

The background of the entire page is a close-up photograph of a leaf, showing a complex network of veins in shades of orange and red. A white rectangular box is positioned in the upper left quadrant, containing the title text.

**Report of the
Health Impact Assessment
on the Core Strategy of the
Cork City Development Plan
(2022-2028)**

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SUMMARY

The **purpose** of this Health Impact Assessment (HIA) on the Core Strategy of the Cork City Development Plan (2022-2028) has been to identify potential likely and significant health impacts on population health, and to identify opportunities to strengthen health gain and to reduce potential adverse health impacts across population groups. The **scope** or remit of the HIA has been on the 15-Minute City objective within the vision for Compact Liveable Growth in the Cork City Development Plan (2022-2028). The scope for the HIA includes the potential health impacts on three identified population groups, namely older people, young people and people living on low-income, across the determinant of health, Safe and Cohesive Communities. Within this determinant the focus has been on six sub-determinants of health including housing, neighbourhood design, access to public spaces, modes of travel, walkability and accessible workplaces. **Findings** indicate that the implementation of the 15-Minute City can have a positive health impact on both the general population, and on population groups across the six sub-determinants of health when implemented in an appropriate and tailored manner. We have developed eleven **recommendations** at the conclusion of our HIA process, categorised into four sections:

1. Informing the process of creating future Cork City Development Plans in Cork City Council.
2. Community and Stakeholder Engagement in Formulating and Drafting Future Cork City Development Plans
3. HIA and Future Cork City Development Plans
4. Research and Evidence base Development

This HIA process and the compilation of this report has reiterated to us the need for agencies who are working to promote health and wellbeing across all sectors and within communities in Cork city to prioritise action on tackling the widening health inequalities experienced by people living in Cork.

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Contents

1.	Health Impact Assessment (HIA) and the HIA-IM research project: Context for the Health Impact Assessment (HIA) on the Core Strategy of the Cork City Development Plan (2022-2028)	10
2.	HIA Process: Key stages, activities and decisions made	13
2.1	Introduction	13
2.2	HIA Team- Steering Group and Working Group	13
2.4	Scoping	16
2.5	Analysis	19
2.6	Reporting and Implementation	22
2.7	Monitoring and Evaluation	23
3.	Planning Policy Context	24
3.1	National Planning Framework- Project Ireland 2040	25
4.	The Cork City Development Plan (2022-2028) and the Core Strategy	26
4.1	Introduction	26
4.2	Cork City Development Plan (2022-2028)	26
4.3	Core Strategy: Chapter 2 of the Cork City Development Plan (2022-2028) and Compact Liveable Growth (Strategic Objective 1)	28
4.3.1	Core Strategy: strategic regeneration and expansion	30
4.4	Sub-objective of Strategic Objective 1- Compact Liveable Growth: The 15-Minute City	33
4.4.1	Background to recent planning policies: The 15-Minute City	33
4.4.2	The 15-Minute City: potential impacts and unintended consequences	35
4.5	Strategic Environmental Assessment (SEA) conducted on the Cork City Development Plan (2022-2024)	38
5.	Public Health Policy Context	39
6.	Participation and Engagement	41
6.1	HIA Team	41
6.2	Public Engagement event, 22nd April 2024, Cork City	41
6.2.1	Unpacking meaningful engagement in HIA: Challenges and Opportunities in the process	43

7.	Population profile as baseline evidence	45
7.1	Age profile for people living in Cork city	45
7.3	Health status	47
7.3.1.	Self-reported Health Status and Health/Benefit Risk	47
7.4	Health Impacts of the Physical Environment	49
7.5	Morbidity in 55+ age-group	49
7.6	Children and young people	50
7.7	Health Inequalities	51
7.8	Deprivation	52
7.9	Poverty, social exclusion, and housing	55
7.10	Disability	58
7.11	Transport	59
7.12	Access to public spaces: green spaces/parks	59
7.13	Migration and Ethnicity	59
7.14	Occupation in Cork city	62
7.15	Crime and Safety in Cork City	62
7.16	Summary of the Population Profile as Baseline evidence	63
8.	Potential Health Impact	64
8.1	Introduction	64
8.2	Safe and Cohesive Communities, the Core Strategy of the Cork City Development Plan (2022-2028) and the 15-Minute City (sub-objective 2.10)	64
8.3	Housing	67
8.3.1.	What the 15-Minute City is proposing in relation to housing	67
8.3.2	Overview: Health Impacts of Adequate Housing Provision on older people, young people, and people living on low-income	68
8.3.3	Health Impact Pathway: Impact of Adequate Housing Provision	70
8.4	Neighbourhood design	71
8.4.1	What the 15-Minute City is proposing in relation to neighbourhood design	71
8.4.2	Overview: Health Impacts of Neighbourhood Design on older people, young people, and people living on low-income	72
8.4.3	Health Impact Pathway: Impact of Neighbourhood Design	74
8.5	Access to public spaces	75
8.5.1	What the 15-Minute City is proposing in relation to access to public spaces	75
8.5.2	Overview: Health Impacts of Access to Public Spaces on older people, young people, and people living on low-income	76
8.5.3	Health Impact Pathway: Impact of Access to Public Spaces	78
8.6	Modes of Travel	80
8.6.1	What the 15-Minute City is proposing in relation to modes of travel	80
8.6.2	Overview: Health Impacts of Access to Modes of Travel including public transport and active travel on older people, young people, and people living on low-income	80
8.6.3	Health Impact Pathway: Impact of modes of travel, including access to public transport and active travel	84

8.7	Walkability	85
8.7.1	What the 15-Minute City is proposing in relation to walkability	85
8.7.2	Overview: Health Impacts of Walkability on older people, young people, and people living on low-income	85
8.7.3	Health Impact Pathway: Impact of Walkability	88
8.8	Accessible workplaces	89
8.8.1	What the 15-Minute City is proposing in relation to accessible workplaces	89
8.8.2	Overview: Health Impacts of Accessible Workplaces on older people, young people, and people living on low-income	90
8.8.3	Health Impact Pathway: Impact of Accessible Workplaces	92
8.9	Summary – Likely Significant Health impacts	94
9.	Recommendations	95
10.	Opportunities and Limitations of the HIA	99
11.	Conclusion	101
	REFERENCES	104

LIST OF FIGURES

Figure 1:	The HIA Steering Group expertise	14
Figure 2:	Governance arrangement for the HIA team, based on governance suggestion in the IPH HIA guidance (2021: 101)	14
Figure 3:	Visual representation of thematic analysis of health impacts identified by the HIA Steering Group at the January Scoping workshop	17
Figure 4:	Nine Strategic Objectives (SOs) for the Cork City Development Plan (2022-2028)	27
Figure 5:	Core Strategy alignment with the Sustainable Development Goals and National Planning Framework Strategic Outcomes (CCC, 2022: 16)	29
Figure 6:	Core Strategy Map, Cork City Development Plan (2022-2028), (CCC, 2022: 34)	31
Figure 7:	Age profile, Cork City (Census, 2022).....	46
Figure 8:	Age groups, Cork city and National (Health Intelligence Unit, 2023).....	46
Figure 9:	Self-reported health status (Census, 2022)	48
Figure 10:	Health Benefit Risk, population ages 15+ in Cork city (raw data from Atlas Health Finder)	48
Figure 11:	Maps of Cork City overlayed with Pobal HP Deprivation map for 2016 and 2022 © Pobal/J. Pratschke	54
Figure 12:	Poverty and Deprivation Rates by Household composition (CSO, 2023) ...	58
Figure 13:	Map of access to current and planned parks in Cork City from Cork city Green and blue Infrastructure Study	60
Figure 14:	Birthplace of residents who took part in 2022 Census (Census, 2022)	61
Figure 15:	Ethnicity of Cork City residents who took part in 2022 census (CSO, 2022) .	61
Figure 16:	Pathways to health via housing, (Howden-Chapman et al. 2022)	70
Figure 17:	Walkability and pathways to health (Baobeid et al 2021)	87

LIST OF TABLES

Table 1:	The eight Steering Group meetings aligned with the seven stages of the HIA, as included in the Institute of Public Health HIA guidance (Pyper et al., 2021)	15
Table 2:	Six sub-determinants reworked as hypotheses and research questions ...	20
Table 3:	Description of evidence gathered for adequate provision of housing determinant in HIA	67

KEY ACRONYMS USED IN THE REPORT

HIA: Health Impact Assessment

HIA-IM: Acronym name for the Health Research Board (HRB) funded project, based in UCC, entitled: ‘Developing a Health Impact Assessment Implementation Model: Enhancing Intersectoral Approaches in Tackling Health Inequalities.’ The project duration is from 2023 to 2026.

CCC: Cork City Council

CCDP (2022-2028): Cork City Development Plan (2022-2028)

HSE: Health Services Executive

IPH: Institute of Public Health, Ireland

CSO: Central Statistics Office

1. Health Impact Assessment (HIA) and the HIA-IM research project:

Context for the Health Impact Assessment (HIA) on the Core Strategy of the Cork City Development Plan (2022-2028)

This Health Impact Assessment (HIA) on the Core Strategy of the Cork City Development Plan (2022-2028) has been carried out as part of a research project, entitled ‘Development of a Health Impact Assessment Implementation Model: Enhancing Intersectoral Approaches in Tackling Health Inequalities’ (HIA-IM). The project is funded by the Health Research Board, as part of an Emerging Investigator for Health Award held by Dr Monica O’Mullane as Principal Investigator (grant number: EIA2022001). Dr Tara Kenny is Postdoctoral Researcher and Kirsty Nash is Research Assistant on the project. HIA-IM is based in University College Cork (UCC), co-hosted between the School of Public Health and the Institute for Social Science in the 21st Century (ISS21). The project attained ethics approval from the Social Research Ethics Committee in UCC (Log # 2023-019).

The rationale for the HIA-IM project is to address systemic health inequities and health inequalities by examining a way to enhance intersectoral approaches in embedding Health in All Policies in Ireland. Health in All Policies is an “approach to public policies across sectors that systematically takes into account the health implications of decisions, seeks synergies, and avoids harmful health impacts in order to improve population health and health equity” (WHO 2013: 2). Health Impact Assessment (HIA) is one established process for implementing Health in All Policies. Drawing conceptually from both environmental assessments that evolved since the 1970s, and public health WHO Charters since the 1980s, the principles that underpin HIA are outlined in the WHO Gothenberg Consensus Paper (WHO 1999):

Democracy
Equity
Ethical use of evidence
Sustainable development

Democracy: Participation of stakeholders, members of the public and relevant communities at different stages of the HIA or throughout the process is essential to conducting a HIA.

Equity: Existing inequities and inequalities in the population should be considered in a HIA, and recommendations should be developed to promote health and reduce adverse impacts of a policy on affected population groups.

Ethical use of evidence: HIAs should use transparent and rigorous processes to collect, synthesis and interpret various types of qualitative and quantitative evidence gathered.

Sustainable development: HIAs should assess future short-, medium and long-term potential health impacts with a view to contributing to informed decision-making of development programmes. In this way, HIAs can also contribute to meeting the 2030 Agenda for Sustainable Development.

(Institute of Public Health HIA guidance, Pyper et al, 2021: 16)

HIA is an approach that involves assessing the potential health impacts of a project, programme or policy on population health, and the distribution of health impacts across population groups, with a view to enhancing positive health impacts of projects, programmes, and policies and reducing the potential unintended/negative health impacts (WHO 1999; Pyper et al. 2021). HIAs are carried out in various ways to inform decision-making in spatial planning throughout the world (Fischer et al. 2021).

To explore ways of embedding Health in All Policies with relevant approaches and tools, HIA-IM seeks to examine the context of carrying out HIAs at local and national policy levels in Ireland, to iteratively develop a contextualised HIA implementation model for enhancing Health in All Policies. Two HIAs are to be carried out during the lifetime of the HIA-IM project, including one at the local policy level, addressing the Cork City Development Plan (2022-2028) and one at the national policy level, addressing the Climate Action Plan 2024. The revised HIA guidance, published by the Institute of Public Health, Ireland, is to be used in the conduct of the two HIAs (Pyper et al. 2021). At the time of writing, despite policy commitment and synergy for intersectoral approaches for health such as HIA in Ireland, with national public health policy endorsement in *Healthy Ireland Framework (2013-2025)*, HIAs are not being carried out routinely on projects, programmes or policies. By learning from the two HIAs being conducted within the research project, with a specific focus on the lived experience of the HIA team, barriers and enablers affecting the conduct of the HIAs, the HIA-IM project team seeks to build the HIA implementation model that will guide future policy, practice, and research in enhancing Health in All Policies.

The places where we live, our family circumstances, our homes, transport options, the community in which we live, and the educational and employment opportunities available to us, influence our health. Broadly speaking these factors are known as the wider determinants of health (Solar and Irwin 2010). A healthy built environment can support the impact of these determinants on people's health and wellbeing, by, for example, fostering an increase in physical activity levels, enhancing social interaction, and supporting mental health and well-being (Barton et al. 2015; Puig-Ribera et al. 2022; Nigg et al. 2024). Carrying out a HIA on the strategic city development plan in Cork is an important step in further supporting a healthy built environment in the city. The HIA has been conducted due to the strong rationale for enhancing potential health opportunities and reducing any potential unintended/ negative health impacts of the CCDP. The HIA has been carried out to assess where the CCDP (2022-2028) could enhance potential opportunities for positive health gain and examine where the CCDP may be having unintended negative impacts on population and/or human health.

Cork City Council is the first local authority in Ireland to engage in carrying out such an assessment as part of a HIA Team on a strategic city development plan, using the Institute of Public Health HIA guidance (Pyper et al. 2021). This HIA on the Core Strategy of the Cork City Development Plan (2022-2028) is voluntary (not being carried out at the request of legislation), standalone (not being carried out as part of a statutory environmental assessment), and proportionate (Pyper et al. 2021: 10). Proportionality in a HIA means that it is fit-for-purpose (*ibid*: 11) and proportionate in terms of "time available, resources, and (according to) proposal (policy) complexity" (*ibid*: 30).

2. HIA Process: Key stages, activities and decisions made

2.1 Introduction

This section outlines the key stages of the HIA that were engaged with during the process, the key activities carried out at each stage, and the key decisions made at each stage, which informed the direction and scope of the HIA.

The team for carrying out this HIA on the CCDP (2022-2028) was brought together in 2023 and 2024. The HIA was planned to take place from January to September 2024. The seven stages of the HIA were planned for the team to go through (table 1) during these nine months.

2.2 HIA Team- Steering Group and Working Group

As is recommended in the IPH HIA guidance (2021), a Steering Group is convened in order to inform and direct the purpose and scope of the assessment (Pyper et al, 2021: 15). The HIA Steering Group is made up of cross-sectoral representation, including members who have key expertise, knowledge, and experience relevant to the topic of the policy under assessment, which in this case, is the Cork City Development Plan (2022-2028). The HIA team and the affiliation of members are detailed on page 4 of this report. Figure 1 details the expertise the Group brought to the HIA. A Working Group was also convened (page 4), as suggested in the IPH HIA guidance. This Group carried out the work of the HIA in between the eight Steering Group meetings.

Table 1 outlines the eight meetings of the Steering Group, aligned with the seven stages of the HIA. Members of the Working Group were affiliated with the School of Public Health UCC and the Strategic Planning and Heritage Section of the Strategic and Economic Development Directorate from Cork City Council. Figure 2 is a visual representation of the governance arrangement for the HIA. A Terms of Reference (Technical Annex Section 1) for the Steering Group was established, and the final version was decided upon by the Steering Group at the February meeting.

Strategic Environmental Assessment
Health, community development, local authority
Medical doctor. Consultant in Public Health Medicine & Medical Officer of Health
Community Work, Social Policy
Public health, Healthy Cities and Sexual Health Network
EIA, Environmental health, environmental, health and planning policy
Transport, Mobility, land use/planning, urban realm, rural isolation, active travel, public transport, walking, cycling, micro-mobility.
Urban Planning
Applied economics and policy analysis.
Local climate issues.
Environmental Health

Figure 1: The HIA Steering Group expertise

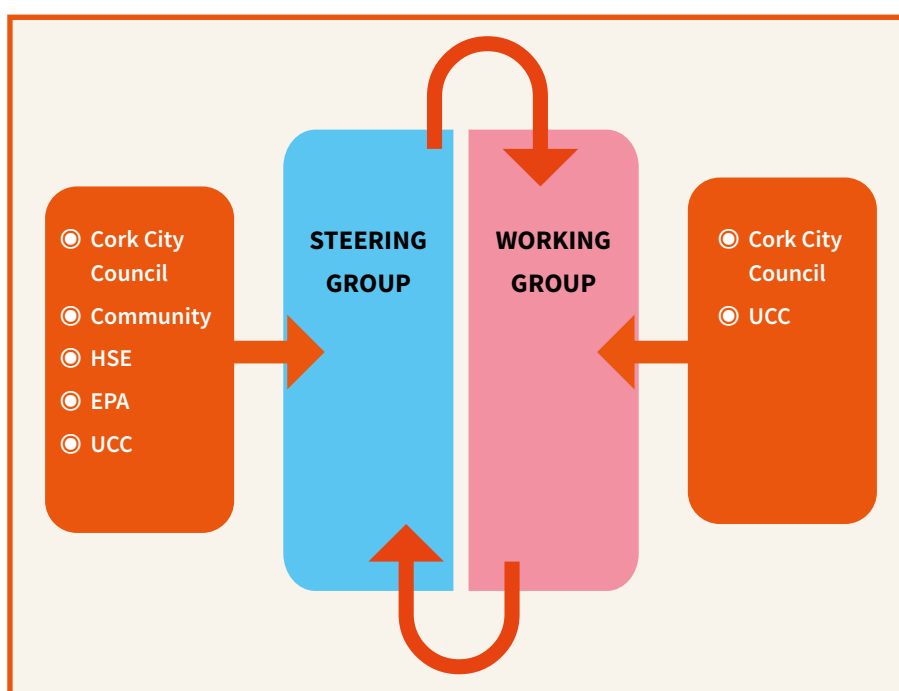


Figure 2: Governance arrangement for the HIA team, based on governance suggestion in the IPH HIA guidance (2021: 101)

Table 1: The eight Steering Group meetings aligned with the seven stages of the HIA, as included in the Institute of Public Health HIA guidance (Pyper et al., 2021)

2024	Steering Group meetings and format	7 Step approach
31 st January	Steering Group meeting (in person)	Screening & Scoping
22 nd February	Steering Group meeting (online)	
13 th March	Steering Group meeting (online)	
25 th April	Steering Group meeting (in person)	Analysis
30 th May	Steering Group meeting (online)	
27 th June	Steering Group meeting (in person)	Reporting
25 th July	Steering Group meeting (online)	
August	No meeting	
19 th September	Steering Group meeting (in person)	Implementation; Monitoring & Evaluation

In HIA practice, a HIA team is convened, and governance arrangements are decided upon at the scoping stage of the process. Our HIA was due to start on 31st January 2024 with the scoping workshop with the Steering Group, however the group met twice before then. Firstly, on 13th September 2023 when Ben Cave, co-author of the IPH HIA guidance, was invited to UCC and delivered a seminar on HIA case studies to the team. Secondly, the team met on 25th October 2023 at their request to discuss the potential remit for the HIA on the Cork City Development Plan (CCDP) (2022-2028). Additionally, the HIA team were invited to an online presentation delivered by Stuart Williams for the HIA Steering Group only (17th November 2023). Stuart is a Senior Planner at Cardiff Council, Wales. He shared his experience of doing a HIA on a Local Development Plan during the presentation and answered questions posed by the group. The Steering Group were invited to participate in the HIA learning module provided online by the Institute of Public Health, Ireland, before commencing the HIA.

The following details the key activities and decisions made at each stage of the HIA process. Unless otherwise noted, the Institute of Public Health Ireland (IPH) HIA guidance was used as a guide during our HIA on the CCDP (2022-2028). Additional published guidance for carrying out HIAs in Ireland using the IPH HIA guidance, which includes a template HIA report, was also used for creating this report (Cave 2024).

2.3 Screening

According to the IPH HIA guidance, the **screening** stage of a HIA is when a decision is made as to whether a HIA will go ahead or not. This decision was taken when Cork City Council agreed with Monica O'Mullane to carry out a HIA in 2021 when the application for funding HIA-IM was submitted to the Health Research Board. Using the HIA guidance screening tool (Pyper et al., 2021: 110), a screening checklist was completed for this HIA on the Cork City Development Plan (2022-2024). Screening takes place before a HIA team is gathered (Steering Group or Working Group) and is a formal agreement from the proponent (stakeholder who has written the policy under assessment) that the HIA will go ahead. Section 2 of the Technical Annex provides the screening tool completed by Karen O'Mahony (Cork City Council). The screening exercise met the IPH HIA guidance criteria (page 31) that "based on available information, does the proposal have the potential to change 'risks to human health' in a way 'likely' to 'significantly' affect population health."

2.4 Scoping

The **scoping** stage of a HIA is an integral part of the process, because this is the point at which the Steering and Working Groups are convened and the governance arrangements (terms of reference) for the team is established and agreed upon by the members. Section 1 of the Technical Annex includes the terms of reference for the Steering Group. This is also the stage when the scope/ remit/ boundary of the HIA is decided upon, in terms of the determinants of health, population groups and policy focus for the assessment. Proportionality and prioritisation are key at this point. Decisions are required in terms of what is included in a HIA and what is not included. As an approach and process, HIA works in a flexible and iterative manner, whereby determinants, population groups or policy focus scoped in at the scoping stage.

In terms of the governance arrangements for the HIA, the terms of reference for the Steering Group was further discussed at the January meeting and then finalised the following meeting on 22nd February 2024. The Chair of the HIA Steering Group was nominated and elected, namely Dr Mary O'Mahony, Public Health Consultant, Health Services Executive (HSE). Ms Liz Ahern, Mayfield Development Project, chaired two meetings (May and June) when Mary was unavailable. The HIA-IM researchers (Monica, Tara and Kirsty) organised the meetings and circulated agendas, minutes and documents for each meeting.

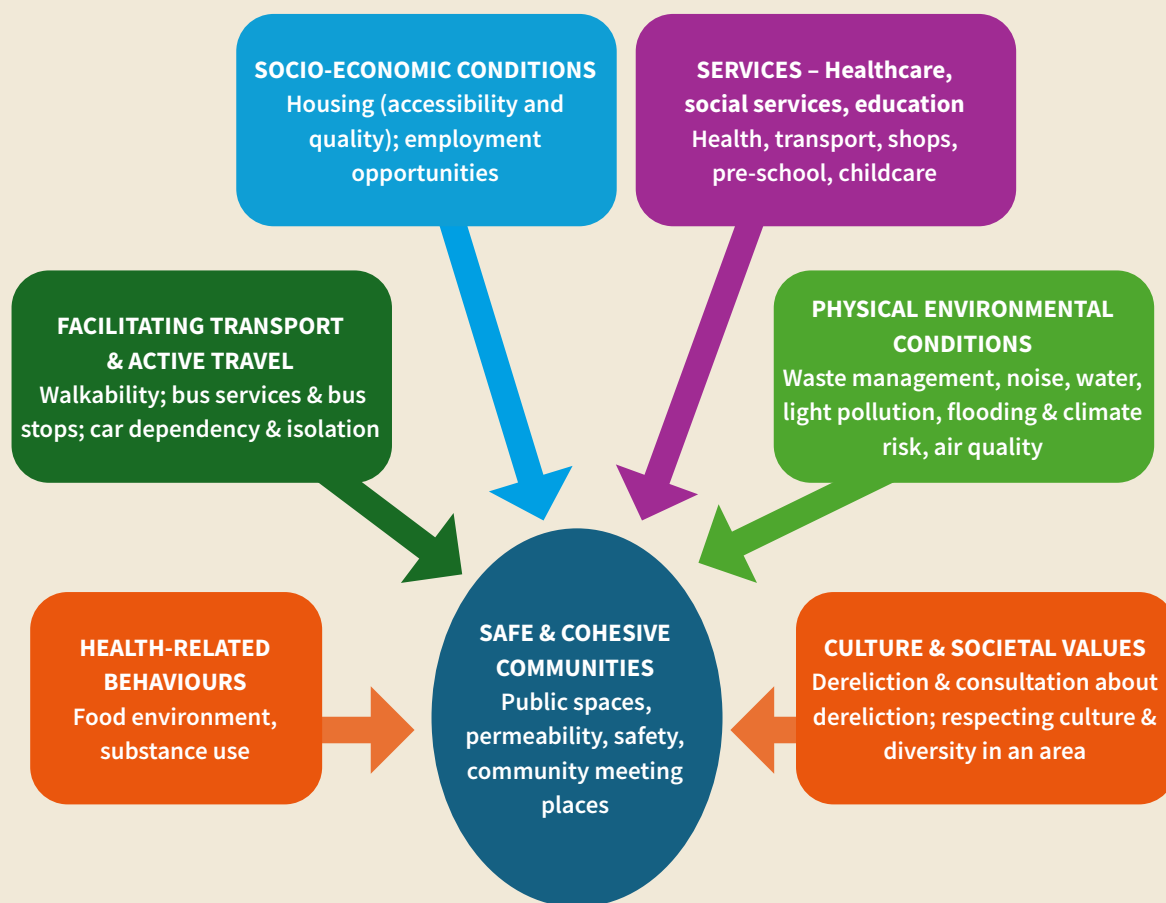


Figure 3: Visual representation of thematic analysis of health impacts identified by the HIA Steering Group at the January Scoping workshop.

The scoping for the HIA on the CCDP (2022-2028) involved a scoping workshop with the Steering Group (31st January), which resulted in the identification of 65 potential health impacts identified as a result of the plan of the Plan when scoping for population groups and determinants of health, using the scoping tool in the IPH guidance (page 122)¹. A thematic analysis of these 65 identified potential health impacts resulted in an overarching theme of ‘safe and cohesive communities’ throughout discussion of the determinants of health (figure 3).

1 The HIA-IM researchers will gather reflections and feedback from the HIA team on their experience with the scoping checklist in the IPH HIA guidance. As part of the HIA-IM project, this feedback will be submitted to the IPH after the HIA is completed.

Section 3 of the Technical Annex provides the scoping table that resulted from both this scoping workshop and from two Steering Group meetings (February 22nd and 13th March), where information on scoping and HIA proportionality was discussed and decided. Section 3 of the Technical Annex provides information as to the determinants of health that were scoped in at that stage, reflecting scoping in on the safe and cohesive communities' determinant theme.

The Steering Group agreed that the findings and mitigation measures from the Strategic Environmental Assessment (SEA) conducted on the CCDP (2022-2028) would inform the HIA at the Analysis stage, as another data source that assessed the CCDP for environmental impacts.

In terms of population groups, given that the HIA is a policy/ strategic assessment, the decision was made to follow IPH HIA guidance (page 122) as to groups appropriate for policy-level HIAs and focus on vulnerabilities according to age and income. Therefore, older people (65 years +), young people (aged 5 to 18 years) and people living on low-income were the population groups included in the HIA scope. These population groups were also identified in the scoping workshop by the Steering Group, as being groups of people whose health could potentially be differentially affected by the CCDP (2022-2028).

In terms of further refining the scope of the HIA, given the breadth and scale of the CCDP (2022-2028) with nine strategic objectives and 365 sub-objectives, it was clear to the group that decisions needed to be made as to the narrowing of HIA scope on a specific section in the CCDP. This was discussed at the 25th October 2023 meeting. The group agreed to scope the HIA in on the Core Strategy (chapter 2) of the CCDP (2022-2028). The core strategy gives spatial expression to the housing, population, land and employment parameters of the City Development set at national level for Cork City and Metropolitan area up to 2040. The rationale for this scope relates to the Core Strategy providing the basis for the next iteration of the CCDP, and conducting the HIA on this chapter would be a direct way of informing the Cork City Development Plan (2029-2039), which will be the first 10-year Statutory Plan. Following the April 2024 meeting, the Steering Group agreed to scope the HIA in on Strategic Objective 1- Compact Liveable Growth, which is the only Strategic Objective detailed in the Core Strategy (Chapter 2). A sub-objective of this Strategic Objective is the 15-Minute city (sub-objective 2.10), which is a significant overarching programme within the vision of Compact Liveable Growth in a city environment. The 15-Minute City aligns significantly with the safe and cohesive communities' determinant theme that arose from the scoping workshop (31st January). Once the scoping remit for the HIA was decided, the terms of reference for the HIA was created (Section 4 of the Technical Annex).

Under the determinant of safe and cohesive communities, six sub-determinants included at the scoping stage and refined at the analysis stage following an initial screening of literature and alignment with the wording of the 15-minute city (sub-objective 2.10), are as follows:

- Housing
- Neighbourhood design
- Access to public spaces
- Modes of Travel
- Walkability
- Accessible workplaces

This decided HIA scope provided the basis for the next stage, the Analysis stage.

2.5 Analysis

The **analysis** stage of a HIA is when “evidence of potential health effects are gathered and considered and when conclusions are drawn. This may include conclusions on the significance of health effects” (Pyper et al. 2021: 43). For this stage, decisions made at the scoping stage determined the plan of work in gathering, collating, and analysing data. In order to carry out the evidence-gathering work required for this stage, an Analysis Stage HIA Research Group (page 4 of report) was set up, including the three HIA-IM researchers with Dr Marie Ryan, lecturer in Economics in UCC and member of the HIA steering group. This stage of the HIA was the most labour-intensive component of the process. A ‘Protocol for Analysis’ document (Section 5 of the Technical Annex) was created by Dr Monica O’Mullane to guide the analysis team in gathering evidence, based on analysis tools provided in the IPH HIA guidance (part 4, Analysis: Tools and Resources, pages 136-156).

Evidence from a review of scientific literature (peer-reviewed published academic articles), grey literature (study reports, unpublished literature), consultation reports carried out with specific population groups (for example, report of children’s submission on the draft CCDP (2022-2028) (Lynch 2021)) and the relevant policies was gathered according to the six sub-determinants scoped into the HIA and the three population groups. The reviews carried out were not exhaustive. Systematic reviews were prioritised first, as suggested in the IPH HIA guidance (page 149), then relevant original peer review studies next and grey literature specific to the Irish and if available, Cork context.

The six sub-determinants were refocused as workable hypotheses and research questions as outlined in table 2 and included in the ‘Protocol for Analysis’ (Section 5 of the Technical Annex). The work was divided amongst researchers, following an initial screening of scientific literature. Results from this analysis gathering stage are included in this report’s **Section 8: Potential Health Impacts**.

Table 2: Six sub-determinants reworked as hypotheses and research questions

Determinant	Wording from CCDP objective 2.10- The 15-Minute City	Research question	Hypothesis	Comment
Housing- provision & mix	House types, tenure: House types and tenure that foster a diverse, resilient, socially inclusive, and responsive city.	What is the impact of housing quality on health? What are the impacts of buildings on health? what is the impact of housing conditions on health? What is the impact of apartment living on health? What is the impact of house tenure on health?	Adequate housing and secure tenure lead to improved health outcomes. Secure housing tenure is related to good health outcomes for older people, children & adolescents; people living on low-income.	Do housing types meet the health needs of population groups? What is the health impact of housing type (if any literature?) What is the impact of tenure on health? Is there evidence that tenure impacts health?
Public spaces and buildings for communities to meet	Creating vibrant local communities that can access all necessary amenities.	What is the impact of community meeting places and buildings on health?	Accessible community meeting places and public spaces for meeting have a positive impact on health outcomes and on strengthening social inclusion.	What does the evidence say about meeting places?
Connecting routes, including permeability, modes of travel and walkability	Permeability; walkable neighbourhoods, towns and communities; accessibility; public and active travel			
	Enhanced neighbourhood design for health including permeability	What is the impact of neighbourhood design on health?	Neighbourhood design impacts positively on health.	What does the evidence say about neighbourhood design on health? Anything regarding different impacts on different groups?

