Aligning COVID-19 Recovery with Local Government Climate Action

Practical Community-Scale Actions, Solutions and Strategies for BC Municipalities

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Executive Summary

This report was created to support local governments in sustaining climate action while creating jobs post-pandemic. COVID-19 has had an enormous impact on the lives and livelihoods of British Columbians, with many aspects of community and economic life shuttered to minimize human contact in order to slow the spread of the virus, resulting in a major economic downturn. At the same time, over 30 local governments in BC have declared climate emergencies, and many more committed to catalysing local climate action. As climate change continues to accelerate, climate-inclusive economic recovery planning is critical.

The aim of this report is to provide advice to BC municipalities on opportunities for COVID-19 recovery that offer synergies with climate action, based on case studies and precedents in communities that may be applicable to BC and Canada. Applying or adapting these strategies can provide the following desired outcomes:

- Increasing jobs and skills within communities, and advancing economic recovery.
- Reducing GHG emissions (carbon footprints) and meeting municipal, provincial and federal emission reduction targets.
- Building resilience and adaptation to climate impacts, while increasing self-sufficiency.
- Social co-benefits such as improving or restoring health, social cohesion, equity, and advancing a cultural shift towards sustainable lifestyles.

The study focuses on the city and regional district scale for local government action, in both urban and rural settings. In particular, we address two priorities identified by the Community Energy Association (CEA) as "Big Moves" on climate action:

- Zero Emission Buildings - with an emphasis on retrofitting existing buildings.
- Closing the Loop on Waste - including reducing consumption and reuse/repair/recycling.

In addition, two cross-cutting themes in areas relevant to both COVID-19 recovery and climate action are examined:

- Holistic land use implications for enhancing communities, addressing issues such as "complete communities," multiple use of public (and private) space, green infrastructure and liveability, with links to both adaptation and mitigation.
- Community engagement and social mobilization, addressing opportunities for education and capacity building, stewardship of community assets, domestic consumption, behaviour change and collective action on climate change.

Utilizing a case study approach, this report analysed several well documented precedents from Canada, the United States and Europe, conducting a selective literature review of relevant pre-COVID studies and emerging "grey literature." Case studies were evaluated against the four outcomes identified above, in addition to potential replicability in BC communities.

Summary of Key Findings

Re-localizing communities: There has been a movement towards creating more "complete neighbourhoods" to emphasize local provision of services, jobs and amenities with less reliance on car travel in cities. Examples include Paris' "15 Minute City" model, and Barcelona's Superblocks. Various aspects of this strategy have been replicated in many BC communities during COVID, in response to the new normal of working from home, restrictions against travel, and closure of indoor businesses. Locally, this strategy can be seen in the rapid deployment of parklets to reclaim road-space and parking (e.g. Open Streets Initiative, City of North Vancouver). These strategies encourage people to access local businesses/neighbourhood resources, creating and sustaining local jobs, and contributing to the economic survival of local businesses during the crisis, while fostering neighbourhood vibrancy over the longer term. Communities that have

implemented such strategies have transformed land use and mobility to effectively slash vehicle emissions, reduce traffic in neighbourhoods, improve air quality, reduce noise, improve safety, and promote conversion to active and healthier transportation. If these moves and associated green infrastructure (trees, parks, rain-gardens, depaving etc.) are made permanent, they can foster a change in people's priorities and promote climate-friendly behaviours which help to meet multiple municipal targets.

Providing green jobs through energy upgrades: Such win-win opportunities can be facilitated by governments, business and the non-profit sector. For example, implementing municipal bylaws (e.g. the Borough of Rosemont-La Petite-Patrie's (Montreal, Quebec) mandatory requirements for cool roofs) can lead to significant job development through retrofitting thousands of roofs to reduce heat load and the expense of air conditioning. Supportive policies and greening measures, e.g. increased tree planting to shade buildings, can help increase community resilience to climate impacts, while improving residents' mental health. Use of such municipal zoning bylaw tools and policies are highly replicable for local governments in BC where the need for cool or white roofs is only now seen as urgent due to recent heat waves. Non-profit organizations can also play a key role by providing green jobs training programs to help scale-up home energy retrofits and switching to renewables, as shown by the Baltimore Centre for Sustainable Careers. Training in high growth environmental careers can deliver strong equity and inclusion benefits for individuals who are under-employed, providing meaningful jobs, a living wage, and marketable skills in the green economy, such as installing solar roofs to help reduce GHGs, promote EV use, and increase energy security.

Extracting value from waste through the circular economy: Innovative strategies for generating jobs and income from previously discarded materials can also reduce embodied energy and GHGs from landfills. When municipal deconstruction policies incentivize private businesses to divert construction and demolition waste from landfills, they have demonstrated the strong growth potential of the recycling and reuse market. For example, Unbuilders in Vancouver deconstructed approximately 1% of the 3,200 homes demolished in Vancouver in one year, but generated over $1.5 million in revenue and sizeable tax credits for homeowners who donated salvaged old growth timber and other building materials for local reuse. Many BC municipalities have yet to launch deconstruction bylaws and incentives, with the potential to yield 1,700 BC jobs if deconstruction was to achieve 100% of market share. NGOs have also launched waste recycling programs by empowering individuals who face barriers to formal employment (e.g. Binners' Project, Vancouver). This can provide reliable, safe jobs for marginalized individuals, utilizing their expertise to sort waste in both public/private settings, which lowers contamination and decreases landfill emissions. These operations can have low costs and carbon footprints, as recycling collectors travel on foot, bicycle, or bus. Such programs also help meet equity goals, if backed by stronger municipal government support and regulations on waste diversion.

Mobilizing citizens and whole communities: There are many examples both before and during COVID of innovative pilots to engage and mobilize the "missing middle" of under-engaged community residents on collective climate action. Social mobilization, leveraging volunteerism and the collective energy and efforts of residents, can bring multiple win-wins at relatively low cost. There are clear synergies between youth leadership development, job readiness skills, and engaging in positive climate action to mitigate the mental anxiety of youth during the pandemic (when job opportunities were scarce); and increasing the capacity, promoting social inclusion, and building resilience among residents in climate-proofing communities. In Nelson, B.C., for example, Wildsight, a local NGO, launched Youth Climate Corps (YCC), a youth employment and skills development program focused on climate adaptation (e.g. fire risk reduction around communities), which was tied to COVID-recovery. Neighbourhood-based programs to empower and activate local champions on climate action and behaviour change have been successfully launched by the City of Toronto (Neighbourhood Climate Action Champions), Evergreen in Vancouver (Green Bloc Neighbourhoods), and CALP working with community centres (Cool 'Hood Champs). Such programs have been shown to improve resident knowledge and agency on climate change, and increase awareness of practical local solutions, drawing on local resources and suppliers, e.g. home and garden stores and municipal park departments. Champions also connect other residents on climate action projects (eg. food gardens, placemaking), while promoting behaviour change to cut carbon footprints (e.g. by 16% with Green Bloc Neighbourhoods).

CONCLUSION & RECOMMENDATIONS

These study findings suggest there are **multiple pathways and sectors** where both jobs and climate change solutions (building resilience and reducing emissions), can be fostered by diverse stakeholders (governments, NGOs, businesses, citizen groups, etc.). While many of the successes revealed here occur in larger or more densely populated communities, there are opportunities to adapt proven strategies at a smaller scale in more rural or small-town settings, e.g. where development of denser hubs or community nodes could speed the growth of low-carbon, resilient and vibrant local communities. Many of the case studies in this report provide replicable models for both urban and rural settings, but need to be scaled up if they are to achieve community-wide benefits and targets. Regulatory approaches such as cool roof bylaws, and government policies toward requiring home retrofits clearly have the potential for enacting sweeping changes, but only if enabling policies are not vigorously opposed by a large segment of the community. This speaks to the need for **more effective engagement strategies to build that policy support**.

The **collective COVID experience presents a unique and timely opportunity** to reshape our communities, our economy, and our lifestyles, if we are to meet critical 2030 climate targets. While the pandemic has had many negative impacts, and disproportionately impacted indigenous communities and vulnerable individuals in our society, many of the planned and unplanned responses to COVID have had **positive consequences** for carbon footprints and community resilience. The unique combination of policies, restrictions, incentives, and voluntary behaviour change during the COVID-19 pandemic has shifted social norms and delivered a rapid, large (7%), and unprecedented reduction in worldwide emissions. While not enough to solve the climate crisis, this does show that massive swift change is possible, even where the primary goal was not climate change.

Further changes and set-backs as a result of the pandemic are likely to take place over the next few months and beyond. **Adaptability and proactive** planning for alternative scenarios addressing multiple crises (including the increasingly obvious climate emergency), will remain critical to overall community wellbeing. Some of the strategies reviewed in this report have been tested successfully during the pandemic, suggesting that implementation should be feasible in an extended COVID-19 recovery. There is though, the question of **what societal shifts will stick** after the COVID-19 pandemic, and how these can be hardwired into the recovery effort to urgently respond to the need to slash emissions and climate-proof communities.

There is a rapidly shortening window to seize the opportunity that COVID-19 presents for climate action and positive change, before "business as usual" is re-established by municipalities and other sectors of society. This moment provides an opportunity for a permanent sea-change, while many are still working remotely from home, focused on the liveability of neighbourhoods, and their old habits remain disrupted. Some adaptations to COVID, like pop-up parklets, which strengthen the local economy and align with climate action, may make difficult transitions more acceptable (e.g. taking back road space, reductions in commuting). M**any of these changes though, are not yet widely seen as linked to positive climate action**, calling for stronger climate messaging.

This report lays out strategies and next steps for BC local governments to establish synergies between COVID-19 recovery and local climate action, through restart plans, job creation strategies, and budget planning. We also include recommendations for consideration by the provincial government and other key community partners. Key recommendations for BC municipalities and regional districts include:

1. **Develop a multi-pronged restart strategy** for "Post-COVID Climate Action Plans," which build in both adaptation and mitigation priorities.
2. **Prioritize re-localizing the economy to build jobs and long-term community resilience** to climate change impacts, as well as to disruptions to remote energy supplies and transport corridors, economic downturns, and other crises (e.g. social inequity and mental/physical well-being).

3. **Scale up visible climate action** within communities, supported by a **network of replicable demonstration projects.**
4. **Develop a municipal or regional Social Mobilization Strategy** to engage, empower and support residents and community groups across BC, through sustained collaborations between municipalities, local community hubs, and a coordinating backbone organisation with sustainable co-funding. We have 9 years left to get every neighbourhood and community to reduce their carbon footprints by almost half, requiring an unprecedented cultural shift on the scale of the COVID-19 response.
5. **Assess and revise next year's municipal budget for joint COVID-19 recovery and climate action,** to support and prioritize these actions.

Municipalities can and should play a crucial **convening role** in bringing together partners and other key stakeholders who will also play key roles in developing and delivering joint local recovery and climate action plans. The provincial government is best placed to provide overall strategic guidance and support to local government and other sectors, with strong messaging to the public (building on its successes with COVID-19 in this area), and drawing on the signature initiatives (including a social mobilization strategy) recommended by UBCM on climate action.

1. INTRODUCTION

This report was created to directly support local governments in sustaining climate action while creating jobs in the wake of the COVID-19 pandemic.

We know that COVID-19 has had an enormous impact on the lives and livelihoods of British Columbians across the province. In response to the public health crisis brought on by the coronavirus, many parts of the economy were shuttered to minimize human contact to slow the spread of the virus. The resulting economic downturn has been different from others that have happened in the past, as job losses have disproportionately impacted youth, women, immigrants and unskilled workers, demanding new and innovative job creation strategies.

While emissions initially fell due to massively curtailed economic and social activity early in the pandemic, by 6.4%, or 2.3 billion tonnes in 2020, some researchers expect a strong rebound in global emissions as worldwide economic activity recovers.[1] While the initial sharp decline in emissions was impressive, it still falls short of a 2019 UN Environment Programme (UNEP) report which warned that unless global greenhouse gas emissions fall by 7.6 per cent each year between 2020 and 2030, the world will miss the opportunity to get on track towards the 1.5°C temperature goal of the Paris Agreement.[2] The predicted bounce-back in global emissions is therefore alarming, and necessitates critical action.

