



UNIVERSITY OF ALBERTA
CENTRE FOR HEALTHY COMMUNITIES



Healthy homes and healthy communities in a post-COVID Alberta: What Canadian resources and recommendations exist?

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Prepared by:

Centre for Healthy Communities

Contact:

Centre for Healthy Communities

healthy.communities@ualberta.ca

Contributors

Olivia Kim, BSc, MPH (candidate)

Research Assistant, Centre for Healthy Communities

Genevieve Montemurro, MSc

Research Coordinator, Centre for Healthy Communities

Laura Nieuwendyk, MSc

Senior Program Lead, Centre for Healthy Communities

Candace I.J. Nykiforuk, PhD

Director, Centre for Healthy Communities

Professor and Associate Dean (Research and Research Programs),
School of Public Health, University of Alberta

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Purpose

The purpose of this document is to summarize evidence for discussion at virtual workshops in Spring 2021. These workshops will engage diverse stakeholders, including real estate professionals, planners, developers, consumers, researchers, municipalities, and others from across Alberta to collectively identify additional critical 'healthy home' and 'healthy community' criteria. Together, this scientific and practice-based evidence will be used to develop a toolkit to support a wide range of stakeholders to better understand the health of communities and inform decision-making in the face of COVID-19 pandemic recovery, environmental stewardship, and economic uncertainty.

Background

The COVID-19 pandemic and related public health measures have drawn our attention to how critically important our homes, neighbourhoods, and communities are to our wellbeing. In a time of dramatic change caused by the pandemic, many people will now come to housing decisions with new questions and perceptions of what makes a home or community "healthy".

Disease transmission risk, public health restrictions, widespread shifts to remote working, and changes to our collective social lives have magnified the benefits and flaws of our daily environments. With the effects of the pandemic, there is an exacerbated wave of concern regarding the economy, sustainability, and climate change - and how that will impact people's lives now, and into the future.

Healthy homes and healthy communities facilitate better physical, mental, and social wellbeing and can mitigate the long-term effects of the pandemic, or similar social and economic shocks. Achieving this requires multi-sectoral action. How can people from across sectors and disciplines work together in creating resilient communities?

Drawing from decades of healthy communities work, **this report offers insights on key factors that contribute to healthy homes and communities, and how these factors relate to COVID-19 recovery and other societal concerns impacting wellbeing.**

Research Methods

To understand what resources and recommendations are currently available to support healthy homes and communities, our team performed an analytic literature search and an environmental scan using Google Advanced Search.

The purpose was to identify key factors used to support decision-making among diverse healthy community stakeholders (e.g., real estate professionals, urban/rural planners, developers, consumers, researchers, municipal representatives, the general public, and others).

We conducted a document review and content analysis to identify common factors across toolkits identified in our search. In addition, we sought to understand and describe how the documents addressed **three societal areas of concern: environmental stewardship, economic uncertainty, and COVID-19 recovery**.

Inclusion Criteria	<p>Inclusive of any English language documents on the topic of healthy communities.</p> <p>Document types: Guides, toolkits, checklists, fact sheets, reports.</p> <p>Documents must be evidence-informed or practice-based including:</p> <ol style="list-style-type: none">1. Publications by government organizations2. Publications created by external organizations in partnership with government3. Developed by independent organizations informed by scientific literature4. Developed through input by experts or professionals
Exclusion Criteria	<p>Documents specifically pertaining to chemical or biological hazards in relation to healthy communities.</p>
Key Terms	<p>healthy community AND toolkit OR rural OR urban planners OR economic recovery OR pandemic OR environment OR sustainability</p>
Electronic Database	<p>Google Advanced Search</p>
Screening	<p>In stage one, screening of the first five pages generated by Google Advanced Search was conducted. All eligible titles were included. In stage two, all documents were reviewed and screened for eligibility based on inclusion criteria.</p>

Overview of Findings

The search revealed 27 documents that met the search criteria. Content analysis identified eight key factors typically addressed concerning healthy communities. These were: **neighbourhood design, transportation, housing, social environment, food environment, natural environment, economic development, and child- and age-friendliness.**

These well-known key factors are briefly described below, followed by a summary of findings related to our innovative focus on three societal focal areas of concern: **environmental stewardship, economic uncertainty, and COVID-19 pandemic recovery.** For each key factor, we also identified specific indicators cited within the documents, with details on how these indicators could help address the societal areas of interest.

