

# Derry & Strabane Natural Capital Account of Outdoor Recreation Greenspaces

March 2021



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and Rural Affairs**

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For further information contact:

Christine Doherty

[Christine.Doherty@derrystrabane.com](mailto:Christine.Doherty@derrystrabane.com)

Tel: 028 71 253 253



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## Ministerial Foreword

Forests, parks, riverside walks, beaches and mountain views. The diversity, quality and value of accessible green and blue space within Derry and Strabane District Council is clear to see on the ground and is reflected in this report. This is mirrored elsewhere in our landscapes.

I applaud the work of all those who manage these spaces for their visitors and for biodiversity – the staff on the ground, volunteers and those behind the scenes making it all possible.

This Natural Capital Account of the value of the publicly accessible green and blue spaces within the district will be a useful tool for planning for the future. It can help inform and improve decision making by recognising public green and blue spaces as economic assets.

Natural Capital Accounts highlight that there is a lot more value associated with green & blue spaces than meets the eye. They show how these spaces provide a wide range of vital services that impact on our quality of life such as purifying air and water; temperature regulation; carbon storage; and health & well-being benefits. Often these services have not been fully included in economic accounting.

This report is very relevant, at a time when the region's accessible green and blue spaces experienced a significant increase in usage during the Covid-19 pandemic. The importance of accessible natural places and spaces for everyone for refreshment, exercise, connection to nature, meeting people and exercise cannot be underestimated. Covid-19 highlighted the extent to which our natural world is fundamental to our society for our health & wellbeing.

This report will help link the importance of nature and access to nature, to the economy. Access to green and blue spaces improves the quality of people's lives, can help to meet health targets and reduce costs for the health service.

I hope the findings will improve awareness of the value of access to local green and blue spaces within the District and across the province, will help to promote its use and will also encourage informed decision making for future investment into the development of green space and outdoor recreation facilities.



**Edwin Poots MLA**

Minister of Agriculture, Environment and Rural Affairs

# Executive Summary

Greenspaces are valuable economic infrastructure, delivering benefits to individuals, to communities and to public services. Greenspaces offer opportunities for outdoor recreation, socialisation and physical activity. In addition, greenspaces can serve a wider social purpose, supporting social cohesion and forming part of community identity. They can also play a role in the local economy, hosting revenue generating services.

While there is increasing recognition that greenspaces are important for health and communities, their economic value is less often made explicit. Natural Capital Accounting (NCA) is an approach to help inform and improve decision-making by framing the environment as an economic asset. By quantifying the benefits of the natural environment, natural capital accounting can inform strategic policymaking and investment.

The natural capital assessment in this report shows that greenspaces in Derry and Strabane are significant economic assets, provide good value for money and are easily accessible to most urban residents. Key findings include:

- **The District has approximately 9,000 hectares of publicly-owned and accessible greenspaces, greenways and woodlands (the annex provides a list of public greenspace providers in the District);**
- **8.5 million visits were made to publicly-owned greenspaces in 2020, providing £141 million in value to residents annually; and**
- **Every £1 spent on investment and maintenance of greenspaces generates £21 of benefits, an increase from 2019<sup>1</sup>.**

**Nearly all urban residents live in close proximity to greenspaces in Derry and Strabane.** In urban areas, 99% of the population live within 1km of a greenspace, and more than 75% live within 300m. Access in Derry and Strabane is significantly higher than some other regions of the UK.

**The COVID-19 pandemic has demonstrated the importance and value of providing equitable access to outdoor recreation.** As restrictions on mobility and socialisation ease, there is an opportunity to promote social wellbeing and economic development through use of greenspaces. Greenspaces can be key to encourage people to safely exercise, and to interact with family members and neighbours, which has important benefits for the health and wellbeing of residents. These spaces can also enable economic activity by providing safe and accessible environments for commerce and connectivity.

**Simultaneously, the pandemic has created an opportunity to promote higher levels of physical activity in the long-term.** Visit estimates provided by the Council indicate that the pandemic has led to a 30% increase in visits to Council-managed spaces, due to limited opportunities for recreation and socialisation indoors. As restrictions ease, activity levels may revert to pre-pandemic levels. There is a time-limited opportunity to build on some of the current demand for greenspaces and improve health and wellbeing outcomes in the long-term. If current visit levels are maintained, greenspaces in Derry and Strabane will provide £1.7 billion in value over the next 12 years to 2032, over the lifetime of the Green Infrastructure Plan. In the coming months and years, investing in safe public greenspaces can support a healthy economic and social recovery.

<sup>1</sup> The 2019 NCA estimated a ratio of 1:15 in costs to benefits when considering all sources of funding for Council-managed spaces, and 1:22 when exclusively considering Council expenditure.



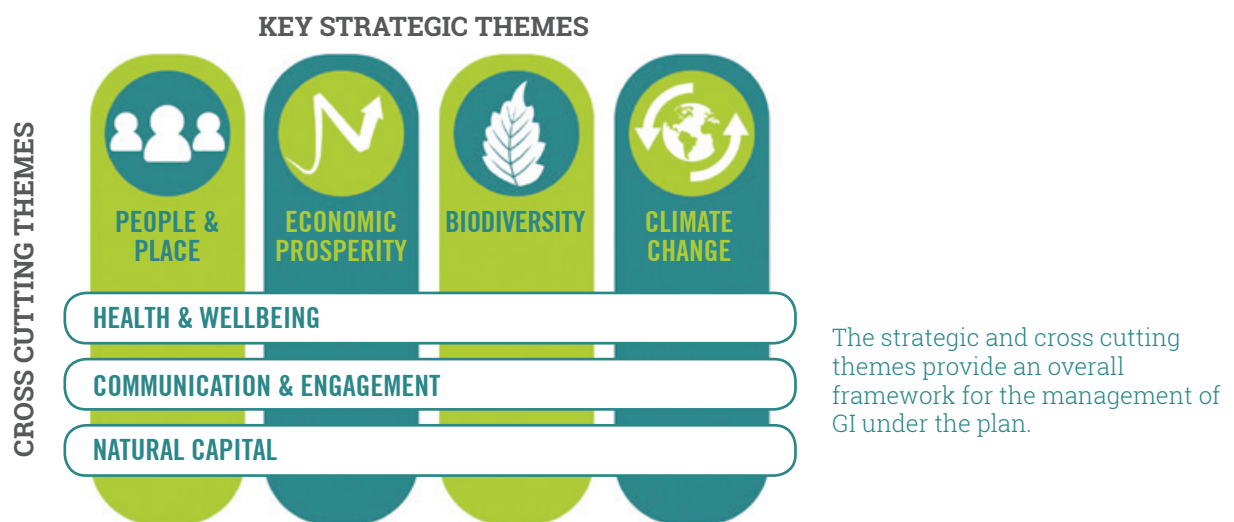
# Introduction and Background

This report informs the public service providers understanding of the benefits of publicly accessible green and blue recreational spaces with the Derry City and Strabane District Council area. The report was commissioned by Derry City & Strabane District Council (DCSDC) and funded by the Department of Agriculture, Environment and Rural Affairs (DAERA) Environmental Challenge Fund Competition 2020/21, to improve the mapping and data products of outdoor recreation facilities at a sub-regional level, and to underpin decision making and action.