Before the pandemic, in recognition of the urgent need to rapidly reduce carbon pollution to limit global warming to 1.5°C, over 30 BC local governments declared climate emergencies, and many more committed to catalysing local climate action. As climate change continues to accelerate, climate-inclusive economic recovery planning is critical. The BC Climate-Aligned Working Group, composed of local government, non-profit, and business representatives, formed in July 2020 to support the integration of climate action opportunities (both mitigation and adaptation) into BC's COVID-19 economic recovery strategy, as well as the 2021 Provincial Budget. Through its work, the Working Group determined that because of the unique nature of the COVID-19 economic downturn, in which youth, women, immigrants, and unskilled workers were impacted more than other population groups, infrastructure projects alone will not be enough to increase employment to pre-pandemic levels.[3]

For this reason, this report identifies practical, community-scale actions, solutions and possible strategies to encourage BC municipalities to support new programs and policies integrating a climate and social equity lens, to ensure that all groups can benefit from COVID-19 climate inclusive economic recovery programs and projects that contribute to both local job creation and tackling the climate emergency.

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[1] Tollefson, Jeff. (2021, January 15). "COVID curbed carbon emissions in 2020 — but not by much." *Nature. https://www.nature.com/articles/d41586-021-00090-3*

[2] United Nations Environment Program. (2019, November 26). Emissions Gap Report 2019. UNEP, Nairobi.

[3] Community Energy Association and Vancouver Economic Commission, on behalf of the BC Climate-Aligned Stimulus Working Group. (2020, August 31). *BC Climate-Aligned Stimulus Working Group Final Report.* Vancouver, BC: CEA.

Goals of the Study

The aim of this report is to provide advice to BC municipalities on opportunities for COVID-19 recovery that offer synergies with climate action, based on studies of precedents and case studies of other communities, which may be applicable to BC and Canada. Desired outcomes of seizing such opportunities and adapting or developing new initiatives could include:

- Increasing jobs and skills within communities, and advancing economic recovery.
- Reducing GHG emissions (carbon footprints) and meeting municipal, provincial and federal emission reduction targets.
- Building resilience and adaptation to climate emergency impacts, while increasing self-sufficiency.
- Various social co-benefits such as improving or restoring mental and physical health, social cohesion, equity, and advancing a cultural shift towards more sustainable lifestyles.

Study Scope and Approach

This study focuses on the city and regional district scale for local government action, in both urban and rural settings (though in general, there is more information available on case studies in urban communities than rural communities). In particular, this report addresses certain priorities identified by CEA's Climate Leaders Playbook including two of the "Big Moves" on climate action:

- Zero Emission Buildings - with an emphasis on retrofitting of existing buildings, whether commercial or residential; and,
- Closing the Loop on Waste - including reducing consumption and reuse/repair/recycling.

In addition, this study considers cross-cutting themes in two main areas relevant to both COVID recovery and climate action:

- Holistic land use implications for planning and enhancing communities, addressing issues such as "complete communities," multiple use of public (and private) space, liveability, and green infrastructure etc., with links to both adaptation and mitigation.
- Community engagement and social mobilization, addressing the role of, and approaches to education and capacity building, stewardship of community assets, domestic consumption and lifestyles, behaviour change, and collective action on climate change.

This study does not attempt to provide economic analyses, and seeks to complement the parallel report produced by SFU researchers on transportation.[4] It has also not focused on Indigenous communities in

[4] Correa, L., and Perl, A., "Aligning COVID Recovery with Local Government Climate Action: Zero-Emission Challenges in Urban Mobility Future After COVID-19. Final Report." (2021). Urban Studies Program, Faculty of Arts and Social Sciences. *Simon Fraser University.*

recognition of the special circumstances and governance conditions applying to this important segment of the BC population, which call for special expertise and full Indigenous involvement.

This study utilizes a case study approach, with selection and analysis of a limited number of well documented examples from Canada, USA and Europe. This provides both a breadth and depth of analysis of possible action strategies in the COVID recovery context.

Consistent with the PICS Fast Track Research Program, this report is intended to provide rapid and timely information over a fairly short time frame, focused on BC communities and garnered through limited primary interviews, while also making use of readily available information. This requires a selective literature review of relevant pre-COVID studies and considerable use of "grey literature," as well as web/media content. Most of these recent information sources have not been peer-reviewed, and therefore cannot be considered scientifically verified. Information has been gathered where possible to support findings, through interviews with experts linked to the case studies, cross referencing multiple project examples, and discussion/review by PICS and CEA during the process.

This study applied a "COVID lens" to case studies and strategies documented prior to the COVID pandemic. Case studies were explored to identify levers or drivers including policies/regulations, infrastructure improvements (both grey and green), and social programs and practices. We sought to consider scalability, feasibility, and applicability of possible strategies to BC conditions (both in larger urban communities and smaller or rural communities). Case studies were evaluated based on perceived effectiveness in delivering the four potential outcomes that have been identified: jobs/skills, GHG reduction, resilience/self-sufficiency and social co-benefits – plus replicability in other communities. The analysis uses a qualitative "traffic-light" scale of high (green), medium (amber) or low (red) effectiveness. Final recommendations are provided based on this broad descriptive review and interpretations by the authors.

This report provides guidance to municipalities in the following areas:
Section 2: Holistic Approaches: COVID-19 recovery and the 15 Minute City
Section 3: Case Studies on Building Energy and Waste
Section 4: Social Mobilization
Section 5: Conclusions and Recommendations

2. HOLISTIC APPROACHES: COVID-19 RECOVERY and the 15 MINUTE CITY

As many municipalities have begun emerging from the public health crisis brought on by the COVID-19 pandemic which limited transit and travel, they are exploring the concept of the 15 Minute City - an idea where close-knit districts providing for most if not all resident needs, are supported by infrastructure which promotes cycling and walking, providing a pathway for post-COVID recovery and jobs development.

What is the 15 Minute City?

The "15-minute city" is an approach to urban design that aims to improve quality of life by creating sustainable cities where everything a resident might need can be reached within 15 minutes by foot, bike or public transit. With an emphasis on careful planning at the neighbourhood level, each district has all the features it needs to support a full life – including jobs, food, recreation, green space, housing, medical offices, small businesses and most importantly, it doesn't require a car.[5]

DID YOU KNOW?

The "15-Minute City" is the most commonly used term to describe cities made up of people friendly, "complete" neighbourhoods, where residents can meet most of their needs a short walk or bike ride from home.

The 15 Minute City, which has become synonymous with Paris, is a flexible and highly adaptable model, which has been adopted by cities around the world, using other terms to describe the same set of principles:

- Ciudad a escala humana (Human-Scale City); Buenos Aires.
- Complete Neighbourhoods, Portland, Oregon.
- Barrios Vitales (Vital Neighbourhoods); Bogotá.
- 20-Minute Neighbourhoods; Melbourne.
- Superblock; Barcelona.

Source: C40 Knowledge Hub https://www.c40knowledgehub.org/

The COVID-19 pandemic abruptly sent hundreds of millions of people into lockdowns. Those who were able to work remotely from home were encouraged to do so, only going out to meet essential needs. While many parts of the economy came to a halt, and work and other commutes by car waned; many frontline workers, including low-wage service workers, sought alternatives to the crowds and enclosed spaces of public transit. Still, many millions of people lost jobs. As cities look to recover from COVID-19, many are considering how the pandemic has fundamentally reshaped how we live and work, and how we can thrive in a post-pandemic future. However,

[5] Sisson, Patrick. (updated 2020, December 3). "What is a 15-minute city?" *City Monitor. https://citymonitor.ai/environment/what-is-a-15-minute-city*

these solutions may not be as applicable for communities with significant numbers of frontline workers who did not have the option to work from home.

The 15 Minute City is a model that many cities are embracing to support a deeper, stronger recovery from COVID-19, and to help foster a more local, safe, healthy and sustainable way of life. By reconnecting residents with their local areas, and decentralising city life and services, the 15 Minute City promotes lived-in, people-friendly, "complete" and connected neighbourhoods, reducing unnecessary trips, and deepening a sense of community, while improving the sustainability and liveability of cities.[6]

A Post-Covid Reset for Cities: Reimagining a Green Urban Pandemic Recovery

DID YOU KNOW?

As part of the creation of a new long-term strategic and actionable Vancouver Plan, the City of Vancouver has launched a community engagement process asking residents to join a conversation on complete neighbourhoods.

Centred on the needs of all residents, the City defines a complete neighbourhood as one that features a diversity of housing options, shops, services, recreation opportunities, cultural and childcare facilities, linked by lively pathways, parks and plazas, and within close proximity to one another.

The idea of the 15 Minute City is not a new one. It builds on principles of New Urbanism with walkable blocks and streets, housing and shopping in close proximity, accessible public spaces as well as transit-oriented development. Its roots can be found in the idea of the "neighbourhood unit" proposed by the American urban planner Clarence Perry in the early 1900s.In addition, similar visions of 20 minute and 30 minute neighbourhoods or cities have also emerged in the past decade, most notably in Australia.[7] In fact, many cities already contain areas that align with the principles of the 15 Minute City, even if it's by accident rather than by design.[8]

"Many people never visited shops close to their homes before because they were busy. They didn't know their neighbours or the parks nearby. The pandemic made us discover this. We have rediscovered locality, and this has improved quality of life."

- Professor Carlos Moreno, Mayor of Paris' Special Envoy for Smart Cities.

COVID-19's impact on the decline and evolution of Central Business Districts is tied to a resurgence of interest in the 15 Minute City model, as it directly contrasts with urban planning models that have been dominant for the last century, separating residential

[6] C40 Knowledge Hub. (2020 July) "How to build back better with a 15-minute city." *C40 Cities Climate Leadership Group, C40 Knowledge Hub*. https://www.c40knowledgehub.org/

[7] Sisson, Patrick. (updated 2020, December 3). "What is a 15-minute city?" *City Monitor. https://citymonitor.ai/environment/what-is-a-15-minute-city*

[8] C40 Knowledge Hub. (2020 July) "How to build back better with a 15-minute city." *C40 Cities Climate Leadership Group, C40 Knowledge Hub*. https://www.c40knowledgehub.org/

areas from business, retail, industry and entertainment.[9] Although vaccination rates have accelerated, business districts across North America have been slow to rebound. Even in Australia's two largest cities, which have almost completely re-opened, the patterns of work in the Central Business Districts of its two largest cities continue to remain well below their pre-pandemic levels — reaching 59% in Sydney, and 41% in Melbourne as of April 2021.[10] In emerging from the wake of the pandemic, many local governments are seizing on the opportunity to rebuild these business districts and their cities in a more vibrant, connected and inclusive way that better reflects the changing needs and preferences of residents.

In part inspired by Jane Jacobs, who viewed neighbourhoods as social connectors, Professor Carlos Moreno at the University of Paris 1 Pantheon-Sorbonne, has been a leading thought leader on the 15 Minute City as a solution to improving the quality of urban life, and reducing urban carbon emissions through "hyper-proximity" to jobs, amenities, government services, public parks, shopping, and a variety of entertainment all accessible by cycling or walking.

The concept of the 15 Minute City reimagines how cities can be better designed to support the basic needs of residents which can all be accessed on foot or by bike within a 15 minute radius from their homes, resulting in stronger communities that will enable residents to feel more connected to the businesses and services in their area.[11] The lockdowns and stay-at-home orders of the COVID-19 pandemic have helped to shift our collective priorities, and demonstrate not only the feasibility, but also the desirability of a highly localized future for our neighbourhoods and cities.

[9] Reimer, Jasmine. "The 15-minute infrastructure trend that could change public transit as we know it." (2020, March 24). *Here360. https://360.here.com*

[10] Florida, Richard. "The Death and Life of Central Business Districts." (2021, May14). *Bloomberg CityLab.* https://www.bloomberg.com/

[11] Overstreet, Kaley. (2021 January 15). "Creating A Pedestrian-friendly Utopia Through the Design of 15-Minute Cities." *Archdaily.* https://www.archdaily.com/

Transforming Car Dependent Cities for Equitable & Sustainable Recovery

As cities begin taking the steps towards COVID-19 recovery, the C40 Global Mayors COVID-19 Recovery Task Force, created by an international coalition of leading mayors, has launched the C40 Mayors' Agenda for a Green and Just Recovery, which sets out the Task Force mayors' collective vision for an equitable and sustainable recovery from the COVID-19 pandemic. One key principle is that the recovery must improve upon the resilience of our cities and communities, and recommends the following key city actions for a green and just recovery:

- Create "15-minute cities".
- Give streets back to people.
- Build with nature.

