

Guiding Principles for

# Planning Healthy Communities



An ecosystem approach to creating health in Veraine,  
a proposed new community in Ontario, Canada

**SALUS**  
GLOBAL KNOWLEDGE EXCHANGE

**DORSAY**  
DEVELOPMENT CORPORATION



© SALUS Global Knowledge Exchange 2022

#### **Notice of rights**

All rights reserved. The report and the content of the report remain the property of SALUS Global Knowledge Exchange. None of the information contained and provided in this report may be modified, reproduced, sold, published, in whole or in part, in any form or by any means, without the express permission of SALUS Global Knowledge Exchange, based in Billericay, Essex, UK.

#### **Disclaimer**

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of SALUS Global Knowledge Exchange and its contributors. The mention of specific companies or of certain products, solutions or services does not imply that they are endorsed or recommended by SALUS Global Knowledge Exchange in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

The material provides a broad set of principles based on worldwide evidence and case examples. They have not been assessed against local laws and regulatory requirements for compliance. Population projections in the material are also not an appraisal of the likely demand for properties and services.

The use of information from this document for publicity or advertising is not permitted. Trademark names and symbols are used in an editorial style with no intention on infringement of trademark or copyright laws.

All reasonable precautions have been taken by SALUS Global Knowledge Exchange to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall SALUS Global Knowledge Exchange be liable for damages arising from its use. The views expressed by authors, editors, or expert groups do not necessarily represent recommendations, the decisions or the stated policy of SALUS Global Knowledge Exchange.

# Contents

4	Foreword
5	Introduction
6	Executive summary
8	Leader
10	Preface
12	Visualizing a healthy community: A conceptual illustration
14	<b>Chapter One</b> An ecosystem approach to healthy communities
23	Insights: Defining strategic priorities – Helen Pineo
24	Global Exemplars: Bicester Healthy New Town
26	Global Exemplars: ReGen Villages
28	<b>Chapter Two</b> Evaluating health outcomes and goals
33	Insights: Defining strategic priorities – Ken Greenberg
34	Global Exemplars: Hammarby Sjöstad and Södra Skanstull
36	<b>Chapter Three</b> Visioning demand for healthy living
43	Insights: Defining strategic priorities – Dan Burden
44	Global Exemplars: The Atlanta BeltLine
46	<b>Chapter Four</b> Planning, activating and operating
60	Insights: Defining strategic priorities – Giselle Sebag
61	Global Exemplars: Energy Garden
62	Global Exemplars: First Nations Technical Institute
64	Global Exemplars: Vertical Future
65	Conclusions
66	References, further reading and links

# Foreword



## Dave Ryan

Mayor,  
City of Pickering

When I embarked on my near-30 year journey on Pickering's City Council in 1994, even in my most aspirational dreams, I couldn't have imagined seeing the City of Pickering and the entire Durham region grow and evolve to become the flourishing community it is today.

In 2010, I was recognized as "One of Canada's Greenest Mayors" by *Alive* magazine because environmental stewardship and sustainability are priorities that informed every decision I made as Mayor of Pickering. As I look at Pickering's future, it is clear that these priorities will continue to serve our community well, as we respond collectively to the new realities we face in light of Covid-19, the housing crisis in the Greater Toronto Area (GTA) and climate change.

Knowing that the Guiding Principles in this report, centred on community health and environmentally responsible development, will inform every aspect of Veraine leaves me eager to see this project come to fruition. Following these principles, Veraine will serve as a leading example of dynamic, healthy and equitable growth in the Durham region.

I believe in sustainable growth through responsible development, and Planning Healthy Communities offers the roadmap for Veraine to achieve that.

This is the way we must approach growth to meet our economic and environmental realities. Covid-19 has changed those realities, and now more than ever, we are all reflecting on what we need from the communities in which we work, live and play.

As governments of all levels respond to the housing crisis in the GTA, we must also envision how we can meet evolving community needs. We must do more than build inventory, we must build innovative and healthy residential communities like Veraine to retain our residents and attract newcomers from across Canada and the world. With Durham projected to see significant population growth, sustainable residential assets like Veraine will be critical to the success of Pickering's development while maintaining liveability over the next 20 years.

With transformational projects on the way, such as the Durham Live entertainment district, the landmark City Centre project, and the proposed Pickering airport, our City is ripe for dynamic and environmentally sustainable growth and community development. It is my hope that communities like Veraine will become the gold standard for growth and community development in the Durham region, as we continue to transform and evolve our city.

# Introduction



## Marc Sansom

Founding Director,  
SALUS Global  
Knowledge Exchange

The Covid-19 pandemic has sent a shot across our bows, revealing the deep wounds of health and social inequalities and triggering the deepest global recession for a century.

But it is the existential threat of climate change and the impact of human activity on planetary health that is reshaping societies, communities and economies. If we adapt and mitigate to bend the climate curve, a cleaner, greener, healthier and more equal and sustainable future awaits where human society can continue to flourish. If we fail to heed the warnings, a far bleaker world lies ahead for present and future generations.

This independent, evidence-based **Guiding Principles for Planning Healthy Communities** report has been developed to support the vision, planning and implementation of Veraine, a proposed new community in the City of Pickering in Ontario, Canada.

Veraine has an opportunity to set a global benchmark for a future community that is healthy, sustainable, equitable and a place where everyone can flourish. To achieve this vision, a co-ordinated interdisciplinary effort across a range of areas – from policymaking, governance and investment to planning and design – will be required. This report, therefore, is intended to be read by a wide stakeholder group, including but not exclusive to policy-makers, municipal authorities, civil society organisations, landowners and real estate developers, built environment consultants, public health/healthcare, and environmentalist groups.

It sets out a **framework for understanding how a healthy and sustainable community can be planned and implemented using an ecosystem approach that will provide the resources, capabilities, meaning and purpose in the lives of citizens to enable individuals and the community as a whole to flourish**. Readers will learn about how a collective, ecosystem approach can make Veraine a healthier and more sustainable place in which its citizens can live, work and flourish, identifying key questions for consideration, such as: How do we reconcile economic prosperity with the preservation of the natural planetary systems that sustain life? What urban development, regeneration and mobility strategies would enable us to flourish in harmony with nature? How can the design of our homes, neighbourhoods, workplaces and transportation better support community cohesion, mental health, and social equity?

Founded on established and current research thinking, these guiding principles are further developed through SALUS' own applied research evaluation of 20 global planning frameworks and 400 individual concepts of health, which establishes a set of priorities for health creation and planetary health. A combination of expert insights from our network of leading researchers and practitioners and seven global exemplars of community developments, projects and technologies also informs readers of the latest scientific thinking and the practical challenges of implementing healthy communities.

Harnessing creativity and embracing innovation that will improve health, wellbeing and quality of life and enable people to flourish in harmony with the planet's natural systems will be key to the future of Veraine.

# Executive summary

**This report establishes a set of evidence-based guiding principles for designing, planning and implementing Veraine as a healthy and sustainable community founded on established and current research thinking concerning health creation and planetary health.**

It presents a holistic framework for thinking about how to plan, implement and activate a healthy community. The focus is on establishing the principles and ambition to underpin the process of ('how'), rather than the details of the outputs ('what'). Examples are provided for the purpose of dialogue and inspiration, but they are not a recommendation of what to design or implement. As such, the Guiding Principles should not be considered as a textbook or a practice manual. There are many theses and books written on individual topics, and references to further sources of knowledge are provided.

The report is based on a deep understanding of the latest research evidence, sourced through SALUS' global network of researchers, practitioners and policy thinkers, and SALUS' world-leading global events in the field: the Healthy City Design International Congress and the European Healthcare Design Congress.

A level of ambition is set out that will be challenging to achieve and require significant investment to deliver, but it is based on the principle that human and planetary health is our primary asset and resource, and by protecting and developing it, significant long-term social, economic and environmental returns for the whole community will be generated that will far outweigh initial investment.

We begin the report by setting out in the **Preface** the theoretical basis for the key research ideas and scientific basis for health creation and planetary health. This section establishes the framework for understanding how a healthy and sustainable community can be planned, designed and activated using an ecosystem approach that will provide the resources and capabilities, as well as meaning and purpose in the lives of citizens to enable individuals and the community as a whole to flourish.

The report then features a conceptual illustration in graphical form for **Visualizing a healthy community**, using an ecosystem approach that, based on SALUS' own research, identifies priority areas required to promote health creation and planetary health. The illustration identifies areas of high impact and priorities for infrastructure and services as a conceptual framework, not a design solution for a healthy community.

**Chapter One: An ecosystem approach to healthy communities** follows by describing the concept of an ecosystem approach as a method for thinking, planning, operating and activating a healthy community that meets the needs of both people and planet. The approach sets out four critical dimensions of the ecosystem, including: the foundational drivers of health and wellbeing; the needs of people and communities; drivers of change and action; and priorities for healthy community creation.

**Chapter Two: Evaluating health outcomes and goals** imagines what a flourishing community that is both healthy and sustainable looks like, and outlines an approach to setting, measuring and evaluating health goals and outcomes over time. The chapter stresses how co-creation in setting the health goals and evaluation design, including the way data is collected to be fully inclusive of all community members and stakeholders, is as important as the outputs.

**Chapter Three: Visioning demand for healthy living** considers present and future demand factors for citizens to live and work in a healthy and sustainable place. The chapter recognizes that although people are increasingly identifying with community developments that demonstrate a commitment to health and sustainability, citizens typically do not pursue health as an end in its own right but as a means to lead a fulfilling and meaningful life.

The chapter explores how in a healthy community ecosystem, citizen needs can be met in respect of the essential resources they require for everyday living, such as: access to nutritious food choices and affordable housing; the development of individual and community capabilities through, for example, education, volunteering and productive employment; and opportunities for self-actualization and to lead meaningful and purposeful lives. The chapter considers these needs within the context of changing population demographics over time, with a focus on how diversity can contribute socially and economically to richer and healthier lives for the whole community. The chapter concludes with a consideration of what current population projections for the proposed community of Veraine and the surrounding region may mean for the design, planning and implementation of the community.

**Chapter Four: Planning, activating and operating** considers the practical strategies and steps needed to plan, activate and operationalize an ecosystem approach to a healthy community in practice. It recognizes the importance of governance, process, systems and accountability, but there also needs to be the development of a 'culture of health' that creates the conditions for collective and inclusive action in which all citizens can participate in creating and implementing the vision. The chapter identifies six key themes as a framework for activation: 1. Health in All Policies and Sectors; 2. Developing a governance model; 3. Creating a collective vision and conversation; 4. Strengthening the relationship between health, planning and the built environment; 5. Adopting digital technology for democratization and innovation; and 6. Optimizing the natural and built environment.

At the heart of these Guiding Principles is an approach to how to apply research thinking and evidence into practice. Throughout the report, a series of **Global Exemplars** of healthy and sustainable community developments, projects and technologies is included, alongside expert **Insights** from leading authorities in the field from both urban planning and public health backgrounds.

The global exemplars do not provide a prescription for how to design and plan a healthy community, since every development has its own context, history, opportunities and challenges, but they all provide important insights and lessons on how community groups, investors, policymakers, and practitioners can work collectively toward creating health for people and planet. Equally, the insights from SALUS' expert network can inform the ecosystem approach through years of knowledge development informed by both research and personal experience of designing, planning and working with cities and communities.

The report's **Conclusion** summarizes the key messages of the report, discusses its limitations and explores the next steps. In particular, consideration is given to how social and economic changes in response to primarily the planetary health crisis and acceleration of the drive to clean energy, alongside other technological advances, are reshaping the world with implications for the way we design communities.

# Leader



## Lord Nigel Crisp

Independent crossbench member, House of Lords;  
Co-chair, All-Party Parliamentary Group on Global Health

“  
**Creating health means providing the conditions in which people can be healthy and helping them to be so**  
 ”

The Covid-19 pandemic and climate change are shaking our world and making us realize that the ideas that served us so well in the past are not fit for the future. We need to discover and develop the new ideas, technologies and approaches that will enable us to prosper in a 21st century that is being reshaped politically, socially and economically by the threat to planetary health.

These catastrophic global events have shown us that our health as individuals depends on the health of our community and the people around us, on the health of our societies and the way they are organized, and ultimately on the health of the planet. ***We need a new way of thinking about health, which recognizes these connections and informs how we design, plan and build communities that create health and enable us all to flourish.***

To build a ‘culture of health’ we need to understand the causes of health. The prevention of diseases is important but it’s only part of the story. Health and wellbeing are about much more than the absence of disease. They are about life and freedom, confidence, and the quality of our lives. They are about our relationships, how we live, and what happens to us at work and at school. And they are about being all that we can be and living life to the full.

Creating health means providing the conditions in which people can be healthy and helping them to be so. Parents, teachers and employers can all exercise a profound and positive influence in helping create a resilient, confident, capable and healthy individual. All of them also help in building and maintaining a healthy community. And we can’t be truly healthy ourselves unless we are part of a healthy community, a healthy society and a healthy planet.

Health systems and professionals also play a crucial role in treating us when we get sick, but they can’t deal with many of today’s major health problems such as loneliness, stress, obesity, poverty and addictions. They can only really react, doing the repairs but not addressing the underlying causes. But there are people all over the world who are tackling these causes – in their homes, workplaces and communities. Opening up new ideas about health creation and quality of life, they are not waiting for government or health professionals to tell them what to do. They are not just preventing disease but creating health.

Health professionals don’t create our health. We do. All of us as individuals have responsibilities for our own health and often for the health of our families. Our behaviour, diet, exercise, and use of tobacco and alcohol all affect our health and wellbeing. And employers, educators, businesses and community leaders, as well as government, also have a responsibility to create the conditions that allow us to live healthy lives and make healthy choices.



Planners, architects, designers, real estate developers and investors, with responsibility for creating and building the environments, places and infrastructure that provide the context for our daily lives, also have a hugely influential role in creating health and wellbeing.

The pandemic has demonstrated how important our homes, neighbourhoods and the quality of the built environment are to our mental, physical and emotional health. People in lockdown with big gardens and large rooms in the leafy suburbs or rural areas have had a far different experience to people living in small apartments with limited space, natural light and access to the outside world. We must learn from the experience and set minimum standards in housing regarding size, access to daylight, access to nature, and other design features that create health. Both the built and the natural environment profoundly affect our health and wellbeing. The environment matters.

The pandemic also exposed the risks in global supply chains and arguably accelerated a shift toward sourcing goods more locally. What things do we want to be dependent on other countries for in the future? Will we still want our unseasonal strawberries from Ecuador, our year-round roses from Kenya, and our manufactured goods from China? Even more profoundly, what about care workers to look after disabled and older people, and farm workers to pick and pack crops? What will be the effect on our workforce and our economy?

Lockdowns during the pandemic also led to reductions in consumption, production, energy use and traffic, resulting in less pollution and fewer emissions that cause global warming. There are also signs that people are changing their lifestyles. More homeworking may help revive local communities and minimize unsustainable and unhealthy travel to work. Virtual meetings may reduce the need for business travel by car or plane.

Will the lessons of the pandemic help us adapt to climate change and apply planetary health science to the way we design our communities? Tackling climate change will have profound effects on all industries, reshaping our economies. Industries like farming, for example, will be transformed by innovations such as vertical farms (see page 64), as well as by less meat production. Widespread adoption of clean energy, reductions in chemical use, more local produce, and less 'slash and burn' forest clearance globally are just some examples of the changes we can expect.

The challenges are great, but the opportunities can be grasped if we embed health creation and planetary health thinking into the way we design and plan our communities. Each and everyone of us has our part to play.

“

**Both the built and the natural environment profoundly affect our health and wellbeing – the environment matters**

”

# Preface

**There is no single absolute truth on how to plan a healthy community. Every community in every nation is enriched with histories, legacies, peoples and natural resources that are contextual, diverse, individual and, at the same time, interdependent.**

The approach of these guiding principles, therefore, is ambitious and challenging, but also pragmatic, achievable and rooted in a combination of the latest science, research and application of best international practice in a way that can be adapted to the specific local context of Veraine.

Underpinning the approach is the natural law view that health is a human right, recognized in the Constitution of the World Health Organization in 1946 as: “The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition.”<sup>1</sup>

We also draw on both classical and modern research thinking to provide a theoretical basis for the design and planning of healthy communities. Here, we set out those core ideas and the science that supports the framework for the guiding principles in this report, which is further developed through our own applied research evaluation of 20 global planning frameworks and 400 individual concepts of health creation.

## The science of planetary health

Aligned with the United Nations’ Sustainable Development Goals, planetary health is focused on the interdependence of human health, animal health, and the health of the environment. Although great improvements have been made to human health in the last 150 years, with significant gains in life expectancy, and similar declines in poverty and child mortality, these advances have been achieved through an unsustainable exploitation of the planet’s natural resources. Defined as “the health of human civilization and the state of the natural systems on which it depends”,<sup>2</sup> planetary health calls for a reversal of the extensive degradation of our planet by better balancing human needs with the preservation of planetary resources, to maintain and protect the health and wellbeing of future generations.<sup>3</sup>

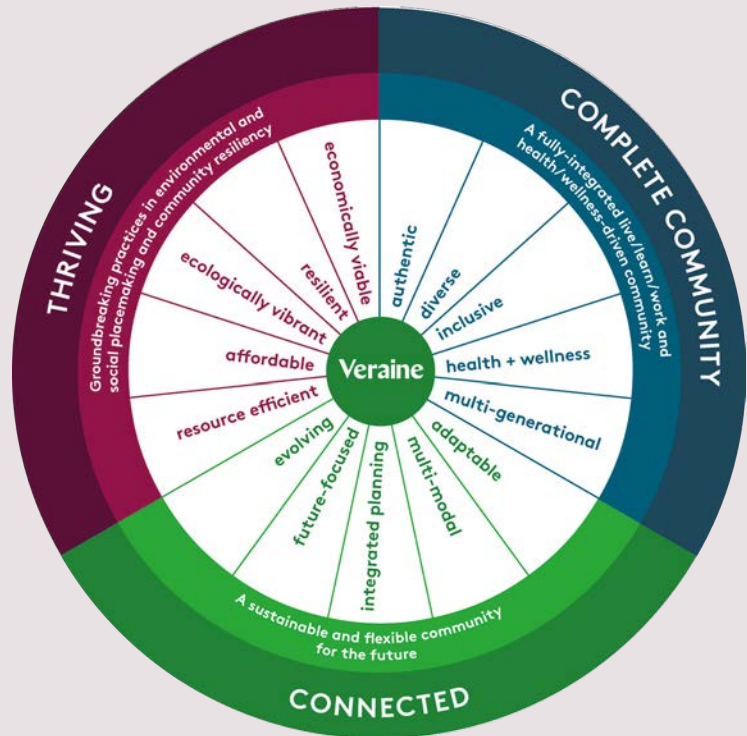
Core areas of environmental impact include but are not limited to: changing abundance, composition and distribution of species; biogeochemical flows; food systems and security; land use and land cover; climate change; global pollution; natural disasters and extreme weather events; urbanization; and water scarcity.<sup>4</sup> The resulting threats to human health include but are not limited to: civil strife and displacement; infectious diseases; mental health; non-communicable diseases; nutrition; and physical health.<sup>4</sup>

## Health creation as human flourishing

Health creation is an emerging field of thought that shifts our understanding of health away from a disease-focused paradigm, toward a recognition that our health is intimately connected to the health of our communities, society, environment and the planet. There are different strands of the health creation movement, but this report focuses on the ideas in the book, *Health is Made at Home, Hospitals are for Repairs*,<sup>5</sup> authored by Lord Nigel Crisp, which defines health creation as “providing the conditions for

people to be healthy and helping them to be so”, and a concern for life, freedom, relationships, and the development of meaningful and fulfilling lives. Health creation as a new paradigm draws on classical thought and modern research, including Anton Antonovsky’s theory of salutogenesis<sup>6</sup> and Aristotle’s Eudaimonia or, as referred to here, ‘human flourishing’<sup>7</sup>.

Health creation as human flourishing is developed from Aristotle’s view of flourishing as the highest good that human beings can seek to attain, a state of being that is held by a sense of purpose in our lives that leads to a good and worthy life. In this guidance, we consider how human flourishing in a healthy community embraces the values of individual autonomy; personal security/privacy, personhood, self-determination, community and equality; and support and develop individual and community capabilities and resources.<sup>8</sup>



Salutogenesis recognizes the importance of having access to necessary resources to manage our lives, which aligns to Amartya Sen’s approach to wellbeing that suggests a well-lived life should be measured by a person’s capabilities.<sup>9,10</sup> The emphasis, however, is on the capabilities of communities as “the mediating vehicles through which we come to acquire the resources we need to flourish and to become fully socialized into the exercise of our capabilities”.

Salutogenesis means the ‘origins of health’, as opposed to the more widely known term ‘pathogenesis’, which means the ‘origins of disease’. Salutogenesis is underpinned by the notion that people who have a strong ‘sense of coherence’ are better placed to cope with stress, which in turn determines their health and wellbeing. According to Antonovsky, a person’s sense of coherence is determined by three elements:

- comprehensibility – the stimuli from one’s internal and external environments in the course of living are structured, predictable and explicable;
- manageability – the resources are available to one to meet the demands posed by these stimuli; and
- meaningfulness – these demands are challenges, worthy of investment and engagement.

Aligning also to Veraine’s own wheel diagram for a thriving, connected and complete community (pictured above), these guiding principles support the vision for Veraine as a community with a strong ‘sense of coherence’, where its citizens trust that it is a safe, secure and well-functioning community where laws are legitimate and reflect community values and norms, such as diversity and equity (comprehensibility). It will ensure citizens have the resources they need: economic (jobs and wages); public (services, including infrastructure, healthcare, education, etc.) and social (culture, community activity, engagement). And it will create the conditions for people to flourish and live meaningful and good lives.

# Visualizing a healthy community

A conceptual illustration of an ecosystem approach and the priorities for a health-creating community that support planetary health

## High impact priorities for health creation



### Enabling healthy daily activities

Creating and stimulating health and wellbeing in everyday activities, e.g. through productive and meaningful work, learning and education, culture and the arts.



### Social space and social wellbeing

Creating inclusive and diverse spaces supportive of social connections and opportunities between all citizens.



### Leading active lives

Inclusive urban design and building design that encourage mobility, physical activity, and exercise through diverse everyday activities, sport and recreation.



### Growing and eating food

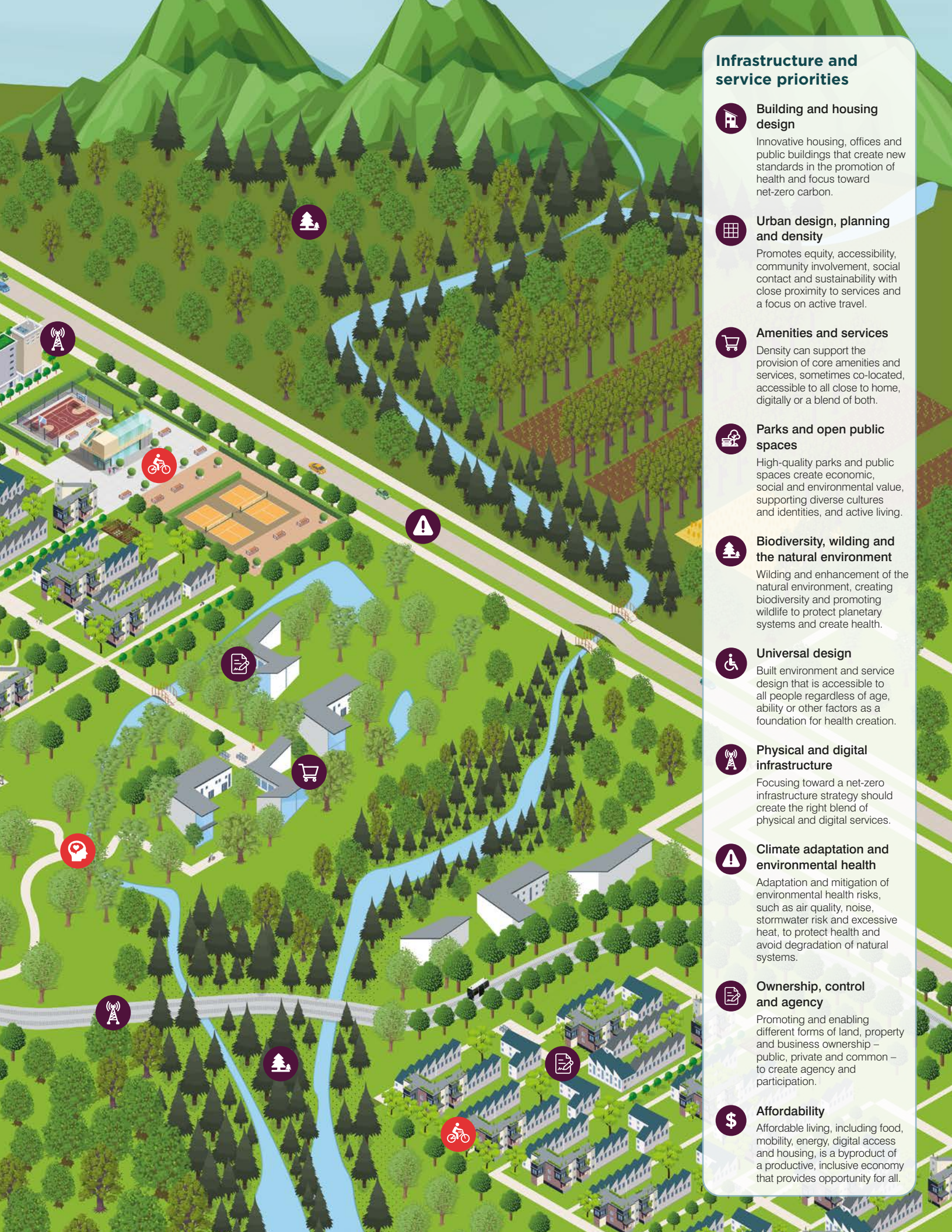
Promoting the growing and eating of nutritious and healthy food as a central activity of community life in a way that is sustainable and affordable.



