivery process for a new or retrofit social housing development project do you consider including GI?

Top 5 responses:

- 1.Design (including landscape design)
- 2.Planning consents
- 3.Development planning
- 4.Tenant/community consultation
- 5.Site appraisal

SNH Social Housing & Green Infrastructure Research  
Analysis Q7

How would you describe your level of awareness of organisations that can provide information or guidance on Green Infrastructure?





SNH Social Housing & Green Infrastructure Research  
Comments Q7

How would you describe your level of awareness of organisations that can provide information or guidance on Green Infrastructure?

I work closely with organisations who have responsibility for promotion understanding of green network and IGI.

It's not something we do on a regular basis (ie seek specialist advice on green infrastructure). We generally get this advice from our architect.

We have employed some directly to assist with designing green infrastructure and also used such organisations to design and consult with residents on requirements.

I work with a number of organisations: CSGN, GCVGN, SNH, SEPA etc.

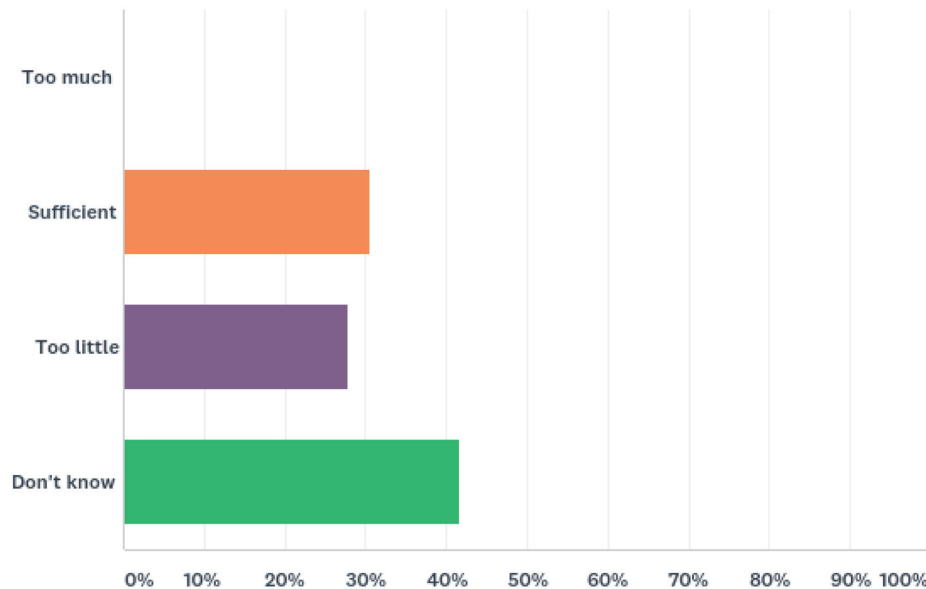
SNH Social Housing & Green Infrastructure Research  
Analysis Q8

Where do you go to seek information or guidance on GI?  
(e.g. specific organisations, websites or publications.)



SNH Social Housing & Green Infrastructure Research  
Analysis Q9

In terms of the level of existing Green Infrastructure guidance, do you feel there is:



SNH Social Housing & Green Infrastructure Research  
Comments Q9

Additional points on existing Green Infrastructure guidance:

Government and industry bodies could do a lot more to provide guidance.

Lots of 'how to' but more case studies of successful projects required.

There's adequate provision and information – there's a realisation that creating green space has many benefits.

This is a relatively new concept and examples of best practice are important in allowing developers to see merit – both financially and in design terms.

SNH Social Housing & Green Infrastructure Research  
Comments Q9

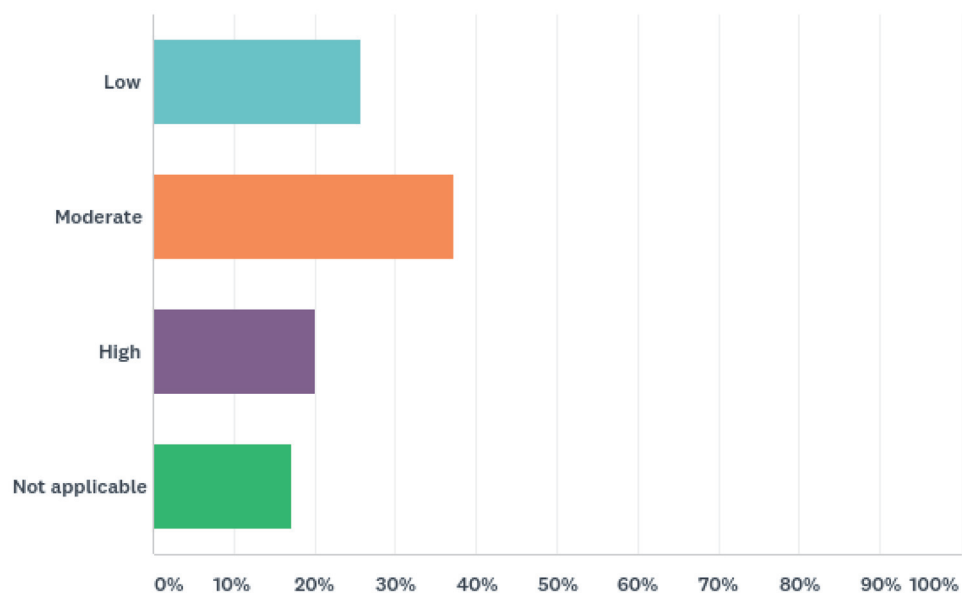
Additional points on existing Green Infrastructure guidance:

There are a wide range of systems available, and lots of information available from a variety of sources. However, with the high cost of land, and continued pressure on budgets for new development, perhaps the biggest challenge is understanding the costs and benefits of different systems, and in particular which system is the most effective in different circumstances. There is possibly a lack of a consistent approach with the inclusion of measures driven more by the requirements to achieve the necessary statutory approvals for a development rather than the opportunities a specific development site presents.

I consider there is adequate information including good practice examples from previous projects that have been built for social housing, also the budget has to be considered. Every project is a series of compromises, with many aspects of a social housing project being proscribed as essential requirements by other agencies, which all eat into the project budget.

SNH Social Housing & Green Infrastructure Research  
Analysis Q10

In general, how would you describe the level of demand from tenants for new/better Green Infrastructure?



SNH Social Housing & Green Infrastructure Research  
Comments Q10

In general, how would you describe the level of demand from tenants for new/better Green Infrastructure?

- *I think if/when proactively asked they value it, but I wouldn't say tenants are generally proactive in demanding it*
- *Tenants, like any group of people, have very varying attitudes. Some are very keen on the environment including their gardens, whilst others show no interest*
- *Most tenants are focused on getting an affordable and appropriate home and GI is often low on the list of their priorities*
- *Tenants are generally not aware of it and don't want added costs set against rents*
- *When we engage with Tenants we can see a real demand for better quality in all aspects of GI.*

SNH Social Housing & Green Infrastructure Research  
Analysis Q11

What barriers have you encountered when considering GI in your developments?

Top 5 responses:

1. Perceived cost
2. Size and location of site
3. Lack of awareness of what was possible
4. Required housing densities precluded GI
5. Design team did not include GI expertise

SNH Social Housing & Green Infrastructure Research  
Analysis Q11

What barriers have you encountered when considering GI in your developments?

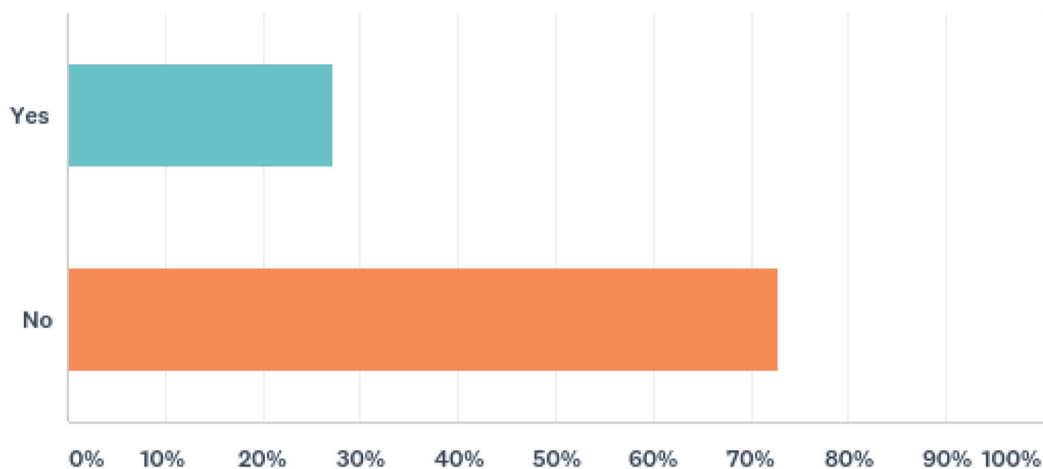
'Other' barriers:

- Tenants wanted it removed afterwards due to anti-social behaviour
- Issues raised about maintenance costs
- High pressure area with need for more affordable housing
- Concerns over safety in terms of inclusion of ponds and swales near primary schools
- Lack of awareness of funding routes
- No real barriers, the issue is whether housing providers see GI as part of their remit.

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SNH Social Housing & Green Infrastructure Research  
Analysis Q12

Do you consider any of your schemes demonstrate best practice in incorporating Green Infrastructure into a scheme to deliver a range of benefits?



SNH Social Housing & Green Infrastructure Research  
**Comments Q12**

Do you consider any of your schemes demonstrate best practise in incorporating Green Infrastructure into a scheme to deliver a range of benefits?

Milnbank HA has planning consent to dispose of green waste on land we own to assist a growing project, and has funding from the Climate Challenge Fund to grow food in the back courts of tenements for the benefit of local residents..