In rebounding from the global pandemic, many mayors are rejecting the idea of returning to "business as usual," as this would keep us on track to 3°C of overheating. Instead, the 15 Minute City model is beginning to be a "new normal" for cities, one that adheres to public health and scientific expertise assuring the safety of city residents, while advancing a more thriving, healthy and sustainable path for recovery.[12]

CORE PRINCIPLES of a 15 MINUTE CITY:

Residents of every neighbourhood have easy access to goods and services, particularly groceries, fresh food and healthcare.

Every neighbourhood has a variety of housing types, of different sizes and levels of affordability, to accommodate many types of households and enable more people to live closer to where they work.

Residents of every neighbourhood are able to breathe clean air, free of harmful air pollutants, there are green spaces for everyone to enjoy.

More people can work close to home or remotely, thanks to the presence of smaller-scale offices, retail and hospitality, and co-working spaces.

Source: C40 Knowledge Hub
https://www.c40knowledgehub.org/

[12] C40 Cities Climate Leadership Group. (2020 July). *C40 Mayors' Agenda for a Green and Just Recovery*. https://www.c40knowledgehub.org/

Paris and the 15 Minute City

Paris has popularized the idea of the 15 Minute City, as the "ville de quart d'heure," or the quarter-hour city, was at the centre of Mayor Anne Hidalgo's winning re-election campaign in 2020. This urban strategy aims to bring about an "ecological transformation" of the French capital through the creation of more efficient neighbourhoods that will reduce pollution and stress, and create socially and economically diverse areas that will improve the quality of life for residents.[13]

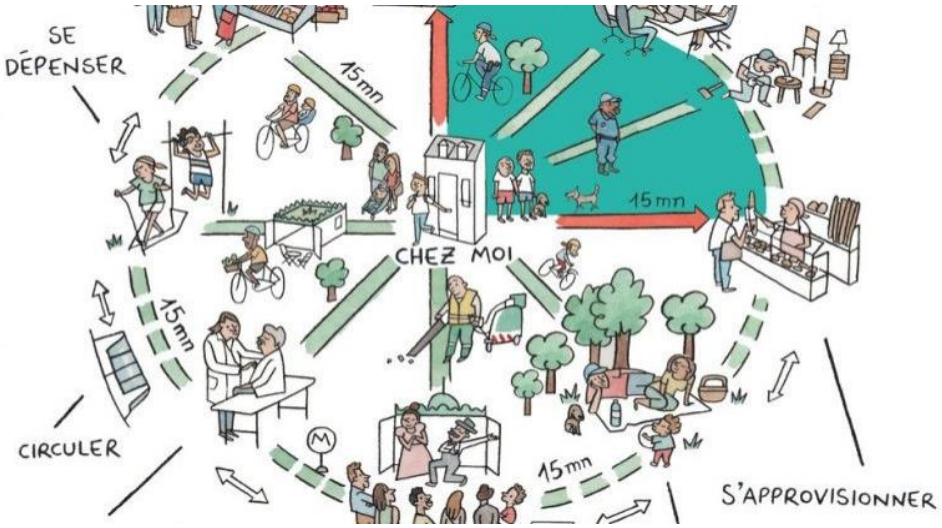

Image Source: Eukalypton

The Vision: Reducing driving and pollution in Paris are key components of the 15 Minute City strategy as part of Paris' goal to become carbon neutral by 2050. However, this urban strategy also calls for a more connected and localized way of life, where commuting time is instead invested in developing richer relationships with what is located nearby. For Paris, this would result in what Professor Moreno, Mayor Hidalgo's special envoy for smart cities, describes as a "city of proximities."[14]

As workplaces, stores, and homes are brought into closer proximity, street space previously dedicated to cars is freed up, reducing pollution and making way for gardens, bike lanes, and other sports and leisure facilities, allowing residents to bring their daily activities out of their homes and into welcoming, safe streets and squares.[15]

The 2024 Target: Paris' revitalization effort through the 15 Minute City model, is tied to other strategies including planting more trees, and pedestrianizing the city by installing a bike lane on every street by 2024, all while removing 60,000 parking spaces for cars.[16] The pandemic enabled Paris to kick-start the implementation of more than 50 km of bike routes known as "coronapistes," and in December 2020, renovation of the Place de

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[13] Willsher, Kim. (2020 February 7). "Paris Mayor Unveils '15-minute City' Plan In Re-election Campaign." *The Guardian.* https://www.theguardian.com/

[14] O'Sullivan, Feargus and Laura Bliss. (2020 November 12). "The 15-Minute City—No Cars Required—Is Urban Planning's New Utopia." *Bloomberg Businessweek.* https://www.bloomberg.com/

[15] Ibid.

[16] Ibid.

la Bastille was completed as part of a €30m redesign of seven major squares.[17] Paris has also turned school playgrounds into parks, promoted urban agriculture, and even talked about creating urban forests.[18]

Rationale/Why This, Why Now?

Paris' plans to become a people-friendly 15 Minute City, transforming its streets to spaces for decarbonized mobility is central to its climate action targets. Even before the pandemic, Paris' policies prioritizing pedestrianization and public transport resulted in:

- A reduction from 44% to 35% in the use of private vehicles between 1999 and 2016.
- A reduction in car traffic by 8% in 2019 alone.[19]

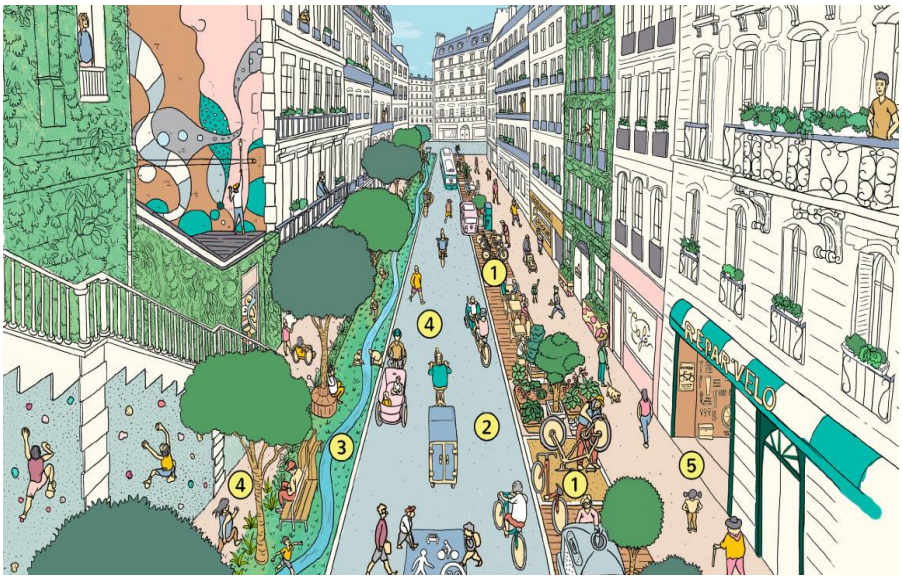

Image Source: Paris en Commun

Accelerating policies that prioritize bike lanes and public transport through the 15 Minute City strategy is also central to the city's post-pandemic recovery. While the COVID-19 pandemic highlighted the carbon dependent commutes to central business districts and the disconnection of big cities, it also placed a spotlight on the opportunity to rebuild cities as more people-centred, resilient, healthy and sustainable places where residents and businesses can thrive.

[17] Yeung, Peter. (2021 January 4). "How '15-minute Cities' Will Change The Way We Socialise." BBC. https://www.bbc.com

[18] Sisson, Patrick. (updated 2020, December 3). "What is a 15-minute city?" City Monitor. https://citymonitor.ai/environment/what-is-a-15-minute-city

[19] Martínez Euklidiadas, M. (2020 May 18). "Paris Wants To Become a '15-minute City.'" *Tomorrow.Mag.* https://www.smartcitylab.com/blog/governance-finance/paris-15-minute-city/

Barcelona's Superblocks: The Benefits of People Centred Planning

> "What we really aspire is to slow down the pace on streets for them to work more as the public spaces they are. We believe that streets can be more optimized considering the needs of humans and nature. Today, streets are mainly designed for cars, leaving little or no space for other activities. It's not sustainable."
>
> -Daniel Byström, Project Manager, ArkDes Think Tank.

The Vision: Barcelona first introduced the "Superblock" concept in 2016. Superblocks are neighbourhoods of nine blocks, where traffic is restricted to major roads around the outside, opening up entire groups of streets to pedestrians and cyclists, reducing pollution from vehicles, and giving residents relief from noise pollution. They are also designed to create more open space for citizens to meet, talk and do activities.[20]

2030 Target: Barcelona will free up space for 21 new pedestrian plazas at intersections, creating pedestrian-first zones covering most of the city centre. Vehicle traffic will only be permitted around the perimeter, leaving motor vehicle access to these streets only to residents, essential services or deliveries. With this strategy:

- 21 streets in Barcelona's Eixample district will become a "super-superblock."
- These squares and streets will be planted with trees that will shade 6.6 hectares (16 acres) of new green space when mature, in a zone that will contain an extra 33.4 hectares of pedestrian space.
- If Barcelona reaches its goal of covering its entire surface area through 503 superblocks, it will free up 70% of its current road space for active travel and recreation space, sharply cutting its air pollution, carbon emissions and noise pollution.[21]

The Superblock model provides an opportunity to rethink urban mobility patterns, transform public space, and create more liveable and sustainable neighbourhoods, and can be replicated and adapted to suit the conditions of other cities.

[20] Nanda, Anupam. (2019 September 13). "Superblocks: Barcelona's Car-free Zones Could Extend Lives And Boost Mental Health." *The Conversation.* https://theconversation.com/

[21] O'Sullivan, Feargus. (2020 November 11). "*Barcelona Will Supersize its Car-Free 'Superblocks.'" Bloomberg Citylab. https://www.bloomberg.com/*

Rationale/Why This, Why Now?

As a city with high population density and few public green spaces, Barcelona's Superblock model provides an opportunity for the city to reclaim street spaces for other more inclusive uses, through the development of new squares, public seating areas and tree-lined green avenues.[22] A recent study published in the journal Environment International, estimates that if Barcelona's plan to implement 503 superblocks is realized, the related environmental, economic and health impacts will be significant:[23]

- Reduction in private motorized transport trips by 19.2%.
- Shift in nearly 228,000 car/motorcycle trips/weekday to public and active transport.
- Increased physical activity for an estimated 65,000 persons shifting car/motorcycle trips to public and active transport.
- Prevention of an estimated 667 premature deaths each year attributed to reductions in air pollution (NO_2), noise and heat.
- Increase in average life expectancy for the Barcelona adult population of almost 200 days.
- Net an annual economic impact of 1.7 billion EUR.

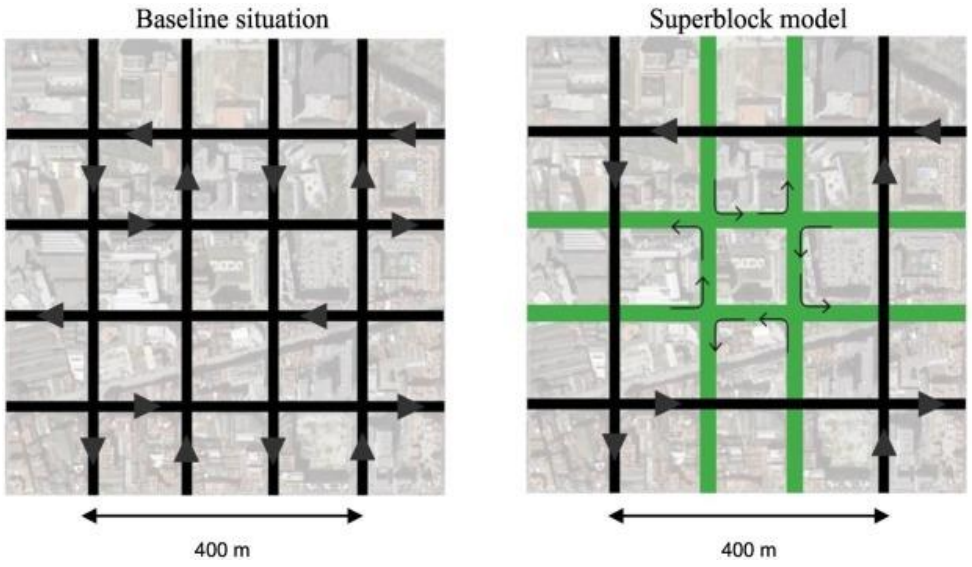

Image Source: Science Direct

To ensure the equitable distribution of these benefits, the research study points to the efficacy of implementing the Superblocks consistently across the city.[24] For other cities facing similar challenges of environmental pollution, urban heat island effect, and limited access to public green space, adoption of people-centred urban strategies like the 15 Minute City or Superblocks can help them to realize similar benefits.