Healthy Communities - Key Factors



Neighbourhood
Design



Food
Environment



Transportation



Natural
Environment



Housing



Economic
Development



Social
Environment



Child- & Age-
Friendliness

Societal Focal Areas of Concern



Environmental
Stewardship



Economic
Uncertainty



Pandemic
Recovery



Neighbourhood Design

Healthy neighbourhood design encompasses criteria such as connectivity and compactness. These are influenced by population density, mixed land use, accessible amenities, stores, natural environments, well-designed infrastructure, and urban sprawl. Urban sprawl refers to the expansion of urban areas beyond their core into rural areas to form what is known as suburbs.^{1,3,5-9,11-13,24}

Communities impacted by urban sprawl are linked to increased sedentary lifestyles, decreased physical activity, and higher risk of diseases among residents.^{6,13} A healthy neighbourhood design is compact with universal accessibility to grocery stores, recreational facilities, school, work, parks, and other green spaces from an urban community lens.^{1,5,6,13}

Complete neighbourhood designs provide greater accessibility and walkability to daily life necessities for all individuals. Thus, complete neighbourhoods produce an engaging and adaptable urban environment. Additionally, connectivity and compactness is understood to impact the social and natural environments, but also the overall resiliency of a community. **Developing good neighbourhood design is recognized as the foundation to supporting healthy behaviours and lifestyles.**¹³

What is the percentage of urban or rural sprawl?

Urban sprawl is associated with loss of sense of place, community, lack of diversity in land use, isolating lifestyles, long and stressful commutes, and car dependence.⁶



The conversion of natural environments or unused agricultural land for development results in greater stormwater run-off pollution, higher energy consumption, and increased vehicle usage.^{1,6}



Fragmented development reduces economic activity due to lack of accessibility and viability of services such as child care, food stores, community centres, and schools.⁶



The spread of communicable diseases in compact environments is a concern when developing healthy communities in post-pandemic periods. Active transportation networks such as biking or walking, may be more resilient to pandemics. With a well-designed neighbourhood, people are able to walk or cycle to nearby amenities and services rather than relying on public transportation.²⁵

How complete is a neighbourhood?

Complete neighbourhoods have safe, convenient access to services for daily life that includes factors such as housing, commercial services, schools, public open spaces, transportation, recreational facilities, etc.^{4,6}



More complete neighbourhoods increase water and outdoor air quality, increase transit use over personal vehicles as well as types of active transportation.⁶



Building more complete neighbourhoods reduces healthcare expenditure, promotes leisure activities, and produces economic co-benefits.⁶



Having more complete neighbourhoods can mean easier access to daily life necessities without having to leave the community.*

*Note: text presented in blue font denotes content derived from additional sources (e.g., research team, stakeholder consultation).



Transportation

Transportation greatly influences accessibility within a community.^{1,4-20} Different modes of transportation are important in universal neighbourhood designs as transportation contributes to the overall accessibility of a community.⁶

Documents emphasize the importance of considering active transportation opportunities such as walking and cycling that work in conjunction with public transit.^{1,4-20} Encouraging active transportation over driving a vehicle provides co-benefits to physical wellbeing and climate change protection.^{1,13}

A well-designed built environment offers an inviting, integrative landscape for health-promoting transportation modes and increased physical activity, access to more nutritious food options, and reduced pollution due to decreased reliance on driving.^{1,3,5,13} **Transportation in a healthy community should be safe, affordable, and accessible to all levels of mobility.⁶**

How many modes of transport are available?

Universal designs consider accessibility for all ages and include multiple modes of transportation.⁶



Promoting active transport reduces environmental impact overall, helps reduce greenhouse emissions from cars, and reduce fossil fuel consumption.^{3,6,7}



Active transportation involving multiple modes of travel promotes economic cobenefits.⁶ Less traffic accidents which lowers healthcare costs.⁶



COVID-19 is creating a transportation mode shift from public transit to active transportation modes such as cycling and walking, but also toward private vehicle usage.²⁵ Increased interest in active travel due to COVID-19 presents an opportunity to promote continued active travel among individuals who may have shifted transportation modes during the pandemic.²⁵



Housing

Housing is essential for building a healthy community. Diverse healthy and affordable housing options are vital to overall human health and wellbeing and are also a key factor in housing choices.^{3,7}

Housing is critical in a community, as it can foster positive changes in physical and mental wellbeing and improve quality of life, providing access to a safe, protective space where individuals can eat, sleep, socialize, and work.⁶ Housing also influences employment opportunities, social cohesion, and environmental sustainability.⁷ Furthermore, having access to a high quality housing environment influences consumer behaviour related to healthy eating and building positive social relationships.⁶ Many of the source documents described the importance of having affordable and varied types of housing in communities.

