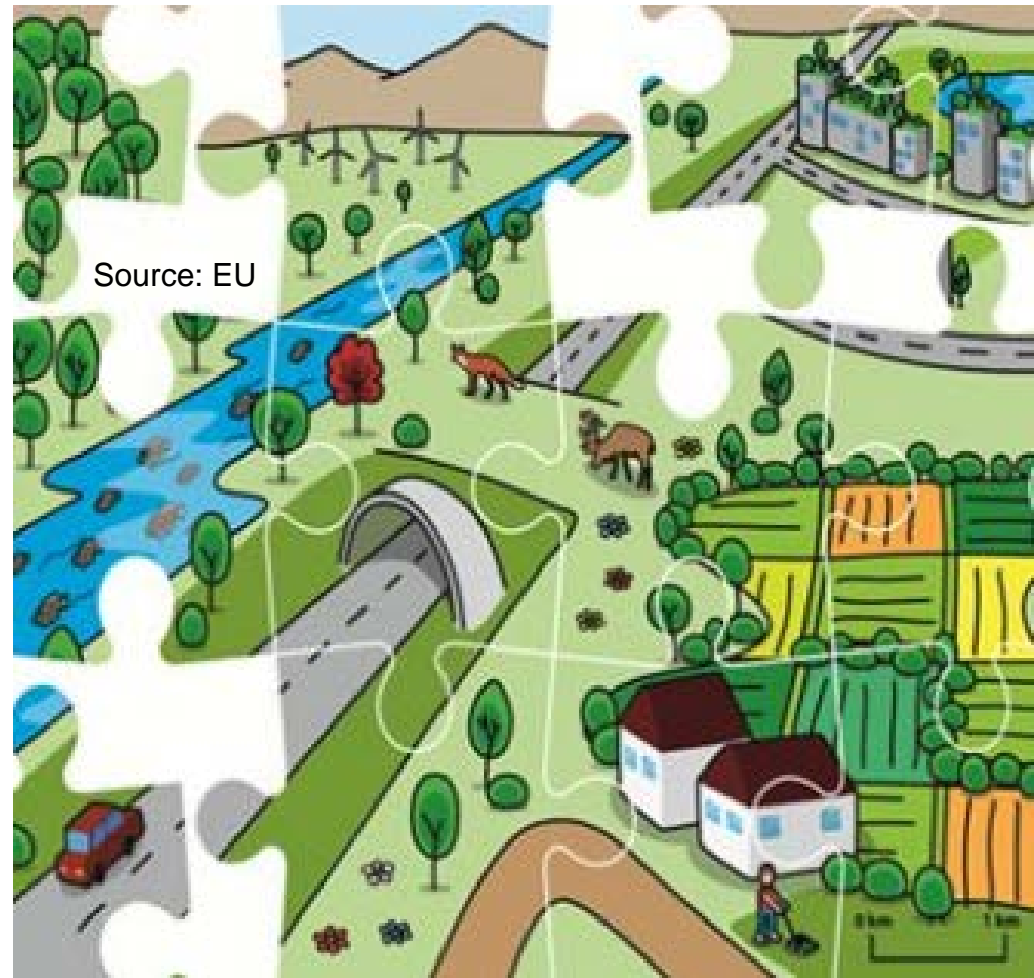


# Urban design for urban resilience



**Dr. Conor Norton**  
President IPI,  
Head of School, TU Dublin  
Loci  
IPI CPD, 5<sup>th</sup> June 2020

## Outline

Urban resilience

Urban planning for urban resilience

Urban design for urban resilience

Concluding comments

## 1 Urban resilience

Urban resilience derives from theory in ecology in the late 1960s. The current paradigm is concerned principally with relationships between social and ecological systems.

Resilience is:

- The amount of change a system can undergo and still retain the same controls on function and structure;
- The degree to which a system is capable of self-organisation; and
- The ability to build and increase the capacity for learning and adaptation (Marcus and Colding, 2014).

When this general theory is applied to cities it is referred to as urban resilience.

In summary, it is about surviving and absorbing changes and adversity (shocks and stresses), both man-made and natural, and recovering and revitalising to a more sustainable path.

