Making Space: lessons from Canadian COVID-19 street reallocations

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Abstract

COVID-19 was an unprecedented global event that impacted people's everyday lives and how cities function. To mitigate the spread of the virus, governments introduced a range of strict lockdown measures that limited non-essential activities or travel (Hale et al., 2021). These lockdown measures changed how and why people moved around their communities (FCM, 2020a). Over the spring and summer of 2020, many cities observed a decrease in automobile traffic and public transit ridership (StatsCan, 2020), while weekday cycling decreased by 10% but weekend cycling increased by 34% (Eco-Counter, 2020). In response to these changing mobility patterns, cities implemented street reallocation measures such as widening sidewalks, pop-up bike lanes, and either completely or partially closing streets to automobile traffic (FCM, 2020a). This study explores how and why Canadian cities implemented street reallocation measures, and what decision-makers can learn from this experience. City officials and active transportation advocates from ten Canadian cities participated in in-depth, semi-structured interviews to uncover street reallocation responses and motivations, decision-making processes, and lessons. Results revealed five overarching themes that led to stronger responses: evidence-informed decisions, capitalizing on existing plans and policies, drawing from internal experience, strong leadership, and collaborating with community groups. Lessons include: 1) how this experience informs future urban planning, 2) the benefits of street reallocation, 3) an opportunity to try new ideas, 4) seeing the city as adaptable, and 5) focus on equity and mobility justice. Research findings also emphasize the importance of studying the COVID-19 pandemic as a case study for emergency preparedness and structural governance changes. By drawing on these lessons, decision-makers and practitioners can ensure our cities are more resilient in the future.

Résumé

La pandémie de COVID-19 a été un événement mondial sans précédent qui a eu un impact sur la vie quotidienne des gens et sur le fonctionnement des villes. Afin d'atténuer la propagation du virus, les gouvernements ont mis en place une série de mesures de confinement strictes qui ont limité les activités ou les déplacements non essentiels (Hale et al., 2021). Ces mesures de confinement ont changé la façon dont les gens se déplaçaient dans leur communauté et les raisons pour lesquelles ils le faisaient (FCM, 2020a). Au cours du printemps et de l'été 2020, de nombreuses villes ont observé une diminution de la circulation automobile et de l'utilisation du transport en commun (Statistique Canada, 2020), les déplacements à vélo en semaine ont diminué de 10%, tandis que ceux effectués durant les fins de semaine ont augmenté de 34% (Eco-Counter, 2020). En réponse à ces changements dans les habitudes de mobilité, les villes ont mis en œuvre des mesures de réaffectation des rues, comme l'élargissement des trottoirs, l'aménagement de pistes cyclables temporaires et la fermeture totale ou partielle des rues à la circulation automobile (FCM, 2020a). Cette étude examine comment et pourquoi les villes canadiennes ont mis en œuvre des mesures de réaffectation des rues, et ce que les décideurs gouvernementaux peuvent apprendre de ces expériences. Des fonctionnaires municipaux et des défenseurs du transport actif de dix villes canadiennes ont participé à des entrevues approfondies et semi-structurées afin de découvrir la manière dont ils ont et leurs motivations, les processus décisionnels et les leçons à tirer. Les résultats ont révélé cinq grands thèmes qui ont mené à de meilleures réponses : des décisions fondées sur des données probantes, une exploitation des plans et des politiques existants, un recours à l'expérience interne, un leadership fort et une collaboration avec les groupes communautaires. Les leçons à tirer sont les suivantes : 1) la façon dont ces expériences contribuent à la planification urbaine future, 2) les avantages de la réaffectation des rues, 3) l'occasion d'essayer de nouvelles idées, 4) voir la perception de la ville comme étant adaptable, et 5) l'accent mis sur l'équité et la justice en matière de mobilité. Les résultats de cette recherche soulignent également l'importance d'étudier la pandémie du COVID-19 en tant qu'étude de cas pour la préparation aux situations d'urgence et les changements structurels de gouvernance. En s'inspirant de ces leçons, les décideurs et les praticiens peuvent faire en sorte que nos villes soient plus résilientes à l'avenir.

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What a journey these past couple years have been.

I can't go without noting how difficult this COVID period has been on all our mental health and well-being. It's been an incredibly strange and challenging period. From figuring out how to shift our school offices over to our lockdown locations, to accessing the Burnside building while it was on strict lockdown (and getting locked out even when you had authorization to enter), to discovering more about ourselves and our lockdown buddies, it's all been a whirlwind. I want to acknowledge that students, faculty, and staff alike all had our own challenges, and there are a few people that I would like to explicitly thank:

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1 Introduction

1.1 Context

COVID-19 was an unprecedented global event. At the onset, "the covid-19 pandemic [was] the biggest threat in living memory to health and wellbeing, social welfare, and the global economy" (Kickbusch et al., 2020, p.1). The novel coronavirus created a health imperative that impacted every aspect of people's lives. To mitigate the spread of the virus, governments introduced a range of strict lockdown measures which limited non-essential travel and activities, as well as social distancing measures (Hale et al., 2021). Consequently, cities experienced a shift in how and why people moved around their communities (FCM, 2020a). Statistics Canada reported in June 2020 that private vehicle commuting decreased from 75% to 67%, public transit ridership dropped from 13% to 3%, while teleworking increased from 4% to 22% (StatsCan, 2020). Eco-Counter reported that from March to August 2020, cycling rates had decreased by 10% during the week while increasing by 34% on the weekends (Eco-Counter, 2020).

As demonstrated by these statistics, mobility patterns changed dramatically in a short period of time. These shifting mobility patterns compounded pre-existing mobility and health inequities in society. Racial and ethnic minority groups face many health disparities (Obinna, 2021), as well as systemic oppression and disenfranchisement (Wright & Merritt, 2020), and consequently, were disproportionately impacted by COVID-19 (Obinna, 2021). 'Essential' frontline workers were more likely to be foreign or domestic born racialized people and faced new challenges getting to their workplace (Obinna, 2021). COVID travel patterns placed an unprecedented demand on active transportation (AT) networks and shone a light on existing socio-economic discrepancies in access to quality walking and cycling facilities.

COVID changed how, when, and why people moved around. Thus, cities were pressured to adapt streetscapes to provide COVID-friendly mobility options. This meant ensuring safe physical distancing while lining up outside essential stores, commuting to work (if you were considered an essential worker), or going outside for exercise or fresh air. Cities across Canada began implementing street reallocation measures to assist residents in accessing essential

services, getting around, and maintaining physical and mental health (Bliss, 2020; FCM, 2020a). Examples of street reallocation measures include widening sidewalks, installing pop-up bike lanes, and either partially or fully closing roads to automobiles (FCM, 2020a). Each city had their own unique response and decision-making process for street reallocations.

Never had one singular event lead to numerous cities across the globe reordering their mobility priorities. Therefore, COVID-19 is a unique case study to examine how cities responded to an urgent health crisis with street reallocations and the subsequent lessons for local policy and decision-makers. This study will focus on Canadian measures to inform future urban planning and emergency management within this country, as well as inform other advanced industrial nations. Studying COVID-19 as a case study uncovered the connections between urban governance structures, emergency response, resilience planning, and mobility justice.

1.2 Research Objective & Guiding Questions

By examining COVID-19 as a case study, this research will examine how street reallocations contribute to crisis response and highlight existing gaps within current planning practices to prepare for future emergency scenarios. The objective of this research is to explore how and why Canadian cities responded to COVID-19 with street reallocations, and how this experience informs emergency management and planning practice. At the heart of this inquiry, I seek to 1) understand emergency response measures during COVID-19, 2) critically examine governance structures and decision-making processes, and 3) explore how street reallocations can contribute to adaptive resilience and mobility justice.

