

Green Infrastructure: greener cities make healthier cities



Dr. Christine Doherty

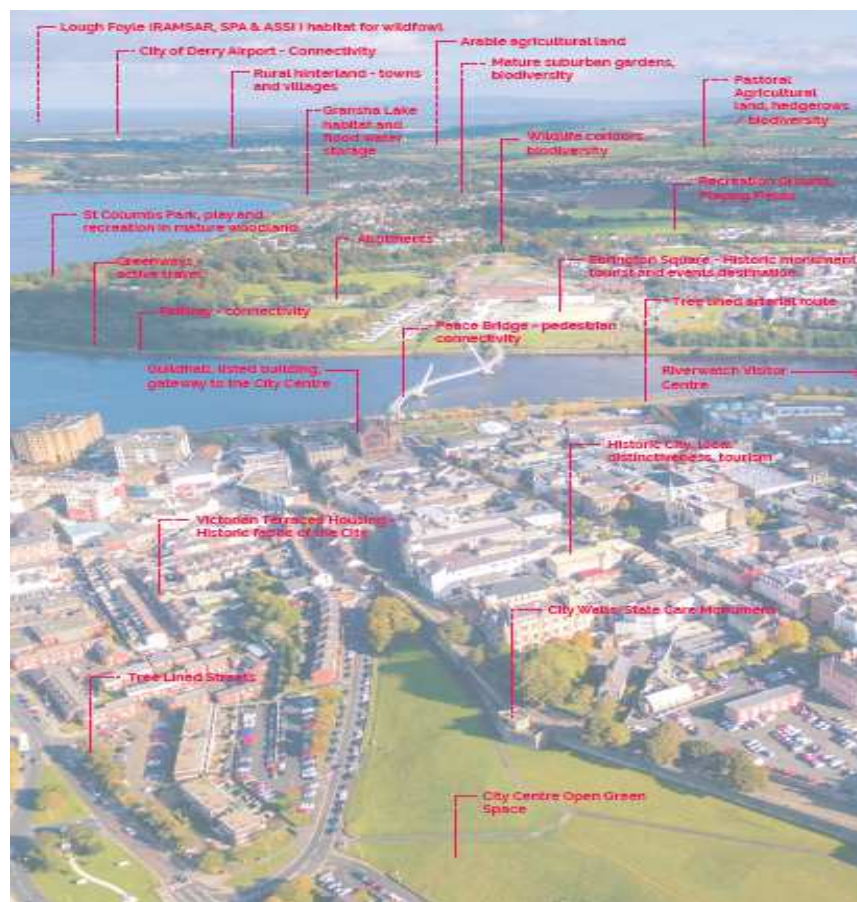


Green Infrastructure

- What is Green Infrastructure?
- Green Infrastructure Plan
- Green Infrastructure Projects

What is Green Infrastructure?

- ▶ Green Infrastructure is an interconnected network of multi-functional natural areas, which provide multiple environmental, economic & social benefits.



Green Infrastructure Functions

	Functions
Economic	Economic Growth & Investment
	Land & Property Values
	Placemaking & Tourism
Social	Sport, Recreation & Leisure
	Health & Wellbeing
	Education & Life-Long Learning
	Sense of Community
Environmental	Access & Connectivity
	Ecosystem Services
	Climate mitigation & Adaptation