When creating universal plans for healthy neighbourhoods, homes that cater to diverse household types, cultures, and mobility are important factors to consider.^{1,4-7,20-24}

What types of housing options are available?

Housing options should be diverse, affordable, and accessible regardless of people's socioeconomic status.^{1,4,6}



Proper household ventilation reduces allergens such as dust and mould present, reduced use of pesticides and volatile compounds and radon.⁶



Limited housing options reduce social and economic participation.³



Overcrowding increases health risks such as infections, respiratory issues, and mental illnesses.³



Social Environment

The social environment encompasses social cohesion, connectedness, and an overall sense of community, which is an important aspect of community health.^{1-8,15,19-22,26} Source documents highlighted the importance of perceived social wellbeing and safety in a community because it provides a sense of belonging and identity.^{1-8,15,19-22,26} Perceived social wellbeing is a predictor of neighbourhood level social cohesion.^{1-8,15-19-22,26} Aspects of the social environment that may make people feel unsafe include, but are not limited to, the presence of graffiti, litter, derelict buildings, and heavy traffic.⁶

Communities that increase the likelihood of individuals meeting each other through the provision of safe and well-designed gathering places have been linked with increased social capital, trust, support, a sense of community and neighbourliness.¹³ **Fostering a positive social environment encourages a sense of identity, engagement, empowerment and connection with the community.**⁶

The social environment is interconnected with factors such as the built environment, active transportation, accessibility, place-making, and cultural conservation (preserving and protecting cultural heritage).⁶

What is the perceived social wellbeing of the community?

Having a variety of housing types in a community can promote population diversity and intergenerational neighbourhood engagement. These factors can enhance social wellbeing, which can be further enhanced through community programs and events which increase social capital, social cohesion, and provide support for families and individuals of all ages.^{2,6}



Community programs, such as running community gardens, create a space for people to engage with their neighbours and build relationships while also promoting sustainable food practices.⁶



High levels of social capital lower levels of crime and increases social cohesion in a community.^{1,3}



Community social environments have been heavily impacted by public health measures (e.g., restrictions on gatherings, inability to use community assets such as community leagues or recreation centres) increasing risks of social isolation and breaking down social wellbeing.²⁵

What is the perception of resident safety?

Residents need to feel safe in their physical environment in order to engage in their social environment.⁶



When neighbourhoods promote a sense of social cohesion and safety, it can lead to sustainable transportation practices and behaviours.^{3,6}



A perception of safe neighbourhoods with lower levels of crime has positive economic implications.⁶



COVID-19 can perpetuate age-based and race-based discrimination, which has implications for safety.²⁷ Public health measures such as social distancing to reduce disease transmission can also affect safety perceptions as older people may be less independent in isolation.²⁷ Additionally, stay-at-home orders to reduce COVID-19 transmissions have brought to light concerns regarding increased domestic violence reports as a social consequence of social isolation.²⁸



Food Environment

Food environment broadly emphasizes the affordability, accessibility, and diversity of food options within a community.^{1,4,6-10,13,15-18,20-24,29} Making healthy food options more accessible and affordable has impacts on the built environment such as increasing the affordability of food retail and services.^{6,15,18} Additionally, it has positive population-level impacts such as increased diet quality, food skills, and social wellbeing, as well as decreased stress and diet related illnesses such as obesity.^{6,13,16,18}

Improving healthy food choices and food security in a community is a shared responsibility at all levels of the government and across sectors including public health, planning, and development.^{6,18} Food environments are influenced by the built environment such as proximity to food sources, gardens and farmers markets, and zoning of unhealthy fast food chains.¹³ These factors impact food affordability and food security, along with convenience and access to food which can shape dietary behaviours of individuals in the community.

In relation to food, access to clean and safe water supply is critically important to individual and community health.⁶ Thus, a healthy food environment is recognized as an important factor in building healthy communities.^{1,6-8,13}

Is there access to clean and safe water supply?

Safe and clean water supply is a basic need that should be accessible to everyone.⁶



Clean water supply is a key factor to an overall clean community environment.^{12,13} Public water fountains or water bottle refill stations reduce use of single use bottles.³



When safe and clean water is not available it can reduce overall water intake, which in turn contributes to poor health.³



Practicing good hand hygiene in daily life, and when handling and consuming food, is extremely important for reducing the chances of getting and spreading diseases such as COVID-19 or gastrointestinal illnesses.³⁰ The availability of public water fountains can increase accessibility to safe clean water for all, with increased health benefits for communities as people gather outdoors to socialize.