### Safety and security

Design of the built environment that is safe and secure, and supports the legitimacy of laws and cultural norms that are understood, accepted and followed.





## Infrastructure and service priorities



### Building and housing design

Innovative housing, offices and public buildings that create new standards in the promotion of health and focus toward net-zero carbon.



### Urban design, planning and density

Promotes equity, accessibility, community involvement, social contact and sustainability with close proximity to services and a focus on active travel.



### Amenities and services

Density can support the provision of core amenities and services, sometimes co-located, accessible to all close to home, digitally or a blend of both.



### Parks and open public spaces

High-quality parks and public spaces create economic, social and environmental value, supporting diverse cultures and identities, and active living.



### Biodiversity, wilding and the natural environment

Wilding and enhancement of the natural environment, creating biodiversity and promoting wildlife to protect planetary systems and create health.



### Universal design

Built environment and service design that is accessible to all people regardless of age, ability or other factors as a foundation for health creation.



### Physical and digital infrastructure

Focusing toward a net-zero infrastructure strategy should create the right blend of physical and digital services.



### Climate adaptation and environmental health

Adaptation and mitigation of environmental health risks, such as air quality, noise, stormwater risk and excessive heat, to protect health and avoid degradation of natural systems.



### Ownership, control and agency

Promoting and enabling different forms of land, property and business ownership – public, private and common – to create agency and participation.



### Affordability

Affordable living, including food, mobility, energy, digital access and housing, is a byproduct of a productive, inclusive economy that provides opportunity for all.



## Chapter One

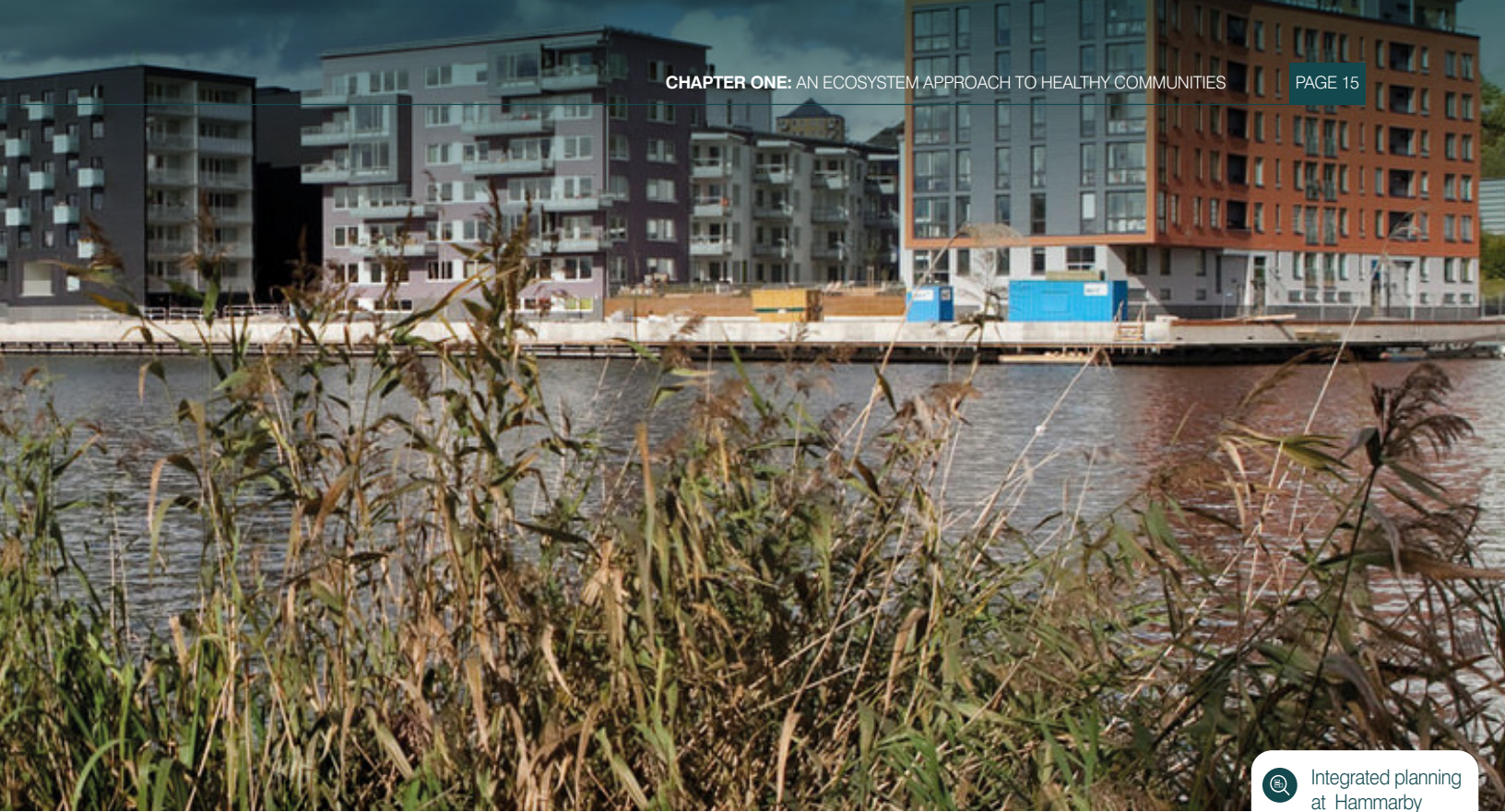
# An ecosystem approach to healthy communities

**At the core of the guiding principles is an ecosystem approach to planning and developing healthy and sustainable communities with a strong focus on meeting the needs of both people and planet.**

Planetary health and numerous environmental public health approaches are grounded in healthy ecosystem science. An ecosystem approach rejects a linear understanding of how to plan a healthy community and instead recognizes the dynamic interconnectedness and interactions between multiple elements, embracing this complexity and seeking to provide tools to create positive and sustainable change.

By complex, we mean like a spider's web, so if you pull on one strand the impact spreads through the web. By contrast, sending a rocket to the moon, while very complicated, has a clear series of sequential steps and outcomes.<sup>13</sup> Many of the linear tools and ways of working available today are not suited to creating change in an ecosystem. Different approaches are therefore required, such as a social-ecologic approach, which has been the mainstream paradigm in public health for several decades;<sup>14-17</sup> includes a focus on the wider determinants of health,<sup>18-20</sup> and is informed by complex systems thinking.<sup>21</sup>

For example, the impact on health from housing, workplace and transport, together with nature, food systems, healthcare and education, is a dynamic relationship. Each area will interact and impact on another to create the conditions for people to be healthier or suffer from greater or lesser levels of disease and illness.



 Integrated planning at Hammarby Sjöstad, Sweden helped to create a global exemplar for healthy and sustainable urban design (see pages 34-35)

Understanding the interactions between these component parts is essential for human flourishing at a collective and community level that supports the right to good health for everyone.

This evidence-informed approach is developed from SALUS' analysis of the existing evidence base. The Guiding Principles are underpinned by this analysis, which reviews 20 global planning frameworks for health, including several from Canada, and synthesizes more than 400 individual concepts of health creation. Despite a maturing evidence base in the field, gaps were identified in the existing knowledge and research on the role of civil society and governance, and response to the planetary health crisis. These Guiding Principles therefore develop the existing evidence base to set out a holistic approach to creating human and planetary health.

## Health isn't something that can be ordered up online and shipped by courier: it is something created with people and communities in the places where they live

The ecosystem approach in these Guiding Principles is founded on four dimensions:

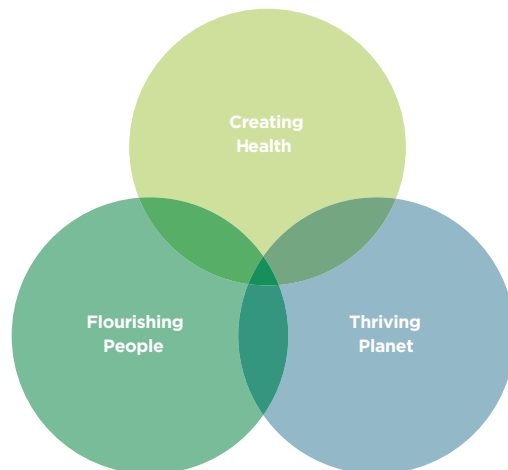
- **Ecosystem Dimension One** The foundational drivers of health and wellbeing
- **Ecosystem Dimension Two** The needs of people and communities
- **Ecosystem Dimension Three** Drivers of change and action
- **Ecosystem Dimension Four** Priorities for healthy community creation

## Ecosystem Dimension One

# The foundational drivers of health and wellbeing

At the heart of any approach to health creation is an understanding of the determinants and causes of health. At the core of this are:

- **Underlying values and definition of health:** a holistic definition focused on health creation;
- **Planetary, natural and resource boundaries:** planetary health and its importance for humans as an integral part of nature, not separate from it; and
- **People, identity and culture:** creating health with people and the importance of understanding the present, past and future population demographic and profile of a community.



**Figure 1 | Key concept**  
A health-creating ecosystem,  
the foundational drivers of  
health and wellbeing

## Underlying values and definition of health

Good health leading to human flourishing is a human right and a holistic concept including physical, mental and social health, and covers aspects such as spiritual wellbeing: "...the highest attainable standard of health is a fundamental right of every human being".<sup>22</sup> In an ecosystem, the health of a population can both shape and be shaped by the social and economic conditions of a community. It is therefore intimately connected to the right to good health for everyone. This is a primary driver for the focus on health creation.

In the last 150 years, the pathogenic model with its focus on treating sickness and disease has dominated the global healthcare industry we see today. But a focus on sickness does not provide understanding of health and wellness and how it is created or produced. Healthcare is traditionally focused on treating us when we fall ill – as such, doing the repairs to fix us,<sup>23</sup> yet the terms 'health' and 'healthcare' are often and misleadingly used interchangeably. While hospitals will always be needed to play a critical role as the Covid-19 pandemic has shown, greater understanding and investment in the causes of health can lower societal and healthcare costs, reduce health inequalities, support more vulnerable population groups, and lead to a more productive and creative workforce and society. A shift in emphasis to health creation across communities is good for everyone's health: places with the greatest inequalities have the worst health overall.<sup>24</sup>



This curative focus on treatment and disease has also been biased, resulting in health inequalities such as those due to economic discrimination and structural racism.<sup>24</sup> Covid-19 has reinforced and accelerated many of these inequalities – a health-creating ecosystem is needed to actively address them.<sup>25</sup>

With their historical connections to the land, indigenous peoples globally, including First Nations communities in Ontario, possess invaluable knowledge and lived experience concerning the interrelation between human and planetary health that are directly relevant to the ecosystem approach:

**“...in indigenous communities, ...one speaks of wellbeing, one has a view of health, ...which is much more an overall state of health based on a balance between all aspects of life”<sup>26</sup>**

Inclusion of First Nations peoples is a critical part of defining a shared understanding and knowledge-based vision of health creation in Veraine.

Through the lens of health promotion, the Ottawa Charter also promotes everyday activities as a means through which health is created with an emphasis on social and personal resources, as well as physical capacities that can increase people's control over their own health: “...health is created and lived by people within the settings of their everyday life: where they learn, work, play and love”.<sup>27</sup>

These settings include the places where people live and work. Neighbourhoods, streets, housing, transport and the workplace have a vital role in health creation as citizens journey through their daily lives.

This is a holistic definition of health with a focus on creating good health while, at the same time, reducing health inequalities. It seeks to promote social health and deliver on the promise of good health as a right for everyone, serving as a foundation for human flourishing.

## **Planetary, natural and resource boundaries**

Human and planetary health are inextricably linked; human beings are an integral part of nature, not separate from it: “You can’t have healthy people on a sick planet.”<sup>28</sup>

Dramatic environmental changes, including climate change, freshwater depletion, deforestation, biodiversity loss and acidification of the oceans, are an existential threat to human health. This requires a community development, from planning to citizen action, to be a wise steward of its own ecology, safeguarding its own natural systems to support and promote planetary health, and protect, maintain and create human health.

This part of the ecosystem approach includes but is not limited to:

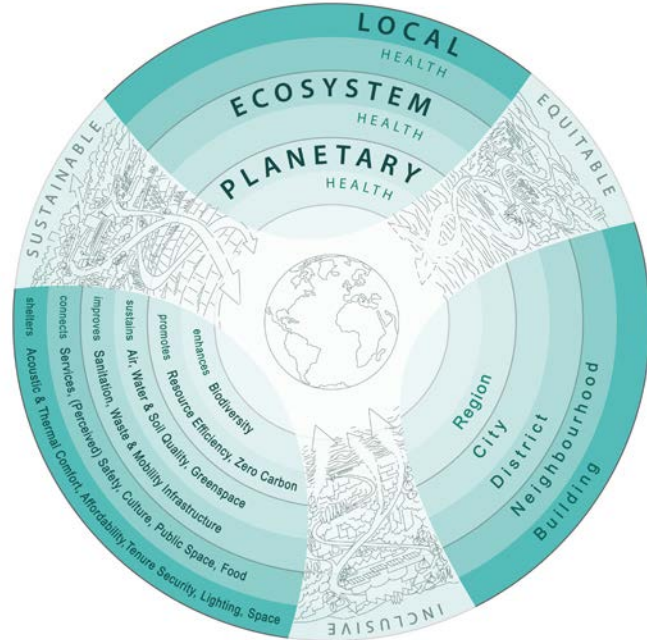
- responding to the planetary health crisis<sup>29,30</sup> with an urgent focus on net-zero carbon and greenhouse gases, both those directly and indirectly generated;
- circular / resource economy approaches, and planning for zero waste – including to address the 45 per cent of carbon emissions embodied in products, construction materials and buildings, such as steel, concrete and aluminum;<sup>31</sup>
- the health of natural systems, including healthy nitrogen, phosphorus, carbon, and water cycles; and
- protecting and enhancing nature and natural systems, including habitats and biodiversity.

Although many human activities in a community development will be new, it is important to understand the profile of any existing resident population and the land uses. Indeed, any existing natural habitats and watercourses, such as the Carruthers Creek watershed in Veraine, will be critical resources to maintain and enhance in the development of a healthy and sustainable community.

As the need for global action on planetary health and climate stress grows, the future success of a healthy and sustainable community will depend on an evidence-informed approach that goes beyond existing standards in planning and sustainable development, since many traditional norms of development create risks to natural resources and these should be identified as a priority for restoration.<sup>32</sup>

The recently developed THRIVES framework (see p23) is an important concept to consider as part of an ecosystem approach, as it recognizes the importance of environmental degradation and structural barriers to health in urban policy and development, establishing a clear connection between planetary health and health equity.

An ecosystem response also requires combining local community knowledge with science and research approaches to create health in balance with nature.<sup>33</sup> The skills, knowledge and capacity needed must be developed and acted on by a wide range of actors.



**Figure 2 | Key concept**  
The THRIVES framework

## People, identity and culture

The third aspect of the foundational drivers for health and wellbeing encompasses two elements:

- **Community profile and assets:** The distribution of health impacts in a population will vary by group, and for equitable health creation, it is important that all groups are considered. Understanding the nature and profile of individual communities is a foundational task that requires investment of time and resources and is often harder to assess than first envisaged.

In a community where significant population growth is projected, it is important to identify both the existing resident population and the future community demographic. Planning for a diverse population mix that enhances the richness of the community's resources and brings greater meaning will support human flourishing. Early planning and development decisions will influence this outcome.

- **Culture and identity of communities and peoples:** An asset-based approach to the development of natural resources, such as green spaces and waterways, as well as community capabilities, such as skills and knowledge, will strengthen the community's health and social resilience. Co-creation with indigenous peoples and First Nations, to make use of their historical and cultural knowledge of the land and nature, will enhance health creation for all residents and citizens.

In Chapter 4, some different approaches, including the creation of a Digital Data Collaboration Platform and Library, which recognizes data as another community asset, are considered in more detail.

## Ecosystem Dimension Two

# The needs of people and communities

The second dimension of the ecosystem considers the needs of people within communities.

Learning, eating, playing, working, exercising, praying, socializing, and many other everyday activities in all communities are the essence of a healthy and good life. Each activity, however, may not be health-creating in its own right, and many lifestyle and environmental factors may encourage people to perform necessary activities in unhealthy ways. Family responsibilities and work commitments, for example, may require driving to a distant job inaccessible by public transport after dropping or collecting children from school, or finding time to visit the grocery store to ensure food is on the table in the evening.

An ecosystem approach to a healthy community recognizes the impacts of these activities and how they interrelate, providing the conditions for healthier choices within an open, sustainable, and health-creating urban ecology. This may, for example, ensure planning for more diverse local employment opportunities and digital infrastructure to support remote working, both at home and in public spaces, with more accessible, affordable, sustainable and active modes of transport, and local access to healthy foods and groceries.

One approach to this form of urban transformation that has gained traction since the pandemic is the 15-minute city, where all essential urban services are available within a 15-minute cycle or walk.<sup>34</sup>

What distinguishes a healthy community is that daily activities are supported in ways that promote and incentivize healthier choices for everyone and embed the foundational drivers of health.

This focus on people's needs provides:

- a way of thinking about health – an easy way to open up dialogue and opportunities to listen to different groups about everyday relatable topics;
- an approach to thinking about health outcomes; and
- a means to assess what services, facilities and infrastructure might be required to support these activities in a way that is health-creating.

In Chapter 3, which considers how to vision and plan demand for healthy living over time and across different population groups and life stages, greater focus is given to these needs and how the needs can themselves be used to plan for health creation.

### Ecosystem Dimension Three

## Drivers of change and action

The third dimension of the ecosystem focuses on how to create positive change.

To be successful, cooperation and working in the ecosystem are as important as the health outcomes themselves. Creating change in the ecosystem is about both process and outcome, and both require investment. An implication is that time invested in a clear decision-making process will be time well spent, and needs people and organizations with skills in building consensus.

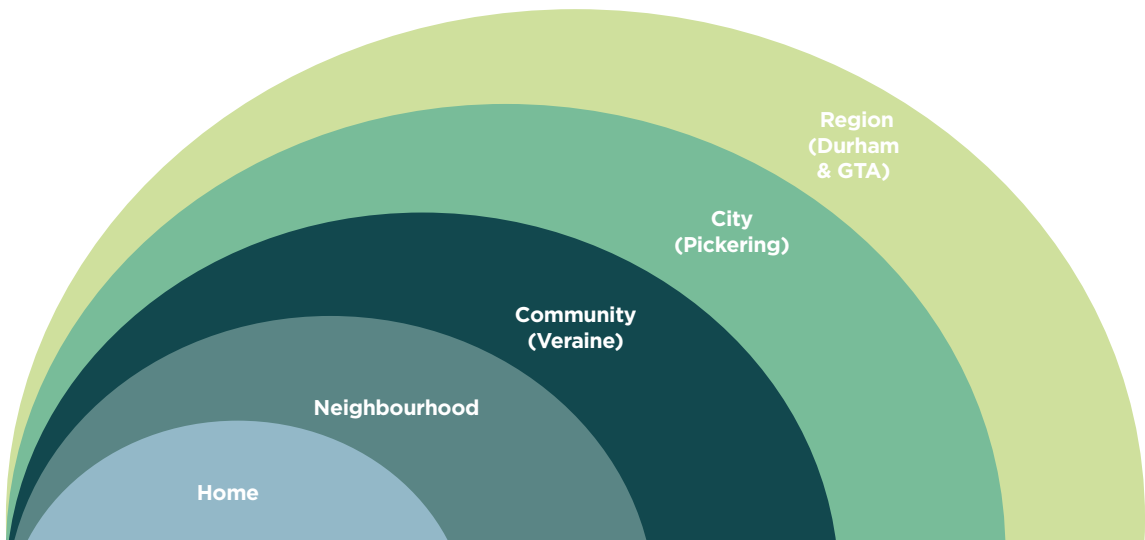
This aspect of the ecosystem is also explored in Chapter 4, with a focus on collective action for change and how to create change across sectors within a complex ecosystem dynamic.

Collective action demands an integrated effort, establishing clear governance, and co-creation with a wide range of stakeholders, including civil society. Collective action done well can create health by supporting a sense of community agency and sense of control and coherence in everyday life. This contrasts with standard approaches to engagement or consultation, which can create negative impacts and miss opportunities to connect with wider, marginalized or minority population groups.

Different stakeholders and time periods require alternative approaches and ways of working. Different stakeholders can also have distinct perspectives on scale and timespan. Creating change in the ecosystem to drive health creation though is about collective action and ways of working. Three key ways of working to create change are highlighted: scale; lifecourse; and research, evidence and evaluation.

---

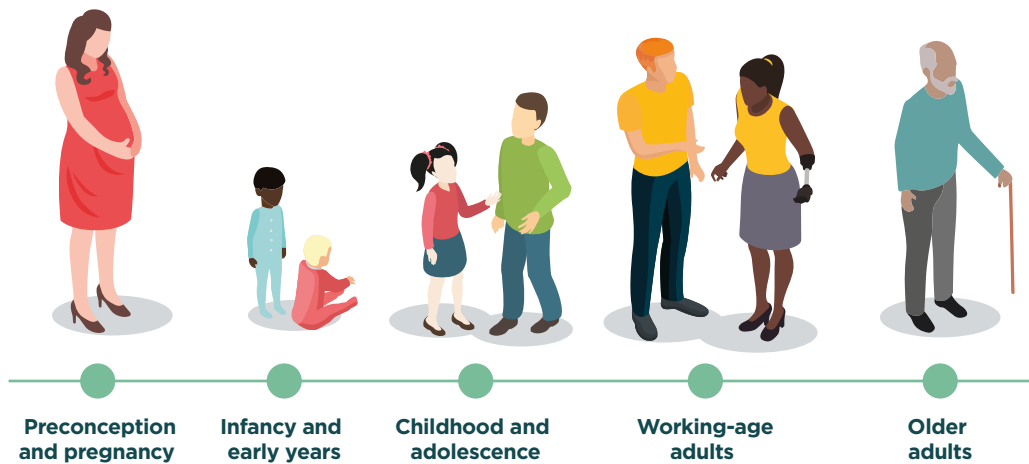
### Scale:



**Figure 3 | Scale** Think about and plan at every scale

Scale includes thinking at different sizes. This is not limited to physical scale, it could also relate to digital or service scales. The range of scales considered may also vary. Planning and designing a healthy community needs to be a golden thread that links health creation as a goal to resident needs at all scales; for example, the culture and identity of a street are just as important as the entire community development.