Table 2: Six sub-determinants reworked as hypotheses and research questions

Determinant	Wording from objective 2.10	Research question	Hypothesis	Comment
	Walkable and physical activity	What is the impact of walkable neighbourhoods on health?	Walking in supportive environments as part of daily living impacts positively on health.	What does the evidence say about walking environments and impact on health? Anything regarding different impacts on different groups?
	Modes of travel (public transport and active travel)	What is the impact of modes of travel on health?	Different modes of travel including accessing public transport and active travel modes, impact positively on health.	What does the evidence say about modes of travel and impacts on health? Anything regarding different impacts on different groups?
Employment	Access workplaces with a 15-minute public transport journey.	What is the impact of shorter commuter/ travel times with public transport on health?	Accessible workplaces with short travel times by public transport improves health by walking to and from bus stops, increases social interaction, and decreases car reliance.	What does the evidence say about access to workplaces on health? Anything regarding different impacts on different groups? People living on low income, older people (older than 65 years should be retired) and children and adolescents (teenagers would be working/ looking to access workplaces)?

Tables were created to assess likelihood of impact (Section 7 of the Technical Annex). The tables were created based on a template provided by Dr Liz Green of the Wales HIA Support Unit, Public Health Wales, using the terminology (magnitude of impact, sensitivity of population, significance of impact) from the IPH HIA guidance. Two tables were created for each of the six sub-determinants, for each of the three population groups (older people, young people and people living on low-income). The first table (Step 1 tables) assessed magnitude of impact, sensitivity of population, significance of impact for a determinant for

a population group. Then a second table (Step 2 tables) was populated for potential positive and negative health impacts and their significance, duration and likelihood of impact. This table was informed by the outcome from the Step 1 table. These tables altogether informed the reasoned conclusion tables for each of the sub-determinants. A reasoned conclusion format is included in the IPH HIA guidance (page 152), as a way to guide the collating of a narrative conclusion of a specific determinant in relation to the health impact of the policy under assessment, using information from the Steps 1 and 2 tables.

During the 27th June Steering Group meeting, members worked in groups with the researchers who drafted the tables and reasoned conclusions (based on the template in the IPH HIA guidance, page 152) in order to discuss the tables and contribute changes or additions to the tables. Section 7 of Technical Annex includes these tables, reasoned conclusions and references for each sub-determinant (housing, neighbourhood design, access to public spaces, modes of travel, walkability and accessible workplaces) for older people, young people and people living on low-income.

An important part of the analysis stage of a HIA is **public involvement**. This refers to engaging with people who would be potentially affected by the policy under assessment, which in this case for the Cork City Development Plan (2022-2028), relates to people living in Cork city.

Public involvement can comprise of input already collected from the public, or generating new input, or a combination of both. For the purpose of this HIA, we used a combination of both. We gathered new data from people living in Cork city, plus we drew on consultations that had been conducted already. The public engagement event took place on 22nd April 2024 in Cork city hall. It was chaired and facilitated by Dr Liz Green (Director of the Wales HIA Support Unit, Public Health Wales), with the HIA-IM researchers and Bernie Connolly (Cork Environmental Forum). Bernie is a collaborator on the HIA-IM project team. The data provided from the people in attendance at the event informed the analysis stage. The data gathered at this event was collated into a report (Nash and O'Mullane, 2024) and is detailed further on page 38 of this report.

2.6 Reporting and Implementation

The **reporting** stage of a HIA is when a report is created on the purpose, scope and findings of the assessment. Recommendations are developed during the reporting stage, based on the findings from the analysis stage. The recommendations developed for this HIA are detailed in **Section 9** of this report.

The **implementation** stage refers to the findings being followed through when implementing the policy. In the case of the HIA on the CCDP (2022-2028), this implementation would occur in the creation of the next iteration of the Plan, when recommendations from the HIA would directly inform the creation of the next Cork City Development Plan (2029-2039), which will have a ten-year horizon. Recommendations not directly related to the CCDP (2022-2028) can be implemented at an earlier stage.

2.7 Monitoring and Evaluation

Monitoring of the HIA, as specifically described in the IPH HIA guidance, relates to analyses after the assessment report has been completed, in tracking the health impacts identified in the HIA of the policy under assessment. As this body of work is beyond the timeframe of our HIA, this step, as set out in the IPH HIA guidance, will be not carried out.

What will happen in terms of the Evaluation step of the HIA, will be a monitoring/tracking of our eleven recommendations, as an impact evaluation. This monitoring/tracking of Cork City Council specific recommendations will be coordinated by the Strategic Planning and Heritage unit in Cork City Council. Dr Monica O'Mullane will coordinate UCC-specific recommendations and the Steering Group advocacy recommendation.

A peer review of the HIA report was carried out by Dr Margaret Douglas (Public Health Scotland), who has vast experience in carrying out and reviewing HIAs for over twenty years. The peer review will take place in the form of a Quality Assurance review of the HIA report, as described in the IPH HIA guidance (page 55). Review questions are included in Section 6 of the Technical Annex. The questions came from Dr Douglas. The HIA Steering Group propose the following additional questions to be included in the review:

In terms of the composition of the Steering Group and Working Group, are there any observations around sectoral interests involved, given the focus of this HIA?

Are there any sectoral interests missing?

Any other comments on the roles of the members of the Steering Group and Working Group?

Process evaluation of the HIA is also being carried out by the HIA-IM research team, who are “examining how the HIA process was undertaken, who was involved and how useful the process was” to identifying potential health impacts of the CCDP (2022-2028) (Pyper et al, 2021: 55).²

2 This work will be published by the HIA-IM research team. Please contact the report's first author directly for further information and updates on this work.

3. Planning Policy Context

In Ireland, local government is structured across 31 local authorities of equal status. The functions of local government include the provision of public services and facilities such as housing, planning, roads, environmental protection, fire services, and maintaining the electoral register (LGIU 2023). The elected council is the decision-making body in Irish local authorities. In Cork city, there are 31 elected councillors in total. A committee system was set up in 1998/1999 to support the council in policy development and review. The committee system is made up of the Strategic Policy Committees (SPCs) and the Corporate Policy Group (CPG). Each SPC has nine members. The majority of the members of SPCs are elected councillors. Other members on the SPCs come from sectoral interests including community and voluntary organisations, environmental groups, trade unions and local business associations. These committees allow for discussion and review of new policies. The SPCs have an advisory role, with the elected council voting and ratifying any new policies, including the city development plan (Quinlivan 2022).

The following outlines the remit of each of the six SPCs, which reflects the main functions of the local authority:

- Housing
- Environment, Water and Amenity
- Strategic Economic Development, Enterprise and Planning
- International Relations and Tourism
- Roads and Transportation
- Community, Culture and Placemaking

The Corporate Policy Group (CPG) is made up of the chairs of the SPCs and the Lord Mayor. It is supported by the Chief Executive Officer of Cork City Council. The function of the CPG is to coordinate work of the SPCs before recommendations and findings are presented to the elected council for discussion, voting and ratification.

The City Development Plan is the primary public statement of planning policies for the local community. It is the basic policy document of the local authority in which the overall strategy and strategic objectives for its entire functional area are set out. It is currently prepared in rigid six-year cycles, although this is likely to change under new planning legislation, to increase to ten-year cycles. The development

plan is required under legislation to contain land use, amenity and development policies and objectives. While the development plan is prepared by planners and other local authority personnel, the making of the plan is a reserved function of the elected members, whose duty it is to review, vary and make the development plan. The *Development Plan Guidelines for Planning Authorities* (2022) set out the purpose of the development plan. These guidelines highlight that development plans should establish an inclusive local vision, adapt national and regional policy objectives to the local context, and enable strategic consideration of all relevant factors, to ensure an equitable, balanced and transparent approach to decision making (Government of Ireland, 2022 : 10). The Core Strategy of a development plan is a mandatory element of all development plans. It demonstrates that the plans' policies and objectives are consistent, as far as practicable, with national and regional development objectives in the National Planning Framework (NPF) and Regional Spatial and Economic Strategies (RSES).

3.1 National Planning Framework- Project Ireland 2040

The Project Ireland 2040 National Planning Framework shared goals includes a compact growth goal, which is described as:

“Carefully managing the sustainable growth of compact cities, towns and villages will add value and create more attractive places in which people can live and work. All our urban settlements contain many potential development areas, centrally located and frequently publicly owned, that are suitable and capable of re-use to provide housing, jobs, amenities and services, but which need a streamlined and co-ordinated approach to their development, with investment in enabling infrastructure and supporting amenities, to realise their potential. Activating these strategic areas and achieving effective density and consolidation, rather than more sprawl of urban development, is a top priority” (Government of Ireland, 2020 : 14).

Connectedness in urban areas is an important part of the National Planning Framework. Connectedness offers opportunities in urban areas for accessibility in close proximity to a population group and can offer a good quality of life, can accommodate employment growth, appropriate housing options in a built environment that is attractive, safe and accessible.

4. The Cork City Development Plan (2022-2028) and the Core Strategy

4.1 Introduction

This section provides information on the Cork City Development Plan (CCDP) (2022-2028) and chapter 2 of the CCDP, which is the Core Strategy of the Plan. Detailed within this chapter 2 of the CCDP (2022-2028) are the nine strategic objectives of the CCDP, the first one being Compact Liveable Growth. This strategic objective is the only such objective detailed in this chapter 2 (Core Strategy) of the CCDP (2022-2028). The other eight strategic objectives are detailed further from chapters 3 to 12 in the CCDP. Section 4 of this HIA report will also provide background information on the rationale for the 15-Minute City, which is a priority action supported by Compact Liveable Growth, as well as an overview of potential health impacts of the 15-Minute City.

4.2 Cork City Development Plan (2022-2028)

Cork is the fastest growing city in Ireland, with a population of 224, 004 people (Central Statistics Office (CSO), 2022). Cork is emerging as an international centre of scale and national driver of economic and population growth. Over the next decade, 10 billion euro will be invested in Cork city to improve the quality of life for its inhabitants and to support an expected population growth of 50% by 2040 (CCC 2022). Such investment will include the delivery and support of housing, public parks, sustainable transport, active travel, public spaces and climate resilience. These investments are guided by the Cork City Development Plan (2022-2028) and a number of other Strategic Plans, such as the Climate Adaptation and Mitigation Plan, and Noise Action Plan.

The current Cork City Development Plan (CCDP) (2022-2028) is the first of a sequence of three development plans to guide and support investment and growth within the city boundaries up to the period 2040. The plan sets out how the city will meet the needs of its citizens and visitors over the coming years.

In addition to a series of public engagement and consultation events, the development plan was informed by a range of background studies and assessments including a: Citywide neighbourhood profile, Joint Housing Strategy, Green and Blue Infrastructure Study, An Active Recreation Needs Assessment, Citywide Capacity Study, an Urban Density Building Height and Tall Building Strategy which

provided an evidence base for an updated Policy framework. The plan was also informed by a series of higher-level guidance documents relating to Residential Density, Apartment Standards and Childcare, amongst others.

Development plans in Ireland provide the statutory and strategic land use policy for the city or county, and must be in line with the National Planning Framework which sets out the overarching planning framework for the entire country (DHPLG 2018). Each Plan is also required to align with the relevant Regional Plan. In Cork City the relevant regional tier plan is the Regional Spatial and Economic Strategy for the Southern Region. Volume 1 of the CCDP is based on nine strategic objectives (figure 4) and sets out how land within the Cork city boundary will be used along with objectives and policies to guide future growth and development, including planning applications. Each of these nine strategic objectives (SOs) has its own chapter, along with supporting sub-objectives, within the CCDP and is

Figure 4: Nine Strategic Objectives (SOs) for the Cork City Development Plan (2022-2028)



accompanied with Mapped Objectives in Volume 2 of the Plan. It is envisioned, that where appropriate, the objectives of the CCDP, may be developed in more detail at the local level through local area plans, framework plans or development briefs that will be prepared as needs arise and resources allow (CCC, 2022: 11). Subsequent Local/ Framework Plans may result in updates to the Development Plan via a Variation process which follows a statutory timeline and includes public consultation.

4.3 Core Strategy: Chapter 2 of the Cork City Development Plan (2022-2028) and Compact Liveable Growth (Strategic Objective 1)

The Core Strategy outlines nine Strategic Objectives (SOs) (figure 4). One of the SOs is detailed with 42 sub-objectives in the Core Strategy (Chapter 2) of the Cork City Development Plan (2022-2028); the other eight SOs are detailed with their own sub-objectives in chapters 3 to 12 of the CCDP.

The aim of Strategic Objective 1: Compact Liveable Growth is to:

“Deliver compact growth that achieves a 15-minute city of scale providing integrated communities and walkable neighbourhoods, docklands and brownfield regeneration, infill development and strategic greenfield expansion adjacent to the existing city”

(CCC, 2022: 30)

A central function of the Core Strategy is ensuring an acceptable equilibrium in the supply of zoned, serviced land that allows for projected population growth up to 2028. The population targets for Cork city are set at a national level, via the National Planning Framework, for the period up to 2040. The ambitious population targets for Cork City and Metropolitan area is to create more balanced regional growth in the State. The growth is being supported with significant transport investment (CMATS) and funding for key sites in the City Centre (Grand Parade and Docklands) which will enhance the centre, create new location for jobs growth and a significant new City Park (Marina Park).

Core Strategies are legislative obligations and underline current and future iterations of City Development Plans. Therefore, there is a direct connection between the HIA on the Core Strategy and the development of the next two City Development Plans up to 2040. The Core Strategy is also designed to support the delivery of the United Nation's Sustainable Development Goals (SDGs). In particular, SDG 3 (Good health and well-being), 4 (Quality education), 8 (Decent work and economic growth), 10 (Reduced inequalities), 11 (Sustainable cities and communities), 13 (Climate Action) and 15 (Life on Land), along with the National Planning Framework strategic outcomes (figure 5).

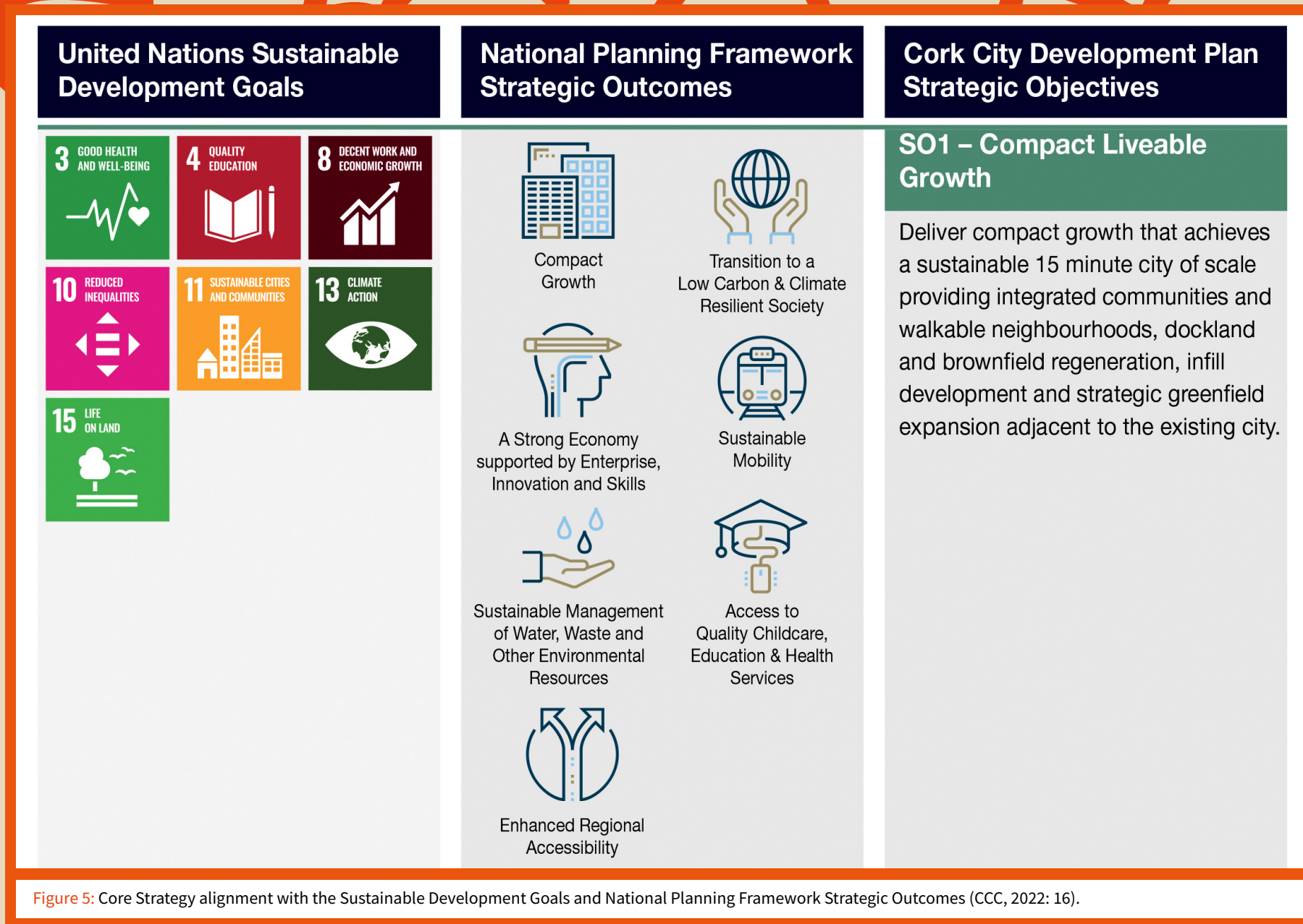


Figure 5: Core Strategy alignment with the Sustainable Development Goals and National Planning Framework Strategic Outcomes (CCC, 2022: 16).

4.3.1 Core Strategy: strategic regeneration and expansion

The Core Strategy and its supporting 42 objectives identifies where and how development, both new and existing developments to ensure permeability, will occur within the city boundaries.

The ten strategic regeneration and expansion areas include:

- City Centre
- The Docklands
- City Consolidation and Expansion: Blackpool (Kilbarry), Ballyvolane (East), Ballyvolane (West) South Ballincollig (Maglin), South Glanmire (Ballinglanna), Douglas (Castletreasure) and East Blarney (Ringwood).
- Districts Centres (Hollyhill, Wilton, Ballyvollane, Douglas, Mahon, Blackpool)
- Urban Town (Ballincollig, Blarney, Glanmire and Tower)
- Hinterland Settlements
- The Hinterland

The Core Strategy allocates growth in a tiered manner across the settlement hierarchy i.e. higher growth and densities are allocated to more central and accessible locations versus lower targeted growth and densities for peripheral locations. The core strategy growth map (figure 6) illustrates the locations identified for: consolidated urban district centres (red circles), new employment zones (blue circles near Blarney, Blackpool, Ballyvolane) city regeneration areas (pink areas – city docs and Tivoli docks), city parks (dark green circles near Hollyhill, and near Ballyvolane East) along with indicative transports routes.



**The Core Strategy
allocates growth in a
tiered manner across the
settlement hierarchy ...**

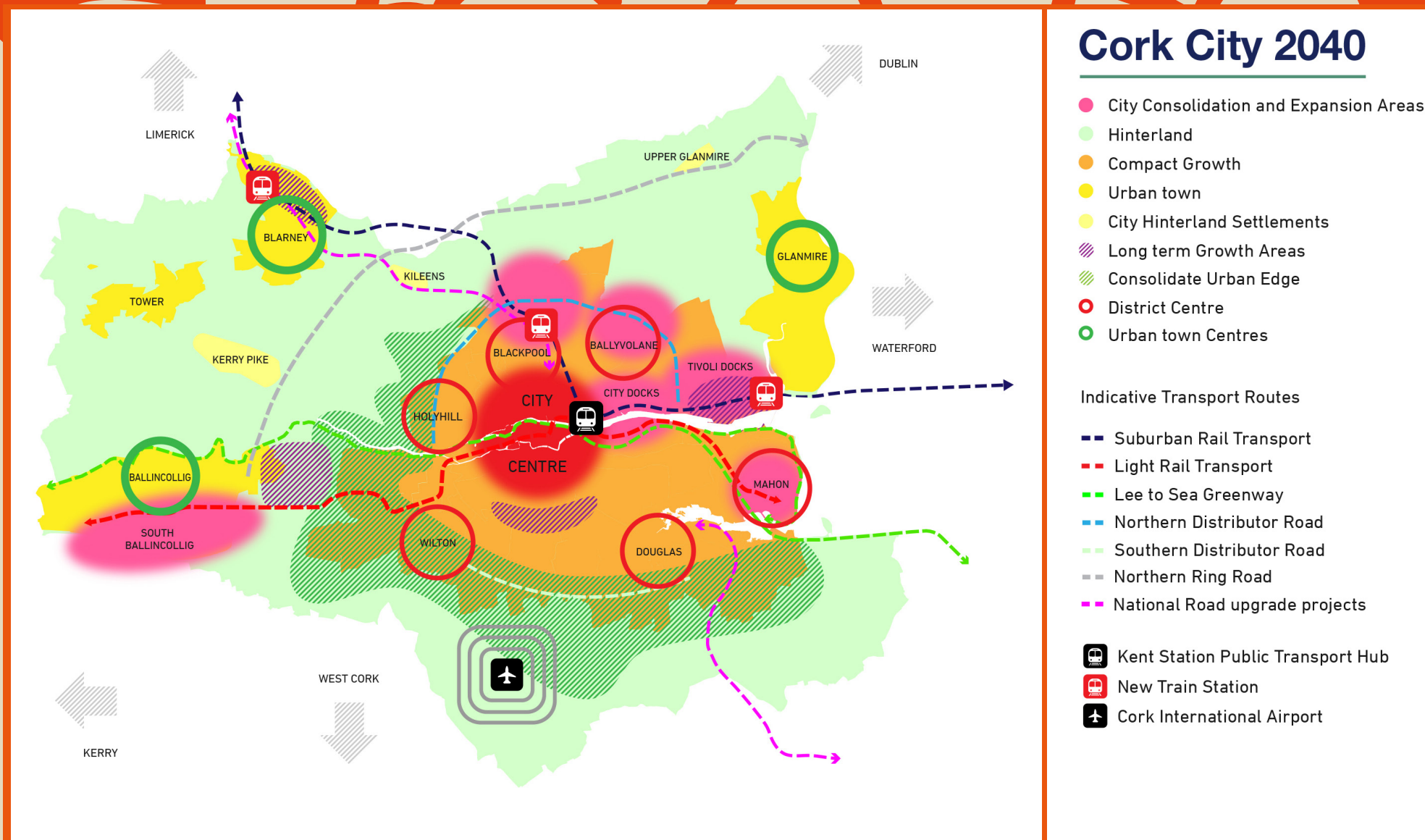


Figure 6: Core Strategy Map, Cork City Development Plan (2022-2028), (CCC, 2022: 34).

Strategic developments planned for areas classified as very or extremely deprived

Proposed Strategic Infrastructure (North-west):

- North-West City park,
- Strategic employment landbank expansions at Hollyhill and Clogheen
- New Train Station at Kilbarry linking to the suburban rail network
- National Road Upgrade (M20)
- New Northern Multi- modal Distributor Road (including cycle and walking infrastructure)
- Orbital and radial bus routes
- Cycle network Improvements

Proposed Strategic Infrastructure (North-East)

- Strategic employment landbank (31ha) zoned light industry at Ballyvolane
- New Northern Multi- modal Distributor Road (including cycle and walking infrastructure)
- Orbital and radial bus routes
- Cycle network Improvements (North-east City Park)

Proposed City Parks Network:

- North-West City park, Hollyhill
- North-East City park
- Ennismore park

At the time of writing, there is an ongoing maintenance programmes for existing Parks across the City.

North-West regeneration area: “400 homes being replaced by 600 new homes resulting in a 16Ha site being transformed into a new residential neighbourhood” (CCDP, 2022: 443)

Development and Regeneration zone: The development and regeneration of Hollyhill District Center to serve the north-west of the city.

Growth consolidation: Growth consolidation and enhancement of Mahon by providing a mix of new neighbourhood uses and significant transport upgrades.

Strategic Employment zones: Hollyhill (zoning: Business and Technology), Clogheen (zoning: light industry and related uses) and Ballyvolane (zoning: light industry and related uses) targeted due the higher unemployment rates.

4.4 Sub-objective of Strategic Objective 1- Compact Liveable Growth: The 15-Minute City

The 15-Minute city is a key action for implementing Strategic Objective 1: Compact Liveable Growth, of the Core Strategy of the Cork City Development Plan (2022-2028). All strategic infrastructure and large-scale developments will be required to demonstrate how they contribute to a 15-minute city and enhance Cork City's liveability and accessibility.

The following provides the wording of the sub-objective. More detail about how the 15-Minute City relates to this HIA scope in the analysis stage of the process can be found in Section 8.2 of this report.

The wording of sub-objective 2.10 The 15-Minute City (CCC, 2022: 65)

“To support the delivery of a 15-Minute City that supports Compact Liveable Growth by creating vibrant local communities that can access all necessary amenities within a 10-minute walk/cycle and access workplaces and other neighbourhoods with a 15-minute public transport journey. Implementation will include walkable neighbourhoods, towns and communities with mix of uses, house types and tenure that foster a diverse, resilient, socially inclusive and responsive city. This includes support for public and active travel infrastructure projects and services and enhanced neighbourhood permeability.”

The following provides background regarding the objective of the 15-Minute City in relation to planning policies in Ireland and specifically in Cork.

4.4.1 Background to recent planning policies: The 15-Minute City

One of the strategic principles contained in Cork City Council's (CCC) Cork City Development Plan (2022-2028) vision statement is to “develop a sustainable, liveable city of neighbourhoods and communities based on the 15-minute city concept, ensuring that placemaking, accessibility and safety is at the heart of all development” (CCC 2022: 9). Since 2016, the 15-minute city concept has caught the imagination of many politicians, planners, urbanists and others working in the urban realm. The principle of promoting greater proximity to services, increased social interactions and walking or cycling access to social infrastructure is not a new concept, however, in the context of Covid-19 pandemic restrictions, the idea was popularised by Anne Hidalgo, Mayor of Paris in 2020, based on the 15-minute city theories by Carlos Moreno. There are a number of iterations of this chrono-urbanism; 10-minute towns, 15- or 20-minute neighbourhoods or cities (Morneo, 2021: 97), where most of an individual's needs should be accessible by walking or cycling within a specified distance based on time. The concept has been applied in many countries, for example, in Ireland, the Southern Regional Assembly undertook research into 10-Minute Towns, applying the concept to three Irish

towns (Southern Regional Assembly, 2020). All these theories espouse the principle of creating mixed-use neighbourhoods with a substantial population living in close proximity, walking or cycling, to services, amenities, and other residents, to reduce the need to travel further for work or social needs. (Moreno et al, 2021: 106).

Historically, walkable and liveable cities happened organically in the formation of towns and cities, in particular, pre-motor car when people primarily travelled by foot and settlements evolved in close proximity to markets, workplaces and services. The industrial era and invention of the motor car changed this, resulting in urban sprawl and car-dependent communities, and in response, many urban planned movements emerged such as Ebenezer Howard's *Garden Cities of To-Morrow* (1902) who designed towns to be healthy, small scale settlements with a diversity of functions away from the industrial areas, (Fishman, 1982: 34; Jenks et al, 1996: 15) and Clarence Perry's 1923 neighbourhood unit concept, where the neighbourhood unit has housing, schools, public facilities, shops and places of worship based on a pedestrian centric design (Khavarian-Garmsir et al., 2023a: 4).

More recently, concern with urban sprawl, where car-dependent suburbs at low densities expanded and the quality of life of urban areas deteriorated, policies to contain urban areas through compact city policies in Europe and 'New Urbanism' and 'Smart Growth' policies in North America, where high-density multi-functional urban development is promoted, particularly, close to public transport stations and stops. This is sometimes referred to as Transit Orientated Development (TOD) (Dielman and Wegener, 2004: 308).

There are criticisms of the abovementioned approaches (Jenks et al. 1996; Neuman, 2005; Moreno et al., 2021; Khavarian-Garmsir et al., 2023) and learnings to take from each one, often which informed subsequent movements. The COVID-19 pandemic and travel restrictions brought into focus the effectiveness and resilience of mixed-use, multi-functional and walkable neighbourhoods, and thus Moreno's 15-minute city was back in focus as a means of combating greenhouse gas emissions and a post-COVID-19 pandemic recovery strategy (Khavarian-Garmsir et al., 2023a: 7). The knock-on effects of rethinking cities to facilitate walking and cycling, is highlighted by Jan Gehl, includes the creation of parks, squares and public places within neighbourhoods, and by doing so, it would help to bridge the social inequality in accessing such facilities, which are not always available for everyone in a car-dependent city (cited in Moreno et al, 2021: 96).

The 15-Minute City outlines that the quality of urban life is inversely proportional to the amount of time invested in transportation, more so through the use of automobiles (Moreno et al, 2021: 100). The modified dimensions of the 15-Minute City, following observations of the challenges that different cities faced during the COVID-19 pandemic, proposed by Moreno et al (2021) are (a) Density, (b) Proximity, (c) Diversity and (d) Digitalization. (Moreno et al, 2021: 101). In terms of Density,

the ideal is viewed in terms of people per kilometre square and is the optimal number of people that a given area can comfortably sustain in terms of urban service delivery and resource consumption. This is not necessarily high density and high rise. Proximity relates to reduced travel times, as well as increased social interactions and provision of social and public infrastructure. Diversity relates to mix of uses within a neighbourhood as well as diversity in culture and people. Digitalization builds on Smart City concepts of using digital tools and solutions (Moreno, 2021: 102-104).

4.4.2. The 15-Minute City: potential impacts and unintended consequences

As referred to in the previous section, working towards a 15-minute city may support multiple health benefits. Some of the potential and general benefits include reduced car dependency, improved air quality and reduced respiratory illnesses, reduced noise levels, more liveable neighbourhoods with increased access to services, improved social interactions, multiculturalism, and improved physical and mental health (Khavarian-Garmsir et al., 2023b; Allam et al. 2022).

For older people in particular, a 15-minute neighbourhood may increase mobility to carry out daily activities, facilitating social connections, security and confidence when using public spaces, thereby strengthening autonomy (Ulloa-Leon et al. 2023) and could protect and promote cognitive functioning if designed for group living and cognitive activities for older adults (Zhang et al, 2023). In the case of one study, this would also mean focussing on diverting major traffic axes outside of the neighbourhood (*ibid*).

For parents and caregivers, the 15-minute neighbourhood would provide access to children/adults/older people with activities that may otherwise be only accessible via car and for the younger population, it provides freedom of mobility for younger population, facilitating children's social skill's development (Boabeid et al. 2021). For communities living on lower income, and depending on the amenities, services and access to transport and safe pedestrian infrastructure, living in a 15-minute neighbourhood may also reduce the expenses associated with cars (HIA Public engagement event, April 22nd 2024) (Nash and O'Mullane, 2024).

It is well established that communities living on lower income carry a higher health burden and plausible that potential health gains may be especially beneficial for these populations. The scientific literature along with the public engagement event (Nash and O'Mullane, 2024) identify a range of potential unintended consequences and underlying assumptions attached to the concept of 15-minute city/neighbourhood that may require consideration and mitigation in the Cork city context.

The concept has been criticized for encouraging physical determinism by aiming to improve the current status quo through physical design and urban form modification (Pozoukidou & Chatziyiannaki, 2021) and cannot address the structural issues of social and economic inequality and deprivation (Khavarian-Garmsir et al., 2023a, Casarin et al. 2023).

These include the risk of gentrification, forcing poorer residents and local businesses out of an area and changing the character of a neighbourhood (Public event April 22nd 2024; Casarin et al 2023); forgetting about existing inequalities, implementing 15-minute neighbourhoods through 'de facto social mix actions at the neighbourhood level are insufficient to address the deeper structural issues that perpetuate spatial inequality and deprivation' (Cassarini et al. 2023: 3167).