How is the retail food environment spread out relative to where people live, work, learn, and play?

Retail food environments encapsulate all the different food choices that are available for consumers.^{3,6}



The mapping of optimal and accessible locations for retail grocery stores can inform neighbourhood design/redevelopment, potentially improving economic viability because more people can live within walking distances of healthy food retailers,⁶ decreasing reliance on vehicle travel.



Mapping out the retail food environment can visually reveal accessibility and dominant food choices in different areas of a community relative to population or other neighbourhood characteristics.¹³



COVID-19 has changed the retail food environment in terms of capacity, access, and store hours. The food environment has been impacted by COVID-19 through public health measures such as social distancing. This has changed the way people are dining and shopping.²⁹



Natural Environment

The importance of natural environments was emphasized throughout the source documents.^{1-4,6-8,10-13,15,19-22,31} **Exposure to natural parks and green spaces has been associated with increased social cohesion and economic capital, increased frequency of walking, and lower body mass index.**^{1-4,6-9,11-14,16,19-21,23}

Additionally, urban trees or canopies are defined as vegetation features in the urban landscape that enhance feelings of security within a community and promote better mental and physical health.^{3,6,12,13}

Incorporating green spaces and protecting natural environments enhances a community's social wellbeing and recreational opportunities.²⁰ Alongside protection of natural environments and green spaces, environmental sustainability and land stewardship are important aspects to consider to foster healthy communities for current and future generations.

How many parks, open spaces, or natural areas are available? And, what is the quality and accessibility of those spaces?

Green infrastructure, which includes open spaces and natural areas, promotes non-sedentary healthy lifestyles and healthy behaviours such as physical activity.^{12,13}



Natural environments reduce air pollution and cool the air in dense urban area.^{6,12,24} In rural settings, natural, sustainable spaces provide everyday opportunities to connect with nature.¹⁰ Green spaces increase community social capital while protecting and preserving the natural environment.¹⁰



Urban trees not only provide a range of environmental benefits to cities, but also contribute to increased residential property values.³ Similarly, in rural communities the presence of natural areas can increase natural capital assets.¹⁰



Parks, open spaces, or natural areas provide a capacity to recover from disturbances and risk of unexpected change.¹²

Are there trees and canopy coverage in communities?

Trees have positive effects on physical activity, social well being, and mental health while reducing street traffic, stress, healthcare costs, and chronic diseases.⁶



Vegetation on roofs and ground surfaces can help eliminate heat islands, reduce storm run-offs, improve water quality, and reduce air pollution.^{5,6}



Trees have economic co-benefits that include increases in property value, recreation and tourism appeal.^{6,24,32}



Trees reduce the warming of the area and can reduce the transmission of diseases such as Lyme Disease, West Nile Virus, and Malaria, which are often triggered by warmer climates.²⁴



Economic Development

Diverse, innovative, economic development at the local level was frequently cited in relation to healthy communities.^{1-3,6-10,12-17,22-24,31} Economic co-benefits for communities described within documents included a stronger local economy, individual cost-savings, and reinvestment into smart, compact growth.^{1,6}

Key statements on economic development emphasized preventing urban sprawl and developing complete, compact, and accessible communities. These were understood to create opportunities for long-term cost-savings in infrastructure maintenance, delivery of services such as public transit, school transport alternatives, garbage collection, and emergency response.^{1,6,13,22,29,31}

Economic recovery and diversification is unique for all communities as priorities are dependent on local and regional considerations and available resources.²⁰ When described in the context of post-disaster recovery, long-term economic diversification focused on engaging regional planning perspectives, building partnerships, and developing long-term viable strategies.^{29,31}

Does the community have infrastructure that promotes economic development?

Pedestrian-oriented communities with active transportation infrastructure and diverse amenities have economic payoffs such as higher rent costs, retail sales, and homes with higher price premiums.²¹ Complete and healthy neighbourhood designs support economic development by increasing accessibility to amenities and services.¹³



Increased active transportation (e.g., walking and biking) consumes less energy which contributes to lower air pollution.⁶ By increasing accessibility to local amenities and services there is a reduced reliance on vehicles, which in turn reduces emissions.



Economic activity in communities promotes economic growth and stability.