Whilst our projects are not exclusive to GI in social housing, once completed I am certain that they will demonstrate best practise in other areas of incorporating GI.

Halfway Community Park, Moss Heights Avenue, Glasgow – serves approximately 500 homes.

SNH Social Housing & Green Infrastructure Research  
**Conclusions from the survey**

Area	Remarks
Tenant engagement	<ul style="list-style-type: none"> <li>Engagement will increase demand for GI</li> <li>Also use to deal with safety concerns?</li> <li>How best to do tenant consultation for new build developments?</li> </ul>
Include GI throughout process	<ul style="list-style-type: none"> <li>Successful GI projects have GI included throughout the development process</li> </ul>
Removing barriers	<ul style="list-style-type: none"> <li>Raising of awareness of GI</li> <li>Provide accessible cost comparison information</li> <li>Increasing awareness of GI safety</li> <li>Are there ways to address maintenance cost concerns?</li> </ul>
Information	<ul style="list-style-type: none"> <li>Better access to GI information is required</li> <li>More 'how to' manuals rather than more basic GI information.</li> </ul>
Who is best placed to do GI?	<ul style="list-style-type: none"> <li>Development or wider role?</li> </ul>

## APPENDIX F – STAKEHOLDER WORKSHOP INPUTS/OUTPUTS

### Initial social housing delivery process used in workshops:



**Comments generated from Process Analysis Exercise:**

Stage of draft process	'Post it' Comments		
	Workshop 1	Workshop 2	Workshop 3
SHIP HNDA LHS	<ul style="list-style-type: none"> <li>* Site availability, other strategic considerations</li> <li>* HA feeds into SHIP,</li> <li>* Community empowerment act,</li> <li>* Stakeholder consultation</li> <li>* LA local plan &amp; associated strategy showing housing need</li> </ul>	<ul style="list-style-type: none"> <li>* Scottish planning policy</li> <li>* Local place plans</li> <li>* Local plan consultation vision</li> <li>* SHIP signed off by SG</li> <li>* HNDA signed off by?</li> <li>* LHA signed off by LA &amp; SG,</li> <li>* LDP</li> <li>* Community planning</li> </ul>	<ul style="list-style-type: none"> <li>* LDP &amp; SUP guidance eg open space requirement</li> <li>* Energy standards, sustainability standards (specifies amount of open space), waste standards, have implemented some</li> <li>* BRE standards</li> <li>* ENV7 (Glasgow), SG6 replacement green space different set from build, SEC 7 Building Standards / Regulations</li> <li>* Councillors</li> <li>* Not as strategic or co-ordinated as could be – more opportunistic</li> <li>* HNDA to LDP to LHS to SHIP</li> <li>* GI</li> <li>* Neighbourhood regeneration consolidation to set priorities wider</li> </ul>
Development strategy	<ul style="list-style-type: none"> <li>* HA Community reps &amp; board members, GI supporting infrastructure, tenant reps on boards</li> <li>* At this point needs focus on community GI</li> </ul>	<ul style="list-style-type: none"> <li>* Community input at key early stage</li> <li>* LDPs &amp; local place plans</li> <li>* Local development plans identify open green space and development opportunities</li> <li>* Community plans &amp; locality plans participated by budgets</li> <li>* Tenant influence RSL's development strategy</li> </ul>	<ul style="list-style-type: none"> <li>* Importance of SG more homes – is on agenda for funders?</li> <li>* Importance of engagement &amp; capacity building</li> <li>* Green network strategies</li> <li>* Surface water management plans</li> </ul>
Site availability	<ul style="list-style-type: none"> <li>* HA Development officer, Client representative, Community/ stakeholder engagement</li> </ul>	<ul style="list-style-type: none"> <li>* Client aspirations</li> <li>* Consider community growing opportunities</li> </ul>	<ul style="list-style-type: none"> <li>* Up-skilling Board to understand priorities and benefits of GI</li> </ul>