Guiding the research objective, I will address the following research questions:

1. **How did the ten selected Canadian cities reallocate street space as a response to the pandemic?**

2. **What was the decision-making process, as well as the motivations for implementing these measures?**

3. **What are the typical barriers to street reallocation projects, and what was different about the decision-making process during the COVID-19 pandemic?**

4. **What lessons did practitioners learn about emergency management and urban planning from this experience, and how could it inform future decision-making?**

1.3 Thesis Outline

This document is organized into seven sections, beginning with this introduction. Chapter 2 is a literature review of the theoretical and conceptual basis of this work. Chapter 3 reviews the COVID-19 context to provide an understanding of the conditions during this global health crisis. Topics covered include how people's lives were impacted by the virus and how governments responded to mitigate risk. Chapter 4 describes the qualitative methodology employed in this study, along with addressing my own positionality and that of the research participants. Next, Chapter 5 compiles the research findings beginning with street reallocation measures and motivations, followed by decision-making themes, street reallocation barriers and pandemic differences, and finally the lessons learned by the participants. The results are then discussed in Chapter 6 to uncover the study significance and implications. Categories within the discussion are: 1) governance structures and emergency planning, and 2) the lessons from COVID, specifically adaptability and equitable transportation. Finally, the report concludes in Chapter 7 with a final review and the takeaways from this research.

2 Literature Review

To contextualize this research, I will introduce the core tenants of local governance and emergency planning, (in)equitable cities and mobility justice, and community resilience and resilient-oriented urban planning.

2.1 Local Governance & Emergency Planning

To understand how cities responded to the COVID-19 crisis, we must first establish how cities operate on a regular basis. I will first cover how cities are organized, how they operate, and how they maintain representative democracy in their functioning. This daily operation will then be compared with city emergency planning and response capacity.

2.1.1 Local Governance & Decision-Making

Local governance in the Canadian Context

Canada has a federalist system of multilevel governance at the federal, provincial, and municipal level. The federal government acts as the central body that coordinates with the provincial governments, and traditionally, provincial governments were responsible for coordinating directly with municipal governments. Champagne (2014) suggests that the dynamics between federal, provincial, and municipal governments began to shift with the creation of the Federal Municipal Infrastructure Program in 1994. This program provides conditional grants for municipal infrastructure projects through a tripartite funding mechanism. This new federal-municipal relationship, along with the internationalization of cities, immigration growth, and 'off-loading' of provincial responsibilities has allowed municipalities to become key players in intergovernmental Canadian relations. The creation of the infrastructure fund has also elevated the role of the Federation of Canadian Municipalities (FCM) as a federal lobby group for municipalities (Champagne, 2014). As a result, the role and influence of municipalities, especially large cities, in federal politics is growing.

Municipal governments are responsible for 60% of Canada's public infrastructure and a wide array of essential services. To name a few, some of these responsibilities include road

maintenance and public transit, sustainability initiatives, parks and recreation, and public health initiatives (FCM, 2020b). As of July 2020, approximately 72% of the Canadian population lived in a metropolitan area, otherwise referred to as a city (StatsCan, 2020b).

How do cities operate and who has power?

Cities are bounded spaces of governance, but they are also organized concentrations of populations and economic activity. Global, national, and regional trends impact local economies and how society is organized, and they in turn influence the rest of the world. Urbanization matters because "people's quality of life relates to how their cities are governed and the choices made and values and goals guiding city governance" (Pill, 2021, p. 10). At the seat of economic, social, and political processes, cities face critical challenges in governance and public policy. In the global north, these challenges mainly centre on managing space and associated issues like traffic, affordability, and gentrification (Pill, 2021). Pill (2021) states that these governing issues can be considered spatial mismatches. For example, a mismatch between what transportation facilities are available and how people would like to travel.

Representative democracy and local governance have been built to 'manage' these issues. Decision-makers, elected officials and executive administration, are authorized to make binding decisions about how to allocate public resources on behalf of the common good (Henstra, 2010). Administrative staff are then responsible for designing and implementing capital projects in the built environment or for service provision (Pill, 2021). According to Svara (2003), there are many theories and models to describe the working relationship between elected officials and administration in council-manager cities. Typically elected officials are responsible for democratically deciding policy, and city staff are responsible for implementing policy. This division is not always true in practice; there is more crossover within city governance. For example, elected officials typically establish the city mission, but city managers and staff can inform and provide guidance. Policy considered "middle-range policy decisions", include determining budget allocation, program development, and service provision. In Svara's study, he discovered "a pattern of sharing" between council and the manager, and the extent of managerial discretion to be considered appropriate by most interviewees. Also, Svara discovered legislative action within the administrative bureaucracy, and council influence in City management (2003).

In contrast, Henstra (2010) points out that these administrative tasks are performed in isolation, without considering how this may impact other city functions. To further complicate matters, planning and development decisions are often highly political topics, made in consideration of global and national economic and political factors (Pill, 2021). Decision-making is a game of power and politics impacting people's well-being and should reflect the needs of people living in cities.

Public Engagement & Civic Participation

Cities are shaped by society, but also shape society; they allow people to come together and express their political beliefs and values (Pill, 2021). As Sharp (2003) puts it, "political participation refers to those activities through which ordinary citizens [and residents] become involved in the public life of the community" (Sharp, 2003, p. 68). The most common form of civic participation is voting in local elections (Sharp, 2003); however, local governance systems are required to include public participation in certain decision-making processes to try and include people in these processes (Tate, 2021). These requirements are put in place to give people a voice on matters of their community, unfortunately, they are not always built to genuinely do this. Fainstein (2010) states that public participation was initially intended to overcome the injustices and failures of the state. It was an opportunity for low-income groups to have a voice in accessing increased benefits; however, over time participatory mechanisms evolved to serve middle-class interests (Fainstein, 2010).

Arnstein sees public participation as a "categorical term for citizen power…it is the redistribution of power that enables the have-not citizens, presently excluded from the political and economic processes, to be deliberately included in the future." (2019, p. 24). Furthermore, Fainstein states that "the purpose of inclusion in decision-making should be to have interests fairly represented, not to value participation in and of itself." (2010, p. 175) Unfortunately, this participation can sometimes be performative in nature and not extend power to the public. *The Ladder of Citizen Participation* typology measures, with each rung in the ladder, the corresponding degree to which the public can influence outcomes. There are eight levels in the ladder, with the first two (1) Manipulation and (2) Therapy as 'non-participation'. Arnstein states that the goal of these levels is not to allow the public to participate, but an opportunity to educate

them. The next two levels are forms of tokenism: (3) Informing and (4) Consultation. These levels allow 'have nots' to be heard, but there is no follow-through or changing of the status quo. (5) Placation is a similar form of tokenism because the 'powerholders' still have the final right to decide. Next, (6) Partnerships allow negotiations with traditional powerholders. Finally, levels of (7) Delegated Power and (8) Citizen Control provide decision-making and management roles to marginalized groups (Arnstein, 2019). Through understanding the gradients of citizen participation, both the powerless and powerholders can begin to address the barriers to meaningful engagement.