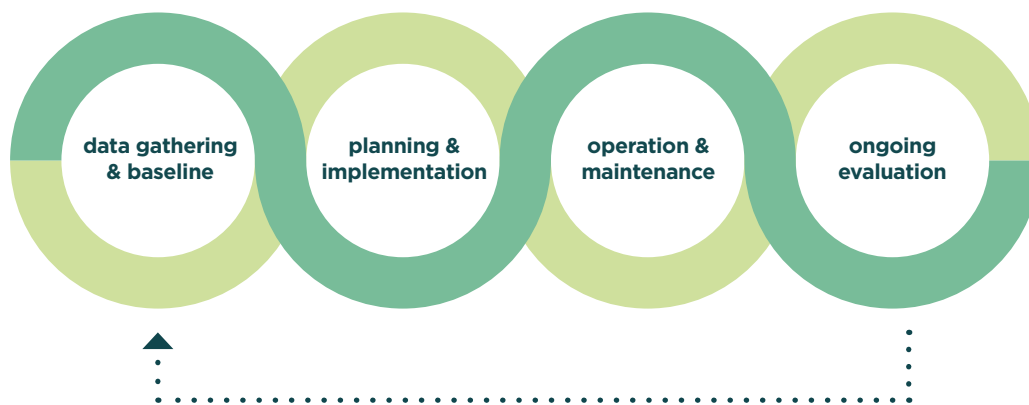
## Lifecourse:



**Figure 4 | Lifecourse** Think about and plan for every time frame

A lifecourse approach is a way to think about health and disease at key life stages, from preconception to early years, adolescence, working-age and older life. The approach also resonates with indigenous cultures and knowledge, where a cyclical conception of life is often central to beliefs. Lifecourse approaches can also be adopted for areas such as the built environment or business or product lifecycles, with the concept also linking to circular economy thinking and the adoption of regenerative systems.

## Research, evidence and evaluation:



**Figure 5 | Evidence and evaluation**

Integrate evidence and evaluation from the outset and on an ongoing basis

The application of research, evidence and evaluation is not an end in its own right but a tool for informing decision-making to support the goal of health creation. Evidence can be retrieved from many sources, and qualitative data from the lived experience of residents is just as valid in its own context as quantitative or statistical data. In fields such as public health and medicine, evidence-informed approaches are more widely adopted and expected than in the real estate and built environment sectors, arguably leading to less understanding concerning the effectiveness of investments in reaching their social, environmental or commercial goals.<sup>35</sup>

### Ecosystem Dimension Four

## Priorities for healthy community creation

In the fourth dimension of the ecosystem, several points are particularly relevant to the goal of creating a healthy community at an early stage of development. Integrating these priorities at this stage will be easier and more cost-effective to implement – and may also be difficult to change at a later stage.

Based on our framework analysis, the conceptual illustration map (see pp12-13) identifies 15 priorities for healthy community creation. This encompasses five priorities for supporting health-creating activities in citizens' daily lives, including growing and eating food, and active living,

A further ten infrastructure and service priorities for health creation are set out as community provisions and aspects of the natural and built environment required to enable health-creating activities to take place. Eight of these relate to physical assets and the way they are designed, such as buildings, parks and digital infrastructure. One relates to governance, including ownership, control and agency in respect of land and property in both private and public collective ownership. And one recognizes the importance of financial sustainability and affordability. Six of these aspects are developed in more detail in Theme 6 in Chapter 4 (see pp58-59) as examples of how to activate and operationalize a healthy community.

It's important to note that these Guiding Principles and priorities for healthy community creation are not intended as an urban design guide, benchmark or educational textbook. Good examples of these exist, however, and a number are referenced within this document.

As demonstrated in the conceptual illustration, within the healthy community ecosystem, each of these actions and priorities interact and impact on each other and cannot be realized in isolation, reflecting the dynamic and holistic nature of a health-creating and sustainable community development.



# The THRIVES Framework



**Dr Helen  
Pineo MRTPI**

Associate Professor in Healthy  
and Sustainable Cities,  
University College London

“  
**The framework  
is based on  
three core  
principles that  
define a healthy  
place: inclusive,  
equitable and  
sustainable**

”

**In a year when an infectious disease and extreme weather events have taken many lives, there is a growing understanding that ‘business as usual’ operations in many sectors will not solve society’s most pressing challenges. Creating places that are good for people and planet is therefore an imperative for new development.**

The THRIVES Framework offers a new approach to healthy urbanism that urges planners and designers to consider the multi-scalar impacts of development and structural factors that inhibit people from living a healthy life.

The framework is based on three core principles that define a healthy place: inclusive, equitable and sustainable. Moving these considerations to the centre of the THRIVES diagram (see p18) reorients our thinking towards the structural factors that affect health, in contrast to traditional models that start with individuals, their genes and ‘lifestyle choices’. Choices about where and how we live are heavily constrained by societal and environmental factors, many of which are determined by the built environment. Globally, low-income and racial/ethnic minority communities are disproportionately burdened with pollution, unsafe roads and poorly maintained public spaces. A health equity approach seeks to remove these disadvantages so that everybody has access to the resources required for health.

There is also a need for inclusive processes to consider urban design in terms of accessibility and comfort for all residents. Finally, the sustainability principles in THRIVES require development to meet the needs of the present population without compromising the needs of future (and spatially distant) populations. This can be achieved through sustainable design and construction principles.

Central to healthy urbanism are three interconnected scales of health impact: planetary, ecosystem and local. These pathways, through which urban environments affect human health, can be supported at any scale of decision-making. A highly effective way to support planetary health, for example, is through zero-carbon systems, such as energy and transport infrastructure. However, it’s also important to design zero-carbon buildings in energy use and embodied carbon in materials. The arrows flowing through the THRIVES diagram (see p18) show that all scales relate to and cross over each other.

This new framework – based on existing theory in social epidemiology, sustainable development and systems thinking – provides a structure for understanding healthy urban environments.<sup>36</sup> It is a lens through which planners, designers or community groups can think about how health is influenced by urban development and policy. More information is available at [www.healthyurbanism.net](http://www.healthyurbanism.net) including a free online training course that provides practical tools and case studies.



## Place shaping in a Healthy New Town



**Bicester lies in Oxfordshire's Cherwell district. Owing to its location in the Oxford – Milton Keynes – Cambridge corridor, and good road and rail links, the town is expected to grow from 35,300 residents in mid-2016, to 50,000 by 2030.**

This provides challenges and opportunities. Cherwell District Council and its partners are looking to test innovations to improve healthy behaviours, a healthy environment, residents' wellbeing, and inclusive growth.

In 2014, Bicester became a Garden Town in the UK – a status that brought in government funding for studies to support infrastructure development and improvements. The town now includes the UK's only eco-development (true zero carbon) at Elmsbrook. From 2016 to 2019, Bicester was one of ten demonstrator sites on the NHS' Healthy New Towns (HNT) program. The aim was to follow a whole-town approach and make Bicester a place where “healthy behaviours are easy, fun and affordable – where being active, eating healthy food, and being a good neighbour are part of normal daily life”.

Having won a place on the HNT program, the team developed a detailed plan, shaped by local communities, and crafted a program of practical activities based around three workstreams: the built environment; community activation; and new models of care. Academic institutions helped ensure that proposals were evidence-based; outcomes could be measured; and the program was robustly evaluated.

This evaluation and research included: an initial baseline health and wellbeing survey – with further sampling of older residents and residents with learning difficulties; focus groups and interviews with those involved in designing and delivering the program; a review of progress at the end of the second year, to inform planning for the final year – with an extension considered beyond March 2019; and an evaluation of the program's economic impact.

### Contact

**Dr Rosie Rowe**  
Healthy Place Shaping  
Lead, Wellbeing  
Directorate, Cherwell  
District Council, UK

Oxford Brookes University and the University of Oxford designed the evaluation process, with academics from other institutions running individual strands. It involved a “rapid cycle” approach, using feedback and similar qualitative data to make tweaks to projects.





**Enabling healthy daily activities:** routes for cyclists, walkers and runners



**Building design:** healthy design principles in housing and planning



**Growing and eating food:** improving diets and cooking skills

A selection of the many interventions include:

- a new cross-town cycle route, bike repair sessions and improved pedestrian and cycle-way signage;
- three 5K routes for walkers and runners marked out with blue lines, and a 15-minute town centre walk;
- support for walking and cycling groups, including training walk leaders and bike-ability trainers;
- incorporating healthy design principles into housing and planning – by altering local planning requirements, working with developers, and improving green spaces;
- encouraging improved diets and cooking skills – by working with a leading supermarket, the food bank and schools, and introducing a scheme to promote healthier options in food outlets;
- work in schools to promote physical activity, volunteering and intergenerational projects;
- developing local networks for voluntary organization and intergenerational connections; and
- creating a Healthy Bicester Facebook page, promoting Public Health England (PHE) apps, healthy living tips and information about events.

Some of the results achieved include: Healthy Bicester’s Facebook page reached an average of 13,540 people every month by June 2018; 450 new downloads of the PHE apps in Bicester; a 27 per cent rise in footfall as a result of 5K routes; a 3 per cent rise in healthy walking in 2018 alone; an 8 per cent rise in children’s lunchtime activity, and a 12 per cent increase in attendance at “holiday hubs” to keep children active in school holidays, in 2018 alone; and 150 sixth-formers attending a volunteering fair.

The process, evaluation and achievements are detailed in the Bicester HNT Case Study,<sup>37</sup> which explains how three challenges were addressed: coping with limited national funding and cuts to public services; uncertain timescales; and ensuring residents felt ownership. It also identifies eight “success factors”:

- close partnership working, with a town team covering core skills and expertise, and a local authority providing political leadership;
- key individuals with interest, enthusiasm and capacity – and planning for continuity should they be replaced;
- early engagement of local stakeholders;
- close alignment with partners’ existing strategies and local priorities;
- enabling a connected system to develop and improve;
- strong, dedicated and flexible program management;
- being part of a wider program; and
- dedicated yet flexible funding.

While the HNT program ended in 2019, the healthy place-shaping agenda continues. Cherwell, which is currently commissioning an evaluation of the whole system, will fund this agenda, rolling it out to the neighbouring communities of Kidlington and Banbury.



Bicester was one of the UK’s first Garden Towns

# Nested in nature



**ReGen Villages, a Stanford University spin-off (with a Canadian subsidiary), takes a software and machine learning approach to designing and operating neighbourhood bio-regenerative infrastructure, integrating clean water, renewable energy, high-yield organic food production, and circular waste to resource management.**

The VillageOS™ data model is based on how trees communicate using mycelia networks under the soil. Connected at the roots and communicating nutrients across diverse species, with intelligence at the point of sensing, the model also creates a long-term ledger for the benefit of thriving communities.

The VillageOS™ imagines sentient neighbourhoods that create relationships between previously siloed infrastructure, and learn and improve in a continuous cycle. The generative design process also provides an operational model for managing regenerative infrastructure, in addition to other connected services of on-demand mobility, curriculum, healthcare, and a community-based economic ledger.

ReGen Village developments are site-specific and climate-specific design responses for supporting 300+ households, which can be configured for larger village and town layouts of 300+ home pods. This is achieved by communities establishing baseline sustenance through on-site regenerative systems, where private residences share community-based regenerative amenities that strive for self-reliance.

ReGen Villages takes the concept of a community enveloped by nature to its fullest meaning, deriving nutritional flows across interconnected systems, rooted in First Nation appreciation for design inspired by earthen materials and circularity. Indeed, ReGen Villages represents all 17 United Nations' Sustainable Development Goals under one impact umbrella.

ReGen Villages views new developments through the lens of regenerative resiliency to meet the challenges of safe, healthy and secure communities by applying transformative technology. The VillageOS™ software considers the relationships between neighbourhood infrastructure components, understanding where these previously siloed platforms can learn and improve from their awareness of each other.

An important aspect of ReGen Villages is the emphasis on healthy organic and biodynamic food. It combines no-till agriculture and farm animal grazing with controlled environment aquaculture and vermiculture, designed around cultivating, harvesting and digestion of waste by worms that become food for other animals. An awareness of the precious nature of water and its circularity through community ecosystems is enhanced by its relationships with energy, food, waste and housing infrastructure. Harvesting, storing, conserving and recycling of grey and black water at the neighbourhood scale remove the need for district sewer lines, and convert waste into an asset class of nutrients. Striving for self-reliant power generation, storage and micro-grid distribution,

## Contact

**James Ehrlich**  
 Founder, ReGen Villages Holding,  
 Entrepreneur in Residence, Stanford University School of Medicine



Creating sentient, regenerative neighbourhoods



The goal is self-sufficiency through the provision of safe and reliable energy



**Growing and eating food:**  
healthy organic and biodynamic food



**Physical and digital infrastructure:**  
transformative technology



**Biodiversity, wilding and the natural environment:**  
bio-regenerative

ReGen Villages' design for multiple renewable energy sources includes integration of solar photovoltaics, solar thermal, low-bore/low-energy heat exchange, small wind turbines, modular biomass, and biogas. The goal is to provide safe, reliable energy that can be self-sufficient in case of district-scale failures.

With rapid changes needed to address urgent affordable housing demands, as well as meet sustainability requirements, Canadian mass timber and cross-laminated timber provide the possibility for precision offsite construction and rapid onsite building with Passive House volumetric modules and component wall units. With 3D printing and extrusion of housing units, as well as using earthen building materials, whole social/affordable communities can be realized in a few months.

Integration of the built environment supply chain around energy-positive homes will be a key factor in changing policies for rezoning of agricultural land to accommodate fast-track developments. Aligning these supply chain 'stars' to support new economic models is based on integration of these fast-track solutions to create self-reliant neighbourhoods that benefit people and planet.

Bringing forth a new community requires the valid concerns of adjacent land owners, farmers, regional greenbelt associations, First Nations, and neighbouring municipal authorities to be addressed. Inclusion of these voices are to be welcomed in the iterative design process. Taking the approach of nature first and foremost, designing from the perspective of natural flows and permaculture, the aim is to achieve a suitable ratio of productive agricultural and open space with environmentally integrated housing infrastructure.

By creating self-reliant infrastructure that doesn't rely on district-scale services, and by integrating work from home and within shared workspaces at the village level, adoption of ReGen Villages principles can resolve pending environmental and municipal impact concerns.



Site- and climate-specific design responses

## Chapter Two

# Evaluating health outcomes and goals

**What does a healthy and sustainable community look like? How do you navigate and evaluate progress toward a vision for a health-creating community that supports its citizens to flourish in balance with the planetary environment? Many scenarios, paths, decisions and events will shape a journey that will have many twists and turns and will never reach a final destination.**

Imagine Veraine in 2035, as a new community development that provides the conditions for its evolving population to go about their daily lives in ways that are health-creating and sustainable, supporting them to lead a purposeful life with the resources they need, but at no expense to future generations or further degradation of the planet. Whatever age or life stage, the services and facilities exist to support health, wellbeing, and a high quality of life, including meaningful opportunities for work, volunteering, lifelong learning, social interaction and personal development at an individual and a community scale.

Physical activity is embedded in everyday life. Nutritious food, including a significant portion grown locally, is sourced sustainably with residual products composted and reused for the next crop cycle. New technology and vertical farming support climate change adaptation, limiting reliance on global supply chains, and reducing the use of pesticides and impact on soil degradation (see p64). Dedicated space for food production is sustainably managed with a neutral impact on natural cycles. Designated areas of natural habitat have

## **What is the criteria for what a flourishing and healthy community looks like in Veraine? How can the results be assessed?**

been enhanced to support the development of more resilient ecosystems with each season. While summer temperatures are increasing due to climate change, extensive coverage of tree canopy and other green infrastructure is minimizing the urban heat island effect. Extreme weather events are stronger and more frequent, but green infrastructure and other measures mimicking natural processes are retaining most of this water where it lands, slowing its passage to watercourses and further downstream.

By using sustainable materials with light carbon footprints, the community development did not expend significant carbon resources. Exemplars of low-carbon steel and concrete in construction pioneered in the community infrastructure are now commonplace globally. Energy use is minimized with a significant proportion of energy used being produced locally from renewable sources and with net-zero carbon emissions overall. With standards for construction and net-zero improving, residents and businesses in the community feel secure in the knowledge that their homes, neighbourhoods, and business premises already meet future standards and won't be exposed to unexpected shocks of costly retrofit.

Crucially, the existing and new population groups within the community have a material role in shaping this vision and implementation, with the First Nations communities at the fore of developing more holistic understandings of wellbeing for the whole community and what it means to live in balance with nature.

This understanding is also reflected in child and adult education across the lifecourse, with human wellbeing and planetary health as core subjects, building a new social contract between the individual, the community, and the land for current and future generations. In public services, the investment also shifts to long-term population health, ensuring greater financial sustainability, reduced burden of chronic disease on the health system, less work absenteeism, and greater creativity and productivity in the economy.

This is one possible scenario for new communities to achieve their vision. There are many other potential scenarios where those invested in a community's vision – including politicians, land owners, developers and, importantly, citizens – will need to define and develop collectively. It is a challenge facing societies across the world, and although no path will be easy, the opportunity to create a new standard for the future in how to develop a healthy and sustainable community is an achievable vision if the rapidly evolving research knowledge, ideas and technologies available can be captured and applied through an ecosystem approach.

## Measuring and benchmarking health outcomes

Often attributed to Peter Drucker, an influential thinker on modern management, the phrase “what gets measured gets done” is meaningful for how to design and plan a healthy community. By measuring and benchmarking health outcomes against carefully considered criteria, an assessment of whether Veraine has met its health goals can be made.

At the same time, it's vital to nuance this against the importance of the quality of interactions between people and the creation of a community. So what is the criteria for what a flourishing and healthy community looks like in Veraine? And how can the results be assessed?

## Evaluation and results in the ecosystem

As highlighted in Chapter 1, key ways of working in the ecosystem include: scale; lifecourse; and research, evidence and evaluation. Evaluation is described as: “...the systematic and neutral collection and analysis of evidence to judge merit, worth or value. Evaluation informs decision making, improvements, innovation and accountability.”<sup>38</sup> And the evaluation required will vary at different times of the development cycle of a healthy community, as well as over the lifecourse of residents.

## Defining the logic

A logic model is a simple route map for a proposed healthy community. A participatory logic model workshop is a valuable approach to defining from the outset the component parts of the program, investment or project, and collectively agreeing goals comprising:

- **Inputs:** resources needed – human, financial, community, etc.
- **Participants (co-producers):** who will be involved.
- **Outputs (activities):** what we will do with the resources.
- **Outcomes (short, medium, long term).**

The real estate and built environment sectors are typically good at measuring outputs but, historically, do not invest in evaluating outcomes on whether specific goals of an investment or project have been achieved. In these sectors: “Guesswork continues to be the preferred mode of operation.”<sup>39</sup>

Each part of the logic model can be considered and evaluation approaches adopted that consider: outcome evaluation; co-producer evaluation; collaborative ideation evaluation; and output evaluation.

Outcome and output evaluation are well understood. Co-producer evaluation considers participant and population groups represented. Collaborative ideation is proposed by Adrienne Maree Brown<sup>40</sup> as the process of creating new ideas collaboratively from inception, with an evaluation of the quality and impact of the process, not just the outputs and the process itself as contributing to health outcomes.

This needs to happen across all aspects of the ecosystem – not just physical infrastructure but also planned services. As identified in Chapter 1, the process and the quality of engagement and co-production can be as important for health creation as what is actually delivered.

## Outcome evaluation: measuring wellbeing

With the advent of evidence-based medicine, healthcare outcomes are rigorously assessed, yet there has been less incentive for research to be conducted into the effectiveness of existing treatments than of novel ones.<sup>41</sup> While we've become expert at measuring sickness, good health and wellness have often been overlooked. But this is starting to change, with global measures of health and wellbeing emerging. These indicators are drawing together a range of measures of health, such as the Health Index for England; others align wellbeing with national priorities, such as New Zealand's Wellbeing Budget.

Individual wellbeing surveys focus on questions like:

- How satisfied are you with your life nowadays?
- To what extent do you feel that the things you do in your life are worthwhile?
- How happy did you feel yesterday?
- How anxious did you feel yesterday?<sup>42</sup>

Indexes of community health and wellbeing look at a broader picture; for example, the New Zealand Living Standards Framework, used by the treasury to track performance, includes: domains of wellbeing outcomes – e.g. health, housing, environment, subjective wellbeing; capital stocks that support wellbeing – natural, human, social, financial and physical; and risk and resilience to change over time.

In addition, the Conference Board of Canada's Community Well-Being Framework evaluates the built environment's contributions to community wellbeing. The Framework encompasses domains related to the social, economic, environmental, cultural and political conditions identified by individuals and communities as essential for them to flourish.

As for data, being able to draw comparisons relevant to context are important. The Canadian Index of Wellbeing (CIW) offers an approach to wellbeing evaluation that is well suited to a healthy community development. The CIW includes:

- Domains and indicators: domains and indicators to measure wellbeing on an ongoing basis.
- Index reports: reports at a national and provincial scale using the domains and indicators.
- Community wellbeing survey: an adaptable approach to assessing subjective wellbeing of communities linked with the same domains.

The domains within the index are: community vitality; democratic engagement; education; environment; healthy populations; leisure and culture; living standards; and time use.

The CIW applies to the whole of Canada (last updated 2016) as well as at a provincial level (2014). While the refresh rate would ideally be annual, the CIW's consistency of measurement offers the most developed approach in Canada.

In terms of demonstrating key principles for future healthy community developments, the CIW is an approach that can readily be adopted. It is designed as an integrated suite of measures providing an overall summary score. Certain metrics are readily available public data (life expectancy); others obtained through survey or other measure (hours spent volunteering); and others need to be calculated (e.g. ecological footprint).

Any evaluation framework will be refined and evolve over time, and it will be important to ensure that outcomes related to the following are sufficiently addressed: health creation; net-zero carbon in use; natural habitat and biodiversity; and economy circularity. Additionally, sufficient demographic information should be collected to allow data to be analyzed by impact on different population groups.

## Co-producer evaluation

This is taken to mean who was planned to be involved versus who was actually involved. This can be segmented by population groups, including: sex- and gender-related groups; age-related groups; income-related groups; representatives of key settings – schools, workplaces, etc.; groups at higher risk of discrimination or other social disadvantage; ethnic identity; First Nations; members of the LGBTQ+ community; people with long-term health conditions; disabled people; religious groups; and veterans. These lists are developed from public health guidance and relate to those who may experience greater health impact (positive or negative) than others.<sup>43</sup> They should, however, be reviewed in context and with local stakeholders.

Evaluation design should take the form of both: quantitative assessment of which groups have been represented and to what extent; and qualitatively – for example, using reflective learning techniques to gauge the quality of interaction experienced by different groups and what is needed to support their engagement.

Engagement and co-production with a wide range of groups are essential to the success of a community in achieving its health goals. Investment in these activities is important. A citizens' panel is one approach that can help to engage a representative group of citizens. Consideration should be given as to how people's time will be supported in recognition of the value of their knowledge to the success of the whole community. Without this, certain groups would be disadvantaged by the engagement itself, which would be detrimental to the aim. Such a panel could rotate over time and become part of the civic contribution of citizens.

## Collaborative ideation evaluation

Here, we mean how the process was undertaken and how different groups were impacted by the process itself, rather than the outputs. Types of evaluation questions include:

- Where did ideas and innovations emerge from and how were these developed?
- What changes were made as a result of co-producers' involvement?
- Did the approach provide opportunities to bring different groups together?
- How did the process support greater understanding between different groups?

Reflective learning surveys or diaries are another means of collecting qualitative data. Questions about future and continual improvement could focus on what to change or do differently next time.

## Output evaluation

Outputs should be evaluated against benchmarks aimed at delivering desired outcomes. These Guiding Principles aim to provide approaches to evaluating benchmarks, but not to set those benchmarks. However, such benchmarks will need to evaluate response to and movement toward: net-zero embodied carbon and energy; nature preservation; and health creation.

Existing benchmarks are a good starting point while recognizing that the standards aimed for will need to be at the top end and beyond of these existing benchmarks: "... scoring systems are arguably overly positive in their choice of ratings, particularly the purposive use of language. LEED and BEAM Plus use terms such as 'gold' and 'silver', which all suggest a degree of excellence but, potentially, sound significantly poorer when termed 'second' or 'third' rate."<sup>44</sup>

Performance standards address this by setting clear performance requirements, such as the Passive House standards requirement for 15kWh per metre square per year, 0.6 air changes per hour, and thermal comfort standards for inhabitants. Reduced energy use in operation standards for embodied carbon will be a critical requirement in any healthy community.

## Digital Data Collaboration Platform

At an early stage of development there is an opportunity to instigate the collection, synthesis and governance of community wellbeing data. A digital wellbeing dashboard, for example, could:

- form the centre of a platform for citizen engagement;
- help to bring forward in time the visibility of data that can often be slow to come to light;
- bring together diverse data sources in a user-friendly format;
- be updated through citizen surveys;
- provide an anonymized population-level dataset;
- provide a tailored resource for schools, community groups and researchers in Veraine; and
- provide a tailored resource for service providers to plan for and respond to the community's needs.