The sort of changes impacting on cities varies greatly from place to place, and includes economic change and challenges in the form of globalisation, poverty, social exclusion, the erosion of social support structures, spatial change and development, the effects of climate change and related environmental change (Fourniere, Esteban and Lewis, 2017).

Understanding vulnerabilities is critical to planning for resilience. These have been categorised as:

- Spatial (processes, higher level plans etc.);
- Physical (infrastructure, buildings, urban space etc.);
- Functional (addressed through urban design, services, finance, reform etc.); and
- Organisational vulnerabilities (administrative, legal, governance, engagement etc.).

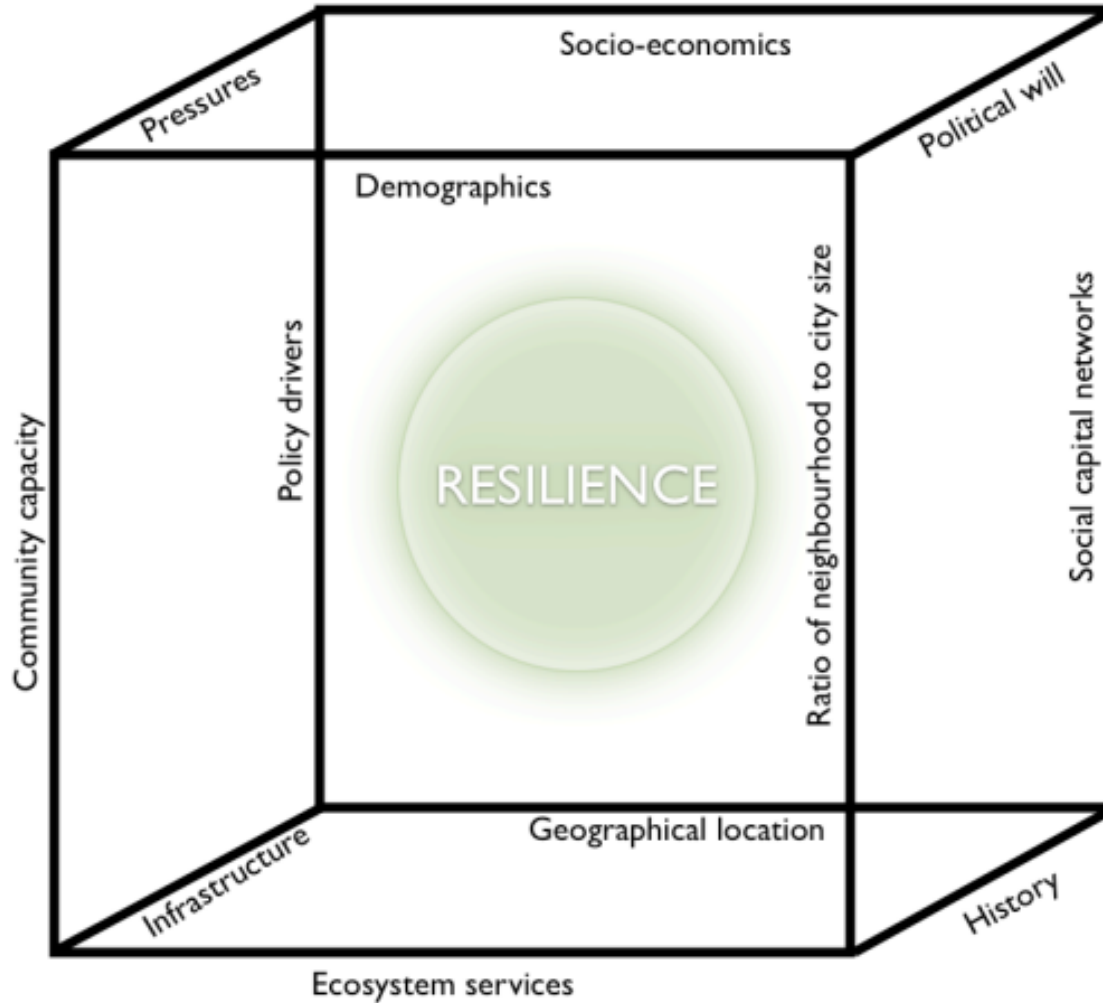
Urban resilience is included in the SDGs.