[22] Ibid.

[23] Mueller, N., Rojas-Rueda, D., Khreis, H., Cirach, M., Andres, D., BallesBartol, X., Daher, C., Deluca, A., Echave, C., Mila, C., Marquez, S., Palau, J., Perez, K., Tonne, C., Stevenson, M., Rueda, S., Nieuwenhuijsen, M. (2020 January). "Changing The Urban Design Of Cities For Health: The Superblock Model." *Environment International*. Vol. 134. https://www.sciencedirect.com/

[24] Ibid.

Sweden: The One Minute City

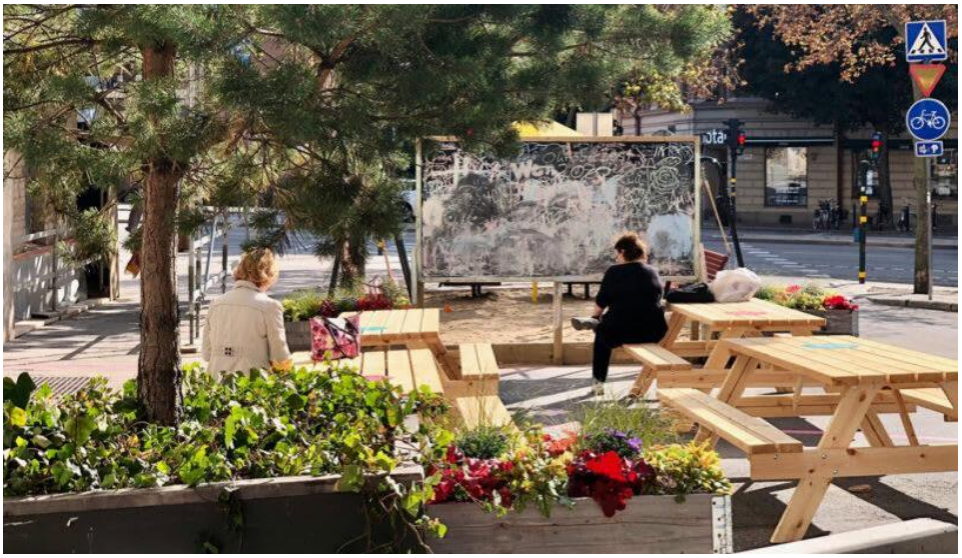

Image Source: Vinnova/ArkDes

The Vision: Sweden is implementing a hyperlocal variation of the 15 Minute City, called the 1 Minute City, as part of its plan to get to net-zero greenhouse gas emissions by 2045.

Piloted by Sweden's national innovation body Vinnova, and ArkDes, the national urban design think tank, Sweden's strategy is to focus on the single street level, reimagining the spaces just beyond the doorstep not as places to drive and park cars, but as important community spaces for connection.

Sweden's 1 Minute City Project is called Street Moves, and it allows local residents to co-design their own street layouts, using street furniture units based on the "parklet" model. Through workshops and consultations, residents can decide how much street space is used for parking, or for other public uses.[25] Unlike the 15 Minute City Model, where people living in an urban neighbourhood are able to meet all of their daily needs from going to work, school or grocery shopping within a 15-minute walk or bike ride, the concept of the 1 Minute City is not as literal. It is not intended to provide residents with everything that they need on one block, but to help people to reimagine how streets can be transformed into more vibrant and inclusive spaces when walking and cycling are prioritized over the car for transportation.[26]

[25] O'Sullivan, Feargus. (2021 January 5). "Make Way for the 'One-Minute City.'" *Bloomberg Citylab*. https://www.bloomberg.com/

[26] Peters, Adele. (2021 January 12). "How To Transform Your Street Into a 1-Minute City." *Fast Company.* https://www.fastcompany.com/90593014/how-to-transform-your-street-into-a-1-minute-city

2030 Target:

With 9 Swedish cities aiming to get to net zero emissions by 2030, Street Moves has already been piloted at 4 sites in Stockholm. Additional sites in Gothenburg, Helsingborg, and Malmö are in different stages of completion.[27] According to Street Moves, the goal is to rethink and makeover every street in Sweden over this decade, so that "every street in Sweden is healthy, sustainable and vibrant by 2030."[28]

Image Source: Elsa Soläng/ArkDes

Rationale/Why This, Why Now?

With the lockdown orders of the pandemic emphasizing the importance of residents' immediate neighbourhoods as important spaces for community resilience building, Sweden's 1 Minute City model offers real, concrete opportunities for residents to co-create the neighbourhood spaces right outside their doorstep.

[27] Fleming, Sean. (2021 February 18). "Sweden Says Goodbye to Parking Spaces, Hello to Meeting Places." *World Economic Forum.* https://www.weforum.org/agenda/2021/02/sweden-local-parking-community/

[28] O'Sullivan, Feargus. (2021 January 5). "Make Way for the 'One-Minute City.'" *Bloomberg Citylab*. https://www.bloomberg.com/

It's Not Just About Emissions: Moving People Safely and Supporting Jobs

Paris, Barcelona and cities across Sweden, provide leading examples of how municipalities have utilized pandemic lockdowns to jump-start people-centred urban revitalization strategies, including car-free infrastructure projects that enable social distancing. Other examples include:

- Ottawa, Ontario, Canada: The City of Ottawa's new Official Plan aims to create a community of "15-minute neighbourhoods" with the goal of transforming the nation's capital into "North America's most liveable mid-sized city," while planning for a population that will eventually double or even triple.[29]
- Montreal, Quebec, Canada: Montreal installed 300 kilometres of new, temporary pedestrian and bike paths last summer with the goals of linking up the city's green spaces, giving access to green spaces to residents in densely populated areas such as Montreal North, and encouraging Montrealers to visit local commercial arteries to support businesses.[30]
- Portland, Oregon: Portland plans to ensure that 90% of residents live in "complete neighbourhoods," with the Portland Bureau of Transportation (PBOT) developing backstreets into "neighbourhood greenways," and updating infrastructure on more prominent corridors to move an increased number of people more safely with fewer cars.[31]
- London, England: London's Streetscape Programme will fast-track the transformation of London's streets to accommodate a possible ten-fold increase in cycling, and five-fold increase in walking, to enable social distancing post-pandemic.[32]
- Milan, Italy: Milan is planning to maintain its metro system's capacity at less than two-thirds of its pre-pandemic activity, while adding 35 kilometres of bike lanes in the city core.[33]

As the COVID-19 pandemic limited transit and travel, the idea of creating close-knit districts, supported by infrastructure that promotes cycling and walking, is a promising strategy that may provide a pathway for post-pandemic recovery and jobs development across BC municipalities. Policies and projects that promote walking and cycling not only help to reduce emissions, they also provide opportunities for small businesses to thrive in vibrant and connected neighbourhoods.

[29] CBC News. (2019 August 22). "Welcome to The 15-Minute Neighbourhood: Intensification Key to City's Official Plan." *CBC News.* https://www.cbc.ca/

[30] Kovac, Adam. (2020 May 15). Hundreds of Kilometres of Temporary Bike and Pedestrian Paths Coming to Montreal." *CTV News.* https://montreal.ctvnews.ca/

[31] Maus, Jonathan. (2020 June 25). "Pbot Has Funding and Plan to Vastly Improve Biking In Northwest." *BikePortland.* https://bikeportland.org/

[32] Mayor of London Press Release. (2020 May 6). "Mayor's Bold New Streetspace Plan Will Overhaul London's Streets." *Greater London Authority.* https://www.london.gov.uk/

[33] O'Sullivan, Feargus. (2020 April 22)."Europe's Cities Are Making Less Room for Cars After Coronavirus." *Bloomberg Citylab.* https://www.bloomberg.com/

COVID-19 Recovery: Re-allocating Road Space for Thriving Neighbourhoods

City of North Vancouver: Open Streets Action Plan

The City of North Vancouver's Open Streets Action Plan encourages safe walking, cycling and business operations across the City by creating more space on sidewalks and streets. By reallocating existing road space in key areas for expanded outdoor patios, parklets and designated drop-off zones, the City aims to improve access to businesses while supporting the health and safety of residents with more space for physical distancing.

Image Source: City of North Vancouver

Open Streets Parklets

As part of the City's Open Streets initiative, a number of parklets were installed on Lonsdale Avenue to improve and enhance the streetscape, while providing safe, welcoming community spaces to sit, rest and connect while supporting public health and safety. Welcoming and inclusive to everyone, parklets are modular public spaces built on an extended platform over a reallocated parking area, which expand and enhance public space.

Parklets can incorporate added amenities like seating, tables, greenspace, art and bike parking, attracting foot traffic, cyclists and other potential customers to nearby businesses by adding public seating and unique spaces on the street to eat and drink, creating many benefits for the surrounding community. As part of the Open Streets Initiative, many parklets were built in partnership with community partners and business associations.

Image Source: City of North Vancouver

CASE STUDIES ON ENERGY and WASTE

Addressing Barriers to Employment in High Growth Green Energy Jobs

The Center for Sustainable Careers, Baltimore, Maryland

The Center for Sustainable Careers (CSC) has a mission of making Baltimore's economy more equitable and sustainable by training residents for jobs in the emerging green economy. The CSC trains unemployed and underemployed Baltimore City residents, including those with a criminal record (92% of participants), for high growth green jobs such as solar energy installation, home energy efficiency, stormwater management, and brownfield remediation.

CSC Green Job Training Tracks include:

- **Construction and Weatherization:** Participants learn about building science and home energy efficiency. The program includes 4+ weeks on the job training with CSC EnergyReady Crews to enable them to apply their skills in a real work environment. Trainees also gain certifications in OSHA 30-hour construction safety, and Red Cross First Aid/CPR, EPA Lead Renovator, and DOE Retrofit Installer.
- **Solar Panel Installation Program:** Participants learn about photovoltaic (PV) science and multi panel systems to install and maintain solar panel systems. This is a 3-month program with 4+ weeks of on the job training with an employer partner to hone trainee skills on real installation projects. The CSC also has an indoor simulation centre, where trainees are holstered, and work with solar panels that weigh 30-50 lbs, with a certified instructor providing assistance. Trainees also gain certifications in OSHA 30-hour construction safety, and Red Cross First Aid/CPR.

All participants in these training tracks gain: industry-recognized certifications; employability skills; case management assistance obtaining basic needs (e.g. SIN, birth certificate, driver's license); and on the job training. Upon successful completion of the program, participants also receive job placement support, including interviewing and resume writing assistance, and 2 years of job retention support. CSC's jobs development strategy, providing a combination of equitable and meaningful employment, a living wage, and marketable trade skills in the green economy is highly replicable in planning for post-COVID recovery and local economic development.

Case Study: Civic Works Center for Sustainable Careers

Large Urban Community: Baltimore, Maryland, USA
Big Move: Zero Emission Buildings

Types of levers/drivers/ opportunities for climate action	Particular approaches used (priorities addressed)	Effectiveness criteria/outcomes				
		Jobs / skills	GHG reduction	Replicability	Resilience/ Re-localization	Social benefits
-NGO led, incorporates AmeriCorps volunteers. -Jobs skills training in high growth environmental careers for marginalized individuals who are unemployed and underemployed.	-Green jobs development program focused on racial equity. -Recognition that black communities face more barriers to employment due to systemic racism, mass incarceration and lack of opportunities. -Case management, job placement, and job retention support. -Enables employers to create equity in the workplace.	-85 trainees were placed in green careers (2019). -Trainees gain industry-recognized certifications, learn skills, and hands-on job training. -84% graduation rate from the program (2020). -88% successfully find employment (2020). -Graduates earn between $12 and $20/hour.	-Solar Panel Installation and Maintenance Training. -Construction & Weatherization Training Program teaching home energy efficiency. -CSC EnergyReady Crews helped 1,285 households became more energy efficient.	- Combines equitable and meaningful employment, a living wage, and marketable skills in the green economy.	-Job skills & sense of routine; dignity -Economic Inclusion and empowerment	-Reduces stigma; 92% of participants have a criminal record. -Increased Self-esteem.