COVID-19 has created a shift in the trend of economic activity.²⁹ Online activity means that cities and towns are not generating as much commercial property tax to fund programs. There is an opportunity to accelerate economic development by designing and adapting services and infrastructure in communities.²⁹



Child- and Age-Friendliness

Age-friendliness, aging in place, and childhood development were frequently embedded as healthy community factors in the source documents.^{3,11-13,20,24} Healthy childhood development was often cited as a root cause of lifelong positive health, influenced by community factors such as accessibility to affordable housing, food security, economic stability, green and open spaces, parks, transportation, and complete streets.^{3,11-13,20,24}

References to childhood development were commonly used to discuss the impacts of healthy community factors on children with an emphasis on physical health. Additionally, documents detailed the need for sustainable communities that are flexible to the changing lifestyles and physical capabilities of their aging populations. As the population ages, there is an emphasis on building a safe and comfortable environment with community support that promotes independence, autonomy, and a sense of agency.^{3,11,12}

Community support can be present in a variety of forms, including transportation programs, assisted living, community events and awards, volunteer opportunities, and services.¹¹ A key recommendation is to be **cognizant of universal design principles that help facilitate healthy childhood development, healthy aging, and continuing across life-stage transitions.**^{3,11-13,20,24}

Documents described specific components that impact the child- and age-friendliness of communities such as infrastructure and outdoor spaces, housing, transportation, social capital, and community support and services.^{3,12,13}

Is community support available for residents of all ages?

Healthy community designs are inclusive of all ages. Community programs offer an opportunity to promote autonomy, sense of agency, social support in individuals as they age, and reduce ageism.^{12,24}



Shade trees can make shared public spaces more accessible for children and seniors, promote physical activity, improve air quality, and also help to offset urban heat.¹² Thus, investing in green infrastructure provides not only environmental benefits, but also community support through nature programs and day camps for children.¹²



Community support to provide seniors with paid employment and volunteer opportunities can contribute to the local economy. Additionally, day camps for children can contribute to the local economy.⁸



Building play spaces for children serves as an environmental enhancement that promotes social interactions and connectedness between different age groups.²¹ Intergenerational home sharing can increase social connectedness through increased companionship.³³



It is important to consider these eight key factors in unison, rather than in isolation from one another. These factors are interconnected and exert influence on each other, creating system level influences that shape people's wellbeing and community resiliency.



Healthy Homes

While not extensively identified as a common factor during analysis of the existing healthy communities documents, it is important to consider the breadth of 'healthy homes' factors independently and relative to the communities in which they are situated.

Healthy homes as described in source documents was limited, emphasizing the importance of protection against health hazards both inside and near homes.⁶ Health hazards described were similar to those detailed by Health Canada, including environmental factors, household chemicals and pollutants, radon, carbon monoxide, and mould.³⁴ While diverse housing options were cited as an important aspect of healthy communities, specific housing elements such as proper ventilation systems and energy-efficient features, were also noted.⁶ Proper ventilation reduces the risk of asthma by reducing radon, the levels of allergens associated with mould and dust, household chemicals such as pesticides, and organic compounds.⁶

One source document specifically noted that, **on average, Canadians spend 90% of their time in indoor environments**, thus drawing attention to the importance of creating healthy homes that protect against health hazards¹ and promote wellbeing indoors. Most documents fell short of establishing a clear connection between healthy homes and healthy communities. None described the positive mental and social health promoting factors related to homes, e.g., in the context of multi-unit dwellings or intergenerational households.

There is an opportunity to explore how home and community environments are interrelated in fostering resiliency and wellbeing. Recent research examining the psychological impacts of aesthetic design elements (e.g., lighting and openness, colour) provides useful practices to enhance wellbeing in affordable housing design.³⁵

Societal Concerns & Healthy Communities

Environmental Stewardship, Economic Uncertainty, and COVID-19 Pandemic Recovery

While the eight factors described above have become increasingly well researched and better understood over recent decades, societal concerns continue to shift, presenting new challenges and considerations for healthy homes and healthy communities. The global climate crisis, economic instability and recession, and the myriad of health and other impacts brought about by COVID-19 underscore the need for innovative and proactive strategies to create resilient communities that protect and bolster wellbeing.

