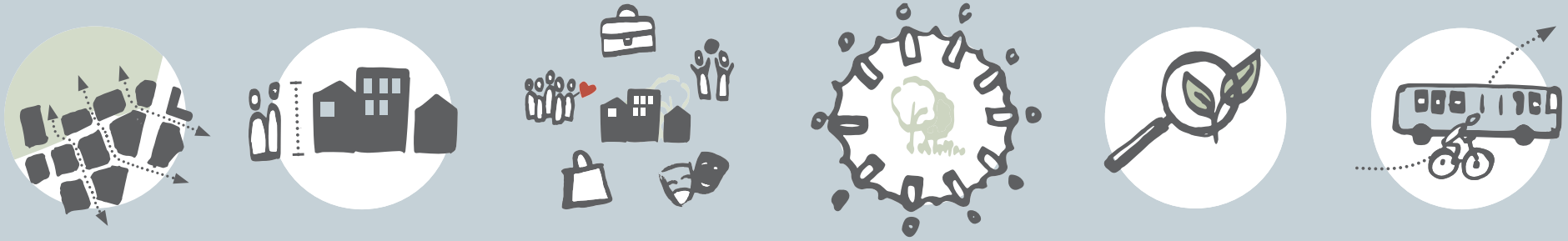
INTEGRATING TERRYLAND FOREST PARK WITH THE CITY

AN URBAN TRANSFORMATION PROJECT INSPIRED BY COMMUNITY VISIONS FOR AN ECOLOGICAL CORRIDOR

Galway | Ireland



Master Thesis Project
Sustainable Urban Design | Lund University
Jasmina McKenna

INTEGRATING TERRYLAND FOREST PARK WITH THE CITY

AN URBAN TRANSFORMATION PROJECT INSPIRED BY COMMUNITY VISIONS FOR AN ECOLOGICAL CORRIDOR

MASTER THESIS REPORT

May 2019
Lund University
Lunds Tekniska Högskola (LTH)
School of Architecture | Sustainable Urban Design

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CONTENTS

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the SuDes Family
for sharing knowledge and laughters - and for supporting each other

...

LAST BUT NOT LEAST...

I would like to say 'Thank You' to my family, who have supported me full-heartedly throughout the years - as a student at university and as a student of life. I am incredibly thankful for the great opportunities you gave me, for your invaluable advice and the encouragement along the way.

Thank you, Anthony, for supporting me in my choices and for always lending me an ear when needed. Thanks for giving me confidence every day and for believing in my skills.

1. PROJECT INTRODUCTION

CITIZENS OF GALWAY - THIS IS YOUR PARK!

... it reads on a large, slightly yellowed sign in front of a deserted green space. Here is one of the few entrances to Terryland Forest Park, brought to life by the combined efforts of Galway City Council and the local community in the year 2000. Under a multi-sectoral steering committee, the vision for Ireland's largest ecological urban park and forest with diverse community benefits was born.

Now, the park appears derelict, and many are unaware of its existence. It lies hidden behind large buildings and extensive car parking lots of a big-box retail centre and therefore lacks accessibility and passive surveillance. Here, activities and traffic flows are determined entirely by trading hours - only a few people take advantage of the close-by green space.

Inspired by community visions, this design project aims at better integrating Terryland Forest Park with its surrounding urban context. It proposes to transform the neighbouring Headford Road Retail Centre into a mixed-use, human scale district, led by the following key questions:

How can the park be made more attractive and accessible? Which transformations could improve its community and ecological value? How can the new urban design connect the park with its surrounding neighbourhoods and the close-by old town while maintaining its function as an important retail centre? Which uses can activate currently neglected spaces? And finally, how does it foster environmental awareness amongst the citizens of Galway and its visitors?


1 |


2 |


3 |


4 |


5 |


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7 |

8 |

1 | park space at Woodquay

2 | The Long Walk Pier

3 | Bridge Mills

4 | Wolfe Tone Bridge

5 | alleyway in the Old Town

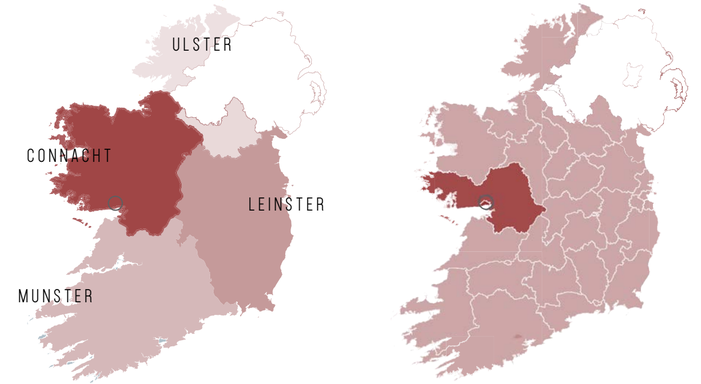
6 | The Spanish Arch

7 | pedestrian path along the canals

8 | Shop Street

2. COUNTRY PROFILE

2.1 COUNTRY DIVISIONS & GOVERNANCE



LEGEND

- Northern Ireland
- Republic of Ireland
- Galway City
- IRL Counties
- County Galway

LOCAL GOVERNMENT AREAS

The Island of Ireland is divided into four provinces: Ulster - of which large parts belong to Northern Ireland - and Connacht, Leinster and Munster. The provinces in the Republic of Ireland are further subdivided into a total of 26 counties, some of which were established already in the 12th century following the invasion of Ireland by the Normans. Since then, counties define areas of local governance, although county boundaries have been - and continue to be - subject of change.

There are now a total of 31 local government areas. Some major cities such as Dublin and Galway have their own local government bodies (city councils) and hold the same political power as county councils. The local authorities' primary responsibilities lie within planning, transport infrastructure, housing, safety and sanitary services, recreation, environment and local community development.
Councils consist both of career officials appointed by the ministry and locally elected council members, making local authorities the most accessible form of governance for local communities.
Under the Irish Constitution local authorities are required to represent the communities they govern democratically. It also requires elections of council members to be held every five years (Department of Housing, Planning and Local Government, 2016).

2.2 LANGUAGE REGIONS

LEGEND

- Gaelic speaking
- English speaking
- Galway City

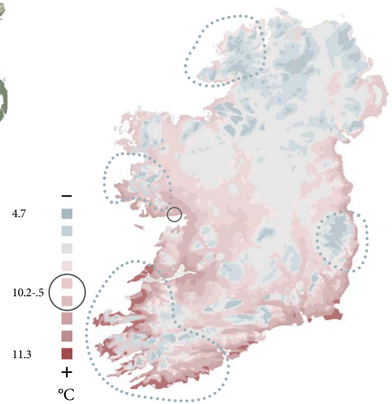
THE GAELTACHT

The Gaeltacht of Ireland describes those areas where the old Irish language (Gaeilge), Irish culture and tradition are still present and commonly practiced in people's everyday life. County Galway and County Mayo, both located in Connacht Province, are home to the largest Gaeltacht of the country, mostly consisting of rural settlement areas. Those rural areas, where the Irish language is the first language spoken by locals, are also referred to as the Gaeltachtai.

The Gaeltacht was officially announced in 1926 shortly after the declaration of the Irish Free State (1922), and the following efforts to revive the Irish traditions, culture and language. However, nowadays, the use of the Irish language is rapidly declining.
This trend is partly seen as a result of rural to urban flight. Additionally, there is a decreasing interest in teaching Irish to younger generations in the context of an increasingly globalised and anglicised world where minority languages become obsolete. In some towns and cities, local community groups have formed to push forward policies helping to keep the Irish language and traditions alive (Údarás na Gaeltachta, n.d.).

2.3 LANDSCAPES & CLIMATE

1|



2|

120km

LEGEND

- grassy lowlands
- grassy/ rocky highlands
- Galway City
- highest average temperature p.a.
- lowest average temperature p.a.
- highest average percipitation p.a.

TOPOGRAPHY & WATERBODIES

- highest point at 1,040m ASL
- lowest point at -3m BSL
- Galway at approx. 25m (average)
- located within the Lough Corrib Basin (the largest lake in the republic)

(The Ordance Survey Ireland, 2017)

AVERAGE ANNUAL TEMPERATURE

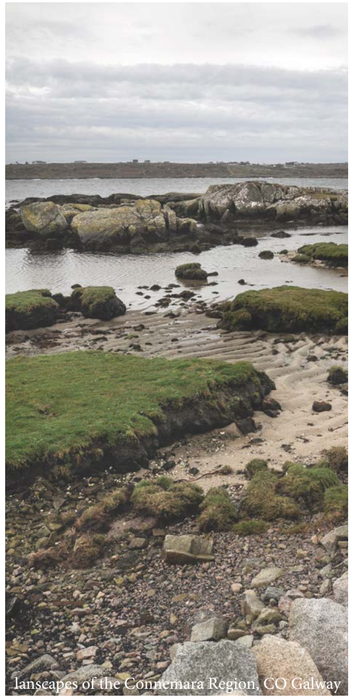
- country average at 9.8 °C
- lowest average at 4.7-8 °C
- highest average at 10.9-11.3 °C
- Galway City average at 10.2-10.5 °C
- classified as warm temperate climate (Cfb)

AVERAGE ANNUAL RAINFALL

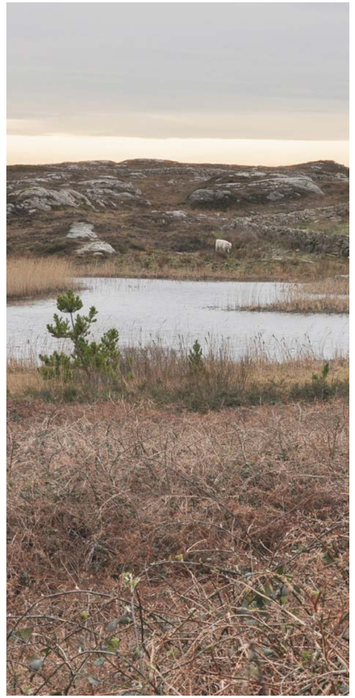
- country average at 1,075 mm
- lowest measured is 675 mm
- highest measured is 3,551 mm
- Galway receives 1,140-1,320 mm p.a.
- average calculated from 1981-2010 data

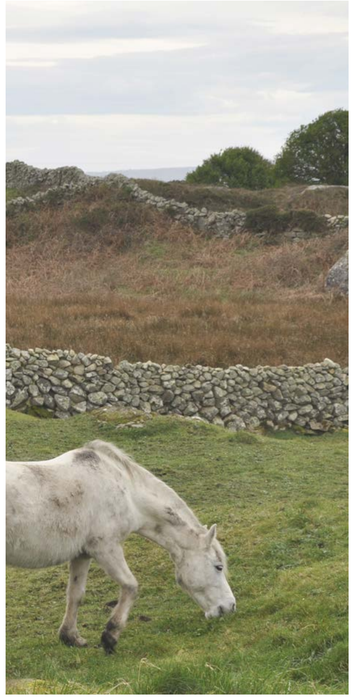
(The Irish Meteorological Service, n.d.)

image source:
1| https://earthobservatory.nasa.gov/images/5343/topography-of-ireland
2| https://www.met.ie/climate-ireland/SummaryClimAvgs.pdf (altered in colour)



lanscapes of the Connemara Region, CO Galway





< MAIN FINDINGS
RELEVANT TO GALWAY

the presence of a minority group practising old traditions and the Irish language

surroundings that feature a unique landscape character

in proximity to large waterbodies

high percipitation and temperate climate

3. CITY PLANNING CONTEXT

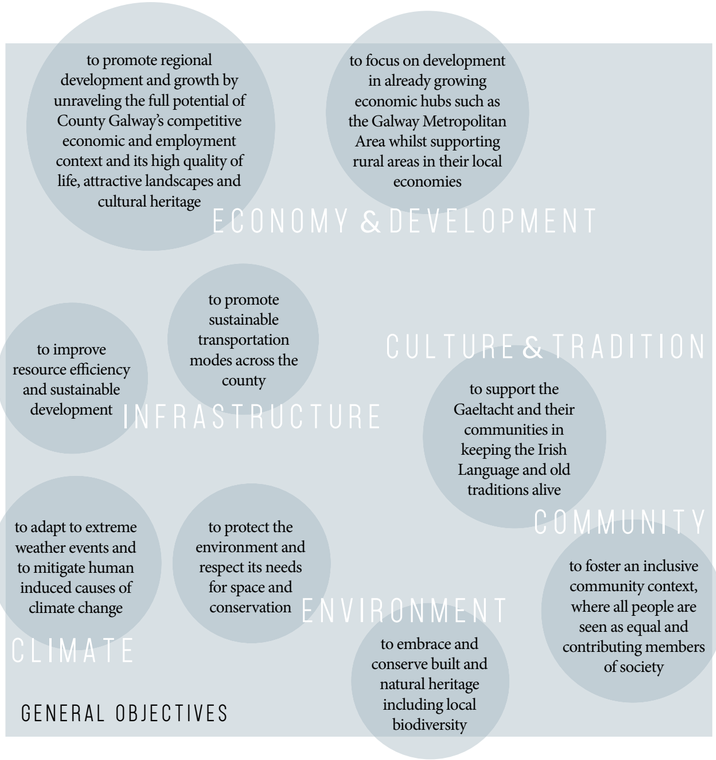
3.1 GALWAY COUNTY

Lough Corrib is the republic's largest lake covering 176 km². It has been designated a nature conservation area due to its diverse fauna and flora and its importance for fresh water supply to the wider region.

GENERAL OVERVIEW

Galway County is part of Connacht Province and is governed separately from Galway City by the Galway County Council.

The western part of the county - the so-called Connemara Region - holds the largest Gaeltacht of the Republic. According to the 2016 Census, more than 84,000 people over three years speak the Irish language in Galway County, which makes up for almost half of the province's total number of Irish speakers. Therefore, the Irish language and tradition still considerably affect private and public life and influence local culture in the county.
The CSO Census 2016 states that just over half of Galway County's population lives in rural areas making the county more urbanised than most other counties in the Western Region, where only just over a third of all people live in urban areas. Compared to the Republic's total average of 37% of people living in rural areas, the Western Region is the least urbanised in the country.
Galway City is by far the most populated urban area in the county with nearly 80,000 people living within the city boundaries (CSO, 2016).
Galway City is also the only urbanity in the county that has seen considerable population growth over the last years (4% between 2011 and 2016, WDC Insights, 2017) being the province's primary hub for education, employment, health services, innovation and culture. The provision of basic services in county towns poses a major challenge to governing bodies and local councils at present (WDC Insights, 2017).



STRATEGIC DEVELOPMENT PLAN

The following quote summarises the county's strategic objectives and was retrieved from the Galway County Development Plan 2015-21:

"Enhance the quality of life of the people of Galway and maintain the County as a uniquely attractive place in which to live, work, invest and visit, harnessing the potential of the County's competitive advantages in a sustainable and environmentally sensitive manner." (Galway County Council, 2015, p.11)

3.2 GALWAY CITY

STRATEGIC DEVELOPMENT PLAN

In the face of recent improving economic dynamics after a long-lasting period of recession following the Global Financial Crisis, Galway City Council's 2017-2023 Development Plan acts as a strategic guideline for future growth. In an extensive framework, the council defines strategies for the city's development to meet the changing demands of the growing urban population.

The document envisions an increasingly prosperous, regionally important and nationally competitive city resilient to future market fluctuations. This requires a holistic approach that, besides economic development and the resulting increase in employment and expenditure, highlights the importance of environmental sustainability, high quality of life and rich local culture.
In order to foster a society resilient to change, public participation and democratic processes are considered important tools to inform government decisions about providing appropriate community infrastructure, public services, diverse housing options for different needs and income groups, high-quality public realm and local green recreation areas promoting public health.
This demands an urban form capable of adapting to climate change and its increasingly extreme weather events. This can be best achieved through the concurrence of a healthy natural environment and sustainable built form (Galway City Council, 2017).

GALWAY

Population: <80,000
Area: 54.2km²
Density: 1,475.2/km²

LUND

Population: >91,000
Area: 25.75 km²
Density: 3,376/km²

DENSITY & URBAN FABRIC

Generally, Galway City has a low-density of just under 1.500 people per square kilometers with a population size of nearly 80,000, still presenting the densest urbanity in the country's west, as previously mentioned (CSO, 2016).

Galway City is characterised by a tight medieval urban fabric in the centre and sprawling outer suburbs featuring a high proportion of single-family and semi-detached housing with private gardens. Up until recently, policies limited the height of most private buildings to two stories. In light of rising demand for housing, these regulations are being revised and higher density is recommended, where appropriate. However, it remains important to develop with sensitivity to low-height heritage architecture (Department of Housing, Planning and Local Government, 2018).
The urban development is interwoven with patches of natural landscapes such as Terryland Forest Park and Lough Atalia, limited by the sea to the south and dissected by River Corrib in north-south direction. Due to the city's low elevation and little topography, floodplains further constrain land availability for new housing estates.
Finally, A network of wide and narrow human-made canals weaves through the inner city fabric, leaving little scope for redesigning the building- and streetscape, and the public domain.
Due to its variety of different waterways, the element of water defines the image and identity of Galway's urban fabric.

CITY GROWTH

There have been three notable phases of city growth in the Republic of Ireland since the beginning of the 20th century.

The 1920s mark the beginning of the shift from a predominantly rural to an increasingly urban population. During this time, the development of suburban estates around the city centre was driven by government programmes to provide working-class housing. As a product, many of Galway City's existing, somewhat unplanned inner suburbs evolved (McManus, 2011).
In the 1970s and 1980s, both public and private housing construction saw their largest increase. Due to rising housing prices, the government offered attractive incentives and subsidies, which eventually resulted in higher availability of housing stock with improved quality standards and larger footprints. Accordingly, the demand for easily accessible retail centres outside the city centre grew along with suburban expansion. In Galway City retail parks, such as the Headford Road Retail Centre and the Terryland Retail Centre, were built subsequently (Raidió Teilifís Éireann, 2016).
The period from the mid-1990s until 2008 the period of the so-called Celtic Tiger. In these years, the republic experienced immense economic growth fuelled by foreign investment. As a relatively poor, western European country, the RIL offered an attractive context for many multinational companies to establish their headquarters in Ireland. In turn, especially the construction sector and the property market boomed in major cities, eventually creating hyperinflation and a major real-estate bubble. The trend of single-family housing reached its peak, leading to high car dependency.

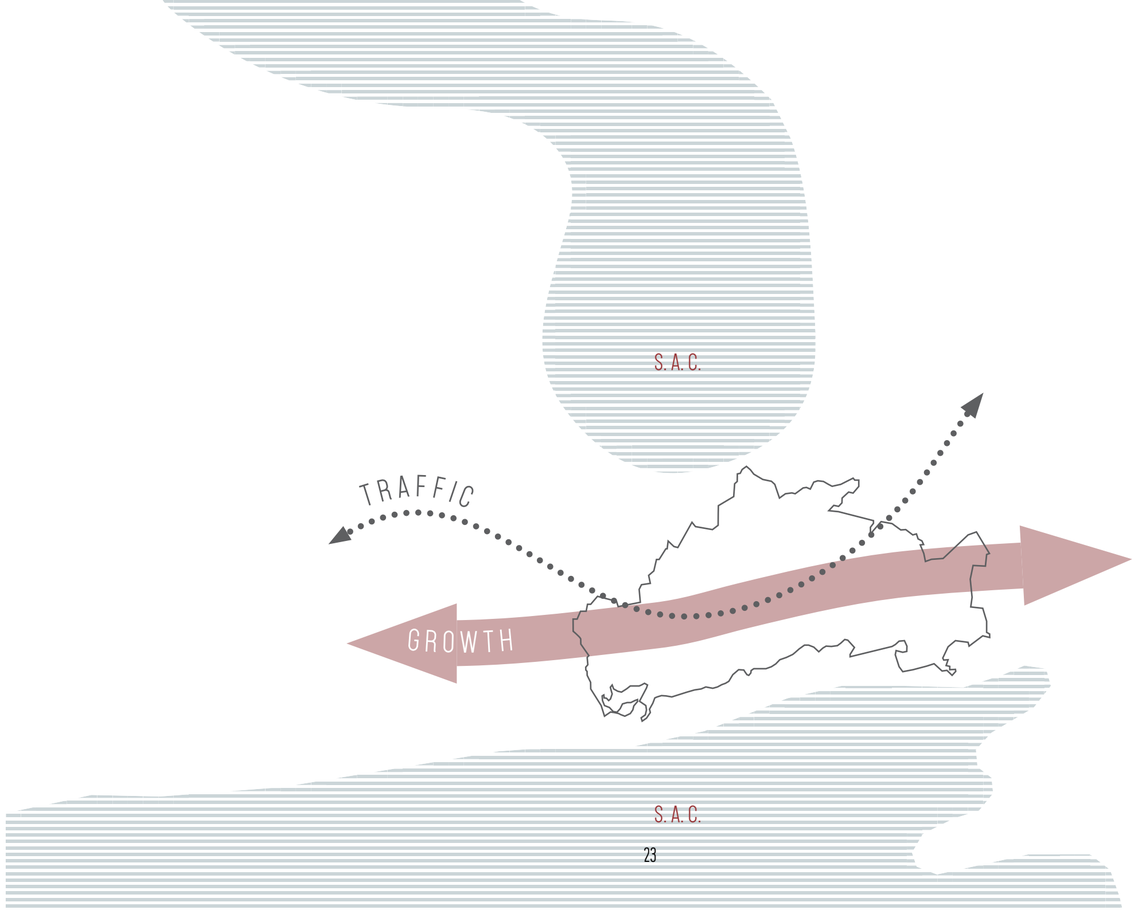
With the Global Financial Crisis, the building industry collapsed, followed by many years of recession, construction halt and financial distress (International Monetary Fund, 2018).
In recent years, Ireland's economy has been slowly recovering, again stimulating the construction industry. Today, cities recognize the need for higher density, affordable housing in easy reach to major employment and activity hubs.

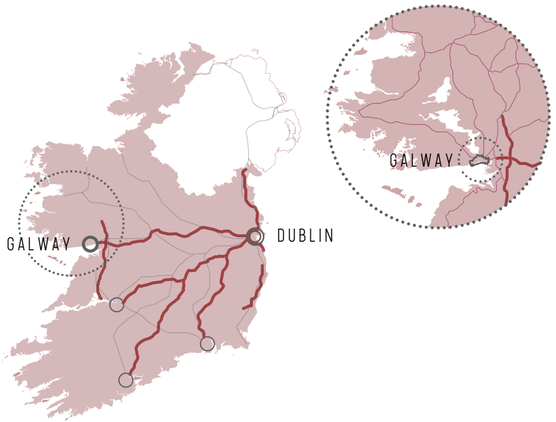
NATURAL BOUNDARIES

Galway City is nestled in between two major landscape elements: Lough Corrib Basin to the north and Galway Bay to the south. These waterbodies do not only present physical boundaries but are also largely classified as Special Areas of Conservation. Here, ecosystems of national and European interest thrive. As a result, the alteration of landscape and the disruption of natural systems due to city development and traffic infrastructure is considerably limited.
In consideration of these natural constraints, the county's strategic planning involves the creation of an economic corridor that links Galway City with close-by urbanities in west-east direction (County Strategy Plan 2017-23).