DCSDC developed the first Green Infrastructure (GI) Plan 2019 - 2032 and associated GI Action Plan in Northern Ireland, with actions to assist with the delivery of actions under the Community Plan and the development of the Local Development Plan 2032. The GI Plan, co-designed by Community Planning Partners, aims to protect, improve and increase green spaces (vegetated areas) and blue spaces (waterways), to provide a multitude of environmental, recreational, economic, health and wellbeing benefits for the public (Derry and Strabane District Council, 2019).

This research was commissioned as an action from the GI Action Plan, to develop a Natural Capital Account (NCA) for the District, encompassing publicly owned and accessible green and blue spaces, and to determine the provision of public greenspace within the District. This research builds on the NCA developed for Council's 800 ha estate in 2019, updating the previous account to consider the increased use of these greenspaces during COVID-19, and their associated value.

Figure 1: **Derry City & Strabane District Council's GI Plan 2019 - 2032**  
**Key Strategic Themes & Cross Cutting Themes**



Source: Derry City & Strabane District Council, 2019

COVID-19 has created urgency for cities to enhance the benefits of greenspaces and to avoid public health concerns. Public spaces were initially seen as a risk to spreading COVID-19 in the absence of restrictions on usage, mobility and interactions. This was of particular concern for low-income neighbourhoods, where there is often less open space and a greater likelihood of overcrowding (Mears et al., 2019).

As evidence emerged on the safe use of outdoor spaces, demand for recreation in greenspaces has increased significantly, and greenspaces have played an invaluable role in supporting safe recreation and social interactions. In the coming months and years, investing in COVID-19-safe public greenspaces can support a healthy economic and social recovery.

# Introduction and Background

## Background on natural capital accounting

Natural Capital Accounting (NCA) is an approach to help inform and improve decision-making by framing the environment as an economic asset. Natural capital describes components of the natural environment (including greenspaces) that provide economic benefits for people (Figure 2). These benefits can include cleaner air and water, improved physical health, mental health and wellbeing, carbon storage, temperature regulation and flood risk regulation. By quantifying the benefits of the natural environment, natural capital accounting can achieve three key outcomes:

- Expand the set of assets considered valuable to an economy, elevating the environment, health and wellbeing on the policy agenda;
- Enable informed investments and better use of available public funding by assessing the monetary value of the environment; and,
- Help deliver local policy objectives, enabling targeted investments in health and wellbeing outcomes.

NCA is increasingly used to monitor the quality of the environment and inform policymaking. NCA has become a more widely used tool because it is systematic and adopts familiar financial reporting principles. For example, a key tenet of the 25 Year Environment Plan for England is taking a natural capital approach to decision-making related to the environment (Department for Environment Food and Rural Affairs, 2018). Urban natural capital accounts are now being published at a national level by the Office for National Statistics (ONS, 2019). Cities and local authorities are beginning to employ natural capital accounting tools to better inform public investments and to advance urban development agendas.

Figure 2: **The steps involved in creating a NCA, which maps key ecosystem services to green and blue space assets managed by public & accessible greenspace owners.**

Steps in Natural Capital Accounting	Assessment	Information & tools required
Step 1: Extent and condition of natural assets	How much of the asset is there? What is the condition of the asset?	Location and extent of greenspaces, tree cover and vegetation
Step 2: Services provided in physical units	What service does the asset provide?	Census data, usage data, population health
Step 3: Value of ecosystem services	How much do people value these services?	Local census data, healthcare costs, tourism values

This report presents an economic assessment of the services that publicly accessible greenspaces in the Council area provide to residents and highlights the resultant health and wellbeing outcomes. The NCA assigns a monetary value to key services provided by greenspaces. This makes it easier to compare benefits with ongoing spending, investment and with spending on other public services. Without such an account, the benefits and value for money are seldom explicit. The recommendations were developed in consultation with Council and the GI stakeholders, to inspire new ways of working across public services, to deliver shared outcomes and assist with informed decision making.

# Introduction and Background

## Findings from the 2019 natural capital assessment

This research builds on the initial NCA developed for the Council's 800 ha estate in 2019, updating the previous account to consider the increased use of these spaces during the COVID 19 pandemic and expanding the NCA to include all publicly owned and accessible green and blue spaces in the District. The 2019 NCA found that DCSDC owned greenspaces attract an estimated 5 million visits and £75 million in benefits per year. Health benefits account for the majority of the value, with mental wellbeing benefits equivalent to £49 million per year and an additional £26 million in physical health value. Council-managed greenspaces also provide an estimated £2 million per year in amenity value reflected in increases in the value of local properties and £66,000 of carbon sequestration from trees. St. Columb's Park and Brooke Park in Derry attract the most visitors and provide the greatest value, a combined £8.6 million annually (Vivid Economics et al., 2019).

Expenditure on the maintenance of greenspaces represents good value for money. For every £1 spent by the Council on maintenance and investment of Council-managed spaces, those spaces provide residents with £22 of benefits. When considering all expenditure on Council-managed spaces, including that of external funders, the return is £15 of benefits for every £1 spent. Investment which improves the quality and amenities in greenspaces could increase value by attracting more visits and encouraging physical activity. Research by Vivid Economics has found that play areas, sports pitches, cafes, toilets and easy access points increase the likelihood that residents will visit greenspaces. The NCA estimated that investments which increase visits to greenspaces from 5 to 7.5 million per year could raise the annual value of existing spaces to more than £110 million per year ((Vivid Economics et al., 2019).

While Council-managed spaces offer significant economic value, the assessment found that the benefits are unevenly distributed. The Derry City area has a higher concentration of parks and population, with 59% of the population within 200m of a Council owned greenspace, compared to 48% of residents in Strabane. As a result, Derry's greenspaces attract more visits. There are disparities in access to parks between rural and urban dwellers. Less than 100,000 annual visits are made to Council-managed greenspaces in rural areas compared to 3.5 million annual visits to Derry's urban greenspaces and 400,000 annual visits to Strabane's urban greenspaces, although this roughly correlates with the population distribution in the District. In some areas, rural residents may have access to other outdoor recreation provision and natural environments (Vivid Economics et al., 2019).