**SUSTAINABLE DEVELOPMENT GOAL 11**

Make cities and human settlements inclusive, safe, resilient and sustainable



**Figure 1:** A stylised conception of resilience in an urban setting.



Source: Collier et al., 2013

## 2 Urban planning for urban resilience

Urban planning and urban design have a critical and recognised role in urban resilience. Both take advantage of the opportunities provided by urbanisation to confront challenges (UN Habitat, 2017).

Both have the potential to build more comprehensive and multi-dimensional frameworks which can incorporate urban resilience.

Urban planning provides the process where the larger context issues and vulnerabilities for resilience can be identified and analysed at different spatial levels.

Urban planning can include strategies to that bring about transition to resilience. Notably, the physical frameworks and processes to underpin adaptation and transformation of the built environment.

Many of the objectives of social urban resilience are contained in the range of planning guidelines, policies and plans, in areas such as diversity of functions/mix of uses, local economy and employment, social capital, and health and community infrastructure.

Many of the objectives of ecological urban resilience are also contained in the range of planning guidelines, policies and plans in areas such as natural heritage/biodiversity, green infrastructure, open and urban space, and flood risk management.

In addition, the various objectives of urban resilience can be delivered in an integrated manner through appropriate place-making policies and the instruments contained within the planning system.

Urban planning also provides established processes for the necessary participation and inclusion to bring about the transition to urban resilience.

### 3 Urban design for urban resilience

UD provides the integrated and meaningful spatial and physical frameworks that are essential for achieving urban planning and place-making objectives.

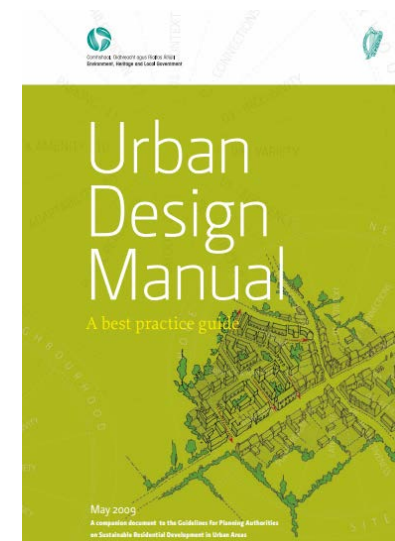
Most UD objectives contribute to urban resilience.

UD can contribute to urban resilience at different levels – from larger spatial concepts, to detailed guidance.

UD for urban resilience can be applied to new places and to the improvement and regeneration of existing places.

## BY DESIGN

Urban design in the planning system: towards better practice







### CHARACTER

A place with its own identity

To promote character in townscape and landscape by responding to and reinforcing locally distinctive patterns of development, landscape and culture.

### CONTINUITY AND ENCLOSURE

A place where public and private spaces are clearly distinguished

To promote the continuity of street frontages and the enclosure of space by development which clearly defines private and public areas.

### QUALITY OF THE PUBLIC REALM

A place with attractive and successful outdoor areas

To promote public spaces and routes that are attractive, safe, uncluttered and work effectively for all in society, including disabled and elderly people.

### EASE OF MOVEMENT

A place that is easy to get to and move through

To promote accessibility and local permeability by making places that connect with each other and are easy to move through, putting people before traffic and integrating land uses and transport.

### LEGIBILITY

A place that has a clear image and is easy to understand

To promote legibility through development that provides recognisable routes, intersections and landmarks to help people find their way around.

### ADAPTABILITY

A place that can change easily

To promote adaptability through development that can respond to changing social, technological and economic conditions.

### DIVERSITY

A place with variety and choice

To promote diversity and choice through a mix of compatible developments and uses that work together to create viable places that respond to local needs.

Some key aspects of urban design for urban resilience are:

- Character and context – importance of proper urban design and character and context assessment for all places;
- Urban structure and movement – robust and permeable urban structure, well connected to surrounding areas;
- Quality streets and urban spaces – safe, attractive, enclosed, with priority for sustainable modes and more vulnerable users;
- Landscape structure and green infrastructure (GI) – a connected, multi-functional network;
- Diversity of uses – economic and social resilience through variety of functions and mixed use (to support variety and vitality); and
- Adaptability and flexibility of buildings and urban blocks, urban grain and buildings to accommodate diversity and help to absorb those changes and shocks.