What is a S.A.C. ?

Special Areas of Conservation (S.A.C.) are prime areas of wildlife conservation, which are designated by the EU Habitats Directive and brought into force by the European Communities (Birds and Natural Habitats) Regulations from 2011. In Ireland, around 13,500 sq. km of land are assigned to S.A.C.s, with around half of the total area being waterbodies such as larger lakes and bays. (National Parks & Wildlife Services, n.d.)





LEGEND

- major city
- national road (dual carriageway) M
- national road (motorway) N
- railway

CONNECTIVITY

Both the dual carriageway national road network (abbr. M) and the railway network radiate from the capital city of Dublin to major cities in the south (Waterford and Cork) and west (Limerick and Galway City) of the country. A finer system of motorways (abbr. N) connects minor and major cities and towns to each other.
Road network connectivity in County Galway is more limited due to the region's afore-mentioned geography and multiple nature conservation zones (Lough Corrib Basin). Therefore, traffic from the eastern parts of the country is channelled through Galway City to reach the Connemara region in the very west.
Both the high amount of commuting people and local tourists see themselves challenged by this bottle-neck situation on county roads.
Although the current landscape poses a major challenge to traffic planners, it's value as local recreation area and as rich natural habitat must not be forgotten (Galway City Council, 2016).

16 %
of the city population travel on foot

~ 6 %
of the city population travel by bicycle

~ 64 %
of the city population travel by car, van or lorry

~ 8 %
of the city population travel by bus or coach

< 1 %
of the city population travel by train

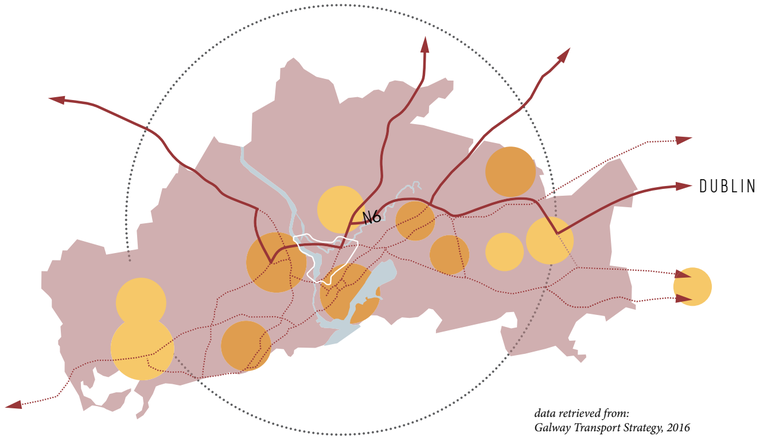
(based on data from Census 2016)

Trends in preferred modes of transportation have hardly changed since 2011 (CSO, 2011).
However, some locals claim that cycling is becoming more popular (students, personal communication, Feb 2019).

In Galway City, people generally rely on transport by private car. Due to the city's key role as an economic centre, people form across the county commute into the city for work, education, shopping, health and other public services. Travel origin points outside Galway City are mostly low density residential in character.
At peak hour people often face congestion: the few key junctions leading into major employment hubs, such as universities, hospitals and business parks receive traffic beyond their capacity. These centres of activity are also widely dispersed over the city and require cross-city travel for many. Furthermore, people often have to cross the River Corrib to reach their destination. However, the few available bridges often reach their capacity, which slows down peak hour traffic significantly.
Public transport infrastructure - mainly consisiting of bus services - is sparse and unreliable in many parts of the city. More frequent services are not considered feasible without major transformations of key axis and without the implementation of a comprehensive prioritised public transport network. Currently, many key routes lead through narrow streets that do not allow for busses to smoothly pass through or for bicyclists to travel safely.

The current traffic situation increasingly influences the image of the inner city and negatively impacts daily life as well as tourism. The charming atmosphere of the medieval city centre and its quality of life are thereby at stake (Galway City Council, 2016).

COMMUTING ORIGINS & DESTINATIONS



data retrieved from:
Galway Transport Strategy, 2016

LEGEND

- Galway City municipal district
- national road
- regional road
- commuting origin
- commuting destination
- major water bodies

PROJECT SITE AT HEADFORD ROAD RETAIL CENTRE

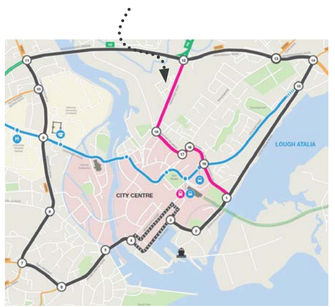


image (1:2) source:
Galway Transport Strategy, 2016

TRANSPORT STRATEGY

The Transport Strategy Planning document released in 2016 envisions Galway's Inner City to become a reduced traffic and speed zone making the old centre better navigable by foot, bike. People will also feel safer and more comfortable moving around the inner city where shopping, commercial and cultural activities concentrate.

To achieve accessibility by public transport, a *bus priority route* (▬) will lead to major destinations within the tight urban fabric of the medieval old town. It will be necessary to vacate some traffic lanes and road-side parking to make space for priority bus lanes.
To ensure a safe passage by bike along a comprehensive *bike path network* (▬), existing routes are to be updated and expanded.
In the future, cars will travel along a *City Centre Access Network* (▬) - a set of roads and streets circumnavigating the city centre and leading over River Corrib at two points. Private motorised traffic will be allowed to access the city centre from all directions. However, crossing the centre will not be possible, forcing cars to exit on the same side as they enter.
Additionally, the *Inner City Access Route* (▬) will provide an inner link. This route includes Headford Road and will, therefore, lead through the project site giving the new development particular relevance as access point into the city centre.

In an effort to further minimise car traffic in the city core, traffic planners envision a system similar to the 'park and ride' concept. In this sense, various car parking solutions will be provided along the City Centre Access Network in comfortable proximity to public transport stops. From there, people will find it easy to continue on foot, by bike or by bus.
Already today, Headford Road Retail Centre features extensive surface car parking. However, people rarely walk or bike to the city centre from here, but move on by car due to a lack of attractive and safe cycling and pedestrian paths.

With this in mind, it becomes clear that the project site presents a logical location for 'park and ride' solutions.
For the system to become effective, some key strategies should include:

- hidden / more attractive parking solutions with less surface coverage and multiple functions (increases e.g., perceived safety through space activation throughout the day)
- new bike and pedestrian routes that link to the existing inner-city path network
- an interesting, human-scale urban fabric that turns walking and biking into an attractive alternative of moving around
- easy access to public transport stops from parking lots

3.3 IDENTITY & CULTURE

> MEDIEVAL ILLUSTRATIONS & MAPS OF ‘THE CITY BY THE WATER’

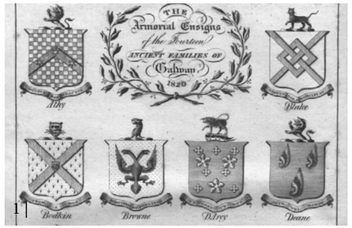
1 | armourial ensigns of the 14 ancient families of Galway by Hardiman (1820)

2 | ‘A plot of towne of Galway’ by Barnaby Googe (1583)

3 | map from the late 17th century

4 | perspective of Galway City 1685 by Thomas Phillips

image sources:
1 | https://www.ouririshheritage.org/content/archive/place/mo-ghaillimh-fein-my-own-galway/within-the-walls-of-medieval-galway/the-tribes-of-galway
2 | https://www.ria.ie/sites/default/files/ihta_a3_poster_0.pdf
3 | https://www.galwaycitymuseum.ie/irish-historic-towns-atlas-galway/
4 | https://www.bl.uk/collection-items/perspective-of-galway



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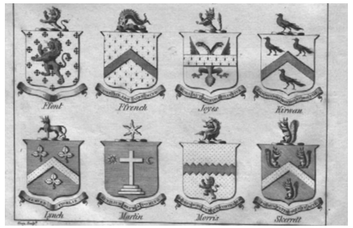

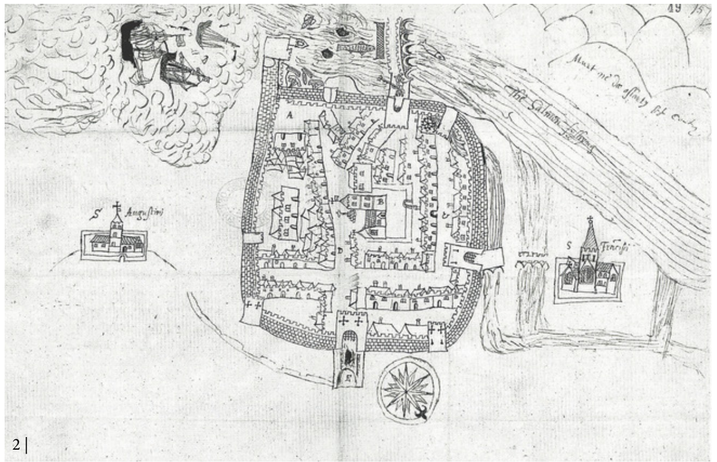

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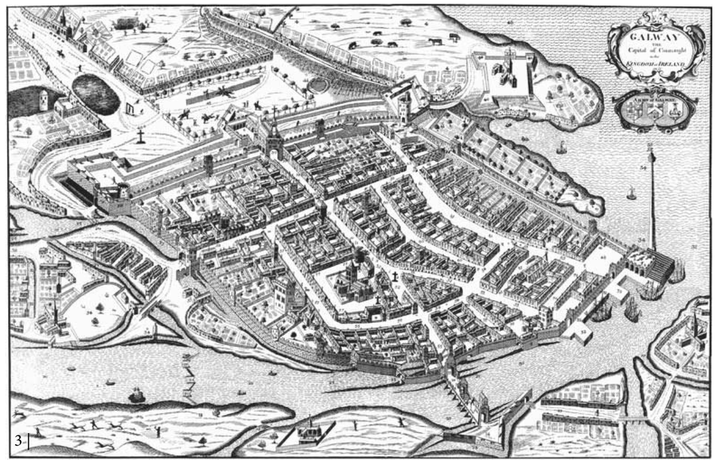

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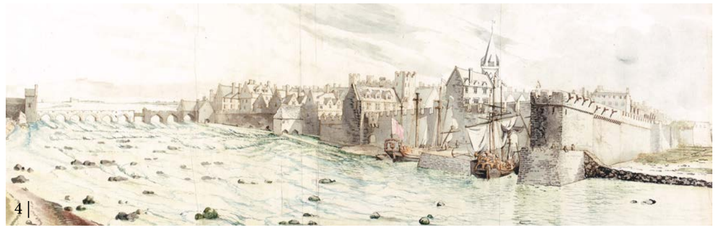


4 |

CITY BY THE WATER

Galway City sits at the mouth of River Corrib and Galway Bay. This was seen as a locational advantage when the city was founded in the 12th century. Here, the city could develop through national and international trading with important shipping routes connecting Ireland with mainland Europe.
During the middle ages and the early modern era, Galway was nicknamed “The City of Tribes” due to powerful merchant families effectively ruling social life, politics and commerce. Already back then, the city’s public life was vibrant and diverse due to its international exchange (Galway City Museum, 2019).
Today, water still plays an important role in the city. While Galway has lost its role as a major commercial harbour town, its diverse waterscapes still define the city’s visual identity. Promoted as “The City by the Water”, Galway’s historical canals and riverine nature zones attract visitors from across Ireland and beyond. Therefore, high water quality is not only a topic concerning public health but is also economically relevant.

EUROPEAN GREEN CAPITAL

Galway was awarded the European Green Leaf 2017 for its commitments to "better environmental outcomes [...] regarding mobility, biodiversity and land use and waste and the green economy" (European Commission, 2019).

MOBILITY:

- efforts in improving pedestrian footpaths and cycling lanes connecting to the city's western suburbs according to the country's new cycling scheme
- efforts in developing an integrated transport strategy

BIODIVERSITY & LANDUSE:

- efforts in raising awareness about local biodiversity through official websites and social media
- efforts in creating a Local Biodiversity Action Plan in cooperation with the city municipality
- efforts in maintaining local habitats and wildlife through protected urban woodland and assigned natural heritage sites

WASTE & GREEN ECONOMY:

- efforts in reducing landfill through a central composting scheme
- efforts in educating the public about minimising food waste

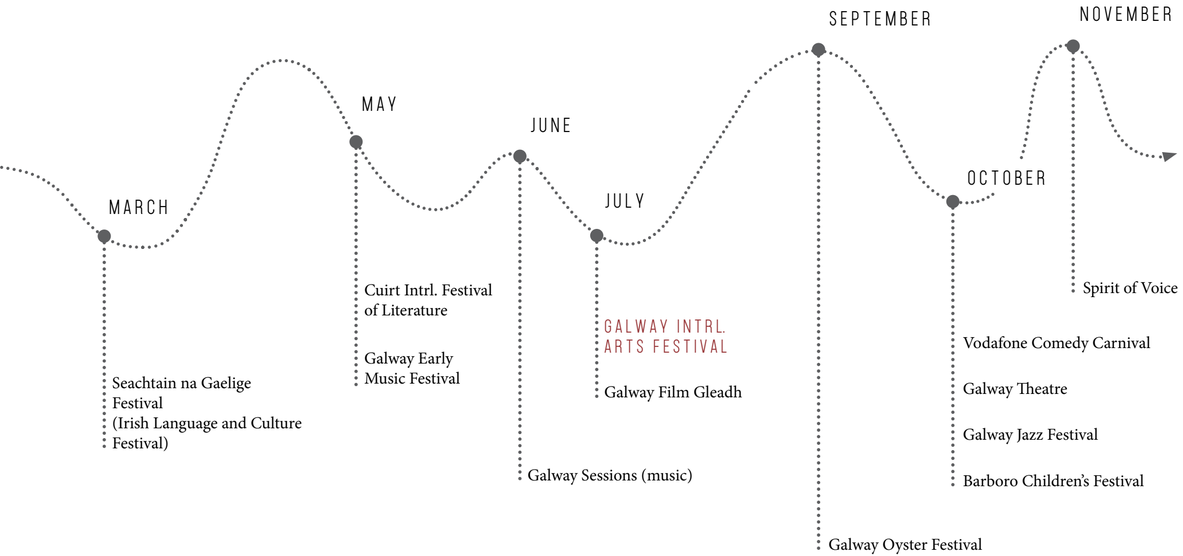
EUROPEAN CAPITAL OF CULTURE

Galway was announced European Capital of Culture 2020 to celebrate and promote its vibrant art, music and theatre scene.
The European Capitals of Culture is one of Europe's most celebrated projects and puts specific regions into the spotlight of cultural life across the continent. The year-long celebration of local culture through special events and a festive atmosphere boosts tourism and regional development but also community bonds and local identity. According to the European Commission, cities ultimately benefit from the increasing quality of life driven by cultural, social and economic development.

"The concept for Galway 2020 is Making Waves. It is about creating new ways of thinking, new ways of working, new conversations and new partnerships aimed at ensuring a more creative Galway."
(Galway City Council, 2019)

The themes for Galway 2020 are Migration, Landscape and Language. With these topics, Galway aims to initiate discussions about the importance of cultural diversity, language minorities and environmental conservation - topics that are not only relevant regionally but also in the broader European context.

ANNUAL CULTURAL EVENTS IN GALWAY CITY



1 | Town Hall Theatre

LOCATED ON THE PROJECT SITE

2 | Black Box Theatre

PERFORMANCE SPACES

Amongst the many other cultural spaces, Town Hall Theatre and the "Black Box" multipurpose performance space count as two of the major event venues in - or close-by - Galway's city centre. Both theatre spaces host a rich variety of events, especially during Galway's International Arts Festival in July when artists from all over the world impress the audiences.

In recent years, the International Arts Festival has grown in importance and is increasingly attracting a vaster interest group, including culture tourists from across the nation and from abroad.
In the face of the growing interest, the demand for multipurpose performance, practice and rehearsal spaces has outgrown many of the smaller venues, including Black Box Theatre. Accordingly, there is a need for new, larger spaces conveniently located close to the city centre, where cultural events concentrate (McNamara, 2016).

image sources:
1 | https://tht.ie/,
2 | https://connachttribune.ie/black-box-to-be-replaced-by-new-cultural-hub-124/

IMPRESSIONS
THE CITY BY THE WATER


1 |


3 |


4 |


2 |


5 |


6 |


7 |


8 |

IMPRESSIONS
GALWAY - THE CULTURAL HEART

1 | fishing boats at Claddagh Quay

2 | Galway Docks

3 | remnants of an old railway bridge

4 | a walkway along the canals

5 | The Long Walk Pier

6 | a parade during the International Arts Festival

7 | The Saturday Fish Market

8 | a busker on Shop Street

image sources:
6 | https://www.discoverireland.ie/Whats-On/galway-international-\\arts-festival/519319
7 | http://ttnotes.com/galway-market.html#gal_post_34946_galway-market-galway-city-5.jpg

< MAIN FINDINGS
ABOUT THE CITY OF GALWAY

situated within an ecologically and culturally important natural environment

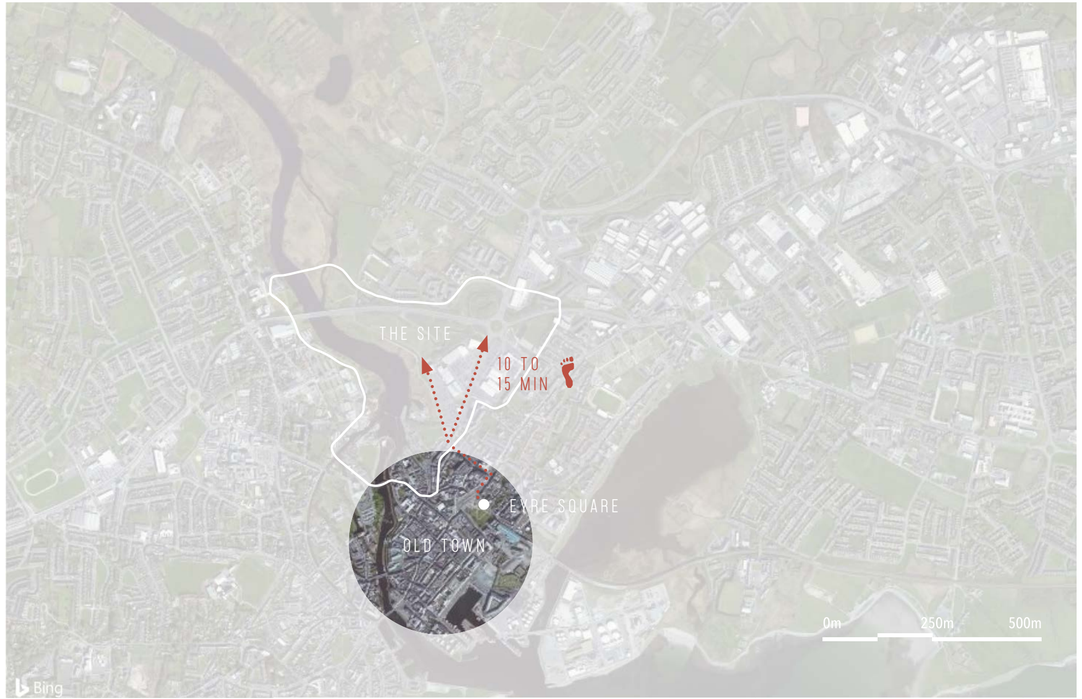
the cultural, economic, commercial and educational heart of Ireland's western regions

challenged by the current, car-based traffic situation

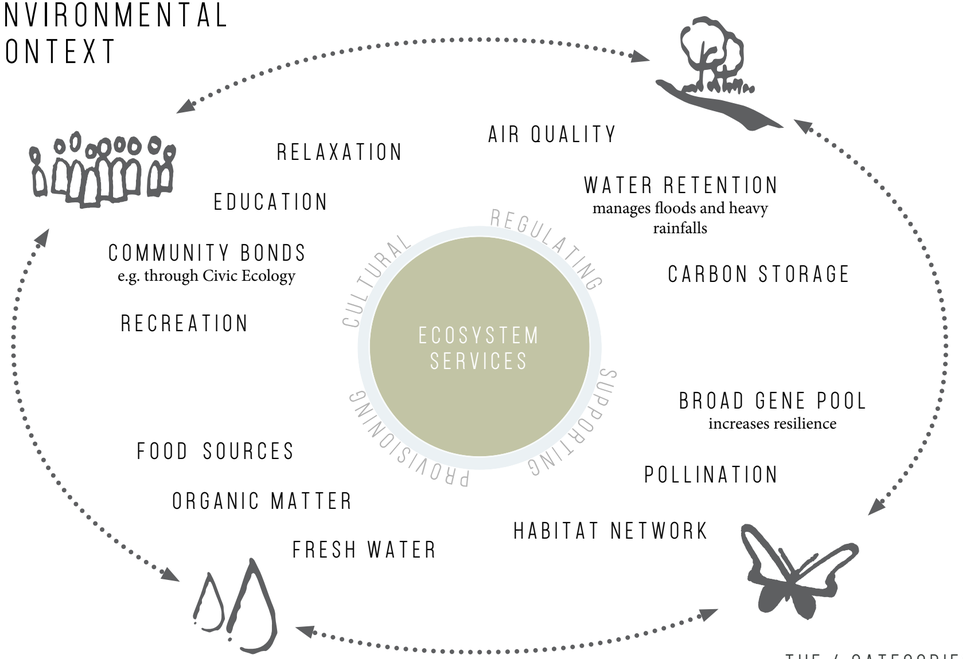
strong ambitions to embrace and enhance existing environmental and cultural qualities

4. SITE ANALYSIS


TERRYLAND
FOREST PARK
THE SITE
NA
0m
250m
500m
Bing


THE SITE
10 TO
15 MIN
EYRE SQUARE
OLD TOWN
0m
250m
500m
Bing

4.1 ENVIRONMENTAL CONTEXT



THE 4 CATEGORIES OF ECOSYSTEM SERVICES

WHAT ARE ECOSYSTEM SERVICES?

According to The Economics of Ecosystems and Biodiversity (TEEB, n.d.), the definition of ecosystem services helps to quantify the benefits directly or indirectly derived from natural systems. Through this, it has become easier to raise awareness and to communicate nature's values more efficiently. The four categories - cultural, regulating, supporting and provisioning ecosystem services - help us understand nature's benefits to humanity and its vital role in ensuring a high quality of life.

Freshwater, food, raw materials, and plants used for medicinal purposes belong to the group of 'Provisioning Services'. These are simply the energy or material outputs from ecosystems.

'Regulating Services' define, for example, the capacity of plants to improve air and water quality by capturing pollutants and harmful minerals, to store carbon and to retain and manage water flows.