Stages

GI Framework



GI Plan



GI Action Plan



Implementation & Monitoring

Programme for Government (NI) 2016-2021



Strategic Growth Plan 2017 - 2032



Local Development Plan 2032



Green Infrastructure Plan 2019 - 2032



Green Infrastructure Action Plan

Green Infrastructure Plan & Community Plan

Social

Environmental

Economic

Communication & Engagement

Health & Well-being

Natural Capital



People & Places

Economic Prosperity

Biodiversity

Climate Change



People & Place

Strategic Aim:
Green Infrastructure enhances our quality of life

Strategic Priorities

Potential Actions

Provide high quality multi-functional green & blue spaces

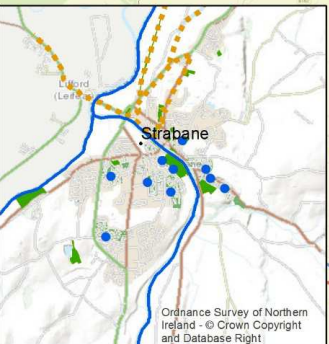
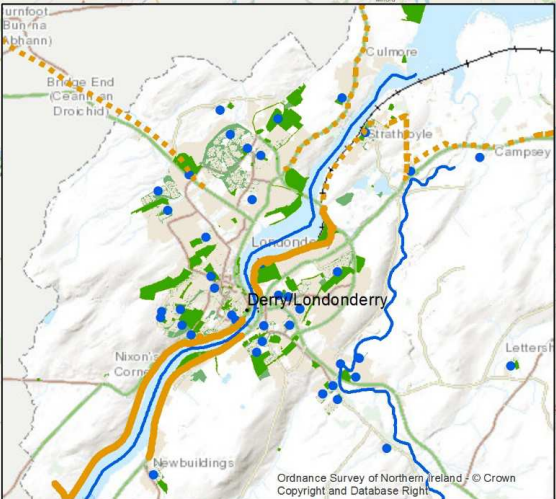
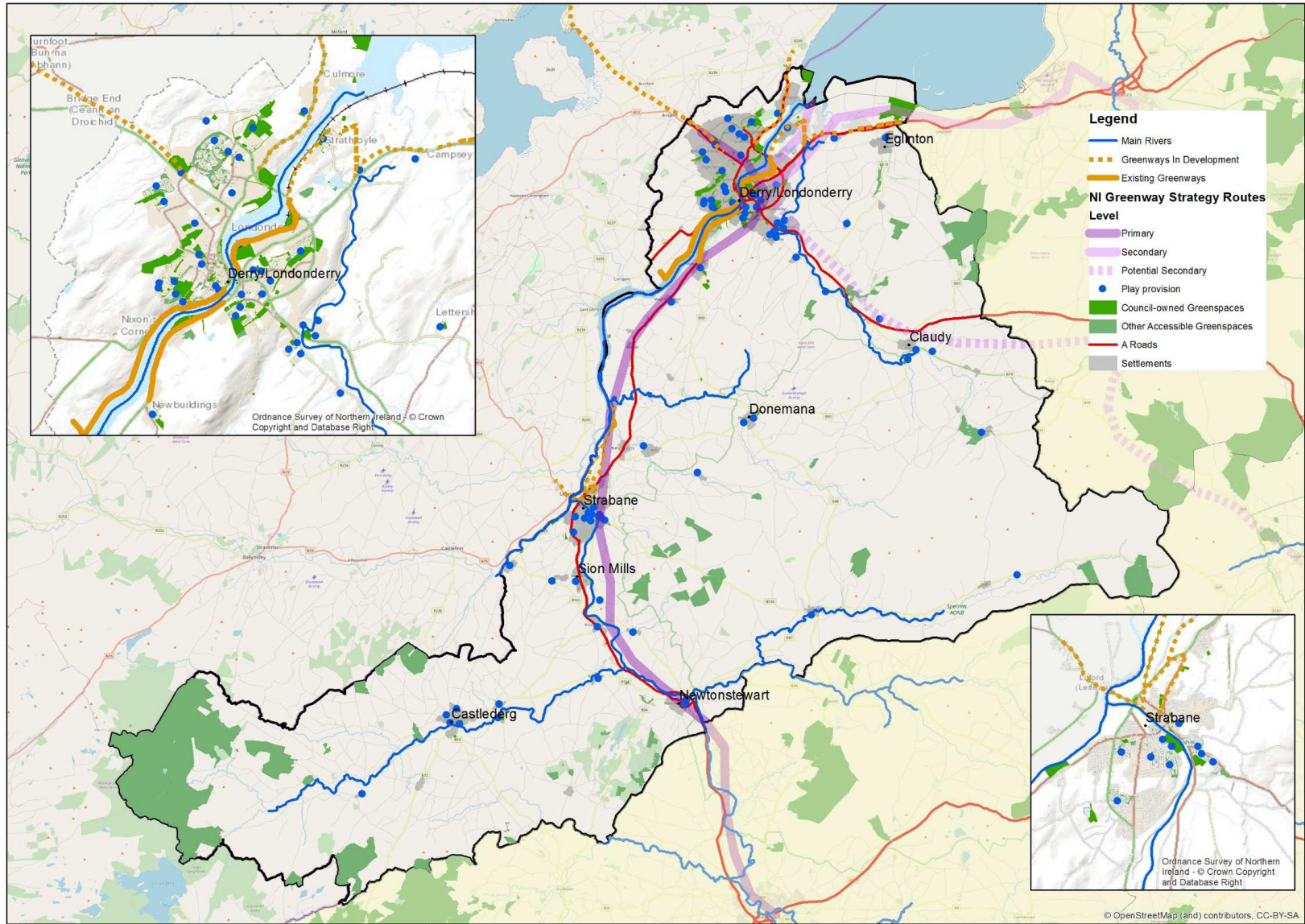
- Holistic, integrated approach to develop, manage & maintain our green spaces for GI
- Develop our parks & green spaces including regeneration of Culmore District Park, Castle Site & St Columb's Park