The 2019 assessment exclusively considered Council-managed greenspaces, creating impetus for a comprehensive account spanning all publicly-accessible spaces. This research was commissioned to provide a comprehensive assessment of all public and accessible greenspace provision within the District. The rest of the report is structured as follows:

**Section 1** provides an overview of the benefits of publicly-accessible greenspaces

**Section 2** highlights the findings from the natural capital assessment and build an investment case

**Section 3** describes the importance of equitable access to greenspaces in the context of COVID-19 and analyses the accessibility of greenspaces in the District

**Section 4** concludes and provides recommendations

**A methodology annex** is provided at the end of the report



# The benefits of public greenspaces to Northern Ireland

Greenspaces are valuable economic infrastructure, delivering benefits to individuals, to communities and to public services. Greenspaces offer opportunities for outdoor recreation, socialisation and physical activity. In addition, greenspaces can serve a wider social purpose, supporting social cohesion and forming part of community identity. They can also play a role in the local economy, hosting revenue generating services.

The COVID-19 pandemic has highlighted the importance of publicly-accessible greenspaces for health. For most UK residents, outdoor recreation became the only option for exercise during lockdown periods. Studies found that during the first lockdown in April 2020, UK park visits increased by 150% compared to 2019 (Dehui et al., 2021) In Northern Ireland (NI) several business, community and environmental groups urged the government to consider the importance of green spaces for cycling and walking in NI's coronavirus recovery plan (Macauley, 2020).

The benefits of public spaces can be disaggregated into three categories: health and social benefits, environmental benefits and economic benefits.

## Health, wellbeing and social cohesion benefits

Making regular visits to greenspaces has been shown to improve mental wellbeing, physical health and overall life satisfaction. Parks offer opportunities for exercise, which can have a positive impact on physical health and reduce the risks of diseases associated with inactivity, such as ischaemic heart disease and stroke (Kyu et al., 2016). Furthermore, research has shown that spending more time in greenspaces has a positive impact on mental wellbeing and life satisfaction, particularly for urban dwellers (White et al., 2019).

Improved health can increase productivity, benefitting both workers and firms. The reduced disease burden can benefit the public sector by reducing pressures on public health services. While greenspaces cannot replace health care services, research by Natural England suggests that using greenspaces as part of mental health treatment programmes can deliver significant value for money, up to £2 billion in savings for the NHS (Department for Environment Food and Rural Affairs, 2020).

Greenspaces play an important role in fostering social cohesion within communities. For many urban residents, greenspaces symbolise belonging to a community and may have important historical value (Bryan, 2015). In addition, urban green spaces have been found to promote positive social interactions through physical or other types of activities that cultivate social engagement (Jennings and Bamkole, 2019).



# The benefits of public greenspaces to Northern Ireland

## Environmental benefits

Greenspaces incorporate natural drainage, protecting physical infrastructure. Cities can be more prone to surface water flooding without vegetation and soils that can absorb and store water. Green infrastructure facilitates flood management through soil infiltration, by intercepting rainfall and by reducing peak flows (Chin, 2009). As climate change is likely to result in increased rainfall, storms and rising sea levels, urban floods are expected to intensify. Approximately 45,000 or 5% of properties in NI are located in the areas at higher risk of fluvial or coastal flooding (Department for Infrastructure, 2019). Some cities in the region have already recognised the importance of addressing these risks, and the potential benefits of green infrastructure. For example, Belfast has invested in creating green continuous networks and corridors for flood management (Belfast City Council, 2017).

Greenspaces help manage greenhouse gas (GHG) emissions and pollution in cities. Trees and vegetation in greenspaces sequester GHGs and trap air pollutants that are harmful to human health. In addition, greenspaces can support reduced GHG emissions by facilitating increased pedestrianisation and reductions in vehicle use. In NI, the highest emitting industries are agriculture, transport and energy supply (Northern Ireland Statistics and Research Agency, 2020). Targeting these challenges in parallel to creating more pedestrian-friendly and vegetated cities can help manage air pollution levels and improve health outcomes.

Greenspaces can reduce the urban heat island effect and climate risks. Cities tend to have warmer temperatures compared to rural areas due to the concentration of infrastructure. This phenomenon is referred to as the 'urban heat island effect' (UHI). Increased temperatures resulting from UHI can lead to increased stress, reduced productivity and mortality. These negative effects can be reduced by cooling effects of water bodies through evapotranspiration, and through vegetation. These benefits are likely to be more limited in NI communities where cities are relatively small and the climate is temperate.





# The benefits of public greenspaces to Northern Ireland

## Economic opportunities

Well-maintained greenspaces with amenities can attract resident and tourist visits. In 2019, greenspaces including country parks, parks and forests attracted 39% tourist visits in NI (Northern Ireland Statistics and Research Agency, 2019). Tourism supports local economies by creating additional employment as well as creating opportunities for investment, development, and infrastructure spending. Tourism also supports local government revenues.

High quality greenspaces can improve local property values and attract businesses. Properties located in close proximity to greenspaces are typically higher value, reflecting people's preferences for accessing amenities.

This benefits individual property owners and can increase government tax receipts (Smolka, 2013). In the UK, studies have found that properties located within 200 metres of greenspaces tend to be on average more expensive, with a difference of £2,500 compared to if they were located 500 metres away (Office for National Statistics, 2018). Greenspaces can provide infrastructure for commercial activities and events. Greenspaces can host Sunday markets, music and sport festivals, bringing additional revenue to communities. These spaces can also provide temporary facilities for small and medium sized enterprises that may lack the capital to use private spaces.

Greenspaces can catalyse economic activity by facilitating links between businesses and the public. Quality greenspaces with amenities attract more visitors and can encourage longer duration visits if they contain public toilets. When these spaces are located in close proximity to commercial zones, this can support retail businesses. Quality spaces may help stimulate economic activity during and post-COVID.





## Key findings



There are 9,000 hectares of publicly owned accessible green spaces across the Derry City & Strabane District Council area.



Publicly accessible greenspaces in Derry and Strabane will provide £1.7 Billion in value to the residents between 2021 to 2032, over the lifetime of the GI plan, if current visit levels are maintained.



An estimated 8.5 million visits were made to the 400 publicly owned accessible green spaces each year.



99% of urban residents in Derry & 97% in Strabane live within 1km of publicly owned accessible green space.



These green spaces supply £141 million in benefits to residents each year.



COVID-19 has demonstrated the importance of providing equitable access to greenspaces in Derry and Strabane for health and well-being.



Mental wellbeing accounts for more than half of the value provided by the green spaces. This equates to £89 million per annum.



Greenspaces provide a range of additional benefits which are not monetised.



Publicly accessible green spaces in the District provide £48 million in physical health value each year, primarily driven by high activity adult visitors based on typical participation rates.



Council owned greenspaces experienced a 30% increase in visits in 2020, compared to 2019, due to COVID-19.



For every £1 spent on publicly accessible greenspace maintenance and investment it provides £21 of benefits per year.



Public owned & accessible greenspace woodland store 30,000 tonnes of carbon a year.



Green spaces offer significant value for money, generating £1000 in benefits per adult in the Council area per annum.