'Supporting Services' include the provision of habitats for animal and plant species.
Healthy, well-connected habitats are often rich in biodiversity: the gene pool is more diverse, which in turn stabilises species populations by making them more adaptable to changing environmental circumstances.

'Cultural Services' comprise for example recreational and educational values of green spaces, cultural identity delivered by heritage landscapes, strong community bonds based on shared environmental values and heritage, and mental benefits from spending time in natural environments. (TEEB, n.d.).

In the context of a capitalistic world and its quest for continuous growth and development driven by an open market system, the definition of ecosystem services helps to quantify profits derived from conserving natural systems. If benefits cannot be measured and quantified, there is little understanding of the potential profit. In this case, there would also be little incentive to invest in nature conservation and the protection of ecosystem services.
Generally, the quantification of nature's benefits is complex due to numerous components and unquantifiable variables, playing a part in any ecosystem. The components are interconnected and depend on each other: if a single component is subject to change, the entire system has to adapt to the modification in a constant strive for a system equilibrium.
There is continuous research on how to better quantify the benefits of ecosystem services. Fortunately, it is increasingly recognized that environmental health and people's wellbeing go hand in hand.

1|

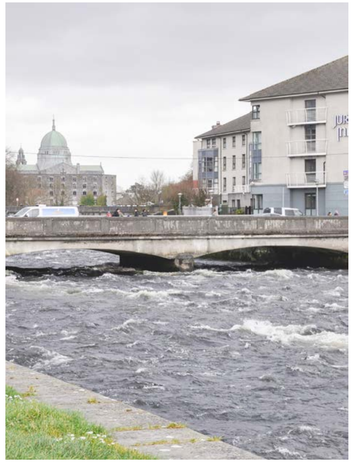
2|

3|

THE SITE'S WATERWAYS

There are two waterways directly connected to the design site: the River Corrib, which borders the site to the west, and the Terryland River (also called Sandy River) - a branch of the River Corrib, which leads through the site.

The two waterways differ considerably in ecological quality (refer to pp. 47). However, both offer valuable habitats for various plant and animal species and thereby significantly contribute to local biodiversity.
Furthermore, the two rivers significantly impact the site's built environment as more extreme weather events might aggravate flooding.
Finally, the River Corrib and the Terryland River are challenged by polluted water run-off from sealed surfaces. However, the two waterways play an important role in supplying fresh water to the city and therefore need to be protected. Under the European Water Framework Directive, the city receives useful guidelines for managing and re-establishing good water quality.



EU WATER FRAMEWORK DIRECTIVE

The EU Water Framework Directive is a European legislation requesting all coastal and inland water bodies to reach a good or better ecological status by the year 2027. It recognizes the need of water-using sectors (e.g., agriculture and industries), communities and environmental systems for access to better water quality. In simplified terms, the directive seeks to reduce water pollution drastically and to ensure that water bodies with already high water quality remain clean. Through the legislation, responsibilities are now defined on the basis of river basin districts rather than administrative boundaries. For each district, a River Basin Management Plan is created that outlines site-specific strategies to achieve the WFD's general objectives. The management plan is revised every six years to adapt to changing circumstances.

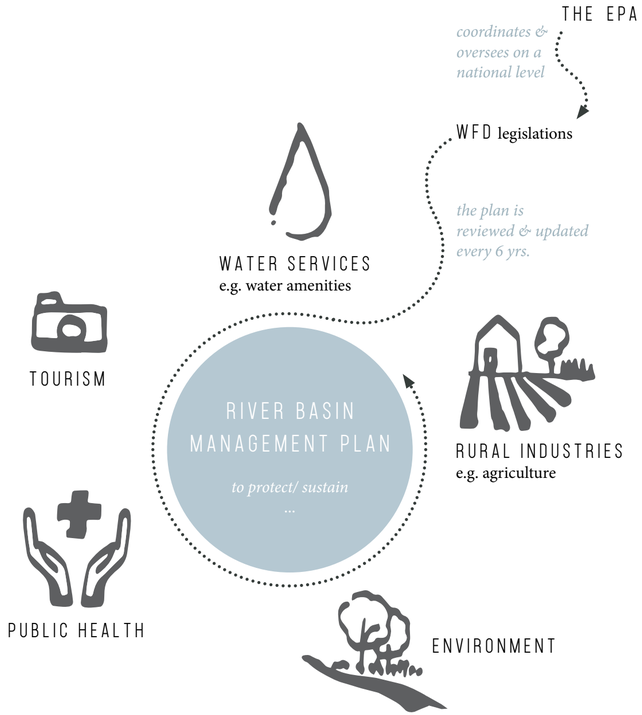
The WFD's key objectives include:

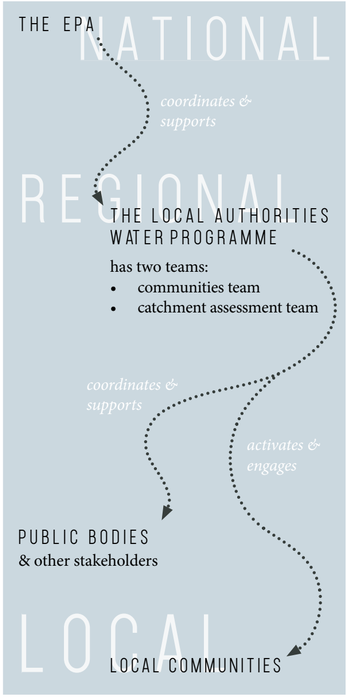
- the general protection of aquatic ecosystems, such as surface, ground and coastal water bodies
- the protection of particularly valuable aquatic habitats
- the protection of drinking and bathing water(s)
- management of water bodies based on river basins/catchments
- involve the community and profit from local knowledge

The legislation has substantially driven forward sustainable water management in Ireland and has played an important role in improving water quality since it came into force in the year 2000. The Environmental Protection Agency - abbreviated to *EPA* - coordinates the monitoring of waterbodies and oversees projects on a national level. In this way, the agency supports and closely works together with the Local Authorities Water Programme.

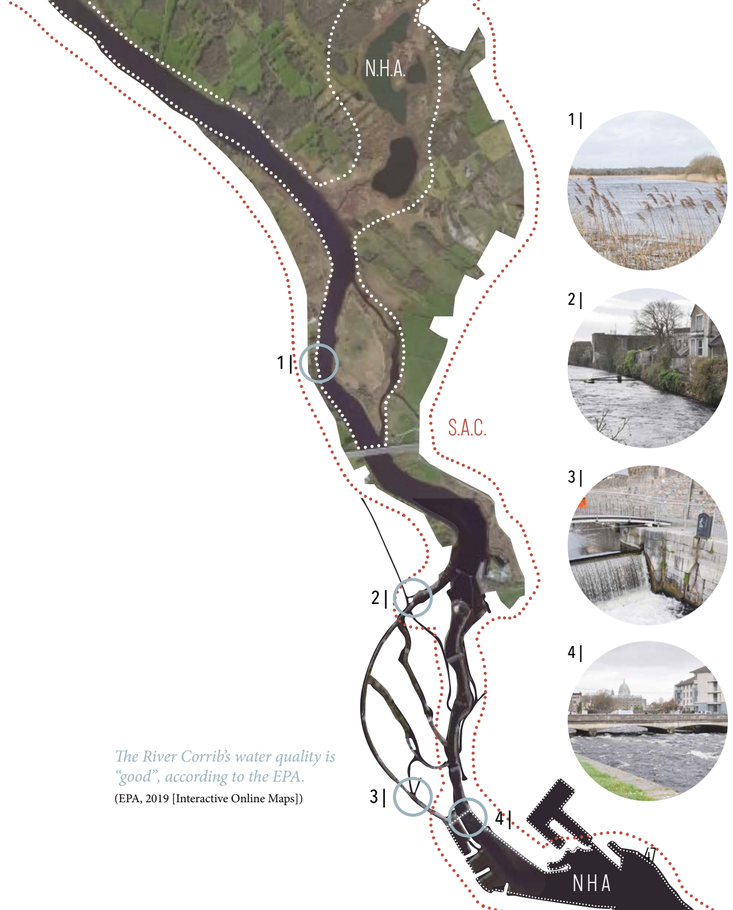
As a part of the large River Corrib Basin, Terryland River contributes to achieving high water quality in Galway. The stream runs above a regionally important karst aquifer. Karst landscapes are particularly vulnerable to pollution due to their porous bedrock characteristics: polluted water is quickly transported to connected ecosystems, where it adversely affects flora and fauna.

"The Environmental Protection Agency (EPA) is responsible for protecting and improving the environment as a valuable asset for the people of Ireland. [...]. We play key roles in environmental regulation, provision of knowledge and advocacy for the environment." (EPA, 2016, p. 2 [Brochure])





(Waters and Communities, n.d. [Blog post])



The River Corrib's water quality is "good", according to the EPA.
(EPA, 2019 [Interactive Online Maps])

RIVER CORRIB

Galway's main waterway, the River Corrib, connects Lough Corrib in the north with Galway Bay in the south. According to assessments by the EPA (n.d.) in 2019, it's water quality is 'good'. The area comprising its main arm and its associated riparian nature zones are declared as Special Areas of Conservation (S.A.C.s). Furthermore, both the river and the surrounding land north of N6 bridge, and the river's mouth at the entrance to the sea in the south are listed as Natural Heritage Areas (N.H.A.). This classification is used to recognize and protect regionally important landscape characters (EPA, 2019).

The river is only 6 km short and the second fastest flowing one in Europe. During the 19th till the mid 20th century the city conducted major engineering works to build a network of canals close to the city centre. Thus, it became possible for people to use the river as power source. The numerous mills that popped up along the man-made canals significantly contributed to the local economy ("Waterways of Galway", n.d.).

Today, these mills are inactive due to unclear ownership and maintenance responsibilities. Nevertheless, many of these mills are heritage listed as valuable witnesses of time. Currently, the university conducts in-depth research in quest of options for cleaner power generation through water. However, the integrity of the valuable river and bay ecosystems remains the number one priority (Galway Waterways Foundation, n.d.).

The Terryland River's water quality is unsatisfactory, according to the EPA.
(EPA, 2018)

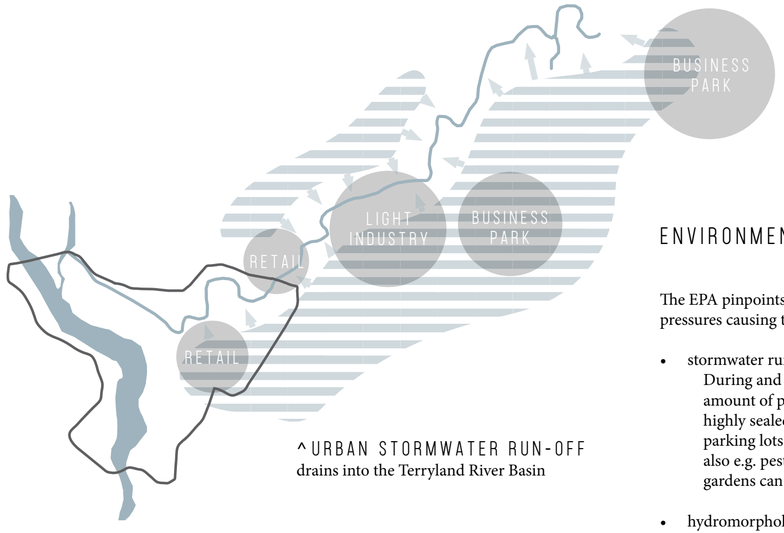
Read more about the river's pollution in the annex (p.150)

TERRYLAND I SANDY RIVER

Terryland River - also called Sandy River is a branch of River Corrib. Although it is Galway's least prominent waterway, some sources call it the city's most interesting one (Galway Waterways Foundation, n.d.).
Against expectations, the river does not flow into River Corrib but diverts away from it in west-east direction until it disappears into *two sinkholes* (○). Due to geological particularities (limestone bedrock moulded by carbon dioxide enriched water), the waterway continues its course through an underground river network. Eventually, the water finds its way into Galway Bay at an unknown location.

Right where it branches off, the river passes the Old Waterworks Building, which is inactive and heritage-listed nowadays. Here, the river's natural course has been rectified. It then passes through Terryland Forest Park along retail centres, light industries, business parks, residential areas and farmland.
The river also feeds *Galway Waterworks' Water Treatment Plant* (○) located in Terryland, which supplies the city with clean water. In general, this use has little impact on the river's water flow and quality. However, further along the course the water quality significantly deteriorates: in 2018, the EPA classified the water body as 'moderate' or 'at risk' (EPA, n.d.).

1-2 | the *rectified river course* (IIIII) passing the *old water treatment plant* (●)
3-4 | invasive species along the dredged watercourse



^URBAN STORMWATER RUN-OFF
drains into the Terryland River Basin

ENVIRONMENTAL PRESSURES

The EPA pinpoints two major 'environmental pressures causing the river's degradation:

- stormwater run-off
  During and after rainfall there is a high amount of polluted water run-off from highly sealed surfaces such as surface parking lots and light industrial sites. But also e.g. pesticide run-off from residential gardens can pose a threat to the ecosystem.

- hydromorphological changes
  Hydromorphological changes are caused e.g. by river dredging conducted to remove built-up sediment. River dredging does not only destroy established fauna and flora in the riparian zone but also spreads invasive species through machines. Currently, Terryland River is being dredged every 5 years. Japanese Knotweed, an invasive species from Asia, poses an ongoing threat to the local ecosystem.

"Flood protection measures are aimed at reducing the likelihood and/or the severity of flood events. These measures, typically requiring physical works, can reduce risk in a range of ways, such as by reducing or diverting the peak flood flows, reducing flood levels or holding back flood waters. The preferred Standard of Protection offered by such measures in Ireland is the current scenario 1% Annual Exceedance Probability (AEP) flood (100-year floods respectively), although these standards can increase or decrease depending on local circumstances." (The Office of Public Works, n.d.)

TERRYLAND RIVER FLOODING

Terryland River is a drainage river. Historical maps show that its valley was entirely flooded when the River Corrib carried large amounts of water during the wet winter months. In the mid 1900s, a dyke embankment was built (along today's Dyke Road) (▭) to allow for farming in the Terryland River valley.

The dyke is still effective today. Additionally, the salmon weirs gates (▬) control water levels in the upper parts of the River Corrib. These measures are necessary to protect Headford Road Retail Centre (▭) and other important commercial, light industrial and business sites in the river basin.

w

Urban parklands have several health benefits for humans. Firstly, green spaces and trees significantly improve the air quality in the surrounding city context. Secondly, people living in proximity to green spaces often lead more active lifestyles. This may reduce the risk of lung and heart diseases and of obesity in certain groups. Thirdly, green spaces may reduce stress levels. Lastly, parks, as public assets, may strengthen social cohesion (Hartig *et al.*, 2014).

1 | Dyke Road & view towards the city centre

2 | pedestrian pathway

3 | the Terryland River

4 | community-planted woodland

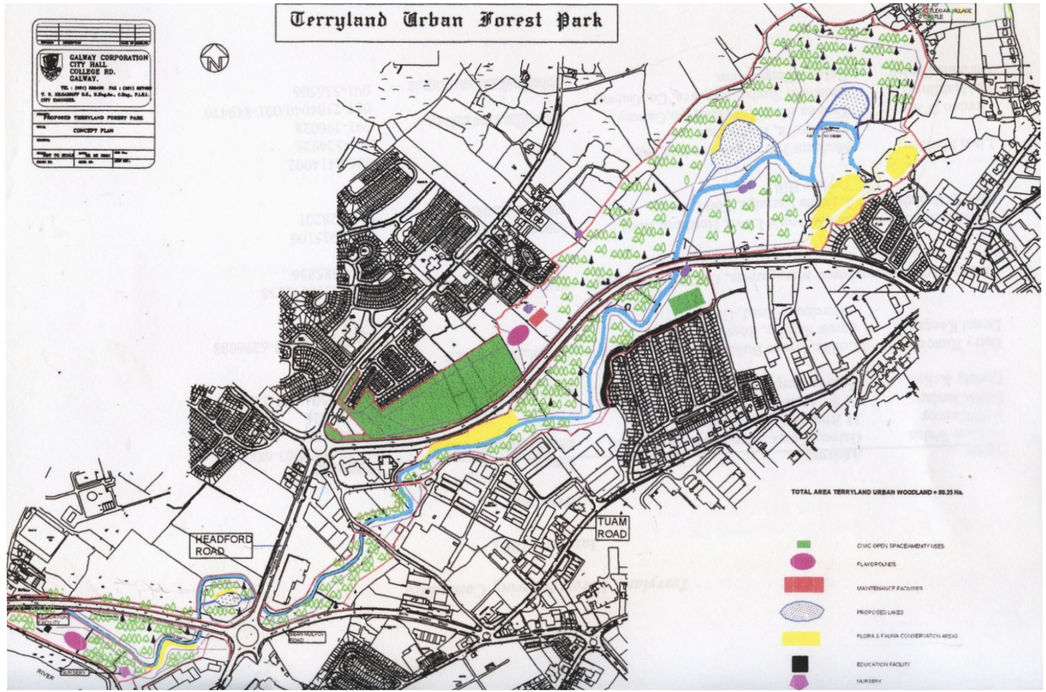
TERRYLAND FOREST PARK

Terryland Forest Park was established as People's Park in the year 2000, thanks to strong community campaigning. It has become a major green artery just north of the city centre.

The parkland covers about 80 hectares and is zoned as public park. Thereby, the city has excluded the area from the encroachment of development. It's maintenance and management hinges on engagement by the community, local universities, the City Council, the City Parks' Department, the Local Health Office (HSE), the National Trust and local schools. Together, they form the so-called *Terryland Forest Park Alliance*, an informal group that shares park information, knowledge and educational material and organises environmental actions via social media.

As part of a greater vision, the community has planted approximately 100,000 trees to transform the park into an urban forest ("Ireland's largest Urban Forest Park", n.d.).

Unfortunately, many parts of the park are currently underused and lack organised management and maintenance: today, the city does not want to employ a designated park warden and is only minimally involved in the park's waste management. Furthermore, the park lacks adequate access points and basic infrastructure.



map source:
http://friendsoftheterrylandforest.blogspot.com, viewed 05/03/19

"The conservation of existing habitats, creation of new habitats and the development of a balanced ecological system will be paramount within the planning of the Park.." (Walsh, 2000, p.6)

"The Water and Waste Water Systems will be designed to be self-supporting through advice from the Environment Section of Galway Corporation."
(Walsh, 2000, p.7)

"We see the Park growing and including sites for theatre, music, comedy, sculpture, painting and many other exciting projects. The Terryland Forest Park will bring Art and Culture to the Citizens of Galway and to those lucky to be visiting it.." (Walsh, 2000, p.9)

"It is proposed that up to 65% of the total area of the Park will be planted with trees! As the Forest matures it will effectively act as a Carbon Sink for Galway, [...]. Most importantly the development of the Forest Park will ensure that the area is guaranteed to remain in a 'Natural State'." (Walsh, 2000, p.9)

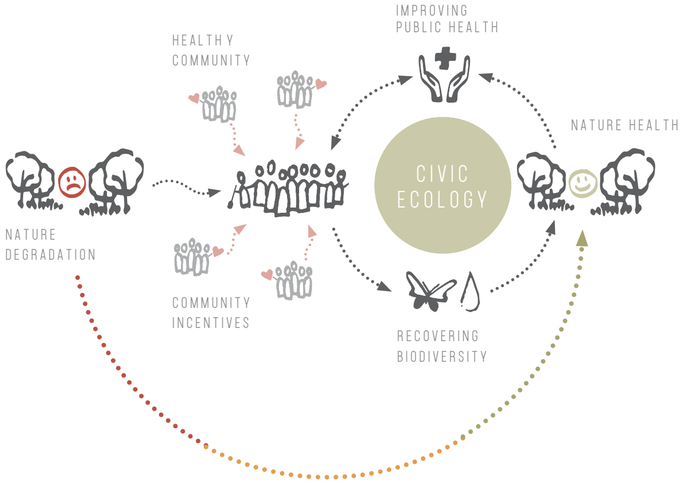
A COMMUNITY VISION

In the year 2000, Steven Walsh, the city's Parks uperintendent, and members of the park's steering committee released the Terryland Forest Park Strategic Plan to apply for state funding. Although the project enjoyed a lot of support, the submission was eventually declined.

The plan outlines the following key objectives for Terryland Forest Park to become ...

- an ecological corridor rich in biodiversity
- a link connecting fragmented habitats
- the largest urban, native tree forest in Ireland
- a best practice example for urban forests across the EU
- an outdoor classroom for young and old
- a people's park with high community value that is inclusive and inviting for all, regardless of sex, age, ability and race
- a child friendly park
- a park that sustains itself as much has possible to achieve maximum financial and environmental sustainability
- a park that embraces the Arts and the Irish culture

("Forest Plan 2000", n.d.)



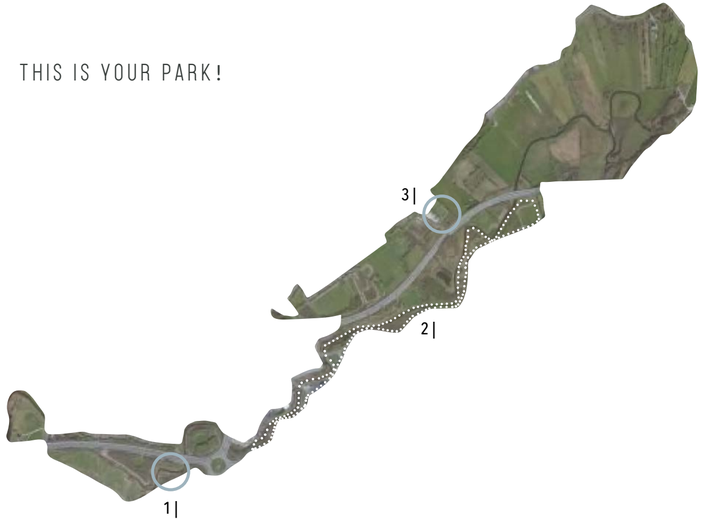
"[...]. So Civic Ecology for me is this community-based natural resource management that leads to civic, social sorts of outcomes that are positive or just desirable, and ecological outcomes that are positive or desirable. And those sort of civic ecology outcomes should be meaningful, they should be memorable and most importantly they should be measurable." (Tidball, 2015)

CIVIC ECOLOGY

The term 'Civic Ecology' describes the engagement of community groups in environmental actions to improve the ecological state of a natural system. The concept is based on the fact that the environment's state of health (e.g., air and water) also impacts people's wellbeing.
'Civic Ecology' incentives are often initiated in urban settings where environmental degradation is particularly prevalent and where environmental interest groups concentrate. In many cases, community groups initiate environmental incentives after a crisis or a local disaster. Shared values and collective environmental stewardship are known to enhance community identities and bonds. Therefore, Civic Ecology is a powerful tool that improves people's mental health and quality of life (Krasny & Tidball, 2012).