'Don't just start with new residents, you need to look after the existing neighbourhoods'

(Public event participant, April 22nd 2024).

'Will halting sites be included in the 15 minute city?'

(Public event participant, April 22nd 2024).

Feasibility and unequal access to potential benefits and investments was an issue raised at the public event (April 2024) and in the literature (Khavarian-Garmsir et al., 2023b). For example, the concept may not be feasible in areas with low population density or in low-income communities where transportation options are limited (Khavarian-garmsir et al 2023), and where pedestrian infrastructure is poor and unsafe, such as uneven footpath making walking with a pram difficult (Public event, April 22nd 2024). Another example in the literature regarding unequal access is that of technology, highlighting that investment in wireless technologies will only be useful for those with the appropriate devices, knowledge and capability to access these resources (Casarin et al 2023). 'Not everyone can do the 15-minute city' (Public event, April 22nd 2024) and it will not be feasible in every neighbourhood within the existing Cork City boundaries (HIA Steering Group meeting).

Broad application

The concept has also been criticized for not paying enough attention to the various behaviours, needs and abilities of social and demographic groups living within a neighbourhood for example, the everyday needs of younger people may differ from older adults (Khavarian-Garmsir et al 2023b, Steering Group Scoping Report, January 2024). Likewise, the focus on walking, cycling and other active modes of travel should be matched with an attention to public transport to overcome the mobility restrictions of elderly and disabled residents (Casarin et al 2023). The competing interests of pedestrians, cyclists, scooters, cars was also noted by public event participants

"Be careful of green spaces, preserve them; not to sacrifice to active transport such as cycling lanes"

(Public event participant, April 22nd 2024).

Mission drift leading to gentrification and critical issues not given enough attention

Urban renewal strategies are, periodically, abandoned by national governments and a 'more spontaneous form of social mix' is pursued (Casarin et al. 2023). This can involve 'mass tourism, short-term housing, real estate (re)development and speculation, and even greening' all of which have been identified as driving up the cost of living in areas and contributing to the population displacement of socially vulnerable residents (Cole et al, 2021). It has also been suggested that the 15-minute city concept ignores some critical issues such as environmental protection, biodiversity, energy-efficiency, green and clean energies, as well as local vernacular, culture, heritage, and identity (Khavarian-Garmsir et al., 2023b).

To mitigate against some of these potential unintended consequences and to further promote the potential positive impacts of the 15-minute city concept, each neighbourhood would require a development plan created with the existing community (Public event 22nd April 2024) that considers its geographic specificities and unique challenges and opportunities within this particular neighbourhood (Khavarian-Garmsir et al., 2023b). In the case of new communities being developed it was suggested at the HIA public engagement event that essential services and amenities should be in place before housing units are inhabited (Public event 22nd April 2024).

4.5 Strategic Environmental Assessment (SEA) conducted on the Cork City Development Plan (2022-2024)

In Ireland, all city and county development plans are subject to legislative requirements in producing Strategic Environmental Assessments (SEAs), in order to provide for a high level of protection of the physical environment and to promote sustainable development. An SEA was carried out on the CCDP (2022-2028), an Appropriate Assessment was carried out to assess the requirement for a Natural Impact Statement for the CCDP, and a Strategic Risk Flood Assessment was conducted. Environmental assessments are available for public viewing on the Cork City Council website³.

The SEA conducted on the CCDP (2022-2028) includes a number of indicators for monitoring the CCDP (2022-2028) for Biodiversity, Flora and Fauna; Population and Human Health; Soil and Land; Water; Material Assets; Air; Climatic Factors; Cultural Heritage and Landscape. The SEA was included as part of the analysis stage of this HIA in relation to key findings and mitigation measures that are relevant to the scope of the HIA. In particular, indicators under 'Population and Human Health,' in active travel and greening infrastructure (page 124 of the SEA) have been deemed most relevant indicators from the SEA. Data on these measures inform Key Performance Indicators (KPIs) developed by Cork City Council when monitoring both the CCDP (2022-2028) and the SEA.

3 All environmental assessments for the CCDP (2022-2028) are available online <https://www.corkcity.ie/en/cork-city-development-plan/environmental-reports/>. Website accessed on 2.9.2024

5. Public Health Policy Context

The link between poor health and poverty is well established in the international and Irish literature. Inequalities in health are connected to the social determinants of health and Ireland faces significant challenges in this regard.

The national public health framework for action to improve the health and wellbeing of people living in Ireland is the **Healthy Ireland Framework (2013-2025)**. The goal of this framework is to build a healthier Ireland by (i) increasing the proportion of people who are healthy at all stages of life, (ii) to reduce health inequalities, (iii) to protect the public from threats to health and well-being and (iv) to create an environment where every person and sector of society can contribute to achieving a healthier Ireland (Department of Health, 2013).

Reducing poverty and increasing social inclusion is stated as a key priority for the Irish government. Ireland's **Roadmap for Social Inclusion 2020-2025: Ambitions, Goals and Commitments** defines social inclusion as being achieved “when people have access to sufficient income, resources and services to enable them to play an active part in their communities and participate in activities that are considered the norm for people in society generally” (Government of Ireland, 2020b: 11). A key goal of this strategy is to reduce consistent poverty⁴ to 2 percent or less. Since 2020, a series of strategies and action plans have been published that include social inclusion and poverty reduction as key objectives.

The **National Age Friendly Ireland Programme** (Age Friendly Ireland, 2023) sets out a range of policy supports aimed at improving and sustaining health. This includes the provision of walkable streets, housing and transportation options, providing access to key services as well as opportunities for older people to participate in community activities.

At the local level for Cork city, the **WHO-designated Cork Healthy Cities** and the current Action Plan (2020-2030), was created based on the Cork City Profile (2018), indicates key areas of work ongoing in addressing the social determinants across the city (Cork Healthy Cities, 2021) in relation to the six key priorities of phase VII of

4 The consistent poverty measure is defined as people at risk of both poverty and experiencing enforced deprivation

WHO Healthy Cities, including People, Place, Participation, Prosperity, Peace and Planet. The work of Cork Healthy Cities is based on a collaboration, with actions in the Cork Healthy Cities Action Plans⁵ linked to evidence generated and collated in the Cork City Profile. Objective 3.26 of the Cork City Development Plan (2022-2028) endorses Cork Healthy Cities and the implementation of the Action Plan. At the time of writing, a new updated City Health Profile is being conducted by Cork Healthy Cities.

The **Cork City Local Economic and Community Plan** (2024-2029) has been adopted by Cork City Council and aims to improve the quality of life all people living in Cork city, with a particular focus on communities experiencing exclusion and disadvantage across the city.

5 Please see www.corkhealthycities.com for more information and publications from WHO Cork Healthy Cities.

6. Participation and Engagement

Participation of both key stakeholders in the HIA team, and engagement with relevant communities and the public is important in a HIA, resonating particularly with the core HIA values of democracy and ethical use of evidence.

6.1 HIA Team

The HIA includes both a Steering Group (11 individuals) and Working Group (4 individuals). The team is a collection of 15 people with a wide range of expertise, knowledge and experience relevant to the Cork City Development Plan (2022-2028) (figure 1). In various ways the members of the team have participated in the HIA via eight Steering Group meetings (2 hours each) plus reviewing of, and contributing to, draft working documents before Steering Group meetings.

6.2 Public Engagement event, 22nd April 2024, Cork City

The public engagement event on 22nd April 2024 was organised as part of the HIA being carried out on the Core Strategy of the Cork City Development Plan (2022-2028). The collection of public engagement inputs/ data was carried out during the analysis stage of the HIA, in order to input to the various types of data gathered and collated.

The purpose of the event was to create an opportunity for the public, specifically people living in Cork, to have their say on the topic and focus of the HIA. The event was an opportunity for participants to respond to questions in the group work at the event, drawing on their own lived experience, on the potential positive and negative/ unintended health impacts that the Core Strategy could have on people living in Cork.

There were 24 members of the public at the event. The highest representation in terms of age range was in the 50-59 age group, followed by 40-49 and 18-29 respectively, with the lowest representation in the 70+ category. 58.3% of attendees identified as women, with 37.5% identifying as men and 4.2% non-binary/third gender. The largest proportion of attendees were from Cork South Central at 30.4%, with the lowest at 4.3% from outside the city boundaries. Stakeholder groups included residents, health promotion/healthcare/public health practitioners, policymakers/ politicians, and academics/researchers.

The event was chaired by Dr Liz Green, Director of the HIA Support Unit in Wales, and co-facilitated by Bernie Connolly of the Cork Environmental Forum, and the HIA-IM researchers, Monica O'Mullane, Tara Kenny and Kirsty Nash. The room was set up with 4 tables, and chairs around each table. There was a desk, projector, and screen at the top of room, with power point presentations on laptop, delivered by Monica O'Mullane and Karen O'Mahony, Cork City Council. Presentations were delivered about the HIA on the Cork City Development Plan (2022-2028). There was a walking microphone provided for Liz as Chair and for anyone to use if needed, in facilitating group discussion. Each table had their own set of sheets of paper with questions on them and packs of post-its. The tables had markers and pens. The tables were self-facilitated by the participants, which allowed for open discussion amongst participants. Following the presentations on HIA and the Cork City Development Plan delivered by Monica O'Mullane and Karen O'Mahony, participants were asked to discuss and answer questions related to the Plan in their groups.

Several themes emerged from the data collected at the event – notably, a shared sense that people in Cork want to feel part of a safe and cohesive community, with the overall findings presenting key recurring themes.

Firstly, having **shared community spaces** is an important component of a safe and cohesive community:

- “a place to be or just sit with no obligation to purchase”
- “more spaces where community can come together”
- “spaces for all age groups that can be used to combat isolation”
- “third places like parks, plazas, water ways to gather”

Secondly, **improved accessibility to services and public transport** is integral to the concept of a safe and cohesive community and in implementing the city development plan:

- “better public transport- make travel easier, safer and healthier”
- “services need to be in place before housing units are inhabited- schools, shops, GP, pharmacy, public transport”
- “resources needed at community level to make communities cohesive”
- “access to reliable public transport”

Finally, **meaningful consultation with the public with regards to city development planning** is important:

- “explore ways of community engagement”
- “community engagement pre-making changes to estates – it doesn't seem to happen!”
- “plan for feedback after projects are completed”
- “meaningful consultations”

In line with the democratic value of HIA and to ensure that lived experience is captured in the process, the data collected from the event was used alongside scientific and grey literature in the evidence-gathering conducted in the analysis stage of the HIA in May 2024.

6.2.1. Unpacking meaningful engagement in HIA: Challenges and Opportunities in the process

An evaluation survey that was administered at the end of the public engagement event (April 2024) generated constructive feedback for planning similar events into the future as part of HIAs. As part of the survey, participants were asked to give feedback on what they liked about the event and what they thought could be improved for next time. The below table presents a summary of the key findings from the participant evaluation forms:

What did you like about the workshop?	What do you think we could improve on for next time?
Good participation and engagement in the groupwork	Having a wider and more diverse audience – people with more varied interests, marginalized communities, groups across the socioeconomic gradient, more young people, ethnic groups
Workshop captured diverse viewpoints	Questions could have been more specific
People coming together with a shared desire to achieve positive outcomes – felt listened to and heard.	Time at the beginning of the workshop to network with other participants
Informal, casual approach and a good balance between conversational group work and listening to the facilitator.	Having a facilitator at each table would have been good to keep the group focused on the task

Engaging communities in the HIA process has become increasingly important (den Broeder et al, 2017). Despite this, many practitioners of HIA find community engagement to be difficult in practice, and guidance on how to engage with communities in a meaningful way remains limited. A review of the literature has identified both the benefits and challenges of community engagement in HIA, gathered from experiences of HIA practitioners worldwide. Namely, as a core value of HIA, **promoting local democracy** is considered a driving factor for the engagement of communities in the HIA process (den Broeder et al, 2017). The opportunity to gather **local knowledge and lived experiences** is a key benefit, as it can strengthen the evidence base for decision-making, offering a deeper insight into local circumstances (den Broader et al, 2017) and can give a ‘**practical reality**’ that complements the scientific evidence (Chilaka, 2015). Additionally, **empowerment and advocacy** are important outcomes of community engagement

in HIA. Community involvement and inclusion of public voices within the HIA process can enable a degree of empowerment and a way for people to inform initiatives, policies and plans that affect their daily lives (O'Mullane, 2015). **Relationship building** is a key benefit of engaging with communities in HIA. Involvement can enable networking between members of the public, as well as between the public and practitioners. This can enable the opportunity to connect with people that either side may not otherwise encounter (Chadderton et al, 2008). Despite the wide-ranging benefits that come from engaging with communities in HIA, practitioners have expressed several challenges and barriers to engagement. **Time constraints** are a key challenge, whereby the sometimes 'quick' nature of HIA (e.g. due to policy making timescales) can conflict with the time it takes to build meaningful, participatory partnerships (Parry & Wright, 2003). The **risk of raising expectations** of outcomes can occur, whereby involving the public may raise the expectation that suggestions will be implemented in practice. The risk of **consultation fatigue** has been expressed as a concern. This can be common in particularly deprived communities, whereby communities can be 'over-consulted' by different organisations. Finally, there can often be the risk of only hearing the views of the '**usual suspects**'. An issue in all forms of consultation is that there is often a core group of people that participate in meetings, which runs the risk of reinforcing exclusion when only a core group of people represents 'the voice of the community' (Chadderton et al, 2008).

These benefits and challenges will be explored further in a Community Engagement Toolkit/ Resource that is being developed within the broader HIA-IM project, to support those leading or participating in HIAs and seek guidance on engaging with communities in the process. This resource will be published on the HIA-IM project webpage.⁶

6 Toolkit/ Resource will be available on the HIA-IM UCC project webpage once published. <https://www.ucc.ie/en/iss21/researchprojects/researchprojects/hia-im/>

7. Population profile as baseline evidence

Developing a population profile helps in creating a “better understanding of those affected by the proposal, identifying potentially vulnerable groups and establishing a baseline against which possible future health effects can be assessed” (IPH HIA guidance, Pyper et al, 2021: 44). We created this population profile as a baseline at the start of the analysis stage, and updated throughout the analysis stage, using this profile as baseline evidence towards the specific conclusions on a particular sub-determinant. The profile that we created is a general overview of the population living in Cork as well as being relevant to the sub-determinants of health (housing, neighbourhood design, access to public spaces, modes of travel, walkability and accessible workplaces) and useful for the three population groups scoped into the HIA analysis stage.

7.1 Age profile for people living in Cork city

Cork City is the second largest urban population in Ireland with a population of 224,004 people (114,268 females and 109,763 males). Just over 16% of the population are aged between 0-14 and almost 15% are aged 64 years plus (Figure 7, Census 2022). Census 2022 data reporting on gender is divided into male and female categorisation and does not account for individuals who identify as other gender identities, including non-binary.

In comparison to national levels, Cork city has a larger percentage of people in the 20-34 age group in particular and a lower percentage of those in the 0-14 age-group (Figure 7 and 8).

Almost half (48.5%) of the population are single, 40.8% are married, 5.1% are widowed, 3.2 are divorced and 2.4 are separated (CSO, 2022).

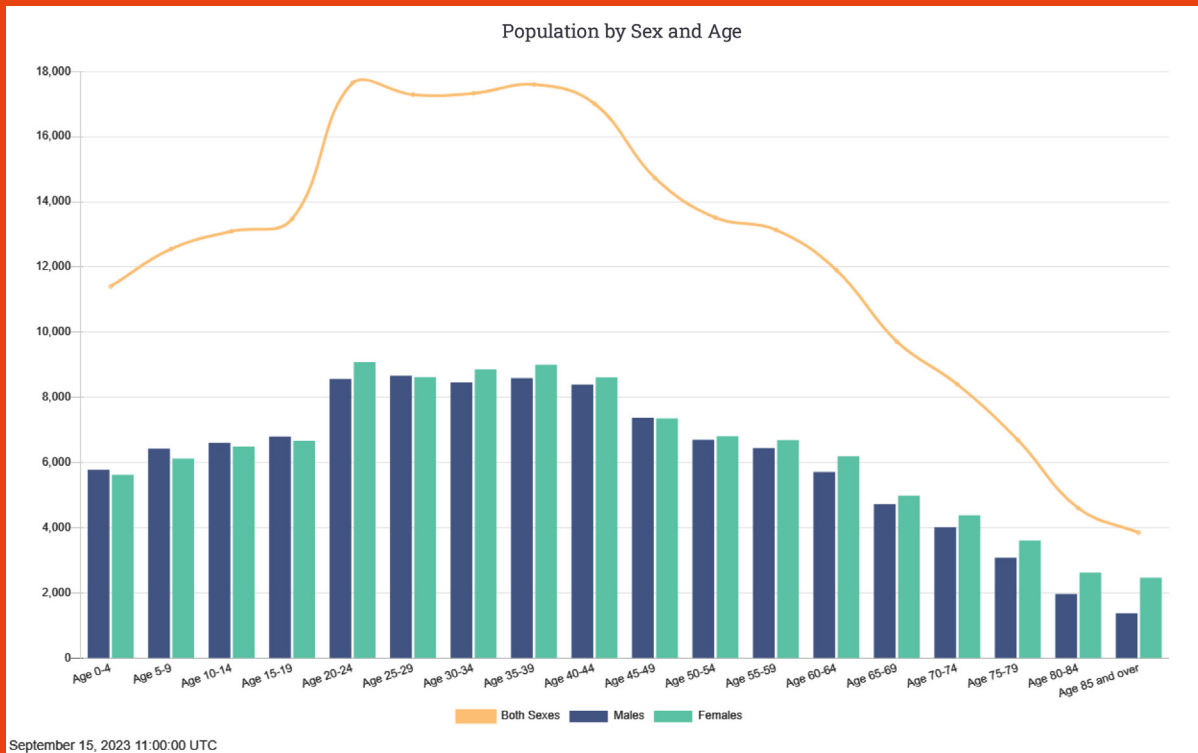


Figure 7: Age profile, Cork City (Census, 2022)

Age & Sex	Area 2022		National 2022	
	#	%	#	%
Age group (5 year) - all				
85+	3,853	1.7	84,441	1.6
80-84	4,603	2.1	96,586	1.9
75-79	6,698	3.0	154,260	3.0
70-74	8,404	3.8	202,884	3.9
65-69	9,714	4.3	238,144	4.6
60-64	11,909	5.3	272,670	5.3
55-59	13,142	5.9	307,165	6.0
50-54	13,517	6.0	340,003	6.6
45-49	14,735	6.6	373,504	7.3
40-44	17,015	7.6	411,524	8.0
35-39	17,603	7.9	382,869	7.4
30-34	17,330	7.7	332,223	6.5
25-29	17,291	7.7	295,808	5.7
20-24	17,653	7.9	307,143	6.0
15-19	13,472	6.0	337,628	6.6
10-14	13,100	5.8	374,202	7.3
5-9	12,555	5.6	342,670	6.7
0-4	11,410	5.1	295,415	5.7
Total	224,004	100.0	5,149,139	100.0

Figure 8: Age groups, Cork city and National (Health Intelligence Unit, 2023)

7.3 Health status

Life expectancy in Ireland is 84 years for women and 81 years for men. Birth rates in Ireland are higher than several other European countries, however, the population under the age of 15 is still expected to decrease by 13% between 2023 and 2043. In contrast to this, the number of people aged 65 and over is expected to increase by 66%. The majority of health expenditure occurs in the later years of life, and a rapidly growing aging population will have significant health service funding implications (Department of Health (DoH), 2023).

Ischaemic heart disease remains the leading cause of death in Ireland and in 2018, circulatory diseases and cancers accounted for more than 30 % of all deaths in Ireland. The burden of cancer in Ireland is higher than the EU average (OECD, 2021). According to the most recent Healthy Ireland survey, two in every five people (40%) living in Ireland have a long-term health condition that has been confirmed by a medical diagnosis. This represents an increase of 11-points since 2021 (29%). The most common long-term health condition is high blood pressure or hypertension (9%), followed by arthritis (6%), high cholesterol, asthma, and diabetes (all 5%) (Department of Health, 2023).

Lower income groups have poorer self-reported health, and a similar gap is evident in the prevalence of chronic health conditions by income group. For example, 42% of Irish adults in lowest income group have at least one chronic health condition in comparison to 17% in the highest income group (OECD, 2021: 5).

Behavioural risk factors are a major driver of mortality in Ireland. While smoking rates among adults have reduced, obesity among adults is on the rise and is now slightly higher than the EU average. One quarter of adults in Ireland report regular heavy alcohol consumption, which is also above the EU average. Over 35% of all deaths in Ireland in 2019 can be attributed to behavioural risk factors, such as tobacco smoking (20%), dietary risks (13%), alcohol consumption (5%) and low physical activity (3%) (OECD, 2021).

7.3.1. Self-reported Health Status and Health/Benefit Risk

Just over 52% of the population of Cork city reported 'very good health', 29% reported good health, 9% reported 'fair health' and less than 2% reported 'bad' or 'very bad' health (Figure 9).

Self reported health %

- Very good
- Good
- Fair
- Bad
- Very Bad
- Not Stated

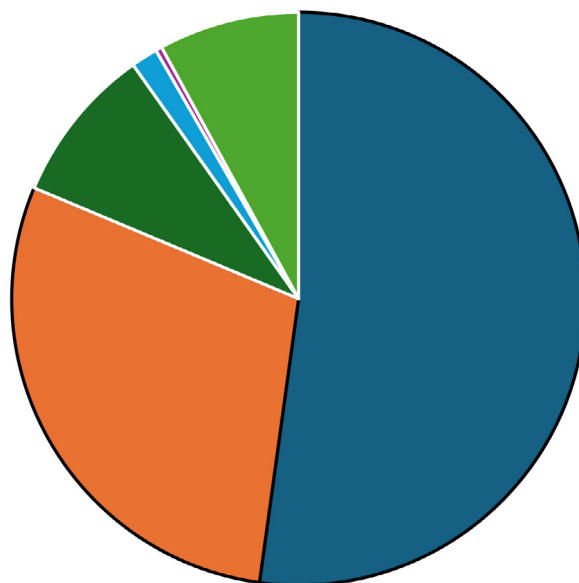


Figure 9: Self-reported health status (Census, 2022)

Of those aged 15 years or more, an estimated 60% are overweight or obese. Just under 20% currently smoke, roughly 36% consume fruit and vegetables on a daily basis and 34% consume unhealthy foods daily. An estimated 36% engage in binge drinking and 46% are achieving national physical activity guidelines (Figure 10).

Health benefit risk (%) Cork city, 15+ years

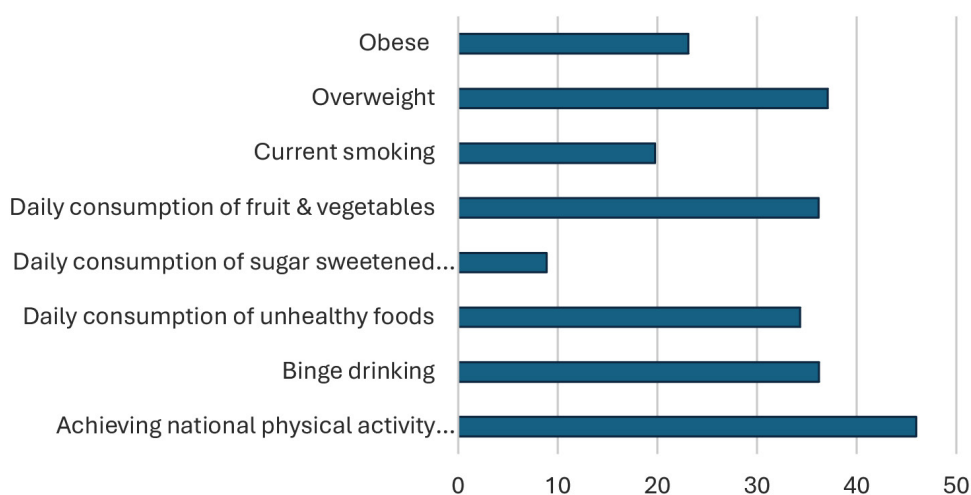


Figure 10: Health Benefit Risk, population ages 15+ in Cork city (raw data from Atlas Health Finder) (Health Intelligence Unit, 2023).

7.4 Health Impacts of the Physical Environment

Air pollution presents the largest environmental threat to human health, causing 1,300 premature deaths every year in Ireland (European Environment Agency, 2021). Health conditions related to air pollution include chronic and acute respiratory diseases, lung cancer, stroke and heart disease. Key air pollutants in Ireland, and Cork city, are particulate matter (PM) from burning solid fuels to heat homes and Nitrogen dioxide from traffic (Clear Air City, Cork City Council, 2022). In Cork City, air pollution equates to 60 premature deaths every year (Cork City Council, 2022). The main source of air pollution in Cork City is the burning of solid fuels in homes, and traffic. In addition to air pollution, noise pollution can have particular impacts on health, including hearing impairment, sleep disorders and cardiovascular disorders (Passchier-Vermeer and Passchier 2000). Income has been found to be a robust predictor for air pollution and noise exposure across urban areas (Verbeek 2019), meaning that people living on lower incomes are more likely to suffer from the adverse impacts of both air pollution and noise exposure than people on higher incomes. Impaired cognitive performances in children have been measured and correlated with exposure to high levels of traffic noise (Stansfeld and Clark 2015). The Cork Noise Action Plan sets out targets to manage road traffic noise, rail noise, and air traffic noise set for the period 2018 to 2023 (CCC 2019).

7.5 Morbidity in 55+ age-group

For those aged 55 years plus, circulatory diseases⁷ are a leading cause of morbidity affecting 55.2% of this population of which 38% is attributed to high blood pressure. An estimated 11.8% are living with a disability, 10.6% are living with diabetes and 9% are living with depression and anxiety. An estimated 90.4% of those aged 55 and over are living with one or more chronic conditions and 44.6% of this age group are living with three or more chronic conditions (Health Intelligence Unit, 2023 and CSO, 2022).

An estimated 3,315 persons over the age of 30 are living with dementia (ibid).

7 Angina, Heart failure, High blood pressure, Mini stroke, Myocardial infarction, stroke.

7.6 Children and young people

The State of the Nations Children (SONC) 2023 report (DoCEDIY, 2023) identifies that children account for 23.2 percent of the total population of Ireland and one in ten (10.8%) of these are living with a disability. The report states that Traveller children and migrant⁸ children account for 1.2 percent and 7.3 percent respectively of the child population (ibid: 5). In 2022, 21,086 households with children were in need of social housing (ibid: 124).

Children in Ireland are more likely to be both at risk of poverty and to experience consistent poverty than the population as a whole.

In 2022, 15.5 percent of the total child population lived in a single-parent households and these households are more likely to experience consistent poverty (ibid: 131). Within the Travelling community, migrant community, and children living with a disability the total percentages living in a single parent family unit is 21.8 percent, 12.3 percent and 22.7 percent respectively (ibid: 12).

While 90.2% of children aged 10-17 feel safe in areas where they live, Traveller children, migrant children and children with a disability and/or chronic illness are less likely to report feeling safe in their neighbourhoods (ibid: 134).

Just over 80% of children in Ireland, aged 10 to 17 years report being happy in their lives. Migrant children and children with a disability and/or chronic illness, are less likely to report being happy with their lives and have lower self-esteem when compared to all other children (ibid: 107-109). Along with Traveller children, these groups of children are also more likely to experience bullying in school (ibid: 43). By social class, the percentage of children reporting being happy with their lives and feeling safe in their neighbourhoods is lowest among the low social class groups (ibid: 109; 134). Likewise, the percentage of children reporting being bullied at school, engaging in high-risk behaviours such as being drunk and smoking, and reporting lower levels physical activity is highest amongst this group of children (ibid: 43; 113). Curtin et al. (2013: 2) argue that evidence on social gradient in child development shows that children from social and economic disadvantaged backgrounds do less well in school, entering into an intergenerational cycle of reduced employment opportunities and health inequalities.

8 We draw on the SONC 2023 report for this Section 7.5. The term 'foreign national' is used in the State of the Nations Children (SONC) 2023 report. Where we refer in this Section 7.5 'Children and Young people' to the term migrant, we are referring to groups people who are classified as 'foreign national' in the SONC 2023 report.

7.7 Health Inequalities

Our health is shaped by the social world around us. Given the complex interchange of various social factors that determine our health, such as housing, transport, employment, poverty, community networks and social exclusion, addressing health inequalities is a challenge. We know that these factors, that determine our health – the determinants of health – are fundamental drivers in causing inequalities in health. Research in this field of study is progressing from focusing on those determinants of health solely, to also formulating recommendations for policy and practice, in advocating for change (Marmot 2022).

When examining health data that illustrates the experience of health inequalities, we often compare the general population with population groups experiencing adverse effects of the social determinants of health, such as people living on low income.

The number of people reporting to being in good or very good health (80%) is higher than the EU average as is the number of people reporting a chronic illness or health problem (29.5%) (Department of Health, 2023). However, people who reported their health status, who are living on low income, reported more ill health and as living with poorer health (OECD, 2021). Unmet needs for medical care are similar to the EU average, however, again low-income population groups are most affected (OECD, 2021). The Healthy Ireland national survey in 2019 reconfirmed that people living in deprived areas are more likely to suffer from health conditions compared to those in wealthier areas (Department of Health, 2019). The following section details measures of deprivation, which highlight the experience of aspects of health inequalities in Cork city.

7.8 Deprivation

The Pobal HP (Haase and Pratschke) Deprivation Index is Ireland's principal social gradient tool (Pobal 2024). The Pobal HP Deprivation Index assesses social conditions based on three dimensions: Demographic Profile⁹, Social Class Composition¹⁰, and Labour Market Situation¹¹. Each of these dimensions are directly related to the social determinants of health ¹² (Pobal 2024).

The 2022 figures, based on the 2022 Census data (Central Statistics Office- CSO), illustrate that despite improvements across some measures (i.e. employment and population growth), the gap between the national average and most disadvantaged areas has increased. An estimated 195, 992 people (36.6% increase on last census in 2016) are living in areas classified as very or extremely disadvantaged with urban areas containing more extreme forms of both deprivation and affluence indicating persistent disadvantage in some communities (Pobal, 2024).

There are 89 Electoral Districts (EDs) recorded in the Pobal Index for Cork City and 18% are considered disadvantaged or very disadvantaged (LECP, 2024). Since 2016, the number of areas in Cork city classified as very or extremely deprived has increased significantly. In 2016, one small area of Knocknaheeny was considered to be extremely disadvantaged. According to Pobal, based on latest 2022 census figures, 2,886 people are living in extremely disadvantaged areas representing a ten-

9 The demographic profile is measured by six indicators: percentage increase in population over the previous five years, percentage of the population aged under 15 or over 64 years, percentage of the population with a primary school education only, percentage of the population with a third level education, percentage of the population with children under 15 years of age and headed by a single parent, the mean number of persons per room (Pobal, 2022).

10 Social class composition is measured by five indicators: percentage of the population with a primary school education only, percentage of the population with a third level education, percentage of the population headed by professionals or managerial and technical employees including farmers with 100 acres or more, percentage of the population headed by semi-skilled or unskilled manual workers including farmers with less than 30 acres, the mean number of persons per room (Pobal, 2022).