# The investment case for green and blue spaces

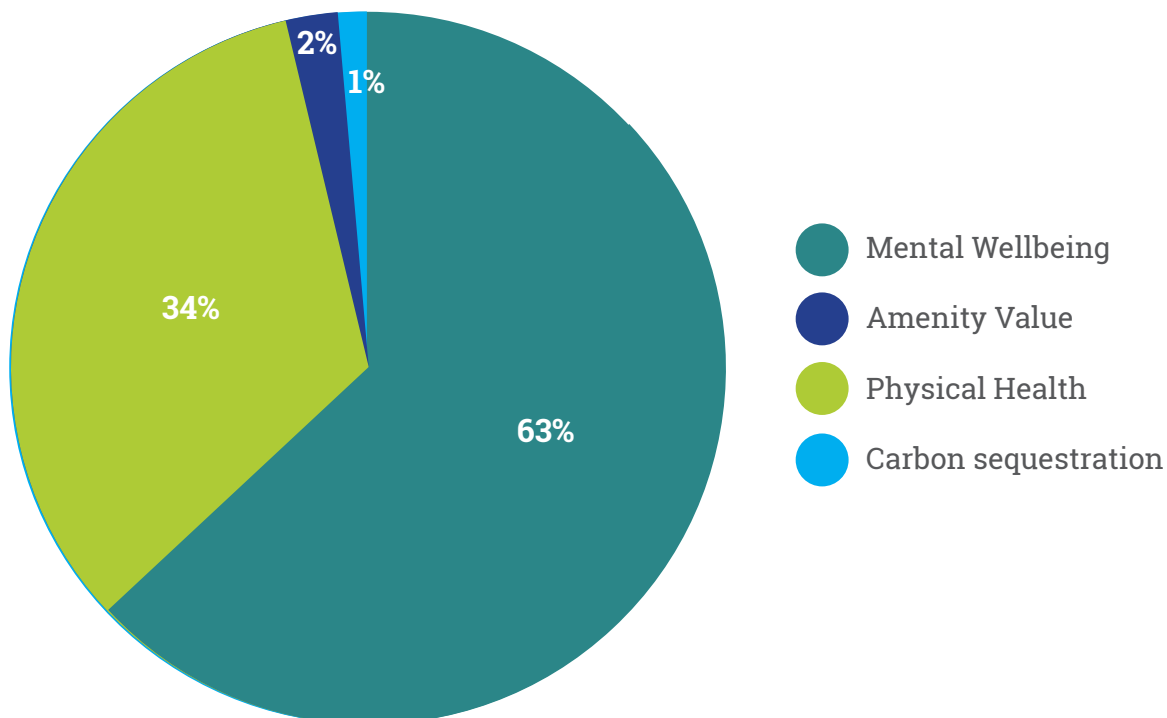
## Economic opportunities

The 2020 NCA shows that greenspaces in the District are significant economic assets, provide good value for money and are easily accessible to most urban residents. Key findings include:

- The District has approximately 9,000 ha of publicly owned and accessible greenspaces, greenways and woodlands (the annex provides a list of public greenspace providers in the District)
- 8.5 million visits were made to publicly-owned greenspaces in 2020, providing £141 million in value to residents
- Council-managed spaces saw a 30% increase in visits in 2020 compared to 2019 due to COVID-19
- If visit levels from 2020 are maintained, greenspaces will provide £1.7 billion in net benefits from 2021-2032, the lifetime of the GI Plan.

Nearly 400 publicly accessible greenspaces in Derry and Strabane supplied £141 million in benefits in 2020. Figure 3 shows the majority of benefits are attributed to visitor mental wellbeing and to physical health improvements of the 8.5 million visits<sup>2</sup>, equivalent to £89 million and £48 million per year respectively. 37,000 households are within 200m of a recreational greenspace, increasing local property values by more than £2 million. Trees in greenspaces sequester nearly 30,000 tonnes of CO<sub>2</sub>eq per year, worth £2 million.

Figure 3: **The % natural capital benefits of public & accessible greenspaces.**



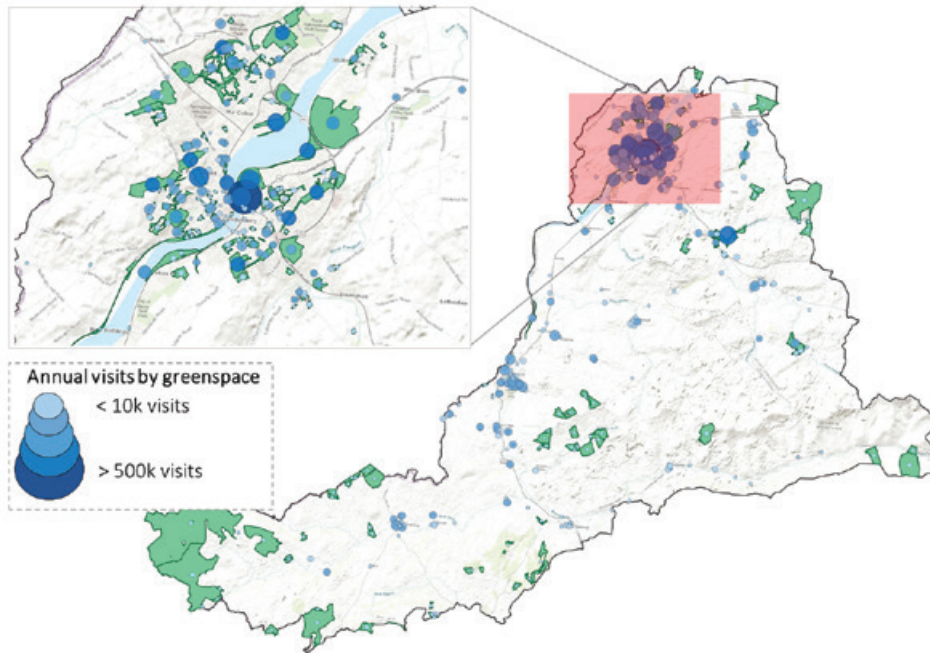
Note: The methodology annex provides details of the data and assumptions used to conduct the analysis.

Source: Vivid Economics

<sup>2</sup>Based on estimates of annual visits provided by greenspace management agencies.