There are opportunities, too, for digital technologies to measure key aspects of the built environment, if planned for from the outset. These approaches can be combined with citizen science projects and community information programs and could be broken down by street / neighbourhood / whole community with the potential to support a collective sense of achievement:

- energy use / production (whole street / neighbourhood / whole of Veraine);
- modal split of traffic;
- hours volunteered;
- average outdoor temperature; and
- wildlife tracking and identification.

## Guiding the vision

Approaches and methods of setting health goals and measuring and benchmarking health outcomes and impacts over the lifecourse of a healthy community, from planning to development to operation, are a valuable tool. In an emerging field, choosing the right approach for the local context of a new healthy community is an important consideration and one that should recognize how an inclusive process of co-production is as important as the goal setting and evaluation itself. The employment of an ecosystem approach should be guided by an inclusive engagement process, which is explored in Chapters 3 and 4.



# Healthy communities – addressing a triple threat



## Ken Greenberg CM

Principal, Greenberg Consultants, and Former Director of Urban Design and Architecture for the City of Toronto

“  
Rather than throwing us off course, Covid-19 is functioning as a ‘particle accelerator’  
”

**When the dust has settled, the pandemic may actually improve our cities and communities, forcing us to address many long-standing weaknesses and boldly seize new opportunities.**

Before Covid, we were already in the early stages of rebounding from a post-war, car-centric concept of the city. Visionary goals were to be found in the planning documents of almost every city in the developed world – and of many in the developing world. Central to this was a rediscovery of many of the discarded virtues of the pre-war city – compact, walkable and mixed use.

Compact, complete communities supporting increased walking, cycling and public transit use address a triple threat. A 2014 study by Peel Public Health, ‘Improving health by design in the Greater-Toronto Hamilton Area’,<sup>45</sup> showed that sustainable community design helps combat high rates of hypertension, diabetes, obesity and heart disease – all of which are exacerbated by an automobile-dependent lifestyle – and that those very design elements can also help lessen the spread of infectious diseases. In fact, sustainable, walkable, mixed-use neighbourhoods have many characteristics that can defend against infectious and chronic disease, provide resilience in a pandemic, and address the existential threat of human-induced climate change by reducing auto emissions.

We’ve seen widespread adoption of the concept of a “city of proximity”, where life’s daily necessities are just a short walk away. Covid-19 has intensified momentum by shining a bright light on every daunting challenge in shifting to more sustainable ways of urban living – vulnerable populations, affordability, mobility, aging infrastructure, climate change, and the need for public space. Rather than throwing us off course, it’s functioning as a ‘particle accelerator’, highlighting deficiencies and vulnerabilities, and pushing us to do things more rapidly and nimbly.

Many of these adaptations will have lasting, positive repercussions. We’ve seen that city dwellers are resourceful and, for the most part, care about each other, demonstrating the benefits of neighbourhood micro-communities as social support networks. Acts of kindness and unprecedented volunteerism have abounded, drawing on a deep well of social capital. And at the national and sub-national level, bolder “recovery budgets” and long-awaited programs have come forward under the rubric of “build back better”, addressing such needs as universal daycare, extra long-term care support, affordable housing programs, tougher climate targets, shifting to a greener economy, and systemic racism and reconciliation.

With the right ambition, new communities like Veraine have a wonderful opportunity following the pandemic to create a new history and standard founded on health for present and future generations.



## Turning the badlands into the good life



**In over 20 years of development, Hammarby Sjöstad, Stockholm's forgotten industrial wasteland, has been transformed into an international exemplar for sustainable urban design.**

Back in the early 1990s, the site was a 200-hectare industrial wasteland, ridden with pollution and social problems. "It was really rough," says Charlotta Baker, who ran public outreach events for visitors to Hammarby Sjöstad for Stockholm City Council. "We had illegal businesses, an unsolved murder, drugs, illegal clubs. Anything we wanted to get rid of, we burnt it or threw it in the sea. What it has become shows that it's possible – anywhere in the world – for somewhere quite polluted to be transformed into something sustainable."

At the time, there was political will to use city planning to make the district extraordinary, with Stockholm bidding for the 2004 Olympics. The city lost to Athens, but politicians were still eager to invest money, set environmental standards, and test technologies. "It's easier to plan when you have the instrument of planning and building acts, and also own the land," says Olle Zetterberg, former director of Stockholm City Planning.

Today, Hammarby Sjöstad is home to about 28,000 people and 10,000 workers. The masterplan's success lies partly in family living. The area attracts families, owing to the richly layered spaces, density, connectivity, and access to nature. From the public quayside and parks, the high street or semi-private courtyards, there is care and longevity in the spatial planning. There are now 19 hectares of green areas in the neighbourhood, owned and maintained by the city.

As the land was mostly city-owned, this allowed for simple integration of public transport, power and water during planning. Integrated planning of electric trains, trams, biogas-powered buses, commuter boats, and a carpool initiative has ensured that almost 80 per cent of journeys are by public transport, foot or bicycle.

Water sets the character of the place and the gentle slope to the water creates a sense of partaking in the waterfront space. For natural capital to deliver health benefits, it needs to be integrated into the fabric of people's lives. At Hammarby, from the management of stormwater to the courtyard water features, it's something that everyone owns together. What allows for this shared green and blue infrastructure is site density. It's not super dense, more *lagom-dense* or as dense as needed. That was borne from the solidarity

### Contact

**Carl Bäckstrand**  
Partner and International  
Director, White Arkitekter



**Parks and open public space:** shared green and blue infrastructure



**Urban design, planning, density:** care and longevity in the spatial planning



**Safety and security:** transformed from a wasteland with social problems

between different design teams, developers, contractors and public bodies. “It was the first project in Stockholm where the city planners, real estate agents, traffic agency, water company, and environmental and health administration worked together in one office,” says Gunnar Söderholm, Stockholm’s environmental health director. It’s this masterplan process and how planning is managed that need to be replicated, not the masterplan itself.

The ambition is to recreate this for Södra Skanstull, on the other side of Skansbron. From Årstaviken’s nature trails, boating and sporting activities, to the area’s creativity and culture, Skanstull’s lifeblood is diversity. However, busy road infrastructure and flyovers dominate, and a wealth of commercial and retail activity gives rise to overcrowded, inefficient public spaces. If Hammarby Sjöstad shapes a place where none existed, Södra Skanstull is an exercise in densification, adding structure and space to support walkability, improve the public realm, increase green infrastructure, and provide more homes for the growing urban population.

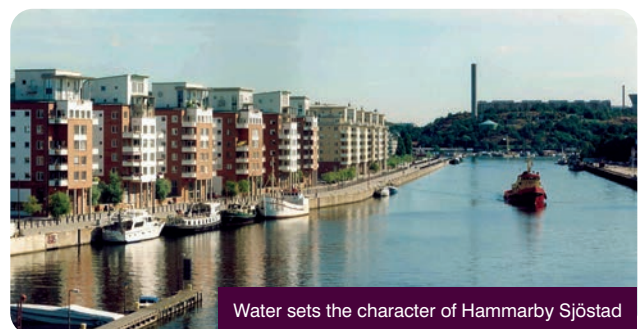
Could anything be done differently? Firstly, there’s not enough mixed-use. There was a conscious decision to shape a concentrated high street with an active commercial ground floor, keeping smaller lanes for residential use. But it doesn’t fully cater for how people live today. Design with flexibility is key, so it’s possible to adapt easily to different use classes over time. The second observation is cultural homogeneity. It wasn’t apparent who would be moving in at the time, and the results don’t reflect the income diversity envisaged – an ongoing issue that needs addressing at policy level. But architects and urban designers can push for better outcomes in diversity, care, longevity and good governance. And that’s the key takeaway from this extraordinary project.



Södra Skanstull’s lifeblood is diversity



The success of Hammarby Sjöstad is in family living



Water sets the character of Hammarby Sjöstad

## Chapter Three

# Visioning demand for healthy living

**The pandemic and greater public awareness of climate change are accelerating citizen demand to live and work in healthier and more sustainable communities.**

Understanding present and future demand factors for where individual citizens, families, and different population groups of different age demographics might wish to live and work is no simple task.

There is, however, increasing evidence that demand is increasing for places and communities that can demonstrate they are both healthy and sustainable. Rising levels of health and climate literacy created by public health information campaigns following the Covid-19 pandemic, and the increasing levels of media and scientific reporting of climate-related extreme weather events, are also likely to stimulate demand.

A clear sign of this demand shift is recognized in a recent report by the Centre for Active Design, the UN Environment Programme, and Bentall Oak Green. The report highlights that 87 per cent of real estate investors representing US\$5.75 trillion surveyed had experienced increased demand for healthy buildings in the past 12-24 months, with 92 per cent expecting that demand to grow in the next three years. By sector, it shows that 87 per cent of respondents in the commercial office sector, 61 per cent from the residential sector, and 47 per cent from the retail sector reported that tenants are driving demand for healthier buildings.<sup>46</sup>

**Health is not the objective:  
it is a resource for everyday life<sup>47</sup>**

Understanding demand is a complex behavioural economics science with many variables to consider, and is beyond the scope of these guiding principles. It's important to recognize, however, that while there is increasing evidence of a rise in explicit demand for healthier places in which to live, there are many other socio-economic factors at play. It's also important to recognize that while it may appear rational for people to wish to live in a healthy place, people in general may not be pursuing health as an end in its own right but as a means to lead a fulfilling and meaningful life.

The benefits for health can be evidenced across a broad range of domains: physical, mental and social. Health is therefore a resource that can be both a determinant and consequence of achieving human flourishing as the objective. Communicating these benefits and making clear the impact and association of place and the living environment on health and wellbeing are nevertheless important. A consistent focus on community- and population-level benefits is also important to promote and achieve equity and improve health outcomes for all. Many of those benefits can only be realized through collective action and the development of community-level capabilities, as well as individual skills and opportunities.

## What do people look for in a place to live?

A focus on day-to-day activities helps frame understanding of what existing and future citizens of a healthy community might need and desire. To some degree, those needs and desires will be defined by the different constituent population groups; for example, their cultural identity or by their lifecourse stage.

Common needs typical to most groups that will support a community to flourish include:

- safety and security;
- access to food choices;
- employment opportunities;
- housing and housing affordability;
- education, schooling and learning;
- recreation and leisure;
- green space and nature;
- identity and a sense of community;
- opportunities for social connections; and
- the ability to get around with a range of transportation choices.

Each population group will also place different emphasis on different needs and have a different perception of their priorities. A pensioner may not require paid employment and their school years may be long behind them, but intergenerational volunteering could provide invaluable social contact through a school or care home setting, while also providing mentoring and a role model for children or young adults.<sup>48</sup>

## Citizen needs in the ecosystem

For every citizen, day-to-day activities are an important part of life: learning, eating, playing, working, exercising, praying, socializing, and many other activities besides. As explained in Chapter 1, however, these activities may not be health-creating on their own and sometimes people will carry out necessary activities in unhealthy ways. The idea of so-called lifestyle choices is increasingly challenged in public health thinking<sup>49</sup> and there is a growing recognition of the structural drivers of health, over which individual citizens often have limited control. Individual approaches to tackling obesity, for example, have largely failed, because they ignore the wider influences on behaviour, with greater emphasis now being placed on population approaches designed to make healthy eating, nutrition and exercise more accessible and affordable.

New community developments have an opportunity to learn these lessons and get it right from the outset. In a development where the infrastructure – including the transport system, housing, the public realm, and healthcare, education and food systems – have yet to be created, there is an opportunity to embed the latest research and practice, and thereby leapfrog to a new concept of a health-creating community that supports human flourishing.

What distinguishes a healthy community is that daily activities are supported in ways that promote good health for everyone and embed the foundational drivers of health. Many daily activities, such as learning or productive work, are health-creating by nature, in that they provide meaningful activity. At this stage, it's the activity that's important, not where or how it happens.

For example, there can be many opportunities for health-creating activity in a flourishing community. Learning doesn't just happen in the classroom but also in the museum, at the theatre, or in everyday living. Children can participate in play in the pedestrianized street or the park, as well as the playground. And exercise can happen in the gym but also on a trail or cycle path, or simply by walking to a shop, which also provides an opportunity for social interaction. What the drivers of population health tell us is that how activities are



**Figure 6 | Key concept**  
An ecosystem approach to mapping citizen needs

performed and who participates will vary for different groups and change over time. That is why understanding the current and future community is vital to supporting a full diversity of activities across the lifecycle.

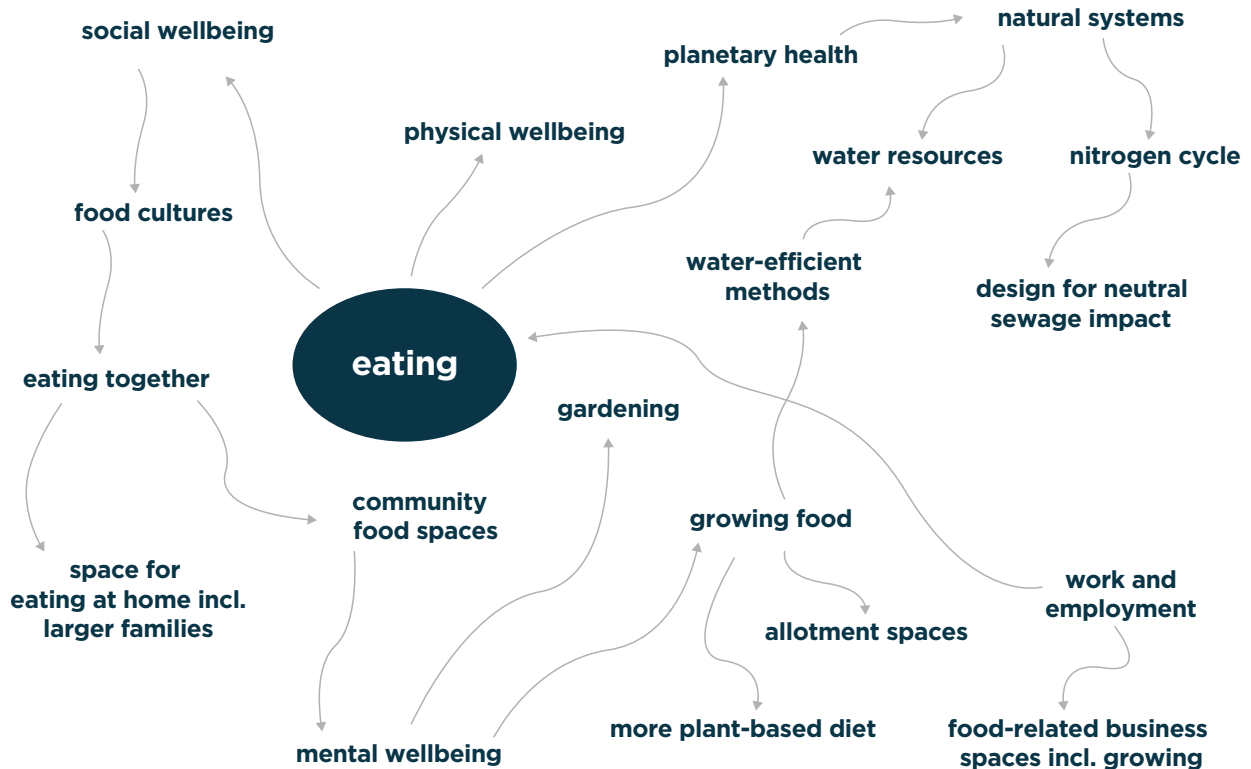
The experience of lockdowns during the Covid-19 pandemic, for instance, has demonstrated how the lack of social connection for young people and older adults, in particular, has been damaging to wellbeing. This has also exposed the inequity of access to digital services and infrastructure, and how it impacts health indirectly, through unequal access to online learning, public services including healthcare, and social contact.

Walking to the shop may be ideal for some groups and provide some form of social connectivity. Equally, home food delivery may be more practical for less mobile individuals who find shopping difficult, yet they may then miss out on the opportunity for their social wellbeing needs to be fulfilled.

Population-level thinking is more likely to deliver the desired health outcomes at a community level, and it has co-benefits for planetary health, contributing to resource efficiency and community resilience.

Understanding current and future activities and demand reduces the risk of forming inaccurate assumptions based on past ways of working that are neither suited to a changing social, economic and environmental context nor to the local conditions of the community. Instead, this approach sets out that services, facilities and infrastructure can be provided on the basis of a range of identified activities, and with an understanding of the flexible ways in which they can be provided to accommodate a diverse range of population groups.

For example, if the provision of schools is extended at weekends, evenings and holidays to offer wider community access for whole-life learning and adult education, can this provide co-benefits for population health, economic performance and planetary health through better utilization of community and educational



**Figure 7 | Key concept**

Mapping activities, settings and health outcomes related to eating and the food system

infrastructure? Equally, could a community wellbeing hub not only provide community health services but also health-related retail, community uses, and municipal support services?

Mapping out activities offers a simple approach to working in the complex ecosystem. Examples include engaging in dialogue and listening to different groups to allow activities and needs to be mapped. These can be linked to physical, mental, social and spiritual aspects of health. Activities can be mapped together and individually within the ecosystem. An example based on eating and the food system is shown above.

## Changing population demographics

Identifying and understanding the population demographic of a community now and in the future are key starting points to planning for community health and wellbeing. It's also essential for planning public services, from health and social care to education.

This, however, is a complex challenge. By our definition, a healthy, flourishing community is a diverse community, rich in capability and social, economic and cultural resources comprising many different groups, each of which will be able to contribute a rich set of skills and knowledge, as well as having varying everyday needs that will impact on the wellbeing of the overall population.

Existing data and trends can help to grasp key aspects of the prospective population and how it might differ from the population today, even when comparing with similar existing communities. In the proposed site for Veraine, for example, the age profile is likely to be different than similar existing populations. Future population growth (86 per cent) in Ontario is also projected to come from net migration rather than existing population growth, and in recent years, 90 per cent of people moving to Ontario were 44 years of age and

younger.<sup>50</sup> Global drivers will also impact on population movement. In particular, the effects of the planetary health and climate crisis are likely to impact in multiple ways, the most significant drivers of which are:

- transitioning to a climate-smart global economy, including a rapid conversion to clean energy, adoption of circular economy principles, and requiring new knowledge and skills; and
- climate migration, causing displacement of entire communities and regions destroyed by drought, flooding, extreme weather events, and food and water security issues.

Both of these issues present existential threats and opportunities that require careful modelling, as they are likely to change the population composition and needs of a new community.

Population profiling and considering groups with particular needs are common in public health. Ideally co-produced with citizens, it's a valuable tool for future visioning of citizen perspectives and future demand.

### Case example

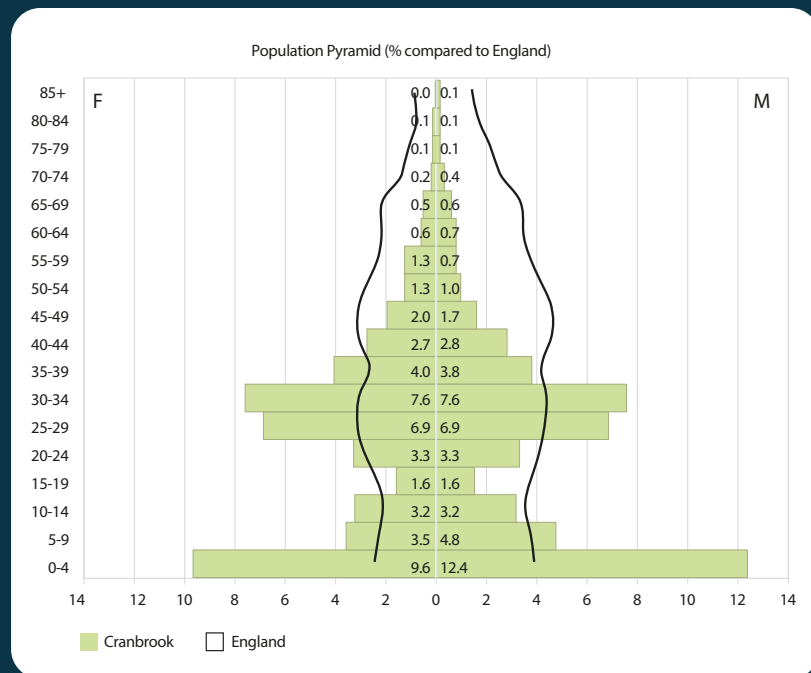
## Cranbrook Healthy New Town, UK

Cranbrook is part of NHS England's Healthy New Towns program. This large development on a greenfield site outside the city of Exeter in South West England comprises about 8000 housing units and is being developed by a number of large housebuilders.

Prior to development, the site was largely – though not wholly – unoccupied. The future population was therefore new to the site. In these early years of the development, the population has been estimated to have a much higher component of young families (adults 25-34; children 0-4) compared against the profile at a national level in England.<sup>51</sup> It's believed that policies such as the Government's Help to Buy funding program, a scheme incentivizing first-time buyers, may have played a part in the type of residents attracted to the development.

This has resulted in health needs at Cranbrook being more focused on mental health and wellbeing, health-related behaviours such as smoking, and sexual health. By contrast, low levels of chronic, long-term health conditions are found. This has an impact on the wider health ecosystem and provides a time-bound opportunity to support healthy behaviours now and in the early years of development to help prevent these health conditions arising in the future.<sup>52</sup>

The lesson to learn is whatever the future population profile, it's important to address the needs of a diverse population by considering a suitable range of types of household and socio-economic mix.<sup>53</sup>



**Figure 8 | Key concept**  
Population pyramid: Cranbrook Healthy New Town



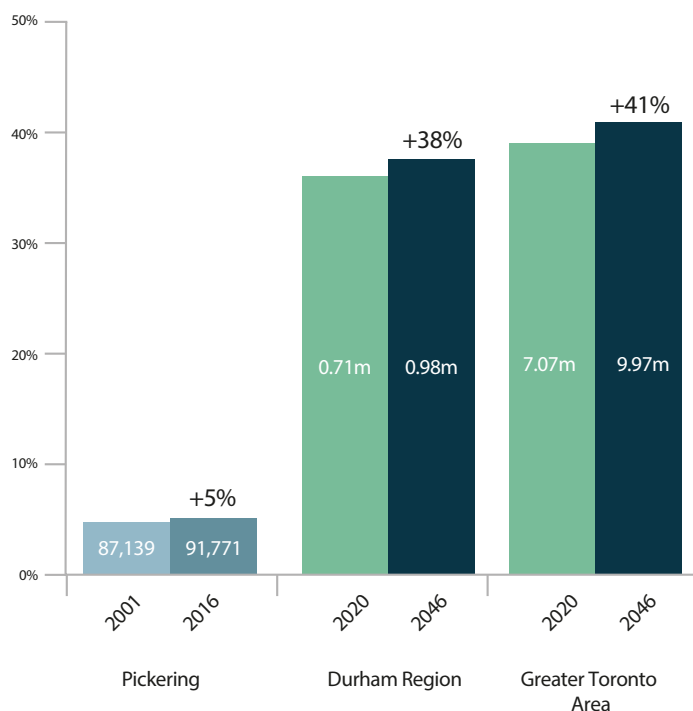
## What this means in Veraine

This report sets out some considerations for a projection of the future population of Veraine, and to identify the general trend. Data is limited and not always comparable, so this should not be understood as a detailed population projection itself.

Any projections should start with an analysis of the existing population. On the proposed Veraine site, assuming an even physical distribution across the census tract, the existing population is estimated in the low hundreds. The site area population has reduced over 15 years compared with Pickering city overall, which has increased. The existing age profile of Pickering currently is in line with wider Ontario, with a slightly higher proportion of people aged 10-24 and 50-59, and slightly fewer aged 70 and older.

Population projections to 2046 are available at regional and provincial scales. Updated in 2021 by the Ontario Ministry of Finance / Stats Canada and compared with previous 2019 data, these projections show a continued and larger population growth to 2046 than previously assessed. Although the available data is difficult to compare, Figure 9 does demonstrate how between 2020-2046, the rate of population growth is anticipated to accelerate significantly, compared with a more stable rate of growth between 2001-2016.

This includes assessment against Covid-19 impacts which, broadly, have a short-term impact on net migration and less projected long-term impact; overall, growth is marginally lower in absolute terms for the Greater Toronto Area (GTA) but higher for Durham Region.