11 The Labour Market Situation is measured by four indicators: the percentage of the population headed by semi-skilled or unskilled manual workers including farmers with less than 30 acres, percentage of the population with children under 15 years of age and headed by a single parent, the male unemployment rate and the female unemployment rate (Pobal, 2022)

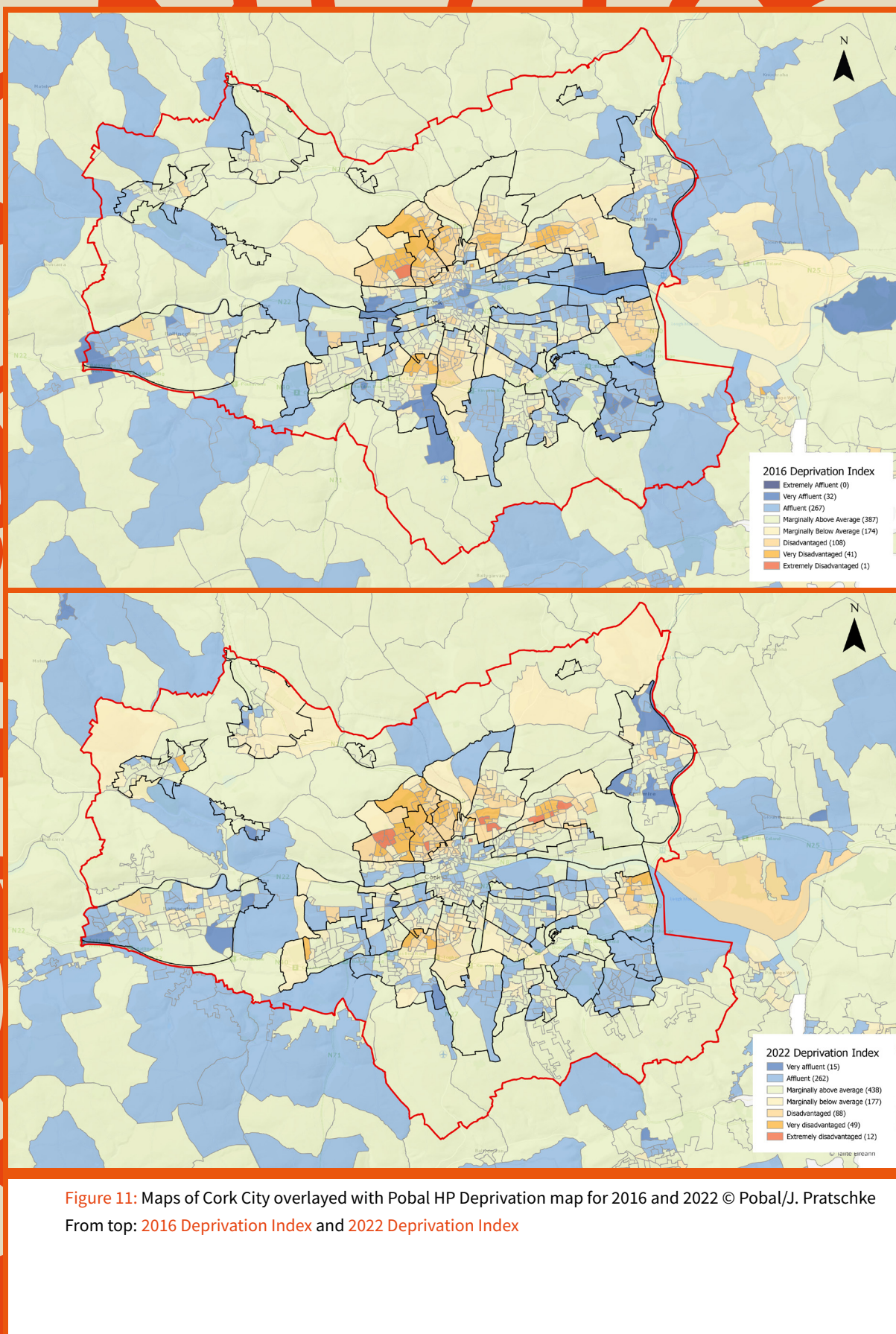
12 For example, in urban areas adverse labour market conditions manifest as unemployment blackspots, and unemployment and long term unemployment remain the primary cause of disadvantage. Likewise, social class composition impacts across all areas of life including education, housing, crime, economic status, health and is considered relatively stable over the life cycle and thus is a key factor in intergenerational poverty (Pobal, 2022)

fold increase in Cork city. Figure 11 illustrates the areas of extreme disadvantage are coloured in orange and dark yellow, with areas of categorised affluence in shades of blue. These areas are located in the North East (26,841) and North West suburbs (23,125) and include Knocknaheeny (n=1352), Blackpool (n=101), Gurranabraher (n=193), The Glen (n=551), Mayfield (n=689). The areas in orange (Figure 11) are classified as 'very disadvantaged' and are also more prevalent on the Northern side of the city. On the South side these neighbourhoods include parts of Togher (n= 572), Glasheen (n=341), Gilabbey (n=123), Bishopstown (339). On the Northside, areas classified as very disadvantaged include the parts of Shanakiel (n=373), Knocknaheeny (n=2824), Churchfield (n=983), Fairhill (n=604), Farrenferris (n=1643), St Mary's West (n=683), Blackpool A (n=174), The Glen (n=413), Mayfield (n=1229) and Mahon (n=881).

The HIA Team acknowledge, that although the Government statistics in Pobal Deprivation Maps indicate broadly the areas where geographical disadvantage is experienced, it has its limitations. Pobal maps are based on state census data, the latest being carried out in 2022. Low response rates in Cork city centre potentially skew the data that informs the Pobal maps, providing potentially an inaccurate description of geographical areas.

At the time of writing, a Quality Report is being prepared by the CSO on Census 2022. The CSO statement on this issue is that generally speaking, it is true to say that inner urban areas are more difficult to enumerate than other urban and rural areas.

The following section outlines the experience of poverty and deprivation on a national level.



7.9 Poverty, social exclusion, and housing

The latest EU Statistics on Income and Living Conditions (SILC) data indicates that 10.6% of the population were at risk of poverty¹³ in 2023, a decrease of 1.9 percent on 2022 figures. Consistent poverty has also decreased by 1.3 percentage points to 3.6% of the population, however, people experiencing enforced deprivation¹⁴ increased from 16.6% in 2022 to 17.3% or over 913,700 people in 2023 (CSO, 2023). Those at-risk of poverty (under the poverty line) reduced to 10.6%, but if inflation was considered, it would have been 13.6% (EAPN 2024).

Those most at risk of poverty are persons unable to work due to long-standing health issues and unemployed persons. Consistent poverty rates are also higher in these groups. In terms of household composition, persons living in households comprised of one adult under the age of 65, and single parent households had the highest consistent poverty rate (Figure 12).

The Society of Saint Vincent de Paul in Ireland published a report in 2019 entitled 'Working, Parenting and Struggling? An analysis of the employment and living conditions of one parent families in Ireland' (SVP 2019). The report outlines that lone parents in Ireland are almost 5 times more likely to experience in-work poverty than other households with children (20.8% compared to 4.2%). One Family (2019) argue how these "figures are backed up in the SILC report published in December 2018 which said that individuals living in households where there was one adult with children aged under 18 continue to have the highest consistent poverty rate at 20.7%."

Ireland is experiencing a protracted housing crisis. While less than a third (30.7%) of Ireland's population are living in rented or rent-free accommodation, they make up 72.9% of those living in consistent poverty, 64.7% of the population experiencing enforced deprivation, and 57.3% of the population at risk of poverty (CSO, 2023). Access to secure housing is a determinant of health. Copious research affirms time and again the health impacts associated with security of tenure, safe and comfortable housing.

One in five persons are living in poverty after housing payments are accounted for (SJI, 2022). An estimated 11, 754 people are living in emergency housing. This includes 1,609 families with 3,431 children living in homelessness. Over half (55%) of these are single parent families. Almost two-thirds are Irish, over one fifth (22%) are from the European Economic Area and the UK while the remaining 17% are from outside the EU (Bowers, 2023).

13 An individual is defined as being at risk of poverty if their nominal equivalised disposable income is under the at risk of poverty threshold, i.e. 60% of the median nominal equivalised disposable income (i.e €16,558)

14 The share of persons who experience two or more of the eleven deprivation items.

Living in poor quality housing and communities has significant health impacts and inadequate housing is more common in urban areas (ESRI, 2024). Poor housing outcomes in Ireland are reported among ethnic minorities including Travellers, as well as lone parents, younger and older persons, migrants and people living with a disability (Russell et al 2021).

Social Justice Ireland's Housing and Poverty report (2022) highlights that renters are the most affected group with a 41.6% at risk of poverty after housing payments are taken into account. For households in receipt of rent subsidies, and those living in Local Authority Housing, the poverty rate is 59.1% and 50.5% respectively (Social Justice Ireland, 2022).

Under the (DoHLGH, 2021; Department of Social Protection, 2023; The Housing Commission, 2024) – a New Housing Plan for Ireland DoHLGH (2021) strategy, the goal is to increase the supply of housing to an average of 33,000 per year over the next decade. This includes the delivery of almost 12,000 social homes annually with an average 10,000 new build social homes out to 2030 (Department of Social Protection, 2023). However, the Report of the Housing Commission suggests that only a “radical strategic reset of housing policy” will address the current deficit (pp.5). Part of which would include a targeted increase in the proportion of social and cost-rental housing to 20% of the national stock (The Housing Commission, 2024).

Housing is a key social determinant of health and increasing accessibility to housing is a **national priority** (HSE Social Inclusion 2024, Department of Social Protection, 2023, Housing Commission 2024; Housing for All Plan 2030) including the retrofitting existing dwelling to a BER of B2 (DoECC, 2024).

The Housing for All Plan sets the following expectation for housing in Ireland

- Supporting Homeownership and Increasing Affordability;
- Eradicating Homelessness, Increasing Social Housing Delivery and Supporting Social Inclusion;
- Increasing New Housing Supply; and
- Addressing Vacancy and Efficient Use of Existing Stock.

The Programme for Government, **Our Shared Future**, objective is that everybody should have access to sustainable, good quality housing to purchase or rent at an affordable price, built to a high standard, and located close to essential services, offering a high quality of life (Department of Taoiseach, 2020).

The Climate Action Plan 2024, **Annex of Actions**, under the theme of a National Retrofitting Residential Plan includes a key performance indicator to deliver the Equivalent of 120,000 dwellings retrofitted to BERB2 cost optimal or carbon equivalent and 45,000 existing dwellings using heat pumps by 2025. Action number BE/24/6(TF) is specific to assisting those ‘least able to afford retrofit’ (DoECC, 2024: 45).

Locally, at the Cork City level, key housing issues identified in **Cork City's Local and Economic Development Plan** (2024-2029) include: lack of affordable housing, high rate of derelict properties and vacancy, and high level of households with low energy efficiency and without access to renewable energy.

7.9.1 Housing in Cork city

Housing stock in Cork City is 91,107 which includes 5,061 vacant dwellings and 192 unoccupied holiday homes (Census, 2022). In terms of private household composition almost 50% are married couples with children (25.3%) and one-person (24.4%) households. Followed by married couples with no children (13.8%), two or more non-related people (9.4%) and mother and children (8.4%). In comparison to the national average, Cork city has higher percentage of private households with two or more nonrelated people (5.4% nationally versus 9.4% in Cork City) and a lower percentage of private households occupied by married couples with children (25.3 in Cork city versus 29.4% nationally). The majority of private households are made up of four person households (23.9%), two person households (23.3%), three person households (21.3%), and five person households (14.1%). Compared with national figures, Cork city has more two-person (23.3 versus 21.1% nationally) and three persons (21.3% in Cork versus 19.5% nationally) households (Health Intelligence Unit, 2023). Key housing issues identified in the Local and Economic Development Plan (2024-2029) include: lack of affordable housing, high rate of derelict properties and vacancy, and high level of households with low energy efficiency and without access to renewable energy.

The Cork City Development Plan (2022-2028) will be supporting the delivery of 20,000 homes in Blackpool, Ballyvolane, Ballincollig, Glanmire, Grange and Blarney (Cork City Council, 2022).

This Joint Housing Strategy identifies an average estimated need for 20.4% of housing output to be social housing units and 12.7% for affordable housing units over the Plan period to 2028.

A housing supply target of 16, 236, including 3,312 social housing units and 2,064 affordable units has been set for delivery by 2028. This target will be reviewed in 2024 in line with the two-year development plan review (CCC, 2022: 77-79). Currently, the target is to provide housing for new households at a ratio of 67% market homes to 33% below market homes (i.e. social housing for rent, affordable housing for rent, purchase or shared ownership). There is also recognition to ensure provision of affordable private rented housing to address rising student accommodation costs.

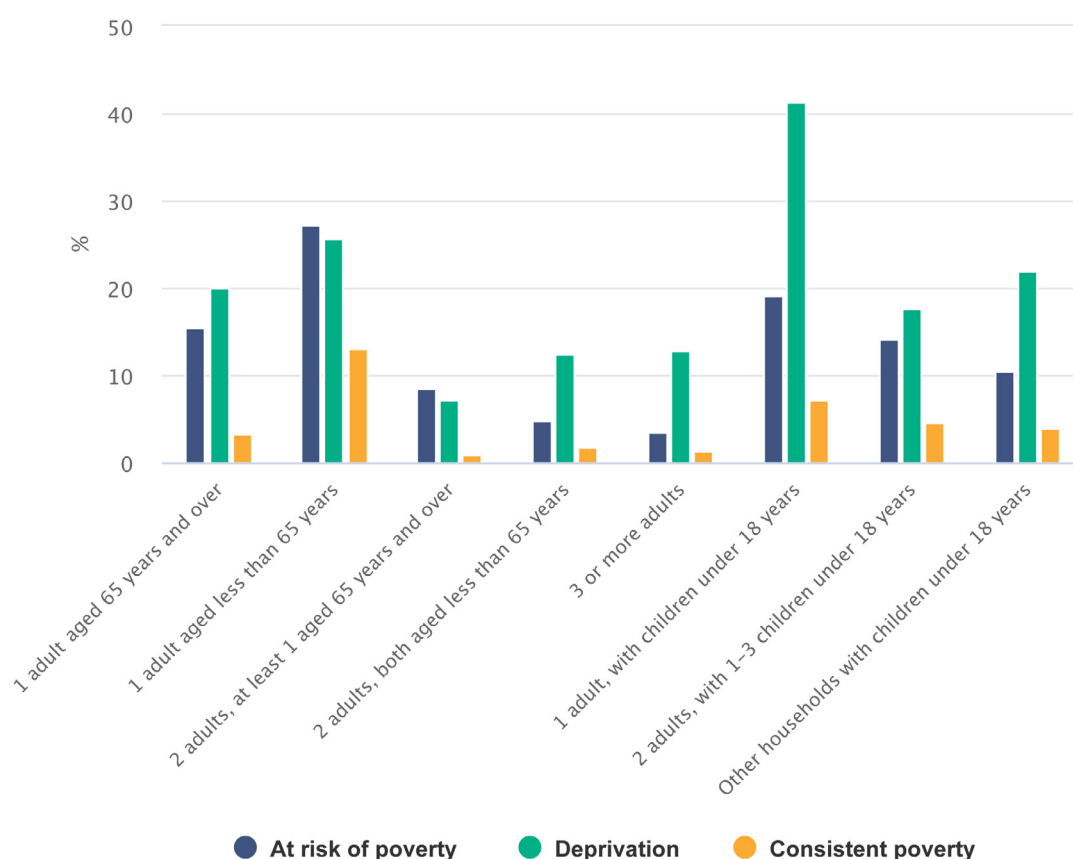


Figure 12: Poverty and Deprivation Rates by Household composition (CSO, 2023)

7.10 Disability

Just under a quarter of the population of Cork city are living with a disability (23.6% versus 21.5% nationally) with slightly more females than males reporting a disability (53% versus 47%) (Census, 2022).

Just under six percent (13,102 people) of the population provide informal care which is regular, unpaid help and support to someone with a long-term, illness, health issue related to old age or disability (Census, 2022).

“ Just under a quarter of the population of Cork city are living with a disability

7.11 Transport

In 2016, the mode of transportation used by the Cork City population to travel to work or education was varied. The proportion of people walking or cycling (known as green modes / active travel) in Cork City was 22%. However, the use of green modes was larger for residents of the city centre, at 47%, with significantly lower levels of cycling or walking as you extend outwards of the city centre. Only 9% of residents used public transport to get to work or education, with a significantly larger proportion of 63% using private transport, including 25% of city centre residents. According to more recent data, in comparison to national figures, Cork city residents have a higher percentage of people traveling to work, school, college or childcare on foot (17% versus 12.6%) (Census, 2022). The 2023 Cork Metropolitan Area Walking and Cycling Index's key findings show that 52% of adult residents walk 5 or more days a week while 18% of adults cycle at least once a week (NTA 2024).

7.12 Access to public spaces: green spaces/parks

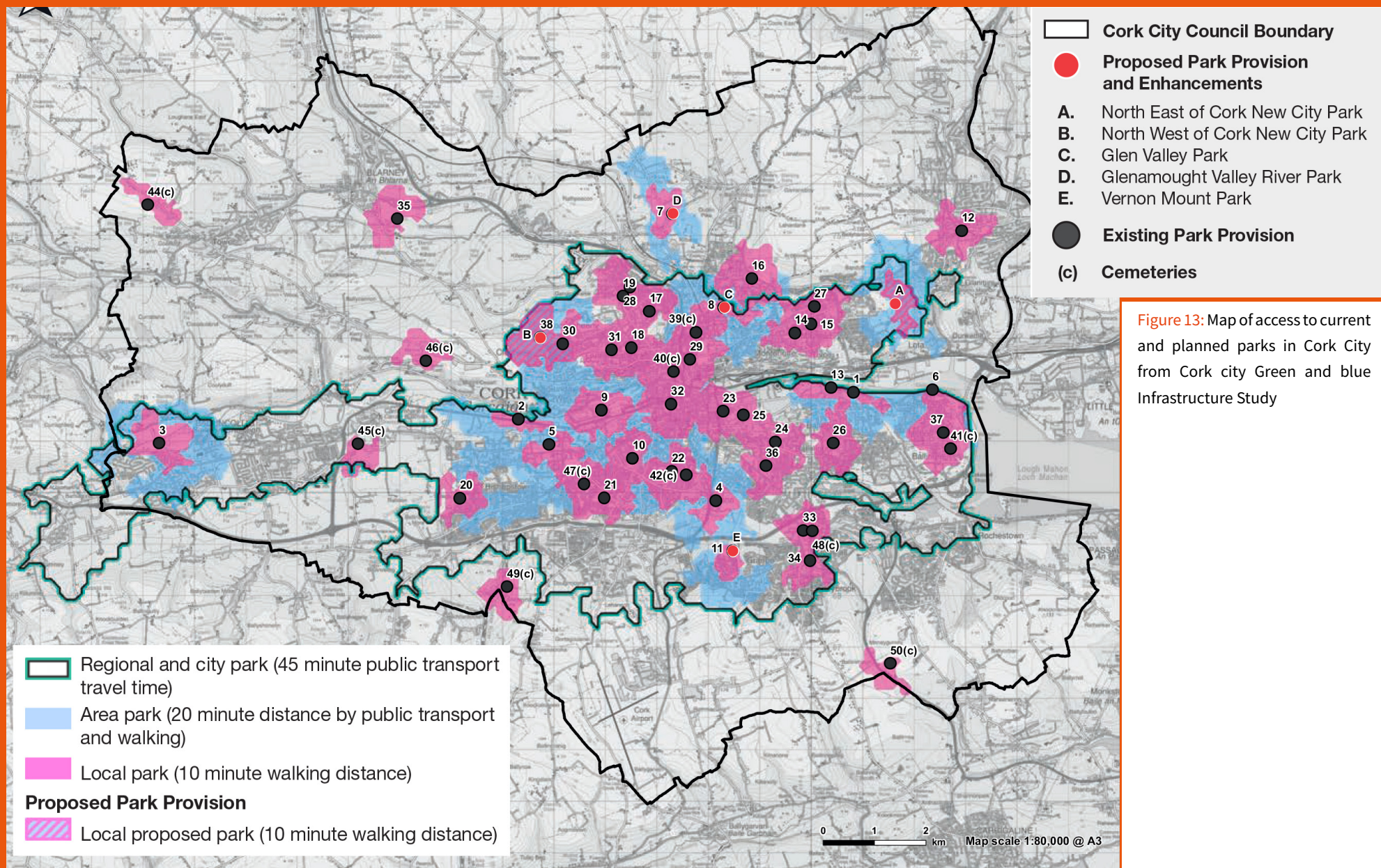
Cork city council maintains 1,500 acres of parks, open spaces and walkways. As illustrated in Figure 13, City has 42 existing parks five proposed Park Provisions and Enhancement projects which include the development of two new North-East and North-West City Parks (Cork City Council, 2022).

7.13 Migration and Ethnicity

Almost 20% of those who participated in the 2022 Census and are living within the city boundaries were born outside of Ireland (Figure 14) which aligns with the national figure of 20%. In terms of ethnicity, the minority are 'White Irish Travelers', 'Black or Black Irish', 'Asian or Asian Irish' or 'Other' (Figure 14 and 15).



Almost 20% of those who participated in the 2022 Census and are living within the city boundaries were born outside of Ireland



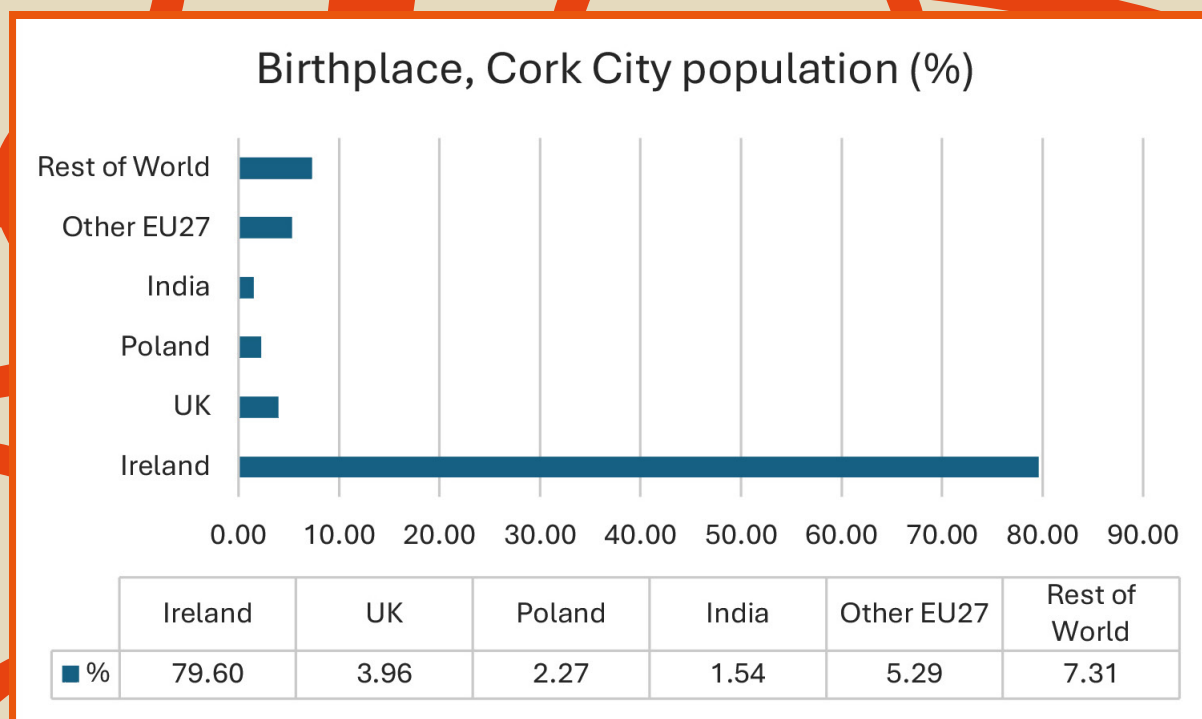


Figure 14: Birthplace of residents who took part in 2022 Census (Census, 2022)

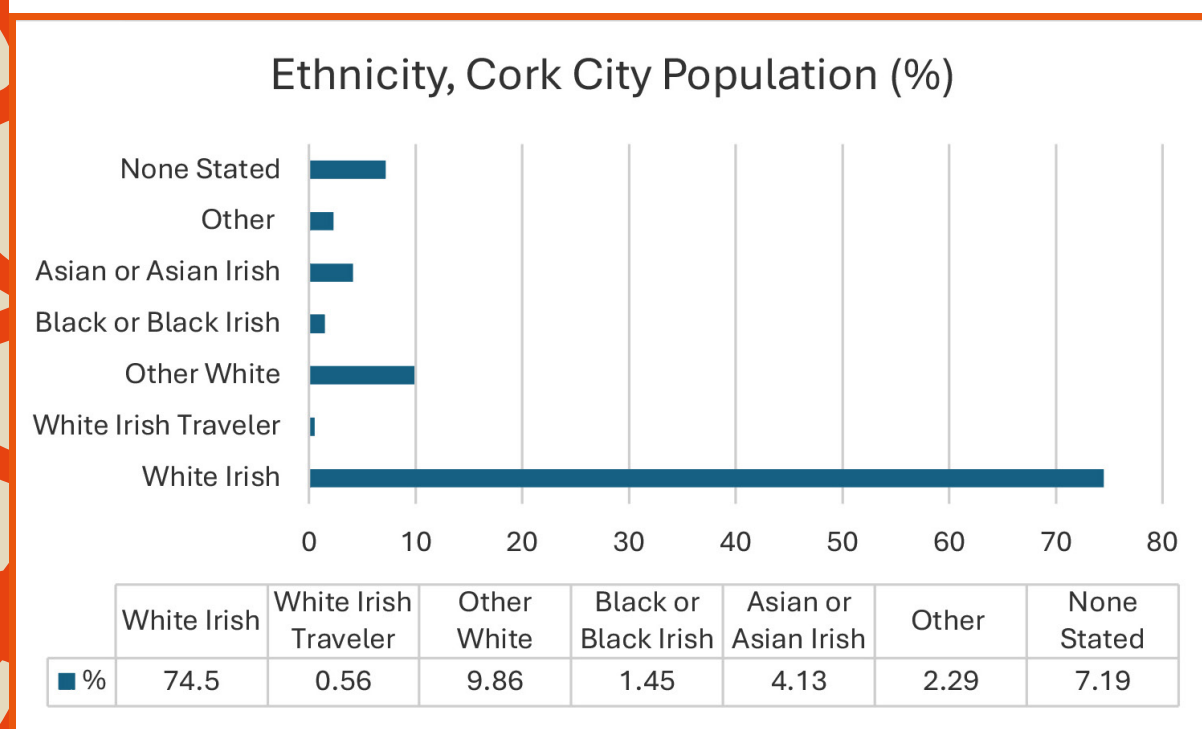


Figure 15: Ethnicity of Cork City residents who took part in 2022 census (CSO, 2022)

7.14 Occupation in Cork city

Unemployment stands at 4% in Cork city, slightly lower than the national 4.3%. Of those who are working, 4% are 'manager, directors & senior officials', 14.6% are employed in 'professional occupations', 7.3% are employed in 'Associate Professional and Technical occupations', 4.9% people employed in 'administrative and secretarial occupations', 4.9% are employed in 'skilled trades occupations', 3.7% in caring, leisure and other service occupations, 4.4% are employed in sales and customers service, 3.9% in process, plant and machine operatives, and 4.9% are employed in elementary occupations. In comparison to national figures, Cork city has a higher percentage of those employed in professional occupations (14.6 versus 12.3%) and a lower percentage of employed in skilled trade occupations (4.9 versus 7.6%).

7.15 Crime and Safety in Cork City

In the Southern region where Cork is located for national crime statistics reporting, latest figures on crime for 2024 show an increase for robbery, extortion and hijacking offences (+21%) compared to the same period in 2023. There was a decrease in sexual offences reported (-13%) as well as a decrease in reported offences against the Government (-21%) (CSO 2024). In Cork, a scoping Study of Age Friendly Environments (SAFE) highlighted those perceptions around feeling safe is an important consideration for vulnerable population groups such as older people. The perception or feeling unsafe often lacks an experience in reality but illustrates that people's reported feelings of unsafe can reflect a lack of support from relevant services, difficulty accessing transport, changes in urban space, mainly footpaths, and the presence of cyclists (SAFE 2019). As part of the submission process to the Cork City Development Plan (2022-2028), a study highlighted that a large proportion of children and young people need more places to play and hang out that are both safe and fun, as well as feeling safe to cycle in the city (Lynch 2021).



A large proportion of children and young people need more places to play and hang out, that are both safe and fun.

7.16 Summary of the Population Profile as Baseline evidence

The profile outlines the extent to which Cork city's population is growing, projected to grow by 50% by 2040. This has implications for ensuring good quality of life for both the general population living in Cork and across all population groups going forward, with longer life expectancies and a young population living in the city. We know that particular population groups are sensitive to changes in local policies, such as older people, young people who are school-attending age and people who are living on low-income. These groups can experience compounding health inequalities when experiencing multiple levels of disadvantage, for example, older people living on low-income. The profile highlights the degree to which disability, poverty and deprivation, and housing are presenting major social and health challenges to people living in the city. For the purpose of this HIA analysis, we have scoped in older people, young people and people living on low-income, due to keeping the HIA proportionate according to the time, resources and policy complexity available (IPH HIA guidance, Pyper et al, 2021, page 30). The following section outlines the potential health impacts of the 15-Minute City, based on the analysis carried out in the HIA.

8. Potential Health Impact

8.1 Introduction

The purpose of this section is to outline the potential health impacts of the 15-Minute City across the six sub-determinants of health for the three population groups.

In the sub-sections entitled ‘Health Impact Pathway’¹⁵, we draw heavily on the concepts and wording from the HIA IPH guidance in relation to reaching the reason conclusions narrative for health impacts (table 14, page 152, IPH HIA guidance, Pyper et al. 2021).

8.2 Safe and Cohesive Communities, the Core Strategy of the Cork City Development Plan (2022-2028) and the 15-Minute City (sub-objective 2.10)

The Core Strategy of the CCDP (2022-2028) is focussed on achieving Compact Liveable Growth (Strategic Objective 1 of the CCDP) and could be assessed as having the potential to improve population health by promoting social inclusion¹⁶ and improving quality of life. The planning of communities is an important health determinant and a key objective of the Core Strategy. A thematic analysis of the scoping workshop with the HIA Steering Group (Figure 3) found that the topic of community cohesion, health and wellbeing, reoccurred throughout discussion of the eight determinants of health during the Scoping Workshop with the HIA Steering Group (31st January, 2024). Connected communities and neighbourhoods is a major goal of the Core Strategy.

15 Sub-sections 8.3.3; 8.4.3; 8.5.3; 8.6.3; 8.7.3; 8.8.3.

16 Social inclusion is defined as “achieved when people have access to sufficient income, resources and services to enable them to play an active part in their communities and participate in activities that are considered the norm for people in society generally” (Government of Ireland 2020: 11).

As identified in the scoping workshop with the HIA Steering Group (31st January 2024), the following planning themes are relevant to the Core Strategy: Housing provision and mix, employment, severance ¹⁷, permeability ¹⁸, open space, active travel/ mobility, community identity and society, and safety.

In relation to safe and cohesive communities, based on available information and professional judgement and the reasoned opinion criteria in the HIA guidance, the Core Strategy for the CCDP has the potential to change ‘risks to human health’ (terminology from the IPH HIA guidance, Pyper et al, 2021: 37). This could be achieved through integration of health into planning and development decisions that minimise threats to health and maximising opportunities for health gain that would be deemed likely to significantly affect population health.

Supporting sub-objectives within the Core Strategy, directly relevant to safe and cohesive communities include Objectives: 2.10 (The 15-minute city), 2.11 (Low Carbon City), 2.12 (Mix of Uses), objective 2.16 (Neighbourhood Mix), Objective 2.17 (Neighbourhood Design), Objective 2.23 (Housing Supply), Objective 2.35 (Development of Hinterland Settlements).

When considering these sub-objectives relevant to safe and cohesive communities, the ‘15-minute city’ (Objective 2.10) is an overarching approach impacting and influencing the implementation of the aforementioned sub-objectives, offering sustainable building blocks for land use planning, central to delivering compact liveable growth in the city, which can promote safe and cohesive communities, connectedness ¹⁹, and permeability.