# The investment case for green and blue spaces

Figure 4: **The estimated annual visits to public & accessible greenspaces.**

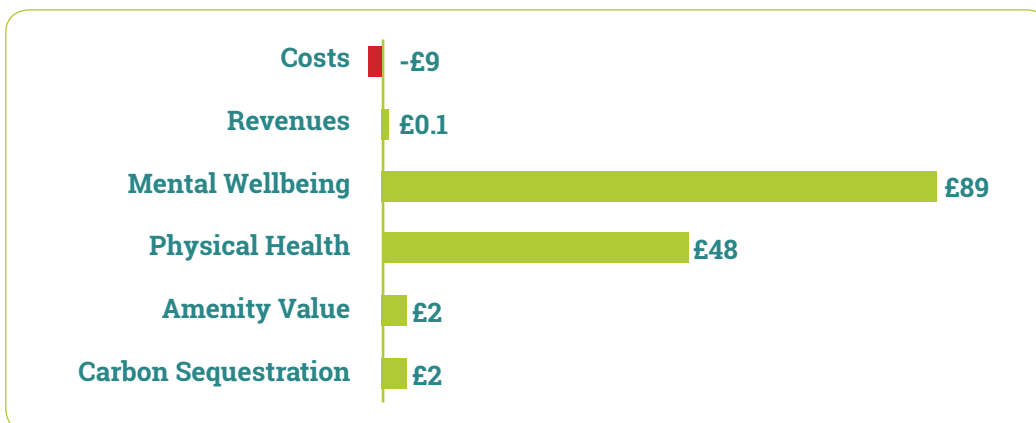


Source: Vivid Economics

For every £1 spent on greenspace maintenance and investment generates £21 of benefits per year (Figure 5). Greenspaces in Derry and Strabane are funded and managed by a variety of agencies (see the appendix for a full list). Across these greenspace spaces, agencies spend £8.5m per year on regular operating and capital expenses. Relative to the benefits and revenues provided by these spaces, these investments offer significant value for money, generating approximately £1,000 in benefits / adult resident / year.

The Council has spent an additional £10,000 in 2020 to make Council-managed greenspaces more COVID-safe and encourage social distancing through traditional signage, street art, banners and other outdoor media. The Cleansing Team has also incurred additional costs over the past year for staff, sanitary items and other cleaning supplies. This additional expenditure may have contributed to the additional greenspace visits in 2020, by creating safe environments for recreation and socialisation.

Figure 5: **Comparisons between costs and benefits of public & accessible recreational assets**



Note: The cost benefit ratio is 1:16 when only considering the total costs incurred by all the public accessible greenspace owners and funders. Source: Vivid Economics



# The investment case for green and blue spaces



Table 1: **The range of additional benefits that greenspaces provide that are not monetised**

ECOSYSTEM SERVICE	BENEFITS	IMPACT IN DERRY/STRABANE
<b>Temperature regulation</b>	Greenspaces can help cool urban environments. This mitigates labour productivity losses from heat and reduces the need for air conditioning.	Greenspaces and tree cover have an annual cooling effect in urban areas of Derry and Strabane, though the effect size is small due to low urban density and temperate climate.
<b>Air pollution removal</b>	Greenspaces provides physical health benefits by removing harmful pollutants from the air. These benefits translate into economic gains due to decreased medical expenditures for the NHS and supports individual wellbeing.	The ONS estimates that all vegetation in Derry & Strabane District, including greenspaces, generates £7.50 in annual benefits per resident. This is equivalent to £1.1m in avoided health damages per year (Office for National Statistics 2018).
<b>Ecological quality</b>	Greenspaces contribute to the preservation of biodiversity and habitats for urban species.	Derry and Strabane have a wealth of plants, animals and natural landscapes. The GI Plan stresses the importance of biodiversity & ecosystem services to the economy, environment, health & wellbeing.

Source: Vivid Economics

The restrictions imposed in response to the COVID-19 pandemic have increased greenspace visits and value in Council-managed greenspaces (Table 2)<sup>3</sup>. Council-managed greenspaces experienced a 30% increase in visits, with an additional 1.4 million visits made in 2020 than in 2019. The estimated uptick in visits increased the estimated value of these spaces from £76m per year to £98m.

Table 2: **Visits associated with Council-managed spaces in 2019 & 2020.**

	2019	2020	VALUE INCREASE
<b>VISITS (m)</b>	<b>5.1</b>	<b>6.5</b>	<b>1.4</b>
<b>MENTAL WELLBEING (£m)</b>	<b>49</b>	<b>63</b>	<b>14</b>
<b>PHYSICAL HEALTH (£m)</b>	<b>26</b>	<b>34</b>	<b>8</b>
<b>TOTAL VALUE OF BENEFITS (£m)</b>	<b>76</b>	<b>98</b>	<b>22</b>
<b>BENEFITS PER £1 SPEND (£)</b>	<b>22</b>	<b>28</b>	<b>6</b>

Note: Values are rounded, therefore totals may not sum. The cost benefit ratio reflects all expenditure on Council-managed spaces, including by outside funders.

Source: Vivid Economics

<sup>3</sup>Based on Council-provided estimates of annual visits to Council-managed greenspaces in 2019 and 2020.

## The investment case for green and blue spaces

### Highly visited greenspaces in the District

**Culmore Country Park** experienced one of the greatest increases in visits in 2020 due to COVID, an estimated 300%. Culmore Country Park is one of the largest greenspaces in Derry and offers ample space for socially distanced recreation, providing good access in a rural area and its cross-border location with the Republic of Ireland, provides outdoor recreation provision for the wider North West region. Culmore Country Park was transformed from a former landfill site in 2016, to a 40 ha greenspace for people & wildlife. This greenspace will be connected with the wider North West Greenway Network, connecting the District with the Republic of Ireland over the next few years. Other highly visited spaces in 2020 include:

**Ebrington Square & Greenway:** more than **600,000** visits were made

**Ness & Ervey Woods Nature Reserves:** **150,000** visits were made

**Fern Park:** **75,000** visits were made

**Bay Road Park & Nature Reserve:** **300,000** visits were made, **up 50%** compared to 2019





## Discussion: Accessibility of greenspaces

Proximity is a key determinant of access to greenspaces and visit frequency. Analysis from the UK showed travel time to greenspaces determined the frequency of use by residents (Dallimer et al., 2014). In other regions, studies have found that proximity to green spaces also influences mode of travel, activity levels and overall health outcomes (Kaczynski et al., 2014; WHO, 2016).

Access is typically measured in terms of walking time from home. Various countries have adopted linear distance targets as a baseline, ranging from 300 metres to 1,000 metres (van den Bosch et al., 2016; Wustemann and Kalisch, 2016). For example, Natural England established an Accessible Natural Greenspace Standard, which categorises the types of spaces by their size and radius proximity from home, ranging from 2ha to 500ha (Natural England, 2010). This report examines the population within 200m, 300m, 400m, and 1km from publicly managed and accessible greenspaces, for comparison to the 2019 NCA, for standardisation with the Accessible Natural Greenspace Standard (300m), and to identify areas of low accessibility in urban regions.

COVID-19 has underscored the importance of easily accessible neighbourhood greenspace. As lockdowns and mobility restrictions have limited the use of public transport, in many communities, neighbourhood greenspaces are the only

opportunity for safe socialisation, recreation and exercise. In the UK, the sharp disparities of access to greenspaces and the associated health benefits have been highlighted. Survey data in the UK reveals that lower income populations and ethnic minorities live further from greenspaces and gardens (Barkham, 2020). These same groups are disproportionately likely to face economic, social and health impacts of COVID-19, exacerbating inequalities.