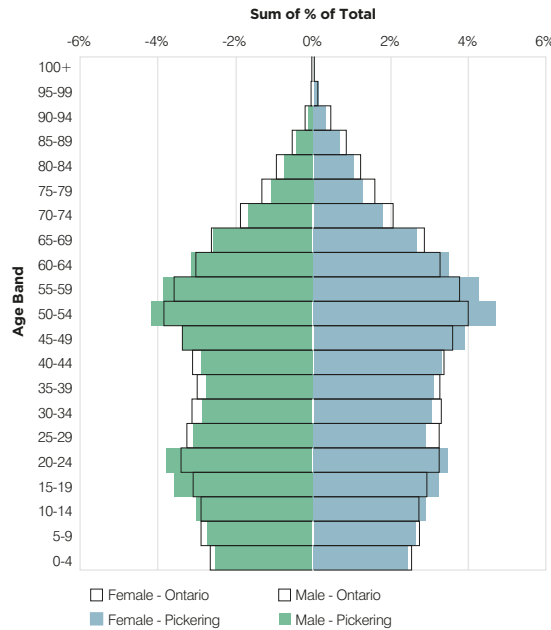
**Figure 9 | Key concept**  
Past and projected population growth in Pickering, Durham and the Greater Toronto Area (%)

The projected resident population of Veraine is 59,752 persons, assuming an average household size of 2.8.<sup>54</sup> This equates to a significant percentage of the projected population growth for Durham Region and suggests future growth for the city of Pickering that is significantly higher than the Durham average.

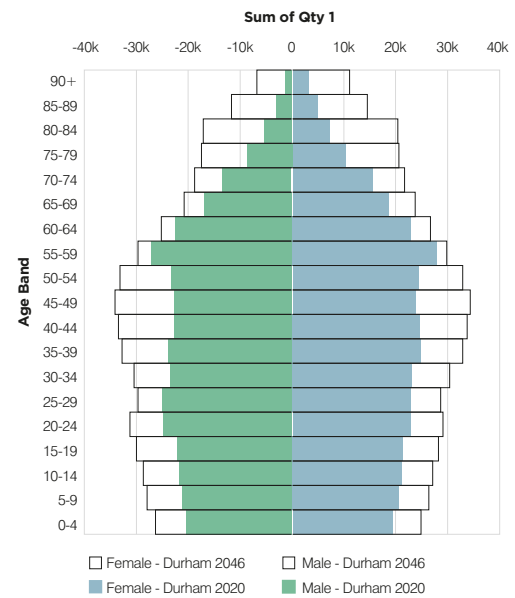
Looking at public projections for Durham Region to 2046, compared with a traditional 'pyramid', the population shape might be described as a block – a growing and aging population. The shape, reflecting the age distribution, is notably different from the existing Pickering/Durham shape. This has important implications

for citizen needs and health outcomes. It reflects significant shifts in overall demographics at both a regional level in Ontario and nationwide in Canada. In Durham, this equates to a 29 per cent increase in people aged under 70, and an increase of 119 per cent of people aged over 70, and 291 per cent of people over 90. For Veraine, this analysis is of value, for example, in: identifying overall growth; quantifying housing need by age group; and identifying housing types that may face particular demand driven by age group. However, what drives the population profile of Veraine could be affected by factors including:

- which age groups are likely to move house versus those who remain in existing housing; and
- funding models or incentives that drive a particular demographic – e.g. First-Time Home Buyer Incentive.



**Figure 10 | Population pyramid Pickering and Ontario (Census, 2018)**



**Figure 11 | Population pyramid Durham 2020-2046**

### Population groups

Understanding different population groups is vital to assessing health impacts and outcomes. Identification of groups requires engaging their members to state correctly how they wish to be identified, as well as to understand their needs.

A health-oriented perspective, outlined briefly here, should consider groups including but not limited to:

- sex- and gender-related groups;
- age-related groups – children, general population, older people, etc.;
- groups at higher risk of discrimination or other social disadvantage, including First Nations’ peoples, religious groups, veterans, disabled people, ethnic minorities, and people who experience racism;
- income-related groups – people on low incomes, people unable to work due to ill health; and
- geographical groups and settings.

Planning a health-creating community of diverse population groups requires universal design approaches to make environments and services accessible and meet the needs of all, as well as inclusive design methods to ensure representation of such groups in the design process. Adopting a strengths-based asset approach that recognizes how a diverse community also creates diverse community capabilities, skills and knowledge, which can build social and economic resilience, create health, and support human flourishing, is also critical.

# Making the healthy choice the easy choice



## Dan Burden

Director of Innovation and Inspiration, Blue Zones

“

**At the heart of community building must be the people who live, work, learn and play in that area**

”

**For decades, societies have been engineering routine physical activity out of our everyday lives. Design choices have made active transportation not just difficult but impossible. How do we work with communities to co-create built environments that induce health?**

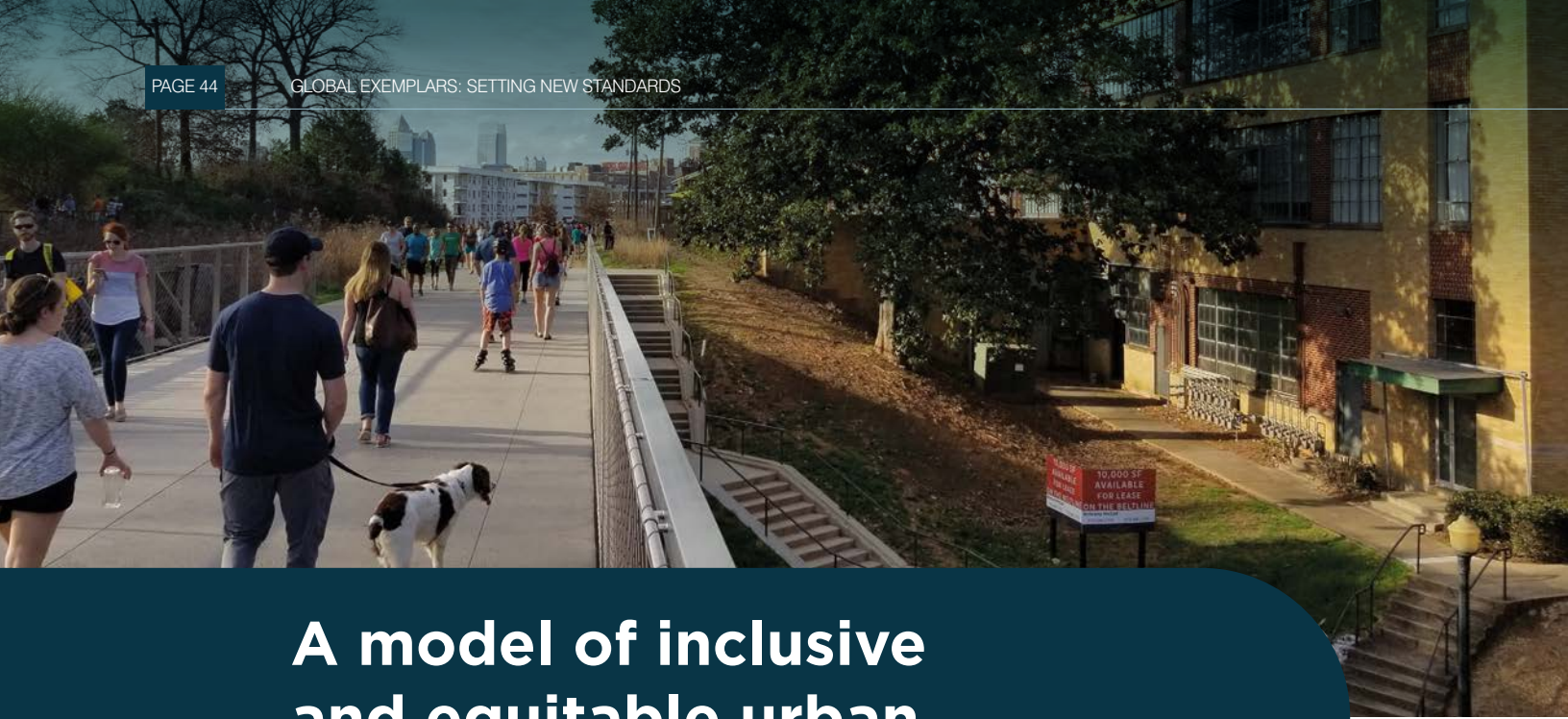
In 1994, a two-lane intersection in Bradenton Beach, Florida was killing one pedestrian every 16 months. The street design was so hostile that people were forced to get into their cars to cross the street safely. I met the city's engineering team in a parking lot. As we looked at the intersection, I pulled out a quarter and laid it on the open plans, proposing the safest treatment available – a modern roundabout, which had never been used before in Florida.

The roundabout worked so well that when I returned 20 years later, the local chief of police proudly declared that not one crash had occurred since the redesign, people were walking, and the downtown was thriving. For Bradenton Beach and many other communities the magic was in people working together – across disciplines and sectors – taking inspiration from one another to solve a problem. Community members showed bravery in choosing and supporting a bold intersection design because they all agreed that the loss of life was unacceptable.

Today, the calls I field are from communities seeking active lifestyles for residents and wanting more years of good health. There is a shift from focusing on treating disease to preventing it by how we design our communities and live. This is the founding tenet of Blue Zones: the healthy choice should be the easy choice. Designed well, our built environment enables activity, ensures access to healthy foods, and encourages social interaction. Designed poorly, the results are dangerous streets, food deserts and social isolation. Sadly, poor design of our built form is rife and the outcomes are astounding: high rates of obesity in adults and youth, extremely low levels of physical activity, and an epidemic of loneliness threaten wellbeing in almost every community.

When we place people at the centre of design efforts, we create places that are not just good for individual health but for community and planetary health, too. When we make the individual our design vehicle, we achieve better built form, including a broader diversity of uses, appropriate block lengths and street patterns, and true conservation of open spaces through sustainable development.

At the heart of community building must be the people who live, work, learn and play in that area. Having assisted more than 3500 communities to address their built environment challenges, I know that when technical staff, elected officials, property and business owners, students, and residents walk and talk together, the most creative and context-sensitive solutions come to life.



# A model of inclusive and equitable urban transformation



**Globally recognized for creating a vision of a more equitable and inclusive community, the Atlanta BeltLine is one of the largest urban redevelopment programs in North America.**

At the centre of this 22-mile loop of transit, trail and transformation is a true commitment to public, private and community partnership, and an inclusive approach to engagement with grassroots advocates and business, civic, political and community leaders to “create a national model of healthier, more sustainable, interconnected neighbourhoods with greater mobility and economic opportunity for all”.<sup>55</sup> Implementation of an equitable vision has, of course, not been easy and is ongoing, but there are valuable lessons to learn.

Guided by these principles and set within the historical context of Atlanta as the cradle of the civil rights movement in the US, the Atlanta BeltLine’s vision recognizes that “inequities undermine the city’s collective prosperity and threaten the region’s ability to remain globally competitive”. Its progressive vision links social cohesion to human flourishing, economic growth and development, stating: “The prosperity of the region and the success of the Atlanta BeltLine depends on every person having a fair chance to fulfil their human potential and thrive”; while acknowledging how the “relationship between place and race in Atlanta is glaring”.<sup>56</sup>

Originally built around the intersection of railroad lines, the city by the 1990s had become an example of the damaging impact of the wrong kind of urban sprawl developed around the automobile and congested highways. Calling for a 22-mile ring of largely abandoned rail corridor to be reclaimed and transformed into a new public transit system, linked to strategies for economic development and enhanced connectivity, Ryan Gravel’s graduate thesis, ‘BeltLine – Atlanta: Design of infrastructure as reflection of public policy’,<sup>57</sup> set out a new direction.

## **i** Contact

**Ryan Gravel**  
Sixpitch

Photo credits:  
Perkins&Will



**Social space and social cohesion:** reducing racial and economic disparities



**Getting around and leading active lives:** 33 miles of multi-use trails



**Affordability:** creating and preserving housing affordability

Encircling the city's core with 22 miles of pedestrian and cycle-friendly shared-use paths to replace the rail lines and connect to parks and transit, reducing the highway congestion by minimizing the number of short-distance car rides, the redevelopment was enhanced by a further 11 miles of 'spur' trails branching off the corridor and connecting to adjoining neighbourhoods.

From the beginning, the Atlanta BeltLine has placed equity and inclusion at the heart of its future development, identifying that its success will be determined by "creating and preserving affordability; reducing residential, commercial and cultural displacement; reducing racial and economic disparities; promoting transit and connectivity; empowering BeltLine communities for the future; and ultimately improving the overall quality of life for all BeltLine residents".<sup>56</sup>

Describing how inclusiveness defined the entire project, Gravel says: "We built a grassroots movement of people and ideas; it included community advocates who were used to fighting against things but found the Atlanta BeltLine as something they could fight for; developers who wanted to take advantage of all new growth in the city; and dozens of nonprofit partners who saw their mission fulfilled by a larger shared vision. The people of Atlanta fell in love with a vision for their lives that was better than what they could see through their car windshields. The people made it happen – and I can guarantee we wouldn't be doing it otherwise."<sup>58,59</sup>

The inclusive and equitable approach has been carried through every aspect of the long-term vision and implementation, with measurement of the BeltLine's progress and results over time centring around areas such as housing affordability, economic development, transit access, inclusion, and quality of life.<sup>56</sup>

The Atlanta BeltLine is a global exemplar of how the development of a health-creating community depends on a visionary idea defined by a set of guiding principles that engages the voices of all its citizens.



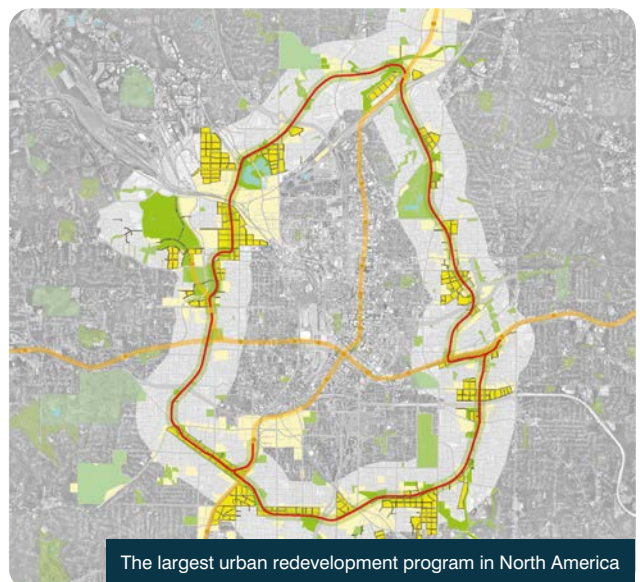
Before: a 22-mile ring of abandoned railroad



After: 22 miles of pedestrian and cycle-friendly shared-use paths

**Key features of the Atlanta BeltLine designed to encourage community integration and cohesion with opportunities for healthy and sustainable living, rather than segregation and conflict, include:**

- 33 miles of multi-use trails;
- 5600 units of affordable workforce housing;
- \$10bn in economic development;
- 30,000 permanent jobs;
- 1100 acres of environmental clean-up;
- 1300 acres of new greenspace;
- 46 miles of improved streetscapes;
- 22 miles of pedestrian-friendly rail transit; and
- the largest outdoor public art exhibition in the south of the US.



The largest urban redevelopment program in North America

## Chapter Four

# Planning, activating and operating

**Aspiring to the vision of a healthy and sustainable community where everyone has equal access to resources and opportunities is meaningless without a strategy for how to plan, activate and operationalize that vision in practice.**

The healthy ecosystem approach set out at the start of these guiding principles reflects the complex dynamic and set of interrelated and interacting aspects and actors within a community that need to be understood to support human and planetary health and avoid the potential for illness, disease and further degradation of the natural environment.

The process of setting health goals and measuring health outcomes in Chapter 2 is also important as a foundation for analyzing and benchmarking the successes and challenges along the way toward the development of a flourishing community. Equally, understanding future demand and planning for a changing and more diverse population is complex but critical as a foundation to the planning strategy.

However, as management theorist Peter Drucker is also reported to have said, “culture eats strategy for breakfast”, so it’s important to recognize in the ecosystem approach that equitable and inclusive community participation and engagement to create and embed a ‘culture of health’ are paramount.

As the Robert Wood Johnson Foundation says, this means “placing wellbeing at the centre of every aspect of our lives. In a culture of health, [people] understand that we’re all in this together – no one is excluded. Everyone has access to the care they need and a fair and just opportunity to make healthier choices. In a culture of health, communities flourish and individuals thrive.”<sup>60</sup>

As this final chapter explores key approaches to activating and operationalizing a healthy community, a founding principle and driver will be the theme of how to create the conditions for collective and inclusive action in which all people, groups, ages, races, genders and abilities, as well as all sectors, can participate in creating and implementing the vision for a common purpose.

In an age when the challenges of planetary and climate health, and the threat of new and emerging infectious disease, are no longer confined to the realm of disaster movies but are an everyday reality, creating health and wellbeing for people within the boundaries of the planet’s natural systems won’t be addressed without wholesale changes to the way we live, work and play. But as the social and economic reality of these challenges impacts on society in more visible ways, new investment opportunities are accelerating and reshaping the way we invest in infrastructure, energy, transport and essential public services to manage and account for these risks.

The approaches to activating and operationalizing a healthy community are therefore set within this changing context of present and future needs of people and planet.



The historic city centre of Freiburg is an exemplar of how to successfully plan a healthy community

### Theme one

## Health in All Policies and Sectors

Around the world, the Covid-19 pandemic has demonstrated both the importance of healthcare systems in treating us when we get ill and their fragility when their resources are stretched to breaking point in the face of a novel infectious disease that can cause serious illness and death.

It has also highlighted and accelerated health inequalities, which were already resulting in a widening healthy life-expectancy gap, due to the increasing burden of chronic and lifestyle diseases. Pre-pandemic, non-communicable diseases (NCDs) – including cardiovascular disease, cancers, type 2 diabetes, and chronic lung disease, designated as the four major NCDs by the World Health Organization – killed 41 million people each year, equivalent to 71 per cent of all deaths globally. It is estimated that NCDs will also cost an estimated \$30 trillion to the global economy by 2030. And many of these long-term health conditions are avoidable by reducing just three primary risk factors, identified by the World Health Organization as: tobacco use, unhealthy food and drink, and lack of physical activity.<sup>61</sup>

**“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” – Helsinki Statement<sup>62</sup>**

Tackling these diseases cannot be achieved by the healthcare system alone. As Nigel Crisp also explains, “[health systems] can’t deal with many of today’s major health problems, such as loneliness, stress, obesity, poverty and addictions”.<sup>63</sup>

While changing individual behaviours may require more direct interventions, there is now wide understanding at a population health level of the impact of the social, economic and built environment in making healthier behaviours and choices easier and more affordable.

A ‘Health in All Policies’<sup>64</sup> approach by governments at a national, regional and local level, in sectors such as housing, transport, education, finance and employment, can create the conditions for people to lead healthier and more sustainable lives, and reduce the burden of the cost of disease on the healthcare system. “A Health in All Policies (HiAP) action plan in Canada would strongly boost progress toward a socially equitable and healthy future for Canadians.”<sup>65</sup>

A top-down ‘Health in All Policies’ approach from government is important, as Nigel Crisp says, to “promote health creation – encouraging and incentivizing all sectors to take responsibility and create health”. But as he also explains: “Policy is not everything. Sometimes policy makes little difference in reality,”<sup>66</sup> which requires communities, businesses, leaders, innovators and pioneers to take control and develop a ‘culture of health’ across all sectors, from housing and transport to education and the workplace.

The ecosystem approach to designing and planning a healthy community can help create the conditions for connecting a top-down and bottom-up approach to establishing Health in All Policies and Sectors.

## Theme two

# Developing a new governance model

A successful Health in All Policies and Sectors approach also requires good governance. Within a healthy community ecosystem, it’s essential to establish and activate clear governance arrangements as a framework of accountability through which stakeholders within political and civil society, including the business community, are held responsible for decisions in relation to projects, programs and investments that promote and do not compromise the wider strategic goals of health creation and sustainable development.

Co-creation and collaborative working that are interdisciplinary and multi-sectoral should also be embedded in the governance model to reflect the complex interconnectedness of all elements within the ecosystem of a healthy community.

This approach provides a framework for identifying and connecting representatives from across the community that need to come together, including:

- *thematically* – by applying a nexus approach across sectors and breaking down silo thinking, budgets and working, for example, the interrelations between food systems, the care economy, physical activity and play, and nature and greenspace;
- *across geographic scales* – identifying who different stakeholders are at different community scales;
- *across the lifecourse*: recognizing how citizen and stakeholder involvement evolves over time and how it may change at different stages of life or stages of the community development.

Stakeholder groups that can be mapped across the thematic, scale and lifecourse dimensions include but are not limited to:

- political and policy leadership;
- the planning and development community;
- the health and care community;
- the third sector, and charity, voluntary and social enterprises;
- educational institutions;
- the business community; and
- citizens and residents.





**Figure 12 | Key concept**  
Good governance is a  
foundation for health creation

The aim of these groups is to develop solutions to broad questions, such as:

- How do we embed health creation at a population and individual level, i.e., how do we build community capabilities; and how do we make healthy choices easy, accessible and affordable?
- How do we create and sustain a flourishing community, where all citizens can participate in all areas of society within a framework of legitimacy that is understandable, followed and respects diverse cultures, identities, abilities and backgrounds?
- How are citizen resource needs met in a physical, emotional, social and spiritual sense – for example, by ensuring access to services and amenities, social and cultural opportunities, transport, food, air quality, education and work?
- How do we provide citizens with agency and a sense of control of their own environment and lives, including their health and wellbeing?
- How do we create the conditions for all people to lead meaningful and purposeful lives?

While the essence of the governance approach is a collective, participatory one of co-creation, different organizations and stakeholders must take on leadership roles. The development community, for example, has a key role to play both as investors and as stewards to enable this collaborative, multi-sectoral approach, bringing the right people together in the right conversations to find the right solutions.

This 'integrator' role will be critical to sustaining the vision throughout the implementation and activation stage. Two ways the 'integrator' role can be activated are by creating:

- A healthy community steering group – made up of key senior leadership across all sectors and groups, including current landowners and indigenous communities. The steering group will oversee and define the remit of any working groups to elevate meaningful conversations and champion change.
- A program management function, supporting the steering group in facilitating discussions, capturing insights, and maintaining direction, pace and schedule for the design and implementation of a healthy community.

**Theme three**

## Developing a collective vision and conversation

### Focusing conversation on the 'how'

The healthy ecosystem approach caters for discussions across different geographic scales, enabling the conversation to be framed around devising solutions at a local, regional and city level, which is important to create a sense of connection of a new community to urban and natural environments.

Conversations and dialogues need to be created that will support citizens, communities, and civic and business organizations through potentially transformative changes, such as catering for population increases and large targets of growth in immigration; addressing shortages in the supply of housing; housing affordability challenges; tackling climate change; and promoting diversity and inclusion.

The primary objectives of developing the conversation with the community on 'how' to create and sustain a healthy and flourishing community are based on:

- developing trust, empathy and knowledge in the community;
- stimulating innovation through co-creation and collaboration with citizens;
- reaching the 'silent' majority who rarely participate in formal consultations;
- engaging with minority and marginalized population groups, including First Nations;
- engaging across the gender and generational demographic, including women, children and older people; and
- creating a shared understanding of community needs, priorities and aspirations.


Important questions include:

- What does a healthy community look and feel like for the community?
- How do we enhance and protect the natural environment and what are the associated community health benefits?
- How do we create an affordable healthy food system accessible for all, supported by nutritional education?
- How do we create good-quality schools and diverse education within a wider focus on lifelong learning at both an academic and vocational level?
- How will open spaces, parks and social areas support health creation and a flourishing community?
- How do we support existing industries and business communities, such as agriculture, energy and retail, to thrive or adapt to new economic, social and environmental drivers?
- How do we attract new industries and businesses that will promote the values of a healthy and sustainable community?

### Engaging national, local, business and professional media

National, local, business and professional media organizations can be powerful partners in communicating and cultivating discussions about the nature of the community we want to live in. Proactively engaging with the media helps create the space required for meaningful dialogue. Utilizing social media tools for greater reach and engagement adds strength and relevancy to healthy community design. Other tools of engagement will be needed to reach minority and marginalized groups that may not engage for many reasons with mainstream or social media channels.



 The success of the Atlanta BeltLine was founded on an inclusive approach that engaged grassroots advocates to business leaders (see pages 44-45)

## Co-creation of a collective vision

The ecosystem approach recognizes that the co-production of a collective vision in itself creates a ‘north star’ for the development of a healthy community. It may take the form of a constellation rather than a singular point, but this will be more meaningful and have greater impact on achieving the health goals.