Develop quality play provision

- Review existing play provision & identify the need for additional play provision throughout the District
- Ensure children can participate in physical active play & use GI to develop natural opportunities

Develop an active & sustainable transport network

- Deliver the North West Greenways Project
- Develop the Strathfoyle Greenway
- Promote a modal shift away from the use of cars towards sustainable travel, for example, multimodal transport hub



£6 m restoration of Historic Gardens at Brooke Park, Derry



Nature Based Solution Proposal

- Pilot a ‘Natural Health Service’ using the natural environment to improve health & mental wellbeing.
- An 8-12 week ‘dose’ of nature, to recover from conditions, operations, based on research at Mersey Forest
www.merseyforest.org.uk
- Five products:
 - Health walks
 - Horticultural therapy
 - Mindful contact with nature
 - Forest Schools
 - Practical Conservation

Economic Prosperity

Strategic Aim:

GI is a key aspect of Economic Growth

Strategic Priorities

Potential Actions

GI provides opportunities for lifelong learning and employment

- Training programmes with TCV / Creggan Country Park / NWRC/ DCSDC, to include upskilling opportunities

Green and blue spaces are a driver for tourism and economic growth

- Developing & promoting heritage assets
- Develop & promote the use of greenways & blue ways (experiences) as tourist attractions
- Commercialisation of greenways, to encourage new businesses / pop up businesses / new jobs / services

GI is a key component of regeneration projects

- Support the implementation of the Urban Villages Programme in the Bogside, Fountain & Bishop St areas to improve the physical environment
- Improving quality of space at Bishop Street car-park
- Create pocket parks

GI supports a local circular food economy

- Connect to Food & Drink Strategy
- Aquaculture
- Acorn Farm
- Allotments

Circular Food Economy at Acorn Farm



Area 2: Park Entrance & Avenue, Acorn Farm Demonstration Project



Avenue and Park Entrance

A new Park Entrance and Avenue is proposed to create a majestic approach to St Columbs Park House and provide better connectivity to Ebrington.

The Avenue will replace the existing road and will include new tree planting either side of the road. The formalised entrance includes decorative gates, piers and walling reflecting the heritage of the park.

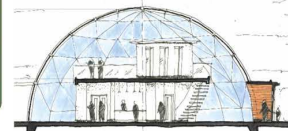
Planning permission has been granted and the scheme is awaiting funding.

Acorn Farm

Acorn Farm is a social innovation project supporting employment through food production and urban agri-architecture.

Using the principals of permaculture through design and iconic geodesic dome architecture, Acorn Farm will be a unique visitor attraction providing jobs as well as research and training opportunities.

The site is located on derelict MOD land. Planning approval, business case and funding is pending.



Acorn Farm, Photomontage



Left to right: Geodesic Dome, demonstration raised beds, willow tunnel and polytunnel.

Horticultural Training Centre, Brooke Park



Biodiversity Strategic Aims & Priorities

Biodiversity Strategic Aim:

GI supports wildlife & habitats that provide ecosystem services.

Strategic Priorities

Potential Actions

Minimise habitat loss & fragmentation, to include local priority habitats & species

- Create, enhance and restore priority habitats that would pose a regional, national or global loss of habitat.
- Conduct a tree audit of Council owned sites & produce a tree management system

Minimise the impacts of invasive alien species

- Raise awareness, understanding, management and biosecurity measures to address invasive alien species

Adapt to the current & predicted effects of climate change, to minimise the impact on native habitats & species.