Borrowing the common paradigm from business ethics literature, Lees-Marshment et al. (2020) examine how to collaboratively govern shared resources that enable individuals and collectives to thrive. Current governance structures operate in a top-down manner with limited opportunities for public participation. They propose moving towards a more bottom-up approach of participation with a 'social commons ethos' in decision-making. This is achieved when three conditions are met: broad, deep, and continual (BDC) engagement. In doing so, a wide breadth of stakeholders are engaged in a meaningful manner, and on a consistent basis (Lees-Marshment et al., 2020). This approach goes beyond just public engagement and builds community relationships into the structure of local governance to achieve the higher rungs of the participation ladder.

2.1.2 Land Use & Transportation Planning

The relationship between elected officials and administrative authority is blurred in most places. Typically, elected officials make decisions based on staff recommendations, public engagement, and staff analysis (Svara, 2003). Staff responsibilities generally range from designating land uses, to planning transportation networks, among many others (Perl et al., 2020).

How are land use and transportation decisions made?

Cities and urban spaces are highly complex systems comprised of many interacting processes. Traditionally, urban planning has looked at these processes in isolation and took more of a 'predict and provide' approach, finding singular solutions to singular problems or perceived issues (Stevens et al., 2018). Transportation planning follows a similar pattern: identify a

problem, study and evaluate, and develop a plan accordingly (ITE & Meyer, 2016). Gillford (2003) claims that this model is the product of a century-long tradition of focusing on sources of economic growth, the state of the economy, and the role of government within it. Canadian cities are no exception to this trend. Perl et al. (2020) examine the global forces that shaped urban mobility in Canada's largest cities: Montréal, Vancouver, and Toronto. Each city's historical investment in projects like expressways and rapid transit were reviewed to understand resulting spatial and social outcomes. Their work proposes that each city's desire to access and attract global capital determined major mobility investments. Through their work, they seek to understand the ways that "global forces have become engaged and entangled with local visions of what a city should be, and how the burdens and benefits of such visions have been distributed." (Perl et al., 2020, p. 9). Building these transport facilities requires power (Gillford, 2003) and these high-level calculations are made by decision-makers and delivered by staff.

How is transportation planned?

Decisions and calculations are also made by transportation planning staff when designing and implementing mobility networks. This work is significant because transportation decisions can impact land use patterns and, ultimately, people's quality of life (ITE & Meyer, 2016). Traditional approaches have focused on how efficiently the infrastructure was used versus how efficiently it served the users. Thus, creating systems that are incapable of rapidly adapting to a dynamic world (Gillford, 2003). This system is a result of decades of automobile-prioritized policy creating cities designed for getting around by private vehicle, of automobility. This status quo is a fiercely political topic which makes challenging its prominence difficult, if not impossible (Dunn, 1998).

However, planning and transportation practices, are beginning to recognize cities as complex environments that require holistic, people-centered thinking. This approach regards the system in its entirety, considering broader organizational, social, and political factors. In doing so, it attempts to understand human behaviour and optimize systems in response (Stevens et al., 2018). Concepts like multimodality, the 15-minute city, vision zero, Ciclovía or car-free days, and human scaled design are challenging the foundations of how cities are built (Bruntlett & Bruntlett, 2018). Many researchers propose frameworks or methods to shift transportation

systems away from automobility. Gillford (2003) proposes a 'flexible' approach that adopts four decision-making functions: intelligence, based on data; decision support, facilitating group decision-process; monitor and review, to maintain flexibility; and focus on design and implementation. To ensure a sustainable transportation network, Kennedy et al. (2005) proposes four pillars: effective governance of land use and transportation; fair, efficient, stable funding; strategic infrastructure investments; and attention to neighbourhood design. Changing transportation planning is critical because "we are building the legacy systems of the future" (Gillford, 2003, p. 14).

Examples of transportation options

Urban land use and transportation are inextricably connected (ITE & Meyer, 2016). How we use space and how we move around within it are rooted in the built form. Advocates and practitioners advocate for active-friendly environments, or walkable neighbourhoods to because they have compact land use patterns that ensure essential services are accessible by foot (or other active modes or micro-mobility options). This is done so by dedicated physical infrastructure to various transport modes: walking, cycling, and transit. This style of development helps promote physical activity, resulting in better health outcomes, as well as offers social benefits like neighbourhood cohesion (Zhu et al., 2020). Active-friendly environments, or urban design that promotes physical activity, have demonstrated that they promote physical activity for recreation and transportation uses, and contribute to better mental health outcomes, environmental sustainability, and local economic benefits. Thus, research has proven that designing neighbourhoods to promote physical activity improves living conditions and preparedness for the future (Sallis et al., 2015).

Building on Gillford's (2003) notion of 'flexible' or 'agile' transportation, tactical urbanism is an emerging trend because it "doesn't propose one-size-fits-all solutions but intentional and flexible responses." (Lydon & Garcia, 2015, p. 3). Tactical urbanism are short-term, low-cost, and scalable interventions usually found in roadways or public spaces. They can be implemented by individuals, community groups, or municipalities, and are intended to be small in nature and impactful in outcome. Tactical urbanism interventions are favoured by many actors because they are an opportunity to temporarily try lower-cost projects while facilitating active mobility and

placemaking. These projects can be initiated in a top-down or bottom-up fashion and are increasingly becoming mainstreamed into city practices (Lydon & Garcia, 2015). However, Stevens & Dovey (2019) warn that these temporary measures can lead to long-term impacts to property value and consumption patterns. Through their work they caution that "temporary urban interventions can serve as vectors of gentrification and neoliberal planning, or they can be reactions to it" (Stevens & Dovey, 2019, p. 323). Regardless of the approach or methods to urban planning and transportation planning, there are long-term implications that impact people's lives. Further, consideration should be given to how these systems maintain our everyday lives and how well they respond to emergencies.

2.1.3 Emergency Planning

The structures of local governance and urban planning not only dictate how cities function in a day-to-day basis, but how prepared and ready they are to respond to a crisis.

The legacy of emergency planning in Canada

Canada has historically lacked robust emergency planning measures at a multilevel scale. Efforts were made in the early 2000s to reform organizational and policy frameworks for dealing with large-scale emergencies. Established reforms created a new federal department to lead national emergency management, as well as drafted new legislation, policies, and structures to coordinate this process. While these efforts improved federal-provincial-territorial coordination, they neglected the role of municipalities in the multilevel governance of emergency management. This is problematic for various reasons, beginning with the fact that local governance is the first and main line of response to most emergencies, yet they are disconnected from multilevel coordination efforts. Public servants and elected officials are generally the most aware of on-the-ground conditions and are therefore, the most informed of necessary responses. Canadian emergency management typically expects local authorities to take the lead in emergency response, then request assistance from higher governments when the scenario becomes unmanageable (Juillet & Koji, 2014). Juillet & Koji (2014) call for more reforms to strengthen federal-municipal communication and the inclusion of municipalities in intergovernmental mechanisms. Emergency events are an inevitable part of life, and planning is needed to better position municipalities to deal with them.

Local Level Preparation

Close to 80% percent of emergencies are addressed by local authorities (Juillet & Koji, 2014). This bears the imperative of local emergency preparedness; however, establishing this can be a challenge unto itself. Generally, there is an apathy towards emergency management in non-emergency moments from the public and elected officials. This lack of urgency to prepare requires dedicated campaigns to persuade decision-makers to commit resources to doing so (Henstra, 2010). In a study by Hede (2017), the perceptions and motivations of crisis preparedness were examined amongst municipal leaders. They found that different factors impact how leaders think about preparedness, personally and their motivations for preparing their community. Emergency exercises seem to positively impact perceived municipal capability and personal preparedness, but not leader motivation. However, experiencing previous emergencies positively impacts personal preparedness and motivation (Hede, 2017). Thus, emergency events make individuals and governance more prepared for the next crisis. Part of this preparedness is ensuring better communications between levels of governance (Juillet & Koji, 2014) and within administrations between staff (Hede, 2017). Action must be taken now to prepare proper communication channels and response mechanisms for the next crisis or climate emergency.