In Galway, there is a strong movement raising awareness about the state of the environment in the context of the growing city. The groups 'Terryland Forest Park Alliance' and 'Friends of Terryland Forest Park' are part of this movement and devote themselves to enhancing the park's ecology for the benefits of the community.

THIS IS YOUR PARK!



1 | information boards 2 | bat box installation 3 | community gardening 4 | invasive species

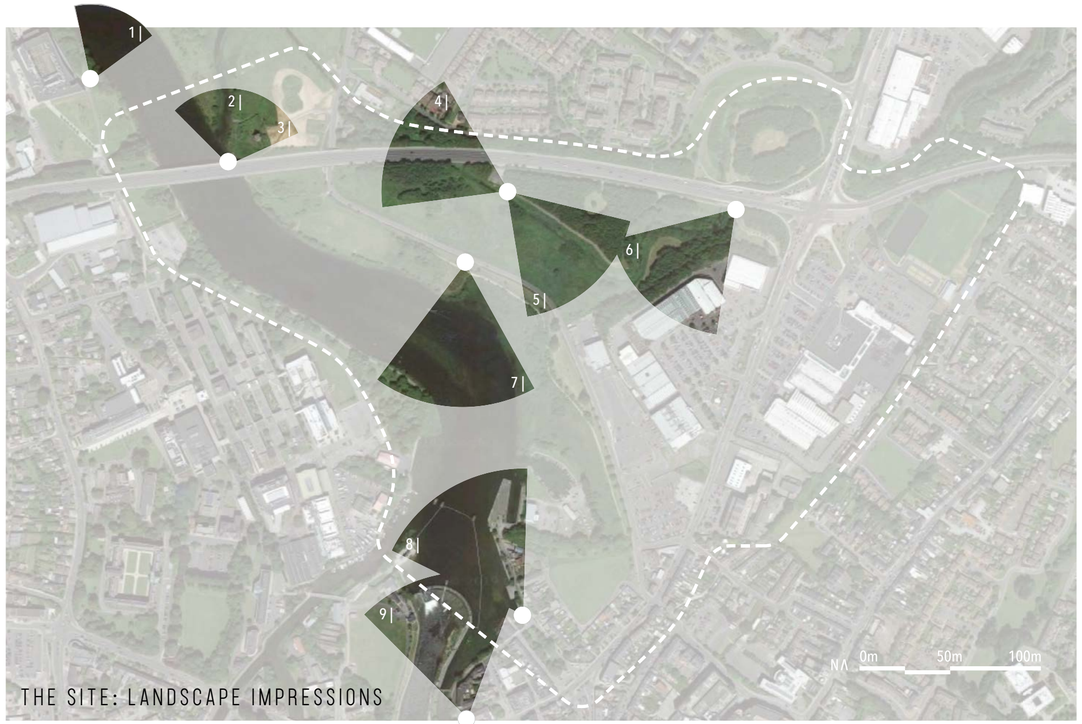
image sources: 2 | http://www.letsgetgalwaygrowing.com/Garden2-Ballinfoile-Mor-Community-Garden.php
3 | http://terrylandforestpark.blogspot.com/p/events.html, 4 | https://galwaywaterways.ie/terryland-river/

ENVIRONMENTAL STEWARDSHIP IN TFP

Volunteer organisations regularly meet in Terryland Forest Park for environmental actions. Their achievements include:

- planting native Irish trees
- setting-up information boards and educational material at park entrances
  These boards are relatively large and coloured in red to attract attention. However, only few people seem to walk up spontaneously to read through the thoughtfully assembled material.
- constructing and installing bat boxes to support different bat populations in the park
  The bat boxes are built by the Men's Shed organisation and then distributed by volunteers.
- running Ballinfoile Community Farm
  The farm promotes local farming traditions and old methods of landscape care. There are many regular and occasional helpers of different ages and walks of life.
- cleaning-up the park
  The group 'Friends of Terryland Forest Park' meet up regularly to dispose of litter left behind in the park. Currently, the city does not engage in the park's waste management.
- raising awareness about harmful invasive species

("Terryland Forest park - Events", n.d.)



THE SITE: LANDSCAPE IMPRESSIONS

1 | natural heritage area

2 | wetland

3 | Terryland Castle

4 | M6 channel

5 | shallow river flow

6 | dredged riparian zone

7 | view towards the city centre

8 | remnants of the old railway bridge

9 | the salmon weir

THE SITE: EXISTING HABITATS

< LEGEND

- hedgerow (WL1)
- scrub (WS1)
- riparian woodland (WN5)
- broadleaved / conifer (WD2) | mixed woodland (WN6)
- wet grassland (GS4)
- grassy verge (GS2)
- large sedge swamp (FS1)
- artificial surfaces (BL3)
- depositing lowland river (FW2)

1 | grassy verges

2 | large sedge swamps

3 | riparian woodland

4 | mixed woodland

HABITATS

According to studies conducted by the National University of Ireland NUIG, the part of Terryland Forest Park included in the project site features 9-10 different habitats (Leonard, 2017; McMahon, 2016). Here, the majority of the park is covered by mixed broadleaved or conifer woodland mostly planted by the community. Most tree species are native to Ireland and include oaks, ashes, alders, silver birches, hollies and scots pines.
Generally, the canopy is well established and dense. Younger parts of the park have lighter canopies, but a denser ground cover made up by hawthorn bushes, brambles and gorses. These areas present a suitable environment for small mammals by allowing them to hide from urban predators such as dogs, cats and foxes.
Besides the more common urban mammals (mice, pigmy shrews etc.) the park also houses ...

- six bat species
  These have different habitat preferences, such as well-lit areas or old trees.
- foxes
  These predators are found in various habitats, often where berries grow.
- Irish hares, otters and stoats
  These mammals were listed in a study from 2007 and may not be found in the park today.

(Haigh & Lawton, 2007)

RIVER HABITAT

BOUNDARY HABITAT (TFP)

LOUGH HABITAT

HEAVILY URBANISED EDGES

BAY HABITAT

INTEGRATING BOUNDARY HABITATS

"As the demands on green areas around and within cities increases, so too does the pressure on the fauna they support. It is, therefore, of paramount importance that semi-natural areas within urban sprawls are maintained and the corridors linking these sites to each other and to the wider countryside are kept intact. The diverse mammalian fauna found within Terryland Forest Park, including some species not ordinarily associated with urban parks, underlines the importance of such an area, and its adjacent corridors." (Haigh & Lawton, 2007, p. 401)

Urban environments are challenging habitats for wild mammals. One of the main issues they face is the physical fragmentation and disection of habitats, e.g. through densely built urban fabric or major roads.
In Galway City, green corridors could link larger habitats and could thereby allow for species to roam and mingle across a greater area. While these "boundary habitats" might not be extensive enough to support large wildlife populations, they still matter in the greater picture by preventing inbreeding and by allowing for species diversity. Both are requirements for relative ecosystem stability (Haigh & Lawton, 2007).
Terryland Forest Park could link the outer conservation zones in the north to nature areas in the south (Lough Atalia and Galway Bay). A long-term strategy is needed that connects habitats into a comprehensive, city-wide network.

< MAIN FINDINGS

ENVIRONMENTAL CONTEXT ANALYSIS

The site is nestled within a rich environmental context defined by two major waterways - the River Corrib and the Terryland River - and an urban forest park. To fully embrace these assets, community groups envision an extensive ecological corridor for all people to enjoy. However, a lack of governmental support, polluted stormwater run-off and habitat fragmentation compromise the vision at present.

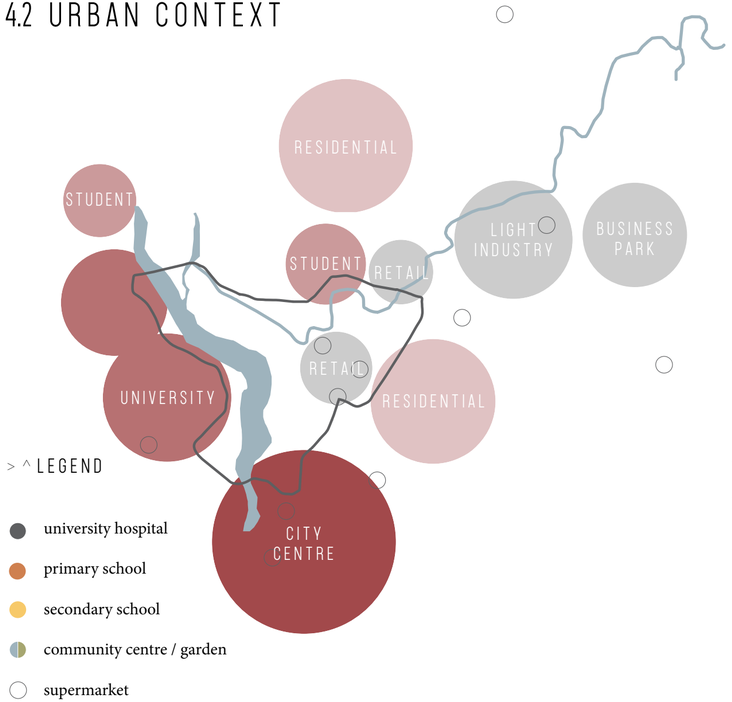
a valuable natural asset sustained by a community with a strong environmental agenda

a lack of environmental management, park maintenance and adequate access points

the opportunity to create a rich habitat with recreational value

the privatisation of park edges and the pollution through urban stormwater run-off

4.2 URBAN CONTEXT



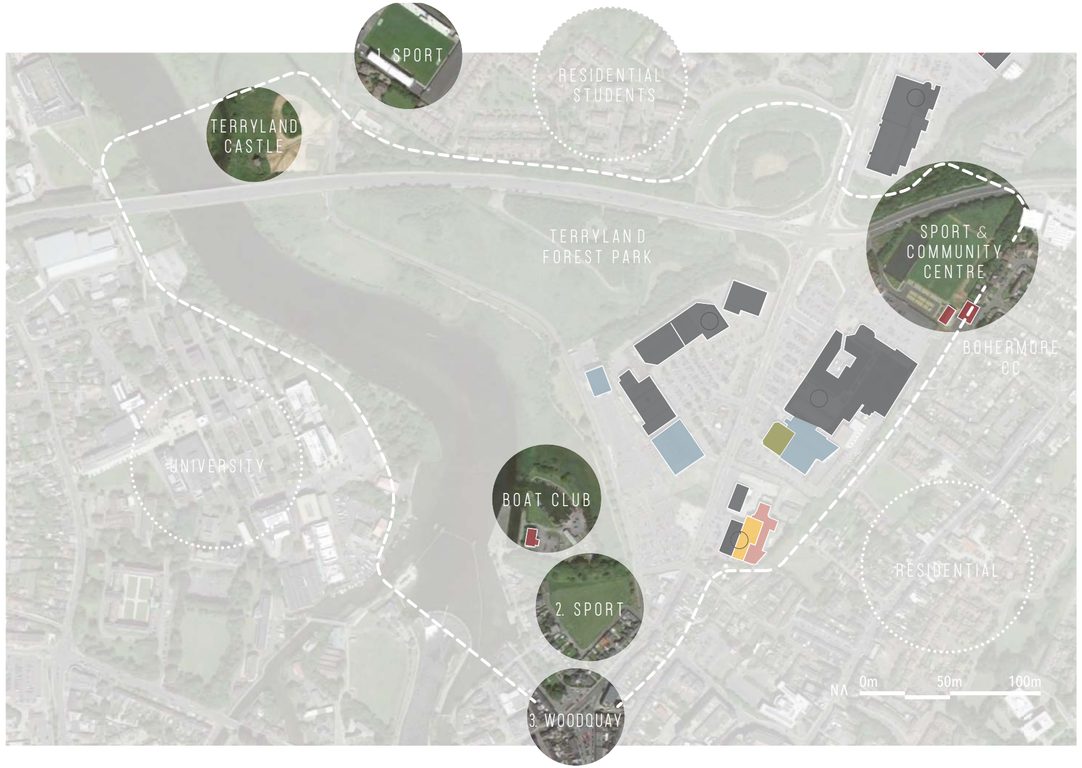
DISTRICTS

The site is nestled in between important activity nodes of Galway City. It is favourably located just north of the city centre and close to the university as well as to important employment hubs, such as retail centres and business parks.

Furthermore, it borders onto the inner city neighbourhood of Bohermore to the east and Terryland to the north. The Department of Housing, Planning, Community and Local Government (2015) describes both neighbourhoods as 'high density' with 50 - 70 dwellings per net hectare.
To the north of the site residential housing mixes with student accommodation and a few upmarket student villages.

The site is dissected by two key roads: Headford Road, which presents one of the major access routes from the north into the city centre, and the N6, which connects the east with the west of Galway City. N6's Quincentennial Bridge is one of the main links leading over the River Corrib.

As previously mentioned, the Terryland River runs through the site. It is seamed by retail centres, light industry, business parks and residential areas (and some farming plots in the northeast).



LEGEND

- retail
- entertainment
- residential
- healthcare
- office
- facility with community value

1 | Deacy Park

2 | public sports ground

3 | Woodquay

USES & FUNCTIONS

Most buildings located within the design site belong to Headford Road Retail Centre and are therefore zoned for commercial uses. The site also features three supermarkets.

There is a small amount of residential housing, offices, as well as a health care centre located on the eastern site of the retail park. A mixed use typology accommodates residents and offices rented by Galway City Municipality.

Black Box Theatre, a cinema and a gaming hall with bowling facilities present indoor recreation opportunities.

Outdoor recreational facilities in the area include a private boat club, sporting grounds of differing qualities and Terryland Forest Park.

Terryland Castle, built in the 13th century, and the Old Waterworks Building are heritage-listed cultural landmarks.

Woodquay is the gateway into the city and presents an activity node: both vehicular and pedestrian traffic flows converge at this point. Here, several pubs, hostels and some small shops have settled along the narrowing streets.

< LEGEND

pedestrian prioritised / only path

path along road or street

major road

1|

2|

3|

4|

PATHS

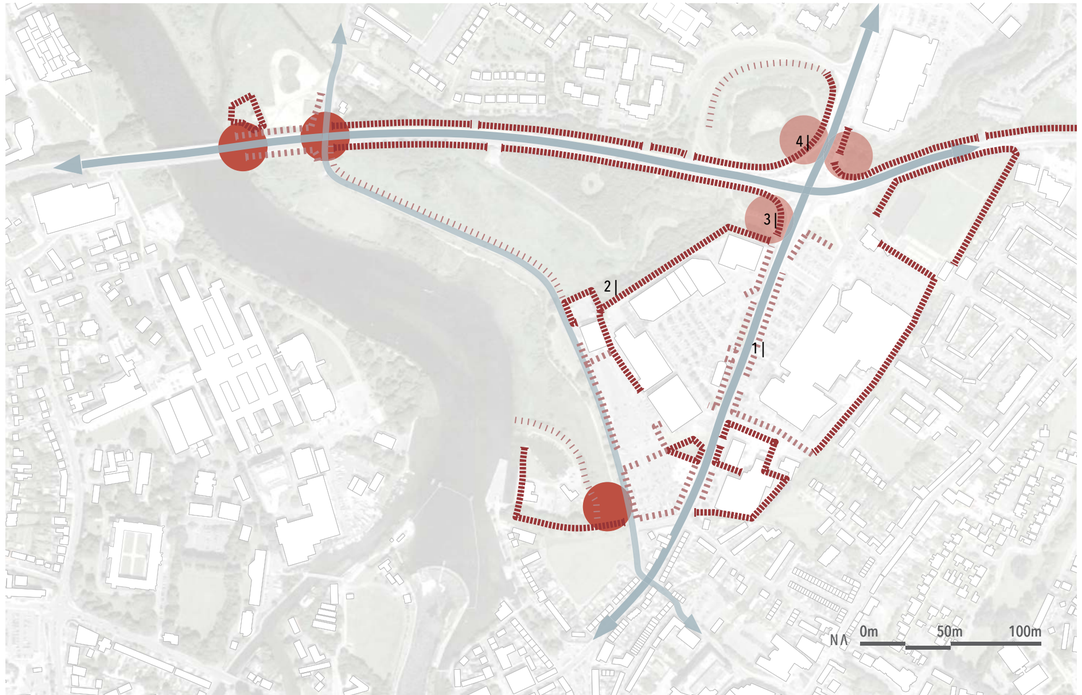
Existing pathways leading to and passing through the site are strikingly disconnected. There are many walking routes - but also streets - leading to nothing but dead ends.

Designated cycling paths are only found along Headford Road and N6 Road. However, cycling is possible along pedestrian pathways and quieter streets.

It is possible to cross the River Corrib at only two points: the first connection is N6 Bridge, which offers a rather unpleasant experience for pedestrians and cyclists due to the exposure to noise from fast flowing vehicular traffic. Additionally, the bridge crossing is a rather long walk particularly uncomfortable during rough weather.
The closest bridge in south direction is located at the entrance to the city centre. The crossing is tight and often congested.

There are only three formal entrances into the park, two of which allow access from N6 Road and one from the upper section of Headford Road. There are no entrances from Dyke Road, which probably receives the most strolling pedestrians and leisurely bicyclists due to the nice views across the low dyke towards the old town and towards the River Corrib.

The current situation of disconnected pathways poses one of the main reasons as to why the park is underused.



LEGEND

- perceived as unsafe
- extensive littering
- hard barrier
- light barrier
- perceived barrier
- major road

1 |

2 |

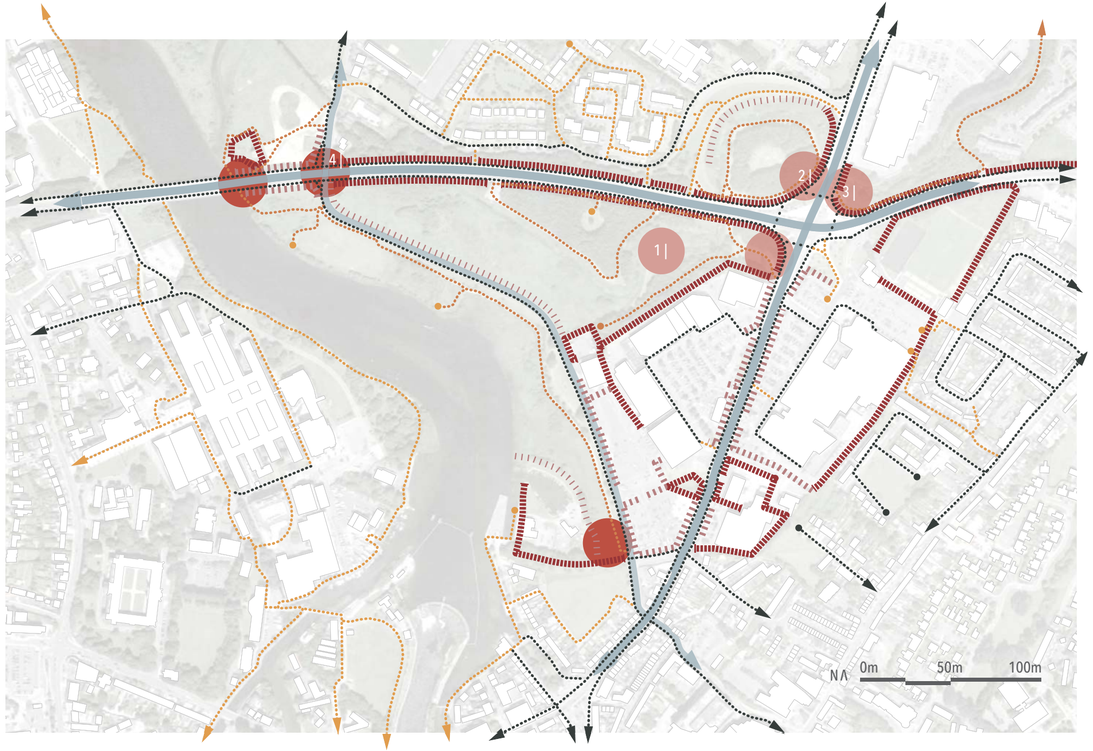
3 |

4 |

BARRIERS

The site features many physical barriers, which disconnect the site and limit circulation. Obstacles include fences, walls and inaccessible landscapes, such as overgrown wet grasslands. The edges towards the park are privatised in many areas, which further restricts accessibility. Behind Headford Road Retail Centre, buildings face with the back towards the park creating a backyard situation with little passive surveillance over the green space.

Due to the barriers, there are many isolated pockets of left-over space. At night time, the lack of street lighting shrouds these corners in darkness, making people feel unsafe. Furthermore, these pockets are the target of illegal dumping, which creates a hostile atmosphere and the perception of neglect.



< LEGEND COMBINED MAP

- perceived as unsafe
- extensive littering
- hard barrier
- light barrier
- perceived barrier
- pedestrian prioritised / only path
- path along road or street
- major road

1 |

2 |

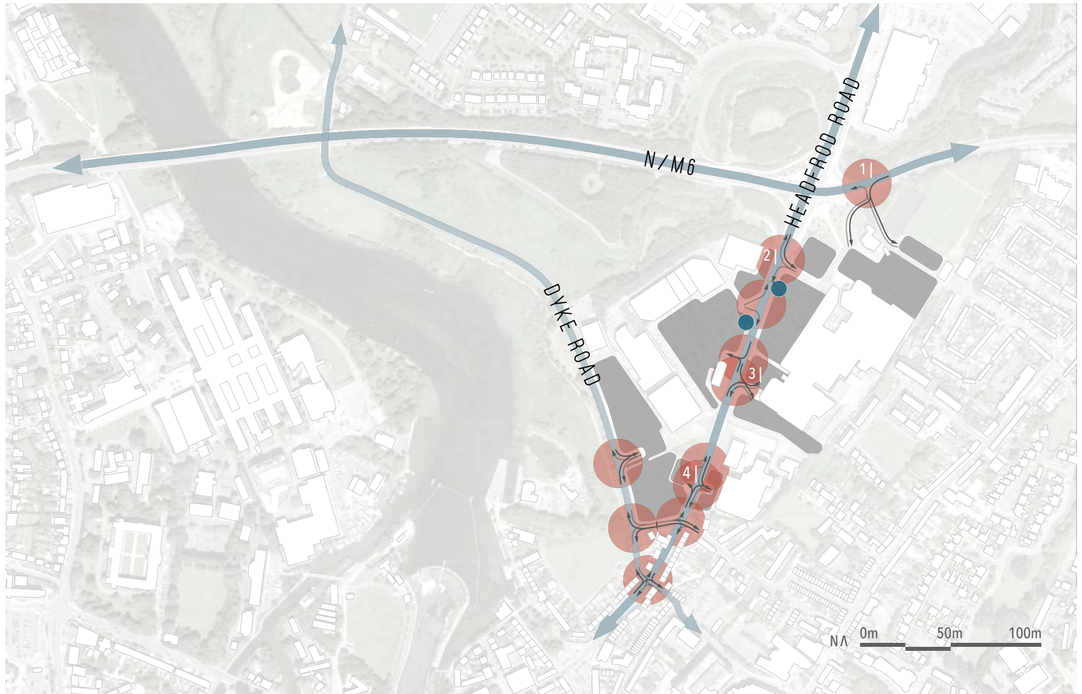
3 |

4 |

FINDINGS - PATHS & BARRIERS

The combination of barriers and disconnected pathways partly leading to dead ends accounts for the site's many neglected blind spots and its restricted walkability.