This vision will guide development solutions and simplify subsequent decisions. It includes the following themes aligned to citizen needs and is founded on principles for supporting people and planetary health: housing affordability; job opportunities and growth; public and population health; dealing with climate and nature emergencies; equity, diversity and inclusion; access to good-quality education; social connectedness and sense of community; supportive environments for healthy lifestyles; enabling healthy daily activities; social space and social wellbeing; getting around, being active, and active lives; growing and eating food; and safety and security.

Once agreed, the vision provides a consistent point of reference for all stakeholders throughout the community development, against which progress can be measured.

## What this means in Veraine

The Durham Region is required to plan for a minimum of 1,300,000 people and 460,000 jobs by 2051 through its municipal comprehensive review. A significant increase in growth rates will be required to achieve the forecast (circa double historic growth rates). These projections for population growth suggest that due consideration should be given to the option to build ‘out’ into the ‘white lands’ and at the same time increase density within current urban areas.

A strategy to create a collective vision that combines both formal public consultation with more informal approaches working with key stakeholder groups, along with a media strategy, will be important to developing understanding, buy-in and community contribution to the changes, impact and solutions being developed.<sup>67</sup>

**Theme four**

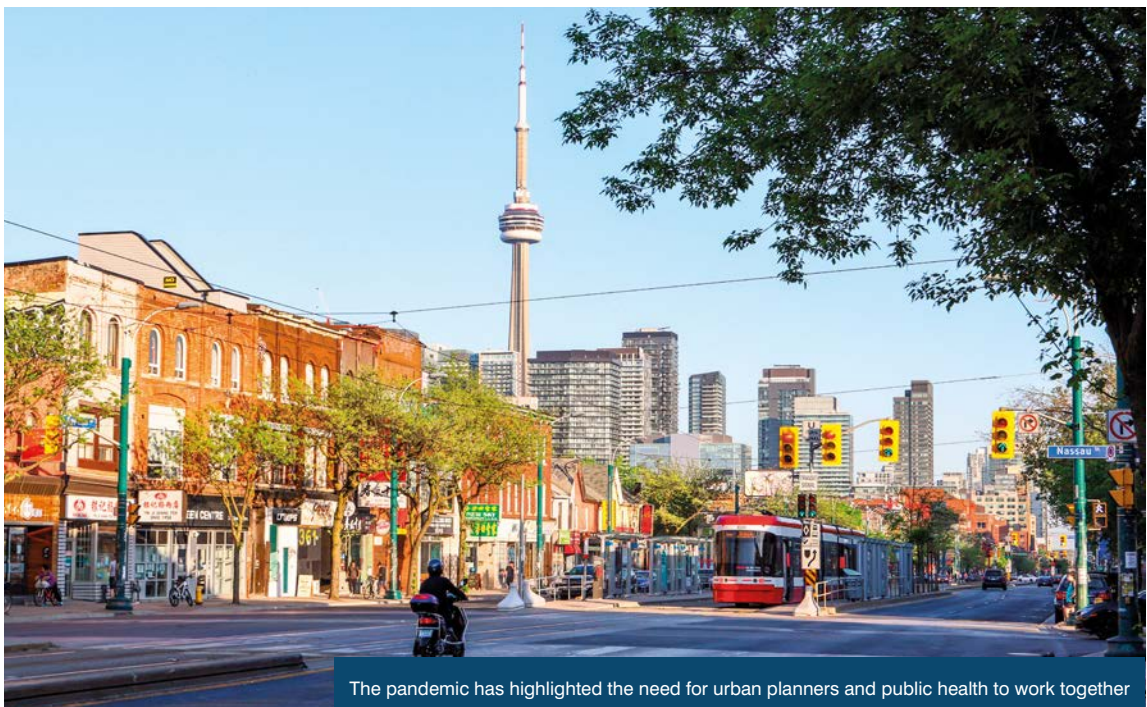
## Strengthening the relationship between health, planning and the built environment

Creating health and sustaining planetary health is a collective responsibility, but two sectors can play a particularly prominent leadership role. The combination of knowledge and services from the health sector and the urban planning, built environment and real estate sectors can play a specific intersectoral role in shaping a healthy community.

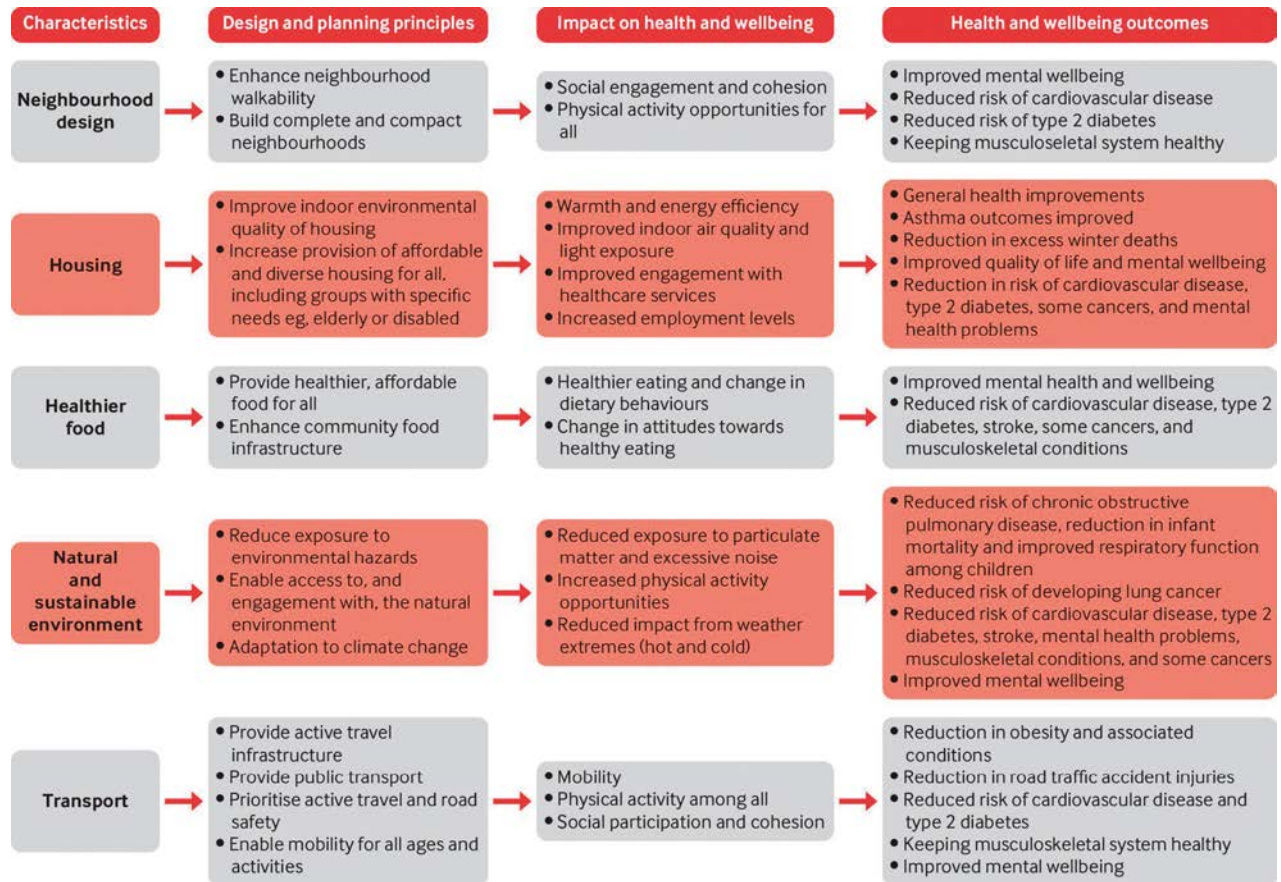
In health, we can distinguish between the roles of the health and care systems and the professionals we rely on to treat us when we are sick or diseased, and the public health and wellbeing organizations and professionals who are focused on the prevention of disease and health-promoting activities and behavioural interventions.

Often, public health and healthcare institutions and professionals have operated from different perspectives and silos. However, as we understand better the dynamics between health (salutogenic) and disease (pathogenic), just as these two sub-sectors of health need to strengthen their relationship, so they can both also strengthen the connection to the planning and built environment sectors, re-coupling health and built environment policies, strategies and solutions to fully enable a healthy community approach.

Historically, the disciplines of public health and urban and town planning were closely aligned, emerging as connected disciplines during the 1800s when a cholera outbreak in London was linked to a public water pump. As science led to new understanding of bacteria, infectious disease and vaccinations, however, the focus of public health shifted away from urban design and toward biomedical models of disease.



The pandemic has highlighted the need for urban planners and public health to work together



**Figure 13 | Key concept**  
Associations between design and planning principles and health and wellbeing

The impact on health of environmental factors such as poor sanitation, poor air and water quality, and overcrowding in housing, remain well known, but modern regulatory systems still permit development of the environment in ways that are likely to harm health.<sup>68</sup> At the same time, the depth of knowledge in our understanding of the relationship between environmental health, public health and planning has grown significantly in the last decade. Figure 13 illustrates how mental health and wellbeing and disease prevention can be achieved through modifications to the built environment.

The UK's Town and Planning Association has led a long and successful campaign to join up the health and planning professions, proposing in 2019 some 15 recommendations under the following eight headers:<sup>69</sup>

1. An integrated approach to planning for health and wellbeing;
2. Local powers to drive change;
3. Clear expectations on planning for health;
4. Planning for healthcare infrastructure;
5. Health evidence planning;
6. Evaluation of health in policies and development proposals;
7. Capacity and capability of public health planners; and
8. Professional and sectoral training.

Also, responsibility for public health varies globally. In some countries, such as England, it has been assigned to municipal authorities, enabling planners and public health professionals to work more collaboratively to address the social determinants of health. Strengthening this relationship can help to put in place and sustain the principles of a healthy community approach in practice.

## The health system as an anchor institute for health and wellbeing

The healthcare system has traditionally focused on applying a pathogenic approach to the treatment of illness and disease but, increasingly, as the burden of chronic disease reaches epidemic proportions as we live longer lives yet lead less healthy lifestyles, greater focus is moving to the social and environmental determinants of health.

As developed societies move toward population-based health systems and models of integrated care, health systems and professionals have a key role to play as a trusted industry in becoming an anchor institution for health and wellbeing in the community.

Anchor institutions are defined by the UK's Health Foundation as "large, public-sector organizations that are unlikely to relocate and have a significant stake in a geographical area – they are effectively 'anchored' in their surrounding community. They have sizable assets that can be used to support local community wealth building and development, through procurement and spending power, workforce and training, and buildings and land. Anchors have a mission to advance the welfare of the populations they serve. They tend to receive (or are significant stewards of) public resources, and often have a responsibility to meet certain standards on impact or value."<sup>70</sup>

Figure 2 demonstrates how an anchor institution, such as the NHS in England, which has strong roots in the community, can wield its social and economic power and influence, as well as its public trust, in multiple ways to impact on the social and environmental determinants of health – as a property owner, an employer, a major purchaser of goods and services, and a partner in the community.

## What makes the NHS an anchor institution?

NHS organisations are rooted in their communities. Through its size and scale, the NHS can positively contribute to local areas in many ways beyond providing health care. The NHS can make a difference to local people by:



As an anchor institution, the NHS influences the health and wellbeing of communities simply by being there. But by choosing to invest in and work with others locally and responsibly, the NHS can have an even greater impact on the wider factors that make us healthy.

**Figure 14 | Key concept**  
What makes the NHS an anchor institution?

As an energy- and resource-intensive sector, healthcare institutions also have a critical role to play in promoting planetary health and environmental sustainability. Healthcare's global climate footprint is calculated to be equivalent to 4.4 per cent of global net emissions,<sup>71</sup> so to be an anchor institution, healthcare providers and hospitals need to lead by example in reducing their own carbon footprint.

Central to improving sustainability in healthcare will be the application of integrated care models that distribute health and care services where possible into the community and closer to home. And this should be combined with greater use of virtual care and telemedicine: to improve early diagnosis; support chronic care management and aging in place; improve accessibility; and limit unnecessary travel to and from large energy-intensive hospitals.

## What this means in Veraine

Led by Ontario Health, health and care systems in Ontario are undergoing a transformation toward integrated models of care, population health outcomes, digital-first services, and place-based care. This presents a significant opportunity for the public and private sectors to collaborate on linking built environment design and planning strategies to health system strategies, to achieve population health goals by address the wider determinants of health, as well as improving access and quality of healthcare treatment and services.

In Veraine, the alignment of the vision and ambition for a healthy community development to the wider health policy goals of Ontario Health<sup>72</sup> creates an opportunity for a multi-stakeholder dialogue between landowners, politicians, civil society organizations, the health and care system, Ontario Health, and government, including the Ministries of Municipal Affairs and Housing, to help deliver Ontario Health's new operating model and strengthen provincial policy statements for land use policies.<sup>73</sup> Equally, at the regional level, opportunities to inform the Region of Durham's Future Policy Direction on Healthy Communities (Envision Durham)<sup>74</sup> and work with Lakeridge Health's Durham Ontario Health Team<sup>75</sup> are examples where land owners can lead in enabling the health and planning systems to come closer together.

An integrated strategy between health and planning would lead to wide-ranging and, potentially, world-leading positive outcomes for health creation and planetary health in Veraine – from solutions such as designing homes that better cater for aging in place, more walkable neighbourhoods, nature-based public spaces, implementation of high-speed digital infrastructure to ensure robust connectivity for virtual care and autonomous vehicles, or new health and wellbeing hubs integrated into the community.

### Theme five

## Adopting digital technology for democratization and innovation

Here, we consider two aspects of digital technology: digital engagement for stakeholders; and a Digital Data Collaboration Platform and Library for citizens and practitioners.

### Digital engagement for stakeholders

The Covid-19 pandemic has accelerated a transition to a more digitalized world, and while 'in person' meetings with all stakeholder groups will remain critical as a primary engagement tool, there are new opportunities for harnessing both bottom-up innovation and democratizing mass participation in the planning and activation of a healthy community that can transform the process.

Notwithstanding the challenges of digital governance and the protection of personal data and security, which are fundamental to the success of any digital strategy, opportunities for greater inclusion and participation can be more easily harnessed digitally in the following ways:

- involving new customer segments in ways suited to their methods of communication;
- allowing for a more interactive experience to better understand local issues, needs and priorities;
- creating new connections, strengthening existing relationships, and building networks through the co-design process;
- establishing a living and dynamic knowledge/resource space for stakeholders; and
- providing a more effective and efficient collaboration tool for the professional multidisciplinary/multi-sectoral design process.

Online community engagement platforms for planning are emerging with features such as: design feedback tools; community heatmaps; real-time data dashboards on engagement; geo-targeted engagement adverts; data analytics; and the provision of engagement strategy expertise. Over the multi-year planning and development horizon of a large community, digital tools provide a significant opportunity for creating an exemplary participatory planning process, leading to better designed communities.

### **Digital Data Collaboration Platform for citizens**

Digitalization is also creating a specific opportunity for the collection, synthesis and governance of community wellbeing data to support the planning and activation of the community. For example, the adoption of a digital wellbeing dashboard could:

- bring forward the visibility of health data to citizens and health professionals more quickly;
- bring together diverse data sources in a user-friendly format;
- be regularly updated through citizen surveys;
- provide an anonymized population-level dataset;
- provide a specific resource for schools, community groups, and researchers; and
- support service providers to plan for and respond to the needs of the community.

There are also opportunities to apply digital technologies in measuring the performance in relation to health and sustainability of key parts of the built and natural environment. These approaches could be combined with citizen projects and community information programs, and could be broken down by street/neighbourhood/city level. Some diverse examples of daily, weekly or monthly measurements that could be made public include:

- energy use and production;
- modal split of transportation;
- indoor and outdoor air quality;
- community hours volunteered;
- daily carbon count; and
- wildlife tracking and identification.

'Designing-in' wellbeing and climate data requirements from the outset with mechanisms to communicate and share the data represents a proactive way of supporting citizens to not only live and behave in more health-creating and sustainable ways but may also inspire new ideas and innovation.

The collation of wellbeing data in conjunction with epidemiological and healthcare data will also inform planning and prioritization of the mix of health services at a primary, community, secondary and tertiary care level.



## Digital Data Collaboration Platform for practitioners

Just as the speed of technological developments in Building Information Modelling has transformed the design and delivery of major building and infrastructure programs through data aggregation and collaborative working, so the use of virtual and augmented reality platforms<sup>76,77</sup> is set to stimulate design innovation in both process and outcome through interaction and visualization in an immersive environment. In traditional community development and approval processes, valuable data is 'locked' within PDF documents, which reduces transparency, raises cost, and increases friction in the planning system, undermining apparatus for effective decision-making.

A collaborative online geospatial platform, with a common technical and health data library<sup>78</sup> and 'single source of truth' that is accessible by different professionals across the ecosystem, will encourage innovation, productivity, shared aims, and a more effective process of implementation in the delivery of the vision for a healthy and sustainable community.

## Examples of core data

The types of data that can now be available in such platforms include:



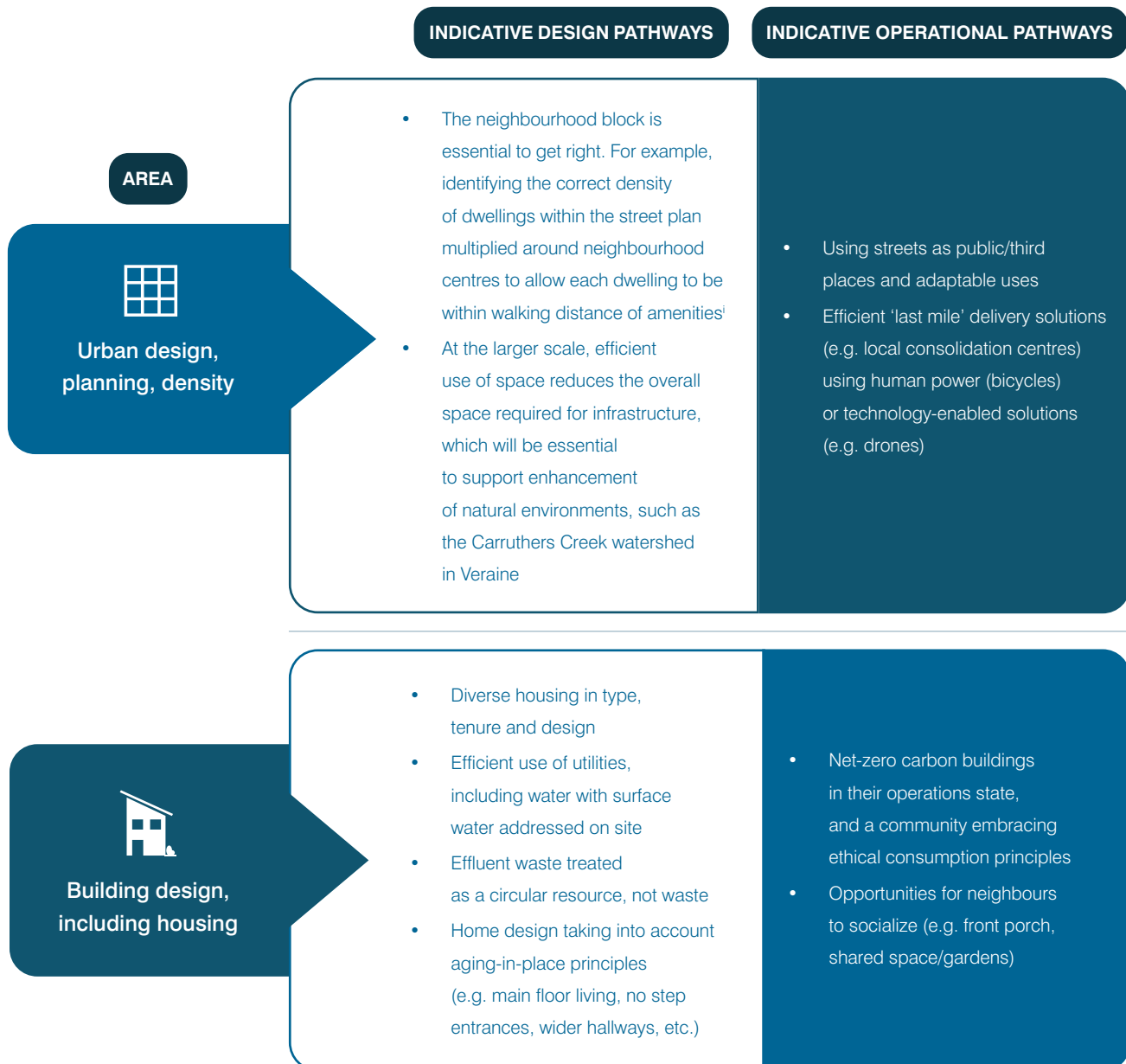
Figure 15 | Key concept Planning Information Ecosystem

## Theme six

# Utilizing the natural and built environment to create health

In Chapter 3, an approach to mapping citizen needs was demonstrated, using 'eating' as a worked example of the various related activities and spaces that stem from the need to eat, including social activities associated with food culture. Building on this approach, Theme 6 explores ideas for how the professional community can enable health creation practically at the early stages of planning a community to meet those needs.

The table below presents indicative design as well as operational pathways as triggers to support planners to spark further dialogue. The ideas are only representative as an indication of what a collaborative approach between the health, planning and built environment professionals can achieve practically and operationally.



 <p><b>Universal design</b></p>	<ul style="list-style-type: none"> <li>• Design solutions accessible to all citizens, regardless of ability, age or other factors; for example, provision of protected bike lanes and/or an off-street cycle network; and widened sidewalks</li> </ul>	<ul style="list-style-type: none"> <li>• Pedestrian crossing signals left on 'green indicator' until vehicles approach, and longer pedestrian phased timing to allow older people time to cross the road</li> <li>• Third-sector/charity organizations fully integrated to assist in delivery of key support services</li> </ul>
 <p><b>Physical and digital infrastructure</b></p>	<ul style="list-style-type: none"> <li>• A utility corridor designed for ease of access and maintenance</li> <li>• A community-enabled/owned provider-agnostic fibre network</li> </ul>	<ul style="list-style-type: none"> <li>• Fibre to the home as default, a community-empowered initiative</li> </ul>
 <p><b>Parks, open space, natural areas</b></p>	<ul style="list-style-type: none"> <li>• Green space and water must be designed as cohesive, continuous, integrated infrastructure with high levels of tree cover</li> <li>• Trees and planting within street design supporting rainwater management and resilient to a changing climate</li> </ul>	<ul style="list-style-type: none"> <li>• Consumer and civic services utilizing 5G high-speed wireless communications throughout the urban realm, with areas also designated that are wifi-free/quiet zones</li> </ul>
 <p><b>Amenities and services</b></p>	<ul style="list-style-type: none"> <li>• Density supports easy access to amenities and services</li> <li>• Amenities and services may be physical, digital or blended</li> <li>• Healthcare is a key service and an anchor institution. Integrated care models enable delivery close to people's homes to improve access and quality</li> <li>• Health and wellbeing hubs form a key part of a network of services, bringing together a range of health, community and municipal services in one location</li> </ul>	<ul style="list-style-type: none"> <li>• Developed with the healthcare system, an integrated care model, incorporating virtual care services</li> <li>• An area to hold a farmers' market</li> <li>• Provisions for community food coops and affordable food programs</li> <li>• Established community groups, similar to Community Leagues running in Edmonton<sup>79</sup> or the Beechwood Park Homes Association in Waterloo<sup>80</sup></li> <li>• Public and cultural art integrated within the community</li> </ul>

**Table 1 | Key concept**  
 Indicative design and indicative operational pathways on planning the built environment

# Strong governance, shared vision, varied voices



## Giselle Sebag

Executive Director, International Society for Urban Health

“  
**It’s important to create meaningful opportunities for everyone to voice their concerns, dreams and hopes**

”

**Strategic planning, activation and operations aimed at improving health and wellbeing are key to the success of a healthy community and should be baked into the planning approach from day one.**

First, a governance body should be established to allow a diverse set of stakeholders to come together with the shared vision and goal of enhancing health, wellbeing and quality of life for all residents. Siloed perspectives result in outcomes focused on a singular aim but there can be unintended consequences; for example, transportation engineers intent on building a road that allows the most vehicles at the fastest speed undermine road safety.

It’s critical to discuss collectively how actions impact the goals and objectives of a development to improve the health and wellbeing of everyone in the community. And the most impactful decisions for community health come from actors outside the health sector, such as urban planning, architecture, transportation, etc.