Figure 6 & Table 3 highlight that the majority of urban residents live in close proximity to greenspaces in Derry and Strabane. In urban areas, 99% of residents in Derry and 97% in Strabane are located within 1km from a publicly accessible greenspace. In the region as a whole, 63% of residential dwellings in the District meet the Accessible Natural Greenspace Standard (ANGSt). The ANGSt threshold represents easily accessible greenspace and is measured as five minutes walking distance or approximately 300m.

In urban areas, more than three-quarters of the population meet the ANGSt, while accessibility is lower in rural areas (Table 3). However, it is difficult to provide greenspace within a 300m radius for more sparsely populated rural settings and often inefficient to do so, since rural residents often have good access to private gardens or other opportunities for outdoor recreation.

Table 3: **The percentage of households within a radial distance of greenspaces**

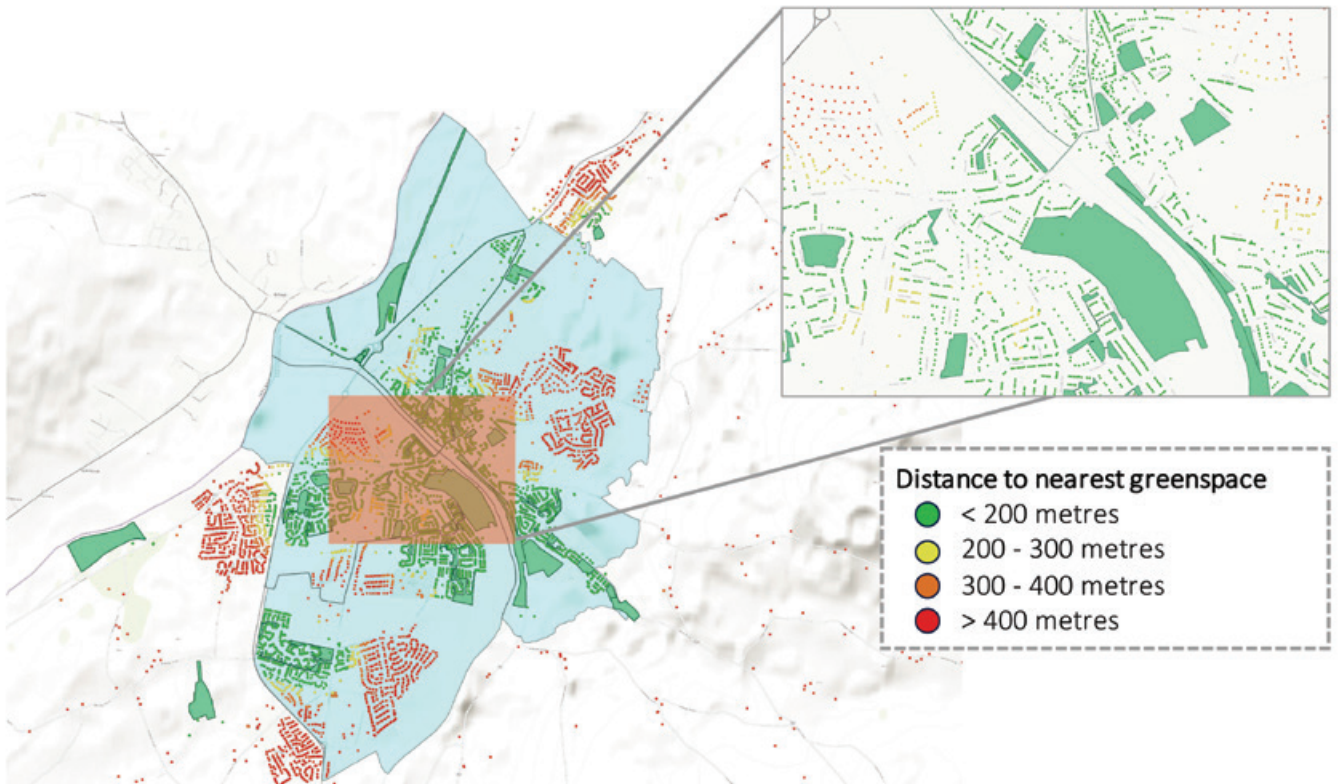
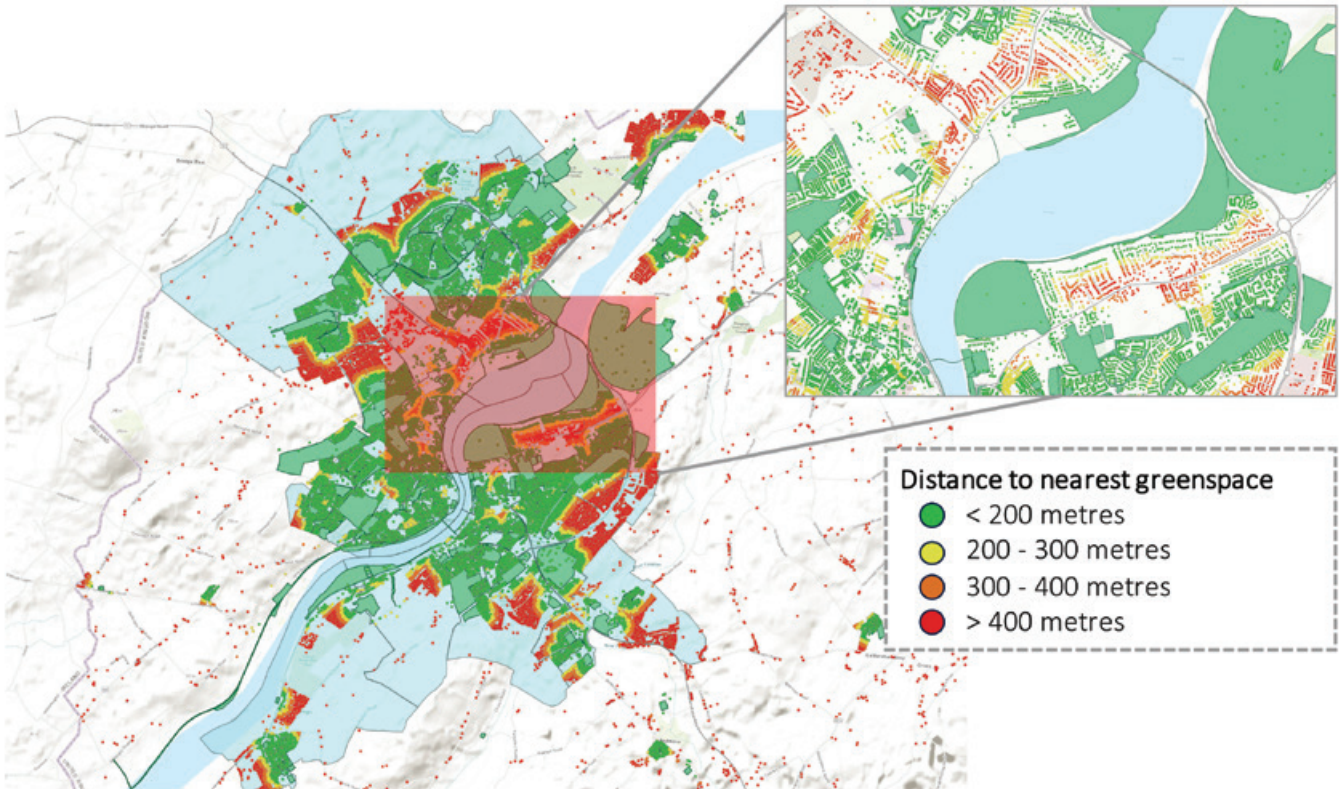
REGION	200m	300m	400m	1km
DERRY (URBAN)	65%	78%	86%	99%
STRABANE (URBAN)	70%	77%	81%	97%
RURAL	29%	37%	43%	68%
ALL	53%	63%	70%	71%

Source: Vivid Economics



## Discussion: Accessibility of greenspaces

Figure 6: Maps of Derry and Strabane showing the distance of residential properties from publicly accessible greenspaces.