Low Medium High

Municipal Leadership in Supporting Green & White Roof Installation

Mandatory Cool Roofs - Borough of Rosemont-La Petite-Patrie, Montreal, Quebec

To address urban heat island effects (UHI), the borough of Rosemont-La Petite-Patrie revised its zoning by-law to mandate property owners to obtain a permit before either building a new roof or retrofitting an existing one. This amendment included the addition of new regulatory measures specifying that property owners wishing to replace or build a new roof must install a green (vegetative) roof, a white roof, a highly reflective roof, or a combination of these. Additionally, reflective roofing material must be manufacturer-certified to meet a solar reflectivity index rating of at least 78.

While the borough targeted all three adaptation options included in a UHI study (increasing tree canopy, transforming dark impervious pavement to vegetated surfaces, and promoting eco-roofs), the community became the first in Canada to develop a comprehensive white and green roof regulation. The Rosemont Borough Council has also led by example, installing reflective roofs on four buildings that are owned by the municipality, and six others are planned. The borough has supported other measures and programs aimed at reducing UHIs, including a green alleyways project, and the planting of a larger proportion of trees in neighbourhoods that are most
sensitive to UHIs. The bylaw and permit system also presents an opportunity to educate the public and developers about the impacts of UHIs on human health and energy consumption.[34]

Approximately 2,000 roofs have been retrofitted since the implementation of the by-law, representing roughly 10 percent of the flat roofs in the borough.

[34] Climate Change Impacts and Adaptation Division, Natural Resources Canada. (2014). "Measures to Reduce the Urban Heat Island Effect in Rosemont–la Petite-Patrie." *NRCAN.* https://www.nrcan.gc.ca/

Case Study: Mandatory Cool Roofs

Mid-Sized Urban Community: Borough of Rosemont-La Petite-Patrie, Montreal, Quebec

Big Move: Zero Emission Buildings

Types of levers/drivers/ opportunities for climate action	Particular approaches used (priorities addressed)	Effectiveness criteria/outcomes				
		Jobs / skills	GHG reduction	Replicability	Resilience/ Re-localization	Social benefits
Policy -Revised zoning by-law mandating green and white roofs for all new or retrofitted roofs.	-Comprehensive, mandatory green and white roof regulation for new or retrofitted roofs. -Mitigation of UHI effect.	-Jobs development tied to installing new or retrofitting a roof with green (vegetative), white, or a highly reflective roof.	-More than 300 permits for reflective roofs were issued in the first year that the bylaw was in effect. -Over 2,000 roofs retrofitted; approximately 10 percent of the flat roofs in the borough lowering the UHI effect.	-Highly replicable for local governments due to use of municipal zoning bylaw tools.	-Supportive policy helping to increase resilience to climate impacts.	Other greening measures e.g. increased tree planting to help reduce UHI can improve residents' mental health.

Low Medium High

Grassroots Leadership in Inclusive Climate Action on Waste

The Binners' Project, Vancouver, B.C.

The Binners' Project has operated as a group of waste-pickers who redeem bottles and cans for refunds to sustain their livelihoods. In urban communities like Vancouver, binners are among the most marginalized groups. Almost all of the binners the project works with have faced barriers to formal employment. In a community already deeply impacted by the overdose crisis, the COVID-19 pandemic highlighted the need to ensure reliable income and resiliency building for marginalized groups.

The Binners' Project offers the following fee-for-service programs:

- **Back-of-House Waste Sorting:** this program provides commercial and residential buildings with environmental stewardship of their waste and recycling. Binners ensure that waste is properly separated , sorting bins to recycling standards, which lowers contamination and decreases landfill waste. This daily or weekly service provides binners with stable income, and helps to increase job readiness skills.
- **Waste Education & Sorting at Events:** binners sort waste at public events, increasing waste diversion from landfills while also providing an opportunity to educate members of the public on waste reduction.
- **Waste Audits:** this is a new service that helps partners such as SFU Burnaby Campus to better understand the contamination rates of their waste streams.
- **Community Engagement:** to destigmatize the work of binners, fee-for-service tours, presentations, and consultations with binners helped to bring awareness to the work and livelihoods of binners, while acknowledging the value of their lived experiences and stories. In 2020, 7 tours, 21 presentations, and 15 consultations put $3,310 into the pockets of binners.

Due to continued provincial health restrictions on large gatherings, many of the Binners' Project contracts were placed on hold, significantly reducing income opportunities for binners. However, the innovation of these social enterprise programs, promoting the social inclusion of binners in the broader community, while building job readiness skills as binners use their expertise to help organizations and communities to achieve their sustainability goals, demonstrates the impactful role grassroots leadership can have in enabling inclusive climate action.

Case Study: Binners Project

Large Urban Community: Vancouver, BC
Big Move: Cross-cutting/Social Mobilization

Types of levers/drivers/ opportunities for climate action	Particular approaches used (priorities addressed)	Effectiveness criteria/outcomes				
		Jobs / skills	GHG reduction	Replicability	Resilience/ Re-localization	Social benefits
Outreach & Engagement -Informal recyclable collectors receive refunds from used containers collected from bins, diverting a considerable amount of waste from landfills. -Contributes to circular economy; no transportation footprint (binners travel by foot, cart or bicycle).	-Binners use their expertise to sort waste and help achieve sustainability goals. -Commercial and residential buildings back of house waste sorting. -Waste diversion and public education on sorting waste at events.	-Reliable, safe employment -$15/hr + returnables (Victoria)	-Waste sorting lowers contamination, which decreases landfill waste.	-City of Victoria: 4-month grassroots needs assessment; strong support from Mayor -Diverter's Project (Our Place Society) pilot.	-Job skills & sense of routine; dignity -Economic Inclusion and empowerment	-Increased Self esteem -Reduces stigma -Social inclusion; Binners contribute to an inclusive, greener city.

Low Medium High

Business Sector Collaboration with Municipalities in Accelerating Climate Action on Waste

Unbuilders, Vancouver, B.C. Canada

Unbuilders is a company reclaiming and recycling everything from valuable old-growth Douglas Fir lumber used in B.C. homes as late as the 1970s, to windows, doors, fixtures and cabinets that would otherwise end up in a landfill. While deconstruction can cost more than a simple demolition and previously would take several days, Unbuilders has shortened the process to two days.[35] Traditional demolition costs can total $35,000, and Unbuilders' deconstruction costs are around $45,000. However, through partnerships with two charities, Habitat for Humanity and the ReUse People of America, donations of salvaged materials from homes can yield tax credits for homeowners ranging from $25,000 to $185,000. Once the building materials are salvaged for reuse, the total donated materials are appraised and the homeowner gets a 29% federal tax credit, and a 14.7% provincial credit, leveling the playing field so that deconstruction can not only be cost competitive to demolition, it can also mean significant savings.[36]

In 2019, there were approximately 3,200 homes demolished in Vancouver, and with Unbuilders' Vancouver crew deconstructing 21 houses and another 12 renovations for 33 projects in the same year, the upside potential in diverting, reclaiming and reusing the valuable building material is considerable.[37] While the City of Vancouver's Green Demolition Bylaw requires demolition companies to recycle 75% of materials from all homes built before 1940, successfully diverting 40,000 tonnes of materials from landfills since the bylaw's introduction in 2014 (according to a City report), Vancouver is also using financial incentives to make demolition less wasteful.[38]

There is a clear business case in Canada for salvaging wood and other materials from home demolitions and particularly for reusing it (rather than just recycling it for lower value uses), especially as municipal governments step up regulations and other incentives to help reduce City waste to meet climate action goals. With stronger supportive bylaws, deconstruction can help to substantially divert construction and demolition waste, which comprises approximately 26% of all landfill waste in Canada, 75% of which could be recycled or preferably reused, but isn't.[39]

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[35] Bennett, Nelson. (2020 November 23). "Company Harvests Old Growth from Old Homes." *Business in Vancouver.* https://biv.com/

[36] Gamage, Michelle. (2018 11 December). "Eco 'Unbuilding' Ensures Material from Demolished Homes Is Reused." *The Tyee*. https://thetyee.ca/

[37] Paterson, Travis.(2020 January 11). "New Vancouver Island 'deconstruction' Company Breaks Down Heritage Houses by Hand." *BC Local News.* https://www.bclocalnews.com/

[38] Gamage, Michelle., Ibid.

[39] Bennett, Nelson., Ibid.

Case Study: Unbuilders

Large Urban Community: Vancouver, B.C.

Big Move: Closing the Loop on Waste

Types of levers/drivers/ opportunities for climate action	Particular approaches used (priorities addressed)	Effectiveness criteria/outcomes				
		Jobs / skills	GHG reduction	Replicability	Resilience/ Re-localization	Social benefits
-Diverting construction and demolition waste from landfills. -Business model complementing municipal deconstruction policies to significantly divert CRD waste from landfills. -Leadership in Energy and Environmental Design (LEED) standard certification: using salvaged wood in new construction can give developers credits.	-Instead of demolishing homes, the company deconstructs them, salvaging the materials so they can be returned to the supply chain for other building projects. -Complements Vancouver's Green Demolition bylaw: requiring companies to recycle 75% of materials from homes built before 1940. -Cost competitiveness: partnerships with charities help homeowners to access tax receipts/credits which helps to make deconstruction cost competitive with traditional demolition.	-2015: 7 employees; $340,000 in revenue. -2020: 17 employees; projected revenue of $1.6 million to $1.7 million (BIV, 2020).	-2018: Vancouver's Green Demolition bylaw was responsible for diverting nearly 40,000 tons of construction waste from landfills.	-Unbuilders operates largely in Greater Vancouver and Vancouver Island, with opportunities to expand into other regions. -Most work has been residential to date, but can be branched out into the commercial sector. -The City of Victoria is drafting a new deconstruction bylaw to divert construction waste from the landfill.	-Vancouver: Minimum 90% of materials must be recycled if the home is deemed a "character house." -Finding new and valuable uses for old growth timber (from 500 - 1,000+ year old trees) keeps this history in BC communities.	-Salvaged materials are donated so that local charities such as Habitat for Humanity's ReStore benefit.

Low Medium High

3. SOCIAL MOBILIZATION

This section addresses the potential of community engagement, and in particular, more structured and far-reaching strategies for social mobilization, to support the COVID recovery and accelerate/scale up climate action. Social mobilization can be defined as broad engagement and motivation of the public and multiple stakeholders to implement climate solutions, embracing social learning, social movements, behaviour change, community action, and policy change (PICS, 2015).[40] It usually requires coordination among multiple actors through collaborative or collective processes that include community-led climate actions on the ground, as well as top-down guidance and support. Outcomes of effective social mobilization on climate change might include accelerating wider uptake of heat-pumps across whole communities, or orchestrating citizen stewardship of municipal green space to enhance cooling and stormwater management.

UBC CALP's Cool 'Hood Champs Program provides local climate action training for residents.
Source: UBC Collaborative for Advanced Landscape Planning (CALP)

[40] Sheppard, Stephen, Iype, Deepti Mathew, Cote, Shirleen, Salter, Jon. (2015). "Special Report: A Synthesis Of Pics-funded Social Mobilization Research." *Pacific Institute for Climate Solutions*. https://calp2016.sites.olt.ubc.ca/files/2016/05/soc_mob_report.pdf

Networks as Catalysts for Climate Action

A recent surge in the number of climate action networks and communities of practice in BC indicate that a significant shift is taking place in light of the climate emergency, before and during the pandemic. These new networks point to the widespread recognition of the urgent nature of the climate emergency, and that the conventional way of getting change on the ground is not working. Examples include:

- "Now or Never" Community of Practice launched by CALP/Evergreen with 50+ engagement practitioners, which has resulted in the development of collaborative frameworks and stakeholder mapping in BC since 2019.