2.2 Equity & Mobility Justice

Cities provide essential services and amenities, as well as the means for livelihoods and well-being. However, in reality these city provisions and benefits are not evenly distributed for all. Urban inequities reflect the economic, social, and spatial disparities within society. People with greater wealth have access to more resources and more options, whereas disadvantaged people have less opportunities and access to quality urban spaces and services (Pill, 2021). This can be observed in urban development as well as urban mobility. This section will first address inequities in urban form and planning, and then discuss inequity in transportation and mobility justice.

2.2.1 (In)Equitable Cities

Equity is defined by Fainstein as "a distribution of both material and nonmaterial benefits derived from public policy that does not favor those who are already better off at the beginning. Further, it does not require that each person be treated the same but rather that treatment be appropriate" (2010, p. 36). To further explore this concept within cities, this chapter will first cover the urban drivers of inequity and then the principles of building just cities.

Drivers and Causes of Inequitable cities

The OECD has revealed that household inequality and wage gaps have increased in the past three decades. In advanced economies, the average income of the richest 10% of the population is nine times higher than the poorest 10% of the population (OECD, 2011). This wealth disparity can be observed within the urban form of cities. David Harvey (2009) claims that cities are the intersection of social processes and spatial forms. According to Harvey, "spatial forms are seen not as inanimate objects within which the social process unfolds, but as things which 'contain' social processes in the same manner that social processes *are* spatial." (2009, p. 10-11). Social processes impact each person's life and well-being, and thus, have implications for urban and regional planning. Harvey notes, "urbanism appears as a vantage point from which to capture some salient features in the social processes operating in society as a whole— it becomes, as it were, a mirror in which other aspects of society can be reflected." (2009, p. 16). Inequities and inequality are the result of social processes focused on economic maximization, which are in turn, built into the urban form. Harvey (2005) argues that the driving social process behind these social disparities is due to the rise of neoliberalism. The Neoliberal obsession with economic growth has shaped our world, economic, political, and cultural priorities and values (Agyeman, 2013; Harvey, 2005). This influence has permeated to the city level with growth-promoting policies under the guise of, "the greatest good for the greatest number" (Fainstein, 2010, p.1). This approach attempts to enhance competitiveness and attract international capital and investment to the city (Fainstein, 2010; Harvey, 2005; Hern, 2010). Without consideration, growth-focused practices can lead to a trade-off between efficiency and equity (Fainstein, 2010). Consequently, neoliberal mechanisms like financialization have permitted uneven geographical development in cities, thus, creating areas for the privileged and areas for the marginalized (Harvey, 2005). Furthermore, the shifting of affordability and accessibility can be observed in

the prevalence of gentrification. Firth et al. define gentrification as "an area-level process in which formerly declining, under-resourced neighbourhoods experience reinvestment and in-migration of increasingly affluent new residents" (2021b). Through their work in tracking longitudinal gentrification change in Canadian cities, they revealed that regions with populations over 1 million experienced a higher number of areas gentrifying over time; thus, a larger proportion of the population living in gentrified areas. Their work exposed variations in gentrification metrics and underscores the importance of considering local context when measuring gentrification and the implications on local residents (Firth et al., 2021b).

The Just City

Growth focused urban policies impact city life, from development and redevelopment, housing, amenity provision, to service delivery. To address the growth-focused processes shaping cities, Fainstein proposes a model of the just city, one that "public investment and regulation would produce equitable outcomes rather than support those already well off." (2010, p. 3). Within this framework, justice encompasses equity, democracy (participation), and diversity to lead to a theory of the 'good city'. The model for the Just City can serve as a policy evaluation tool, to measure outcomes according to who benefits, and to what extent. At its very core, the process promotes redistribution, not just economically, but also politically, socially, and spatially. By doing so, processes will serve those who are most lacking in political and financial power, these groups include low-income, LGBTQ+, BIPOC, and immigrants. The Just City model is seen as an incremental approach to increase fairness of access and a constant push for more just distribution of benefits and opportunities. Within this framework, planners should always be considering: 1) the relationship between planning and the city, and how this either inhibits or facilitates justice, 2) how does the planning affect those in cities, either residents or visitors, and 3) the principles to guide plan formulation, content, and implementation. The Just City approach is about material equity within cities, but it is also about recognition of differences and working towards justice (Fainstein, 2010).

Like the Just City model, Julien Agyeman's concept of Just Sustainabilities incorporates social needs and welfare into the sustainability paradigm, while focusing on quality of life and recognition of difference (2013). The concept acknowledges the culturally and place-bound

nature of sustainability, as well as current and intra-generational inequalities and injustices. Agyeman considers loss of human and environmental potential as a threat to sustainability: "from global to local, human inequality (the loss of human potential) is as detrimental to our future as the loss of environmental potential, and only a just sustainabilities approach to policy, planning, and practice has an analysis and theory of change with strategies to transform the way in which we treat each other and the planet." (2013, p. 7). The definition of Just Sustainabilities focuses equally on four essential conditions: 1) improving our quality of life and wellbeing, 2) meeting the needs of both the present and future generations, 3) justice and equity in terms of recognition, process, procedure, and outcome, and 4) living within ecosystem limits. A Just City approach is imperative for future city planning because "embedding justice and the right to a clean, inclusive, and healthy environment which offers a high quality of life and wellbeing for current and future generations into existing struggles for social, economic, and political freedoms offers the best route" (Agyeman, 2013, p. 168).

2.2.2 Mobility Justice

Just as cities are influenced by economic, political, and social processes, so are the transportation networks that are embedded within them, as well as the networks in which cities are embedded. Equitable access to transportation is influenced by policies related to land use, infrastructure, housing, social services, and public health (StatsCan, 2017). The approach of Mobility Justice "demands that we fully excavate, recognize, and reconcile the historical and current injustices experienced by communities—with impacted communities given space and resources to envision and implement planning models and political advocacy on streets and mobility that actively work to address historical and current injustices experienced by communities" (Untokening, 2017). To fully explore this, this chapter will address (im)mobilities and mobility poverty, and the principles of mobility justice.

(Im)mobilities & Mobility Poverty

Transportation planning is at a turning point. Over the past two decades, equity and justice have been recognized as key principles to integrate into transportation planning. However, this recognition has not always translated into clear objectives or meaningful outcomes (Manaugh et al., 2014), nor are there clear methods in place to measure such efforts (Oswald Beiler &

Mohammed, 2016). One pathway to address this is to define and study transportation poverty or mobility poverty to understand transport related barriers for certain groups. In their research, Murphy et al. (2021) focus on transport poverty to establish the Transportation Security Index to define and measure justice in transportation planning. The index mostly focuses on accessibility to transport options and how users feel about these options. Results reveal that transportation insecurity is experienced materially and relationally (Murphy et al., 2021). Kuttler and Moraglio (2020) propose a concept – mobility poverty – to move beyond the concept of transportation poverty. Their framework examines societal dimensions of mobility poverty such as gender, income and employment, age, reduced mobility, and ethnic minorities. The framework examines forms of structural disadvantage for everyday mobility. Unlike transportation poverty which focuses on transport accessibility and affordability, mobility poverty expands its view to consider "status, wealth, prestige and power, and highlight that mobility is fundamentally linked to social, cultural, economic and political processes…to explore the gap between unrealized mobility needs and actual travel patterns" (Kuttler & Moraglio, 2020, p. 10). The framework strives to identify systemic unevenness, or the contrast between hypermobility and mobility poverty. Their research emphasizes that mobility poverty is often the result of a combination of social disadvantages and is highly relational and contextual, thus emphasizing the need to focus on those most at risk and meet diverse needs (Kuttler & Moraglio, 2020).