People experiencing social exclusion in Ireland often have more complex health needs and poorer access to healthcare than the general population (Siersbaek et al. 2023). Social exclusion is associated with poorer health including dementia, premature death, risk for cardiovascular disease and stroke. Reducing social

17 Severance in urban planning refers to the discontinuity in the urban structure caused by transport networks.

18 Permeability refers to the ease of movement of people and vehicles within an urban environment.

19 Connectedness in urban areas. National Planning Framework- Project Ireland 2040. Key features of connectedness in urban areas as outlined in the include the following key features: Connectedness offers opportunities in urban areas for accessibility in close proximity to a significant population catchment and/or can offer a good quality of life, to accommodate employment growth (p.65) to appropriate housing choices in a built environment that is attractive, accessible, and safe. Older people will be supported and motivated to enjoy more active, healthy and connected lives and to age confidently and comfortably in their community (p.86). Housing needs to be as proximate as possible to areas of education, employment, enterprise, as well as being connected to accessible infrastructure such as walking, cycling and public transport (p. 95).

exclusion is a national priority for public health policy in Ireland, according to the Healthy Ireland Framework (2013-2025). Addressing and decreasing social exclusion would reduce the risk of health outcomes across population groups according to age, income, and people living on low-income and in lower socioeconomic conditions, which is also associated with geographic community. For the purpose of this HIA, the indicators of safe and cohesive communities that were used as basis for the Analysis stage of the HIA, include the following:

- Housing
- Neighbourhood design
- Access to public spaces
- Modes of Travel
- Walkability
- Accessible workplaces

The Core Strategy sets out the long-term vision for the city and guides where and how development should and will happen. In achieving Compact Liveable Growth (Strategic Objective 1) supporting sub-objective 2.10: The 15-Minute City is of particular interest in relation to the provision of safe and cohesive communities.

Sub-objective 2.10 The 15-Minute City (page 65 of the Cork City Development Plan, 2022-2028)

“To support the delivery of a 15-Minute City that supports Compact Liveable Growth by creating vibrant local communities that can access all necessary amenities within a 10-minute walk/cycle and access workplaces and other neighbourhoods with a 15-minute public transport journey. Implementation will include walkable neighbourhoods, towns and communities with mix of uses, house types and tenure that foster a diverse, resilient, socially inclusive and responsive city. This includes support for public and active travel infrastructure projects and services and enhanced neighbourhood permeability.”

The following sections detail the results found from the Analysis stage of the HIA in relation to the six determinants of health and the scoped in three population groups in relation to the changes proposed in sub-objective 2.10 The 15-Minute City of the Cork City Development Plan (2022-2028).

8.3 Housing

8.3.1. What the 15-Minute City is proposing in relation to housing

In relation to housing, “... house types and tenure that foster a diverse, resilient, socially inclusive and responsive city” are included as being a part of delivering on Compact Liveable Growth. Evidence on the impact of housing on health, with general findings and finding specific to the populations of interest, was extracted from a review of full articles published in English on PubMed, over the past five years. In line with the wording of the Objective 2.10, the original focus was on housing ‘types and tenure’. After an initial search, and the lack of evidence concerning housing ‘types’ the research question: ‘what is the health impact of housing types and tenure?’ was broken down further (table 3). The review was not exhaustive, and the initial search was confined to systematic reviews first and grey literature specific to the Irish context second. Where appropriate, this was further complimented with original peer reviewed studies in high income studies that contributed to answering the questions posed.

Table 3: Description of evidence gathered for adequate provision of housing determinant in HIA

Research questions	Type of evidence used	Primary Sources
What is the impact of housing <i>quality</i> on health?	2022 Systematic Review, ESRI 2023 evidence report on housing tenure, health and public healthcare coverage in Ireland; ESRI 2023 report on Housing Adequacy and Child Outcomes in Early and Middle childhood report.	Howden-Chapman et al., 2022, Humes et al., 2023; Laurence et al. 2023.
What are the impacts of <i>buildings</i> on health?	2019, Systematic Review	Ige et al., 2021
what is the impact of <i>housing conditions</i> on health?	2021& 2023, systematic reviews; original study of 25,000 German households over 25 year published in 2020	Bever et al., 2021; Richards et al., 2023; Palacios et al., 2020
What is the impact of <i>apartment</i> living on health?	Literature review of 100 peer reviewed articles published in 2020; original Australian study of 113 apartment complexes in three cities published in 2023	Peters and Hallaran 2020; Kleeman et al 2023,
What is the impact of house tenure on health?	ESRI 2023 evidence report on housing tenure, health and public healthcare coverage in Ireland; ESRI Monitoring adequate housing in Ireland report 2021	Humes et al., 2023; Russell et al., 2021; Laurence et al., 2023;

We correlated this scientific literature with data from the public engagement event (22nd April 2024 in Cork city) with grey literature including studies carried out in Cork city relevant to the topic of housing and in relation to the population groups under study (Older people, young people and people living on low-income). Further detail on the process of conducting this stage of the Analysis stage of the HIA is provided in **Section 2** of this report. The following provides an overview of the potential health impacts of adequate housing provision and a description of the health impact pathway of adequate housing provision impacting on health. Technical Annex section 7 (sub-section 7.1) provides detail on measures used to assess potential health impacts alongside the reasoned conclusion, based on the tools provided in the Institute of Public Health HIA guidance (page 136 to page 156).

8.3.2 Overview: Health Impacts of Adequate Housing Provision on older people, young people, and people living on low-income

As illustrated in Figure 16, the pathways to health via housing are multiple and interconnected (Howden-Chapman et al, 2022). The primary pathways through which housing affects health include its quality, affordability, location, and influence on community and social cohesion (Bever et al, 2021). Adequate housing¹ including secure tenure² is an essential health consideration for all populations (Russell et al. 2021, Hume et al. 2023; Bever et al. 2021; Richards et al, 2023; Ige et al. 2019). Lack of adequate housing impacts on individuals physical and mental health and well-being and their ability to access employment, participate in education and engage with civil society (Russell et al, 2021). Poor quality housing is associated with stress, respiratory disease, neurological disorders, psychological and behavioural issues and chronic disease (Ige et al. 2019; Russell et al. 2023). Damp or mouldy housing is associated with respiratory disease, meningococcal infection, eczema, asthma, and rhinitis (Richards et al, 2023).

Affordability of housing is also a central consideration in achieving sustainable, safe, and cohesive communities (Public event, April 22nd 2024; Working Group Scoping Report January 31st 2024; Russell et al. 2021). Lack of affordable housing can lead to homelessness, overcrowding and push residents into poorer quality housing and neighbourhoods with higher crime and fewer amenities. The location of housing all matters and impacts accessibility to amenities and services such as parks and open space, public transportation, healthier food options, and healthcare facilities (Bever et al. 2021).

For children, high housing costs are associated inadequate childhood nutrition and poor childhood growth (Bever et al 2021) and poor quality housing is detrimental to child development and health outcomes (Bever et al. 2021; Russell et al 2021; Laurence et al. 2023). For example, the risk of asthma and other respiratory conditions have been shown to increase among children living in damp houses (Ige et al, 2019; Richards et al, 2023) and children living in damp houses are more likely to be hospitalised for acute respiratory illnesses (Howden-Chapman et al. 2022).

Issues concerning supply shortages and affordable houses continue to challenge the obtainment of adequate housing for all in Ireland with poor quality housing disproportionately affecting lower income and disadvantaged populations along with those in rented accommodation (Russell et al. 2021; Laurence et al. 2023; Hume et al. 2023). As reported in Ireland's Growing up in Ireland Study, Problems of housing quality are more common among those living in the social rented and private rented sectors (Laurence et al. 2023). 'Profound barriers to adequate housing' and poor housing outcomes are reported among ethnic minorities including Travellers, as well as lone parents, younger and older persons, migrants and people living with a disability (Russell et al 2021). Evidence elsewhere suggests that Residents of poorly maintained dwellings report a lower subjective health status and visit the doctor more often (Palacios et al 2020).

Poor housing design, including inadequate accessibility (Ige et al. 2018) predisposes people, particularly children and the elderly, to injuries and accidents (Richards et al. 2023). Design challenges and opportunities have also been noted with regards to higher density living. To achieve compact growth within the existing footprint of Cork City, apartment living will likely increase. International, post-pandemic, research highlights challenges in ensuring apartments are designed to connect with to nature, daylight and fresh air (Peters and Hallaran, 2020), along with communal spaces promoting good social outcomes will be important (Kleeman et al. 2023; Richards et al. 2023). As identified in the public engagement event, compact liveable growth could have a positive impact for older people, however, housing and the surrounding environment (access to services, amenities, safe footpaths) should be appropriate to the needs of Cork's aging population. Building methods and materials are also an important consideration along with mitigation against indoor air pollution (Richards et al. 2023).

Ensuring good quality affordable housing with good energy efficiency and ventilation has the potential to be an important contributor to improved health and wellbeing (Ige et al, 2019). In high-income countries, an estimated 90 percent of our time is spent indoors (Palacios et al 2020). Strategic action aimed at maintaining and improving the condition of the housing stock (ibid) and prioritising adequate housing for vulnerable populations such as those living on low income and minority groups including migrants and Travellers (Russell et al. 2021; Public event April 22nd 2024) may have substantial effects on preventing poor health and reducing health inequalities.

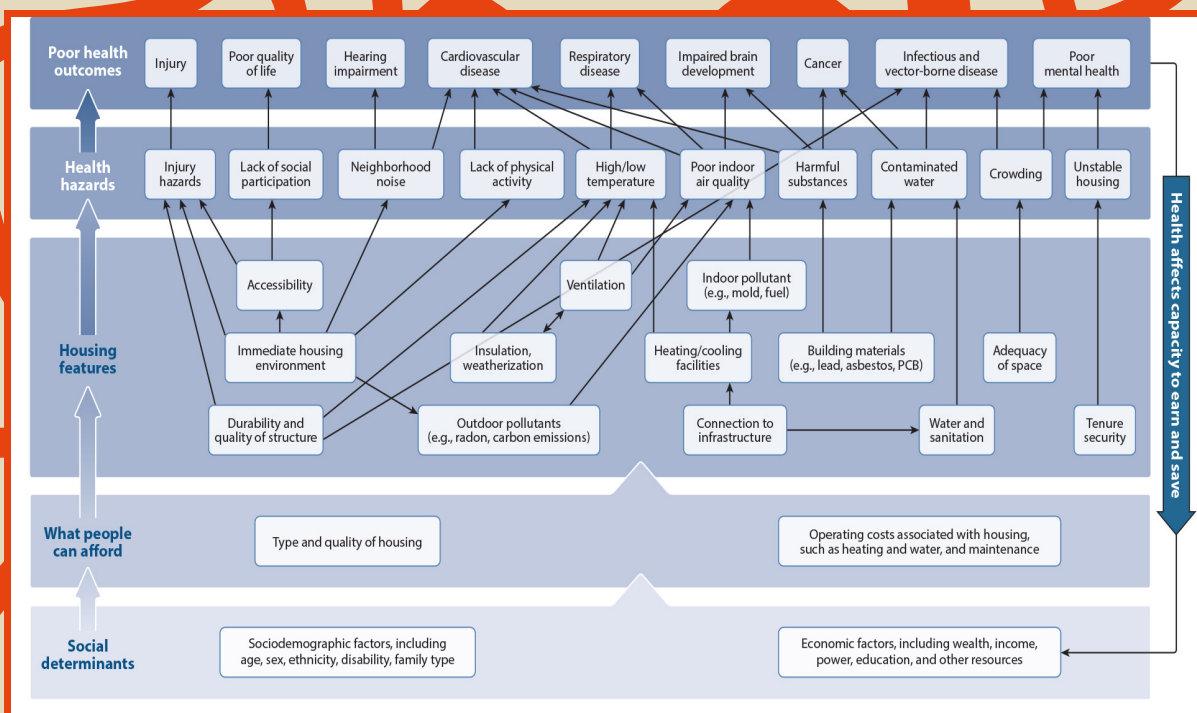


Figure 16: Pathways to health via housing, (Howden-Chapman et al. 2022)

8.3.3 Health Impact Pathway: Impact of Adequate Housing Provision

The potential effect is considered **likely** because there is a **plausible** relationship between source- pathway-people (receptor):

Source (what the 15-Minute City is proposing): adequate housing including accessibility to housing.

Pathways: Housing quality, design, affordability and location affects multiple health outcomes

People (receptor): The general population and vulnerable populations in particular. The potential effect is **probable** as no highly unusual conditions are required for source-pathway-receptor linkages.

The scientific literature shows an association between inadequate housing and poorer health and quality of life outcomes. The assessment has had regard for the population groups who may be particularly sensitive. For example, lower income and disadvantaged populations, those in private rental accommodation, those living in social housing and in areas of existing deprivation.

Baseline data indicates that 81% of Cork cities population consider their health status to be good. However, 23.6% of the population are living with a disability and the number of areas classified as very or extremely deprived has increased. Taking into account the extent of the current housing crisis and its wide ranging socio-economic and health impacts across life stages and populations the **sensitivity of the general population** is considered medium.

The sensitivity of more vulnerable populations (younger and older age, ethnicity, migrants, homeless, people with disabilities, gender, LGBTQI+, income) is considered high given that these populations face greater barriers to adequate housing compared to general population, in some instances (ethnic groups, migrants, lower income) are more likely to be living in more deprived areas, and are more likely to be living with/experience poorer health outcomes, thus more **sensitive** to the effects of inadequate housing. As illustrated in the scientific literature, older people and children are particularly vulnerable to the effects of cold, damp and mould.

Increasing the supply and access to affordable, good quality, well designed and connected homes along with retrofitting existing housing stock, can reduce health inequalities, mortality, morbidity, and improve quality of life. Access to housing is **an issue of concern** as gauged through the public engagement event. The **potential magnitude of change due to proposal and magnitude of health change** is therefore **high**.

8.4 Neighbourhood design

8.4.1. What the 15-Minute City is proposing in relation to neighbourhood design

In relation to neighbourhood design, the 15-Minute City aims to create connecting routes including permeability and walkability, to further promote walkable neighbourhoods fostering local communities. For the purpose of the data gathering Analysis stage of the HIA, we searched for scientific literature in relation to potential health impacts of neighbourhood design, which included permeability of neighbourhoods.

We correlated this scientific literature with data from the public engagement event (22nd April 2024 in Cork city) with grey literature including studies carried out in Cork city relevant to the topic of housing and in relation to the population groups under study (Older people, young people and people living on low-income). Further detail on the process of conducting this stage of the Analysis stage of the HIA is provided in **Section 2** of this report. The following provides an overview of the potential health impacts of neighbourhood design and a description of the health impact pathway of neighbourhood design impacting on health.

Technical Annex section 6 (sub-section 6.2) provides detail on measures used to assess potential health impacts alongside the reasoned conclusion, based on the tools provided in the Institute of Public Health HIA guidance (page 136 to page 156).

8.4.2 Overview: Health Impacts of Neighbourhood Design on older people, young people, and people living on low-income

Neighbourhood design has an impact on health (Bird et al. 2018; Pineo 2022), in terms of the design of key infrastructure (Haigh et al. 2020), built environment (Giles-Corti et al. 2022), permeable spaces in creating a health promoting supportive environments within which people feel safe and comfortable engaging in active travel and public transport options (Boniface et al. 2015), walking around the neighbourhood where they live, spend leisure time, visit or walk through. Having permeable spaces with more “eyes on the street” would improve neighbourhood safety and visibility of neighbourhoods (HIA Public engagement event, 22nd April 2024). Improvements to neighbourhood design in terms of safety and efficiency features, including provision of quality street lighting, was associated with higher rates of physical activity, lower fear of crime and road traffic collisions (Bird et al. 2018). Evidence shows specific mental health impacts of neighbourhood design (Moore et al. 2018) in relation to improving green infrastructure. Bird et al. (2018) found that neighbourhoods featuring street connectivity, mixed land use and compact residential design, were found to be associated with higher or increased physical activity among the general population, and higher or increased social engagement and mobility among older adults.

As place is experienced in unequal ways across different population groups, health impacts of neighbourhood design have been found to contribute to health inequalities (WHO 2019; PHS 2022). People living with social and economic disadvantage are more likely to experience poor-quality environment or environmental burdens on health, such as poor air quality (PHS 2022; Geddes, Allen, and Allen 2012). Older people living with social and economic disadvantage in need of adequate housing and socially-inclusive communities (Finlay, Gaugler, and Kane 2020; Parsons et al. 2021) or children living in socio-economically disadvantaged communities (Marzi, Demetriou, and Reimers 2018). This has been found also in Cork based research children living with disadvantage (Curtin et al. 2023).

Deprivation impact on poor health outcomes can be in part due to a greater exposure to a detrimental physical and built environment (PHS, 2022). Deprivation, geographic area, and population groups affected should be considered together when designing and developing neighbourhoods to improve the health and wellbeing of residents (*ibid*). Improved built environments and stronger place-based initiatives can “support employment, educational achievement, better health and improved social mobility alongside conventional approaches which focus on welfare reform” (RTPI 2016: 3).

There are differential health impacts across different population groups in relation to the health impacts of neighbourhood design. For older people, in relation to the health impact of neighbourhood design, Bird et al. (2018) found an impact of

enhanced walkability (Arakawa Martins et al. 2018) which leads to increased social engagement and increased mobility (Levasseur et al. 2015), increased physical activity (Van Cauwenberg et al. 2011; Cleland et al. 2019); increased access to facilities and amenities (Gomez et al. 2015) and improved mental health (Gascon et al. 2016). For older people, loneliness is a major mental health concern. Bower et al. (2023) found in their review that children, adolescents, and older people are disproportionately affected by neighbourhood design in terms of inadequate natural light, restricted personalisation (Kalina 2021), and lack of common spaces. Balconies and windows have been found to enhance mental health and protect against dementia for older adults by providing insights to the world outside (Odzakovic et al. 2021).

For children, Marzi (2018) found that neighbourhood design was associated with independent mobility in children, which is an important contributor to physical activity and health in children (also found in (Buck et al. 2019)). Neighbourhood safety (also found in (Zougheibe et al. 2021)) and design, fear of crime and stranger, parental support, perception of traffic, car ownership, and distance travelling were important attributes influencing children's mobility. Streets that are open for play impacts opportunities for active play, physical activity, through neighbourhood design (Umstattd Meyer et al. 2019).

For people living on low income, neighbourhood design can have an impact on social, physical, and mental health; and perceptions of neighbourhood safety (Bird et al. 2018), particularly in areas that as an aggregate experience socio-economic disadvantage. Improvements in warmth energy efficiency was found to be associated with health inequalities amongst older adults and those with chronic conditions from low-income groups (Gibson et al. 2011; McElroy and Walsh 2023). People living in neighbourhoods with socio-economic deprivation including living with low-incomes, have been found to have poorer depression and anxiety treatment outcomes and require lengthier interventions (Finegan, Firth, and Delgadillo 2020). A review of literature examining the impact of life course exposures to neighbourhood deprivation and wellbeing, specifically the long-term impacts of neighbourhood effects (Jivraj, E., and Norman 2020), found that exposure to neighbourhood deprivation over the life course is damaging to later life health, which indicates improving neighbourhoods as early in life as possible would have the greatest public health improvement.

Urban regeneration can have a positive impact on health in terms of neighbourhood redesign, however critical issues of consistency of implementation processes, stigma and housing tenure, regeneration discourses, and residential consultation and power dynamics, all play a role in the process of regeneration as experienced by residents (O’Connell, Cullinane, and O’Sullivan 2024; Gaston 2024). Children living in areas of social and economic disadvantage, whose areas are undergoing regeneration in Cork, raised issues around the change the programme is bringing to the community, issues of poverty, stigma and exclusion, lack of involvement in decision-making process in the regeneration programme, all factors leading to experiences of territorial stigma (O’Sullivan, O’Connell, and Byrne 2020).

8.4.3. Health Impact Pathway: Impact of Neighbourhood Design

The potential effect is considered **likely** because there is a **plausible** relationship between source-pathway-receptor:

Source (what the 15-Minute City is proposing): changes in neighbourhood design including permeability in creating supportive health environments within which people live, travel, and socialise.

Pathways: changes in neighbourhood design and increased permeability of neighbourhoods, increased physical activity and mobility, pedestrian amenity; reduced driver delay and traffic, and pedestrian amenity (includes factors such as safety, attractiveness, convenience, information, and accessibility—that create supportive walking environments). This all links with physical activity, neighbourhood design and reduced social isolation by engaging with neighbourhood design.

People (receptor): local residents in Cork city neighbourhoods, pedestrians, cyclists, car users, bus drivers, emergency services, people from vulnerable groups across the city including older people, young people and people living on low-income.

The scientific and grey literature, and the public engagement data, shows an association between the types of changes that will be caused by implementing the 15-minute city, including permeability of neighbourhoods included in neighbourhood design options for the three population groups under focus in this assessment. The assessment has had regard to the population groups identified for the assessment that may be particularly sensitive. Beyond the three identified and included population groups, the literature identifies women, migrant communities, people living with limited mobility and accessibility are vulnerable to changes implemented through the 15-minute city. The whole population benefits from a physically active lifestyle through the connected liveable city including living and moving throughout permeable neighbourhoods.

The **sensitivity of the general population** is considered to be low. This reflects that routine statistics for Cork city show that the health status of most people is good/ reported as good, and their daily activities are not limited. This estimation reflects that the general population would have a high capacity to adapt to changes in neighbourhood conditions where they are living if road works or changes in physical infrastructures are required to enhance permeability of space or connected routes in implementing the 15-minute city.

The **sensitivity of vulnerable groups is considered high**. It is estimated that, from a life course perspective with particular focus on older people and young people, a high proportion of residents, pedestrians, cyclists, road users with cars in Cork city are young people and older people (dependents) who are on safe living environments, namely the neighbourhoods where they are living or visiting. People living on low income and / or living with social and economic disadvantage face greater barriers to access compared to the population as a whole and are more **sensitive** to changes in neighbourhood design (for positive and for unintended health impacts). People living on low income may compound barriers to access through travel and transport options if the vision of the 15-minute city is not realised. Neighbourhood living environments is an identified issue of concern as established through the public engagement event. The **potential magnitude of change due to the policy objective and magnitude of health change** is therefore **high**.

8.5 Access to public spaces

8.5.1 What the 15-Minute City is proposing in relation to access to public spaces

In relation to access to public spaces, the 15-Minute City aims to support Compact Liveable Growth by creating vibrant and connected local communities. In order for communities to thrive and live cohesively and connected in the city, access to public spaces where communities can meet is crucial. For the purpose of the data gathering Analysis stage of the HIA, we searched for scientific literature in relation to potential health impacts of access to public spaces. We correlated this scientific literature with data from the public engagement event (22nd April 2024 in Cork city) with grey literature including studies carried out in Cork city relevant to the topic of access to public spaces and in relation to the population groups under study (Older people, young people and people living on low-income). Further detail on the process of conducting this stage of the Analysis stage of the HIA is provided in **Section 2** of this report. The following provides an overview of the potential health impacts of neighbourhood design and a description of the health impact pathway of neighbourhood design impacting on health.

Technical Annex section 6 (sub-section 6.3) provides detail on measures used to assess potential health impacts alongside the reasoned conclusion, based on the tools provided in the Institute of Public Health HIA guidance (page 136 to page 156).

8.5.2 Overview: Health Impacts of Access to Public Spaces on older people, young people, and people living on low-income

Accessible public spaces for communities to meet have a positive impact on health outcomes (Bambra, Smith, and Pearce 2019) (Bambra et al. 2019) (Jivraj, E., and Norman 2020), including increase physical activity which leads to a reduction in risk factors for chronic diseases including diabetes and coronary heart disease (DoH 2013). Another important health impact is a strengthening of social connectedness (Pitt et al. 2021) across older people, children and adolescents and people living on a restricted income. This point about meeting places being a necessity for people's health and wellbeing was raised at the public event on 22nd April 2024, with someone noting "the importance of these places where there is no expectation to spend money. Alternative spaces (needed)- for people to connect, do arts, music, gathering – something similar to the marina market but without food and drinks/ beers." This highlights the importance of open, accessible, and safe public spaces for all, particularly for those who do not have the financial resources to buy a drink or food to sit in the city. In the context of deprived areas, the provision of spaces has been considered with the additional necessary costs associated with maintaining and facilitating activities in these spaces. This issue of the potential health impact of meeting places was also raised by the HIA Steering Group during the scoping workshop on 31st January 2024, as an "availability of play areas, sporting organisations, green spaces, that are human scaled." The scientific literature highlights the positive health impacts experienced by people feeling safe and comfortable to meet together in the public realm or 'third place'²⁰ (Jing, Dahlberg, and Canter 2024) to socialise in a safe and open manner. Enhancing the use of 'third places' in particular contributes to enhanced social health of older adults (Alidoust et al. 2019). The main positive health impact of having open, safe, and accessible public meeting places in cities is social connectedness, whereby when people feeling comfortable and safe to meet freely and easily in public, for instance in parks, green spaces, city centre pedestrianised areas, their sense of place and sense of being included within the city is enhanced. Physical activity and improved cardiovascular health as health outcome is also enhanced for older people (Paquet et al. 2023), which was found also in the Step-Up walking programme with older adults in Cork city (O'Brien et al. 2021). McGowan et al. (2021) found in their review of effective interventions of place-based interventions to improve public health and reduce health inequalities, in terms of physical, social and economic environments. The review highlights that improving public realm, parks and playgrounds, supermarkets, transport, cycle lanes, walking routes and outdoor gyms can all have positive impacts on health outcomes, in particular physical activity. However, the effect of these interventions on health inequalities, in particular between different income-earning groups, is unclear and highlights the need for further research in this area.

20 The "third place" which refers to popular public places outside home (first place) and work (second place) for informal social life (Jing et al. 2024).

A review of health impacts of space published by Public Health Scotland (2022) found that there is review-level evidence that found that play and other activities are important to the mental, cognitive, physical, social and emotional development of young people, and when these activities take place in natural environments, health impacts are increasingly more significant (Gomes, Maia, and Varga 2018). Buck et al (2019) found that in childhood, environmental support for leisure time physical activity through public open space was found to be the most protective factor to prevent non-communicable diseases, whereas for adolescents attributes of street connectivity and residential density was found to be most supportive of physical activity.

Place-making activities can take the form of community gardens (Turner, Abramovic, and Hope 2022), space design and development, and public art (Mateo-Bambiano and Lee 2020) and relations and connections between people, and also between people and places, that develop within a process of place negotiation (Bambra et al. 2019). Positive health impacts of place-making have been found in particular vulnerable groups including the refugee community (Yashadhana et al. 2021), older people (Fang et al. 2016) and children in Cork city (Curtin et al. 2023).

The health impacts of place-making (Akbar and Edelenbos 2021) on making clear the viability of public space results in a number of health impacts in relation to quality of life (*ibid*) and social impacts related to local communities in enhancing social ties, gaining local empowerment, and reinforcing place identity. As already mentioned, community gardens are an important component in the spectrum of potential meeting places for people living in cities. Community garden participation has been found to enhance wellbeing amongst vulnerable populations including ethnic minorities and refugees, socioeconomically disadvantaged neighbourhoods or low-income or food insecure families (Malberg Dyg, Christensen, and Peterson 2020) although the review authors found that safety concerns related to community gardens in urban setting is an issue.

Safety is an important factor for meeting places for children, older people and people living in areas of socio-economic disadvantage. Not feeling safe in a place is one reason why children do not want to walk or cycle to school or attend sports activities or event in their area (Simonsen et al. 2024).

8.5.3 Health Impact Pathway: Impact of Access to Public Spaces

The potential effect is considered **likely** because there is a **plausible** relationship between source-pathway-receptor.

Source (what the 15-Minute City is proposing): Changes in the provision of public meeting spaces for people to come together through the policy objective for the 15-minute city, linking communities with one another, as well as other community residential, commercial and amenity services.

Pathways: Changes in increased use of public space for communities to meet and gather, residential amenity, environmental aesthetics, increased safety within neighbourhoods when more footfall on paths. This all links with physical activity, increase in mental, cognitive, physical, social, and emotional development, increased social connectedness and mental well-being by engaging with public space. Evidence from the scientific literature supports the association between public spaces and positive health outcomes –having positive impacts on social connectedness and social cohesion.

People (receptor): general public, population groups identified in the literature that may be particularly sensitive – older people, young people, and people living on low-income.

The scientific and grey literature, and the public engagement data, shows an association between the types of changes that will be caused by implementing the 15-min city, including ensuring meeting spaces are created for vibrant communities to flourish, for the three population groups under focus in this assessment. The assessment has had regard to the population groups identified that may be particularly sensitive. Beyond the three identified and included population groups, the literature identifies women, migrant communities, people living with limited mobility and accessibility are vulnerable to changes implemented through the 15-minute city. The whole population benefits from a social and physically engaged active and connected lifestyle through the connected liveable city including using public spaces that are accessible, appropriate, and available.

The **sensitivity of the general population** is considered to be medium. This reflects that routine statistics for Cork city show that the health status of most people is good/ reported as good, and their daily activities are not limited. This estimation reflects that the general population would have a high capacity to adapt to changes in public space if road works are required to enhance public spaces in implementing the 15-minute city.

The **sensitivity of vulnerable groups is considered high**. It is estimated that, from a life course perspective with a focus on older people (at risk of social isolation), young people (for enhanced mental, cognitive, social and physical development), and particularly for people on low-income who would be able to access these spaces for free, as well as for older people at risk of social isolation. People living on low income and / or living with social and economic disadvantage face greater barriers to accessing safe meeting places compared to the population as a whole and are more **sensitive** to changes in access to public meeting space changes (for positive and for unintended health impacts). People living on low income may compound barriers to access through travel and transport options when accessing public spaces beyond a local area (if that were desired/ preferred) if the vision of the 15-minute city is not realised. Access to public meeting spaces is an identified issue of concern as established through the public engagement event. The **potential magnitude of change due to the policy objective and magnitude of health change** is therefore **high**. Analysis of data from the public engagement event on the HIA of the Cork City Development Plan, which included 24 members of the public of Cork City, identified the need for public spaces as a key theme. This highlights the importance of open, accessible, and safe spaces for the general public.

8.6 Modes of Travel

8.6.1 What the 15-Minute City is proposing in relation to modes of travel

In relation to modes of travel, the 15-Minute City aims to support Compact Liveable Growth and facilitate connectivity for people living in the city. The main focus of modes of travel in the 15-Minute city sub-objective is to reduce reliance on cars and automobiles and support active travel and access to public transport. For the purpose of the data gathering Analysis stage of the HIA, we searched for scientific literature in relation to potential health impacts of access to public transport options, and access to active travel. We correlated this scientific literature with data from the public engagement event (22nd April 2024 in Cork city) with grey literature including studies carried out in Cork city relevant to the topic of access to public spaces and in relation to the population groups under study (Older people, young people and people living on low-income). Further detail on the process of conducting this stage of the Analysis stage of the HIA is provided in Section 2 of this report. The following provides an overview of the potential health impacts of these two specific modes of travel that are stated in the 15-Minute City sub-objective- access to public transport and active travel- and a description of the health impact pathway of modes of travel impacting on health.

Technical Annex section 6 (sub-section 6.4) provides detail on measures used to assess potential health impacts alongside the reasoned conclusion, based on the tools provided in the Institute of Public Health HIA guidance (page 136 to page 156).

8.6.2 Overview: Health Impacts of Access to Modes of Travel including public transport and active travel on older people, young people, and people living on low-income

A key aspect of the 15-minute city and connected routes is making different modes of travel available and accessible to people that is not centered around car dependency. The goal is to reduce car dependency and use and increase reliance on other modes of travel with co-benefits for public health and the physical environment. Two modes of travel supported within the vision of the 15-minute city in the Cork City Development Plan (2022-2028) is active travel and accessing public transport. More use of active transport and public transport can be expected to result in an incremental improvement in air quality.