- Identify habitats and species that are at risk of local extinction from the effects of climate change
- Raise awareness, understanding and the impacts of climate change for key habitats, species and ecosystem services

Address the impact of air & water pollution on biodiversity

- Plant woodlands to reduce diffuse pollution and improve water quality to meet the Water Framework Directive
- Increase urban tree planting to reduce particulate pollution and atmospheric carbon

Air quality










£8 m restoration of Culmore Landfill Site

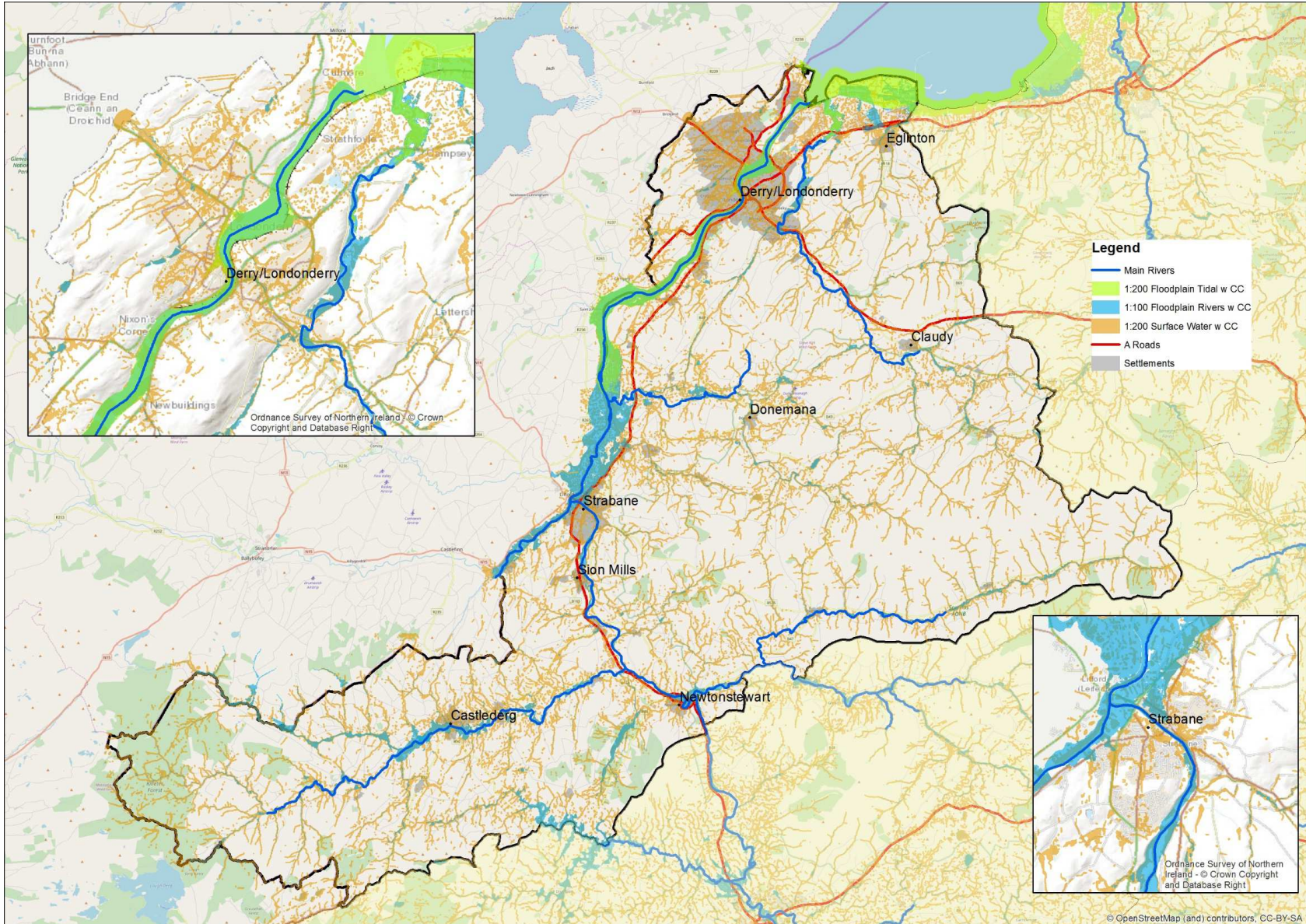


Climate change strategic aims & priorities

Climate Change Strategic Aim: GI will be maximised to mitigate against & adapt to the effects of climate change	
Strategic Priorities	Potential Actions
Develop Climate Action Plan	<ul style="list-style-type: none">• Conduct a Climate audit• Develop a district climate adaptation plan and incorporate into the GI Plan
Develop green infrastructure as preferred climate action response	<ul style="list-style-type: none">• Encourage SUDS to reduce the need for additional grey infrastructure• Adapt existing built infrastructure to manage rainwater
Develop green infrastructure to address the effects of climate change and severe weather events in the District	<ul style="list-style-type: none">• Planting floodplain, riparian & wider catchment woodland for flood risk management• Promote green roofs for cooling, air quality improvements and surface water management

Examples of Climate Impacts on Human Health

	Climate Driver	Exposure	Health Outcome	Impact
 Extreme Heat	More frequent, severe, prolonged heat events	Elevated temperatures	Heat-related death and illness	Rising temperatures will lead to an increase in heat-related deaths and illnesses.
 Outdoor Air Quality	Increasing temperatures and changing precipitation patterns	Worsened air quality (ozone, particulate matter, and higher pollen counts)	Premature death, acute and chronic cardiovascular and respiratory illnesses	Rising temperatures and wildfires and decreasing precipitation will lead to increases in ozone and particulate matter, elevating the risks of cardiovascular and respiratory illnesses and death.
 Flooding	Rising sea level and more frequent or intense extreme precipitation, hurricanes, and storm surge events	Contaminated water, debris, and disruptions to essential infrastructure	Drowning, injuries, mental health consequences, gastrointestinal and other illness	Increased coastal and inland flooding exposes populations to a range of negative health impacts before, during, and after events.