Mobility Justice

The literature resoundingly calls for increased efforts to integrate equity and justice into transportation planning and decision-making (Kuttler & Moraglio, 2020; Manaugh et al., 2014; Murphy et al., 2021; Nazari-Adli et al., 2019; Oswald Beiler & Mohammed, 2016; Sheller, 2018). This overarching effort to mainstream equity and justice into how people move around is referred to as mobility justice. The Untokening Collective describes mobility justice as the:

> *"Demands that 'safety' and equitable mobility address not only the construction of our streets but the socioeconomic, cultural, and discriminatory barriers to access and comfort different communities experience within public spaces. We must shift focus from the modes of transit people use to the bodies and identities of the people using those modes by centering the experiences of marginalized individuals and the most vulnerable communities. It*

> *acknowledges that safety is different for different people, and should be defined by those most economically and legally vulnerable."* (Untokening, 2017)

Sheller applies the concept of 'the new mobilities paradigm' to acknowledge that "movement is primary as a foundational condition of being, space, subjects, and power" (2018, p. 9). Mobility justice expands its view to all forms of movement – technology, information, goods, and people – and focuses on the power dynamics of 'im/mobilities', or rather that of mobility and immobility. This is examined through movement flows, and potential movement, also known as motility. Mobility justice is "an overarching concept for thinking about how power and inequality inform the governance and control of movement" (Sheller, 2018, p. 14). It calls for a critical examination of urbanization and the consequences of automobility and inequality to imagine alternative mobility futures. Sheller claims that crises expose underlying power structures and neglected injustices, thus highlighting the need to prepare for future disasters and to build resilience into urban systems in a way that is ecologically sound and equitable (Sheller, 2018). Some encouraging examples of redistributive efforts are beginning to appear, such as 'universal basic mobility' pilots in some US cities. The program aims to close mobility gaps and remove barriers through free or subsidized mobility options like public transit, e-bikes, or shared mobility options. Researchers are curious to know how such a program will impact people's economic position, quality of life, and health (Bliss, November 2021).

Access to mobility options and freedom of movement is not evenly distributed within cities (Kuttler & Moraglio, 2020; Nazari-Adli et al., 2019; Sheller, 2018). Researchers and advocates call for recognition, participation, deliberation, and procedural fairness to adjust and re-create mobility systems in an equitable and just manner (Sheller, 2018). Focus should be placed on the most disadvantaged to ensure accessibility (Kuttler & Moraglio, 2020; Nazari-Adli et al., 2019) and power (Sheller, 2018).

The social, economic, political, and cultural forces of our society shape how cities are built, who has access to what, and how people move around on a daily basis. Urban driving forces create spaces of uneven development and systems of uneven mobilities. Calls for the just city, just

sustainabilities, and mobility justice strive to reduce societal disparities and create more options for all, today and into the future.

2.3 Adaptive Resilience & Planning for Resilience

Resilience has many definitions aligning with multiple disciplines: ecology, engineering, and psychology (Masterson et al., 2014). Historically, the term has been understood as a system's ability to 'bounce back' from a disruption; however, the term is shifting towards 'bounce forward' as it progresses to reorganization or long-term adaptation (Kuhlicke et al., 2014). The term refers to a system's resistance of unexpected events, and the ability to recover, and prepare for future shocks (Kuhlicke et al., 2014; Masterson et al., 2014; Mochizuki et al., 2018). Resilience has gained popularity in the past couple decades with the recognition of increased vulnerability from climate-related disasters to economic instability. In anticipation of increased risks, cities are integrating principles of resilience into urban planning and policy (Eraydin & Tasan-Kok, 2013; Fox-Lent & Linkov, 2018; Sharifi & Yamagata, 2018).

2.3.1 Urban Resilience & Adaptive Resilience

Natural and human-made disasters pose serious hazards and threats to ecological stability, human health, and the built environment. Over half of the world's population live in urban areas, and this number is projected to continue to increase from rapid urbanization (Baldwin & King, 2018; Burayidi et al., 2020). The concentration of people and built infrastructure in urban areas puts it at greater risk to acute shock and chronic stressors. This increased vulnerability emphasizes the need to prepare urban political and governance structures in responding to crises (Masterson et al., 2014). There is a lot of overlap in the terms used to describe resilience, this section will cover urban resilience, community resilience, and adaptive capacity.

Urban Resilience

There are many definitions of and measures for urban resilience within the literature. For example, Adil and Audirac (2020) define urban resilience as the genealogy of engineering resilience, ecological resilience, and evolutionary resilience. This migration of resilience has

formed the foundation for modern urban resilience and can be observed in plans for emergency management, climate change adaptation, and post-disaster recovery (Adil and Audirac, 2020). Jha et al. (2013) believe that resilience is connected to residual risk and uncertainty, and efforts must be taken to mitigate this risk. Some of the mitigation efforts include supporting social resilience, land use planning and ecosystem management, and urban infrastructure and services. While their work acknowledges the importance of individual and community capacity, it places more emphasis on disaster risk management through biophysical means (Jha et al., 2013). In comparison, Masterson et al. (2014) view urban resilience through biophysical and community systems that reduce risk to hazards. They propose a concept that emphasizes public participation and community building by tapping into the community capacities of social, economic, physical, and human capital (Masterson et al., 2014). This acknowledgment of individual and collective contribution to resilience is referred to as community resilience.

Community Resilience

Community resilience, also referred to as social resilience, is the collective community's ability to cope with environmental change and natural disasters. It is dynamic, place and culture-based, and varies within communities (Baldwin & King, 2018). Magis (2010) states that community resilience is the presence and utilization of community resources by community members. Communities can develop resilience through responding to crises, as well as planning, collective action, innovation, learning, and cultivating diverse resources throughout the community. Magis (2010) proposes eight dimensions of community resilience: community resources (infrastructure and capital networks), invest in resources, engage resources, encourage active agents, collective action and leadership, strategic action, equity, and impact. By developing resilience, it increases the community's ability to thrive in dynamic environments characterized by change (Magis, 2010). Baldwin and King (2018) describe social resilience as a built environment that encourages pro-community behaviours. The following are Baldwin and King's nine dimensions of social resilience: connection to community and sense of place, social interactions with neighbours, safety and security, residential stability, civic participation, social cohesion, social solidarity, happiness and wellbeing, and civic empowerment and agency (Baldwin & King, 2018). A common theme amongst the community resilience literature is that the capacity of the community is dependent on the people living there.

Adaptive Capacity

Communities are comprised of human systems, and the ability of these systems to cope with and adapt to disturbances is reflective of the adaptive capacity (Baldwin & King, 2018). Adaptive capacity is a dynamic social process (Matthews & Sydneysmith, 2010). Factors that influence adaptive capacity are communities' socio-demographics and agency to act. Socially disadvantaged groups living in at-risk environments are particularly vulnerable. Baldwin and King put forward the following development principles to increase adaptive capacity: focus on community's resources not deficits, employ community knowledge, social learning and capacity-building opportunities, participatory projects, and inclusivity of individuals and groups (2018). Wamsler et al. (2014) focus on the mental wellbeing of individuals and groups in 'at risk' spaces as a source of social resilience. Often, the hardest hitting impacts of hazards are on the mental health, or the psycho-social-spiritual wellbeing of those affected. This can manifest as concerns over personal security, stress from uncertainty, increasing substance abuse, and loss of sense of place and meaning. Wamsler et al. highlight the importance of cognitive and emotional capabilities and suggest mindfulness to support resilience and adaptive capacity (2014).