Active Travel

PHS (2022: 16), in their review of literature around the health impacts of active travel, found some key findings in relation to active travel:

- Active travel has the potential to enhance health by increasing physical activity and healthy weight.
- Health benefits of active travel will benefit different groups in different ways.
- Active travel is associated with reduce risk for all-cause mortality and improvements in mental health
- Active travel can increase social interactions
- The health benefits of active travel outweigh risks caused by air pollution or accidents.
- Active travel has the potential to benefit local economies.

Active travel routes can include “green and natural routes, off-road paths, wide pavements, quiet streets with reduced speed limits, on-road cycling, and dedicated cycling and walking routes” (*ibid*: 17). Active travel can include functional and recreational travel (Saunders et al. 2013). Some studies indicate differential impacts of walking on physical activity depending on socio-economic status, age and health status (PHS 2022; Mueller et al. 2017).

A number of reviews and studies confirm that active travel leads to more active daily lives and enable people to engage more in physical activity (PHS 2022; Marmot et al. 2020). Active travel is associated with lower body mass or body weight (Wanner et al. 2012; Mueller et al. 2015; Mueller et al. 2017). Evidence on whether active travel increases overall population levels of physical activity or reduces obesity in the short or longer term is inconclusive (Ige-Elegbede et al. 2022; Wanner et al. 2012).

For older people, being supported within a social and physical environment to engage in active travel increases physical activity, reduces risk for chronic disease, increases social connectedness within their neighbourhood and improves mental health (Donoghue, O’Connell, and Kenny 2016). Neighbourhood need to be human-scaled and walkable, for example, with fully functioning pavements, appropriate kerbing, road design and road crossings, so that older adults can move freely within and around their neighbourhood and wider city environment (Lee 2023). Policies enhancing active travel for older people within a city environment should coincide with policies to reduce air pollution (Manisalidis et al. 2020), as this population is vulnerable to the impact of air pollution (Simoni et al. 2015) including significant increase in hospitalisations, home medical visits for respiratory causes including COPD, asthma and pneumonia. Mueller (et al. 2017) found evidence that older people reap great health benefits if they started undertaking active travel when compared with younger people, pointing to the differential impact of active travel on health.

For children and adolescents, an increase in active travel leads to an increase in physical activity, social connectedness within their living environment, reduces risk for obesity and improves mental health (Jones et al. 2019). Encouraging active travel to and from school reaps important benefits for young people and for society as a whole (Mitra 2013; Morris et al. 2022); evidence indicates that policies to improve infrastructure and enhance the safety and ease of active travel to schools generate societal economic benefits that exceed the societal cost (Jacob et al. 2021). (2021) heard from children in Cork city that they want to engage in more active travel options including walking, cycling, skating in the city in safe environments that are child-friendly zones for travel. The Growing up in Ireland Study published by the ESRI found that the most common form of transport to school was by car (44%), followed by school bus (26%) and walking (21%). Just 4% each cycled or used public transport (Smyth et al. 2023). Although there is a predominant reliance on car use getting to school, children expressed a desire for more active travel options in the Freedom of the City submission, which includes children's input to the Cork City Development Plan (2022-2028) (Lynch 2021).

People living on low income are likely to be differentially impacted by active travel options including walking and cycling (Stankov et al. 2020; Lucas et al. 2019). The prevalence of cycling is generally lower in this group, therefore an increase in cycling would result in more health benefits compared to other groups (Pridmore et al. 2017; Marmot et al. 2020; Geddes, Allen, and Allen 2012). People living in areas of social and economic disadvantage would benefit from policies and plans that enhance the overall liveability of a neighbourhood within the city, using an intersectoral approach based on resident's lived experience (Pridmore et al 2017). Rae et al (2016) found that people living in areas of social and economic disadvantage experience greater physical and social disconnection within the city environment. There is a benefit to enhancing area-based urban and transport policies, however, they need to be planned and implemented within a holistic inclusive growth strategy, which addresses social and economic disadvantage, and economic growth, simultaneously.

Public Transport

A review of evidence conducted by Public Health Scotland (2022: 19 and 20) on the health benefits of public transport, and on transport poverty (PHS 2024) found the following:

- Public transport use has the potential to improve access to services, facilities, and amenities, and connect communities.
- Public transport has the potential to increase active travel.
- Evidence shows links between public transport and increased physical activity, potential reducing the prevalence of obesity and improve mental health.
- Public transport needs to be accessible, affordable, available, and appropriate to the varying needs of various population groups. It needs to be safe and reliable.
- Public transport impacts health inequalities through the cost of transport. Public transport use also can create or exacerbate gender inequalities as some people of a particular gender (for example, people identifying as women, non-binary, transgender, transsexual) are fearful to use public transport when it involves longer waiting times at bus stops or harassment during the bus journey (Useche et al. 2024).
- Certain groups in society, including older adults, children and adolescents and people living on low incomes are disproportionately affected by the lack of available and affordable public transport, and at a greater risk of transport poverty.
- Some people find it necessary to buy a car even when they cannot afford it, leading to increased debt.
- Public transport has the potential to reduce carbon emissions.

Lowans et al (2023) found in their study of the causes of energy and transport poverty, that rates for both are broadly similar across the island of Ireland; energy poverty (14%) and transport poverty (18%). The authors found that study participants' perceived desirability of transport options remained low, for example, in public transport provision. The authors conclude that the state needs to do more to create contextualised solutions for public transport that are localised across areas in Ireland to increase levels of perceived and actual uptake in public transport. This includes improving public transport options as accessible, affordable, available, and appropriate services, thus localising services to the needs of communities and population groups including people living on low income (Lucas et al. 2019), older adults, children and adolescents, and people living with disabilities and mobility issues.

8.6.3 Health Impact Pathway: Impact of modes of travel, including access to public transport and active travel

The potential effect is considered **likely** because there is a **plausible** relationship between source-pathway-receptor:

Source (what the 15-Minute City is proposing): changes in active travel routes and increased number of bus routes (through Bus Connects) that link community residential, commercial and amenity services.

Pathways: changes in reduced car use; reduced driver delay and traffic, pedestrian amenity, reduced accidents. This all links with physical activity, active travel, public transport use and reduced social isolation by engaging with public transport space.

People (receptor): local road and footpath users, cyclists, pedestrians, public transport users, bus drivers, emergency services, people from vulnerable groups across the city including older people, young people and people living on low-income. The potential effect is **probable** as no highly unusual conditions are required for source-pathway-receptor linkages.

The scientific and grey literature, and the public engagement data, shows an association between the types of changes that will be caused by implementing the 15-min city, including road and pedestrian safety, travel times, accessibility, public transport options for the three population groups under focus in this assessment. The assessment has had regard to the population groups identified for the assessment that may be particularly sensitive. Beyond the three identified and included population groups, the literature identifies women, migrant communities, people living with limited mobility and accessibility are vulnerable to changes implemented through the 15-minute city. The whole population benefits from a physically active lifestyle through the connected liveable city including using public transport that is accessible, appropriate, affordable, and available, and active travel routes.

The sensitivity of the general population is considered to be low. This reflects that routine statistics for Cork city show that the health status of most people is good/ reported as good, and their daily activities are not limited. This estimation reflects that the general population would have a high capacity to adapt to changes in traffic/ public transport/ active travel conditions if road works are required to enhance active travel and public transport routes in implementing the 15-minute city.

The sensitivity of vulnerable groups is considered high. It is estimated that, from a life course perspective with particular focus on older people and young people, a high proportion of pedestrians, cyclists, public transport users, and road users with cars in Cork city are young people and older people (dependents) who are reliant

on safe and accessible transport and travel options. People living on low income and / or living with social and economic disadvantage face greater barriers to access compared to the population as a whole and are more **sensitive** to changes in access to travel and transport changes (for positive and for unintended health impacts). Access to public transport and active travel routes is an identified issue of concern as established through the public engagement event. The **magnitude of change due to the policy objective and magnitude of health change** is therefore high.

8.7 Walkability

8.7.1 What the 15-Minute City is proposing in relation to walkability

In relation to walkability, the 15-Minute City seeks to support Compact Liveable Growth by “implementing walkable neighbourhoods, towns and communities” (CCC, 2022: 63) in fostering a city environment that enables people living in Cork city to flourish in a safe, connected and cohesive urban space. For the purpose of the data gathering Analysis stage of the HIA, we searched for scientific literature in relation to potential health impacts of walkability. We correlated this scientific literature with data from the public engagement event (22nd April 2024 in Cork city) with grey literature including studies carried out in Cork city relevant to the topic of access to public spaces and in relation to the population groups under study (Older people, young people and people living on low-income). Further detail on the process of conducting this stage of the Analysis stage of the HIA is provided in **Section 2** of this report. The following provides an overview of the potential health impacts of walkability and a description of the health impact pathway of walkability impacting on health.

Technical Annex section 6 (sub-section 6.5) provides detail on measures used to assess potential health impacts alongside the reasoned conclusion, based on the tools provided in the Institute of Public Health HIA guidance (page 136 to page 156).

8.7.2 Overview: Health Impacts of Walkability on older people, young people, and people living on low-income

As illustrated in Figure 17, living in walkable safe neighbourhoods has multiple and interconnected positive health, environmental, social, economic benefits for individuals’ health, community liveability and sustainability (Baobeid et al. 2021). A systematic review of HIAs carried out on walkability and the urban built environment (Westenhöfer et al, 2023) reported that vast majority of studies reported beneficial health impacts particularly in relation to reductions of non-communicable diseases like cardiovascular diseases, diabetes, cancer, and mortality. While two HIA studies within this review reported increased exposure to air pollution may contribute to an increased incidence of asthma in children, the potential health and environmental gains outweigh the potential negative impacts (ibid).

In Ireland, an estimated one in five children experience asthma at some stage of their lives. Some evidence suggests that improving the walkability neighbourhoods, for example, by adding footpaths to improve connectivity, may contribute to asthma prevention in children. In Canada, a population-based cohort study of 326,383 Toronto children aged between 8 and 15 years found that children living in neighbourhoods with low walkability had an increased risk of incident and ongoing asthma (Simons et al. 2018).

Key national health challenges include obesity and cancer (OECD, 2021). Some evidence suggests that living in walkable neighbourhoods may protect against obesity and chronic stress (Baobeid et al, 2021; (Leyden et al. 2024)) and obesity related cancers. In the United States (US), a prospective cohort study of 14,274 women aged between 34 and 65 years of age reported that women who lived in neighbourhoods with higher walkability levels had a reduced risk of overall and site-specific obesity-related cancers, particularly postmenopausal breast cancer. The association between neighbourhood walkability and reduced cancer risk was stronger for women in low-income neighbourhoods (India-Aldana et al 2023). An additional empirical study examined perceived neighbourhood walkability, physical activity, and obesity among 31, 568 adults in the US and found that people living in highly walkable neighbourhoods were more likely to engage in adequate physical activity (PA), walk near their home, and have a lower body mass index (BMI) compared to people in low-walkability neighbourhoods. However, the link between walkability and PA differed by race and ethnicity which may be attributed to the potential issues safety, desirability, and societal norms within communities (Wang et al 2022). Issues of safety, such as ensuring good lighting on streets and in parks, was also highlighted as an important consideration in relation to the Core Strategy at the public event that took place on 22nd April 2024 (Nash and O'Mullane, 2024).

Residing in walkable and serviced neighbourhoods with access to amenities and services may also have positive mental health outcomes and facilitate social connectedness across populations (Baobeid et al, 2021;(Leyden et al. 2024) including the elderly (Ulloa-Leon et al 2023). A study in Dublin found that living in a walkable neighbourhood was directly linked to the happiness of people aged between 18- 45. Whereas for older adults, the link was indirect and mediated by the positive impacts of “walkability on health, trust in others, and levels of satisfaction with the appearance of their neighbourhoods” (Leyden et al. 2024: 2). Walkable neighbourhoods enhanced the likelihood of residents feeling healthier and more trusting of others which in turn affected the happiness of older people living in these neighbourhoods. Accessible for all, mixed-use neighbourhood designs that enable residents of various abilities to shop and socialise within walking/travel distance to their homes is an important consideration in assessing and supporting walkable neighbourhoods. While people with disabilities are considered in urban planning practice, some evaluation tools for walkability offer limited coverage of footpaths for people with different needs (ibid).

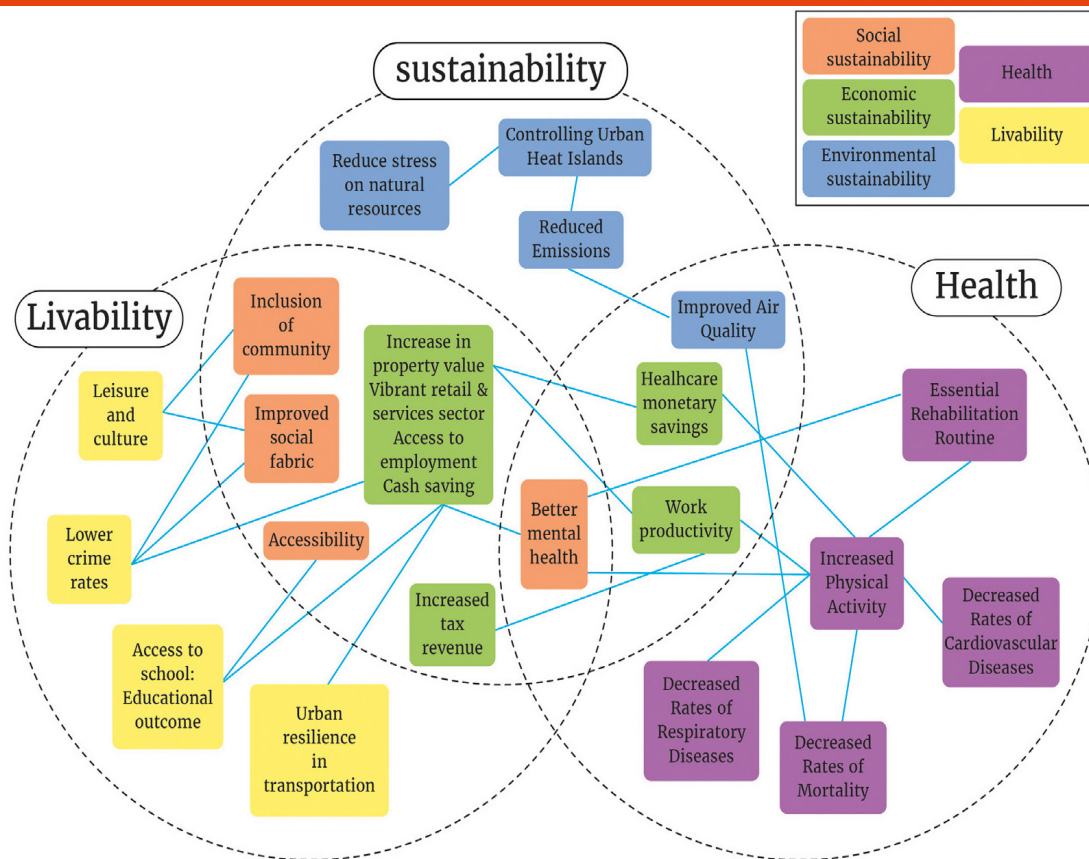


Figure 17: Walkability and pathways to health (Baobeid et al 2021)

The presence of amenities and services such as schools, shops, restaurants, offices, parks etc. that encourage and enable people to walk to go to their daily activities, population and housing density, and street connectivity are essential factors when assessing and improving neighbourhood walkability (Simons et al. 2018; Steering Group Scoping Report January 31st, Public Engagement event April 22nd 2024). When planning for more walkable neighbours, the assessment and weighting of each factor may differ according to the local context and its priorities (Baobeid et al 2021). This process which should involve residents of the area at all stages (Public Engagement event April 22nd 2024).

Some of the main obstacles to building more walkable neighbourhoods include existing car-dependent infrastructure, zoning restrictions, existing car-dependent infrastructure, perceptions by some private developers that public demand is insufficient, and a hesitancy among investors to invest in walkable neighbourhoods (Leyden et al 2024).

8.7.3 Health Impact Pathway: Impact of Walkability

The potential effect is considered **likely** because there is a **plausible** relationship between source-pathway-receptor:

Source (what the 15-Minute City is proposing): changes in walkability of neighbourhoods across the city that link community residential, commercial and amenity services.

Pathways: changes in reduced car use; reduced driver delay and traffic, increased pedestrian amenity, reduced accidents, increased safety of public and connected neighbourhoods. This all links with physical activity, active travel, and reduced social isolation by engaging in walking behaviours.

People (receptor): local road and footpath users, pedestrians, people from vulnerable groups across the city including older people, young people and people living on low-income. The potential effect is **probable** as no highly unusual conditions are required for source-pathway-receptor linkages.

The sensitivity of the general population is considered to be **low**. This reflects that routine statistics for Cork city show that the health status of most people is good/ reported as good, and their daily activities are not limited in relation to walking within walkable neighbourhoods. This estimation reflects that the general population would have a high capacity to adapt to changes in neighbourhoods towards becoming walkable/ more walkable if road works are required to enhance active travel routes in implementing the 15-minute city.

The sensitivity of vulnerable groups is considered high. It is estimated that, from a life course perspective with particular focus on older people and young people, a high proportion of pedestrians, in Cork city are young people and older people (dependents) who are reliant on safe and accessible active travel options, including walking within walkable neighbourhoods that have safe and appropriate infrastructure for the needs of such groups. People living on low income and / or living with social and economic disadvantage face greater barriers to access compared to the population as a whole and are more **sensitive** to changes in access to travel including walking within walkable neighbourhoods (for positive and for unintended health impacts). People living on low income may compound barriers to access through walkable neighbourhoods if the vision of the 15-minute city is not realised. The **magnitude of change due to the policy objective and magnitude of health change** is therefore **high**.

The scientific and grey literature, and the public engagement data, shows an association between the types of changes that will be caused by implementing the 15-min city, including road and pedestrian safety, walkability of neighbourhoods for the three population groups under focus in this assessment. People in highly walkable neighbourhoods were more likely to engage in adequate physical activity, walk near their home, and have a lower body mass index (BMI) compared to people in low-walkability neighbourhoods.

The assessment has had regard to the population groups identified for the assessment that may be particularly sensitive. Beyond the three identified and included population groups, the literature identifies women, migrant communities, ethnic minority communities, people living with limited mobility and accessibility are vulnerable to changes implemented through the 15-minute city. The whole population benefits from a physically active lifestyle through the connected liveable city that is walkable. Vulnerable groups could potentially be impacted to a greater extent than the population as a whole by the barriers to the building of more walkable neighbourhoods as they exist today (not including neighbourhoods to be developed in the future) include existing car-dependent infrastructure, zoning restrictions, existing car-dependent infrastructure, perceptions by some private developers that public demand is insufficient, and a hesitancy among investors to invest in walkable neighbourhoods.

8.8 Accessible workplaces

8.8.1 What the 15-Minute City is proposing in relation to accessible workplaces

In relation to accessible workplaces, the 15-Minute City seeks to support Compact Liveable Growth that allows access to workplaces within the city, through active travel and public transport routes and options. For the purpose of the data gathering Analysis stage of the HIA, we searched for scientific literature in relation to potential health impacts of accessible workplaces. We correlated this scientific literature with data from the public engagement event (22nd April 2024 in Cork city) with grey literature including studies carried out in Cork city relevant to the topic of access to public spaces and in relation to the population groups under study (Older people, young people and people living on low-income). Further detail on the process of conducting this stage of the Analysis stage of the HIA is provided in **Section 2** of this report. The following provides an overview of the potential health impacts of walkability and a description of the health impact pathway of accessible workplaces impacting on health.

Technical Annex section 6 (sub-section 6.6) provides detail on measures used to assess potential health impacts alongside the reasoned conclusion, based on the tools provided in the Institute of Public Health HIA guidance (page 136 to page 156).

8.8.2. Overview: Health Impacts of Accessible Workplaces on older people, young people, and people living on low-income

The literature generally supports a positive relationship between shorter commuter travel times with public transport and health outcomes. Reduced travel times encourage healthier lifestyle choices and improve physical health (Wolański, 2023). Active and sustainable commuting, such as using public transport, promotes cycling and walking (Deng et al., 2023). Individuals living within 10 km of their workplace who have access to public transportation are more likely to engage in active commuting, contributing to better health outcomes (Djurhuus et al., 2014). Active commuting meets physical activity guidelines, improving cardiovascular health, reducing lifestyle-related diseases, cancer mortality, and enhancing mood and self-esteem (Mohammad Ali et al., 2021; Stevenson et al., 2016; Brooks et al., 2021). Improved public transport accessibility fosters community engagement and reduces car usage (Tao et al., 2023). Shifting from car commuting to bicycling offers substantial health benefits, including reduced preterm deaths due to increased physical activity (Sommar et al., 2021).

Shorter travel times are also linked to mental health improvements. Free bus passes for older individuals, reducing commute times, decrease depressive symptoms and loneliness (Reinhard et al., 2018). New metro lines providing shorter travel times enhance access to services and commuter health by reducing stress and promoting public transport use (Brands et al., 2020; Wheatley & Bickerton, 2016). However, the health impact of shorter commute times varies based on urban settings, infrastructure, and the quality and reliability of public transport. In Bangkok, for instance, health impacts differ among public transport modes due to varying pollution levels (Matthews et al., 2023). The COVID-19 pandemic significantly reduced public transport usage due to safety concerns, affecting long-term health outcomes and perceptions (Przybyłowski et al., 2021; Luo et al., 2022). Overall, shorter commute times with public transport positively impact health, but outcomes are context-dependent and influenced by societal and environmental factors.

Older people

Enhanced mobility and independence through reliable public transport significantly benefit older adults by promoting physical activity, reducing social isolation, and improving access to healthcare and services (Rosso, 2011; Rambaldini-Gooding, 2021). However, these benefits can be offset by stress and respiratory health issues, noise pollution, and the potential for gentrification and displacement (Boniface, 2015; King, 2011). The built environment, including walkability and access to services, plays a crucial role in promoting physical activity and healthy aging in older adults (Bonaccorsi, 2020). Social ecological factors, such as intrapersonal, interpersonal, environmental, and organizational risk factors, also influence mobility limitation in older adults (Yeom, 2008). Therefore, a comprehensive approach to enhancing mobility in older adults should consider

the built environment, social interactions, and potential health implications of transport (Satariano, 2012).

Young people

Shorter commuter travel times greatly benefit children's health and well-being. Reduced travel times lower stress from traffic congestion, improving mental health and increasing time for social activities and family engagement (Kim & Jang, 2023). Public transport accessibility is linked to higher levels of walking and cycling among adolescents, promoting physical activity, and combating obesity (Zulkefli et al., 2020; Owen et al., 2012). Walking to and from public transport stops contributes to daily physical activity, essential for healthy growth and development (Janssen & LeBlanc, 2010). Shorter commutes encourage active commuting to school, increasing children's physical activity levels (Fadl & Kheir, 2017; Rodríguez-Rodríguez et al., 2017; Satterthwaite, 1993).

Additionally, shorter travel times improve healthcare access for children, facilitating easier access to health services (Bemanian & Mosser, 2023). More time from shorter commutes enhances academic performance and social engagement by allowing participation in after-school programs and leisure activities (Zulkefli et al., 2020). Active commuting supports maintaining a healthy weight and preventing obesity (Owen et al., 2012). Shorter commutes also enhance independence and social interactions, fostering autonomy and providing social opportunities vital for confidence and social skills development (Fadl & Kheir, 2017). Reliability in short commutes reduces anxiety and stress, improving mental health outcomes. Moreover, shorter commutes reduce children's exposure to travel hazards like traffic accidents and air pollution, providing safer travel experiences (Voulgaris et al., 2017). Integrating physical activity into daily commutes promotes healthier lifestyle choices, supporting overall physical and mental development (Bemanian & Mosser, 2023). Exposure to public transport from a young age fosters environmentally conscious behaviours and a preference for sustainable transportation (McDonald, 2008).

People living on low-income

Accessible workplaces with short public transport travel times positively impact social interaction and reduce car reliance among low-income populations (Tao et al., 2023). Poor job accessibility increases joblessness duration, particularly for minorities, females, and the elderly, highlighting the importance of public transport in employment and social inclusion (Barkley & Gomes-Pereira, 2015). Shorter commutes reduce psychological stress and increase time for social activities, enhancing mental and physical health. They also improve healthcare access by addressing travel barriers that disproportionately affect lower-income households (Bemanian & Mosser, 2023) and mitigate social exclusion, narrowing health inequities (Yuan et al., 2022). Increased sustainable transport use from shorter commutes improves air quality and reduces exposure to pollutants,

benefiting health (Mahmudah et al., 2016). Short commutes promote walking to and from transit stations, reducing sedentary behaviour and improving cardiovascular health for lower-income groups who lack access to recreational activities (Lavery et al., 2020). Public transport use can improve mental health and well-being by reducing social isolation (Tao et al., 2023) and stress from driving in congested traffic (Næss, 2006). It also decreases exposure to traffic-related air pollutants, which lower-income groups face more due to urban housing patterns (Lavery et al., 2020). Accessible public transport and shorter commutes offer three key benefits for low-income groups: health improvements via reduced stress and more social activity time, better healthcare access (Bemanian & Mosser, 2023), and environmental benefits via better air quality and reduced pollutant exposure (Mahmudah et al., 2016).

Hybrid working has diverse impacts on different demographic groups. Young people benefit from flexibility but need social engagement (Monje-Amor, Ariadna, 2023). Older employees gain from reduced physical strain but require digital support (Griffiths et al., 2022; Roy, 2022). Low-income individuals face significant challenges in digital access and home office ergonomics (Marston et al., 2021; Williams and Shaw, 2024). Addressing these specific needs through targeted interventions can help maximise the benefits of hybrid working for all demographics.

8.8.3 Health Impact Pathway: Impact of Accessible Workplaces

The potential effect is considered **likely** because there is a **plausible** relationship between source-pathway-receptor:

Source (what the 15-Minute City is proposing): changes in active travel routes and increased number of bus routes (through Bus Connects) in order for people to access workplaces that link community residential and workplaces within the city.

Pathways: changes in reduced car use; reduced driver delay and traffic, pedestrian amenity, reduced accidents. This all links with physical activity, active travel, public transport use and reduced social isolation by engaging with public travel space.

People (receptor): local road and footpath users, cyclists, pedestrians, public transport users, bus drivers, emergency services, people from vulnerable groups across the city including older people, young people and people living on low-income.

The potential effect is **probable** as no highly unusual conditions are required for source-pathway-receptor linkages.

The **sensitivity of the general population** is considered to be **low**. This reflects that routine statistics for Cork city show that the health status of most people is good/ reported as good, and their daily activities are not limited in accessing workplaces. This estimation reflects that the general population would have a high capacity

to adapt to changes in traffic/ public transport/ active travel conditions when accessing workplaces if, for example, road works are required to enhance active travel and public transport routes in implementing the 15-minute city.

The **sensitivity of vulnerable groups is considered high**. It is estimated that, from a life course perspective with particular focus on older people and young people, a high proportion of pedestrians, cyclists, public transport users, and road users with cars in Cork city are young people and older people (people who are in active paid employment) who are reliant on safe and accessible transport and travel options in accessing workplaces. People living on low income and / or living with social and economic disadvantage face greater barriers to access compared to the population as a whole and are more **sensitive** to changes in access to travel and transport changes when accessing workplaces (for positive and for unintended health impacts). People living on low income may compound barriers to access through travel and transport options when accessing workplaces if the vision of the 15-minute city is not realised. Access to active travel routes and public transport options was an identified issue of concern as established through the public engagement event. The **magnitude of change due to the policy objective and magnitude of health change** is therefore **high**.

The scientific and grey literature, and the public engagement data, shows an association between the types of changes that will be caused by implementing the 15-min city, including road and pedestrian safety, travel times, accessibility, active travel and public transport use for the three population groups under focus in this assessment. The assessment has had regard to the population groups identified for the assessment that may be particularly sensitive. Beyond the three identified and included population groups, the literature identifies women, migrant communities, people living with limited mobility and accessibility are vulnerable to changes implemented through the 15-minute city when accessing workplaces. The whole population benefits from a physically active lifestyle through the connected liveable city including using public transport that is accessible, appropriate, affordable, and available, and active travel routes. People living with socio-economic disadvantage, people living on low-income and older people typically face greater barriers in accessing workplaces due to poorer public transport options.

8.9 Summary – Likely Significant Health impacts

We foresee that the potential health impacts of implementing the 15-Minute City in Cork is likely to have an impact on the general population of the city, as well on older people, young people and people living on low-income. Also, we foresee likely health impacts on other population groups living in the city, who, although were not the specific population group focus of the HIA analysis, arose as pertinent groups throughout the scoping and analysis stages of the HIA, including migrant communities, women, LGBTQ groups, people living with disabilities, and people living with limited mobility and accessibility.

We deem the health impacts as being potentially significant or important, having both potentially positive and unintended/ negative effects.

In relation to potentially significant positive health impacts, we conclude that a connected, walkable, accessible city for the general population and specific population groups would have a highly desirable impact on population health. It is conceivable that the actions included in 15-Minute City sub-objective can promote population health and foster a thriving and healthy city for Cork city residents, in relation to housing, neighbourhood design, access to public spaces, modes of travel, walkability, accessible workplaces. The recommendations that we have created, based on this assessment, should address potential negative/ unintended health impacts of the implementation of the 15-minute city objective of the CCDP (2022-2028).

The following section recommendations that could ensure the continued promotion of health that is clearly inherent in the implementation of the 15-Minute City and also address likely significant adverse health effects on population health.

9. Recommendations

Every HIA report concludes with specific recommendations for the policy under assessment in order to support decision-making for policy development. The following are the recommendations that we have developed, discussed and approved, based on the evidence gathered in this HIA.