## ***Selected aspect: Green infrastructure***

GI is a concept that values ‘ecosystem services’ to society. It has become a key element of urban design practice, spanning larger spatial concepts and more detailed guidance.

GI promotes nature-based solutions and it is multi-functional, integrating spatial concepts and objectives for:

- Biodiversity conservation and enhancement;
- Amenity, recreation and heritage development and enhancement;
- Local, sustainable movement; and
- Surface water and flood risk management.

### The GI jigsaw



Source: Scott et al., 2016

GI normally includes a hierarchy of elements of different scale (regional, strategic, local etc.) within a connected network of hubs and corridor (in natural, semi-natural and urban contexts, and with protected and non-protected status).

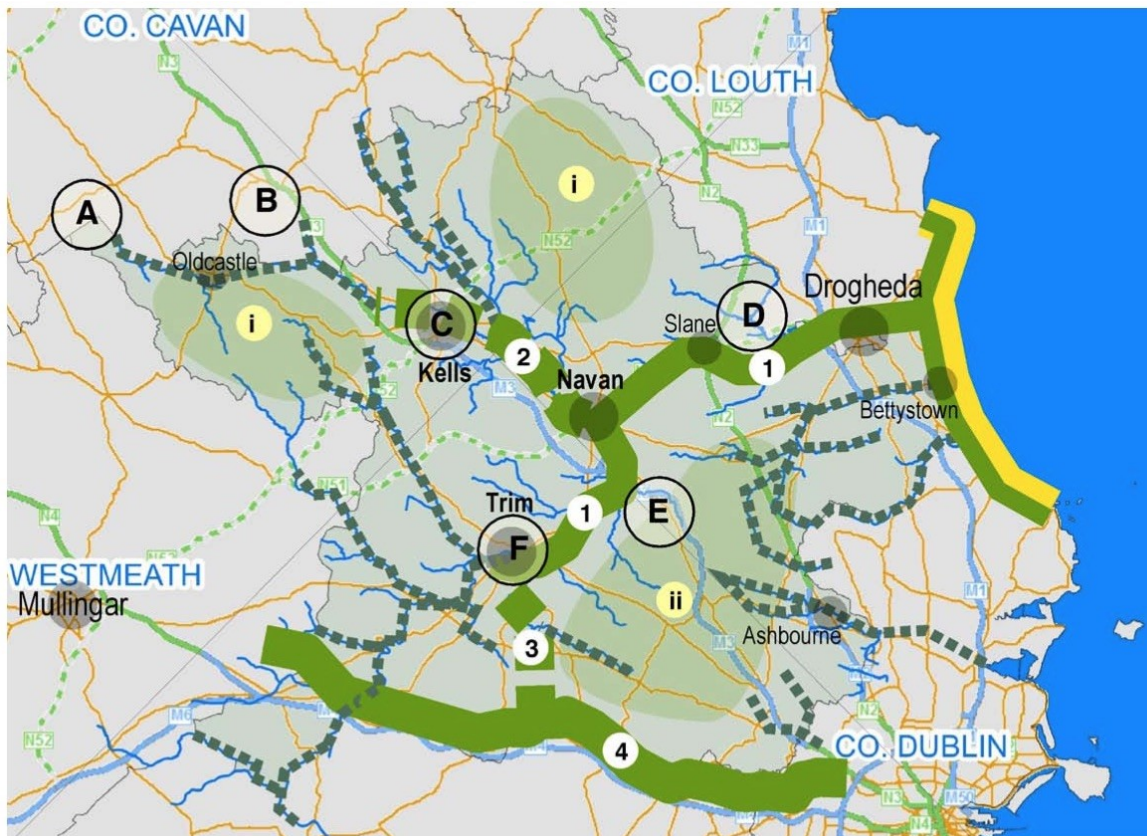
GI networks are usually developed from existing assets - particularly water bodies, woodlands and natural areas.

In inner urban areas it can be about 're-naturing' of spaces and buildings.