Feasibility	<ul style="list-style-type: none"> <li>* Health impact assessment, *</li> <li>Environmental/ community impact</li> </ul>	<ul style="list-style-type: none"> <li>* To be listened to *</li> <li>Assessment stage</li> </ul>	<ul style="list-style-type: none"> <li>* 'Will have to meet planning policy on open space requirements' - more detailed stuff not specified</li> <li>* Scale of consultation</li> <li>* Drainage capacity</li> <li>* Maintenance input some times</li> </ul>
Outline business case (inc. funding)	<ul style="list-style-type: none"> <li>* New garden etc.</li> <li>* Locality action plans,</li> <li>* Ecological studies?</li> <li>* Best placement of open spaces within design</li> <li>* Asset team have sign off</li> </ul>	<ul style="list-style-type: none"> <li>* Scottish Government</li> </ul>	<ul style="list-style-type: none"> <li>* Have to know GI requirement at this stage</li> <li>* Board approval – specifically on business case (rate of return), no real thought on GI as this is assumed to follow obligations</li> <li>* GI budget set</li> <li>* Local Housing Officers - Residents Associations influence</li> <li>* Re-provisioning</li> <li>* Funders agenda – both housing funds and GI funds</li> <li>* Who consult with – existing organisations</li> <li>* Retrofit - consultation at Master Plan</li> </ul>
Project brief for consultants	<ul style="list-style-type: none"> <li>* Landscape advice required</li> <li>* LA design team input</li> </ul>	<ul style="list-style-type: none"> <li>* 'What we can get away with'</li> <li>* Design guidance</li> <li>* Key stage for GI &amp; place making more widely</li> </ul>	<ul style="list-style-type: none"> <li>* Residents can't really input on detailed design</li> <li>* Design &amp; Build at which point risk vs. control</li> <li>* Reference to external spaces / GI in brief</li> <li>* Landscape Architect is requirement in the team</li> <li>* Retrofit – tenant consultation at brief</li> </ul>
Initial design	<ul style="list-style-type: none"> <li>* Initial costings</li> <li>* Include tenants, community consultation, tenant</li> </ul>	<ul style="list-style-type: none"> <li>* How to engage with future tenants</li> <li>* Pre-app consultation, web fly</li> </ul>	<ul style="list-style-type: none"> <li>* GI ideas (consultants, client team)</li> <li>* Pre-application</li> </ul>

	groups, tenants' scrutiny panel	through, consult local people * Community engagement and participation	discussions with local planning authority * From this stage through to maintenance – what is the budget / resource for maintenance, 'ad hoc approach' * Start including external spaces in design team agendas * Policy review GI requirement * Friends of Groups / community groups * Role for A&DS in training e.g. Boards / decision makers
Outline planning (external consultation)	* Planning consents > procure contractor	* Protection of existing GI	* Design & Build at which point risk vs. control?
Procurement of contractors	*Community benefits	* (Designers cost consultants) Design & Build	* Quite often an external space's design develops post approval via amendments * Importance to specify rights, issue with contribution D&B
Detailed design and cost plan	-	* Planning consents, Local place plans can be produced any time	* Maintenance input often
Planning consents	* Landscape secondary as a 'condition', Building control, roads, utilities approvals, post occupancy assessment	* Conditions, GI conversations too late? * Planning authority decision, SEPA plans, Scottish Water plans, Network Rail	* Housing grant detailed approval (Housing regeneration department, Consultants, HAs)
Construction	* Community communication	-	-
Completion	* Defects 1 year liability & maintenance prior to LA adoption?	* Idea: Community led design after construction or occupation of housing	* 'Friends of' group programming space
Occupation	* Tenant education and facilities	* Forum tenants	* No community present: challenges of feeding in * Trust Building, working with HAs as they often have very good relationship with contractors

			* Difference between what is needed and wanted
Asset management and maintenance	<ul style="list-style-type: none"> <li>* Want to minimise the public space as it costs,</li> <li>* Re-profiling GI through community representatives</li> <li>* Adoption of SUDs with Scottish Water and local authority</li> <li>* Revisions of open space</li> <li>* Ongoing support of use of open spaces with residents</li> <li>* Community action team</li> <li>* Emerging LOIPs &amp; place plans</li> <li>* Place making with LA open space teams.</li> </ul>	* Communication continued throughout process as this is a key stage.	<ul style="list-style-type: none"> <li>*GI maintenance 'negativity hubbub'</li> <li>* 'Design to be cheap to maintain'</li> <li>* Friends groups can influence maintenance</li> <li>* Change management regimes?</li> <li>* Residents really interested in factoring fees so opportunities for cheaper GI might get them interested</li> <li>* Removal and alterations over time based on local demands (demographic perspective &amp; priorities i.e. noisy kids).</li> </ul>