Note: Distance is measured radially

Source: Vivid Economics

## Conclusion and recommendations

The updated 2020 NCA demonstrates that greenspaces in the District are significant economic assets. Across the nearly 400 publicly accessible greenspaces, 8.5 million visits were made in 2020, generating more than £140 million in health, amenity and carbon sequestration value. These spaces are maintained at relatively low cost to public sector bodies and sports clubs, generating returns of £21 for every £1 spent on investment, operations and maintenance.

COVID-19 has demonstrated the importance of providing equitable access to greenspaces in Derry and Strabane for people's health and wellbeing. As restrictions on mobility and socialisation ease, there is an opportunity to promote social wellbeing and economic development through use of greenspaces. Greenspaces can be key to encourage people to safely exercise, and to interact with family members and neighbours, which has important benefits for the health and wellbeing of residents. These spaces can also enable economic activity by providing safe and accessible environments for commerce and connectivity.

The pandemic has created an opportunity to promote higher levels of physical activity in the long-term. Visit estimates provided by the Council indicate that the pandemic has led to a 30% increase in visit levels across Council-managed spaces, due to limited opportunities for recreation and socialisation indoors. As restrictions on other forms of recreation ease, activity levels may revert to pre-pandemic levels without co-investment in facilities and amenities to encourage continued greenspace use and exercise.



There is a time-limited opportunity to build on some of the current demand for greenspaces and improve health and wellbeing outcomes in the long-term. If current visit levels are maintained, greenspaces in Derry and Strabane will provide £1.7 billion in value between 2021 and 2032, over the lifetime of the GI plan.

As recommended in the 2019 NCA, there are investment opportunities to improve public health and wellbeing by encouraging longer and more active use of spaces. Both assessments demonstrate that greenspaces offer an affordable option for improving health and wellbeing.

**There are multiple ways to target health outcomes in existing greenspaces, by encouraging longer duration and higher activity visits.**

Research has shown that residents who spend at least 120 minutes per week in greenspaces that the highest mental wellbeing benefits, valued at £2,900 per person per year (White et al., 2019).

Residents who achieve NHS recommended activity levels in greenspaces have a reduced risk of mortality and improved quality of life outcomes. Investment in amenities such as public toilets, play areas and sports facilities can increase the probability that residents will choose to visit a greenspace, spend longer in a greenspace, and undertake more physical activity, thus improving public health outcomes.

The pandemic has helped Council to make significant progress on the recommendations of the 2019 NCA report within the short term, by increasing visitor numbers to its sites from 5 million in 2019 to 6.5 million in 2020. The key is to sustain these levels in the medium to long term, to provide long term benefits for human and environmental health.

The Natural capital account for the public greenspace in DCSDC area draws on methodologies developed for the Greenkeeper tool. Greenkeeper is an online tool designed to support planning and investment decisions around Green Infrastructure in cities across the UK. The methodologies underlying the tool were used to develop the 2019 and 2020 NCAs for DCSDC area.

Greenkeeper uses data on visit patterns, greenspaces characteristics, and evidence on the social, economic and environmental benefits of Green Infrastructure. Using the economic analysis and valuation skills of Vivid Economics, the health and wellbeing expertise of the European Centre for Environment and Human Health and the understanding of the planning and design process brought by Barton Willmore, Greenkeeper uses newly available datasets, technologies and insights to assess current performance and opportunities for any urban greenspace in the UK.

The data for the 2020 NCA was provided by DCSDC, ONS, Forestry Commission, and MENE Survey including Vivid Economics Analysis. Data on visits to publicly-owned and accessible spaces have been provided by:

- **Derry City & Strabane District Council owned & managed sites;**
- **Department of Agriculture, Environment & Rural Affairs (Forest Service, Inland Fisheries & NIEA)**
- **Department for Communities (NIHE & North West Development Office)**
- **Department for Infrastructure (Roads Service)**
- **Loughs Agency**
- **Office of First & Deputy First Minister**
- **Ulster University**
- **Western Health & Social Care Trust**
- **Woodland Trust**
- **Rugby, cricket, football & gaelic pitches**

The value of greenspace assets is estimated in terms of physical health, mental wellbeing, amenity value methodology, and carbon sequestration.

The value of mental wellbeing is based on improvements in life satisfaction reported by adult park visitors.

### Individuals who spend more time in greenspaces report higher levels of life satisfaction than those who spend less time in greenspaces.

The value of life satisfaction from greenspace visits is calculated by quantifying the amount of money that would lead to an equivalent increase in life satisfaction. The total value per greenspace is a product of the number of visits per year, the share of visits made by low and high duration visitors, and the value per visit by visitor type.

Physical health benefits are calculated separately for low and high activity adult visitors. Low activity visitors undertake some exercise in greenspaces but do not meet NHS recommendations. High activity visitors meet NHS physical activity recommendations. The health benefits for low activity visitors are calculated by measuring the reduction in risk of all-cause mortality from their exercise in green space. The risk reduction is expressed in the quantity of fatalities prevented, then given a monetary value using the Department for Transport (DfT) value of a prevented fatality (VPF). In contrast, the health benefits for high activity visitors are calculated by measuring the number of Quality Adjusted Life Years (QALYs) gained through exercise in green space.

The QALYs gained is expressed in monetary terms using the HM Treasury Green Book value of a QALY. As a result, the total value per greenspace is a product of the number of visits per year, the share of visits made by low and high activity visitors and the value per visit by visitor type. Importantly, mental wellbeing and physical health value only capture value to adult visitors. It is assumed that adults make up for 75% of estimated visits to the green spaces and 50% of visits to playparks.



Figure 7: **Physical health value is estimated based on the activity levels of visitors to greenspaces in the UK**



Source: Vivid Economics based on MENE survey data

Amenity (recreational) value measures people’s preferences for living closer to green spaces, which is expressed by their willingness to pay in the housing market. The uplift value is estimated for properties located within 200m of greenspaces. The uplift value coefficients are based on the hedonic pricing model from the ONS and are annualized over 30 years at 3.5% discount rate.