Cores and Corridors Concept Diagram.  
Source: Green Infrastructure, a Quality of Life Issue, Urban Forum

## Larger spatial GI concept – Meath County Development Plan (2012)



Source: Loci



## Diverse urban and upland contexts– GI Strategy for Dun-Laoghaire Rathdown (2016)



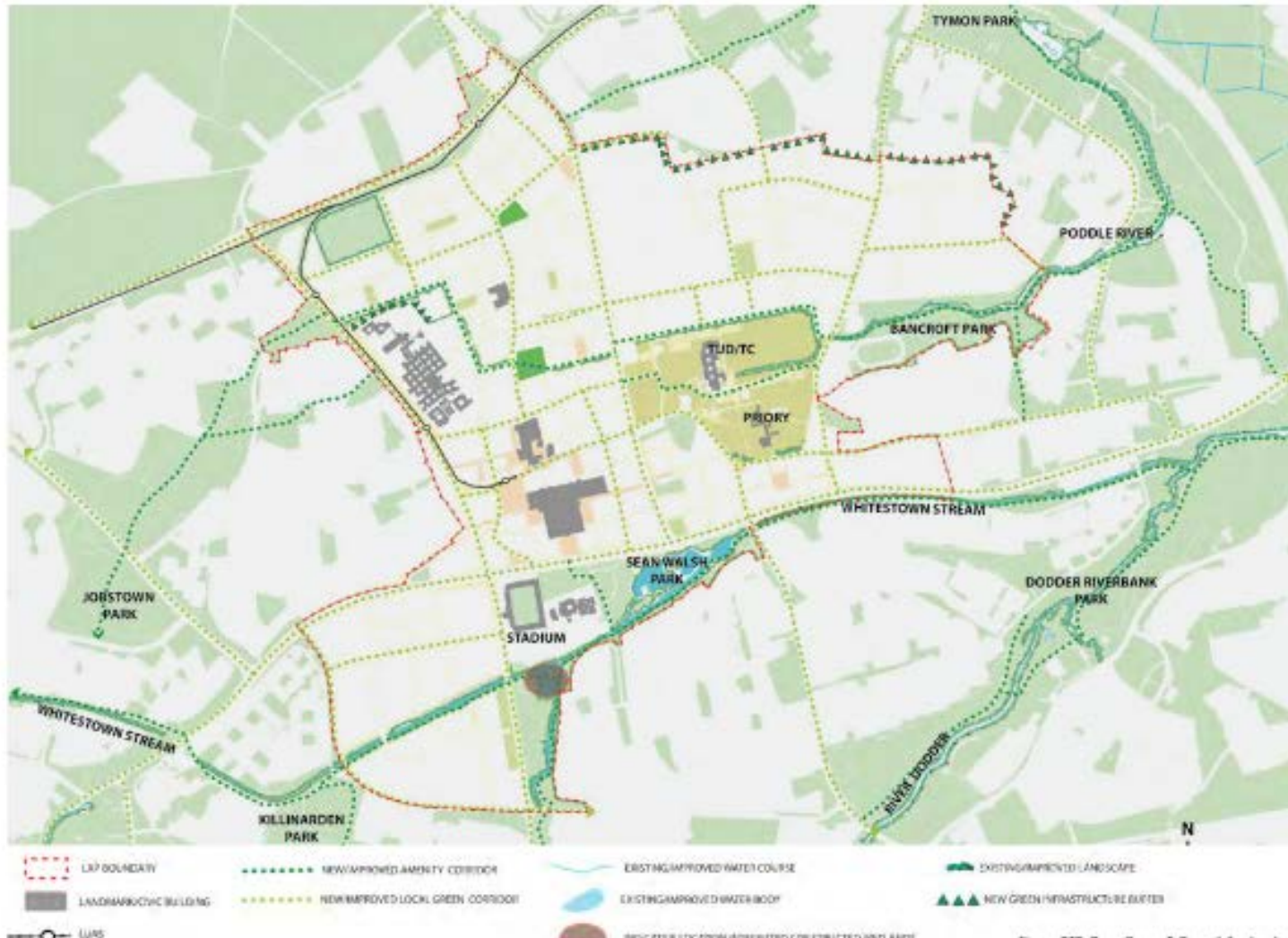
Map 15: Basic Spatial Framework Strategy.