Additionally, there is a lack of access points into Terryland Forest Park. The few existing entrances are located at rather hidden spots bordered by physical barriers. This limits the opportunity of people flows to 'spill' from the busy retail district into the park. Instead of being open and inviting, the people's park has a hostile atmosphere and is isolated from its urban surroundings.
It comes as little surprise that most of the park is underused.



LEGEND

- parking lot
- intersection
- traffic flows entering HFR
- traffic flows exiting HFR
- major road
- bus stop

1 |

2 |

3 |

4 |

INTERSECTIONS

Besides being a key link between the city centre and the norhern suburbs, Headford Road provides access to the retail park. Currently, there are numerous entrances to parking lots creating a confusing set of intersections. This leads to unorganised and stagnant traffic situations, especially during peak hours.

The many crossings into parking lots also create an unsafe environment for pedestrians and cyclists who's paths are discontinuous and narrow.

LOT 1 (WEST)

30-70%

change in occupancy

OCCUPANCY

SUNDAY NOON I 30 - 50% TAKEN

SATURDAY NOON I 80 - 100% TAKEN

PARKING & RETAIL - WEST

Parking lots 1 and 2 account for roughly two thirds of the area west of Heardford Road.
Lot 2 is the busier parking lot of the two, while the greatest change in occupancy is experienced in the northern part of lot 1. As shown in the photograph, parking lot 1 is almost deserted on Sundays, which means that most of the space is turned into waste land. In both parking areas the demand for parking spots is highest on Saturdays and on weekdays after 5pm.
As expected, this pattern correlates with the shops' trading hours, and work and school hours.

USES

mixed retail with few ...

- entertainment
- service
- food wholesale
- gastronomic ... *options*

TARGET GROUP

- unspecified
- families and kids

RETAIL SPACES

L-M

BLDG. HEIGHT

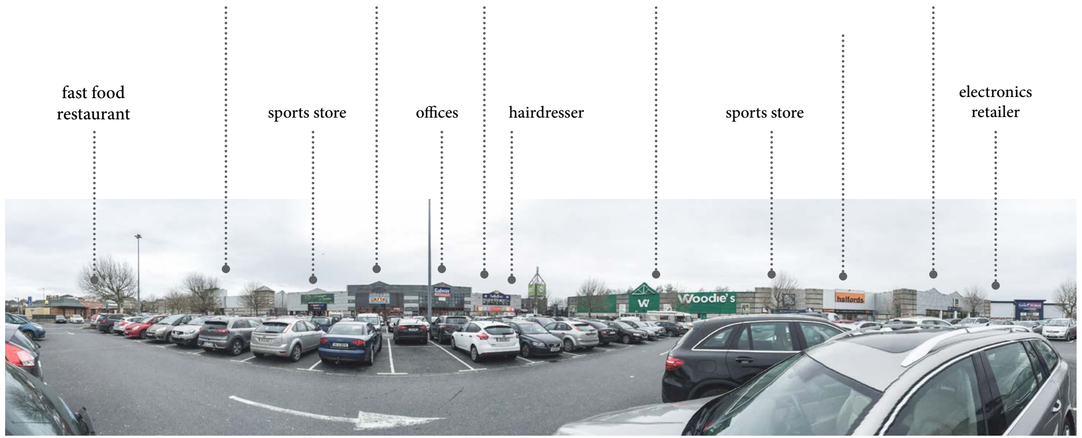
max. 2 stories

LOT 2 (WEST)

~1:3 RATIO

bldg. footprints : parking lots

RETAIL CHOICE



LOT 3 (EAST)

10 - 50 %

change in occupancy

OCCUPANCY

SUNDAY 11 AM I 50 - 70% TAKEN

SATURDAY 11 AM I 80 - 100% TAKEN

PARKING & RETAIL - EAST

Similar to lot 2, lot 3 is constantly in use and is relatively busy on most days due to numerous grocery shops located on the eastern side of Headford Road, including a large supermarket and smaller shops selling fresh fruit and vegetables as well as meat.
As half of the area is is taken by parking lots, the open space is designed primarily for cars. For pedestrians and cyclists this environment is unattractive and partially unsafe due to a lack of designated pathways to move along on.

USES

mixed retail & food wholesale with a few ...

- entertainment
- service
- gastronomic *... options*

TARGET GROUP

- unspecified

RETAIL SPACES

S - L

BLDG. HEIGHT

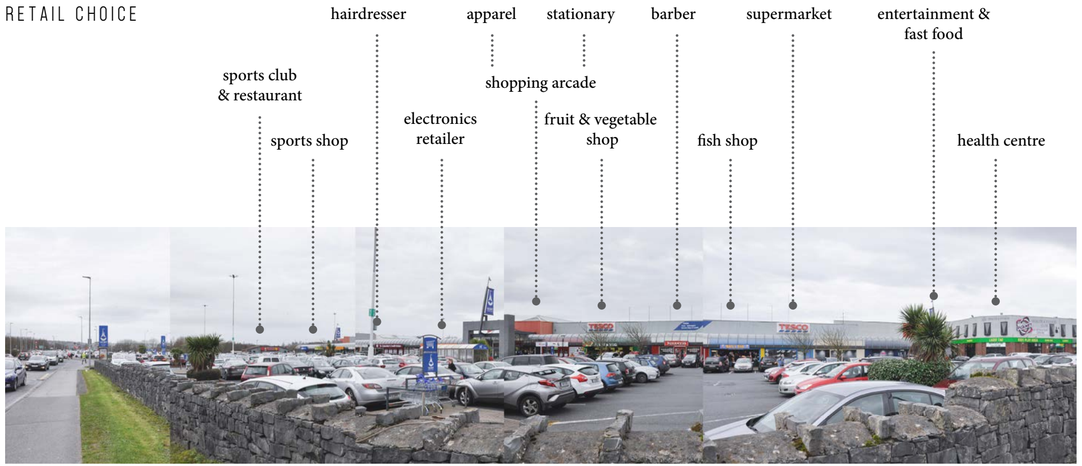
max. 2 stories

LOT 3 (EAST)

~ 1:1 RATIO

bldg. footprints : parking lots

RETAIL CHOICE



< DO WE LIKE TO SHOP LIKE THIS ...?

The shopping experience at Headford Road Retail Centre is tailored for people arriving by car. The open space has little to offer to visitors moving on foot:

The road is wide and straight and offers little intriguing detail along the edge. Although there are several planting strips along the road, the chosen vegetation is mostly low-growing and little diversified.

Additionally, buildings are set back, which creates a large distance in between the pedestrian path and building facades with their shop windows. Due to the lack of sheltering volumes, the pedestrian feels exposed to both the traffic and the weather. Furthermore, it is impossible for people to spontaneously interact with, and react to retail activities on the ground floor without leaving the roadside footpath for a particular purpose.

< ... OR LIKE THIS ?

In contrast, shopping streets within the city centre are designed for the pedestrian shopper:

The designated pedestrian-only zone features details in pavement and different space-dividing elements such as poles and mobile fences that mark out restaurants' outdoor seating areas. These elements break up open space into smaller sections creating a more comfortable, human scale environment.

Due to the tight urban fabric, transparent surfaces (windows and shop fronts) dominate the facades, thereby increasing perceived safety through passive surveillance. Although physically building facades merge into one continuous plane, richness in colours and textures adds complexity and stimulates interest. A great number of niches, extensions, entrances, and openings offer enough variety for the pedestrian to discover something new every few meters.

CITY CONTEXT ANALYSIS

The site is characterised through its car-based design: sealed surfaces, spacious car parking areas and the wide road with large foot-print, set-back buildings create a cityscape that makes the pedestrian feel exposed, uncomfortable and unsafe, particularly during night time.
Features known to increase walkability such as soft surfaces, sheltering volumes, detail in textures and a varied, compact but porous urban fabric are generally absent.
Additionally, the site's walk and bike paths are fragmented and thereby limit accessibility and connectivity across the site, to adjacent neighbourhoods and into Terryland Forest Park.

a well-visited, relevant location close to the city centre

large car parking areas and big-box building designs lacking function variety & limited accessibility into the park

the transformation into a well-connected, mixed-use district benefiting from the proximity to the park

privatisation of park edges & pollution through water run-off from sealed surfaces

5. COMMUNITY PARTICIPATION

designed by Catherine Seale, Community Waters Officer

5.1 THE WORKSHOP

HOST

Terryland Forest Park Alliance under the coordination of Brendan Smith

LOCATION

Ballinfoile Castlegar Neighbourhood Centre

SUPPORTED BY

- Communities Team of the Local Authority Waters Programme
- Near Health Project | NUI Galway

SPEAKERS

- Jasmina McKenna | workshop 1
- Curio Organisation | workshop 2

ATTENDED BY

24 people including...

- members of the community
- conservation volunteers
- nature enthusiasts
- data scientists
- academics
- activists
- students ... etc.

WHAT?

WKSH | 1

VISIONS FOR A HEALTHY COMMUNITY PARK

WKSH | 2

BECOMING A CITIZEN SCIENTIST

WHAT WAS THE WORKSHOP ABOUT?

The workshop "Visions for a Healthy Community Park" was aimed at gathering ideas on how to improve and enhance the park's environmental qualities and its values for the community as people's park.

On the promotional pamphlet it reads:

"We are striving to develop a vision that will make the park more accessible for the community and also an attractive, nature-based learning environment [...]. Let's utilise the qualities of our city's green lung to foster a healthy generation." (McKenna, 2019 [Pamphlet text])

The workshop was advertised in combination with a presentation about citizen science in Terryland Forest Park.
The organiser promoted the event on social media (the Terryland Forest Park Alliance Facebook page) and through word of mouth.

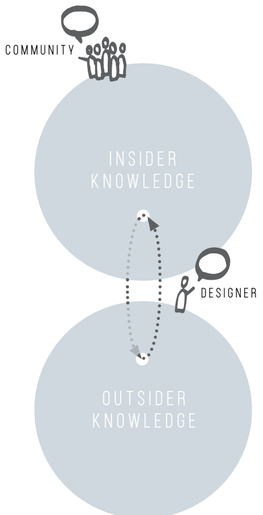
...DIFFERENT PERSPECTIVES

With the workshop, I aimed at better understanding the project site from a current user's point of view. Through this, I hoped to learn more about the current (unsatisfactory) state of park management, existing facilities and infrastructure (or lack of) and the environmental quality of landscapes and habitats.

I also anticipated that some attendees had never used the park themselves for various reasons. Understanding their reasoning would help me further define the park's weaknesses, particularly those related to lacking accessibility and perceived safety.

It also allowed me to get in contact with strong personalities, who greatly influence the culture and mentality around the Terryland Forest Park project as community advocates and environmental activists.

WHY?



WHY A COMMUNITY WORKSHOP?

The 'insider's' (the community's) local knowledge is an invaluable source to the 'outsider' (the designer). Therefore, a community workshop is a excellent tool for gaining insights into people's worries, demands and desires concerning the development of the project site.

By sharing personal experiences and knowledge, and by voicing their opinions, a community workshop allows citizens to get involved in planning processes and to influence political decision-making democratically (in an ideal scenario). Equally, this is a great chance for the community to learn about the project from an objective point of view.

In the case of the Terryland Forest Park project, three major interest groups push for citizen engagement with the park and its environmental improvement, which is to be enabled by increased political support.

WHO?

THE TERRYLAND FOREST PARK ALLIANCE

The Terryland Forest Park Alliance (TFPA) consists of conservation volunteers, members of the Ballinfoile Mór Community Garden (located in Terryland Forest Park north-east of the site) other volunteer groups active in strengthening communities, heritage and social inclusion. In cooperation with local universities, the city council and a network of other volunteer groups, TFPA strives to realise the original vision for a people's park, an ecological corridor and an urban native tree forest. TFPA also strives to make the park a shared ground for practising and emphasising rural skills and traditions, environmental education and research. Furthermore, TFP shall encourage outdoor recreation and active mobility by strengthening walking and bike path networks (Terryland Forest Park Alliance, n.d.).

THE NUI GALWAY NEAR HEALTH PROJECT

'NEAR' stands for Nature and Environment to Attain and Restore Health. The project aims at engaging communities with the natural environment to strengthen human wellbeing and public health. The project team consists of health professionals, marketing and innovation specialists, ecologists and social policy experts, thereby forming a multidisciplinary team. With its wealth of knowledge, the team consults government agencies and communities in creating strategies for strengthening the synergies between a healthy environment and a healthy society (Whitaker Institute for Innovation and Societal Change NUI Galway, n.d.).

THE LOCAL AUTHORITY WATERS PROGRAMME

The team behind the Local Authority Waters Programme works together with local and state authorities. Its responsibility lies in developing and implementing River Basin Management Plans under the EU Water Framework Directive to improve the water quality of water bodies across the country.
Furthermore, the programme's Communities Team motivates the public to engage in initiatives and projects aiming to improve local water resources, such as rivers and lakes.
All efforts are based on the understanding that better environmental water quality mutually benefits public health, biodiversity as well as local economies, tourism and agriculture and manufacturing (The Local Authority Waters Programme, n.d.).

HOW?

HOW WAS THE WORKSHOP CONDUCTED?

The participants were invited to form groups of up to eight people. Within these groups, people shared their knowledge and ideas throughout the workshop. Additionally, one person per group was chosen to present the group's findings and suggestions to all participants after group discussions.

The workshop consisted of four parts: the first task required the groups to identify the weaknesses of the park and to collect ideas on how to improve these. Secondly, the groups were asked to pinpoint the most and least attractive spots in the park. Subsequently, each group representative presented the group's work to all, allowing some time for discussion. Finally, all participants were asked to rank all suggestions for improvement according to their relevance individually.

Read more about the work-shop set-up and the workshop procedure in the annex (p.152 and 153).

OBJECTIVES	*The community identified a lack of ...*	*Proposed implementations in physical form ...*
IMPROVE ACCESSIBILITY 26%	• connectivity • integration into the city context	• reduce barriers • ensure wheel chair accessibility • connect paths with a wider footpath network
PROVIDE FACILITIES 25%	• convenience • comfort	• mobile tables, roofed, and other furniture • bike parking • amenities
INCREASE SAFETY 23%	• a welcoming atmosphere • space activation	• park lighting • reduce neglected hiding spots • allow for appropriation of space
RAISE AWARENESS 15%	• family friendly events • educational activities for the community	• event spaces • infrastructure for diverse activities • allow for appropriation of space
MANAGE WASTE 5%	• aesthetics • inviting spaces	• provide appropriate trash bins at park entrances

THE WORKSHOP - FINDINGS

ACCESSIBILITY

The workshop participants ranked the need for improving accessibility to the park as the most pressing. Some of the suggested strategies included:

- overcoming the barriers between Dyke Road and Terryland Forest Park
- reducing barriers between the retail centre and the park
- connecting new walking paths with existing scenic trails along the River Corrib

FACILITIES

The attendees pinpointed the lack of facilities as a significant shortfall in the park. Participants wished for sheltered seating furniture, car and bike parking and toilets.
Some were eager to turn trash found across the park into building material for a small park museum.

SAFETY

The participants found it necessary to increase safety in the park through appropriate security infrastructure (e.g., low lights, CCTV) and a full-time park warden. It was also suggested to reduce dark and isolated corners by taking away dense vegetation where appropriate and by reducing dead ends.

AWARENESS

To promote the park and to improve its public image, participants suggested to hold events in the park regularly. They stressed that these should address different interests and age groups to reach the wider public - citizens and tourists alike.

WASTE

Today, illegal dumping considerably impacts the park's image. Therefore, participants wished for the city to conduct regular park cleaning. It was also seen as necessary to provide more trash bins, particularly at park entrances.

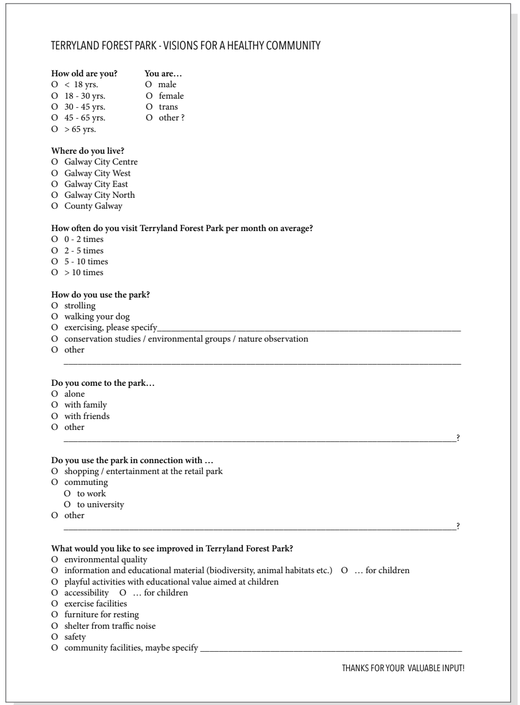
MANAGEMENT

Finally, participants identified the need for a comprehensive Terryland Forest Park management plan outlining ...

- strategic plantings
- the management of woodland
- regular meetings by the Terryland Forest Park Alliance

and requiring ...

- more involvement and financial support by the city municipality
- a full-time park warden
- a park maintenance team



TERRYLAND FOREST PARK - VISIONS FOR A HEALTHY COMMUNITY

How old are you?
O < 18 yrs.
O 18 - 30 yrs.
O 30 - 45 yrs.
O 45 - 65 yrs.
O > 65 yrs.

You are…
O male
O female
O trans
O other ?

Where do you live?
O Galway City Centre
O Galway City West
O Galway City East
O Galway City North
O County Galway

How often do you visit Terryland Forest Park per month on average?
O 0 - 2 times
O 2 - 5 times
O 5 - 10 times
O > 10 times

How do you use the park?
O strolling
O walking your dog
O exercising, please specify_____
O conservation studies / environmental groups / nature observation
O other
_____

Do you come to the park…
O alone
O with family
O with friends
O other
_____?

Do you use the park in connection with …
O shopping / entertainment at the retail park
O commuting
O to work
O to university
O other
_____?

What would you like to see improved in Terryland Forest Park?
O environmental quality
O information and educational material (biodiversity, animal habitats etc.) O … for children
O playful activities with educational value aimed at children
O accessibility O … for children
O exercise facilities
O furniture for resting
O shelter from traffic noise
O safety
O community facilities, maybe specify _____

THANKS FOR YOUR VALUABLE INPUT!

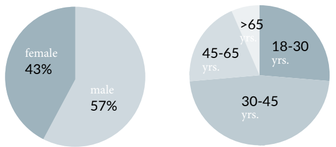
5.2 THE SURVEY

DISTRIBUTION

- to all attendees at the workshop
- through an online survey shared on 'The Terryland Forest Park Alliance' Facebook group page
- to passer-bys during site visits

RESPONSES FROM...

- 34 people in total



FORMAT

- 3 background questions
- 5 questions related to park use and suggested improvements
- multiple choice (quantitative data)
- open text fields (qualitative data)
- personal communication (qualitative data)

"I live and work very close to Terryland Forest Park yet I have never entered the park. I overlook it due to the lack of open access, constant visible litter, dark isolated patches, etc. Hopefully the new Park Warden/Attendants will help the public image of the park and it will become a brighter, more enticing place to stroll through. Well done to all involved in campaigning for this!" (Teacher, 18-30 yrs.)

"A very unique habitat in the middle of a city, needs protection from development and connectivity to other natural habitats." (Consultant Ecologist, 30-45 yrs.)

"The park needs an interpretive centre manned by a knowledgeable park ranger." (Retiree, >65 yrs.)

"The park is largely unappreciated by the citizens of Galway (and the large student population) often because many are unaware of its existence even though its 'under their noses'. A park warden is a great step forward, but more is needed with regards to safeguarding this extremely important amenity. Brendan has done unbelievable work to develop and promote the park and it's now time for key decision-makers to step up and protect the park for future generations!" (University Lecturer, 45-65 yrs.)

THE SURVEY - FINDINGS

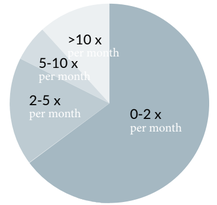
GENERAL PUBLIC | 34

- most visit the park *0-2x / month*
- most come *with friends / alone*
- most come to *stroll or pass through* in connection with *shopping* at the retail park or conduct *conservational activities/ nature studies / animal observation*

WHAT WOULD YOU LIKE TO SEE IMRPOVED ?

- 20 environmental quality
- 15 information boards & educational materials
- 15 playful activities
- 23 accessibility
- 4 exercise facilities
- 18 furniture for resting / shelters
- 12 shelters from traffic noise
- 19 safety
- 12 community facilities

HOW OFTEN DO YOU VISIT THE PARK?



STUDENTS | 6/34

- most visit the park *0-2x / month*
- see as most pressing the improvement of...

furniture for resting | *accessibility* | *safety*

WOMEN | 12/34

- come seldomly, mostly not alone
- see as most pressing the improvement of...

information material | *accessibility* | *safety*

6. THE PROPOSAL

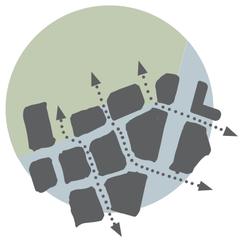
6.1 THE VISION

VISION STATEMENT

The proposed design creates a link between Terryland Forest Park and the existing urban context. Through its porous and human-scale built form, the new district offers quality public open spaces and logical connections into the parkland while maintaining the interesting friction between the open landscape and the built-up urban environment.
A diversity of functions and public uses attracts different user groups into the area throughout the day. Formerly underused and neglected spaces are thereby transformed into well-visited activity hubs, where building uses spill into open spaces and the green. Measures are undertaken to enhance and protect the park's ecological value and to thereby create an attractive environment for native plants and animals, the local community and visitors.
By expanding and linking existing pathways and inner-city public transport routes, the site encourages clean and active transport modes to decrease private car use.

6.2 DESIGN CONCEPT

A park well integrated with the urban fabric



By increasing the permeability of the edge between the park and the new urban district, the two entities of contrast will integrate, thereby encouraging people to visit the green space.

A human-scale urban design

The proposed urban design is characterised by human-scale architecture and a walkable public domain while maintaining its function as an important retail destination for people traveling from across the wider city area.

A mixed - use district with diverse functions

The new district will offer a diverse range of functions including shopping, housing, employment, recreation, culture and entertainment, as well as community and public facilities.