- Westcoast Climate Action Network (WE-CAN) launched on January 23, 2021, with over 285 BC climate action groups and organizations represented to push for more rapid and urgent climate action.

- Future Ground Network, launched on February 10, 2021 by the David Suzuki Foundation National network offering support to citizen groups through access to free training and digital tools to help mobilize their communities and amplify their voices.

Green Bloc Neighbourhoods

Neighbourhood based social mobilization, project goals include:

Green Bloc Neighbourhoods was a neighbourhood-based social mobilization program which brought together communities in Vancouver to find innovative, creative, and resident-focused ways to reduce their ecological footprints, while building a stronger sense of community. Working with the City of Vancouver and partners, the program filled the gap between individual-level and city-level change.

Green Bloc featured four main components:

- Measurement of household and neighbourhood ecological footprints.
- Facilitated community dialogue and action-focused discussions.
- Collaborative local greening and sustainability initiatives.
- Activities to build community cohesion and social inclusion.
- 7 Vancouver neighbourhoods have taken part in Green Bloc: Riley Park, the West End, Dunbar-Southlands, Kensington-Cedar Cottage, South Cambie, and most recently Sunset and Hastings-Sunrise.
- Engaging over 180 neighbourhood changemakers, since 2013, Green Bloc Neighbourhoods helped participating households to:
- Reduce ecological footprint by an average of 16% reduction across all neighbourhoods, including:

Results & 2018 Project Outcomes:

1. Scaled to 7 Green Bloc Neighbourhoods
2. Average of 16% reduction in ecological footprint across all neighbourhoods, including:
3. 40% reduction in natural gas use.
4. 32% reduction in car use.
5. 20% reduction in waste.

Local governments are key to supporting climate action, but networks and collaborative approaches with residents, NGOs and other stakeholders are critical to catalysing climate action and public support in BC, as shown in the program highlights and case studies below.

Municipal Support for Social Mobilization on Local Climate Action

City of Toronto's Neighbourhood Climate Action Champions Program

The City of Toronto's Neighbourhood Climate Action Champions Program is municipally funded as a program supporting the goals of Transform TO, the City's ambitious climate action strategy to reach net zero emissions by 2050, or sooner.

Inspired by Evergreen's Green Bloc Neighbourhoods Program in Vancouver, Boston's Greenovate Program, and Cleveland's Climate Action Fund, programs which have successfully launched resident-led climate action projects, the Neighbourhood Climate Action Champions Program was initiated in September 2020. Even with pandemic lockdown orders, this neighbourhood social mobilization program stood out to City staff as a feasible way to engage residents in advancing action on the climate emergency in a virtual environment. As a program supporting the Transform TO strategy the program did not have to go to Council for approval, and City staff could pivot to program implementation during the pandemic with existing staff and financial resources.

While social mobilization can be included as part of municipal community engagement strategies, it is often left out of the equation. The Neighbourhood Climate Action Champions Program provided an opportunity for the City to mobilize citizens while aligning climate action with an equity lens. Over 100 applicants responded to the call for Neighbourhood Climate Action Champions. Ultimately, 25 individuals from across Toronto throughout all wards, were selected for the program. Participants from communities experiencing social, economic and other barriers, including people of colour, newcomers, LGBTQ2S+ persons, women, Indigenous peoples, and persons with disabilities / disabled were given priority for this program.

UBC CALP Cool 'Hood Champs - First in Canada Climate Action Training Program delivered through Community Centres (during COVID)

UBC CALP's Cool 'Hood Champs Program trains and empowers local residents to become neighbourhood climate champions. Through a series of interactive workshops, these neighbourhood champions learn to:

- Identify climate impacts and solutions within their neighbourhood;
- Envision their ideal climate-friendly neighbourhood;
- Champion climate action within their community, through writing and implementing their own climate action plan;
- Connect their climate action with the City of Vancouver's and BC's climate policies.

These trained neighbourhood Champs seek to recruit other community members and foster practical climate action within their neighbourhoods. The Champs Program brings traditionally under-engaged residents into the climate conversation and empowers them to build their capacity to take practical climate action at a relatable scale where they live (at individual, household and neighbourhood scale). The Champs Program was successfully pilot tested in-person and online in one Vancouver neighbourhood with over 40 participants, in early 2000 during the pandemic, which led to practical, neighbourhood climate actions. It will scale to an additional 3 neighbourhoods, in summer 2021.

While many cities provide one-time-only grants for community projects (e.g. Vancouver's Greenest City Grants, EcoCity Edmonton), there is an additional need for robust ongoing support programs to leverage volunteer action. With Toronto City staff resources providing backbone support for this program with core funding, this is a highly replicable model to engage community residents, build community resilience, and provide training and skills development for neighbourhood champions to tackle climate action.

Case Study: City of Toronto Neighbourhood Climate Action Champions Program

Large Urban Community: Toronto, Ontario
Big Move: Cross-cutting/Social Mobilization

Types of levers/drivers/ opportunities for climate action	Particular approaches used (priorities addressed)	Effectiveness criteria/outcomes				
		Jobs / skills	GHG reduction	Replicability	Resilience/ Re-localization	Social benefits
-Outreach & Engagement -Social mobilization of neighbourhood residents to take action in addressing the climate emergency. -Strong application of equity lens.	-Following training, participants receive a Climate Action Toolkit to enable them to engage their neighbours in discussions about climate change and develop neighbourhood climate action projects. -Neighbourhood projects should target specific Transform TO goals, and develop a plan to reach these goals.	-25 participants gained increased skills and knowledge through training webinars on climate change science, climate change communications, and climate action in Toronto. -Neighbourhood Climate Action Champions receive a $500 honorarium which can be applied to the implementation of their neighbourhood projects.	-Champions connect with a broader group of residents on a climate action project to reduce their carbon footprint. -This program contributes to advancing the City's TransformTO strategy, and connects to a granting program to provide further support to projects potentially increasing impact.	-Municipal backbone structure including funding support makes this a highly replicable model vs. community-led models that are dependent on a patchwork of grant funding.	-Knowledge and skills development, opportunity to connect with other Champions and neighbourhood residents during the pandemic to help build resilience.	-Selection criteria included consideration of equity seeking groups, literacy levels, geographic representation. -Social inclusion of individuals experiencing social, economic and other barriers in contributing to building a greener city.

Low Medium High

COVID-19 Recovery & Youth Skills and Jobs Development in Climate Action

Wildsight: Youth Climate Corps (YCC), West Kootenay

The Youth Climate Corps (YCC) Program supports youth looking for opportunities to gain meaningful employment and connects them to climate action and sustainability projects that specifically impact the West Kootenay region. The idea for YCC took place during COVID-19, partly in recognition of the devastating impact that the pandemic has had on the economic and social well-being of young adults in the community. The two overlapping crises of the climate emergency and the global pandemic, particularly its impact on youth, motivated long-time West Kootenay locals, John Cathro and Richard Klein, to spearhead a program that would address these issues.

These local champions partnered with Wildsight, an environmental NGO in Nelson, BC, to launch the YCC in the summer of 2020. The program ran its inaugural season from September 2020 through January 2021, with a crew of 14 people ages 19 - 29 years. Program participants focused on climate action initiatives that specifically impact the West Kootenay region, working on a diverse mix of community service and contracted projects partnered with community organizations, private companies, and government agencies including wildfire risk mitigation, food security and sustainability, and ecosystem restoration. Additionally, program participants also conducted their own independent community engagement projects to build leadership skills. Throughout the program, City leaders (both elected and staff) supported the program as local experts and guest speakers. In recognition of the program's impact, the City of Nelson presented the YCC with an annual Sustainability Leadership Award at the end of their first season.

The YCC is a highly replicable model that builds on the legacy of other cohort-based programs, which empower young people to serve their communities while developing their leadership and other job-related skills. In Canada, Katimavik has been doing this kind of work since 1977. In the U.S., there is a long history of corps organizations beginning with the Civilian Conservation Corps during the Great Depression, and continuing to the modern collection of 130+ national, state, and local corps programs that collaborate through the Corps Network. With support from President Biden and other congressional leaders, the U.S. appears to be headed for both a revival and reimagining of the old CCC as the new Civilian Climate Corps, on a scale that would involve US $10 Billion in spending, creating 20,000 jobs annually for young people and other diverse community members in rural and urban environments.

Case Study: Wildsight - Youth Climate Corps (YCC)

Small/Rural Community: Nelson, B.C.
Big Move: Cross-cutting/Social Mobilization

Types of levers/drivers/ opportunities for climate action	Particular approaches used (priorities addressed)	Effectiveness criteria/outcomes				
		Jobs / skills	GHG reduction	Replicability	Resilience/ Re-localization	Social benefits
-NGO-led Outreach & Engagement -Youth Skills Building and Jobs Development	-YCC empowers young people to implement solutions to the climate crisis through targeted employment, training, mentorship, community engagement, and personal leadership development.	-Jobs development launching environmental careers for youth in a rural community. -Leadership and community building skills developed through independent community engagement projects. -YCC crew members received a stipend of $2,000/month + some expenses.	-Complexity in measuring/estimating GHG reductions for some program components, e.g. clearing and burning accumulated forest fuels on lands adjacent to key infrastructure like the City of Nelson water pipeline and remote community halls. This work involves an immediate increase in emissions (due to the burning). However, it significantly enhances community adaptive resilience.	- Wildsight is working to sustain programming around Nelson and launch YCC crews in additional communities in Southeast B.C. -The ultimate vision is to have YCC crews based in communities across Canada that are focused on local climate action priorities; while networked across the country to collectively advance national climate action goals.	-YCC was created during the pandemic when the economy was struggling, to help provide job opportunities and skills for youth in West Kootenay.	-Social connection and resilience building for youth; learning to work together on projects. -Increased Self-esteem.

These examples, and others from Canada and beyond, illustrate that community engagement to mobilise citizens and stakeholder groups can be effective in significantly reducing GHGs, and building community resilience on climate change and other emergencies. When used in conjunction with more standard approaches such as climate change communications, education, incentives, policies and regulations, social mobilization can have an important effect in reducing emissions and delivering other important co-benefits not easily attainable through the other levers, and help to meet both climate targets and social objectives.

4. CONCLUSION & RECOMMENDATIONS

This section summarises results from the case studies; interprets these findings in the context of emerging/observed trends, implications and opportunities for further climate action and COVID-19 recovery in tandem; and outlines key principles and recommendations for municipalities.

Summary of Case Study Results

The following table summarizes key patterns emerging from the case studies and precedents reviewed above.

		Effectiveness of Program				Barriers/ Challenges	Replicability
Big Move/Sector	**Program/Policy /Strategy**	**Jobs/Skills**	**GHG Reduction**	**Resilience**	**Social Co-Benefits**		**How/When Scalable?**
Zero Emission Buildings	-Municipal: mandatory bylaws, (e.g. Montreal cool roofs). -Non-profit sector: green jobs training programs to help scale up home energy retrofits and renewables (e.g. Baltimore Centre for Sustainable Careers).	-Job development tied to the implementation of mandatory municipal bylaws. Job skills training in high growth environmental careers for marginalized individuals who are unemployed/ underemployed.	-Retrofitting of thousands of roofs to reduce heat load/air conditioning. -Job training and placement in green careers to help reduce GHGs. Installation of solar roofs to displace fossil fuel use; energy retrofitting of thousands of homes.	-Supportive policies helping to increase resilience to climate impacts. -Green jobs development, incorporating a strong equity and inclusion lens to help build job skills.	-Other greening measures e.g. increased tree planting to help reduce UHI can improve residents' mental health. -Economic Inclusion through green jobs development, reducing stigma.	-Requires clear communication, ensuring readily available information on bylaw requirements. Can investigate financial incentives tied to a deposit return to ensure compliance.	-Highly replicable for local governments due to use of municipal zoning bylaw tools. - Replicable model combining equitable and meaningful employment, a living wage, and marketable skills in the green economy.
Closing the Loop on Waste	-Private business sector doing work that complements municipal deconstruction policies to significantly divert CRD waste from landfills (e.g. Unbuilders, Vancouver). -NGO waste recycling program providing employment for individuals facing barriers to formal employment; contributes to a circular economy (e.g. Binners Project, Vancouver).	-Strong upside/growth potential in a market where one company deconstructed approx. 1% of the 3,200 homes demolished in Vancouver. -Tax credits used to incentivize recycling of building materials. -Reliable, safe employment for individuals living at the margins of society utilizing their expertise to sort waste in both public/ private settings, which,increases the proportion of materials diverted from landfills.	-BC municipalities can develop new deconstruction bylaws to divert construction waste from the landfill e.g. City of Victoria. -Waste sorting lowers contamination, decreasing landfill waste & emissions -Low footprint as recycling collectors travel on foot, bicycle, or bus.	-Most work has been residential to date, but can branch out into the commercial sector. -Economic empowerment for a marginalized population that faces barriers to formal employment.	-Salvaged materials can be donated so that local charities benefit. -Finding new uses for salvaged old growth timber keeps this history & valuable resource in BC communities. -Social inclusion; contributing to an inclusive, greener city.	-Addressing time and cost issues to help deconstruction companies to gain a foothold in the market to support municipal waste goals. -Requires further study for applicability in rural settings or smaller BC communities.	Potential projected growth to 1,700 jobs in BC with transition to prioritizing deconstruction at 100% market share. -Stronger municipal government regulations and financial incentives can support businesses, jobs and help to substantially divert construction and demolition waste.