## Hierarchy of GI – Clonburris SDZ Planning Scheme, 2019.





## A strategic spatial concept – Tallaght Local Area Plan, 2020

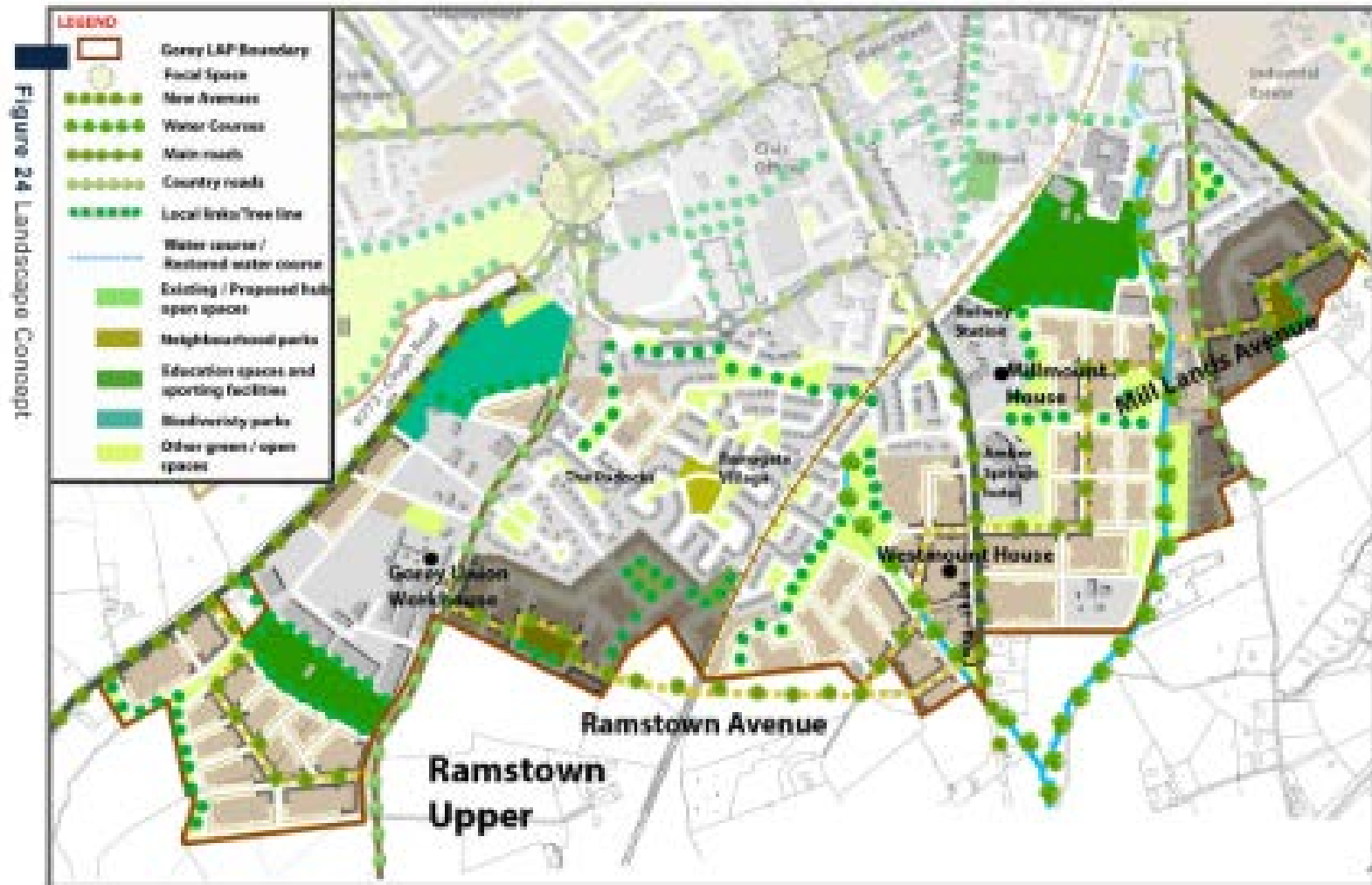




## Area-based GI concept – Naas Road LAP, 2012



## Neighbourhood GI- Gorey LAP, 2017



## A neighbourhood landscape concept – Mullingar South LAP, 2010



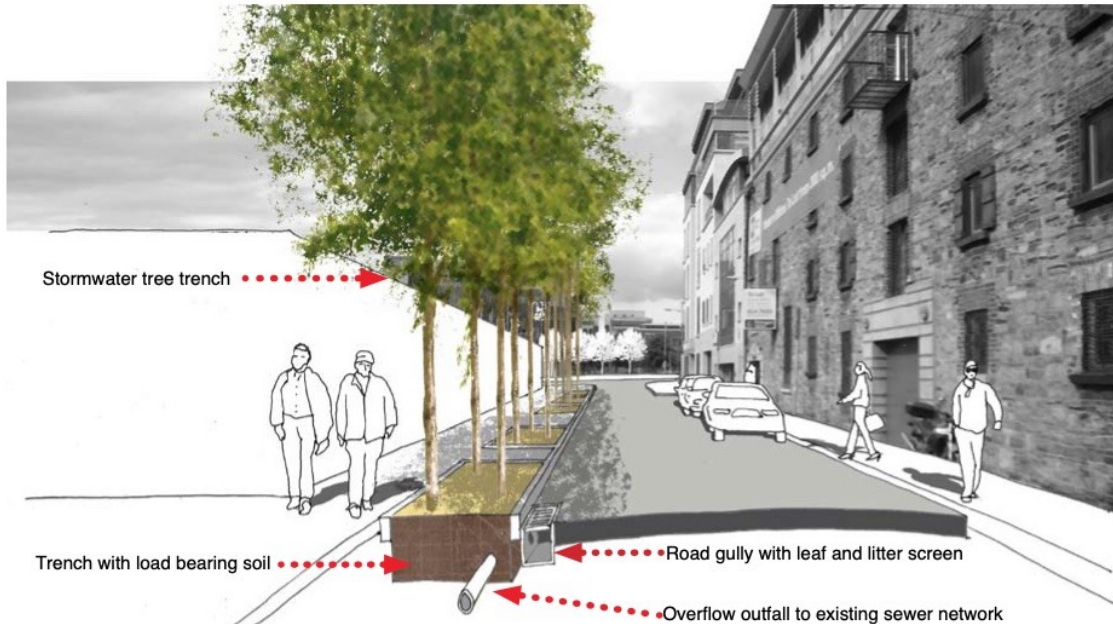
Source: Loci



## Detailed guidance – GI study for Dublin City LAPs

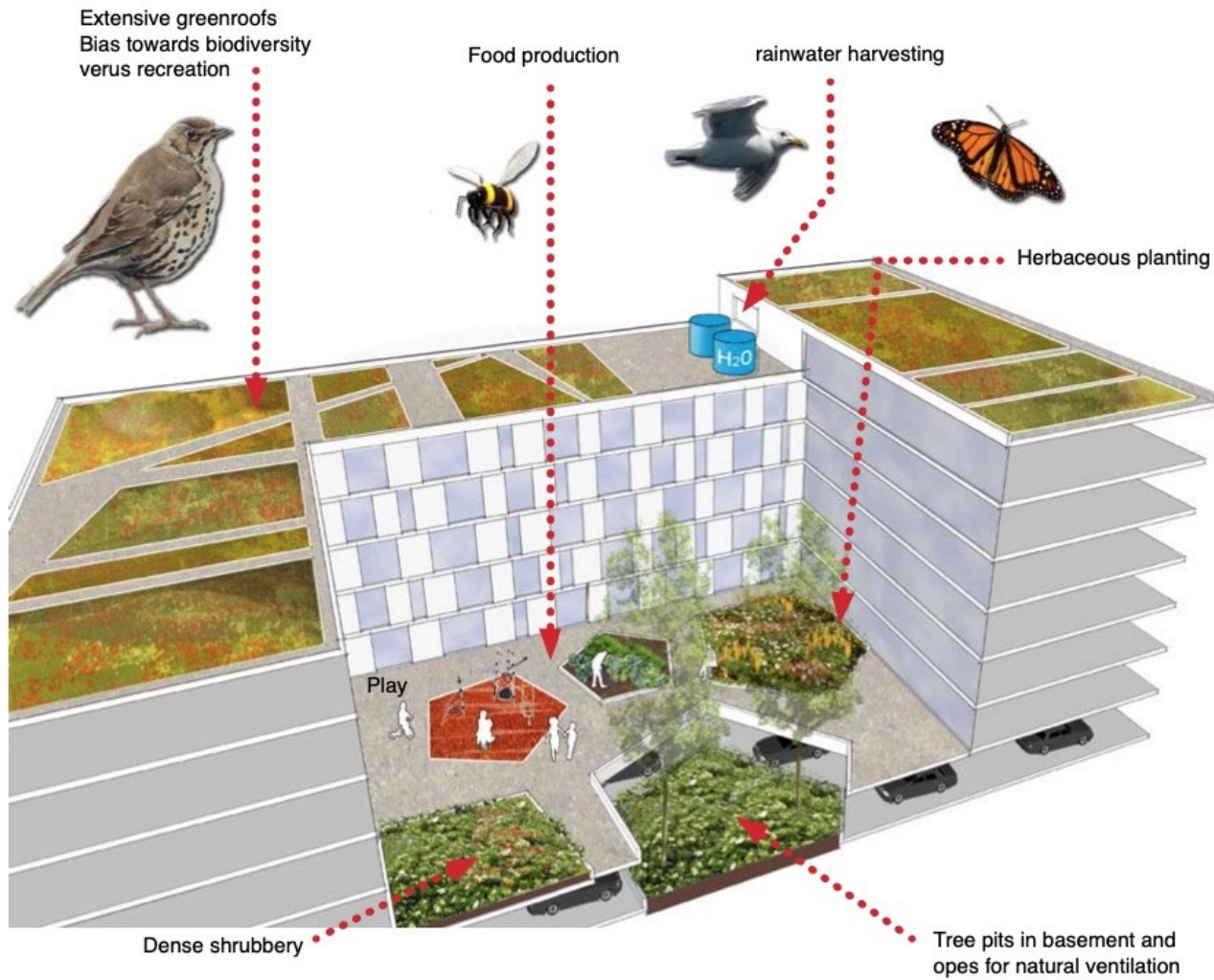


Princes Street South - Existing Situation



Green Street Projects - Princes Street South

Source: Loci and Ait



Green Roofs and Podium Gardens

## **4 Concluding comments**

Urban resilience connects concerns around human and ecological health and wellbeing. It is about the ability of places to prepare, survive and adapt to changes.

Urban resilience is part of the larger sustainable development agenda. It is included in the SDG for sustainable settlements.