### Results of 'Barriers' Exercise – Summarised from Workshop 1-3:

Barrier	Remarks
<b>The size and location of affordable housing development sites</b>	<ul style="list-style-type: none"> <li>• Often small infill sites</li> <li>• Limited opportunity for GI</li> </ul>
<b>Housing densities</b>	<ul style="list-style-type: none"> <li>• Primary focus is on optimising housing density</li> </ul>
<b>Cost</b>	<ul style="list-style-type: none"> <li>• Perceived increase in construction costs</li> <li>• Burden of on-going maintenance costs of GI – who pays and can it increase tenants' rents?</li> <li>• GI often first casualty when costs being reduced</li> </ul>
<b>Developer awareness/perception</b>	<ul style="list-style-type: none"> <li>• Tendency towards grey infrastructure as it is 'normal' and perceived as cheaper/easier</li> <li>• Opportunities for multi-functional GI often missed e.g. SUDS fenced off rather than integrated</li> <li>• Belief from some stakeholders that RSLs and LAs don't understand GI</li> </ul>
<b>Public perception</b>	<ul style="list-style-type: none"> <li>• Limited interest in GI due to lack of awareness</li> <li>• SUDS perceived as H&amp;S risk</li> <li>• Belief that people are more interested in a driveway for their car?</li> </ul>
<b>Consultants/contractors capacity</b>	<ul style="list-style-type: none"> <li>• Time/inclination to consider GI together during the design stage.</li> </ul>
<b>Lack of awareness of GI</b>	<ul style="list-style-type: none"> <li>• GI means different things to different people</li> <li>• Sector not sure what is possible</li> <li>• Costs assumed to be higher than grey infrastructure</li> <li>• Benefits of GI not widely known?</li> <li>• Social value of GI?</li> <li>• Landscape architects are sometimes included at design stage but not later in process; consequently, GI can be removed from plans.</li> </ul>
<b>GI is not measured</b>	<ul style="list-style-type: none"> <li>• No GI on KPI suite for new developments</li> </ul>
<b>Several GI groups co-exist</b>	<ul style="list-style-type: none"> <li>• Confusing who does what</li> <li>• Who is main point of contact for GI in Scotland?</li> <li>• Different interested stakeholders have different reasons for supporting GI</li> </ul>
<b>GI guidance is not easy to find</b>	<ul style="list-style-type: none"> <li>• There is a lot of guidance available</li> <li>• Few cases studies on what others have done and with what success</li> <li>• Guidance needs to be more accessible and in plain language</li> <li>• GI is fast moving and some of the information is out of date.</li> </ul>
<b>Planning system</b>	<ul style="list-style-type: none"> <li>• Planning can be different in different local authority areas</li> </ul>

	<ul style="list-style-type: none"> <li>• LA Roads officers have an input into planning and will often specify the number of car parking spaces relative to the number units, to the detriment of planned GI.</li> <li>• Planners do not have the ability to pressure developers to include GI</li> <li>• Some belief that the planning process is too prescriptive and a more evolutionary process is required</li> <li>• Planners need more skills/training in GI and it would be beneficial if they were more confident in establishing design briefs for sites rather than reacting to applications</li> <li>• Disconnect between place-making and delivery of affordable housing through compromises to get the developments done.</li> </ul>
<b>Scottish Water</b>	<ul style="list-style-type: none"> <li>• SW is perceived by some to be a barrier although this may be starting to change; SG More Homes hold regular meetings with SW to discuss potential blockers to social housing developments.</li> <li>• Tension between SW and LAs over surface water</li> <li>• New Storm Water Management Strategy being developed which will include SUDS</li> </ul>
<b>GI is undervalued</b>	<ul style="list-style-type: none"> <li>• GI is competing against other things for public money; despite benefits and the potential for preventative spend.</li> </ul>
<b>Tenant consultation</b>	<ul style="list-style-type: none"> <li>• What is the best way to engage tenants in consultation about GI?</li> </ul>
<b>Cost/benefit information on GI is not widely available</b>	<ul style="list-style-type: none"> <li>• This makes it more difficult to justify GI ahead of grey infrastructure, the costs of which are well known.</li> </ul>
<b>Capacity in the sector to deliver SG's 50k target</b>	<ul style="list-style-type: none"> <li>• Land availability</li> <li>• Increasing density?</li> <li>• Quality of land that is available</li> <li>• Potential to retrofit GI to existing social housing</li> </ul>

## APPENDIX G – CASE STUDIES

The case studies provide examples highlighting community involvement, single GI, multi-functional GI, using GI for regeneration/placemaking, and the use of a multi-disciplinary planning team. There are examples from Scotland, England, Sweden and Germany.

**Case Study:**  
**Location:**  
**Organisation:**

Green Roof Project  
Assynt Road, Inverness  
Caledonia Housing Association



*(Image credit: Caledonia Housing Association)*

### Summary

Caledonia Housing Association incorporated green roofs (extensive) onto their new apartments and cottage flats to form part of the drainage and SUDS strategy in their development at Assynt Road in Inverness.

### The Challenges

These were new builds, so there was no input from the future tenants on their opinion of the green roofs, and if they approved of the choice of roof. Selecting the correct type of green roof i.e. extensive or intensive so as to improve rain-water management systems was also a challenge, taking considerable research to come to a final conclusion.

### The Approach

Building on the personal interest of a member of the development staff, Envirocentre was commissioned to undertake desktop research to support a feasibility study for green roofs and SUDS. An 'Extensive Green' green roof was chosen for the architect's final design.

### The Benefits

The use of green roofs provides many environmental benefits including storm water attenuation capacity. This enables rain-water management systems to be reduced in capacity, reducing other construction costs.

### What worked well?

Caledonia HA was able to save on construction costs by implementing Green Infrastructure. This was as a result of the green roofs reducing surface water run-off and reducing demand on traditional water management systems.

**Case Study:**  
**Location:**  
**Organisation:**

St. Eunan's Community Greenspace  
Clydebank, Glasgow  
West Dunbartonshire Council



*(Image credit: West Dunbartonshire Council)*

### Summary

In 2012, West Dunbartonshire Council demolished the St Eunan's primary school, situated in Clydebank. They planned to develop the site but discovered that it was severely contaminated. Instead, in 2018, the site will be transformed into a community green space with biodiversity areas, raised bed allotments, recreational areas for children, outdoor exercise equipment, and an outdoor education area.