Holistic Land-Use Community Planning	15 Minute Cities/ Superblocks/1 Minute City models to re-localize communities. Municipal Parklet strategies/reclaiming road-space (e.g. Open Streets Initiative, City of North Vancouver).	-These strategies encourage people to access local businesses/ neighbourhood resources, creating & sustaining jobs and thriving communities.	-Complete communities can transform land use and mobility to effectively slash vehicle emissions.	-Reduced traffic in neighbourhoods; improved air quality, noise levels, traffic safety; leads to increased use of roadways for active transportation.	-Fosters a change in priorities and climate friendly behaviours.	-May require extensive citizen consultation to ensure suitable adaptation to varying local contexts; represents major policy change.	-Already adapted by many cities in different contexts.
Community Engagement/ Social Mobilization	NGO led youth employment/ skills development program on adaptation, intentionally linked to COVID-recovery (e.g. Wildsight's Youth Climate Corps, Nelson, BC). -Neighbourhood based social mobilization on climate action and behaviour change (e.g. City of Toronto Neighbourhood Climate Action Champions; CALP's Cool 'Hood Champs Program; and Green Bloc Neighbourhoods).	-Increased jobs development launching environmental careers for youth in rural communities. -Knowledge & skills development on climate change threats & practical solutions, drawing on local resources and suppliers, e.g. home & garden stores.	-Complexity in measuring GHG reductions for some program components that release emissions but enhance community resilience. -Champions connect with a broader group of residents on climate action projects and behaviours to reduce their carbon footprints (e.g. by 16% with Green Bloc Neighbourhoods).	-Social connection and resilience building for youth during the pandemic when job opportunities were scarce. -Local action projects can be networked for impact, and lead to more food growing/community gardens and placemaking (e.g. Green Bloc Neighbourhoods).	-Synergy between youth leadership, community building, job readiness skills and local climate action. -Promotes social inclusion and builds resilience of individuals experiencing social, economic and other barriers in building a greener city.	-Place-based programs in rural communities can result in high carbon footprints due to longer travel distances. -Requires strong municipal support to effectively scale across neighbourhoods to create collective impact; and ensure inclusion of under-engaged residents.	-Adaptable model for both urban and rural settings. -Municipal backbone structure inclusive of funding support makes this a highly replicable model vs. community-led models that are dependent on a patchwork of grant funding.

This analysis of case studies and precedents suggests that there are multiple pathways and sectors where both jobs and climate change solutions (building resilience and reducing emissions), can be fostered by diverse stakeholders (governments, NGOs, businesses, citizen groups, etc.). Some communities have been able to scale programs and strategies to reach a significant percentage of their population. While many of these case studies may not yet feature hard numbers on GHG emissions reductions, they do point to significant mitigation benefits over time if adequately scaled up. Some of these approaches have been tested successfully during the COVID-19 pandemic, which suggests that they should be feasible in an extended transition to COVID-19 recovery. Recent COVID era trends (e.g. pop-up parklets) offer promising ways to maintain/restore the local economy while aligning with climate action, making difficult transitions more feasible (e.g. taking back road space, reducing commuting). Regulatory approaches such as the Borough of Rosemont-La Petite-Patrie's (Montreal) mandatory cool roof bylaw, and current Province of BC moves requiring home retrofits clearly have the potential for enacting sweeping changes, but only if the enabling policies are not vigorously opposed by a large segment of the community. This speaks to the need for more effective engagement strategies to build that policy support.

Implications and Opportunities for COVID Recovery/Climate Action

This section identifies key messages and implications for achieving synergies between climate action and COVID-19 recovery for BC and beyond, in "building back better."

The COVID-19 pandemic has brought uncertainty, dynamic conditions and some severe constraints to communities everywhere, with the prospect of uneven recovery between and within regions as vaccination rates reach higher levels in many Canadian populations. Further changes and possible set-backs are likely over the next few months, and possibly years. Adaptability and proactive planning for alternative scenarios due to the pandemic are likely to remain critical to community success over the short term (summer 2021) and medium term at least. In the slightly longer term (out to 2030), other ongoing crises such as the climate emergency are likely to come back into focus, with the very challenging target of cutting carbon emissions by approximately 50% in the next 19 years. The COVID-19 pandemic has brought about a pause in some industries and government programs (such as engagement on climate action in some cities). In terms of climate change, we can argue that some governments and media have "taken their eye off' the (other) ball.

However, this pause has also been an opportunity to witness how rapidly people and communities can change priorities and behaviours, supported by massive relief and stimulus projects, intense public messaging and new regulations, leading to major shifts in land use and mobility patterns. This unique combination of policies, restrictions, incentives, and often voluntary behaviour change has shifted social norms and delivered a rapid and large (7%) cut in worldwide emissions which "has never been observed before."[41] While 7% in one year is not enough to solve the climate crisis, it does prove that massive and swift change is possible, even though the primary goal was not actually to address climate change. The COVID-19 experience thus presents a unique and timely opportunity to reconsider the sustainability of our communities, our economy, and our lifestyles. It also

[41] Le Queré C., Peters, G., Friedlington, P., Andrew, R., Canadell, J., Davis, S., Jackson, R., Jones, M., (2021). "Fossil Co^2 Emissions In the Post-Covid-19 Era." *Nature Climate Change*, Vol. 11, 197-199. https://rdcu.be/cl90S

raises the question of what changes will stick after the COVID-19 pandemic, and how recovery can galvanize urgently needed transformations if we are to effectively slash emissions and create thriving communities. There is likely to be tension (if not outright feuds) between those wanting to "get back to normal," and those who want to maintain some of the new advantages and behaviour changes enabled by the pandemic, e.g. working from home. Furthermore, there is a risk that the drive toward rapid economic recovery will actually set back planned climate change policies and solutions. According to some studies, "most current COVID-19 recovery plans are in direct contradiction with countries' climate commitments."[42] We also risk losing the opportunity for positive climate action to help alleviate widespread mental anxiety among youth and many adults.

What changes or COVID-19 implications for climate action have we observed so far in BC communities and in other relevant jurisdictions? The following list summarizes trends that have been acknowledged in the media and recent academic and practitioner fora, in some cases with supporting modelling data:

[42] Le Queré C. et al., Ibid.

Key Trends

- **Transportation and Streets**:
  - Sharp declines in overall vehicle use during COVID restrictions (e.g. 50% reductions on average in surface transportation among cities globally with substantial confinement for non-essential workers), due to working from home and less commuting, leading to less traffic congestion but also related business impacts. There has been more emphasis on local shopping/activity vs. travel to central/downtown economic hubs. However, there has also been a shift to online retail with shipping from large international companies, as well as deliveries from restaurants and meal kit companies, and other goods which may have adversely affected local businesses.[43]
  - Reduced traffic in neighbourhoods overall, although with an increase in food and goods delivery; improved local air quality, noise levels, traffic safety; increased use of roadways for active transportation (walking, biking, rolling etc.).[44]
  - Informal and sanctioned reclamation of road space and "car habitat"[45] for other fixed uses (e.g. recreation space, pop-up parklets, and expanded outdoor space for local services/businesses etc.).
  - Generally reduced vehicle CO^2 emissions (dropping 36% on average globally by April 7, 2020) and air pollution.[46]

- **Plane Travel:**
  - Significantly reduced for most people in B.C. Aviation activity was reduced by 75% on average in countries with high confinement restrictions early in 2020, with global emissions declining by 60% on average during this period.[47]
  - If international travel restrictions remain in place, while local travel restrictions are lifted (as currently taking place in BC); during the recovery, spin-off impacts with fostering local/regional tourism growth are expected.

- **Building/Home Energy**
  - Overall CO^2 emissions from the global power sector fell by 7.6% in the first 3 to 4 months of 2020, but residential sector emissions grew slightly (2.8%), due to higher winter energy use in northern hemisphere countries.[48] Energy use and emissions in other sectors decreased presumably due to reduced office-based non-essential work and commercial activity.
  - Increased activity on home renovations as reported in the media, though it is not clear how much of this was directed towards improved energy efficiency or switching to renewables.
  - Scarcity of tradespeople to service demands for home improvements.

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[43] Tollefson, Jeff. (2021, January 15). "COVID curbed carbon emissions in 2020 — but not by much." *Nature. https://www.nature.com/articles/d41586-021-00090-3*

[44] Glover, Troy. (2020). "Neighboring in the time of Coronavirus? Paying civil attention while walking tuhe neighborhood." *Leisure Sciences.* 43:1-2, 280-286.

[45] Credit: Ellen Pond, former UBC Landscape Architecture student

- **Waste:** More use of plastic, cardboard, and packaging due to home deliveries, and to adhere to COVID-19 protocols ensuring sanitary practices.
- **Businesses:** Struggling in some sectors, with multiple demands for financial support from government, including provincial grants.

- **Education/Schools/Community Centre Programs**: Some have closed or switched to online programming, reducing travel and emissions, though with increasing mental health issues and social isolation.

- **Government Response:**
    - Strong, urgent and repeated messaging and ask of the public (collective response) in B.C. and many other jurisdictions to promote effective social mobilization, going beyond legal restrictions and enforcement.
    - Some government programs may be impacted by budget deficits over time.

- **Residents' Response:**
    - Some shifts in social norms and behaviour changes, e.g. perceptions of road space; more awareness and attachment to nature; "rediscovery of our social connectedness as neighbours;" preferences for working from home for some people (particularly those with space, working in knowledge industries, with higher incomes etc.).
    - Tension between "we are all in this together," vs. push back against restrictions in some quarters.
    - Adverse mental and physical health trends recorded; increased isolation in some communities.
    - Increased interest in acquiring property in more rural and exurban areas.

[46] Le Queré, C., Jackson,R., Jones, M., Smith,A., Abernethy A.,, Andrew, R., De-Gol, A.,Willis D., Shan, Y., Canadell, J., Friedlington, P., Creutzig, F., and Peters. G.(2020). "Temporary Reduction In Daily Global Co2 Emissions During The Covid-19 Forced Confinement." *Nature Climate Change*, Vol 10, 647-653. https://rdcu.be/cl90P

[47] Ibid.

[48] Ibid.

While the pandemic itself has had many negative impacts, and has often disproportionately impacted Indigenous communities, lower income individuals, and those living on the margins of society, many of the planned and unplanned responses to COVID have had positive consequences for carbon footprints and community resilience. Clearly, most of these changes occurred without the specific intent to take climate action, but it also seems that **many of these changes are not generally recognized in society as linked to climate change or positive climate action**.

This suggests that there is much work to be done to help communities:

- Make the connections between current COVID-19 responses, and necessary positive climate actions.
- Recognize the larger and longer crisis of the Climate Emergency, and the need to make further changes or retrofits in our communities, to adapt to, and mitigate climate change locally.
- Navigate COVID-19 recovery and establish the next "new normal" without losing the gains where previous levels of carbon footprints and vulnerability to climate impacts have dropped.