 Vector-Borne Infection (Lyme Disease)	Changes in temperature extremes and seasonal weather patterns	Earlier and geographically expanded tick activity	Lyme disease	Ticks will show earlier seasonal activity and a generally northward range expansion, increasing risk of human exposure to Lyme disease-causing bacteria.
 Water-Related Infection (Vibrio vulnificus)	Rising sea surface temperature, changes in precipitation and runoff affecting coastal salinity	Recreational water or shellfish contaminated with <i>Vibrio vulnificus</i>	<i>Vibrio vulnificus</i> induced diarrhea & intestinal illness, wound and blood-stream infections, death	Increases in water temperatures will alter timing and location of <i>Vibrio vulnificus</i> growth, increasing exposure and risk of water-borne illness.
 Food-Related Infection (Salmonella)	Increases in temperature, humidity, and season length	Increased growth of pathogens, seasonal shifts in incidence of <i>Salmonella</i> exposure	<i>Salmonella</i> infection, gastrointestinal outbreaks	Rising temperatures increase <i>Salmonella</i> prevalence in food; longer seasons and warming winters increase risk of exposure and infection.
 Mental Health and Well-Being	Climate change impacts, especially extreme weather	Level of exposure to traumatic events, like disasters	Distress, grief, behavioral health disorders, social impacts, resilience	Changes in exposure to climate- or weather-related disasters cause or exacerbate stress and mental health consequences, with greater risk for certain populations.



Next Steps

Phase	Action	Timescale	Progress
Phase 1	Develop GI Framework & Obtain Council Approval	May 2018	Complete
Phase 2	Develop Green Infrastructure Plan & Secure Approval	Stakeholder Engagement June – Oct 2018	Complete
		Produce Plan July – Dec 2018	Complete
		Council Approval – Feb 2019	Complete
		Strategic Growth Plan Stakeholder Approval – Feb 2019	Complete
		Public Consultation – March 2019	Complete
		Launch GI Plan (Conference) - March 2019	Complete
Phase 3	Develop GI Action Plan	Jan– Jun 2019	Pending
Phase 4	Action Plan Delivery, Monitoring & Review	2019-2032	²¹ Pending

Thank you

For further information on Derry & Strabane's
Green Infrastructure Plan 2019-2032 visit:

www.derrystrabane.com/GI

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