Matthews and Sydneyman (2010) extend the notion of adaptive capacity to institutional adaptive capacity, or an institutions ability to respond, adapt, and change in the face of disturbances. Mochizuki et al. (2018) acknowledge that it requires more than financial and physical assets to make an urban area resilient. They propose an integrative conceptual framework that is linked to risk and vulnerability. They also recognize "that many of the subsystems that drive vulnerability and exposure are in fact resilient and hence need to be broken down rather than strengthened…which include institutional and political subsystems" (Mochizuki et al., 2018, p. 375). They continue to argue that breaking down these problematic conditions are more important than bouncing back after a disturbance. The framework proposes: coping capacity, adaptive capacity, and transformational capacity to highlight the linkages between risk drivers and resilience (Mochizuki et al., 2018).

Within the literature and practice, there are many different descriptors or metrics for supporting resilience. Urban resilience, community resilience, and social resilience acknowledge that biophysical and human aspects of a place contribute to overall resilience. The actual capacity of

people or an institution to withstand change and respond accordingly is referred to as adaptive capacity. All these aspects of resilience must be integrated into urban planning and policy to prepare for future hazards.

2.3.2 Planning for Resilience

Integrating resilience thinking into urban planning marks a move away from the 'predict and prevent' approach, towards acknowledging and accommodating complexities and uncertainties within dynamic urban spaces. The shift requires medium to long-term approaches that can accommodate gradual and abrupt changes. Urban resilience is based upon the theory of the adaptive cycle, which contains four phases: exploitation, conservation, release, and reorganization. In contrast to common planning practice, the core of resilience planning is change, dynamism, uncertainty, adaptability, and self-organization. Fundamentally, resilience thinking demands transformation in planning culture and practice, especially when it relates to planning strategy and vision, public participation and capacity building, equity and empowerment of the marginalized, traditional ecological knowledge, institutional reforms, social networks and support, interrelationships and interlinkages, land use planning, and urban infrastructure. This change requires internal memory, self-organization, and learning from the past to strengthen the short-term coping and long-term adaptations (Sharifi & Yamagata, 2018). To achieve this resilience, Sharifi and Yamagata advocate for the following urban system principles: robustness, stability, diversity, redundancy, flexibility, resourcefulness, coordination capacity, modularity, collaboration, agility, efficiency, creativity, equity, foresight capacity, self-organization, and adaptability (2018).

To assist this process, Fox-Lent and Linkov (2018) produced the Resilience Matrix for Comprehensive Urban Resilience as a framework to identify critical actors within urban planning and emergency management. The framework guides conversations, buffers expectations, and clarifies responsibilities. The framework encompasses four domains: physical, information, cognitive, and social. These domains are then mapped out during four phases: prepare, absorb, recover, and adapt. While Fox-Lent and Linkov acknowledge the limitation of the framework, it is intended to create connections and provide a roadmap for how to navigate crises (2018).

Urban areas have become increasingly vulnerable as a result of neoliberal political economic ideologies and exacerbated inequality (Eraydin & Tasan-Kok, 2013). Thus, resilience-thinking proposes a shift in urban planning to set new priorities and principles that move away from a market-based political agenda and is centered on people. This approach to planning promotes growth of adaptive capacity and a focus on substance. According to Eraydin and Tasan-Kok, resilience-thinking: facilitates the co-evolution of socio-economic and ecological systems, underlines adaptive capacity, highlight external and non-systemic factors that influence urban systems, provides basis for systemic analysis of cities and their vulnerabilities, clarifies the dynamics of ecosystem services, concentrates on building capacity, links physical (spatial) and ecological aspects in a systemic way (2018).

Urban areas are becoming increasingly vulnerable to human and natural hazards. Resilience research and resilience-oriented urban planning help to reduce risk and prepare for future risks.

3 The COVID-19 Pandemic

3.1 The Context

The Novel SARS-CoV-2 Coronavirus, also referred to as COVID-19, is a respiratory viral pathogen with symptoms ranging in severity from asymptomatic to fatal. At the onset of the pandemic, our understanding of the virus was that it was primarily transmitted through respiratory droplets from the mouth or nose when coughing or sneezing (WHO, 2021). On January 30th, 2020, the World Health Organization (WHO) announced the COVID-19 outbreak as a Public Health Emergency of International Concern (PHEIC). At this time, there were 7, 818 confirmed cases mainly located in China, where the virus originated. As the situation continued to spread and intensify, WHO declared that COVID-19 was a global pandemic on March 11, 2020. In response, the WHO coordinated an international health campaign to facilitate information exchange between scientists and medical professionals, and to provide guidance and directives for decision-makers across the globe (WHO, 2020a).

While the World Health Organization was providing guidance on how to navigate the rapidly evolving circumstances of the pandemic, each nation (and sometimes lower levels of governance) were responsible for establishing their own safety protocols. Virtually every country introduced some form of governmental intervention to mitigate the spread of the disease (Hale et al., 2021; Haug et al., 2020; Kickbusch et al., 2020; OECD, 2020; Sharifi & Khavarian, 2020). The most common measures taken were travel restrictions, social distancing, and personal protective equipment (Kickbusch et al., 2020). The Oxford Coronavirus Government Response Tracker (OxCGRT) recorded 23 pandemic policy indicators in four broad categories: closures and containment, economic measures, health measures, and vaccine policies. The indices for closures and containment policies include school closures, workplace closures, cancelation of public events, public gathering restrictions, closure of public transportation, stay at home requirements, restrictions on internal movements, and international travel controls. OxCGRT then calculated a score for each country based on the overall government response index, containment and health index, stringency index, economic support index, and risk of openness index (Hale et al., 2021).

Haug et al. (2020), found that the most effective government measures were curfews, lockdowns, and closing or restricting small and large gatherings. While they found these actions were effective at preventing the spread of the virus, they acknowledge these measures had "adverse impacts on society, the economy, the humanitarian response system and the environment" (Haug et al., 2020, p. 1303). They highlight that 'risk-communication strategies' focusing on public education and communication were effective and less costly overall. Some examples of this messaging included encouraging people to stay home, social distancing, self-isolation, and avoiding travel (Haug et al., 2020).

COVID-19 protocols were defined at a national or regional level, but this study focuses on the impacts at the city level. I focus on the city scale because nearly half of the world's population lives in cities, they are home to economic and governmental decisions, hubs for international travel (OECD, 2020), and are the scale at which emergency preparedness plans are made (Juillet & Koji, 2014). Decisions affecting cities impact the rest of the world.

While pandemic interventions were introduced to limit viral spread, they significantly impacted people's ability to conduct essential daily tasks like front line workers commuting to work, picking up supplies from grocery stores or pharmacies, and exercising (FCM, 2020a). To further understand what measures were taken and how they impacted people's lives, I will focus on the following topics: personal health, social well-being, the urban environment, and mobility and transportation. Due to the complex nature of the pandemic and city life, there will be overlap of topics in certain sections.

3.1.1 Personal Health

Government pandemic policies were intended to reduce and prevent the spread of the COVID virus, but they also inadvertently impacted people's physical and mental well-being.