Recommendation	Indicators or measures of progress on implementing the recommendation	Organisation responsible for the recommendation
Section 1 – Informing the process of creating future Cork City Development Plans in Cork City Council		
Recommendation 1 Determinant- Housing There is a strong evidence base that poor housing conditions impact on health and are pervasive in the existing private rental sector. This contributes significantly to health inequalities. Whilst addressing housing conditions in the existing private rented sector is outside the direct remit of CCDP, it is within the functions of Cork City Council to enforce minimum standards that protect health. Standards of housing and tenures are contributing to significant health inequalities in Cork City. The evidence shows that housing tenure is a significant factor in creating or exacerbating health inequalities, along with poor standards of repair and design. To avoid increasing health inequalities in areas of new private housing development: a) It is recommended that future Development Plans are informed by an evidence base of housing conditions across Cork City and, based on this evidence, a plan is implemented by the wider Cork City Council that targets resources to upgrade local authority housing in areas of new private housing development and to prioritise enforcement action to ensure minimum standards in the private rented sector. b) It is recommended that consideration is given to targeted enforcement of minimum standards in private rented housing that integrates with the objectives of CCDP to address health inequalities and social inclusion.	Indicator for Recommendation 1: Baseline study of existing local authority housing conditions as a starting point to monitor progress.	CCC
Recommendation 2 Determinant- Housing Advocate through national public consultation processes for the Irish Government to prioritise the upgrading of existing stock managed and owned by local authorities in Ireland and that consideration is given to targeted enforcement of minimum standards in private rented housing that integrates with the objectives of CCDP to address health inequalities and social inclusion.	Indicator for Recommendation 2: Have members of the HIA steering group advocated at the national level that Government prioritises the upgrading of existing stock managed and owned by local authorities in Ireland and that consideration is given to targeted enforcement of minimum standards in private rented housing?	CCC, HSE, UCC, Transport & Mobility Forum, Sexual health Centre, Mayfield Development project, Environmental Protection Agency

Recommendation	Indicators or measures of progress on implementing the recommendation	Organisation responsible for the recommendation
Recommendation 3 Determinant: Neighbourhood design It is recommended that future Development Plans are informed by a comprehensive Socio –Economic and Health Profile that integrates population health status and socio-economic indicators and also incorporates evidence from city health profiles. It is recommended that this includes data on access to essential services, green spaces and housing tenure and is detailed to a geographical Local Authority Ward level to identify where there are significant health inequalities in Cork City. When we reference Green Space in these recommendations, it should be understood to mean open space which is 1. Publicly accessible. 2. Contain significant vegetation. 3. Actively meets one or more of the following criteria: ● A social space where the community can relax, play, or socialise. ● An active space where the community can exercise, play, or train, such as playgrounds, playing fields, walking/ running/cycling paths, et cetera. ● A natural space with conservation value where the community can experience nature. Green Space, should not be understood to mean: 1. Large areas of grass without a clear role, which are not well used. 2. Narrow strips of grass (TMF 2024)	Indicator for Recommendation 3: Expansion of existing socio-economic profile that includes data on access to essential services, green spaces and housing tenure.	CCC
Recommendation 4 Determinant: Access to Public Spaces There is a strong evidence base of the population health benefits of the provision of green space, both incorporated into new development and existing green spaces provided for general population use. The benefit of public green space can be limited by poor accessibility, security and management issues and these limiting factors can contribute to health inequalities. It is recommended that future Development Plans are informed by a green space strategy for Cork City that includes protection of existing green space in development zoning and addresses issues around security, access and management of existing green spaces and identifies opportunities for new green spaces. Future Development Plans should prioritise community green spaces and community gardens in new development.	Indicator for Recommendation 4: Number of community green spaces and community gardens allocated during CCDP (2029-2039). Baseline study which assesses security, access and management of existing green spaces and identifies opportunities for new green spaces.	CCC

Recommendation	Indicators or measures of progress on implementing the recommendation	Organisation responsible for the recommendation
Recommendation 5 Determinant: Walkability & Modes of Travel Future Cork City Development Plans should consider how to improve walkability for all ages and mobilities in existing neighbourhoods. A clearly defined criteria for assessing the implementation of A-G as outlined in Objective 2.14 of CCDP (2022-2028) for incoming planning applications is also recommended.	Indicator for Recommendation 5: Does CCDP (2029-2039) include criteria for assessing the implementation of walkability in existing neighbourhoods, similar to what is detailed in Objective 2.14 of CCDP (2022-2028)?	CCC
Recommendation 6 Determinant: Employment Continue to ensure the presence of the inclusion of green infrastructure within office complexes in the CCDP in new employment zones during the implementation of the CCDP 2029-2039, based on the preparation of Green/ Blue Infrastructure Strategy for City supported by Green/ Blue mapping.	Indicator for Recommendation 6: Have the presence of green corridors and pocket parks been ensured in new employment zones?	CCC
Recommendation 7 Determinant: Employment Cork City Council will encourage the development of mixed-use “ <i>Healthy Work Zones</i> ” across key areas such as the City Centre, Docklands, Mahon, Blackpool/Kilbarry, Tivoli, and other strategic employment areas. These zones should incorporate health-promoting design elements including wider footpaths, dedicated cycle lanes, pocket parks, and blue health features.	Indicator for Recommendation 7: Identify to what extent do Healthy Work Zones exist. Identify if the Healthy Work Zones have a density of use.	CCC
Section 2 – Community and Stakeholder Engagement in Formulating and Drafting Future Cork City Development Plans		
Recommendation 8 Determinants: Relevant across all determinants Engage directly with communities who live in areas where strategic developments are planned, in particular for areas classified as very or extremely deprived, in order to include the lived experience of people who will be directly affected by upcoming developments.	Indicator for Recommendation 8: Are communities engaged prior to new development design begins/ during design stage of new development? Are communities (e.g. geographical, social group) engaged in a way that is a model of engagement appropriate to the community, with different models of engagement required for different communities?	CCC

Recommendation	Indicators or measures of progress on implementing the recommendation	Organisation responsible for the recommendation
Section 3 – HIA and Future Cork City Development Plans		
Recommendation 9 Determinants: Relevant across all determinants The HIA carried out on the Core Strategy of the current Cork City Development Plan (2022-2028) has demonstrated the significant impact that the Development Plan has on the population of Cork City and the potential that future Development Plans can have on addressing health inequalities in the city and supporting the creation of health enhancing development. To inform future Development Plans in the area of addressing health inequalities and maximising opportunities for health gain. It is recommended that Health Impact Assessment (HIA), consisting of core five stages (screening, scoping, anal, report, monitoring & evaluation), is carried out as part of formulating Development Plans. Consideration should be made as to whether a stand-alone HIA should be done or if HIA should be incorporated into the Strategic Environmental Assessment that is required for a Development Plan prior to it being adopted.	Indicator for Recommendation 9: Have HIAs been carried out on future CCDPs?	CCC
Section 4 – Research and Evidence base Development		
Recommendation 10 Determinants: Relevant across all determinants Develop an evidence base and repository on the health impacts, based on the wider social determinants of health and health inequalities, of urban spatial planning on population health, that is relevant and useable for both the Cork city and wider Irish context.	Indicator for Recommendation 10: Has this evidence base and repository been developed? Is this evidence base useful to stakeholders developing policy?	UCC
Recommendation 11 Determinants: Relevant across all determinants Undertake further research to identify barriers to delivering the 15-Minute City in Cork. Identify the potential health impacts of these barriers on health inequalities, and on the health impact of strategic city development planning in local authorities in Ireland.	Indicator for Recommendation 11: Has this research been undertaken? If yes, what are the main findings?	UCC

10. Opportunities and Limitations of the HIA

Going through the HIA process, in the way that we did, has highlighted to us a number of opportunities and limitations, as are outlined in the following:

Opportunities to doing the HIA:

- Doing the HIA has been an opportunity to examine potential health impacts of the city development plan in an intersectoral HIA team structure.
- Engagement and commitment of all partners in the process was a significant enabler to the trajectory and completion of the HIA.
- Intersectoral working and different perspectives that informed the process was a positive aspect of the HIA.
- There was increased clarity and learning on the HIA process for the team as we went through the HIA steps, which are outlined in the IPH HIA guidance, resulting in a 'learning by doing' experience.

Limitations to doing the HIA:

- Conducting a HIA as part of a research project has meant that we have been limited with an inflexible research timeline and constrained in not being in a position to carry out further data collection with relevant communities, given the tight timeline we were working to in HIA-IM.
- The HIA process which included meeting, writing, reviewing and commenting on drafts, took more time than originally planned. Although this dialogue and deliberation has informed the HIA report and process in a positive and holistic way, it also put immense pressure on the HIA team to deliver on the HIA stages and to keep the process moving.
- By the end of the HIA, we identified that the remit of the scope was too restrictive, for example in excluding access to health care, educational, including early childhood/ pre-school education, and social services in Cork city. Whilst recognising the process of the HIA is underpinned by proportionality, we view this exclusion as a missed opportunity in the HIA in assessing this determinant of health and the impact of access on population groups in the city.
- Engaging with relevant population groups such as older people, young people, people living on low-income and/ or living in parts of the city that experience social and economic disadvantage; migrant communities, LGBTQ groups, women, men, people living with disabilities, and people living with limited mobility and accessibility, and gathering data/ input from specific

groups was not done as part of this HIA given the time constraints. This is a limitation of the assessment in terms of incorporating specific lived experience on potential health impacts.

- This HIA was the first one carried out by each person on the HIA team. This limitation in terms of HIA capacity and experience in the team made the process more challenging as went through the HIA steps together.
- Concerns were raised by the HIA Steering Group about some of the jargonistic language in the IPH HIA guidance that we used, concerns about the use of words such as 'vulnerability' in the IPH HIA guidance to describe certain population groups, and the overall complexity of both the HIA process and the report.

11. Conclusion

Armed with the knowledge that more equal societies enjoy better health and wellbeing (Marmot et al. 2020), our recommendations in this report have sought to address the wider determinants of health and particularly the lived experience of health inequalities.

The purpose of this Health Impact Assessment (HIA) on the Core Strategy of the Cork City Development Plan (2022-2028) has been to identify potential likely and significant health impacts on population health, and to identify opportunities to strengthen health gain and to reduce potential adverse health impacts across population groups.

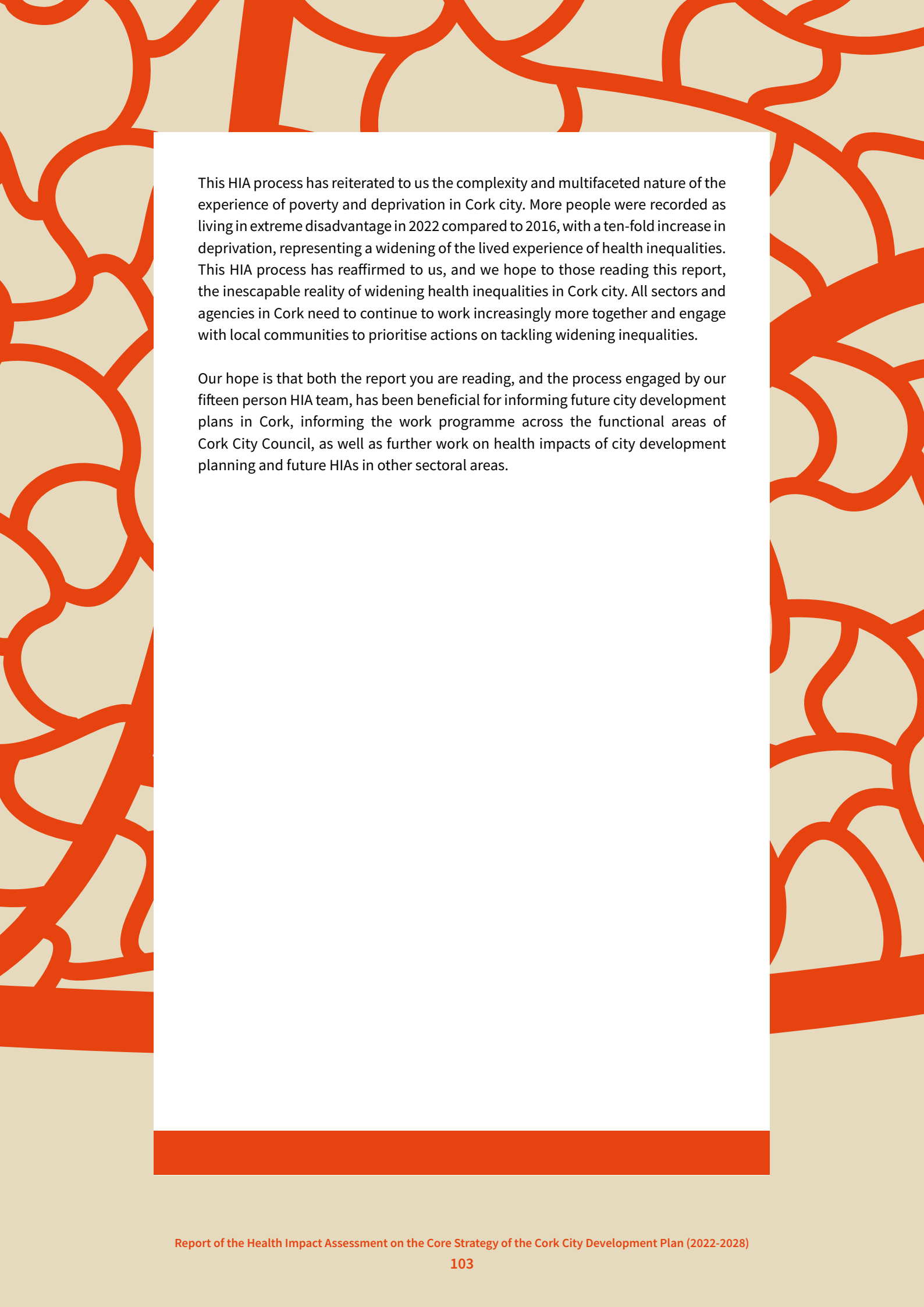
In order to fulfil this purpose in a proportional and realistic manner, we examined the determinant of health **Safe and Cohesive Communities** through six sub-determinants of health including housing, neighbourhood design, access to public space, modes of travel, walkability and accessible workplaces. These determinants are all significant components of the chosen policy objective (2.10) **The 15-Minute City** from the Core Strategy, of the CCDP (2022-2028). We examined the potential health impacts of the 15-Minute city, which is a key programme being implemented as part of Strategic Objective 1 (Compact Liveable Growth), which underpins the CCDP (2022-2028), on three population groups, namely older people, young people and people living on low-income. The recommendations that we have devised are envisioned to address significant concerns identified for these three population groups, who, based on our evidence base, are sensitive to changes in urban planning. Our eleven recommendations, when implemented, would both address potential positive and negative/ unintended health impacts of the 15-Minute City objective on these three groups, as well as across all population groups with varying experiences of inequality. We believe that implementing the recommendations will contribute to Cork city being experienced as a more liveable city for all communities, particularly for people who live with social and economic disadvantage, or experience social marginalisation in their day-to-day lives, including and beyond the three groups at the centre of our analysis.

This HIA is the first one carried out on a city development plan on the island of Ireland using the Institute of Public Health Ireland HIA guidance (Pyper et al. 2021). While the process has highlighted the impact that urban planning has on health and wellbeing, we acknowledge that the Strategic Planning and Heritage unit in Cork City Council alone cannot address all of the likely health impacts identified. This finding is mirrored in the eleven recommendations of this report, eight of which are for Cork City Council as opposed to being for the Strategic Planning and Heritage unit in the council. However, ensuring that future Development Plans' processes are informed by comprehensive Socio-Economic and Health Profiles (Recommendation 3) would assist in ensuring that health inequalities are explicitly considered in the process.

As a HIA team, we strongly advocate that seeking to improve the housing conditions in Cork city is crucial, as the HIA evidence base has revealed the unintended impact of housing on health, in terms of poor housing contributing to poor health outcomes, and the vulnerability of tenants in private rented accommodation.

Our learning around the specific remit of strategic planning through the city development plan policy strengthens the argument further that we need to continue to work together to improve population health and tackle health inequalities because no single plan, policy, sector, organisation, group of people or person can do it alone. The HIA has shown there are limitations in the ways which a city development plan can influence population health in terms of health impact. The city development plan cannot alone eradicate inequality; however, it has an important role to play in addressing symptoms and causes of inequality across the determinants of health. Interagency partnership and integration of work is required to harness the capacities, expertise and capabilities of agencies and organisations across Cork city.

Until now Strategic Employment Zones have been prioritised in city planning in Cork, as well as other cities in Ireland. They are prioritised to be located in areas or adjacent to areas that are classified as disadvantaged. We conclude that this alone can be an inadequate response to poverty, with inequality being amplified intergenerationally within the city. What continues to be required is a holistic approach to city planning in the broadest sense, not only strategic city planning, but embedded across all sectors in the city working to improve population health, and tackle health inequalities.



This HIA process has reiterated to us the complexity and multifaceted nature of the experience of poverty and deprivation in Cork city. More people were recorded as living in extreme disadvantage in 2022 compared to 2016, with a ten-fold increase in deprivation, representing a widening of the lived experience of health inequalities. This HIA process has reaffirmed to us, and we hope to those reading this report, the inescapable reality of widening health inequalities in Cork city. All sectors and agencies in Cork need to continue to work increasingly more together and engage with local communities to prioritise actions on tackling widening inequalities.

Our hope is that both the report you are reading, and the process engaged by our fifteen person HIA team, has been beneficial for informing future city development plans in Cork, informing the work programme across the functional areas of Cork City Council, as well as further work on health impacts of city development planning and future HIAs in other sectoral areas.

REFERENCES

- Age Friendly Ireland (2023) National Age Friendly Ireland Programme. Accessed on 9.12.2024. <https://agefriendlyireland.ie/about-us/%20or%20this%20https://extranet.who.int/agefriendlyworld/network/age-friendly-ireland/>
- Akbar, Poeti Nazura Gulfira, and Jurian Edelenbos. (2021) 'Positioning place-making as a social process: A systematic literature review', *Cogent Social Sciences*, 7: 1905920.
- Alidoust, S. Bosman, C. Holden, G., (2019) 'Planning for healthy ageing: how the use of third places contributes to the social health of older populations', *Ageing and Societ*, 39: 1459-84.
- Allam Z, Nieuwenhuijsen M, Chabaud D, Moreno C. (2022) The 15-minute city offers a new framework for sustainability, liveability, and health. *Lancet Planet Health*. 6(3):e181-e183.
- Arakawa Martins, Beatriz, H. Barrie, J. Dollard, N. Mahajan, and R. Visvanathan. (2018) 'Older Adults' Perceptions of the Built Environment and Associations with Frailty: A Feasibility and Acceptability Study', *The Journal of frailty & aging*, 7: 268-71.
- Bambra, C., K. Smith, and J. Pearce. (2019) 'Scaling up: The politics of health and place', *Social Science & Medicine*, 232: 36-42
- Baobeid, Abdulla, Muammer Koç, and Sami G. Al-Ghamdi. (2021) 'Walkability and Its Relationships With Health, Sustainability, and Livability: Elements of Physical Environment and Evaluation Frameworks', *Frontiers in Built Environment*, 7.
- Barton, H., S. Thompson, M. Grant, and S. Burgess. (2015) *The Routledge handbook of planning for health and well-being: Shaping a sustainable and healthy future* (Routledge: New York).
- Bemanian, Amin, and Jonathan F Mosser. (2023) 'Exploring the Relationship Between Household Income and Healthcare Travel Patterns', *medRxiv*: 2023.09.05.23295091.
- Bernard Van Leer Foundation and ITDP. (2022) *15-Minute Neighbourhoods: Meeting the Needs of Babies, Toddlers, and Caregivers*
- Bever, Emily, Kimberly T. Arnold, Ruth Lindberg, Andrew L. Dannenberg, Rebecca Morley, Jill Breyse, and Keshia M. Pollack Porter. (2021) 'Use of health impact assessments in the housing sector to promote health in the United States, 2002-2016', *Journal of Housing and the Built Environment*, 36: 1277-97.
- Bird, E. L., J. O. Ige, P. Pilkington, A. Pinto, C. Petrokofsky, and J. Burgess-Allen. (2018) 'Built and natural environment planning principles for promoting health: an umbrella review', *BMC Public Health*, 18.
- Bonaccorsi, G., Manzi, F., Del Riccio, M., Setola, N., Naldi, E., Milani, C., Giorgetti, D., Dellisanti, C., & Lorini, C. (2020). Impact of the Built Environment and the Neighborhood in Promoting the Physical Activity and the Healthy Aging in Older People: An Umbrella Review. *International Journal of Environmental Research and Public Health*, 17(17), 6127.

- Boniface, S., Scantlebury, R., Watkins, S. J., & Mindell, J. S. (2015). Health implications of transport: Evidence of effects of transport on social interactions. *Journal of Transport & Health*, 2(3), 441–446.
- Bower, Marlee, Jennifer Kent, Roger Patulny, Olivia Green, Laura McGrath, Lily Teesson, Tara Jamalishahni, Hannah Sandison, and Emily Rugel. (2023) 'The impact of the built environment on loneliness: A systematic review and narrative synthesis', *Health & Place*, 79: 102962.
- Bowers, S. (2023) 'Ireland's housing crisis facts and figures: All you need to know', *Irish Times*, 23 March. Available at: <https://www.irishtimes.com/ireland/housing-planning/2023/03/23/irelands-housing-crisis-facts-and-figures-all-you-need-to-know/> (Accessed: 06 April 2024).
- Brands, T., Dixit, M., & Oort, N. van. (2020). Impact of a New Metro Line in Amsterdam on Ridership, Travel Times, Reliability and Societal Costs and Benefits. *European Journal of Transport and Infrastructure Research*, 20(4), Article 4.
- Brooks, J. H. M., Tingay, R., & Varney, J. (2021). Social distancing and COVID-19: An unprecedented active transport public health opportunity. *British Journal of Sports Medicine*, 55(8), 411–412.
- Buck, Christoph, Gabriele Eiben, Fabio Lauria, Kenn Konstabel, Angie Page, Wolfgang Ahrens, and Iris Pigeot. (2019) 'Urban Moveability and physical activity in children: longitudinal results from the IDEFICS and I.Family cohort', *International Journal of Behavioral Nutrition and Physical Activity*, 16: 1-13.
- CCC (2015) *Cork City Development Plan, 2015-2021* Cork: Cork City Council. Accessible here: <https://www.corkcity.ie/en/existing-cork-city-development-plan-2015-2021/>
- ____ (2019) *Cork Noise Action Plan, 2018-2023*. Cork: Cork City Council.
- ____ (2020) *Cork City Socio-Economic Summary Profile*. Cork: Cork City Council.
- ____ (2022) *Cork City Development Plan (2022-2028)*. Cork: Cork City Council. Accessible here: <https://www.corkcity.ie/en/cork-city-development-plan/volume-1-written-statement/>
- Casarin, G., MacLeavy, J., & Manley, D. (2023) Rethinking urban utopianism: The fallacy of social mix in the 15-minute city. *Urban Studies*, 60(16), 3167-3186.
- Cave, B. (2024) "Mellow Village: A Health Impact Assessment (HIA) Case Study: Practical guidance on how to undertake a HIA. A report prepared by BCA Insight for the Institute of Public Health." Dublin & Belfast: Institute of Public Health, Ireland.
- Chadderton, C., E. Elliott, and G. Williams. (2008) "Involving the Public in HIA: An evaluation of current practice in Wales." In. Cardiff, Wales: Cardiff University, Wales Centre for Health & Welsh Health Impact Assessment Support Unit (WHIASU).
- Chilaka, M. A. (2015). 'Drawing from the well of community participation: an evaluation of the utility of local knowledge in the health impact assessment process', *Community development (Columbus, Ohio)*, 46: 100-10.
- Cleland, Claire, Rodrigo Siqueira Reis, Adriano Akira Ferreira Hino, Ruth Hunter, Rogério César Fermino, Hermes Koller de Paiva, Bruno Czestschuk, and Geraint Ellis. (2019) 'Built environment correlates of physical activity and sedentary behaviour in older adults: A comparative review between high and low-middle income countries', *Health & Place*, 57: 277.

- Cole, H. V. S., Anguelovski, I., Baró, F., García-Lamarca, M., Kotsila, P., Pérez del Pulgar, C., Triguero-Mas, M. (2021). The COVID-19 pandemic: power and privilege, gentrification, and urban environmental justice in the global north. *Cities & Health*, 5(1), S71–S75.
- Cork Healthy Cities. (2021) "Cork Healthy Cities Action Plan, Phase VII. 2020-2030." Cork: Cork Healthy Cities.
- CSO (2022) Census of Population in 2022. <https://www.cso.ie/en/releasesandpublications/ep/p-cpsr/censusofpopulation2022-summaryresults/>
- CSO. (2023) Survey on Income and Living Conditions (SILC) Available at: <https://www.cso.ie/en/releasesandpublications/ep/psilc/@surveyonincomeandlivingconditionssilc2023/> (Accessed 03 April 2024)
- CSO (2024) 'Reported Crime Statistics for Q 1 2024', Central Statistics Office, Accessed 5.9.2024. <https://www.cso.ie/en/releasesandpublications/ep/p-rc/recordedcrimeq12024/keyfindings/>
- Curtin, M. , S. Martin, C. O'Toole, B. Donald, E. Looney, and Buckley L. (2023) "Child-Focused Community Profile." Cork: Let's Grow Together.
- Curtin, Margaret, Jamie Madden, Anthony Staines, and Ivan J. Perry. (2013) 'Determinants of vulnerability in early childhood development in Ireland: a cross-sectional study', *BMJ Open*, 3: e002387.
- den Broeder, Lea, Ellen Uiters, Wim ten Have, Annemarie Wagemakers, and Albertine Jantine Schuit. (2017) 'Community participation in Health Impact Assessment. A scoping review of the literature', *Environmental Impact Assessment Review*, 66: 33-42.
- Deng, Y., Lahnsteiner, D., & Prinz, T. (2023). Promoting Active and Sustainable Commuting: A Tool for Analysing Location-specific Conditions and Potentials for Walking, Cycling and Public Transport. *GI_Forum 2023*, Volume 11, 101–109.
- DHPLG. (2018) "Project Ireland 2040: National Planning Framework." In. Dublin: Department of Housing, Planning and Local Government.
- Dieleman, F. & Wegener, M. (2004) "Compact City and Urban Sprawl", *Built environment* (London. 1978), vol. 30, no. 4, pp. 308-323.
- DiGiuseppi, C., Roberts, I., Li, L., & Allen, D. (1998). Determinants of car travel on daily journeys to school: Cross sectional survey of primary school children. *BMJ*, 316(7142), 1426–1428.
- Di Marino, M., Tomaz, E., Henriques, C., & Chavoshi, S. H. (2023). The 15-minute city concept and new working spaces: A planning perspective from Oslo and Lisbon. *European Planning Studies*, 31(3), 598–620.
- Djurhuus, S., Hansen, H. S., Aadahl, M., & Glümer, C. (2014). Individual Public Transportation Accessibility is Positively Associated with Self-Reported Active Commuting. *Frontiers in Public Health*, 2.
- DoCEDiY (2023) State of the Nation's Children Report. Dublin: Department of Children, Equality, Diversity, Integration and Youth.
- DoECC (2024) Climate Action Plan 2025. Dublin: Department of Environment, Climate and Communications
- Department of Health (2013) "Healthy Ireland, A Framework for Improved Health and Wellbeing, 2013 – 2025." Dublin: Department of Health, Ireland.
- Department of Health (2019) "Healthy Ireland- Summary Report." Dublin: Government Publications.
- Department of Health (2023) "Healthy Ireland Survey Report 2023- Summary Report." Dublin: Department of Health, Government publications.

- Department of Health (2024) Health in Ireland Key Trends 2023. Government of Ireland, Department of Health: Dublin.
- Department of Housing, Local Government and Heritage (2021) Housing for All- A New Housing Plan for Ireland. Dublin: DoHLGH
- Department of Social Protection (2023) Roadmap for Social Inclusion Mid-term Review 2020-2025. Department of Social Protection: Dublin. Available at: <https://www.gov.ie/pdf/?file=https://assets.gov.ie/259391/5bcb78ff-a5fd-45db-9e6a-f187980f603c.pdf#page=null> (Accessed 03 April 2024)
- Department of Taoiseach (2020) Programme for Government: A Shared Future. Dublin: Government of Ireland, Department of Taoiseach
- Donoghue, O. , M. O'Connell, and R.A. Kenny. (2016) "WALKING TO WELLBEING: Physical Activity, Social Participation and Psychological Health in Irish adults aged 50 years and Older." In. Dublin: Trinity College Dublin.
- EAPN. (2024) "Briefing on 2023 Income and Poverty Data." In. Dublin: European Anti-Poverty Network Ireland.
- European Environment Agency (2021) Country fact sheet, Ireland. Accessed: 1.5.2024. <https://www.eea.europa.eu/themes/air/country-fact-sheets/2021-country-fact-sheets/ireland>
- Fadl, S., & Kheir, O. (2017). The Effect of Demographic and Lifestyle Factors on Mode of Travel in School-Aged Children in The UK: A cross-Sectional Study From Understanding Society. The Open Public Health Journal, 10(1), 177–186.
- Fang, M. L., Woolrych R., J. Sixsmith, S. Canham, L. Battersby, and A. Sixsmith. (2016) 'Place-making with older persons: Establishing sense-of-place through participatory community mapping workshops', Social Science & Medicine, 168: 223-29.
- Finegan, Megan, Nick Firth, and Jaime Delgadillo. (2020) 'Adverse impact of neighbourhood socioeconomic deprivation on psychological treatment outcomes: the role of area-level income and crime', Psychotherapy Research, 30: 546-54.
- Finlay, Jessica M., Joseph E. Gaugler, and Robert L. Kane. (2020) 'Ageing in the margins: expectations of and struggles for 'a good place to grow old' among low-income older Minnesotans', Ageing and Society, 40: 759-83.
- Fischer, Thomas B., Tara Muthoor, Michael Chang, and Carolyn Sharpe. (2021) 'Health impact assessment in spatial planning in England – types of application and quality of documentation', Environmental Impact Assessment Review, 90: 106631.
- Fishman, R. (2016) "Urban Utopias in the Twentieth Century" in Readings in Planning Theory, eds. S.S. Fainstein & J. DeFilippis, John Wiley & Sons, Ltd, Chichester, UK, pp. 23-50.
- Gascon, Mireia, Margarita Triguero-Mas, David Martínez, Payam Dadvand, David Rojas-Rueda, Antoni Plasència, and Mark J. Nieuwenhuijsen. (2016) 'Residential green spaces and mortality: A systematic review', Environment International, 86: 60-67.
- Gaston, S. (2024) "Socio-Economic & Environmental Profile of Knocknaheeny and the City Northwest Quarter (CNWQ) Regeneration Area 2024 Report 'Follow up' Analysis based on 2022 Census Data." edited by S. O'Sullivan and C. O'Connell. Cork: UCC.
- Geddes, I., J. Allen, and M. Allen. (2012) "The Marmot Review: implications for Spatial Planning." In.: Institute of Health Equity/NICE Spatial Planning.

- Gibson, Marcia, Mark Petticrew, Clare Bambra, Amanda J. Sowden, Kath E. Wright, and Margaret Whitehead. (2011) 'Housing and health inequalities: A synthesis of systematic reviews of interventions aimed at different pathways linking housing and health', *Health & Place*, 17: 175-84.
- Giles-Corti, Billie, Anne Vernez Moudon, Melanie Lowe, Deepti Adlakha, Ester Cerin, Geoff Boeing, Carl Higgs, Jonathan Arundel, Shiqin Liu, Erica Hinckson, Deborah Salvo, Marc A. Adams, Hannah Badland, Alex A. Florindo, Klaus Gebel, Ruth F. Hunter, Josef Mitáš, Adewale L. Oyeyemi, Anna Puig-Ribera, Ana Queral, Maria Paula Santos, Jasper Schipperijn, Mark Stevenson, Delfien Van Dyck, Guillem Vich, and James F. Sallis. (2022) 'Creating healthy and sustainable cities: what gets measured, gets done', *The Lancet Global Health*, 10: e782-e85.
- Glaeser, E. L., Kahn, M. E., & Rappaport, J. (2008). Why do the poor live in cities? The role of public transportation. *Journal of Urban Economics*, 63(1), 1–24.
- Gomes, Nayra, Ednei Maia, and István Varga. (2018) 'The benefits of play for children's health: a systematic review', *Arquivos de Ciências da Saúde*, 25: 47-51.
- Gomez, Luis F., Rodrigo Sarmiento, Maria Fernanda Ordoñez, Carlos Felipe Pardo, Thiago Hérick de Sá, Christina H. Mallarino, J. Jaime Miranda, Janeth Mosquera, Diana C. Parra, Rodrigo Reis, and D. Alex Quistberg. (2015) 'Urban environment interventions linked to the promotion of physical activity: A mixed methods study applied to the urban context of Latin America', *Social Science & Medicine*, 131: 18-30.
- Griffiths, Melda Lois, Benjamin J. Gray, Richard G. Kyle, Jiao Song, and Alisha R. Davies (2022). "Exploring the Health Impacts and Inequalities of the New Way of Working: Findings From a Cross-Sectional Study." *Journal of Occupational and Environmental Medicine* 64, 10: 815.
- Government of Ireland (2020a) Project Ireland 2024. Dublin. Government of Ireland. Accessed here: <https://www.gov.ie/ga/eolas-polasai/3076e4-project-ireland-2040/>
- Government of Ireland (2020b) Roadmap for Social Inclusion, 2020-2025, Dublin: Department of Social Protection
- Government of Ireland (2022) Development Plan Guidelines for Planning Authorities (2022) Dublin: Office of the Planning Regulator
- Guthrie, A., & Fan, Y. (2016). Weakening Obstacles to Transit Use: Changes in Relationships with Child Rearing and Automobile Access from 2000 to 2010. *Transportation Research Record*, 2565(1), 103–110.
- Haigh, F., Lartley Fletcher, S, K. Jacques, E. Millen, C. Calalang, E. De Leeuw, A. Mahimbo, and K. Hirono. (2020) 'The health impacts of transformative infrastructure change: Process matters as much as outcomes ', *Environmental Impact Assessment Review*, 85: 106437.
- Health Intelligence Unit (2023) Population Profile based on CSO 2022 data, Cork City. Dublin: HSE
- Healy, S. , C. Bennett, M. Murphy, S. Rogers, and B. Reynolds. (2021) "Social Justice Matters " Dublin: Social Justice Ireland
- Howden-Chapman, Philippa, Julie Bennett, Richard Edwards, David Jacobs, Kim Nathan, and David Ormandy (2023). 'Review of the Impact of Housing Quality on Inequalities in Health and Well-Being', *Annual Review of Public Health*, 44: 233-54.
- Humes, H., Barrett, M. and Walsh, B. (2023) "Housing tenure, health and public healthcare coverage in Ireland." Dublin: Economic and Social Research Institute.