### The Approach

The community space was planned with the community, for the community. A feasibility study was undertaken and presented to the local community, who had the chance to discuss their views and opinions about the site in June 2016 before the outline design was completed later that year. With the help of funding from SNH, the project was able to progress.

### The Challenges

The contaminated ground was an obvious issue that was solved by the community space. Initial engagement with the community reflected their concerns about the contamination rather than a desire for GI. WDC has tried to establish a 'friends of the park' group but this has not yet been successful.

### The Benefits

New pedestrian routes through the site will support active travel between the town centre and residential areas to the north of the site. Biodiversity areas in the design will improve local habitats for animals. The GI facility will also facilitate physical exercise, improving the health and wellbeing of the local community. The green space will also encourage community members to build better relationships with one another, using this as a meeting point.

### What worked well?

The community was consulted early in the process, and engaged well, contributing to the design of the GI, which was then based on residents' priorities. This level of engagement may have been partly due to concerns about the local contamination as, more recently, the level of engagement has fallen with insufficient support to establish a 'friends of the park' group'.

**Case Study:**  
**Location:**  
**Organisation:**

Community Garden  
Dalmuir, Clydebank  
Growing Beardmore



*(Image credit: Link Housing Association)*

### Summary

When Link Group was developing housing in the area, a group of their tenants in the sought out unused land, where established a community garden for surrounding residents.

### The Challenges

Once the group had secured a 15-year lease of an unused area of common ground at Beardmore Place from Link HA, they were able to apply for other funding. Whilst they were doing so, Link also provided £2000 in initial funding to allow residents to start gardening while they waited on funding progress.

### The Approach

Link Group agreed to a 15-year lease of the land to the tenant group for the use of a community garden. Growing Beardmore has recently won funding from Awards For All Scotland for their project to sustain this community development. Tenant volunteers run the garden with help from Link Group and West Dunbartonshire Council staff.

### The Benefits

Benefits include helping community wellbeing, building relationships with other tenants in the area, and growing their own fruit and vegetables. The group also shares its knowledge of the environment and horticulture with other members of the local community.

### What worked well?

Through collaboration and initial support, the residents have established their own GI facility that offers multiple benefits.



**Case Study:**  
**Location:**  
**Organisation:**

East Tullis Burn Improvement Project  
Torry, Aberdeen  
Aberdeen City Council



*(Image credit: Aberdeen City Council)*

### Summary

Aberdeen City Council initiated a project to improve the East Tullis Burn in Torry, as it had been neglected in the past, suffering from poor water quality and litter problems. Torry is classed as a priority area for the council, due to its heritage, but also due to its level of deprivation.

### The Challenges

The East Tullis Burn had significant water quality issues, with pollution coming from the industrial estate east of the burn. There was also poor access to the area, with some paths being flooded when the burn overflowed.

### The Approach

With the help of the local community, plans were drawn up that featured a new meandering course for the burn, a wetland pond area, plants and trees, and improved access around the area. The work has been completed with local school children doing the finishing touches by planting the remaining flowers on the site.

### The Benefits

The site has become significantly more attractive after its improvement, with significantly more locals and visitors using the site now compared to before. It has also become a wildlife haven, with many birds and insects using the wild meadows as a natural habitat. Furthermore, the quality of water in the burn has also improved.

### What worked well?

Aberdeen City Council included the community in its plans to improve local GI in their area. The inclusive approach has helped improve the GI asset with more people and wildlife visiting.

**Case Study:**  
**Location:**  
**Organisation:**

Leitch Street  
Greenock, Scotland  
Cloch Housing Association



*(Image credit: Cloch Housing Association)*

### Summary

A development of 87 homes for Cloch Housing Association on a brownfield site, which includes the use of sustainable urban drainage systems.

### The Approach

Cloch believed that the social, economic and environmental benefits of following and developing a sustainable housing brief would increase the quality of life of the tenants that would occupy the finished houses. The development received grant funding from Communities Scotland.

### The Challenges

Cloch Housing Association had not undertaken a development with a sustainable brief before and had to develop expertise as the project proceeded.

### The Benefits

- Flood risk lowered
- Surface water quality improvements to aesthetics, health and biodiversity
- House values in the area have risen
- Reduced flows of wastewater to treatment works.

### What worked well?

By developing a clear development brief that specified their GI requirements, Cloch Housing Association was able to secure several benefits including a decreased risk of flooding, reduced flows of waste water to treatment works, and an increase in local property values.

**Case Study:**  
**Location:**  
**Organisation:**

Haghill Shift Project  
Haghill, Glasgow  
Milnbank Housing Association



*(Image credit: Milnbank Housing Association)*

### Summary

Haghill is situated in the east end of Glasgow, north of the River Clyde. Milnbank Housing Association set up the Haghill Shift Project, which aims to shift people's habits away from cars towards more walking and bikes, and to shift eating habits towards homegrown food.