Next comes robust and continuous community engagement during planning, implementation, and beyond. It’s important to create meaningful opportunities for everyone to voice their concerns, dreams and hopes for the community – regularly and throughout the process. Strategies for effective community engagement include seeking out voices that are not always heard and being inclusive to stakeholders from all backgrounds, incomes, ages and postal codes. A public engagement strategy for Atlanta’s ten-year parks masterplan involved several activities including: a statistically valid, representative survey (1200+ participants); an online survey (1800+ participants); 12 public meetings (two conducted in Spanish and 700+ total attendees); parks and recreation public outreach events; 50+ focus group meetings; and a health and wellbeing campaign in parks.

Key to successful planning, activation and operations is understanding the local health needs and opportunities. One method is to map existing environmental and social health determinants and outcomes at the local level to understand where health disparities exist, and pinpoint neighbourhoods and tailor healthy planning strategies to address the greatest needs. Again, engaging myriad city agencies, stakeholders and professionals is vital. Fully addressing health and wellbeing needs will require engagement from various actors, such as those responsible for sustainability, resilience, healthy food access, transportation, green and public spaces, housing, etc.

Strong governance, a united vision, diverse voices, and a multidisciplinary, multi-sectoral team engaged in an inclusive planning approach create the conditions for a community to be a place where all residents can learn, grow and thrive in a supportive, health-creating environment that serves as a model for all.

## Empowering communities: from seed to solar

**Energy Garden supports communities in London to install community gardens at rail stations and invest in renewable energy. This has resulted in many square metres of grey space turned green, and millions of MW hours of renewable electricity generated.**



Since 2015, Energy Garden has secured funding to negotiate legal permissions and raise finance for installations; pay staff to oversee 34 gardens on London Overground stations; run school and youth training programs; and buy materials and equipment to transform schools, estates and stations into green, health-giving spaces. Using regenerative farming principles and interactive consultation, it supports rail passengers by reducing commuter stress, and improving air quality, ecological resilience and urban biodiversity. It helps raise funding via a renewable energy cooperative.

A dashboard tool assesses environmental, social and financial outcomes against the Sustainable Development Goals and national proxies. It's independently verified through passenger surveys, and stations with an Energy Garden achieve higher customer satisfaction. Imperial College notes that improved wellbeing, a sense of place, and deeper feelings of belonging create a positive impact for the NHS – for every £1 invested in Energy Gardens, there is an £11.35 social return or £161,316 to the NHS each year.

### Contact

**Agamemnon Otero**  
Founder and CEO,  
Energy Garden

Collectivized acquisition of energy assets also generates financial, social and environmental returns. Energy Garden's core costs are met by: energy sales – via solar photovoltaics, wind, heat, and battery storage, sold through power purchase agreements; services – community engagement, gardens/greening, consultancy, community energy, youth training, school programs, and educational courses; and grants – any facet can be supplemented with grants but the above services cover core costs, thereby breaking the dependency cycles of grants.

Energy Garden empowers communities to masterplan their own health from seed to solar. It's now expanded beyond London to support other communities in transitioning their built environments to become socially smart cities with health at their heart.



Transitioning the built environment to be socially smart

# Wellness for people, place and planet



## The First Nations Technical Institute's (FNTI) new Academic and Administration Building is considered a beacon of change amid global efforts to address the climate crisis

Fusing centuries-old indigenous knowledge of and practices in regeneration, restoration and resilience with advanced building design and technology, the project achieves a bold, net-zero – zero emissions and zero carbon – response to wellness. This is wellness for people, place and planet.

Located on the flatlands of Tyendinaga on Mohawk Reserve, next to the aviation school and former Canadian Air Force training ground, the new building will help the FNTI grow capacity, enhance student experience, and advance a First Nations-specific research agenda in areas such as agri-food production and indigenous food sovereignty, nomadic studies, mental health and social work, community development, environmental sustainability, and social entrepreneurship.

The built form is intended to have a quiet yet dignified presence. It's composed of two adjoining volumes: a single-storey structure housing a demonstration kitchen dedicated to the culinary arts program, and a larger two-storey structure supporting indigenous learning, social spaces and administrative functions. The sculptural roofscape with solar chimney and light monitors illuminate the night sky, denoting the continuity of longhouse tradition and giving presence to the FNTI in the vast landscape.

The building footprint is carefully curated to respect existing forested, open and wetland areas, including the airfield to the north and dense woodland to the south. New boardwalks and trails, ponds and waterways enrich the experience of the landscape. Native species help regenerate the local ecosystem, restore biodiversity, mitigate ambient air pollution, and renew ancestral spiritual relationships with local plant life. And a new, edible garden featuring traditional medicinal herbs and vegetable crops supports educational and entrepreneurial opportunities.

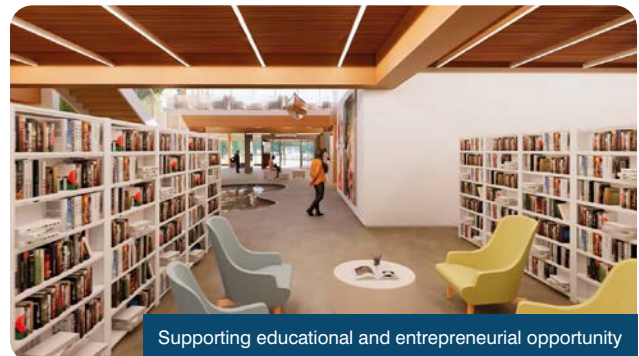
### Contact

**Alice Liang**  
Principal Emeritus,  
Montgomery Sisam  
Architects

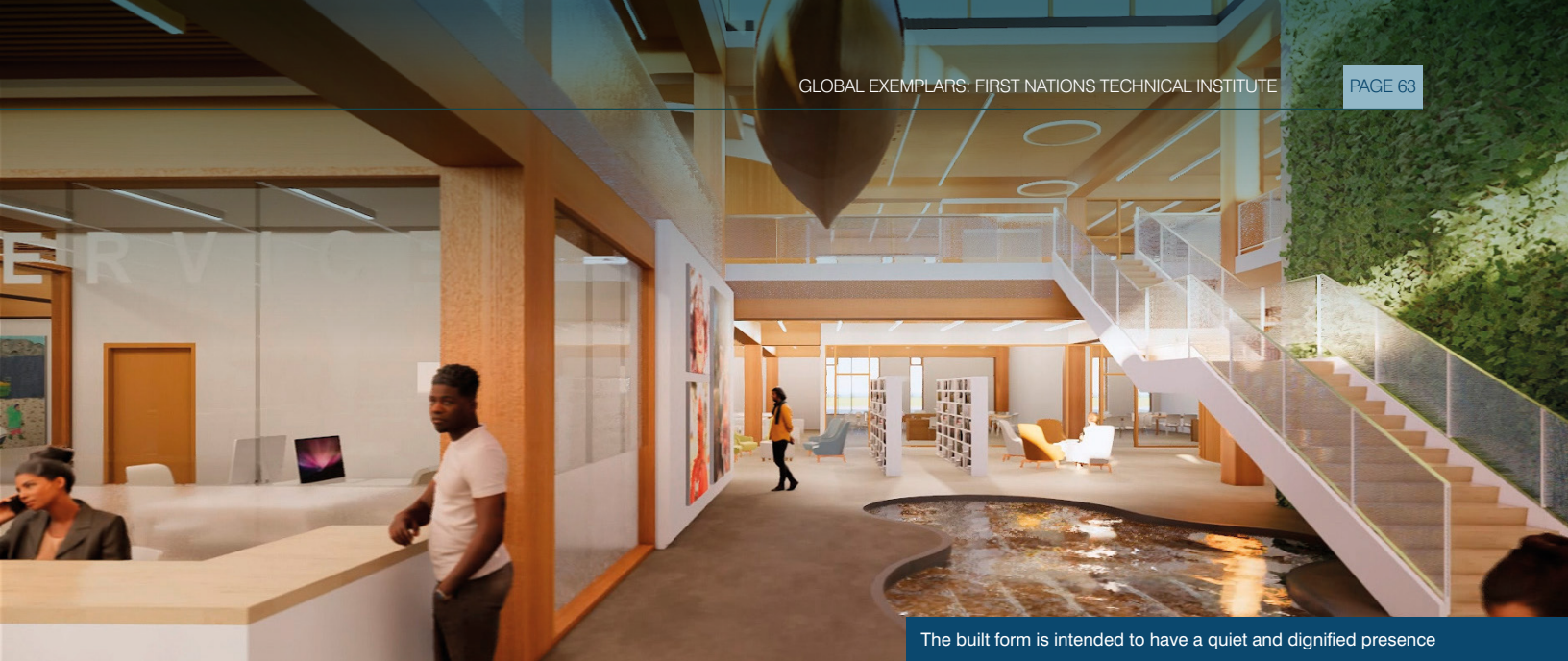
The building is mass-timber construction with concrete slab on grade. A regular grid and heavy timber structure afford large, clear spans that provide for flexibility and adaptability in the floor plan as needs evolve. Exposed infrastructure and building systems inform the building's 'smart learning lab' mandate.



Featuring an edible garden with medicinal herbs



Supporting educational and entrepreneurial opportunity



The built form is intended to have a quiet and dignified presence



**Growing and eating food:** research into indigenous food sovereignty



**Building design:** wellness and building in harmony with the ecosystem



**Enabling healthy daily activities:** supporting indigenous learning

Materials strike a balance between durability and low-embodied energy. And the exterior cladding is a mix of highly robust limestone and fibre cement panels, as well as triple-glazed windows with high R-value.

A low-carbon, underground geo-exchange system influences consistent earth temperature and below-grade thermal capacity. Other features include photovoltaic panels, wind turbines, bio-mass co-generation, and back-up battery storage, promoting self-sufficiency and enabling autonomy from the grid, as needed. Grey and black water are filtered through a wetland and shallow dispersal system, and returned to the ground to preserve natural cycles on site.

### Collaborative process and engagement

Co-creation between the FNTI and the architects was critical to realizing the vision for the facility. This collaboration is guided by the indigenous tradition of 'Talking Circles', which encourages dialogue, respect, and the co-creation of learning content and social discourse.

A visioning session established aspirations, as well as planning and design guiding principles aligned with indigenous teachings: wellness for people, building and the planet; building in harmony with the ecosystem; reciprocity with nature; long-term adaptability; and endurance and longevity. A design charette enabled cross-disciplinary inspirations to establish net-zero strategies and sustainability targets, prior to schematic design. A 'Talking Circle' roundtable enabled dialogue on "how the FNTI's indigenous education model and indigenous knowledge can impact climate change and environmental integrity".

Another key feature of collaboration was the choice of Integrated Project Delivery (IPD) as the project's building construction methodology. Said FNTI president Suzanne Brant: "IPD really demonstrated Haudenosaunee values and shows how collaboration on a common goal and consensus building can be applied in everything we do, including construction."

With the new Administration and Academic Building, the FNTI is implementing a new vision for planetary health: one rooted in centuries-old indigenous practices of living in harmony with nature.



## The value in vertical farming



**Like any fledgling sector, there is a great deal of hype around vertical farming, yet there is also a strong foundation for the sector's future growth potential.**

Humans are dependent on the reliability of crop production, which is mostly undertaken outdoors and is highly sensitive to climate. And our globalized food system means that a minor increase in temperature in Southern Spain can not only result in complete failure of a crop but also misalignment with supply chains, and a subsequent increase in prices for consumers who live thousands of miles away.

As crops harness free energy from the sun, it may first seem illogical to consider moving crop production indoors. But modern vertical farming, which replaces sunlight with LED lighting, allows crops to be stacked in layers or grown on vertical walls. The benefit of this fully controlled environment allows growers to create “light diets”. An increase in blue light can, for example, raise the level of a plant's flavour-active compounds, while an increase in the level of red light can cause a plant to flower sooner.

The ‘vertical’ element enabled through the introduction of LED lighting for each layer also creates value from a land use perspective. London-based vertical farming firm Vertical Future builds systems that can grow the same as an outdoor farm in less than 2 per cent of the land area. This production can also take place much closer to the end consumer, reducing food miles and increasing freshness as well as shelf life.

Another often overlooked benefit of vertical farming is the ability to move away from the use of agrochemicals. To cope with pests and other forms of disease and contamination – many of which reside in soils – outdoor farmed crops must use many types of pesticides, herbicides, and fungicides, whereas indoor crops are not grown in soil, eliminating the need for the use of these chemicals.

### Contact

**Jamie Burrows**  
Founder and CEO,  
Vertical Future

The next few years will be critical in showing the potential value of the sector and how fast it's likely to grow, with technological innovation, climate change and investment the main drivers.



# Conclusions

**Climate change, the pandemic and technology are reshaping our economies, our values and behaviours, our conception of place and our communities.**

Nurturing the local economy, generating clean energy through renewables, growing food, developing alternative modes of sustainable transport, and more active living are just a few of the changes influencing the way our communities need to be designed to be healthier, fairer, regenerative and more resilient.

Harnessing human creativity and inspiring innovation that will positively improve our quality of life and enable people to flourish in harmony with the planet's natural systems will be key to how communities adapt and mitigate climate and other risks to planetary health. A few of the big questions, potential changes and impacts we will need to consider and plan for include, for example:

- How will the technological revolution in infrastructure, housing, transport, urban planning and the workplace transform the health of our communities?
- What are the consequences of greater stress on resources including water, food and energy? And how will climate migration impact on health and social cohesion?
- What will be the impact of blockchain, crypto communities and decentralized networks?
- How will the future housing mix reflect more diverse family structures, from single person and co-living to multi-generational homes?
- Is hybrid working here to stay and how will this change our working lives and the characteristics of our working environments?
- How will digital health and personalized medicine reshape where, how, when and by whom diagnosis, treatment and care are delivered?

Combining practical global exemplars and expert opinion with an evidence-based framework for planning and operating a healthy community, these guiding principles adopt an ecosystem approach that meets the needs of diverse cultures and ethnicities, and can integrate and adapt to any new technology, economic or social change.

They do not, however, provide a design solution or recommendations on the details of what to implement. The global exemplars provide an insight into the possibilities, showcasing innovations in approach, technology and in design. But around the world, the speed of design and technological innovation is accelerating in all areas, from housing and workplace to clean energy, transport, construction and farming.

Understanding the rate and nature of design and technological innovation within the context of current and future social, economic, environmental and political change was beyond the scope of these **Guiding Principles for Planning Healthy Communities**, but it is a crucial next step in the design, planning and operation of a healthy and sustainable community. By embracing the challenge and opportunity proposed by new communities like Veraine, we can help usher in a new way of life where everyone can flourish.

# References, further reading and links

## Bibliography

Recommended core books, papers and texts:

Whitmee, S, Haines, A, Beyrer, C, et al. (2015). **Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–Lancet Commission on planetary health.** *The Lancet*, Vol. 386, No. 10007. July 2015.

Crisp, N. (2020). **Health is Made at Home, Hospitals are for Repairs.** Billerica: SALUS Global Knowledge Exchange.

Barton, H, Grant, M, and Guise, R. (2021). **Shaping Neighbourhoods for Local Health and Global Sustainability.** Third Edition. London: Routledge.

Roe, J, and McCay, L. (2021). **Restorative Cities. Urban Design for Mental Health and Wellbeing.** London: Bloomsbury Publishing. August 2021.

Myerson, J. (2021). **Designing a World for Everyone. 30 Years of Inclusive Design.** Lund Humphries Publishers. July 2021.

Atwoli, L, Baqui, AH, Benfield, T, Bosurgi, R, Godlee, F, Hancocks, S, et al. (2021). **Call for emergency action to limit global temperature increases, restore biodiversity, and protect health.** *BMJ*, 2021; 374:n1734 doi:10.1136/bmj.n1734

Johnson, AE, and Wilkinson, KK. (eds.). (2020). **All We Can Save. Truth, Courage, and Solutions for the Climate Crisis.** New York: One World.

Canadian Institute of Planners. (2013). **Healthy Communities Practice Guide** [online]. Ottawa: Canadian Institute of Planners, 76. Available from: <https://www.cip-icu.ca/Resources/Resources/Healthy-Communities-Practice-Guide> [Accessed 27 April 2021].

BC Centre for Disease Control. (2018). **Healthy Built Environments Toolkit.** [online]. Vancouver: BC Centre for Disease Control. Available from: <http://www.bccdc.ca/health-professionals/professional-resources/healthy-built-environment-linkages-toolkit> [Accessed 26 April 2021].

Canadian Index of Wellbeing. (2016). **How are Canadians really doing? The 2016 CIW National Report.** [online]. Ontario: Canadian Index of Wellbeing and University of Waterloo, 92. Available from: [https://uwaterloo.ca/canadian-index-wellbeing/sites/ca.canadian-index-wellbeing/files/uploads/files/c011676-nationalreport-ciw\\_final-s\\_0.pdf](https://uwaterloo.ca/canadian-index-wellbeing/sites/ca.canadian-index-wellbeing/files/uploads/files/c011676-nationalreport-ciw_final-s_0.pdf) [Accessed 15 July 2021].

## Videography

Recommended videos of talks and webinars associated with the contents of this publication:

### Leader, pages 6-7

Crisp, N, Rowe, R, Camargo, A, Burns, Harry, and Stuteley, H. **Healthy communities: housing and planning.** SALUS Global Knowledge Exchange. July 2021. Accessible at: <https://www.salus.global/article-show/healthy-communities-housing-and-planning>

Crisp, N, Britnell, M, Alakeson, V, Burrows, J, Gamester, P, Howells, R, and Lane Fox, M. **Building a healthy and health-creating society: Social enterprise and business.** SALUS Global Knowledge Exchange. October 2020. Accessible at: <https://www.salus.global/article-show/building-a-healthy-and-health-creating-society-social-enterprise-and-business>

Crisp, N, Dixon, J, Stuteley, H, Aynsley, D, Fanelli, T, Kefford-Parker, A, and Shepherd, D. **Building a healthy and health-creating society: Community voices, barriers and enablers.** SALUS Global Knowledge Exchange. September 2020. Accessible at: <https://www.salus.global/article-show/building-a-healthy-and-health-creating-society-community-voices-barriers-and-enablers>

Crisp, N, Liddle, C, Howie, F, Gray, M, Prasad, S, and Chapple, O. **Building a healthy and health-creating society: Design and the environment.** SALUS Global Knowledge Exchange. September 2020. Accessible at: <https://www.salus.global/article-show/building-a-healthy-and-health-creating-society-design-and-the-environment>

Crisp, N, Godlee, F, Bird, J, Henry, H, Burns, H, and Nelson, H. **Building a healthy and health-creating society: Joining the dots in the community.** SALUS Global Knowledge Exchange. July 2020. Accessible at: <https://www.salus.global/article-show/building-a-healthy-and-health-creating-society-joining-the-dots-in-the-community>

Crisp, N, Hillier, M, Marmot, M, O'Donnell, G, Sharpe, N, and Evans, N. **Building a healthy and health-creating society: Making change happen.** SALUS Global Knowledge Exchange. June 2020. Accessible at: <https://www.salus.global/article-show/building-a-healthy-and-health-creating-society-making-change-happen>

### Preface, pages 10-11

Crisp, N. **Designing a healthier and health-creating society.** Presented at Healthy City Design 2017 International Congress. October 2017. Accessible at: <https://www.salus.global/article-show/designing-a-healthier-and-health-creating-society-1>

Haines, A. **The work of the Rockefeller Foundation Lancet Commission on Planetary Health.** Presented at Healthy City Design 2017 International Congress. October 2017. Accessible at: <https://www.salus.global/article-show/the-work-of-the-rockefeller-foundation-lancet-commission-on-planetary-health>

Frumkin, H. **Our planet, our health, our cities.** Presented at Healthy City Design 2018 International Congress. October 2018. Accessible at: <https://www.salus.global/article-show/our-planet-our-health-our-cities-1>

### Insight: The THRIVES Framework, page 23

Pineo, H. **A healthy urban design and planning framework integrating sustainability, equity and inclusion.** Presented at Healthy City Design 2019 International Congress. October 2019. Accessible at: <https://www.salus.global/article-show/a-healthy-urban-design-and-planning-framework-integrating-sustainability-equity-and-inclusion>

### Global Exemplar: Place shaping in a Healthy New Town, pages 24-25

McCafferty, S, and McDonnell, D. **Healthy New Towns: delivering innovation at pace framework.** Presented at Healthy City Design 2017 International Congress. October 2017. Accessible at: <https://www.salus.global/article-show/healthy-new-towns-delivering-innovation-at-pace-framework>

**McCafferty, S, and Bozzo, M. Creating healthy communities – insights from the NHS' Healthy New Towns programme.** Presented at European Healthcare Design 2017 Congress. June 2017. Accessible at: <https://www.salus.global/article-show/creating-healthy-communities-insights-from-the-nhs-healthy-new-towns-programme>

**McCafferty, S, and McDonnell, D. Healthy New Towns: principles and practice.** Presented at Healthy City Design 2018 International Congress. October 2018. Accessible at: <https://www.salus.global/article-show/healthy-new-towns-principles-and-practice>

**Insight: Healthy communities – addressing a triple threat, page 33**

**Greenberg, K. Towards a healthy city: the transformative power of urban design.** Presented at Healthy City Design 2018 International Congress. October 2018. Accessible at: <https://www.salus.global/article-show/towards-a-healthy-city-the-transformative-power-of-urban-design>

**Global Exemplar: Turning the badlands into the good life, pages 34-35**

**Lindstedt, K. Replanning Södra Skanstull.** Presented at Healthy City Design 2017 International Congress. October 2017. Accessible at: <https://www.salus.global/article-show/replanning-sodra-skanstull>

**Insight: Making the healthy choice the easy choice, page 43**

**Burden, D. Building the healthy city – inciting the healthy choice.** Presented at Healthy City Design 2017 International Congress. October 2017. Accessible at: <https://www.salus.global/article-show/building-the-healthy-city-inciting-the-healthy-choice-1>

**Global exemplar: A model of inclusive and equitable urban transformation, pages 44-45**

**Gravel, R. The future of Atlanta: designing for equity, resilience and civic identity.** Presented at Healthy City Design 2017 International Congress. October 2017. Accessible at: <https://www.salus.global/article-show/the-future-of-atlanta-designing-for-equity-resilience-and-civic-identity>

**Insight: Strong governance, shared vision, varied voices, page 60**

**Sebag, G. Guidelines and methods for building child-responsive cities and communities.** Presented at Healthy City Design 2018 International Congress. October 2018. Accessible at: <https://www.salus.global/article-show/guidelines-and-methods-for-building-child-responsive-cities-and-communities>

**Global Exemplar: Wellness for people, planet and place, pages 62-63**

**Quigley, K, and Hopkins, A. Health systems on Mars? Sustainable development designing for people, place and planet.** Presented at Healthy City Design 2019 International Congress. October 2019. Accessible at: <https://www.salus.global/article-show/health-systems-on-mars-sustainable-development-designing-for-people-place-and-planet>

**Global Exemplar: The value in vertical farming, page 64**

**Burrows, J. Examining the effectiveness and economic impact of a Controlled Environment Agriculture (CEA) facility in London: a one-year prospective study.** Presented at Healthy City Design 2018 International Congress. October 2018. Accessible at: <https://www.salus.global/article-show/examining-the-effectiveness-and-economic-impact-of-a-controlled-environment-agriculture-cea-facility-in-london-a-one-year-prospective-study>

## References

### Preface, pages 10-11

1. **World Health Organization (1946). Constitution of the World Health Organization.** [https://www.who.int/governance/eb/who\\_constitution\\_en.pdf](https://www.who.int/governance/eb/who_constitution_en.pdf)
2. **Whitmee, S, Haines, A, Beyrer, C, et al. (2015). Safeguarding human health in the Anthropocene epoch: Report of The Rockefeller Foundation–Lancet Commission on Planetary Health.** *The Lancet*. Published online 16 July. [http://dx.doi.org/10.1016/S0140-6736\(15\)60901-1](http://dx.doi.org/10.1016/S0140-6736(15)60901-1).
3. **Conversations on planetary health.** Planetary Health 101, *Panorama*; September 2017. Accessible at: <https://panoramaglobal.org/resources/panorama-perspectives-conversations-on-planetary-health-series>
4. **Identified by the Planetary Health Alliance.** Accessible at: <https://planetaryhealthalliance.org/>
5. **Crisp, N. (2020). Health is Made at Home, Hospitals are for Repairs.** Billericay: SALUS Global Knowledge Exchange.
6. **Antonovsky, A. (1979). Health, Stress, and Coping.** San Francisco and London: Jossey-Bass Publishers.
7. **Aristotle. (c.340BC). Nicomachean Ethics.** Oxford World's Classics. (2009). Ross, D (trans.).
8. **Alexander, GS. (2020). The human flourishing theory.** Cornell Law School research paper 20-02. Accessible at: <http://ssrn.com/abstract=3536381>.
9. **Sen, A. (1999). Commodities and Capabilities.** Oxford University Press; 1999.
10. **Sen, A (Ed.). (1988). On Ethics and Economics.** Oxford: Basil Blackwell; (1987), 131, (paperback 1988).
11. **Hursthouse, R. (1999). On Virtue Ethics.** Oxford University Press; 1999.
12. **MacIntyre, A. (1999). Dependent Rational Animals: Why Human Beings need the Virtues.** Chicago: Open Court; 1999.