Urban planning and urban design are recognised as being essential to a transition to urban resilience.

The objectives of urban design are closely aligned to notions of urban resilience.

Good urban planning and urban design should be cognisant of urban resilience, in planning for adaptation and mitigation for climate action.

## Postscript – Covid-19

The pandemic will require a reflection on our long-held assumptions and principles for planning and places in Ireland.

Although it is early days for analysis, the pandemic has posed serious questions about urban resilience in Ireland.

Key questions around resilience are:

- What shocks and stresses to urban areas have been caused by the pandemic?
- What sort of vulnerabilities have been exposed?
- How can we build urban resilience for a future event such as this?

Thank you!



**Dr. Conor Norton**  
President IPI,  
Head of School, TU Dublin  
Loci





## ***Bibliography and selected references***

Collier et al. (2013) Transitioning to resilience and sustainability in urban communities. *Cities*. 32, S21-S28. Supplement 1. Elsevier.

Fourniere, H., Esteban, L. and Lewis, D. (2017) *Trends in Urban Resilience, 2017*. Nairobi: United Nations Human Settlements Programme (UN-Habitat).

Marcus, L. and Colding, J. (2014) Toward an integrated theory of spatial morphology and resilient urban systems. *Ecology and Society* 19(4):55.

Rodin, J. (2015) *The Resilience Dividend*. London: Profile Books Limited.

Scott, M., Lennon, M., Collier, M. and Foley, K. (2016) *Integrating Ecosystem Approaches, Green Infrastructure and Spatial Planning*. EPA Research Report No.188. Dublin: EPA.

Various guidelines, statutory development and local area plans and strategies.