### The Approach

The Haghill Shift Project is run by Milnbank Housing Association to encourage people to use a bike for local trips instead of car travel: they provide 40 refurbished bikes with panniers at the Hub in Alexandra Park. The project also expands local food growing space and offers support and training to help people grow their own local food. It aims to have 60 families growing fruit and vegetables within their own back courts. Families are given demonstrations and help to get started. Tools, seedlings and advice have been provided as well as a picnic bench, a water butt and a compost bin for each 'close' in the pilot area. There is also a community poly-tunnel, and various events are held throughout the year such as cooking classes and lessons in preserving.

### The Challenges

The initial challenge was funding the project but a successful application to the Climate Change Fund secured a £139k grant.

### The Benefits

The project states that there will be many benefits for the local community including getting fit, making new friends and learning new skills, while doing something worthwhile to improve the local area. Also the therapeutic properties that come from gardening can help people to recover from the stresses and strains of everyday life, whilst also providing fresh home-grown fruit and vegetables.

### What worked well?

Milnbank Housing Association worked with their tenants to secure funding for a project that gave them access to GI and opportunities to learn about growing fruit and vegetables, as well as promoting active travel.

**Case Study:**  
**Location:**  
**Organisation:**

Greendykes Allotments  
Greendykes, Edinburgh  
Greendykes Organic Allotments Group  
(GOAG) City of Edinburgh Council



*(Image credit: Edinburgh & Lothians Greenspace Trust)*

### Summary

Residents of the neighbouring high-rise flats established a community group to tend these bountiful organic allotments. City of Edinburgh City supported this initiative, as it is their land and buildings in which the residents live.

### The Approach

Residents from Greendykes collaborated with Greendykes Concierge Office to develop an organic allotment site with 26 plots. A consultation with residents and their representative groups resulted in a committee being formed to pursue the project. Initial funding was secured from the Council's housing department and the local regeneration group 'PARC' allowed the site to be built in 2007.

### The Challenges

The main challenge was securing the initial funding and permission to use the space.

### The Benefits

Allotment gardening provides an all-year round healthy lifestyle that is active, socially inclusive and reflects the ideals of sustainability and wellbeing. Providing exercise, mental relaxation and lifelong learning, building community relationships, as well as harvesting fruit and vegetables. It has not only provided the benefits above, but also the protection and promotion of biodiversity in the area. The large grouping of allotments also save CEC money from the avoidance of having to manage the previous grassed area.

### What worked well?

Initial small-scale support has allowed residents to take charge of land adjacent to their homes and develop GI that has a positive material impact on the individuals and the community.

**Case Study:**  
**Location:**  
**Organisation:**

Polnoon  
Eaglesham  
Scottish Government & Mactaggart & Mickel



(Images credit: Scottish Government)

### Summary

Working with a 5.6 hectare site at the west end of Eaglesham village, SG took the lead by working in partnership with house builder Mactaggart & Mickel, on a residential streets project to champion good design in a development that included private and affordable housing. The aim was to take SG's design guidance and turn it into reality to build a *conservation area of tomorrow* by designing the streets as a place, not just a movement corridor, to create a safe and attractive streetscape.

### The Approach

A multi-disciplinary team was established that included SG, ERC, M&M, architects Proctor and Mathews, and landscape architects Horner+Maclennan as well as engineers, Waterman Boreham. The team worked together on master planning with early community consultation, and an emphasis on pre-application discussions to resolve issues before submitting a joint planning and road construction consent.

### The Challenges

This was an ambitious project that set out to prove that it was possible to produce better quality, more attractive and safe residential areas using a multi-disciplinary approach to design.

### The Benefits

The masterplanning approach led to increased movement and a higher housing density, whilst also including many GI benefits with public and private open space, new planting, and surface water management from SUDs.

### What worked well?

A multi-disciplinary approach, that included landscape architects early in the process, was fundamental to the success of this project. The approach enabled the development of a more attractive residential area with higher housing densities and a site that was better connected to GI.

**Case Study:**  
**Location:**  
**Organisation:**

Halfway Community Park  
Cardonald, Glasgow  
Southside Housing Association



*(Images credit: Southside Housing Association)*

### Summary

Southside Housing association partnered with the local community and Glasgow City Council to transform an underused, awkward to access and bland open space at the newly refurbished Moss Heights into a multi-functional community park.

### The Challenges

Funding was a real challenge for SHA but was overcome. Future maintenance of the park has also been a challenge with discussions focussing on who is responsible for it i.e. residents, council or housing association.

### The Approach

Southside Housing Association recently refurbished high-rise properties behind the area. The existing open space was a vast expanse of grass. Despite not having external funding in place, SHA engaged with tenants to understand their priorities for the space and undertook extensive door-to-door research with local residents. Landscape architects were involved early and developed an initial design that included tree planting, a play park, a MUGA, community growing, and wild meadows. When funding opportunities emerged, SHA was successful in securing Green Infrastructure Fund money with additional financial support coming from Glasgow City Council and other partners.