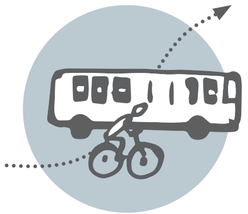
Place-making for and with the community

As the park was born out of a community vision for an ecological corridor, it will allow for space appropriation by the people. Here, gatherings will take place and environmental incentives will come to fruition. Buildings seaming the park will house public functions to activate the surrounding open space and to ensure equitable and inclusive access.

An environment of high ecological quality

Parts of the park will be redesigned by involving universities and community interest groups to set the course for a socially and ecologically sustainable urban green space. Measures such as landscape moulding, phytotechnology, and appropriate stormwater management will enhance the park's natural habitats while also improving people's quality of life.

An urban design encouraging behavioural shifts



Although the new district features car parking facilities, it encourages public transport use and biking through appropriate infrastructure. Strategies to achieve this include: a convenient public transport connection, the "drop and ride" concept and the integration of new routes into the existing city bike- and footpath network.

6.3 DESIGN STRATEGIES

create links of short distance

weave in neighbourhoods

enhance environmental assets as valuable components of a greater green network

provide mixed functions that serve the wider city area

improve connectivity

increase permeability

create human scale

ensure walkability

diversify uses

manage pollution

encourage bike & bus use

^ HEADFORD ROAD RETAIL CENTRE

TERRYLAND FOREST PARK v

activate the urban edge towards the park

ensure accessibility

improve water quality

increase biodiversity

allow for space appropriation by the people

THE MASTERPLAN

The design proposal consists of two components - the landscape design of Terryland Forest Park (south section) and the urban design corresponding to the transformation of Headford Road Retail Centre into a mixed-use district.

Besides offering a more suitable range of different functions and an attractive public realm, the proposed urban design presents *a link between the parkland and existing neighbourhoods* adjacent to the retail centre. To overcome the current island effect created by extensive parking spaces, large building footprints and barriers, the proposed site features a compact but *permeable urban fabric. Logical connections along a sequence of public spaces with different characters* weave the site into the surrounding urban context and make it more walkable. Furthermore, *the design respects the surrounding urban fabric* with its fine grain and its low building heights. Towards the park, the urban design loosens to create *several niches* and *access points that invite people into the green*.

The park's design focuses on enhancing biodiversity by creating new plant and animal habitats. It gains amenity value by allowing people to explore and appropriate the landscape through greater accessibility.

While the design seeks to integrate the park with the urban fabric, the aim is to maintain and enhance the interesting friction between built-up and open space, hard and soft surfaces and civic life and natural ecosystems.

6.3.1 BUILT FORM

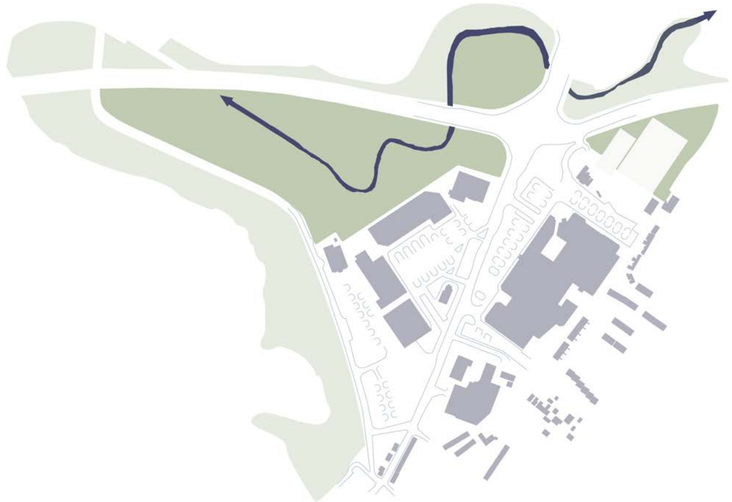
CURRENT CHALLENGES

the park edge - obstacles

- large buildings limit views and restrict access into the park
- the park entrance is hidden behind a building
- a privatised and largely inactive park edge (backyard situation)

a car-based design

- big box retail design
- large building footprints
- extensive surface car parking areas
- highly sealed
- large distances between roads and buildings
- little intruiging detail



EXISTING BUILDING FOOTPRINT

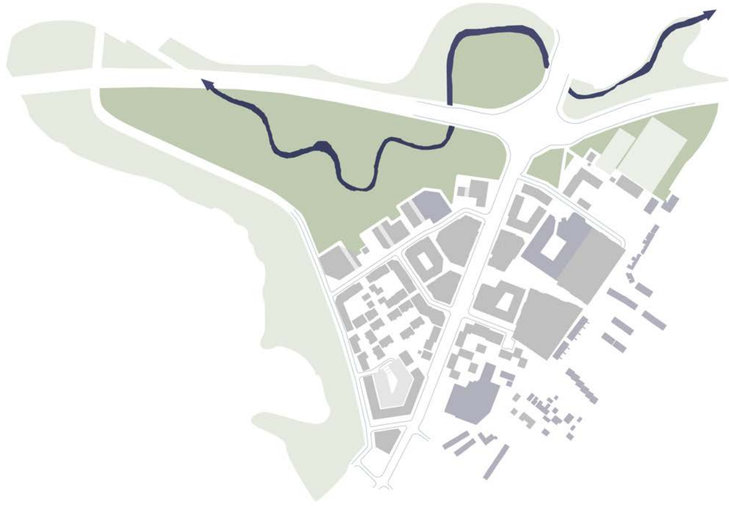
STRATEGIES

the park edge - a porous design

- a porous urban design enabling visual connections and multiple entrance points into the park
- a public park edge that allows public building uses to spill into the open space / the park

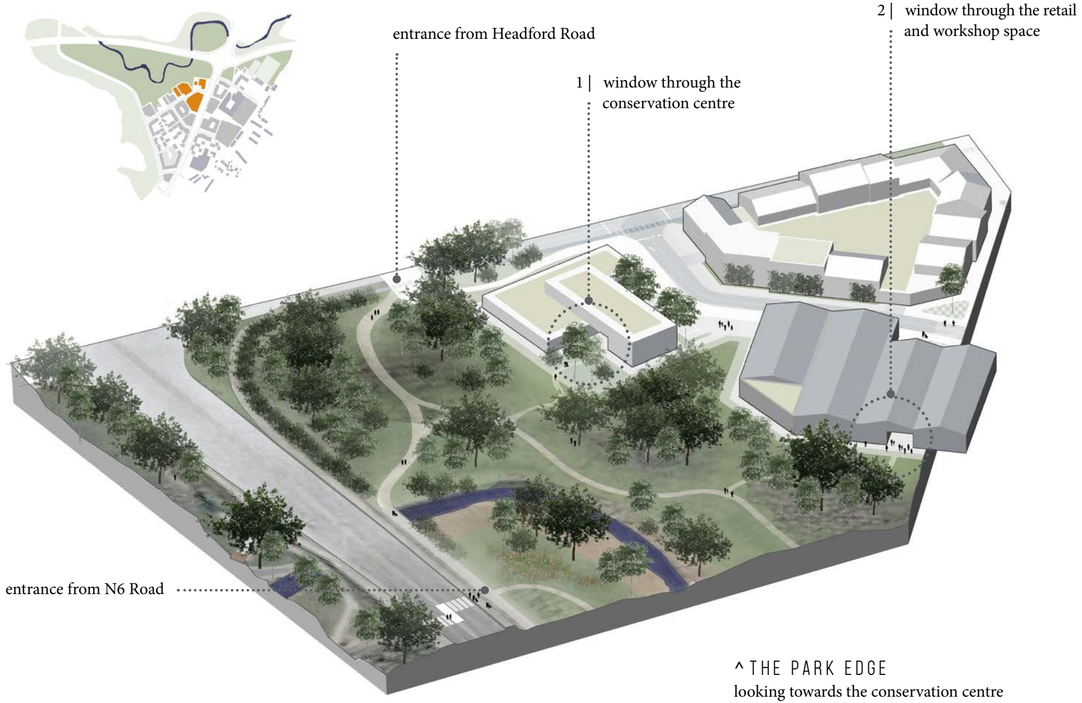
a human-based design

- human-scale architecture
- smaller building footprints
- integrated car parking solutions
- permeable and soft surfaces where appropriate
- a compact urban form creating open spaces of comfortable dimensions
- a variety in textures and materials



PROPOSED SCHWARZPLAN


POROUS DESIGN - THE PARK EDGE
conservation centre
workshops & retail
youth club & multifunctional spaces
the new theatre
NUIG urban ecology campus
NUIG urban ecology campus
community farm & garden
108
109
N
0m
50m

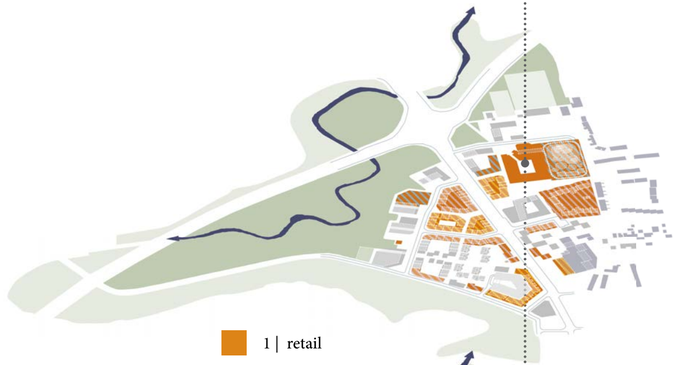


^ THE PARK EDGE
looking towards the conservation centre

^ THE PARK EDGE
at the new theatre

A POROUS DESIGN - THE PARK EDGE

The plan proposes a more porous, human-scale design, with multiple pedestrian pathways leading into the park to improve the issue of accessibility by foot across the site. Linear thoroughfares create visual connections from different viewpoints. These increase people's awareness of the park's presence and stimulate curiosity.



1 | retail

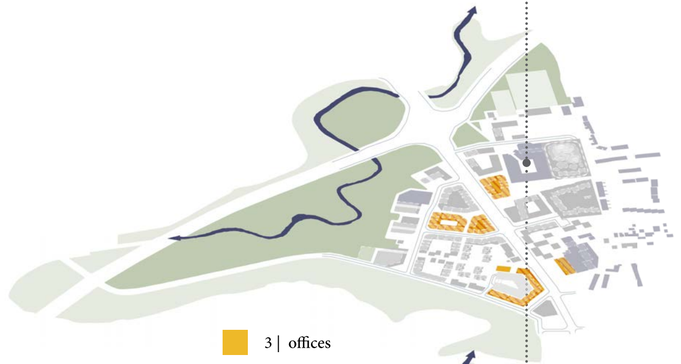
2 | residential

LEGEND

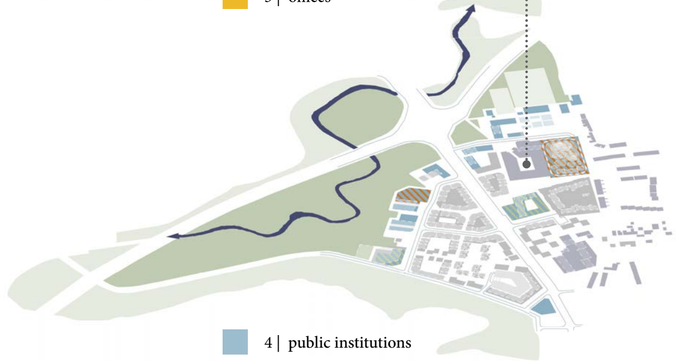
mixed retail & office functions

mixed retail & public functions

mixed residential & retail functions



3 | offices



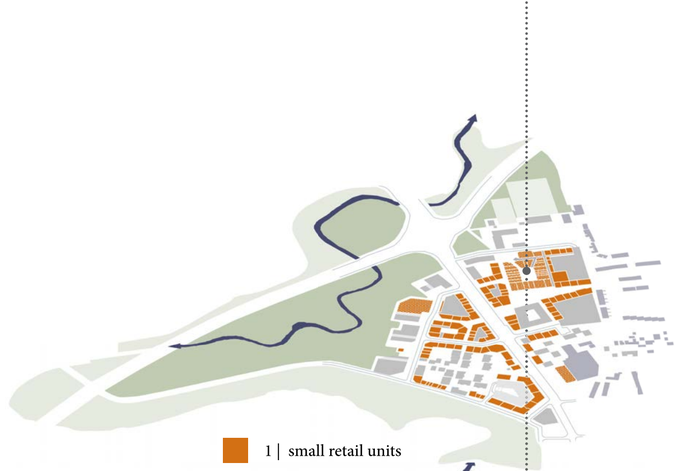
4 | public institutions

LEGEND

mixed office & retail functions

mixed public & retail functions

mixed public & entertainment functions



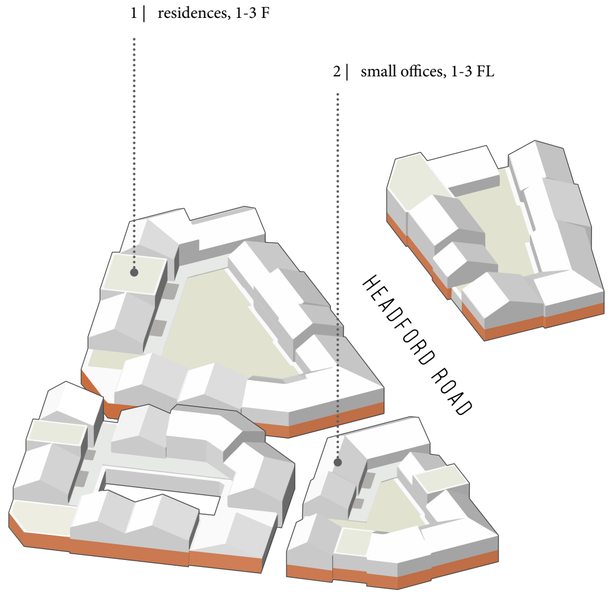
DEMAND FOR RETAIL SPACE

The proposed urban design aims at maximising retail functions at ground level.
The typologies can accommodate retailers with different demands for floor space due to their generic block structure.

LEGEND

- retail space footprint
- new buildings
- existing buildings

MIXED RETAIL TYPOLOGIES

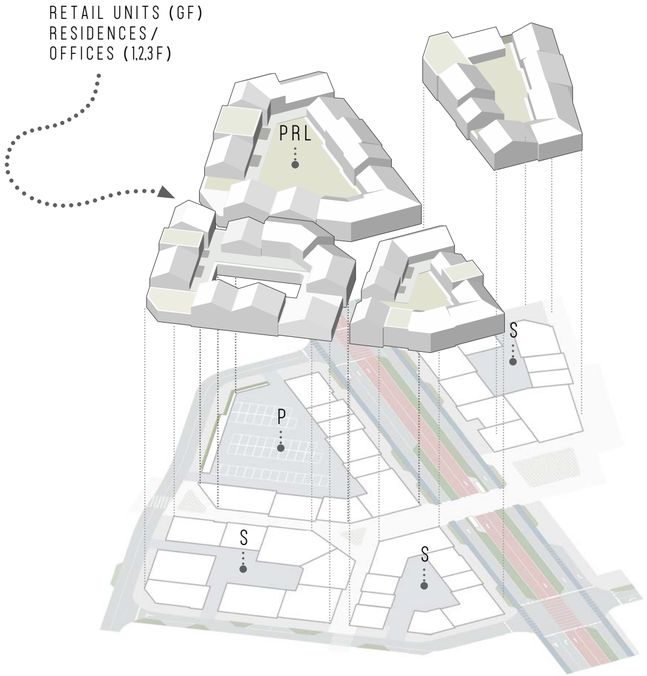


MIXED-USE TYPOLOGIES

The typologies at the core of the urban design site accommodate vertical mixed-use. Generally, shops and restaurants are located at ground level to activate the open space. A few up-market residences, as well as small offices, are found on the upper levels. These might have access to south-east facing roof terraces offering a tranquil and sheltered atmosphere. The roof green is inaccessible and serves as a water storage and retention landscape.

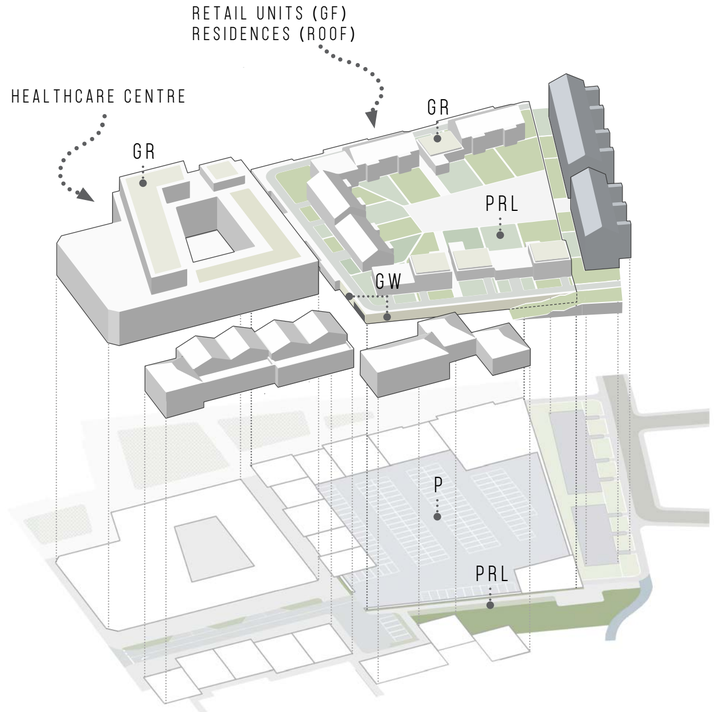
LEGEND

- retail
- green roofs



TUGGED-AWAY SERVICE SPACES

To create a pleasant, human-scale walking environment, the design proposes mixed-use typologies that hide away service spaces for deliveries and parking spots. These spaces are tugged-away behind retail and below residential/ small office units. This concept allows for a high degree of accessibility to employment and shopping while ensuring walkability and a fully functional retail environment.
Functional landscapes to treat pollution on-site are integrated to reduce adverse effects on the close-by landscape park.



LEGEND

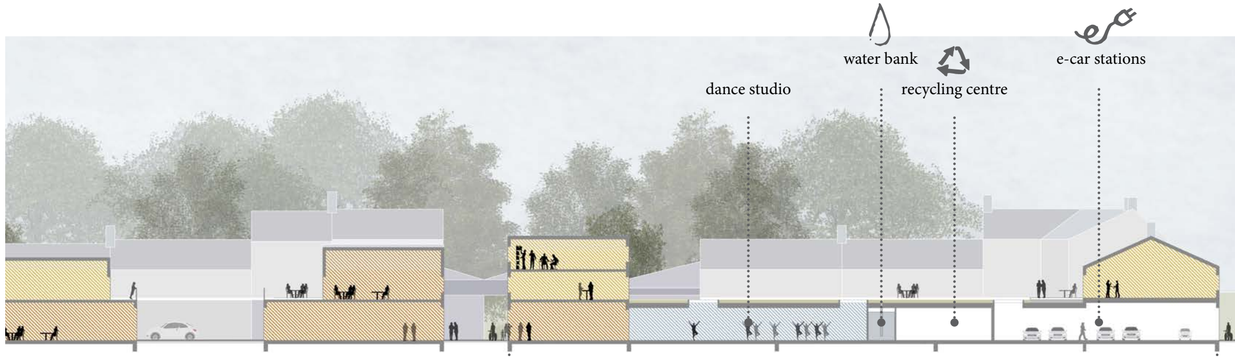
P	public parking
S	supply and delivery
PRL	phytoremediation landscape
GW	green wall
GR	green roof

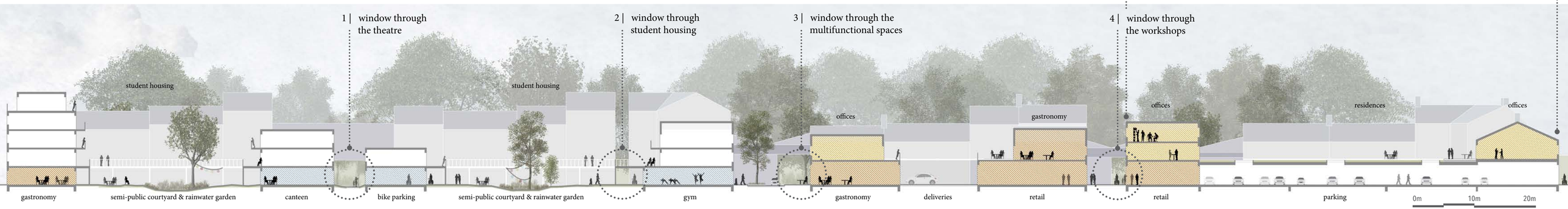
BUILT FORM & BUILDING FUNCTIONS

SECTION AA'

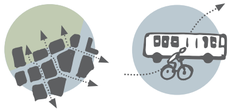
LEGEND

- retail use
- office use
- public / semi-public use





6.3.2 MOVEMENT & ACCESSIBILITY



CURRENT CHALLENGES

a secluded park

- few access points, some are 'hidden'
- few pathways, some leading to dead ends

shopping at Headford Road Retail Centre

- people mostly move between parked cars and shops and along Headford Road
- a large number of barriers restricting free movement across the site in east-west direction

disconnected neighbourhoods

- due to physical obstacles, inaccessible service and delivery areas and lacking pedestrian links

congestion

- confusing intersections amplify the congestion on Headford Road

OBJECTIVES

a comprehensive park experience

- multiple access points from well-used urban areas
- a network of pathways with different characters

shopping at Headford Road Retail Centre

- the porous urban fabric allows for free, comfortable movement across the site
- designated pedestrian zones
- barriers are minimised

connected neighbourhoods

- through new pedestrian links and by overcoming barriers created by elevation differences

smooth traffic flows

- convenient alternative transport modes (bus, bike, walking) and legible intersections

LEGEND

major new / redesigned connections

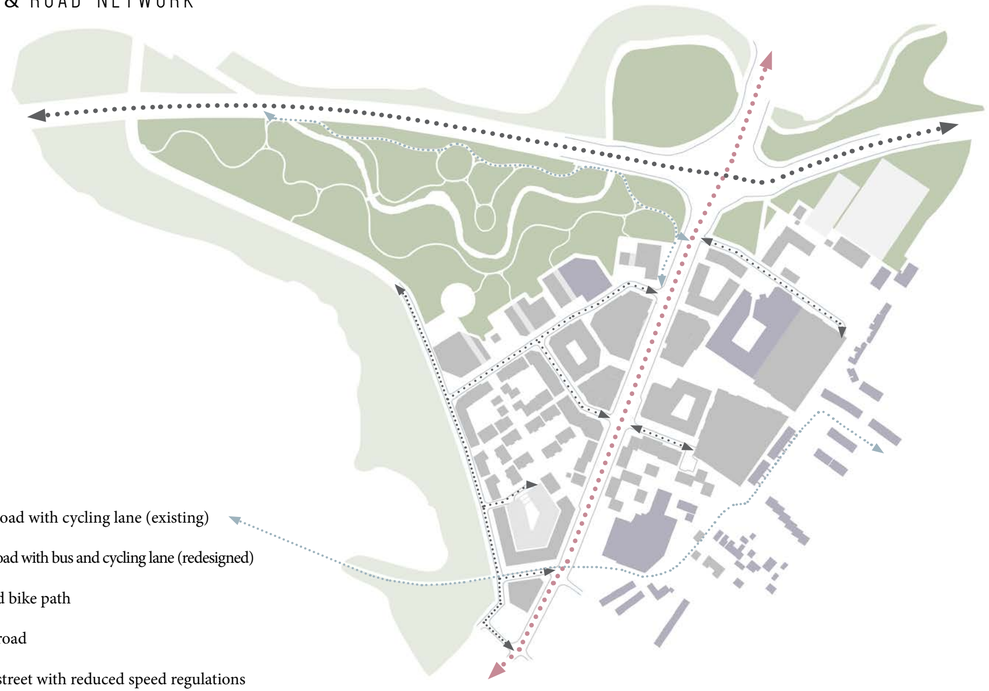
CONNECTING NEIGHBOURHOODS

The site is linked to the existing public bus network along Headford Road making it possible to travel easily to the city centre and into the northern suburbs. As a result, people are likely encouraged to spend more time in the area and to use the park as a recreational green space.