Physical Health

The *WHO 2020 Guidelines on physical activity and sedentary behaviour* recommends that adults participate in 150-300 minutes of moderate-intensity and, or 75-150 minutes of vigorous-intensity physical activity per week. The guidelines are evidence-based recommendations to

achieve optimal health outcomes and avoid detrimental risks associated with sedentary lifestyles (Bull et al., 2020). However, COVID-19 lockdown measures made achieving these the WHO physical activity recommendations incredibly difficult for some people. In Italy during the first wave, strict lockdown measures meant that people could not leave their home for non-essential reasons and were only allowed to get physical activity or walk dogs within a close distance to their home. An online survey found that physical activity measurably declined during the first lockdown in Italy, with the most notable declines in physical activity associated with travel to work. As a result, each respondent's ability to achieve WHO aerobic and muscle building targets declined from one-third to one-fourth (Füzéki et al., 2021). Similarly, lockdown periods in Greece resulted in more inactivity than pre-COVID, and this was more pronounced in males and highly active individuals (Bourdas & Zacharakis, 2020).

In some countries, people adapted their physical activity routines to stay active. Germany's lockdown prohibited use of sport infrastructure, so people shifted their physical activity to public green spaces. Schweizer et al., (2021) reviewed fitness app data to understand how outdoor cycling activities had changed because of COVID confinement measures from March to June of 2020. Their research found that cycling in urban public green spaces increased by 81% despite confinement measures, while biking in rural areas had no significant increase. These results suggest that urban green spaces became important destinations for people to stay active during the pandemic (Schweizer et al., 2021). In Ireland, 29% of online survey respondents reported being less active during COVID-19 restrictions, while 46% reported being more active than usual. Over half of the respondents found new ways to be active, and 86% of people were walking as a form of physical activity (Forde et al., 2021). These results demonstrate people's ability to adapt to restrictions in order to maintain their physical activity.

The mixed results emphasize the consequences of COVID restrictions and how they can influence people's ability to meet physical activity requirements. The decline in overall activity, as well as moderate to vigorous-intensity activities highlights potential long-term adverse 31mpacts on public health and healthcare systems (Bourdas & Zacharakis, 2020). Thus, the findings underscore the importance of targeted support and physical activity promotion during times of isolation like the COVID pandemic (Forde et al., 2021; Füzéki et al., 2021).

Furthermore, the results emphasize the importance of accessible outdoor spaces for people to maintain physical health and for stress relief (Schweizer et al., 2021).

Mental Health

Not only was physical health disrupted by COVID restrictions, but so was people's mental well-being. Confinement measures such as quarantine, social distancing, and stay-at-home orders reduced social interactions and increased social isolation (O'Connor et al., 2021; Sümen & Adibelli, 2020). Results from an online questionnaire revealed that home confinement increased fear and anxiety, as well as domestic violence. These findings suggest that confinement measures triggered various psychological symptoms which impacted people's health and well-being (Sümen & Adibelli, 2020). In a longitudinal study based out of the UK, researchers found that feelings of defeat and anxiety decreased as the pandemic progressed, while positive well-being increased. However, more alarming is that rates of depression remained consistent while suicidal ideation increased over time. Women, young people (18-29), socially disadvantaged groups, and people with pre-existing mental health conditions all experienced worse outcomes during the pandemic. This work urges consideration of the mental health risks emerging from the pandemic and focused attention on the issue (O'Connor et al., 2021). Meanwhile, Wasowicz et al. (2021) studied psychological flexibility, or acceptance and action in a stressful situation, during the COVID-19 pandemic. They found that higher rates of depression, anxiety, and stress were associated with less psychological flexibility. Interestingly, they found that negative emotions were beneficial because they had "an adaptive effect" that helped people to cope with the stress of the pandemic and achieve life tasks, despite being in a situation that impaired psychological flexibility (Wasowicz et al., 2021, p. 1). These findings clearly indicate that measures affected people's minds, but more research is needed to understand the long-term or lingering effects of the pandemic on mental well-being.

3.1.2 Social Well-Being

COVID-19 presented many challenges to individuals trying to navigate the pandemic, but it also had ramifications on our collective society. The virus stunted economic growth, shrunk GDP, and left millions of people unemployed. Additionally, governmental fiscal revenues were impaired for reasons such as reduced individual spending and loss of tax revenues. Decreased revenues were met with increased expenditure on health and social services, further restricting

already tight budgets (OECD, 2020). These economic realities were then further compounded by socio-economic vulnerabilities on the backs of marginalized groups. COVID-19 highlighted and exacerbated the neglected social inequities already festering in our society (Glover et al., 2020; Sharifi & Khavarian-Garmsir, 2020; OECD, 2020). Some of the groups most adversely impacted by COVID-19 include low-wage workers, unsheltered people, the elderly, and those living in long-term care, women and folks burdened by unpaid care work, and racialized and minority groups (OECD, 2020).

As mentioned previously, COVID policy interventions were designed to diminish virus exposure; however, they also adversely impacted people, specifically certain groups, in unintended ways. Glover et al., (2020) explored the specific factors that increase risk of exposure to COVID-19, as well as the risk of being disproportionately impacted by COVID policy interventions. Their work seeks to identify equity issues and associated policy harms, as well as identify mitigation strategies. Equity factors in their work include age, place of residence, socioeconomic status, ethnicity, and occupation, among others. Harms were categorized according to the PROGRESS-Plus health equity framework: physical, psychological, group/social, opportunity cost, and interventions. Examples of some harms include anxiety, food insecurity, loneliness, and violence. The research emphasizes that risks may reoccur in multiple categories, and that consideration of such risks should be integrated into policy decision-making to help those most vulnerable (Glover et al., 2020).

Seniors and Long-term Care Homes

One of the groups most at risk of experiencing severe symptoms or death due to COVID-19 is seniors (aged 65+). This vulnerability is compounded by the living conditions of long-term care homes, nursing homes, and assisted living facilities where many seniors live in. In Canada, approximately 20% of seniors aged 80 years or older live in these facilities. On average, the residents are over 80 years old, of which approximately 70% have dementia, and require assistance with everyday activities (Hsu et al., 2020). As of June 2020, 19% of COVID-19 cases in Canada were in long-term care homes or residential care settings, infecting 4% of all the people living in care homes across the country. The case fatality rate in Canadian long-term care homes was 36% (range 20 to 40%), compared to 8% for the total Canadian population. According to publicly available information, deaths in long-term care accounts for up to 85% of

total Canadian COVID-19 deaths (Hsu et al., 2020), ranking Canada the highest in proportion of COVID-19 deaths in care residents (Estabrooks et al., 2020). The situation was so dire that the Canadian Armed Forces were called in to aid certain homes (Hsu et al., 2020). The Royal Society of Canada Task Force working group on COVID-19 long-term care reported that "COVID-19 in nursing homes was a humane crisis" (Estabrooks et al., 2020, p. 654). COVID-19 shone a spotlight on the pre-existing and systemic issues present in the Canadian long-term care system; issues of housing conditions and staffing inadequacies (Estabrooks et al., 2020; Hsu et al., 2020). Hsu et al., (2020) emphasized infection prevention and control policies in long-term care homes to avoid future crises in seniors care. Estabrooks et al., (2020) suggests a more pan-Canadian approach to long-term care with policy and funding support.