As certain case studies and precedents have shown, there have been some promising innovations/pilots that intentionally aim for synergies between COVID-19 recovery and climate action – e.g. Wildsight's Youth Climate Corps in Nelson, B.C., which promotes youth employment/training on implementing adaptation measures, while building leadership skills, and community resilience. Many of these case studies appear to be replicable in large urban centres, and smaller communities and rural areas.

However, there is a rapidly shortening window to seize the COVID-19 opportunity for climate action and positive change, before "business as usual" is restored by municipalities, higher levels of government, business and society. This moment provides an opportunity to bring about a significant cultural shift, while many people are (by choice, or by necessity), working remotely from home, focused on their neighbourhood, and often looking for positive opportunities and activities to counterbalance increased mental health and social isolation issues. If local governments can catch the wave before it ebbs, the best time for climate engagement and community action is now. There are, in fact, precedents for continuing or revamping climate engagement during the COVID-19 recovery phase, e.g. the City of Surrey's ongoing Urban Heat Ready outreach campaign, Vancouver's Cool 'Hood Champs program, the David Suzuki's Foundation's Future Ground Network, and the West Coast Climate Action Network (WE-CAN). Seizing this moment requires clear public messaging, but also a **structured program for mobilizing and supporting action** that extends to under-engaged citizens and stakeholders - something that is often left out of the policy equation.

Recommendations and Guidance for Municipalities

Based on the foregoing assessments, this section lays out some broad strategies and specific next steps for BC local governments to consider in leveraging synergies between COVID-19 recovery and local climate action, relevant to local restart plans, job creation strategies, and upcoming budget planning. These recommendations align well with the signature initiatives proposed by the UBCM Special Committee on Climate Action and endorsed by UBCM. In recognition of the key roles of other partners linked to municipal action, we also include recommendations for consideration by the Provincial government and other key players.

I Broad Recommendations, Strategies, and Principles:

1. **Develop a multi-pronged strategy for community restart planning ("Post-COVID Climate Action Plan"), which builds in a suite of climate interventions** (both adaptation and mitigation), maintains those community benefits arising from the COVID experience as much as possible, leverages available infrastructure funds, and cuts across traditional sectors; e.g. Portland's Complete Neighbourhoods program, which addresses transit, active transportation, parks and green infrastructure improvements that provide many community co-benefits.
2. **Prioritize re-localizing the economy to build local jobs and long term community resilience** to climate change impacts, external economic downturns, disruptions to remote energy supplies and transportation networks, social inequities, threats to mental and physical wellbeing, possible future pandemic, and other emergencies. Examples include:
    - **Urban:** using the "15 Minute City" or "Superblock" model to provide more local services and amenities while disincentivizing unnecessary vehicle travel.
    - **Rural:** developing locally-sourced energy supplies, or expanding local tourism catering to BC residents, while contributing to a "just transition" for more vulnerable rural communities by shifting away from resource extraction to more sustainable industries.
3. **Scale up visible climate action -** climate action needs to be accelerated if we are to effectively enable our communities to meet 2030 targets. Early examples of such actions require more visibility, and need to be clearly labelled as a positive and effective response to the Climate Emergency. Communities can benefit from a **network of demonstration projects** which spark interest and show effective new technologies or actions to other early adopters, while moving beyond pilot schemes towards full implementation.
4. **Develop a Municipal or Regional Social Mobilization Strategy** to engage, empower and support resident or neighbourhood groups, through coordination and collaboration frameworks between municipalities, local community hubs such as community centres, and a coordinating backbone organisation. With 9 years left to get every home, block and neighbourhood to cut its carbon footprint in half; this requires an unprecedented cultural shift, on the scale of the COVID-19 response. If we are all in this together, we need to learn from the COVID-19 experience (both good and bad) on mobilizing not just individual households, but whole neighbourhoods collectively.
5. **Assess next year's municipal budget for alignment with COVID-19 recovery and climate action jointly,** to support and prioritize the above actions.
6. Municipalities can and should play a crucial **convening role** in bringing together partners and other key stakeholders in developing local recovery and climate action plans, in concert with boundary organisations which can also play that role.

II Specific Recommendations for Local Government Programs/Initiatives:

15 MINUTE CITIES

- Large cities should **consider adopting the principles of the 15 Minute City model**, if they have not already developed comprehensive strategies for compact, complete and walkable communities.
- Consideration should be given to making permanent the COVID-19 changes to **address inefficient road space allocation** which were put in place to support local businesses and jobs, while reducing car dependency; and simultaneously, reducing vulnerability to extreme heat and flash flooding.
- Medium sized cities and smaller communities should consider a study to examine which aspects of the 15 Minute City model could apply to their local contexts to strengthen resilience.

  For example:
  - While these communities may not have congestion issues or the potential for a major transit solution, there may still be opportunities for more efficient reuse of road space (as illustrated by the City of North Vancouver, and many other cities during the COVID-19 pandemic), which attracts social and commercial activities, while reducing vulnerability to climate impacts and promoting active transportation.
  - With low density neighbourhoods, there is less potential for staying close to home and supporting local businesses (i.e. Paris' "city of proximities"). However, sensitive residential densification of the downtown core would reduce the likelihood of it "hollowing out" after people leave for home at the end of the work day, and reduce the average resident's emissions from having to drive to work.
  - There may be opportunities for creating low-traffic green corridors or greenways using back alleys, side-streets or under-used road lanes to promote cycling and other low-emission vehicles through shadeways (tree shaded corridors) in increasingly hot communities.
- Add parklets to increase commercial space promoting economic activity and jobs by taking over/reallocating road space, with temporary demonstration projects as pilots. Placemaking helps to animate spaces, improves businesses, and allows tourism to flourish. e.g., Open Streets Initiative in North Vancouver.

ENERGY

- **Scale up existing home energy retrofit** programs by bundling both the service providers and the users (e.g. nearby neighbours buying heat-pumps or loft insulation). Such programs should also be extended beyond homeowners and landlords to provide incentives and support for energy conservation practices by renters (see BCSEA resources for renters and landlords).
- **Map local energy sources and carbon sinks**; develop a local energy generation target and distribute supplies through a local energy requirement, such as the UK's Merton Rule requiring 25% of building energy to be obtained onsite. Various tools are now emerging for communities to map and assess potential local energy supplies (e.g. Google Solar mapping, CALP/CEA study on Community Energy Explorer).

WASTE

- Conduct a study with local businesses and building professionals to **assess the applicability and potential of a public/private waste recovery and recycling program** for building materials from demolition (see Unbuilders case study), to increase the proportion of materials diverted from landfill. This should include a study of likely barriers/constraints, and possible bylaws and financial incentives that could be introduced by municipalities to support the development of this sector, and for scaling-up consistent with market size, with the co-benefits of new, stable jobs. Applicability to both rural and urban environments should be investigated.
- Conduct pilot studies to effectively **engage populations that have been most impacted by COVID-19**, i.e. individuals who are the most marginalized, with the opportunity to participate in employment and skill building programs like the Binners' Project (see case study) to help increase diversion from landfills. This model contributes to a circular economy, and utilizes low carbon, low-cost transportation. Applicability to small towns or rural communities may present challenges with higher GHGs from transportation.

SOCIAL MOBILIZATION

- Expand practical initiatives like Wildsight's **Youth Climate Corps** program across many communities, using the corps model to build skills, employ youth and retrain workers, and deliver community-based adaptation and mitigation projects.
- Implement UBCM's Special Committee on Climate Action recommendation on a **Social Mobilization strategy,** involving a province-wide competition for the Coolest Neighbourhoods, to motivate grassroots climate action through place-based processes, and help scale up public support for policies.
- **Leverage and incentivize volunteerism to develop local climate action teams** to support communities and small businesses in climate-proofing projects or extension programs, learning from successful volunteer projects such as the Vancouver Park Board tree planting teams, Delta's school rain garden program, Victoria's Climate Champions program, and VanCity's Lighter Footprint program. Estimates of volunteer time in the urban forestry sector in the USA amount to 1.5 million hours, contributing about 5% of municipal tree care activities.[49] If adequately funded, effective programs which leverage existing community hubs such as community centres (e.g. Cool 'Hood Champs program), schools, libraries, faith groups etc.,could reach communities across BC.

[49] Richard J. Hauer, Nilesh Timilsina, Jess Vogt, Burnell C. Fischer, Zach Wirtz, and Ward Peterson et al., 2018. "A Volunteer and Partnership Baseline for Municipal Forestry Activity in the United States." *Arboriculture & Urban Forestry* 2018. 44(2):87–100

OTHER CROSS-CUTTING RECOMMENDATIONS, INCLUDING ADAPTATION:

- Encourage local employers and institutions (including local government itself) to **retain working-from-home options for staff** wherever appropriate, so as to maintain commuting time reductions, benefits to productivity and wellbeing, and reduced emissions.
- All communities which have not yet done so should **develop climate change vulnerability assessments** in order to plan their critical adaptation strategies, to synergise with emission reduction policies and COVID-19 economic recovery goals. These should include a **heat response plan** and engagement/awareness building program on local climate change vulnerabilities, to elevate understanding and prioritization of much needed heat ready solutions among building professionals and other stakeholders; and to reconsider planned development projects for their resilience and potential for job creation e.g. in green infrastructure projects.
- **Expand urban forestry engagement initiatives on private land** in vulnerable equity-seeking neighbourhoods, to help meet overall municipal tree canopy targets, reduce mortality from heat waves, improve health (reducing health costs), and build community resilience to climate change extremes.
- Smaller rural towns and communities can benefit from **conducting studies of their vulnerabilities to long supply chains** of energy, water, food (bioregion concept) etc., in light of climate change threats and future economic downturns, with mapping of potential renewable resources that could help diversify their local economy. Precedents for this include the Vancouver Island and Coastal Communities Leadership Plan.

III Specific Recommendations for Indigenous Communities

- Similar studies to this one should be conducted with Indigenous communities, with financial support if necessary, to promote understanding of the specific needs of Indigenous communities in integrating COVID-19 recovery with jobs development and climate action.

IV Specific Recommendations for Province of BC

- In keeping with the aims of the BC Climate-Aligned Stimulus Working Group to help ensure that the Provincial Economic Recovery Strategy significantly includes climate action as an investment priority, there is a critical need for **BC guidance and financial support of municipal programs to kick-start joint recovery/climate change plans.**[50] This includes initiatives consistent with BC's recovery plan with full integration into climate initiatives, e.g. in skills training in high demand fields (such as local energy training). Existing and future grant programs should be tied to achieving BC's climate action targets, and wherever possible, address community inequities (see California's Transformative Climate Communities funding program.
- Provide **guidance and messaging to employers and institutions to retain working-from-home options** for staff, so as to maintain commuting time reductions, benefits to productivity and wellbeing, and help meet BC's emission reduction targets by 2030.
- **Review and implement UBCM's Special Committee on Climate Action recommendations** and signature projects on waste, energy, transportation and other sectors, developed with COVID recovery synergies very much in mind.
- The Province should consider expanding the strategies under CleanBC in its Roadmap to 2030 to **include a coordinated social mobilization strategy,** as an additional lever for reducing GHGs and building resilience. The case studies in this report clearly show there is demand and interest within communities to take on a bigger role in implementing climate solutions, in alignment with provincial and local climate policies. Research suggests, however, that a sustainably funded backbone organization (within or allied with the provincial government) is urgently needed to maintain momentum over time within communities, provide ongoing support to effectively leverage citizen-led efforts, and build public support for government policies among the under-engaged.
- **Content highlights, stories and resources from this report should be disseminated** via the CEA toolkit for local governments on COVID-19 recovery, BC government websites, and other channels to help reach and inform existing and under-engaged audiences. These could provide links to useful tools for carrying out various climate action and community-building interventions by various stakeholders (eg. "cool tools for specific purposes, such as the Green Bloc Guide, CALP's Citizens' Coolkit, Community Energy Explorer, and the BCIT Centre for Ecocities' Lighter Footprint App, etc.).

[50] Community Energy Association and Vancouver Economic Commission, on behalf of the BC Climate-Aligned Stimulus Working Group. (2020, August 31). *BC Climate-Aligned Stimulus Working Group Final Report.* Vancouver, BC: CEA.

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CALP contact and website info
Social media icons (linked)
Partner logos

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