### Chapter One: An ecosystem approach to healthy communities, pages 14-22

13. **The Health Foundation. (2020). Webinar: Evaluating complex systems approaches to improving health.** [online]. Available from: <https://www.health.org.uk/about-the-health-foundation/get-involved/events/webinar-evaluating-complex-systems-approaches> [Accessed 15 July 2021]. This video offers a useful introduction to complexity in health.
14. **Krieger, N. (1994). Epidemiology and the web of causation: has anyone seen the spider?** *Social science & medicine*. [online]. 39 (7), Elsevier, pp.887–903. Available from: [https://doi.org/10.1016/0277-9536\(94\)90202-x](https://doi.org/10.1016/0277-9536(94)90202-x) [Accessed 29 March 2017].
15. **McMichael, AJ. (1999). Prisoners of the proximate: Loosening the constraints on epidemiology in an age of change.** *American Journal of Epidemiology*. [online]. 149 (10), pp.887–897. Available from: <https://doi.org/10.1093/oxfordjournals.aje.a009732> [Accessed 24 January 2017].
16. **Susser, M, and Susser, E. (1996). Choosing a future for epidemiology: I. Eras and paradigms.** *American Journal of Public Health*. [online]. 86 (5), pp.668–673. Available from: <https://doi.org/10.2105/ajph.86.5.668> [Accessed 15 March 2017].
17. **Susser, M, and Susser, E. (1996). Choosing a future for epidemiology: II. From black box to Chinese boxes and eco-epidemiology.** *American Journal of Public Health*. [online]. 86 (5), pp.674–677. Available from: <https://doi.org/10.2105/ajph.86.5.674> [Accessed 15 March 2017].

18. Barton, H, and Grant, M. (2006). A health map for the local human habitat. *The Journal of the Royal Society for the Promotion of Health*. [online]. 126 (6), pp.252–253.
19. Dahlgren, G, and Whitehead, M. (2006). European strategies for tackling social inequities in health: Levelling up part 2. **Studies on social and economic determinants of population health**. [online]. (3), Copenhagen, World Health Organization, 1–105. Available from: [http://www.euro.who.int/\\_data/assets/pdf\\_file/0018/103824/E89384.pdf](http://www.euro.who.int/_data/assets/pdf_file/0018/103824/E89384.pdf) [Accessed 17 November 2016].
20. Pineo, H. (2020). Towards healthy urbanism: inclusive, equitable and sustainable (THRIVES) – an urban design and planning framework from theory to praxis. *Cities & Health*. [online]. 0 (0), Routledge, pp.1–19. Available from: <https://doi.org/10.1080/23748834.2020.1769527> [Accessed 26 April 2021].
21. Rutter, H, et al. (2017). The need for a complex systems model of evidence for public health. *The Lancet*. [online]. 6736 (17), Elsevier, pp.9–11. Available from: [http://dx.doi.org/10.1016/S0140-6736\(17\)31267-9](http://dx.doi.org/10.1016/S0140-6736(17)31267-9) [Accessed 1 November 2017].
22. World Health Organization. (1946). Preamble to the Constitution of WHO [online]. New York: Official Records of WHO. Available from: <https://apps.who.int/gb/bd/> [Accessed 3 July 2018].
23. Crisp, N. (2020). *Health is Made at Home, Hospitals are for Repairs*. Billerica: SALUS Global Knowledge Exchange.
24. HealthHappensHere. (2016). A Tale of Two Zip Codes. *YouTube* [video]. From The California Endowment, exploring the impact of place on health outcomes: Deb and Maria live one mile apart, but Deb will live 18 years longer than Maria. Why? 18 April 2016. Available from: <https://www.youtube.com/watch?v=Eu7d0BMRt0o>
25. The Health Foundation. (2021). Unequal pandemic, fairer recovery: The Covid-19 impact inquiry report. July 2021.
26. Viens, J. (2019). Public Inquiry Commission on relations between Indigenous Peoples and certain public services in Québec: Listening, reconciliation and progress [online]. Available from: [https://www.cerp.gouv.qc.ca/fileadmin/Fichiers\\_clients/Rapport/Final\\_report.pdf](https://www.cerp.gouv.qc.ca/fileadmin/Fichiers_clients/Rapport/Final_report.pdf) [Accessed 3 June 2021].
27. World Health Organization. (1986). The Ottawa Charter for Health Promotion [online]. Ottawa. Available from: <https://www.who.int/healthpromotion/conferences/previous/ottawa/en/index1.html> [Accessed 6 May 2019].
28. Cohen, G. Can healthcare heal our communities and our planet? Presentation at European Healthcare Design Congress. London 2016. Accessible at: <https://www.salus.global/journal/view/article/can-healthcare-heal-our-communities-and-the-planet>
29. Parliament of Canada. (2019). Government Business No. 29. (National climate emergency) (amendment). [online]. Available from: <https://www.ourcommons.ca/Members/en/votes/42/1/1365> [Accessed 15 July 2021].
30. The Regional Municipality of Durham. (2020). Region of Durham declares climate emergency and commits to additional action. [online]. Available from: <https://www.durham.ca/en/news/region-of-durham-declares-climate-emergency-and-commits-to-additional-action.aspx> [Accessed 15 July 2021].
31. Ellen MacArthur Foundation. (2019). Complete the picture: How the circular economy tackles climate change. [online]. Cowes, Ellen MacArthur Foundation, 1–62. Available from: [www.ellenmacarthurfoundation.org/publications](http://www.ellenmacarthurfoundation.org/publications) [Accessed 3 March 2021].
32. Toronto and Region Conservation Authority and The Regional Municipality of Durham. (2021). Carruthers Creek Watershed Plan 2021-2031 [online]. Vaughan, Toronto and Region Conservation Authority, 88. Available from: [https://trcaca.s3.ca-central-1.amazonaws.com/app/uploads/2021/05/26152853/Carruthers-Creek-Watershed-Plan-2021-2031\\_5-26-21.pdf](https://trcaca.s3.ca-central-1.amazonaws.com/app/uploads/2021/05/26152853/Carruthers-Creek-Watershed-Plan-2021-2031_5-26-21.pdf) [Accessed 15 July 2021].
33. Building with Nature. (no date). Building with Nature. [online]. Available from: <https://www.buildingwithnature.org.uk> [Accessed 15 July 2021].
34. 15minutecity.com. [Accessible at: [www.15minutecity.com/](http://www.15minutecity.com/)].
35. Samuel, F. (2018). *Why Architects Matter: Evidencing and Communicating the Value of Architects*. Routledge, p69.
- Insight: The THRIVES Framework, page 23**
36. Pineo, H. (2020). Towards healthy urbanism: inclusive, equitable and sustainable (THRIVES) – an urban design and planning framework from theory to praxis. *Cities & Health*. [online]. 0 (0), Routledge, pp.1–19. Available from: <https://doi.org/10.1080/23748834.2020.1769527>.
- Global Exemplar: Place shaping in a Healthy New Town, pages 24-25**
37. Bicester Healthy New Town Case Study. (2019). University of Oxford and Oxford Brookes University, March 2019.
- Chapter Two: Evaluating health outcomes and goals, pages 28-32**
38. Government of Canada. (2016). Policy on Results – Canada. ca.2016 [online]. Available from: <https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=31300> [Accessed 15 July 2021].
39. Samuel, F. (2018). *Why Architects Matter: Evidencing and Communicating the Value of Architects*. Routledge, p67.
40. Maree Brown, A. (2017). *Emergent Strategy. Shaping change, changing worlds*. Chico: AK Press, p158.
41. Chalmers, I, and Altman, D. (1995). Systematic Review London. *BMJ Publishing Group*. [Note: e.g. medical textbooks for heart attack treatment took many years to catch up despite data showing effectiveness a decade earlier].
42. Office for National Statistics. (2020). Labour Force Survey, User Guide [online]. 2, Newport, Office for National Statistics. Available from: <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/methodologies/labourforcesurveyuserguidance> [Accessed 15 July 2021].
43. Public Health Wales. (2020). Population Groups Checklist [online]. Available from: [https://phwwhoccc.co.uk/whiasu/wp-content/uploads/sites/3/2021/05/WHIASU\\_Population\\_Groups\\_Checklist.pdf](https://phwwhoccc.co.uk/whiasu/wp-content/uploads/sites/3/2021/05/WHIASU_Population_Groups_Checklist.pdf) [Accessed 15 July 2021].
44. Rice, L, and Drane, M. (2020). Indicators of healthy architecture – a systematic literature review. *Journal of Urban Health*. [online]. 97 (6), pp.899–911. Available from: <https://doi.org/10.1007/s11524-020-00469-z> [Accessed 11 May 2021].
- Insight: Healthy communities – addressing a triple threat, page 33**
45. Region of Peel Public Health (2014). Improving health by design in the Greater Toronto-Hamilton Area. A report of medical officers of health in the GTHA. [online]. May 2014. Available from: <https://www.peelregion.ca/health/resources/healthbydesign/pdf/moh-report.pdf>
- Chapter Three: Visioning demand for healthy living, pages 36-42**
46. BentallGreenOak; Centre for Active Design; UN Environment Programme Finance Initiative. (2021). A new investor consensus. The rising demand for healthy buildings. [online].

March 2021. Available from: <https://www.fitwel.org/new-investor-consensus/>

47. **World Health Organization. (1986). The Ottawa Charter for Health Promotion** [online]. Ottawa. Available from: <https://www.who.int/healthpromotion/conferences/previous/ottawa/en/index1.html> [Accessed 6 May 2019].
  48. **University of Bath. How 'Old People's Home for 4-year-olds' might force a shake-up in social care.** [online]. Accessible at: <https://www.bath.ac.uk/case-studies/how-old-peoples-home-for-4-year-olds-might-force-a-shake-up-in-social-care/>
  49. **Pineo, H. (2020). Towards healthy urbanism: inclusive, equitable and sustainable (THRIVES) – an urban design and planning framework from theory to praxis.** *Cities & Health*. [online]. 0 (0), Routledge, pp.1–19. Available from: <https://doi.org/10.1080/23748834.2020.1769527>.
  50. **Government of Ontario. (2021). Ontario population projections | Ontario.ca2021** [online]. Available from: <https://www.ontario.ca/page/ontario-population-projections> [Accessed 15 July 2021].
  51. **Categories were developed from: Public Health Wales. (2020) Population Groups Checklist** [online]. Available from: [https://phwwhocc.co.uk/whiasu/wp-content/uploads/sites/3/2021/05/WHIASU\\_Population\\_Groups\\_Checklist.pdf](https://phwwhocc.co.uk/whiasu/wp-content/uploads/sites/3/2021/05/WHIASU_Population_Groups_Checklist.pdf) [Accessed 15 July 2021].
  52. **Devon County Council. (2015). Joint Strategic Needs Assessment, Cranbrook** [online]. Exeter, Devon County Council. Available from: <http://www.devonhealthandwellbeing.org.uk/jsna/overview/archive/population/cranbrook/> [Accessed 5 March 2019].
  53. **Barton, H, Grant, M, and Guise, R. (2021). Shaping Neighbourhoods for Local Health and Global Sustainability.** Third Edition. London: Routledge, p91.
  54. **SGL Planning. (2019). Why Veraine? Settlement Boundary Expansion Rationale.** Toronto: SGL Planning.
- Global Exemplar: A model of inclusive and equitable urban transformation, pages 44-45**
55. **Atlanta BeltLine Inc. (2013). Atlanta BeltLine's 2030 Strategic Implementation Plan (SIP).** Accessible at: [https://beltline.org/wp-content/uploads/2019/03/Beltline\\_Implementation-Plan\\_web.pdf](https://beltline.org/wp-content/uploads/2019/03/Beltline_Implementation-Plan_web.pdf)
  56. **Atlanta BeltLine. Project goals.** Accessed at: <https://beltline.org/the-project/project-goals/equity-and-inclusion/>
  57. **Gravel, R. (1999). BeltLine – Atlanta: Design of Infrastructure as Reflection of Public Policy.** Thesis (Master of Architecture and Master of City Planning). College of Architecture, Georgia Institute of Technology. Accessed at: <https://www.semanticscholar.org/>
  58. **Gravel, R. (2016). How an old loop of railroads is changing the face of a city. TEDNYC** [online]. [https://www.ted.com/talks/ryan\\_gravel\\_how\\_an\\_old\\_loop\\_of\\_railroads\\_is\\_changing\\_the\\_face\\_of\\_a\\_city](https://www.ted.com/talks/ryan_gravel_how_an_old_loop_of_railroads_is_changing_the_face_of_a_city)
  59. **Gravel, R. The future of Atlanta: Designing for equity, resilience and civic identity.** Presentation at Healthy City Design International Congress. London 2017. Accessible at: <https://www.salus.global/article-show/the-future-of-atlanta-designing-for-equity-resilience-and-civic-identity>
- Chapter Four: Planning, activating and operating, pages 46-59**
60. **Building a culture of health. Robert Wood Johnson Foundation.** Accessible at <https://www.rwjf.org/en/cultureofhealth.html>
  61. **Why prevention? C3 Collaborating for Health.** Accessible at <https://www.c3health.org/work-with-us/why-prevention/>
  62. **The Helsinki Statement on Health in All Policies. (2014).** *Health Promotion International*. Volume 29, Issue suppl\_1, June 2014, ppi17–i18; <https://doi.org/10.1093/heapro/dau036>
  63. **Crisp, N. (2020). Health is Made at Home, Hospitals are for Repairs.** Billericay: SALUS Global Knowledge Exchange, p11.
  64. **Greszczuk, C. (2019). Implementing Health in All Policies. Lessons from around the world.** Health Foundation; August 2019.
  65. **Tonelli, M, Kwok-Cho, T, and Forest, P-G. (2020). Canada needs a 'Health in All Policies' action plan.** *Canadian Medical Association Journal*. 20 January 2020, 192 (3) E61-E67; doi: <https://doi.org/10.1503/cmaj.190517>
  66. **Crisp, N. (2020). Health is Made at Home, Hospitals are for Repairs.** Billericay: SALUS Global Knowledge Exchange, p12.
  67. **Durham Regional Government. The Regional Municipality of Durham Information Report. (2021). Commissioner of Planning and Economic Development. Report: #2021-INFO-47, 30 April 2021.** <https://www.durham.ca/en/regional-government/resources/Documents/Council/CIP-Reports/CIP-Reports-2021/2021-INFO-47.pdf>
  68. **McKinnon, G, Pineo, H, Chang, M, Taylor-Green, L, Johns, A, and Toms, R. (2020). Strengthening the links between planning and health in England.** *BMJ*, 2020; 369:m795. Accessible at: <https://doi.org/10.1136/bmj.m795>
  69. **Chang, M. (2019). The state of the union: reuniting health with planning in promoting healthy communities.** Town and Country Planning Association; 2019.
  70. **Reed, S, Göpfert, A, Wood, S, Allwood, D, and Warburton, W. (2019). Building healthier communities: the role of the NHS as an anchor institution.** Health Foundation; 2019.
  71. **Karliner, J, Slotterback, S, Boyd, R, Ashby, B, and Steele, K. (2019). Healthcare's climate footprint. How the health sector contributes to the global climate crisis and opportunities for action.** Health Care Without Harm and Arup. London; 2019.
  72. **Ontario Health.** <https://www.ontariohealth.ca/corporate-documents>
  73. **Provincial Policy Statement, 2020. Under the Planning Act. (2020).** Ontario Government. <https://files.ontario.ca/mmah-provincial-policy-statement-2020-accessible-final-en-2020-02-14.pdf>
  74. **Envision Durham.** Durham Regional Government. <https://www.durham.ca/en/doing-business/envision-durham.asp>
  75. **Lakeridge Health.** <https://www.lakeridgehealth.on.ca/en/aboutus/durham-ontario-health-team.asp>
  76. **Meenar, M, and Swanson, H. (2020). Smart city community engagement: 4D IVR in city planning process.** [online]. Tomorrow.City. <https://tomorrow.city/a/virtual-reality-in-city-planning>
  77. **Quirk, V. (2017). Disrupting reality: how VR is changing architecture's present and future.** [online]. *Metropolis Magazine*. <https://metropolismag.com/projects/disrupting-reality-how-vr-is-changing-architecture-present-future/>
  78. **Imaz, A, and Reynolds, V. Commercialising health: the future of productive neighbourhoods.** Presentation at Healthy City Design International Congress. London 2019. Accessible at: <https://www.salus.global/article-show/commercialising-health-the-future-of-productive-neighbourhoods>
  79. **The Edmonton Confederation of Community Leagues.** <https://efcl.org/about>
  80. **Beechwood Park Homes Association.** <https://www.bpha.ca/>

## Figures

### Conceptual illustration: Visualizing a healthy community.

A conceptual illustration of an ecosystem approach and the priorities for a health-creating community.

### Figure 1: Key concept. A health-creating ecosystem, the foundational drivers of health and wellbeing.

#### Figure 2: Key concept. The THRIVES framework.

See: Pineo, H. (2020). Towards healthy urbanism: inclusive, equitable and sustainable (THRIVES) – an urban design and planning framework from theory to praxis. *Cities & Health*. [online].

#### Figure 3: Scale. Think about and plan at every scale.

#### Figure 4: Lifecourse Think about and plan for every time frame.

#### Figure 5: Evidence and evaluation. Integrate evidence and evaluation from the outset and on an ongoing basis.

#### Figure 6: Key concept. An ecosystem approach to mapping citizen needs.

#### Figure 7: Key concept. Mapping activities, settings and health outcomes related to eating and the food system.

#### Figure 8: Population pyramid. Cranbrook Healthy New Town.

See: Devon County Council. (2015). Joint Strategic Needs Assessment, Cranbrook [online]. Exeter, Devon County Council. Available from: <http://www.devonhealthandwellbeing.org.uk/jсна/overview/archive/population/cranbrook/> [Accessed 5 March 2019].

#### Figure 9: Key concept. Past and projected population growth in Pickering, Durham and the Greater Toronto Area.

See: Government of Ontario. (2021). Population projections by age and sex for the 49 census divisions. [online]. Ottawa; Government of Ontario. Available from: <https://data.ontario.ca/dataset/population-projections/resource/03abe0d5-0995-4ce2-ad9d-e904d50106a5> [Accessed 7 February 2021].

See also: Statistics Canada. (2017). Census Profile. 2016 Census. [online]. Ottawa; Statistics Canada. Available from: <http://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E> [Accessed 14 August 2020].

See also: Brinkhoff, T. (no date). Pickering (City, Canada) Population Statistics, Charts, Map, and Location (Statistics Canada, 2016 cited in CityPopulation.de) *City Population*. [online]. Available from: [https://www.citypopulation.de/en/canada/metrotoronto/admin/3518001\\_\\_\\_pickering/](https://www.citypopulation.de/en/canada/metrotoronto/admin/3518001___pickering/) [Accessed 15 July 2021].

#### Figure 10: Population pyramid. Pickering & Ontario (Census, 2018).

See: Statistics Canada. (2017). Census Profile. 2016 Census. [online]. Ottawa; Statistics Canada. Available from: <http://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E> [Accessed 14 August 2020].

#### Figure 11: Population pyramid. Durham 2020-2046.

See: Government of Ontario. (2021). Population projections by age and sex for the 49 census divisions. [online]. Ottawa; Government of Ontario. Available from: <https://data.ontario.ca/dataset/population-projections/resource/03abe0d5-0995-4ce2-ad9d-e904d50106a5> [Accessed 7 February 2021].

#### Figure 12: Key concept. Good governance is a foundation for health creation.

#### Figure 13: Key concept. Associations between design and planning principles and health and wellbeing.

See: McKinnon, G, Pineo, H, Chang, M, Taylor-Green, L, Johns, A, and Toms, R. (2020). Strengthening the links between planning and health in England. *BMJ*, 2020; 369:m795. Accessible at: <https://doi.org/10.1136/bmj.m795>

#### Figure 14: Key concept. What makes the NHS an anchor institution?

See: Reed, S, Göpfert, A, Wood, S, Allwood, D, and Warburton, W. (2019). 'Building healthier communities: the role of the NHS as an anchor institution'. Health Foundation; 2019.

#### Figure 15: Key concept. Planning Information Ecosystem.

**Table 1: Indicative design and indicative operational pathways on planning the built environment.** [Note: (i) Adapted from: Barton, H, Grant, M, and Guise, R. (2021). *Shaping Neighbourhoods for Local Health and Global Sustainability*. Third Edition; London; Routledge].

## Links for Global Exemplars

### Place shaping in a Healthy New Town, pages 24-25

Bicester Healthy New Town. Accessible at: <https://www.bicestervision.co.uk/bicester-healthy-new-town-initiative/>

### Nested in nature, pages 26-27

ReGen Villages. Accessible at: <https://www.regenvillages.com/>

### Turning the badlands into the good life, pages 34-35

Hammarby Sjöstad. Accessible at: <https://whitearkitekter.com/project/hammarby-sjostad/>

Södra Skanstull. Accessible at: <https://whitearkitekter.com/project/sodra-skanstull-masterplan/>

### A model of inclusive and equitable urban transformation, pages 44-45

Atlanta Beltline. Accessible at <https://ryangravel.com/beltline/>

### Empowering communities: from seed to solar, page 61

Energy Garden. Accessible at <https://www.energygarden.org.uk/>

### Wellness for people, place and planet, pages 62-63

The First Nations Technical Institute. Accessible at <https://www.montgomerysisam.com/project/first-nations-technical-institute-new-academic-building/>

### The value in vertical farming, page 64

Vertical Futures. Accessible at <https://verticalfuture.com/>

## Links to further SALUS resources

### Event: Healthy City Design International Congress

Organized by SALUS Global Knowledge Exchange and the Helen Hamlyn Centre for Design at the Royal College of Art. Accessible at: [www.healthycitydesign.global](http://www.healthycitydesign.global)

### Event: European Healthcare Design Congress

Organized by SALUS Global Knowledge Exchange and Architects for Health. Accessible at: [www.europeanhealthcaredesign.eu](http://www.europeanhealthcaredesign.eu)

### Media: SALUS Global Knowledge Exchange

An online community and knowledge resource featuring 4500 articles and research papers and 1500 hours of video talks and webinars. Accessible at: [www.salus.global](http://www.salus.global)

### Publication: *Health is Made at Home, Hospitals are for Repairs*

A printed book and online resource of webinars dedicated to health creation and how to build a healthy and health-creating society. Accessible at: [www.healthismadeathome.uk](http://www.healthismadeathome.uk)

## **PROJECT TEAM**



### **SALUS Global Knowledge Exchange**

Marc Sansom, managing director and project director

Mario Bozzo, lead project consultant and co-author

Mark Drane, lead research consultant and co-author (Urban Habitats)

Andrew Sansom, editorial director

Laura Clarke, designer

Jo Fenwick, design and branding consultant (Brandality)

Dr Liz Paslawsky, consultant advisor



### **Dorsay Development Corporation**

Geoffrey Grayhurst, chief executive officer

John Koke, vice president, development

Amanda Santo, senior director, land development

Agnes Koc, director, marketing and communications

Published by



**SALUS Global Knowledge Exchange**

Based in the United Kingdom, SALUS is a global knowledge-based organization working at the intersection of research, policy and practice to inform the design of cities, communities and healthcare systems that support and promote human and planetary health.

SALUS Global Knowledge Exchange  
West Suite, Westgate Court  
17 Western Road, Billericay, Essex CM12 9DY  
United Kingdom

Tel: +44 (0) 1277 634176  
E-mail: [info@salus.global](mailto:info@salus.global)  
Website: [www.salus.global](http://www.salus.global)

Commissioned by



**Dorsay Development Corporation**

Based in Toronto, Canada, Dorsay Development Corporation is a real estate development and investment company focused in both residential and commercial real estate.

Dorsay Development Corporation  
130 Adelaide St W 2200  
Toronto ON M5H 3P5  
Canada

Tel: +1 416-368-1460  
E-mail: [info@dorsay.ca](mailto:info@dorsay.ca)  
Website: <https://dorsay.ca>