Carbon sequestration methodology estimates the value of captured carbon. The first step is looking at the tree capture and storage of atmospheric carbon dioxide (CO<sub>2</sub>). Each ton of CO<sub>2</sub> sequestered prevents future damage by projected climate change. Secondly, tree canopy cover (as estimated by the Council) within greenspaces is used to estimate the amount of carbon sequestered and valued using the price of untraded carbon from the HM Treasury Green Book. Carbon sequestration is estimated by assuming an average rate of carbon sequestration per hectare of trees of 5.4 tons of carbon dioxide (CO<sub>2</sub>) per year (ONS, 2017). The price of one untraded ton of CO<sub>2</sub> in 2019 is £68. As a result, the value of carbon sequestration is a product of the annual carbon price and the total annual sequestration from the trees in a greenspace.

# References

- Barkham, P. 2020. "Poorer People and Ethnic Minorities Live Further from UK Green Spaces – Study." **The Guardian**.
- Belfast City Council. 2017. **Local Development Plan 2020-2035. Topic Paper: Flood Risk**.
- Bryan, D. 2015. "Parades, Flags, Carnivals and Riots: Public Space, Contestation, and Transformation in Northern Ireland." **Peace and Conflict: Journal of Peace Psychology** 21(4):565–73.
- Chin, Oliver P. 2009. "Flood Risk Management." Flood Risk Management 1–119. Retrieved (<http://www.opengreenspace.com/opportunities-and-challenges/climate-change/flood-management/>).
- Dallimer, M., Davies, Z. G., Irvine, K. N., Maltby, L., Warren, P.H., Gaston, K. J. and Armsworth, P. R. Maltby, Philip H. Warren, Kevin J. Gaston, and Paul R. Armsworth. 2014. "What Personal and Environmental Factors Determine Frequency of Urban Greenspace Use?" **Int J Environ Res Public Health**. 11(8):7977–7992.
- Dehui, G., Innes, J., Wu, W., and Wang, G. 2021. "Impacts of COVID-19 Pandemic on Urban Park Visitation: A Global Analysis." **Journal of Forestry Research** 32(2):553–67.
- Department for Environment Food and Rural Affairs. 2018. **A Green Future: Our 25 Year Plan to Improve the Environment**.
- Department for Environment Food and Rural Affairs. 2020. **Green Social Prescribing Pilots Open for Applications**.
- Department for Infrastructure. 2019. **Northern Ireland Flood Risk Assessment (NIFRA) 2018 - Revised May 2019**. <https://www.infrastructure-ni.gov.uk/publications/northern-ireland-flood-risk-assessment-nifra-2018>
- Derry City & Strabane District Council. 2019. **Derry City & Strabane District Council Green Infrastructure Plan 2019-2032**. [www.derrystrabane.com/gi](http://www.derrystrabane.com/gi)
- Jennings, V. and Bamkole, O. 2019. "The Relationship between Social Cohesion and Urban Green Space: An Avenue for Health Promotion." **International Journal of Environmental Research and Public Health** 16(3):452.
- Kaczynski, A. T., Besenyi, G. M., Stanis, S. A. W., Koohsari, M. J., Oestman, K. B., Bergstrom, R., Potwarka, L. R. and Reis, R. S. 2014. "Are Park Proximity and Park Features Related to Park Use and Park-Based Physical Activity among Adults? Variations by Multiple Socio-Demographic Characteristics." **International Journal of Behavioral Nutrition and Physical Activity** 11(1):146.
- Kyu, H. H, Bachman, V. F., Alexander, L. T., Mumford, J. E., Afshin, A., Estep, K., Veerman, J. L., Delwiche, K., Iannarone, M. L., Moyer, M. L., Cercy, K., Vos, T., Murray, C. J. L., and Forouzanfar, M. H. 2016. "Physical Activity and Risk of Breast Cancer, Colon Cancer, Diabetes, Ischemic Heart Disease, and Ischemic Stroke Events: Systematic Review and Dose-Response Meta-Analysis for the Global Burden of Disease Study 2013." **BMJ** i3857.
- Macauley, C. 2020. "Coronavirus: Call for Environmental Aspect to NI Recovery Plan." Retrieved (<https://www.bbc.co.uk/news/uk-northern-ireland-52812715>).
- Mears, M., Brindley, P., Maheswaran, R. and Jorgensen, A. 2019. "Understanding the Socioeconomic Equity of Publicly Accessible Greenspace Distribution: The Example of Sheffield, UK." **Geoforum** 103:126–37.
- Natural England. 2010. **Nature Nearby: Accessible Natural Greenspace Guidance**. [http://www.ukmaburbanforum.co.uk/documents/other/nature\\_nearby.pdf](http://www.ukmaburbanforum.co.uk/documents/other/nature_nearby.pdf)
- Northern Ireland Statistics and Research Agency. 2019. "Northern Ireland Visitor Attraction Survey 2019."
- Northern Ireland Statistics and Research Agency. 2020. **Northern Ireland Environmental Statistics Report**.
- Office for National Statistics. 2018. **Estimating the Impact Urban Green Space Has on Property Price**.
- Office for National Statistics. 2019. "UK Natural Capital: Peatlands." **Statistical Bulletin** 1–38. Retrieved (<https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/uknaturalcapital/urbanaccounts>).
- Smolka, M. O. 2013. **Implementing Value Capture in Latin America**. Cambridge, MA.
- Van den Bosch, M. A., Mudu, P., Uscila, V., Barrdahl, M., Kulinkina, A., Staatsen, B., Swart, W., Kruize, H., Zurlyte, I. and Egorov A. I. 2016. "Development of an Urban Green Space Indicator and the Public Health Rationale." **Scandinavian Journal of Public Health** 44(2):159–67.
- Vivid Economics, Derry City & Strabane District Council & Carnegie UK Trust. 2019. **Derry City and Strabane District Council's Owned Green & Blue Spaces Natural Capital Account**. [www.derrystrabane.com/gi](http://www.derrystrabane.com/gi)
- White, M. P., I. Alcock, J. Grellier, B. W. Wheeler, T. Hartig, S. L. Water, A. Bone, M. H. Depledge, and L. Fleming. 2019. "Finding Time for Nature: 120 Minutes of Nature Contact per Week May Be a 'Threshold' for Health and Well-Being Promotion." **Scientific Reports**.
- WHO. 2016. **Urban Greenspaces and Health: A Review of Evidence**.
- Wustemann, H. and Kalisch, D. 2016. **Towards a National Indicator for Urban Green Space Provision and Environmental Inequalities in Germany: Method and Findings**. 022. Berlin, Germany.







This report was written by:

Vivid Economics Limited

163 Eversholt Street

London

NW1 1BU

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[www.derrystrabane.com/gi](http://www.derrystrabane.com/gi)