By connecting paths leading through and along Terryland Forest park with already existing, attractive routes, such as the Seven Castle Bike Path beyond Terryland, the university's nature walk along the River Corrib in the north, and the beautiful canal walk leading towards the Spanish Arch by the sea in the south.

The design also seeks to improve attractive pedestrian connections to the City Centre by giving a choice of different routes, increasing greenery along the road and replacing big-box with human-scale architecture. A new bike route over the renovated Old Railway Bridge directly links the site with the university.

STREET & ROAD NETWORK



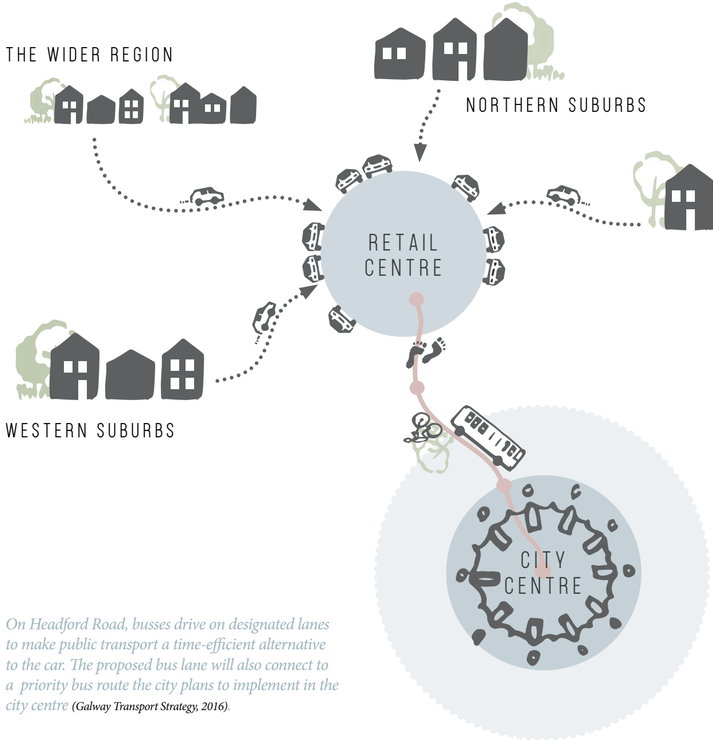
LEGEND

- major road with cycling lane (existing)
- major road with bus and cycling lane (redesigned)
- off-road bike path
- minor road
- minor street with reduced speed regulations

PATHWAYS

LEGEND

- main pedestrian domain
- proposed pathway
- existing footpath
- proposed access points into the park
- bus stop

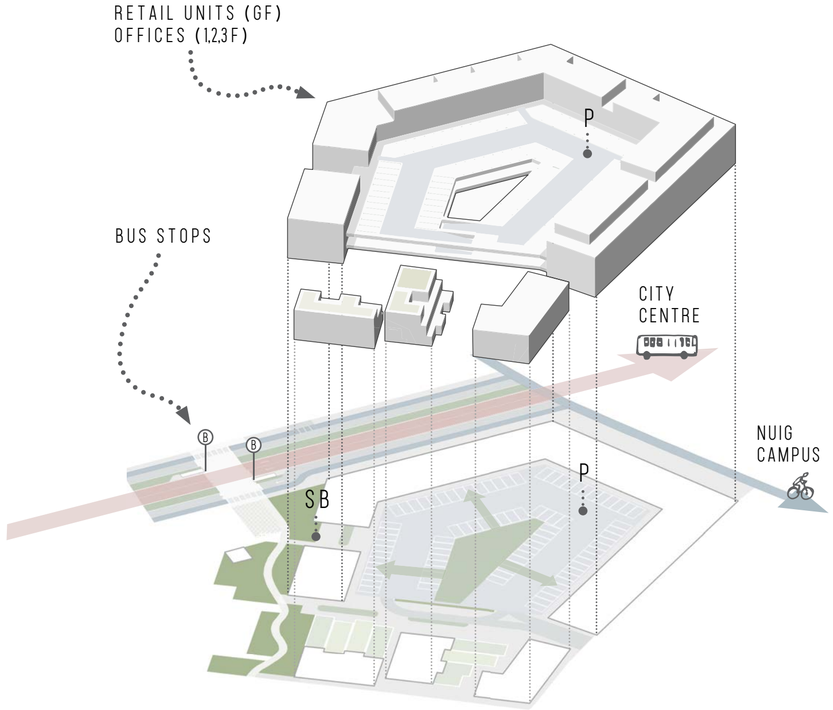


On Headford Road, busses drive on designated lanes to make public transport a time-efficient alternative to the car. The proposed bus lane will also connect to a priority bus route the city plans to implement in the city centre ***(Galway Transport Strategy, 2016)***.

THE DROP & RIDE CONCEPT

The city's new traffic scheme will restrict car traffic within the inner city boundaries to preserve the charming, walkable character of the old town. The proposed design will allow people to park their car and comfortably travel to the centre by bus. Travelling by bus will also become the quickest mode of transportation due to the implementation of designated bus lanes.
The design site features three new bus stops. These are in easy reach of shops, offices, the urban ecology campus and several sports and recreational destinations, such as the park.

While commuting by bus will become a convenient and quick alternative to travelling by car, the shift towards cleaner transportation modes will only happen gradually. Hence, the proposal suggests transitional solutions and adaptive urban design.



LEGEND

P public parking

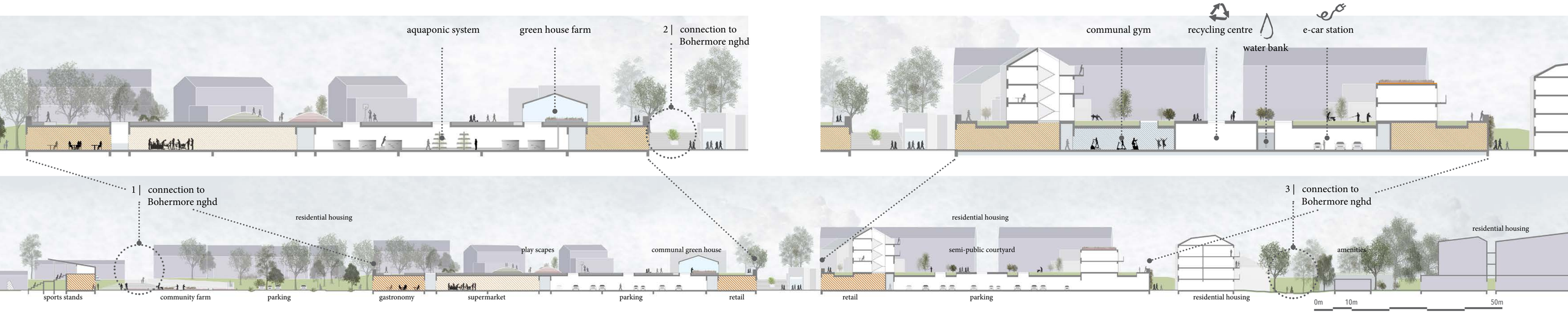
SB share bike station

PARKING SOLUTIONS

The proposed alternatives to surface parking include the integration of parking garages into residential and retail uses and behind office buildings. Thereby, parking areas become less prevailing and do not dominate the visual experience of open space. This solution is economically more viable than underground parking and additionally poses future opportunities: the office typology shown on the left allows for direct access from the parking lot to office spaces, which is particularly convenient during rough weather.
Furthermore, the phytoremediation landscape at ground level could be extended and upper levels could make space an attractive inner park when the need for parking becomes obsolete.

TRANSITIONAL USES

SECTION BB'



6.3.3 PUBLIC DOMAIN & ACTIVITY

CURRENT CHALLENGES

a lack of function diversity

- retail functions dominate
- most activities are related to shopping and are therefore limited to trading hours

a lack of quality public spaces

- activities in open space are mostly limited to car parking areas and have little amenity value
- the pedestrian domain is unattractive as it is compromised by space design for car use
- most of the park consists of inaccessible spaces

the retail park - a disconnect-ed/-ing island

- barriers and large building structures make most of the park's edge inaccessible and limit views into the green
- the retail park appears as separate unit/ an island and has no spatial connection to the park and the surrounding urban context

STRATEGIES

a mixed-use district

- a variety of uses across the site and vertically across building levels
- diverse activities throughout the day

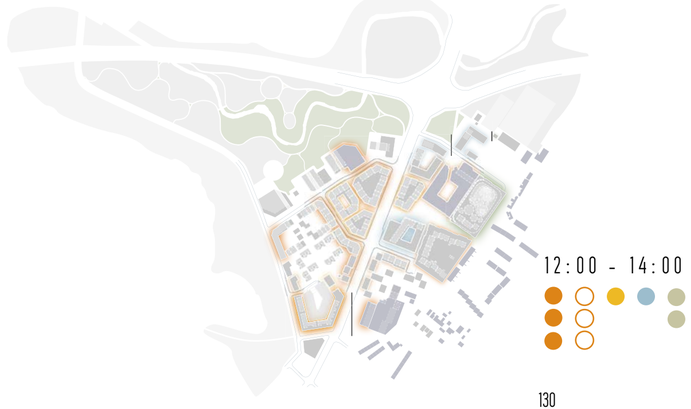
a design for people

- a sequence of public spaces with different characters
- a comfortable, human-scale pedestrian domain mostly separate to streets and car traffic
- a network of pathways allow for circulation within the park while respecting habitats

the retail park - the missing link

- a compact but porous urban fabric that allows for multiple access points into the park
- the mixed-use district creates links between the park and the surrounding urban context by increasing walkability and direct pathways

DYNAMIC ACTIVITY CLUSTERS



A TYPICAL WEEKDAY

As shown in the diagrams, activity clusters shift over the day, activating different parts of the design site.

Where activities peak ...

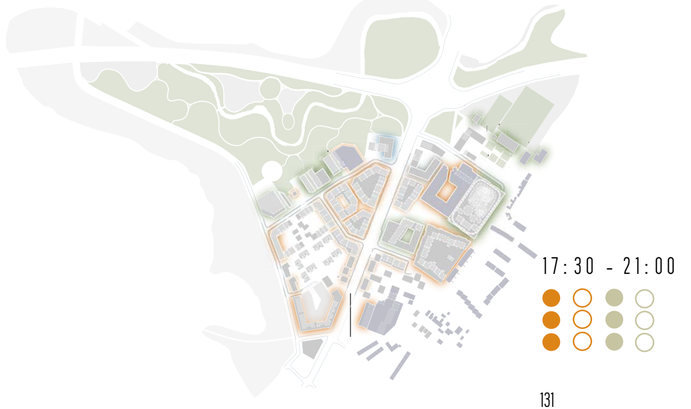
- *in the morning*: offices, urban ecology campus and health services
- *at midday*: supermarkets and gastronomy, sports (e.g., workouts in the park)
- *in the afternoon*: supermarkets, offices, sports and recreation (e.g., playgrounds; sports fields)
- *in the evening*: supermarkets, gastronomy, sports and recreation, entertainment

During the day, people might use the park for morning workouts and urban ecology studies, afternoon community gatherings and leisure activities.

WEEKENDS

Activities related to shopping, entertainment and gastronomy peak during the weekend. Some public buildings such as the theatre, the youth club and workshops are also intensively used. Sports fields and playgrounds are busy.

People might use the park for different leisure and sports activities, theatre events, community meet-ups, farmers markets, etc..



< LEGEND

- supermarkets
- shopping & gastronomy
- offices
- university & health services
- sports & recreation
- entertainment

PUBLIC SPACE SEQUENCES

LEGEND

- urban character
- landscape character
- parkland (redesigned | existing)
- proposed pathway

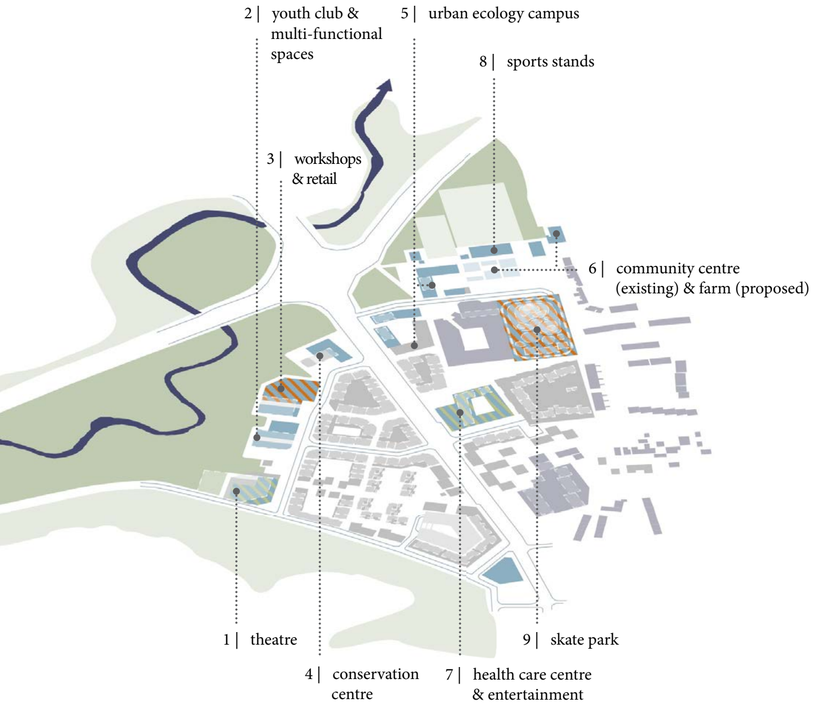
urban character

The new district offers a variety of experiences. Most of the site is urban in character. The areas highlighted in blue are pedestrian zones marked by a particular type of pavement to help people navigate the site. Major destinations, such as the university campus, the health care centre and retail frame and activate these public spaces.
The street design features wide, raised pedestrian crossings that also ensure slow travel speeds to enable safe passage from one side of Headford Road to the other. Additionally, it is anticipated that traffic will decrease over time with the implementation of a more convenient public transport network.

landscape character

A pathway within greenery and gardens offers an alternative to the busier pedestrian zones. It leads through a residential area passing a sequence of shared courtyards and private housing. However, the composition of buildings is open and loose enough to ensure the space is still publicly used and not exclusive to residents.


CAFE BY THE PARK
VISIT OUR BEE KEEPERS TODAY
IN TERRYLAND FOREST PARK



LEGEND

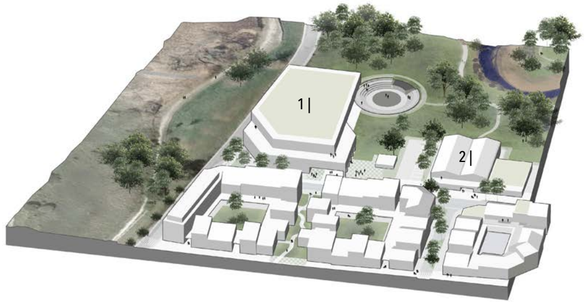
- public facilities
- mixed public & entertainment functions
- mixed public & retail functions
- parkland (redesigned | existing)

THE PUBLIC EDGE

All buildings seaming the park's edge acommodate public functions. The building designs communicate with the park in different ways, e.g., through an orientation towards the green or passages leading into the forest. This ensures maximum access into the green space and minimal physical barriers.
Furthermore, communal activities held in public buildings are encouraged to spill into the surrounding parkland. Through this, uses activate the park edge and thereby increase passive surveillance. As a result, people visiting the park feel safer, bring along their friends and families and use the green space more often.

All public institutions also carry the responsibility to manage stormwater run-off by maintaining phytoremediation plantings at the park's edge.

PUBLIC BUILDINGS & THE PARK



1 | *the theatre*

- event & performance spaces
- rehearsal rooms
- outdoor stage

2 | *multifunctional spaces & youth club*

- space to store stage equipment
- space for rehearsals and theatre training
- space for events organised by youth groups
- direct access to outdoor fitness facilities in the park for youth groups to use

3 | *workshops*

- space to store equipment for events in the park (e.g farmer's market)
- space to create furnishings (e.g. park benches) and stage décor

4 | *the conservation centre*

- amenities (open to park visitors)
- park information
- event rooms
- park warden's office
- space to store tools needed for park maintenance
- gathering space towards the park
- linked to educational material found in the park

6.3.4 SUSTAINABILITY

CURRENT CHALLENGES

stormwater run-off

- polluted stormwater drains from highly sealed surfaces into the park
- the river and groundwater quality degrade, the park's biodiversity declines

other urban pollution

- as with all built-up areas, organic and inorganic pollutants from various building uses spill out onto the ground and into the soil leading to contamination of the natural environment

a lack of community spaces

- although strong environmental groups are currently active in Terryland Forest Park, few spaces are allowing them to get together, to plan and execute activities regularly in an organised manner

STRATEGIES

on-site stormwater management

- conventional measures such as bioswales, permeable pavement, green roofs, stormwater basins and rainwater gardens help to retain and infiltrate stormwater on-site

phytotechnology

- a set of plant-based solutions including phytoremediation landscapes are implemented to draw out, capture and fixate pollutants close to their source
- pollutant spill-outs are therefore contained

the public edge

- the park edge is reserved for public uses of different kinds including public institutions related to the park and its ecology within its urban context

"Phytorechnology is the use of vegetation to remediate, contain or prevent contaminants in soils, sediments and groundwater, and/or add nutrients, porosity and organic matter. It is also a set of planning, engineering and design tools and cultural practices that can assist landscape architects, site designers, engineers and environmental planners in working in current and future individual sites, the urban fabric and regional landscapes." *(Kennen & Kirkwood, p.XII, 2015)*

Refer to the glossary to find out more about typologies of phytotechnology (p.154).


PARK
THEATRE
THEATRE
ON TODAY
TERRYLAND
FOREST PARK

WATER RETENTION & INFILTRATION

The park is situated in a former floodplain. Therefore, the landscape gently slopes down towards the river bed, creating a somewhat sheltered environment with high amenity value. However, this also means that the park receives high amounts of stormwater run-off from adjacent sealed surfaces.

On-site water retention, infiltration and evapotranspiration is necessary to protect the park's ecosystem integrity. Bioswales and rainwater gardens capture and slowly release water back into the ground while also drawing out certain pollutants. Public squares and pocket spaces feature permeable paving to allow for water to infiltrate. Most buildings with large surfaces have green roofs that allow for water to be stored and to evaporate. Roof water can also be harvested and used for irrigation and to flush toilets.

STORMWATER RUN-OFF

- contour line
- stormwater run-off direction
- stormwater basin

SOFT & HARD SURFACES

- urban bioswales
- parkland
- permeable paving

"J-hooks" - a sequence of boulders forming a J-shape in upstream direction - trap sediment at river bends. This method decreases river bench erosion and leads to sediment build-up in designated areas, whereby it can be removed more easily and without gravely impacting the riverine ecosystem.
Ultimately, it removes the need to dredge the river's riparian zone, which damages fauna and flora and may spread invasive plant species. **(Rosgen, 2012)**

< HABITAT QUALITY

The park design respects established habitats, such as wildflower meadows, woodlands and grassy verges, and enhances riverine zones.

In this section of the park, the landscape is remoulded to create a meandering river course with slightly sloping river benches. Through this, the riparian zone becomes a more suitable habitat for flora and fauna.
The proposal also envisions a diverted river flow to create wetlands with shallow water levels. Wetlands are known to attract a diversity of invertebrates, fish, birds and mammals and serve as nurseries for many of these species.
The wetlands also increase the river's water holding capacity and therefore play an essential role in retaining and infiltrating water after heavy rainfall and during floods.

^ NATURE EXPERIENCE

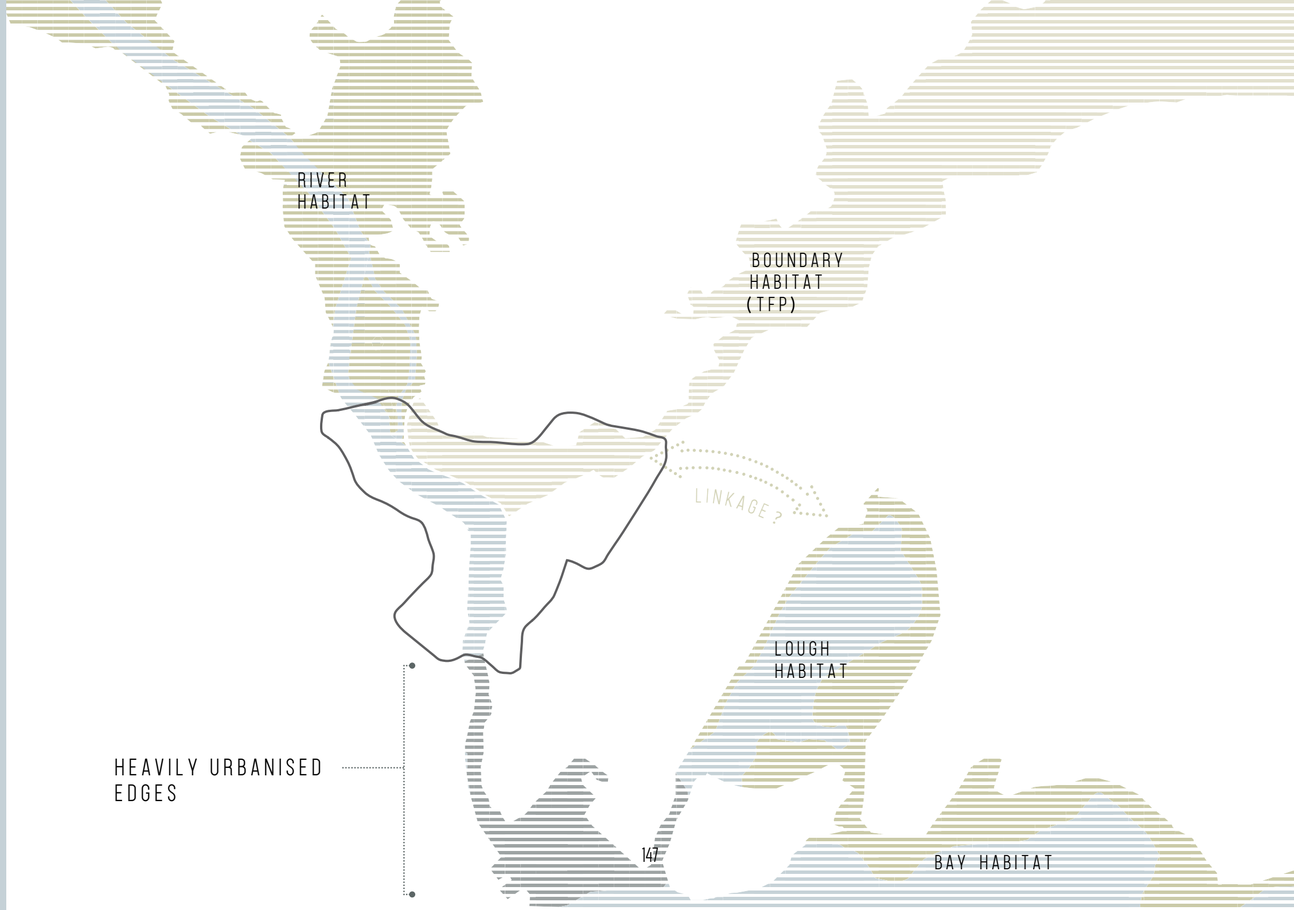
A more comprehensive network of pathways and a modest addition of activities and facilities allow visitors to get close with nature.