- Ige, Janet, Paul Pilkington, Judy Orme, Ben Williams, Emily Prestwood, D. Black, Laurence Carmichael, and Gabriel Scally. (2019) 'The relationship between buildings and health: a systematic review', *Journal of Public Health*, 41: e121-e32.
- Ige-Elegbede, Janet, Paul Pilkington, Judy Orme, Ben Williams, Emily Prestwood, Daniel Black, and Laurence Carmichael. (2022) 'Designing healthier neighbourhoods: a systematic review of the impact of the neighbourhood design on health and wellbeing', *Cities & Health*, 6: 1004-19.
- India-Aldana et al. (2023). Long-Term Exposure to Walkable Residential Neighborhoods and Risk of Obesity-Related Cancer in the New York University Women's Health Study (NYUWHS), *Environmental Health Perspectives*, 131(10), e100701-9
- Jacob, Verugheze, Sajal K. Chattopadhyay, Jeffrey A. Reynolds, David P. Hopkins, Jennifer A. Morgan, David R. Brown, Christopher S. Kochtitzky, Alison E. Cuellar, and Shiriki K. Kumanyika. (2021) 'Economics of Interventions to Increase Active Travel to School: A Community Guide Systematic Review', *American Journal of Preventive Medicine*, 60: e27-e40.
- Janssen, I., & LeBlanc, A. G. (2010). Systematic review of the health benefits of physical activity and fitness in school-aged children and youth. *International Journal of Behavioral Nutrition and Physical Activity*, 7(1), 40.
- Jenks, M., Burton, E. & Williams, K. (1996) *The Compact city: a sustainable urban form?* First edn, E & FN Spon, New York; London
- Jing, J., L. Dahlberg, and D. Canter. (2024) 'The Role of Third Place concerning Loneliness in the Context of Ageing in Place: Three Neighbourhoods in Stockholm', *Health and social care in the community*, 2024.
- Jivraj, S., Murray E., and P. Norman. (2020) 'The impact of life course exposures to neighbourhood deprivation on health and well-being: a review of the long-term neighbourhood effects literature.', *European Journal of Public Health*, 30.
- Jones, Rebecca A., Nicole E. Blackburn, Catherine Woods, Molly Byrne, Femke van Nassau, and Mark A. Tully. (2019) 'Interventions promoting active transport to school in children: A systematic review and meta-analysis', *Preventive Medicine*, 123: 232-41.
- Kalina, Marc. (2021) 'A neighbourhood of necessity": creating home and neighbourhood within subsidised aged housing in Durban, South Africa', *Journal of Housing and the Built Environment*, 36: 1671-97.
- Khavarian-Garmsir, A.R., Sharifi, A., Abadi, M.H.H., and Moradi, Z. (2023a) 'From Garden City to 15-Minute City: A Historical Perspective and Critical Assessment' *Land*, 12(2), 512.
- Khavarian-Garmsir, Amir Reza, Ayyoob Sharifi, and Ali Sadeghi. (2023b) 'The 15-minute city: Urban planning and design efforts toward creating sustainable neighborhoods', *Cities*, 132: 104101.
- Kim, S.-Y., & Jang, S. (2023). Analysis of Leisure Travel Behaviour of Child-Rearing Households and Regional Differences in Education Fever. *Journal of the Korean Cadastre Information Association*, 25(1), 85–103
- King, A. C., Sallis, J. F., Frank, L. D., Saelens, B. E., Cain, K., Conway, T. L., Chapman, J. E., Ahn, D. K., & Kerr, J. (2011). Aging in neighborhoods differing in walkability and income: Associations with physical activity and obesity in older adults. *Social Science & Medicine* (1982), 73(10), 1525–1533

- Kleeman, Alexandra, Billie Giles-Corti, Lucy Gunn, Paula Hooper, and Sarah Foster. (2023) 'The impact of the design and quality of communal areas in apartment buildings on residents' neighbouring and loneliness', *Cities*, 133: 104126.
- Künn-Nelen, A. (2016). Does Commuting Affect Health? *Health Economics*, 25(8), 984–1004.
- Lachapelle, U., Frank, L. D., Sallis, J. F., Saelens, B. E., & Conway, T. L. (2016). Active Transportation by Transit-Dependent and Choice Riders and Potential Displacement of Leisure Physical Activity. *Journal of Planning Education and Research*, 36(2), 225–238
- Lancet Editorial (2024) Housing: an overlooked social determinant of health, *The Lancet*, 403: e1723
- Laurence, J. , H. Russell, and E. Smyth. (2023) "Housing adequacy and child outcomes in early and middle childhood " Dublin ESRI
- LECP (2024) Local Economic and Community Plan, Cork (2024-2030). Cork. Cork City Council
- Lee, R. (2023) "Pedestrian slips, trips and falls. An evaluation of their causes, impact, scale and cost." London: Living Streets.
- Levasseur, Mélanie, Mélissa Gagnéux, Jean François Bruneau, Alain Vanasse, Éric Chabot, Claude Beaulac, and Marie Michèle Bédard. (2015) 'Importance of proximity to resources, social support, transportation and neighborhood security for mobility and social participation in older adults: Results from a scoping study', *BMC Public Health*, 15: 503-03.
- Laverty, A. A., Millett, C., Majeed, A., & Vamos, E. P. (2020). COVID-19 presents opportunities and threats to transport and health. *Journal of the Royal Society of Medicine*, 113(7), 251–254.
- Leyden, Kevin M., Michael J. Hogan, Lorraine D'Arcy, Brendan Bunting, and Sebastiaan Bierema. (2024) 'Walkable Neighborhoods: Linkages Between Place, Health, and Happiness in Younger and Older Adults', *Journal of the American Planning Association*, 90: 101-14.
- LGIU. (2023) 'Local government facts and figures: Ireland', Local Government Information Unit, Accessed 21.9.2024.
- Lowans, Christopher, Aoife Foley, Dylan Furszyfer Del Rio, Brian Caulfield, Benjamin K. Sovacool, Steven Griffiths, and David Rooney. (2023) 'What causes energy and transport poverty in Ireland? Analysing demographic, economic, and social dynamics, and policy implications', *Energy Policy*, 172: 113313.
- Lucas, K. , G. Stokes, J. Bastiaanssen, and J. Burkinshaw. (2019) "Inequalities in Mobility and Access in the UK Transport System." In. London: UK Government Office for Science.
- Luo, F., Huang, Z., & Zheng, P. (2022). A Study on the Decay Model of Multi-Block Taxi Travel Demand under the Influence of Major Urban Public Health Events. *International Journal of Environmental Research and Public Health*, 19(6), Article 6.
- Lynch, H. (2021) "Cork Freedom of the City: Summary of Children and Young People's Submissions. Drawing and Written Pieces. Summer 2021. Cork: UCC.
- Mahmudah, A. M. H., Sarwono, D., Pramesty, R. I., & Rahina, P. S. (2016). Value of Travel Time for Public Transport Passenger in Urban and Intercity Trip. *Applied Mechanics and Materials*, 845, 408–415.
- Malberg Dyg, Pernille, Søren Christensen, and Corissa Jade Peterson. (2020) 'Community gardens and wellbeing amongst vulnerable populations: a thematic review', *Health Promotion International*, 35: 790-803.

- Manisalidis, Ioannis, Elisavet Stavropoulou, Agathangelos Stavropoulos, and Eugenia Bezirtzoglou. (2020) 'Environmental and Health Impacts of Air Pollution: A Review', *Frontiers in Public Health*, 8.
- Marmot, M., J. Allen, T. Boyce, P. Goldblatt, and J. Morrison. (2020) "Health equity in England: The Marmot Review 10 years on." London: Institute of Health Equity
- Marmot, Michael. (2022) 'Public health and health inequalities: a half century of personal involvement', *Journal of Public Health*, 44: i23-i27.
- Marzi, I., Demetriou, Y., & Reimers, A. K. (2018). Social and physical environmental correlates of independent mobility in children: A systematic review taking sex/gender differences into account. *International Journal of Health Geographics*, 17(1), 24
- Marston, Hannah, Gemma Wilson, D. J. Morgan, and Jessica Gates (2021) "Beyond Digital: Planning for a Hybrid World." Other. Covid-19 Committee: 1st Report of Session 2019-21. London: House of Lords, April 21, 2021. <https://committees.parliament.uk/publications/5537/documents/56741/default/>
- Mateo-Bambiano, I., and G. Lee. (2020) 'People in Place- Placemaking Fundamentals.' in D. Hes and C. Hernandez-Santin (eds.), *Placemaking fundamentals for the built environment* (Springer :New York).
- Matthews, J. C., Chompoobut, C., Navasumrit, P., Khan, M. A. H., Wright, M. D., Ruchirawat, M., & Shallcross, D. E. (2023). Particle Number Concentration Measurements on Public Transport in Bangkok, Thailand. *International Journal of Environmental Research and Public Health*, 20(7), Article 7.
- McAleenan, A. Richards, S. Gray, J. Savović, and S. Audrey. (2018) 'The effects of changes to the built environment on the mental health and well-being of adults: Systematic review', *Health & Place*, 53: 237-57.
- McDonald, N. C. (2008). Critical Factors for Active Transportation to School Among Low-Income and Minority Students: Evidence from the 2001 National Household Travel Survey. *American Journal of Preventive Medicine*, 34(4), 341-344.
- McElroy, B., and E. Walsh. (2023) 'A happy home? Socio-economic inequalities in depressive symptoms and the role of housing quality in nine European countries', *BMC Public Health*, 23.
- McGowan, V J, S. Buckner, R. Mead, E. McGill, S. Ronzi, F. Beyer, and C. Bamba. (2021) 'Examining the effectiveness of place-based interventions to improve public health and reduce health inequalities: an umbrella review', *BMC Public Health*, 21.
- Mitra, Raktim. (2013) 'Independent Mobility and Mode Choice for School Transportation: A Review and Framework for Future Research', *Transport Reviews*, 33: 21-43.
- Mohammad Ali., Uddin, Z., Ahsan, G. U., & Hossain, A. (2021). Association between daily commute and subjective health complaints among the office workers in an urban community. *Heliyon*, 7(8).
- Monje-Amor, Ariadna (2023). "Paradigm Shift: Students' Perceptions of Work Models and Well-Being." *International Journal of Organizational Analysis* 32, no. 6 : 1088-98
- Moreno, C., Allam, Z., Chabaud, D., Catherine, G., and Pratlong, F. (2021) 'Introducing the "15-Minute City": Sustainability, Resilience and Place Identity in Future Post-Pandemic Cities' *Smart Cities*, 4(1), 93-111 Moore, T. H. M., J. M. Kesten, J. A. López-López, S. Ijaz, A.

- Morris, Stephanie, Emma R. Lawlor, Louise Foley, Carolyn Summerbell, Jenna Panter, Jean Adams, Russell Jago, and Tessa M. Pollard. (2022) 'Children's experiences of the journey between home and school: A qualitative synthesis using meta-ethnography', *Health & Place*, 76: 102819.
- Mueller, Natalie, David Rojas-Rueda, Xavier Basagaña, Marta Cirach, Tom Cole-Hunter, Payam Dadvand, David Donaire-Gonzalez, Maria Foraster, Mireia Gascon, David Martinez, Cathryn Tonne, Margarita Triguero-Mas, Antònia Valentín, and Mark Nieuwenhuijsen. (2017) 'Health impacts related to urban and transport planning: A burden of disease assessment', *Environment International*, 107: 243-57.
- Mueller, Natalie, David Rojas-Rueda, Tom Cole-Hunter, Audrey de Nazelle, Evi Dons, Regine Gerike, Thomas Götschi, Luc Int Panis, Sonja Kahlmeier, and Mark Nieuwenhuijsen. (2015) 'Health impact assessment of active transportation: A systematic review', *Preventive Medicine*, 76: 103-14.
- Nash, K. and O'Mullane, M. (2024) Report on the Public Engagement Event for the HIA on the Core Strategy of the Cork City Development Plan (2022-2028). Cork: UCC. Accessible here: <https://www.ucc.ie/en/media/research/iss21/HIA-IMApril2024PublicEventReport.pdf>
- Næss, P. (2006). Are Short Daily Trips Compensated by Higher Leisure Mobility? *Environment and Planning B: Planning and Design*, 33(2), 197–220
- Neuman, M. (2004) "The Compact City Fallacy". *Journal of planning education and research*, vol. 25(1), pp 11-26.
- Nigg, Carina, Shaima A. Alothman, Abdullah F. Alghannam, Jasper Schipperijn, Reem AlAhmed, Reem F. Alsukait, Severin Rakic, Volkan Cetinkaya, Hazzaa M. Al-Hazaa, and Saleh A. Alqahtani. (2024) 'A systematic review on the associations between the built environment and adult's physical activity in global tropical and subtropical climate regions', *The international journal of behavioral nutrition and physical activity*, 21: 59-59.
- NTA. (2024) "Cork Metropolitan Area Walking and Cycling Index for 2023." Dublin: National Transport Authority with Cork City Council.
- O'Connell, C. , M. Cullinane, and S. O'Sullivan. (2024) 'Sustainable social housing regeneration in Ireland: A case study', *Journal of Urban Regeneration and Renewal*, 17.
- O'Brien, Jessica, Amy Mason, Marica Cassarino, Jason Chan, and Annalisa Setti. (2021) 'Older Women's Experiences of a Community-Led Walking Programme Using Activity Trackers', *International Journal of Environmental Research and Public Health*, 18: 9818.
- OECD (2021), Ireland: Country Health Profile 2021, State of Health in the EU, OECD Publishing, Paris, <https://doi.org/10.1787/4f7fb3b8-en>.
- One Family (2019) "Who is looking after the Working Poor?" edited by K. Kiernan. Accessed: 1.5.2024. <https://onefamily.ie/who-is-looking-after-the-working-poor/>
- O'Sullivan, Siobhan, Cathal O'Connell, and Lorcan Byrne. (2020) 'Listen to What We Have to Say": Children and Young People's Perspectives on Urban Regeneration', *Social inclusion*, 8: 77-87.
- Odzakovic, Elzana, Agneta Kullberg, Ingrid Hellström, Andrew Clark, Sarah Campbell, Kainde Manji, Kirstein Rummery, John Keady, and Richard Ward. (2021) "It's our pleasure, we count cars here': an exploration of the 'neighbourhood-based connections' for people living alone with dementia', *Ageing and Society*, 41: 645-70.

- O'Mullane, M. (2015), 'HIA in the physical environment: policy development and community participation,' in O'Mullane, M. Health Impact Assessment and Policy Development: The Republic of Ireland and Northern Ireland. Manchester: Manchester University Press. ISBN: 9780719091933
- Owen, C. G., Nightingale, C. M., Rudnicka, A. R., Sluijs, E. M. F. van, Ekelund, U., Cook, D. G., & Whincup, P. H. (2012). Travel to School and Physical Activity Levels in 9–10 Year Old UK Children of Different Ethnic Origin; Child Heart and Health Study in England (CHASE). PLOS ONE, 7(2), e30932
- Palacios et al. (2021) The impact of housing conditions on health outcomes. Real Estate Econ, 49:1172–1200
- Paquet, Catherine, Jocelyne Whitehead, Rishabh Shah, Alayne Mary Adams, Damion Dooley, R Nathan Spreng, Anna-Liisa Aunio, and Laurette Dubé. (2023) 'Social Prescription Interventions Addressing Social Isolation and Loneliness in Older Adults: Meta-Review Integrating On-the-Ground Resources', Journal of Medical Internet Research, 25: e40213.
- Parsons, Allison A., Dawna Leggett, Daniela Vollmer, Valerie Perez, Rachel Smith, Emily Goodman, Crystal Mayes, Chellie McLellan, Nancy Laird, Andrew F. Beck, Robert Kahn, and Carley Riley. (2021) 'Cultivating social relationships and disrupting social isolation in low-income, high-disparity neighbourhoods in Ohio, USA', Health & social care in the community, 29: 1876-86.
- Parry, Jayne, and John Wright. (2003). 'Community participation in health impact assessments: intuitively appealing but practically difficult', Bulletin of the World Health Organization, 81: 388-88.
- Passchier-Vermeer, Willy, and Wim F. Passchier. (2000) 'Noise Exposure and Public Health', Environmental Health Perspectives, 108: 123-31.
- Peters and Hallaran (2021) How our homes impact our health: using a COVID-19 informed approach to examine urban apartment housing. Journal of Architectural Research, 15:10-27
- PHS. (2022) "Evidence behind the Place Standard Tool and the Place and Wellbeing Outcomes." Edinburgh: Public Health Scotland
- . (2024) "Transport Poverty- A Public Health Issue." Edinburgh, Scotland: Public Health Scotland.
- Pineo, Helen. (2022) 'Towards healthy urbanism: inclusive, equitable and sustainable (THRIVES) – an urban design and planning framework from theory to praxis', Cities & Health, 6: 974-92.
- Pitt, Tona M., Janet Aucoin, Tate Hubkarao, Suzanne Goopy, Jason Cabaj, Brent Hagel, and Gavin R. McCormack. (2021) 'The Relationship of Urban Form on Children and Adolescent Health Outcomes: A Scoping Review of Canadian Evidence', International Journal of Environmental Research and Public Health, 18: 4180.
- Pobal (2024) 'Pobal Deprivation Maps and Tools', Pobal, Accessed 8.7.2024. <https://data.pobal.ie/portal/apps/sites/#/pobal-maps>.
- Pozoukidou G, Chatziyiannaki Z. (2021) 15-Minute City: Decomposing the New Urban Planning Eutopia. Sustainability. 2021; 13(2):928.
- Pridmore, A., C. Ahlgren, K. Hampshire, and A. Smith. (2017) "Evidence Review of the Potential Wider Impacts of Climate Change Mitigation Options: Transport sector." In. Edinburgh: The Scottish Government.

- Przybylowski, A., Stelmak, S., & Suchanek, M. (2021). Mobility Behaviour in View of the Impact of the COVID-19 Pandemic—Public Transport Users in Gdansk Case Study. *Sustainability*, 13(1), Article 1.
- Puig-Ribera, A., M. Rofin, J. Bort-Roig, E. Aumatell, A. Junca, M. D. Pedro, F. Garcia-Cuyas, C. Chamorro, L. Perona-Ribes, J. R. Torrento, G. Jabardo-Camprubi, F. Palmero, and M. Geli. (2022) 'Integrating Health Into the Urban Master Plan of Vic, Barcelona: A Comprehensive Approach', *Urban Planning*, 7: 25-41.
- Pyper, R., B. Cave, J. Purdy, and H. McAvoy. (2021) "Guidance. Health Impact Assessment: standalone HIA and health in Environmental Assessment. A manual." In. Dublin and Belfast: Institute of Public Health in Ireland.
- Quinlivan, Aodh. (2022) 'The Republic of Ireland: struggling to turn back the tide of centralism.' in C. Copus, R. Kerley and A. Jones (eds.), *A Modern Guide to Local and Regional Politics* (Edward Elgar Publishing: London).
- Rae, A., R. Hamilton, R. Crisp, and R. Powell. (2016) "Overcoming deprivation and disconnection in UK cities." York, England: Joseph Rowntree Foundation 2024.
- Rambaldini-Gooding, D., Molloy, L., Parrish, A.-M., Strahilevitz, M., Clarke, R., Dubrau, J. M.-L., & Perez, P. (2021). Exploring the impact of public transport including free and subsidised on the physical, mental and social well-being of older adults: A literature review. *Transport Reviews*, 41(5), 600–616.
- Reinhard, Erica, Emilie Courtin, Frank J. Van Lenthe, and Mauricio Avendano. (2018) 'Public transport policy, social engagement and mental health in older age: a quasi-experimental evaluation of free bus passes in England', *Journal of Epidemiology and Community Health*, 72: 361-68.
- Richards GC, Carpenter J, Okpalugo E, Howard DJ, Heneghan C. (2023) Assessing housing exposures and interventions that impact healthy cities: a systematic overview of reviews. *Perspective in Public Health*, 17579139231180756. doi: 10.1177/17579139231180756. Epub ahead of print.
- Rodríguez-Rodríguez, Fernando, Carlos Cristi-Montero, Carlos Celis-Morales, Danica Escobar-Gómez, and Palma Chillón. (2017) 'Impact of Distance on Mode of Active Commuting in Chilean Children and Adolescents', *International Journal of Environmental Research and Public Health*, 14: 1334.
- Rosso, A. L., Auchincloss, A. H., & Michael, Y. L. (2011). The Urban Built Environment and Mobility in Older Adults: A Comprehensive Review. *Journal of Aging Research*, 2011, 1–10.
- Roy, Jeffrey (2022), "COVID'19, Digitization and Hybrid Workspaces: A Critical Inflection Point for Public Sector Governance and Workforce Development." *Canadian Public Administration*, June 19,, 10.1111/capa.12475.
- Russell, H. , I. Privalko, F. McGinnity, and S. Enright. (2021) "Monitoring Adequate Housing in Ireland." Dublin: Irish Human Rights and Equality Commission & ESRI.
- RTPI. (2016) "Poverty, place and inequality." London: Royal Town Planning Institute.
- SAFE (2019) 'Study of Age Friendly Environments, Cork', Cork: SAFE Steering Group
- Satariano, W. A., Guralnik, J. M., Jackson, R. J., Marottoli, R. A., Phelan, E. A., & Prohaska, T. R. (2012). Mobility and aging: New directions for public health action. *American Journal of Public Health*, 102(8), 1508–1515.

- Saunders, Lucinda E., Judith M. Green, Mark P. Petticrew, Rebecca Steinbach, and Helen Roberts. (2013) 'What Are the Health Benefits of Active Travel? A Systematic Review of Trials and Cohort Studies', *PLoS ONE*, 8: e69912.
- Siersbaek, Rikke, Chris O'Donnell, Sarah Parker, John Ford, Sara Burke, and Clíona Ní Cheallaigh. (2023) 'Social exclusion and its impact on health over the life course: A realist review protocol', *HRB Open Research*, 6: 34.
- Simoni, M., S. Baldacci, S. Maio, S. Cerrai, G. Sarno, and G. Viegi. (2015) 'Adverse effects of outdoor pollution in the elderly', *J Thorac Dis*, 7: 34-45.
- Simons E, Dell SD, Moineddin R, To T. (2018) Associations between Neighborhood Walkability and Incident and Ongoing Asthma in Children. *Ann Am Thorac Soc*. Jun;15(6):728-734. doi: 10.1513/AnnalsATS.201708-693OC. PMID: 29664674.
- Simonsen, Camilla Bakkær, Barbara Egilstrød, Charlotte Overgaard, and Sine Agergaard. (2024) 'Supporting adolescents' leisure time physical activity in low-income areas: A qualitative systematic review of participant, parent and stakeholder perspectives on family and community interventions', *Journal of Community & Applied Social Psychology*, 34.
- SJI (2022) Housing Costs and Poverty. Dublin: Social Justice Ireland
- Sommar, J. N., Schantz, P., Strömgren, M., & Forsberg, B. (2021). Potential for reduced premature mortality by current and increased bicycle commuting: A health impact assessment using registry data on home and work addresses in Stockholm, Sweden. *BMJ Open Sport & Exercise Medicine*, 7(1), e000980
- Smyth, Emer, Aisling Murray, Eoin McNamara, Desmond O'Mahony, Adam Nolan, and Brendan Duggan. (2023) "Growing Up in Ireland: Key findings: Cohort '08 at 13 years old." Dublin: Department of Children, Equality, Disability, Integration and Youth
- Solar, O., and A. Irwin. (2010) "A conceptual framework for action on the social determinants of health." In *Social Determinants of Health Discussion Paper 2 (Policy and Practice)*. Geneva, Switzerland: World Health Organization.
- Southern Regional Assembly, 10 Minute Towns: Accessibility & Framework Report for Carlow, Ennis and Tralee, (2020) Available: <https://www.southernassembly.ie/uploads/general-files/SRA%20-%2010%20Minute%20Town%20Oct%202020.pdf> (Accessed 28 June 2024)
- Stankov, Ivana, Leandro M. T. Garcia, Maria Antonietta Mascolli, Felipe Montes, José D. Meisel, Nelson Gouveia, Olga L. Sarmiento, Daniel A. Rodriguez, Ross A. Hammond, Waleska Teixeira Caiaffa, and Ana V. Diez Roux. (2020) 'A systematic review of empirical and simulation studies evaluating the health impact of transportation interventions', *Environmental Research*, 186: 109519.
- Stansfeld, Stephen, and Charlotte Clark. (2015) 'Health Effects of Noise Exposure in Children', *Current Environmental Health Reports*, 2: 171-78.
- Stevenson, M., Thompson, J., Sá, T. H. de, Ewing, R., Mohan, D., McClure, R., Roberts, I., Tiwari, G., Giles-Corti, B., Sun, X., Wallace, M., & Woodcock, J. (2016). Land use, transport, and population health: Estimating the health benefits of compact cities. *The Lancet*, 388(10062), 2925–2935
- SVP. (2019) "Working, Parenting and Struggling? An analysis of the employment and living conditions of one parent families in Ireland." Dublin: Society of Saint Vincent de Paul Charity.

- Tao, S., Cheng, L., He, S., & Witlox, F. (2023). Examining the non-linear effects of transit accessibility on daily trip duration: A focus on the low-income population. *Journal of Transport Geography*, 109, 103600.
- The Housing Commission (2024) Report of The Housing Commission. Dublin: The Housing Commission. ISBN: 978-1-903848-88-3
- TMF. (2024) "Submission to the National Planning Framework." edited by Darren McAdams-O'Connell. Cork: Transport & Mobility Forum.
- Turner, B., J. Abramovic, and C. Hope. (2022) 'More-than-human contributions to place-based social inclusion in community gardens.' in P. Liamputtong (ed.), *Handbook of social inclusion*.
- Ulloa-Leon, F.; Correa-Parra, J., Vergara-Perucich, F., Cancino-Contreras, F., Aguirre-Núñez, C. (2023) "15-Minute City" and Elderly People: Thinking about Healthy Cities. *Smart Cities*, 6, 1043-1058
- Umstattd Meyer, M. Renée, Christina N. Bridges, Thomas L. Schmid, Amelie A. Hecht, and Keshia M. Pollack Porter. (2019) 'Systematic review of how Play Streets impact opportunities for active play, physical activity, neighborhoods, and communities', *BMC Public Health*, 19: 335-35.
- Useche, Sergio A., Natura Colomer, Francisco Alonso, and Mireia Faus. (2024) 'Invasion of privacy or structural violence? Harassment against women in public transport environments: A systematic review', *PLoS ONE*, 19: e0296830-e30.
- Van Cauwenberg, Jelle, Ilse De Bourdeaudhuij, Femke De Meester, Delfien Van Dyck, Jo Salmon, Peter Clarys, and Benedicte Deforche. (2011) 'Relationship between the physical environment and physical activity in older adults: A systematic review', *Health & Place*, 17: 458-69.
- Verbeek, Thomas. (2019) 'Unequal residential exposure to air pollution and noise: A geospatial environmental justice analysis for Ghent, Belgium', *SSM - Population Health*, 7: 100340.
- Voulgaris, C. T., Smart, M. J., & Taylor, B. D. (2019). Tired of Commuting? Relationships among Journeys to School, Sleep, and Exercise among American Teenagers. *Journal of Planning Education and Research*, 39(2), 142–154.
- Wanner, Miriam, Thomas Götschi, Eva Martin-Diener, Sonja Kahlmeier, and Brian W. Martin. (2012) 'Active Transport, Physical Activity, and Body Weight in Adults: A Systematic Review', *American Journal of Preventive Medicine*, 42: 493-502.
- Wang, X., Gong, J., & Wang, C. (2020). How Does Commute Time Affect Labor Supply in Urban China? Implications for Active Commuting. *International Journal of Environmental Research and Public Health*, 17(13), Article 13
- Westenhöfer, J., Nouri, E., Reschke, M.L. et al. (2023) Walkability and urban built environments—a systematic review of health impact assessments (HIA). *BMC Public Health* 23, 518 . <https://doi.org/10.1186/s12889-023-15394-4>
- Wheatley, D., & Bickerton, C. (2016). Time-use and well-being impacts of travel-to-work and travel-for-work. *New Technology, Work and Employment*, 31(3), 238–254
- White, M. J., Yin, H. S., Rothman, R. L., Sanders, L. M., Delamater, A., Flower, K., & Perrin, E. M. (2019). Neighborhood Commute to Work Times and Self-Reported Caregiver Health Behaviors and Food Access. *Academic Pediatrics*, 19(1), 74–79.

- WHO (1999) "Health Impact Assessment: Main Concepts and Suggested Approach, Gothenberg Consensus Paper." edited by European Centre of Public Health. Copenhagen: W.H.O. Regional Office for Europe.
- (2013) "Helsinki Statement on Health in All Policies." Finnish Presidency, European Commission: World Health Organization.
- (2019) "Environmental health inequalities in Europe. Second assessment report." Geneva: WHO.
- (2022) Cycling and walking can help reduce physical inactivity and air pollution, save lives and mitigate climate change. Retrieved May 16 2024, from <https://www.who.int/europe/news/item/07-06-2022-cycling-and-walking-can-help-reduce-physical-inactivity-and-air-pollution--save-lives-and-mitigate-climate-change>
- Williams, Simon, and Nicky Shaw. "Hybrid Working – Benefits and Challenges for Productivity and Performance." (2024) International Journal of Productivity and Performance Management ahead-of-print, no. ahead-of-print (January 1, 2024).
- Yashadhana, A., E. Alloun, N. Serova, E. de Leeuw, and Z. Mengesha. (2021) 'Place-making and its impact on health and wellbeing among recently resettled refugees in high income contexts: A scoping review', Health & Place, 81.
- Yeom, H. A., Fleury, J., & Keller, C. (2008). Risk factors for mobility limitation in community-dwelling older adults: A social ecological perspective. Geriatric Nursing (New York, N.Y.), 29(2), 133–140.
- Yuan, B. (2022) Travel experience and health service amongst older people from the perspective of social exclusion: Policy implications of alleviating transport deprivation—Health & Social Care in the Community—Wiley Online Library. Retrieved May 16, 2024, from <https://onlinelibrary.wiley.com/doi/10.1111/hsc.13902>
- Zhang, Surong, Wanqing Wu, Zhenxu Xiao, Shuang Wu, Qianhua Zhao, Ding Ding, and Lan Wang. (2023) 'Creating liveable cities for healthy ageing: Cognitive health in older adults and their 15-minute walkable neighbourhoods', Cities, 137: 104312.
- Zougheibe, Roula, Beverly Jepson, Richard Norman, Ori Gudes, and Ashraf Dewan. (2021) 'Is there a correlation between children's outdoor active mobility behaviour and neighbourhood safety? A systematic review of the evidence', BMJ Open, 11: e047062-e62.
- Zulkefli, S. H. B., Barr, A., Singh, A., Carver, A., Mavoa, S., Scheurer, J., Badland, H., & Bentley, R. (2020). Associations between Public Transport Accessibility around Homes and Schools and Walking and Cycling among Adolescents. Children, 7(4), Article 4.