The following section describes how these societal concerns are represented within existing healthy communities documents, and provides insight to strengthen and direct future strategies for multi-sectoral action. The discussion will be organized around **three main foci: environmental stewardship, economic uncertainty, and COVID-19 pandemic recovery.**



Environmental Stewardship

Documents frequently noted the importance of being environmentally conscious and modeling environmentally responsible decision-making in neighbourhood design.^{2,5} Considerations related to environmental sustainability, climate change action, and the need for urban trees were often cited.^{2,3,5-7,10,12,13,24}

Investing in urban green infrastructure provides both an economic and environmental value in reducing energy use, air pollution, and storm run-offs.^{5,6} Within the source documents, environmental stewardship was portrayed through the understanding that human health is dependent on the natural features of our environment and that environmental pollution has significant health impacts.³

Environmental health was described as the interaction between the environment and human health and identified key issues with climate change, air quality, clean and safe drinking water, noise pollution, odour, light, microbial pollution and control, and adequate solid waste management.³ Provincial and municipal level policies, development plans, and programs can play an important role in environmental stewardship by ensuring green spaces are arranged within rural and urban settings to promote access and investment in these resources that are essential to health and wellbeing.

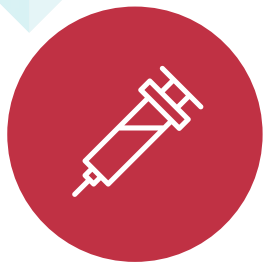


Economic Uncertainty

Economic uncertainty within the current context of the COVID-19 pandemic refers to the unpredictable future outlook of the economy and generally implies a likelihood of continued instability and adverse economic events. While economic development is a focus in many existing documents, how we can sustain healthy homes and healthy communities in times of economic uncertainty is less well addressed.

To build and sustain healthy communities, it is important to build resilient local economies that can support people through unexpected events such as a global pandemic or economic recession. Economic development related to healthy communities was described across documents as economic co-benefits, building of local economy, productivity, and capacity, and the unique economic value of urban trees.^{6,8,12}

Together, environmental stewardship and economic development intersect to inform the economic impact of future development as it pertains to the use of natural renewable and nonrenewable resources.¹² Furthermore, informing the future development of neighbourhoods that are more complete and connected can create an opportunity for economic co-benefits within the community.⁸ **Healthy and sustainable economic development is a foundation for community initiatives that support positive social environments, promote social cohesion, and improve sense of community through local partnerships.**¹⁰



COVID-19 Pandemic Recovery

Across the source documents, information about the impact of COVID-19 (or potential epidemics/pandemics) on healthy community factors was generally lacking. Most recommendations pertained to disaster response rather than epidemic/pandemic response and recovery and thus described the general resilience that communities require to overcome and recover from adverse events.^{12,26}

Communication challenges were noted to be one of the most difficult barriers to overcome following a disaster as the spread of misinformation can greatly impact the economic recovery process.^{26,27} The process of recovery and rebuilding, whether from disaster or pandemic, is not necessarily linear with specific designated points in time.²⁷

The insights on environmental sustainability and economic development detailed above provide a clear indication of **steps society can collectively take to build more resilient communities that can withstand the detrimental effects of a pandemic or other major upheaval**. Governments, multi-sectoral coordination and partnerships, and financial renewal all play key roles in societal recovery from COVID-19.²⁷

The societal factors of environmental stewardship, economic uncertainty, and COVID-19 pandemic recovery present unique considerations, challenges, and opportunities to support healthy homes and healthy communities now, and into the future. These factors intersect with the eight key factors described earlier, and emphasize the need for coordination across sectors, jurisdictions, and disciplines, to enhance the resiliency and wellbeing of individuals and communities.

Implications & Next Steps

As we move forward into a post-pandemic society in Alberta, we can reimagine our vision for communities and homes that support and bolster our individual and collective resiliency, prosperity, and wellbeing. Economic stability and environmental sustainability will act as key pillars in pandemic recovery efforts that will impact current and future generations. Existing documents provide a foundation of key factors on which we can build resilient communities that foster wellbeing by strategically and intentionally incorporating considerations related to environmental stewardship, economic uncertainty, and COVID-19 pandemic recovery.

The Centre for Healthy Communities team will utilize the evidence summarized in this report to inform virtual engagement workshop discussion with diverse stakeholders from across Alberta in June 2021. Workshop discussions will identify additional critical 'healthy home' and 'healthy community' criteria, prioritizing stakeholders' experiences addressing these issues.

The findings from the workshops, literature review, and environmental scan will be used to develop a toolkit to support stakeholders to better understand the health of communities and inform decision-making in the face of COVID-19 pandemic recovery, environmental stewardship, and economic uncertainty.

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