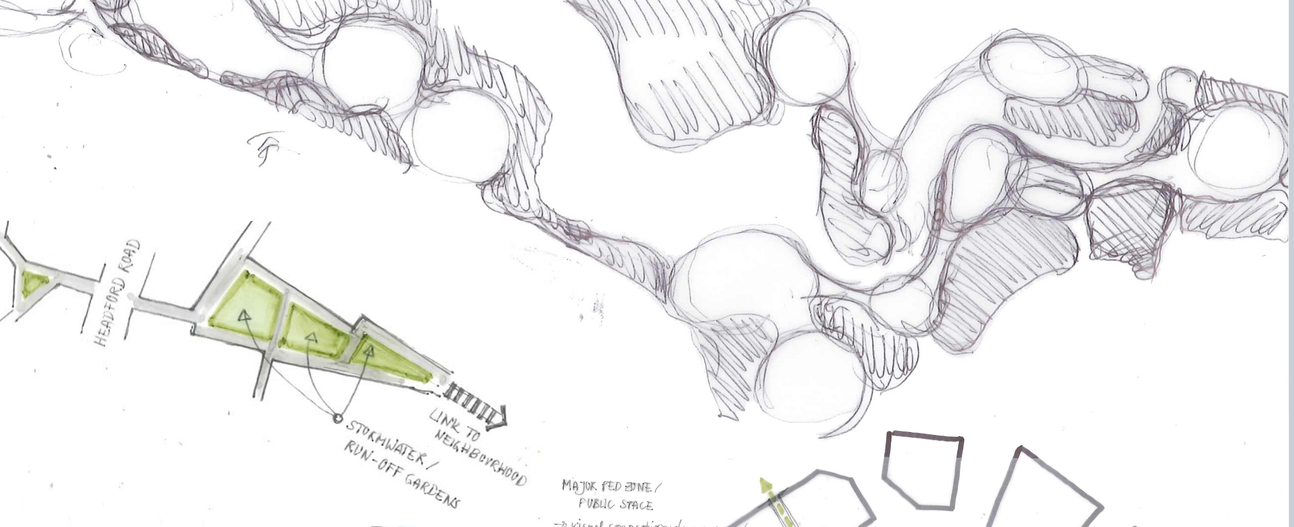
SOME FINAL THOUGHTS...

EMBRACING LOCAL ASSETS

With this proposal, the site significantly contributes to an increase in local biodiversity. However, the design solution does not target the issue of habitat fragmentation through, e.g., dissecting roads and densely built-up urban environments.
Nevertheless, the site plays an important role as an integral puzzle piece within the network of the larger urban natural environment. By integrating Terryland Forest Park as a boundary habitat into already protected ecosystems, Galway could provide an extensive territory, set-aside for animal populations to move through. In doing so, the city could make a wise investment into valuable natural systems and could also market itself as a green city with particular achievements in biodiversity.
As mentioned previously, this means to overcome current barriers by removing urban fabric for wildlife corridors over time. Furthermore, wildlife passages could be implemented to allow animals to cross below and over streets and large roads safely. Finally, it should be stressed that a comprehensive network of natural landscapes within the city greatly benefits the people. Areas of dense vegetation do not only significantly improve air quality, but also serve as recreational spaces motivating people to be active and to get in touch with nature. They also offer the grounds for communities to mingle, and to unite and involve in local politics to preserve environmental assests.

In previous years, Galway has gained attention Europe-wide through its unique identity in its culture and art scene. With this proposal, I would like to support the city in its ambitions to also unfold its identity as an environmentally friendly city by sparking ideas and initiating discussions.

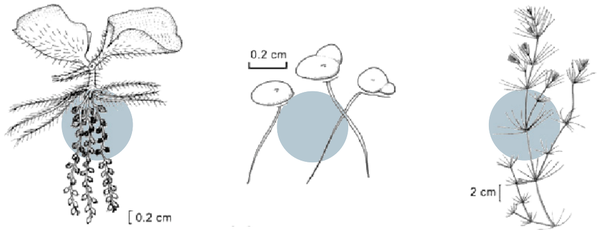




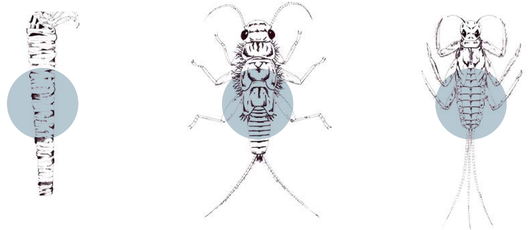
ANNEX & GLOSSARY

RIVER POLLUTION

EXAMPLES OF MACROPHYTES



EXAMPLES OF MACROINVERTEBRATES



SAMPLING SITE

According to the environmental assessment study by Ryan (2016), Terryland River is subject to moderate organic, and eutrophic pollution:

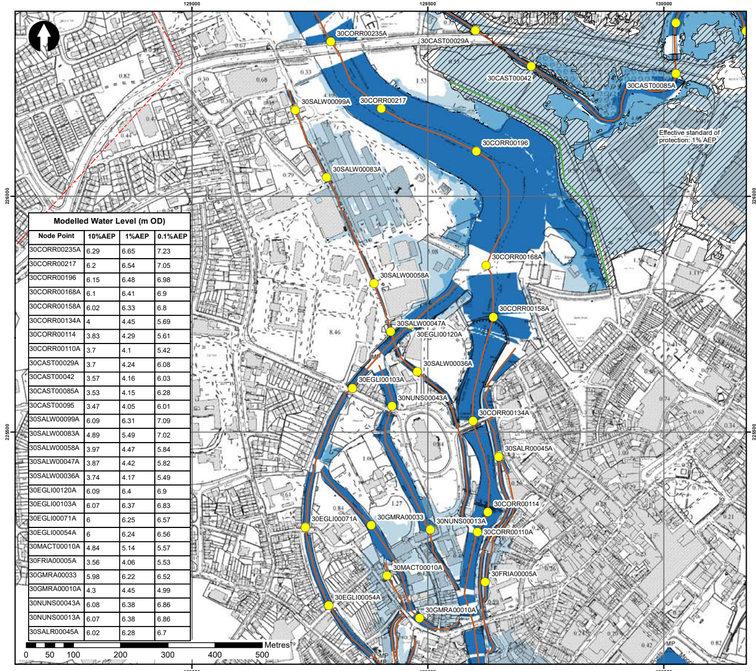
EUTROPHIC POLLUTION

- chemical pollution (eutrophication)
- mostly a result of human activity:
  - fertilisers from farming & gardens
  - sewage due to leaking infrastructure
  - stormwater run-off from hard surfaces
- measured by assessing the biological status of the *macrophyte* population
- macrophytes are categorised according to their tolerance to chemically enriched or unenriched waters
- based on the study's results, the assessment site is subject to eutrophic pollution

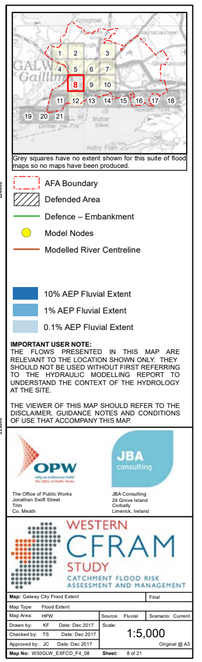
ORGANIC POLLUTION

- the result of disposal of:
  - organic waste
  - sediment accumulation
  - slurry from farming
- measured by assessing the biological status of *macroinvertebrates*
- macroinvertebrates are categorised according to their sensitivity to pollution
- based on the study's results, the assessment site is subject to moderate organic pollution and is therefore an unsuitable habitat for most sensitive species
- the water quality is unsatisfactory according to the WFD

TERRYLAND RIVER - FLOODING MAP



Modelled Water Level (m OD)			
Node Point	10%AEP	1%AEP	0.1%AEP
30CORR00235A	6.29	6.65	7.23
30CORR00217	6.2	6.54	7.05
30CORR00196	6.15	6.48	6.98
30CORR00168A	6.1	6.41	6.9
30CORR00158A	6.02	6.33	6.8
30CORR00134A	4	4.45	5.69
30CORR00114	3.83	4.29	5.61
30CORR00110A	3.7	4.1	5.42
30CAST00029A	3.7	4.24	6.08
30CAST00042	3.57	4.16	6.03
30CAST00085A	3.53	4.15	6.28
30CAST00095	3.47	4.05	6.01
30SALW00099A	6.09	6.31	7.09
30SALW00083A	4.89	5.49	7.02
30SALW00058A	3.97	4.47	5.84
30SALW00047A	3.87	4.42	5.82
30SALW00036A	3.74	4.17	5.49
30EGLI00120A	6.09	6.4	6.9
30EGLI00103A	6.07	6.37	6.83
30EGLI00071A	6	6.25	6.57
30EGLI00054A	6	6.24	6.56
30MACT00010A	4.84	5.14	5.57
30FRIA00005A	3.56	4.06	5.53
30GMRA00033	5.98	6.22	6.52
30GMRA00010A	4.3	4.45	4.99
30NUNS00043A	6.08	6.38	6.86
30NUNS00013A	6.07	6.38	6.86
30SALR00045A	6.02	6.28	6.7



WORKSHOP SET-UP

24 PARTICIPANTS in total

3 GROUPS on 3 large tables

3 REPRESENTATIVES - 1/ table

DISTRIBUTED MATERIAL...

4 blue sticky dots

a survey

4 golden sticky dots,
4 red sticky dots

plenty of sticky notes

1 site map

paper for notes

the responsibility to present the group's ideas and opinions accurately

WORKSHOP TASKS

1 |

GROUPS ...

... discuss

... and write each idea / suggestion on a seperate sticky note.

2 |

GROUPS ...

... discuss

... and mark the most attractive spaces

... and mark the least attractive spaces

... on the map.

3 |

THE REPRESENTATIVES ...

... present the ideas and the map,

... then the ideas are ordered in categories on the wall.

4 |

EVERY PARTICIPANT ...

... distributes the 4 blue dots

... to the ideas - according to what is considered as most relevant.

GLOSSARY

AIRFLOW BUFFER

- leaf surfaces filter pollutant particles out of the air and thereby improve air quality
- plant species with large leaf surfaces are generally more efficient in intercepting pollutant particles
- pollutants are not degraded but may be washed off through the rain
- to be combined with stormwater treatment
- typically implemented along busy streets and roads with heavy traffic

DEGRADATION HEDGE AND COVER

- certain shrub species with root exudates are planted to degrade organic contaminants (e.g., pesticides, nitrogen, petroleum)
- targets surface soils
- typically implemented along the edge of parking lots and industrial sites
- can also serve as an aesthetic element or to mark out property boundaries
- plant species can be mixed to enhance the ecological value

MULTI-MECHANISM BUFFER

- phytotechnology benefits are maximised by planting an area with mixed vegetation that covers all phytotechnology mechanisms (e.g., pollutant degradation, stabilisation and fixation)
- can target any contaminant
- typically implemented as buffers along roads, industrial areas, agricultural fields, highly sealed urban areas, rivers and other water bodies
- by carefully choosing the selection of plants, multi-mechanism buffers provide a range of ecosystem services and valuable habitats

(Kennen & Kirkwood, 2015)

PERMEABLE PAVEMENT

- allows for local water infiltration into the ground to reduce stormwater run-off into adjacent environmental systems
- gaps in between pavement elements allow low growing vegetation to establish
- aesthetic as well as ecological benefits

STORMWATER FILTER / SWALE

- plant species remove contaminants from stormwater to avoid spillage into the groundwater, into rivers or other water bodies
- organic pollutants are degraded, inorganic pollutants are fixated in the soil, according to the characteristics of the chosen plant species
- typically implemented along roads, parking lots and at the edge of agricultural fields
- the benefits can be maximised by choosing plant species with high evapotranspiration capabilities

SURFACE-FLOW WETLAND

- a sequence of engineered, vegetated pools of different depths capture pollutants in stormwater and wastewater to avoid groundwater contamination and the spillage into other water bodies
- organic pollutants are degraded, inorganic contaminants are filtered out and fixated in the soil
- typically implemented where wastewater is released/spilled and where stormwater run-off from urban areas drains into green spaces
- constructed wetlands are inspired by natural marshes and greatly enhance local biodiversity

SUB-SURFACE WETLAND

- by pumping stormwater/wastewater through a sequence of vegetated gravel beds, pollutants can be filtered out
- organic pollutants are degraded, inorganic pollutants are held in the soil and by plant roots
- through vertical and horizontal flows the amount of oxygen supplied to the roots can be controlled, which maximises efficiency
- typically implemented where wastewater is released/spilled and where stormwater run-off from urban areas drains into green spaces
- this treatment method is relatively expensive and may be implemented in combination with public space design

VEGETATED NOISE BARRIERS

- research finds that a vegetated cap (on top of conventional noise barriers) in shape of a half-cylinder directed away from the road reduce traffic noise most efficiently
- by vegetating the noise barrier, the element becomes less prominent and aesthetically pleasing

(Kennen & Kirkwood, 2015); (Nilsson *et al.*, 2015)

BIBLIOGRAPHY

Department of Environment, Community and Local Government, & Local Authorities (2015). *Residential Density* [Interactive Online Map]. Retrieved from http://maps.environ.ie/arcgis/rest/services/MyPlan/ResidentialDensity/MapServerl

Department of Housing, Planning and Local Government. (2018). *Urban Development and Building Heights: Guidelines for Planning Authorities.* Retrieved from: https://www.housing.gov.ie/search/sub-topic/urban-development-and-building-height

Environmental Protection Agency. (2016). *EPA Who we are and what we do* [Brochure]. Retrieved from: https://www.epa.ie/pubs/reports/other/corporate/WhoweAredigital2016.pdf

Environmental Protection Agency. (2016). I*reland's Environment - An Assessment* [Brochure]. Retrieved from http://www.epa.ie/pubs/reports/indicators/SoE_Report_2016.pdf

Environmental Protection Agency [Interactive Online Maps]. (n.d.). Retrieved from https://gis.epa.ie/EPAMaps/

European Commission. (n.d.). *European Green Capital: Galway.* Retrieved from http://ec.europa.eu/environment/europeangreencapital/europeangreenleaf/egl-winning-cities/galway/

Forest Plan 2000 [Blog post]. (n.d.). Retrieved from http://terrylandforestpark.blogspot.com/

Galway City Council. (2017). *Galway City Development Plan 2017-2023.* Retrieved from: https://www.galwaycity.ie/development-plan-downloads-2017

Galway County Council. (2015). *Galway County Development Plan 2015-2021.* Retrieved from: http://www.galway.ie/en/services/planning/developmentplansandpolicy/galwaycountydevelopmentplan2015-2021/

Galway City Council, & Department of Culture, Heritage and The Gaeltacht. (n.d.). *Medieval Galway Exhibition - Galway City Museum Exhibitions.* Retrieved from https://www.galwaycitymuseum.ie/medieval-galway/?locale=en

Galway City Council, Galway County Council, & Government of Ireland. (n.d.). *What is a European Capital of Culture?* Retrieved from https://galway2020.ie/en/what-is-a-ecoc/

Galway City Council, Galway County Council, & National Transport Authority. (2016). *Galway Transport Strategy: An Integrated Transport Management Programme for Galway City and Environs.* Retrieved from: https://www.galwaycity.ie/galway-transport-strategy

Haigh, A., & Lawton, C. (2007). Wild Mammals of an Irish Urban Forest. *Irish Naturalists Journal. 28* (10). pp. 395-403. Retrieved from: http://www.jstor.org/stable/25536823

Hartig, T., Mitchell, R., de Vries, S., & Frumkin, H. (2014). Nature and Health. *Annual Review of Public Health. 35.* pp. 207-228. Retrieved from: https://doi.org/10.1146/annurev-publhealth-032013-182443

Healy, V. (2019, May 27). *Local Government Structures and Functions*. Retrieved from https://www.housing.gov.ie/local-government/administration/local-government-administration

International Monetary Fund. (2018, June 01). Retrieved June 18, 2019, from https://www.youtube.com/watch?v=2sfS5o5-LsY

Ireland's largest Urban Forest Park [Blog Post]. (n.d.). Retrieved from http://terrylandforestpark.blogspot.com/

Kennen, K., & Kirkwood, N. (2015). *Phyto - Principles for Site Remediation and Landscape Design*. New York, The United States of America: Routledge

Krasny, M. E., Russ, A., Tidball, K. G., & Elmqvist, T. (2014). Civic Ecology Practices: Participatory Approaches to Generating and Measuring Ecosystem Services in Cities. *Ecosystem Services*, 7, 177-186. doi:10.1016/j.ecoser.2013.11.002

Krasny, M.E., Tidball, K.G. (2012). Civic Ecology: A Pathway for Earth Stewardship in Cities. *Front. Ecol. Environ. 10* (5). pp. 267-273. Retrieved from: https://doi.org/10.1890/110230

Leonard, C. (2017). *Citizen Science Bat Box Project – Promoting Bats, Promoting Wellbeing*. Submitted in part f fulfillment for the award of BSc. Environmental Science. Unpublished Thesis. National University of Ireland, Galway.

McMahon, K. (2016). *A Comprehensive Survey of Terryland Forest Park*. Submitted for the award of M.Sc. Sustainable Resourve Management. Unpublished Manuscript. National University of Ireland, Galway.

McManus, R. (2011). Suburban and urban housing in the twentieth century. *Proceedings of the Royal Irish Academy, Section C*, 111(-1), 253-286. doi:10.3318/priac.2011.111.253

McNamara, D. (2016, August 11). Black Box to be replaced by new cultural hub. *Connacht Tribune.* Retrieved from https://connachttribune.ie/black-box-to-be-replaced-by-new-cultural-hub-124/

National Parks and Wildlife Service. (n.d.). *Special Areas of Conservation (SAC)*. Retrieved from https://www.npws.ie/protected-sites/sac

Nature and Environment to Attain and Restore (Near) Health. (n.d.). Retrieved from https://www.nuigalway.ie/near-health/

Nilsson, M., Bengtsson, J., & Klæboe, R. (2015). *Environmental methods for transport noise reduction*. Taylor & Francis.

Raidió Teilifís Éireann. (2016, February 15). *Going Shopping In Galway.* Retrieved from https://www.rte.ie/archives/2016/0215/768139-supermarkets-for-galway/

Rosgen, D. (2012, April 16). The Cross-Vane, W weir and J-Hook Vane Structures Their Description, Design and Application for Stream Stabilization and River Restoration. *Wetlands Engineering and River Restoration Conference 2001*. Retrieved from http://www.hydrology.bee.cornell.edu/BEE4730Handouts/Rosgen_Vanes.pdf

Ryan, R. (2016). *Terryland Forest Park Ecological Assessment*. Submitted as part assessment for the MSc Sustainable Resource Management Policy and Practice. Unpublished Manuscript. NUI Galway and University of Limerick, Ireland.

Terryland Forest Park Alliance. (n.d.). In *Facebook* [group page]. Retrieved March 1, 2019, from https://www.facebook.com/groups/terrylandforestpark/about/

Terryland Forest Park - Events [Blog post]. (n.d.). Retrieved from http://terrylandforestpark.blogspot.com/p/events.html

Tidball, K.G. [The Nature of Cities].(2015 April 16). *What is Civic Ecology? 25 Definitions* [Video file]. Retrieved from *https://www.youtube.com/watch?v=f3uxZnV3Tj0*

The Economics of Ecosystems & Biodiversity. (n.d.) *Ecosystem Services* [Blog post]. Retrieved from http://www.teebweb.org/resources/ecosystem-services/

The Irish Meteorological Service. (n.d.). *Climate of Ireland*. Retrieved from https://www.met.ie/climate

The Local Authority Waters Programme [Blog post]. (n.d.). Retrieved from http://watersandcommunities.ie/about/

The Office of Public Works. (n.d.). *Floodmaps* [Interactive Online Maps]. Retrieved from: https://www.floodinfo.ie/map/floodmaps/

The Office of Public Works. (2017). *Galway City Flood Extent (tile 08; 1:5 000)*. Retrieved from: https://www.floodinfo.ie/map/floodmaps/

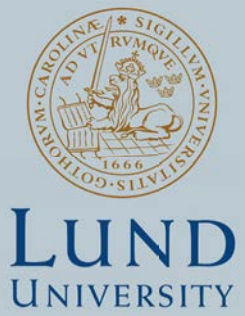
The Ordnance Survey Ireland (2017). GeoHive [Interactive Online Maps]. Retrieved from: http://map.geohive.ie/mapviewer.html.

Údarás na Gaeltachta. (n.d.). *The Gaeltacht*. Retrieved from http://www.udaras.ie/en/

Walsh, S. (2000). *Terryland Forest Park - Funding Submission.* Retrieved from http://terrylandforestpark.blogspot.com/p/forest-plan-2000.html

WDC Insights. (2017, June 23). *Census 2016: Rurality, Population Density and the Urban Population of the Western Region*. Retrieved from https://wdcinsights.wordpress.com/2017/05/17/rurality-population-density-and-the-urban-population-of-the-western-region/

Whitaker Institute for Innovation and Societal Change NUI Galway. (n.d.). *Nature and Environment to Attain and Restore (NEAR) Health*. Retrieved from http://whitakerinstitute.ie/project/near-health/



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Sustainable Urban Design

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School of Architecture