### The Benefits

Once complete, it will transform the natural environment from a dull, bland steep open space to a rich ecological diverse landscape with trees, hedges, meadows and community growing corners for fruit and vegetables. The local community has been supportive and a Friends of Halfway Community Park has been set up with voluntary office-bearers elected.

### What worked well?

Although not yet completed, this RSL project shows an exemplary tenant engagement to understand the priorities of residents. Long before funding was available, a landscape architect was engaged to develop initial ideas of what might be possible with the inclusion of a wide variety of GI.

**Case Study:**  
**Location:**  
**Organisation:**

Augustenborg  
Malmö, Sweden  
Green Surge: Urban Learning Lab



*(Images credit: SNH)*

### Summary

Malmö, located in the south of Sweden, has 300,000 inhabitants and is the third largest city in the country. The city's industries peaked in the 1970s and since then many businesses have downsized or closed down. With over 50% of its urban areas green space, Malmö is regarded as a front-runner in sustainable urban development.

### The Approach

As part of the Green Surge Project, an Urban Learning Lab (ULL) was developed in the city. Collaborative learning and knowledge production involving both researchers and practitioners is at the core of the project. The ULL has also engaged city officials, developers, maintenance staff, ecologists and non-governmental organisations with a special focus on how to promote and strengthen ecosystem services. Green Surge has developed a new Green and Blue infrastructure plan for the city.

### The Challenges

Bridging the GI gap between the wealthy and more disadvantaged parts of the city.

### The Benefits

Malmö's urban areas consist of over 50% green space. The city is regarded as a model of sustainable urban development and is credited with inspiring change in the rest of Sweden and Denmark.

It is now a politically recognised goal to bridge the GI wealth gap. Communities have seen residents employed as grounds keepers, increasing interest and maintenance of local green infrastructure. The Green Surge Project also offers employment with local people maintaining the GI.

### What worked well?

The Augustenborg district of Malmö is an excellent reference for the range of GI that can be included around social and private housing. It is part of the Green Surge Project that aims to promote and strengthen GI and ecosystems.

**Case Study:**  
**Location:**  
**Organisation:**

Vauban  
Freiburg, Germany  
Forum Vauban



*(Images credit: Vauban.de)*

### Summary

Vauban district is a new district (started in 1994) in Freiburg im Breisgau's southern border, developed in an area of a former French army barrack.

### The Challenges

During the initial development of Vauban, incentives were given to achieve a 50% rate of car ownership: the principle of a 'short walk' was used, a car club was set up and public transport was subsidised for non car owners.

### The Approach

The main goal of the project is to implement a city district in a co-operative, participatory way, which meets ecological, social, economical and cultural requirements. Housing is a mixture of private, social, student accommodation, and small groups of owners in shared buildings (Baugruppen). The Buergerbau AG (Citizens' Building Stock Corporation) coordinates community-building projects from initial development through the planning and building process until the houses are occupied. Most houses are either passive or plus energy (create more energy than they use through solar panels) and have community gardens developed by the residents.

### The Benefits

The co-operative planning approach helped to build the community. The original trees on the site were protected with buildings designed around them. Active travel is the norm. Vauban's streets are designed for people and not cars, and are largely car free; car owners have to walk to peripheral parking areas, for which they pay. Consequently, there is less noise and less pollution. GI is designed collaboratively by the community for the community. Surface water is managed through infiltration and grey water is returned to the water cycle; sewage is processed to create biogas for heating and cooking.

See [www.vauban.de](http://www.vauban.de) for further details.

### What worked well?

Collaborative community building and decision making is a key enabler to maximising GI in Vauban. Importantly, local government has had a key role in many of the initiatives and has taken brave decisions to support the district.



**Case Study:**  
**Location:**  
**Organisation:**

Wauchope Square  
Craigmillar, Edinburgh  
Page/Parc/ Castle Rock Edinvar



*(Image credit: Keith Hunter)*

### Summary

A development of social housing, roads and school that utilised SUDs to manage surface water and help create a safe and functional community.

### The Challenges

Some materials have not been as durable as intended. There have been steel rails edging the planted areas, which have not withstood impacts from vehicles (although young trees have been protected) and the street features that these form part of have sometimes been too low to sufficiently limit driver forward visibility.

### The Approach

For this large regeneration project, the client worked with the local authority to take forward planning and roads consent (RCC) at the same time. These discussions involved: the actual design of the streets; considering routes to school within a safe street environment for all users; and extensive negotiation to determine the extents of SUDs/surface water adoption.

### The Benefits

Run off is directed to permeable parts of the surface. Thereafter diffused flow forms the first level of water treatment. A sub base of graded clean stone then provides storage (contributing further to water attenuation) and filtering as a second level of treatment. Residual surface water discharges into the existing Scottish Water drainage system at the end of the masterplan area.

### What worked well?

Page/Parc worked well with the local authority to achieve planning and roads consent based on GI solutions. The SUDs were designed in a way that promoted safety and functionality to the residents of the area.

[www.nature.scot](http://www.nature.scot)

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