Women and Unpaid Care Work

While at less risk of experiencing severe symptoms of the COVID virus, research has exposed how women, or those who carry the burden of unpaid care work, have been more adversely impacted by the pandemic (Profeta, 2020). As a result of lockdown measures, women were more likely to lose their job, or have employment considered 'essential', putting them at higher risk of infection. Additionally, in general, women spend more time on household tasks and caring for children than men. During the pandemic, many school closures and shifts to remote learning increased the responsibilities and time spent on childcare (Carli, 2020). Although men's domestic responsibilities increased as well, the burden still largely rested on women's shoulders (Carli, 2020; Profeta, 2020). COVID-19 amplified gender pay and participation gaps, partly due to COVID confinement policies, emphasizing the need for gender-equality initiatives post-pandemic (Profeta, 2020). Emerging data suggests that female leadership was more effective at controlling Coronavirus outbreaks, and Profeta (2020) suggests that women leaders may be influential in introducing equalizing policies moving forward.

Racialized and Minority Groups

Women and the elderly experienced adverse effects of the pandemic due to either increased risk of infection, increased mortality, or policy implications; however, racialized and minority groups often experience the intersection of all these realities. Racial and ethnic minority groups face many health disparities (Obinna, 2021), as well as systemic oppression and disenfranchisement (Wright & Merritt, 2020). The consequence of health inequities is poorer health outcomes,

particularly in the face of COVID-19 (Obinna, 2021). Compared to the White population in the United States, Indigenous people were 2.4 times more likely to die from COVID-19, while Black and African Americans were 2.0 times, and Hispanic and Latinx were 2.3 times at higher risk (CDC, 2021). In England, Aldridge et al., (2020) examined National Health Service (NHS) data to understand the COVID-19 risk of death within Black, Asian, and minority ethnic (BAME) groups from March to April 2020. Adjusting for region, their work discovered that the following minority groups had an increased risk of death: Black African, Black Caribbean, Pakistani, Bangladeshi, and Indian, while white Irish and British had significantly lower risk. These results only capture data collected by the NHS and do not reflect deaths that may have occurred in other settings and were not recorded. Similar disproportionate infection of minorities occurred amongst Black Canadians. Denice et al. (2020) mapped out two spatial distributions in Canada: the number of COVID-19 infections and proportions of Black Canadians per census subdivision. The data visualization allows readers to see where areas with higher proportions of Black Canadians overlap with high COVID-19 cases. Generally, areas with more Black Canadians also observed higher COVID infections, in both highly and less densely populated areas (Denice et al., 2020). These harsh realities emphasize the need to center health policies on social equity (Wright & Merritt, 2020).

In addition to poorer health outcomes, native- and foreign-born racialized groups are often ‘essential’ frontline workers, and thus, are at greater risk of contracting the virus. It is these very workers who maintain the essentials of life, that experience social and economic disadvantages. These historic inequities have become even more glaring during the pandemic. Some ways in which disparities manifest are inaccessible health care, segregation policies, underrepresentation in government and the medical profession, and lacking opportunities for participatory democracy or public engagement (Wright & Merritt, 2020). Tensions stemming from historic and current inequities reached a boiling point during the summer of 2020 following the death of George Floyd, an African American, killed at the hands of white Police officers in Minneapolis. Black Lives Matter protests spilled into the streets across the United States, and around the world, to stand up again racial discrimination. It was a movement against police violence towards Black people, but at its very roots it was (and still is) about social justice. The movement is centered on addressing the inequities in our society that make some groups of people more at risk than others

(Schachter, 2020). COVID-19 has forced society to reckon with the disparities that exist because the well-being of the most vulnerable impacts the well-being of everyone else. Addressing these inequities will enhance future city coping and response capacities, and increase our preparedness in dealing with future risks and pandemics (Sharifi & Khavarian-Garmsir, 2020).

3.1.3 The Urban Environment

Throughout human history, cities have been incubators of various diseases. Some of these infectious diseases have been motivations for significant urban advancements, namely health and sanitation measures. The built environment innately harbours risk factors for infectious diseases and adaptations must be made to reduce these risks. For an airborne pathogen like COVID-19, risk factors include crowding (but not necessarily density), "disparities due to poverty and racism, poor indoor air circulation, and ambient air pollution." (Frumkin, 2021, p. 075001-1). These risk factors are built into the urban environment, but as we have learned in history, these factors can also be built out of cities.

Niu et al. (2021), found that COVID-19 cases in Wuhan, China were homogeneously distributed in middle-aged and younger populations, but clustered in older adults. This clustering was largely a result of elderly adults living in central areas and visiting destinations within proximity to their home. Whereas younger adults were more evenly distributed in the community and traveling further distances, mainly commuting to work. However, elderly case clustering was also a reflection of built environmental factors. Environmental elements like urban facilities (shopping areas), open green spaces, and bus stops have distributional impacts on viral infection, depending on age category. Open green spaces were points of elderly congregation, whereas bus stops were points of congregation for younger adults. This body of research calls for consideration as to how the built environment facilitates viral infection in different age groups, and how to learn from this to mitigate future risks (Niu et al., 2021).

Frumkin (2020) also discusses the lessons and long-term implications of COVID-19 on the built environment. Their work identifies some adaptive responses as potential long-term consequences: improved indoor and outdoor air quality, shift to teleworking, re-envisioned streets and how they are used, changed transportation mode share (need to support public

transportation), increased value of natural and urban green spaces, and population shifts from cities to exurbs (far suburbs) and rural areas (Frumkin, 2020). While it is hard to predict the long-term consequences of COVID-19 on the built environment, more research is needed to understand how this viral infection will continue to impact future city planning and development.

3.1.4 Mobility & Transportation

Intra- and inter-national travel permitted COVID-19 to evolve into a global health emergency. In March 2020, Wu et al. predicted that if not managed quickly and effectively, COVID-19 would become an international pandemic – they were correct. Their research detected that localized outbreaks occurred in various Chinese cities and they stated that "large cities overseas with close transport links to China could also become outbreak epicenters" (Wu et al., 2020, p. 689). These overseas cities were conduits for the virus to expand to other local areas (Sharifi & Khavarian, 2020). Within a matter of months of the initial outbreak in China, almost every country on the planet was confronted with this viral threat.

To minimize the growing viral sprawl and avoid community spread, governmental agencies introduced significant mobility restrictions, in combination with confinement orders and health measures (Hale et al., 2021). Pandemic policies included closure of workplaces, educational institutions, non-essential amenities and services, indoor social spaces, and in some cases, outdoor parks and natural spaces (Hale et al., 2021; Haug et al., 2020). Such measures were introduced to reduce personal activities and minimize contact with others (Haug et al., 2020; Oh et al., 2021; Sharifi & Khavarian, 2020). These measures, in addition to stay-at-home orders (shelter-in-place), banning of social gatherings, and curfew orders, meant that people could not and did not have many reasons to leave their home (Haug et al., 2020).

Mobility restrictions dramatically impacted how and why people moved around their communities. Oh et al. (2021) investigated how mobility restrictions impacted COVID infection rates in OECD countries, plus Singapore and Taiwan. Their research confirmed that at the onset of the pandemic, reduced mobility was correlated to a reduction of new COVID-19 cases with a minimum of 20-40%. This effect was only observed at the beginning of the pandemic and became non-significant as restrictions were eased, or new measures were normalized. Their work

emphasizes that mobility restrictions are a critical tool to prevent and mitigate early spread of infectious disease (Oh et al., 2021).

Automobile Traffic

Decreases in mobility translated to unprecedented reductions of vehicular traffic. Liu and Stern (2021) found a traffic reduction of nearly 50% in the Minneapolis-St. Paul region because of COVID-19 realities and partial stay-at-home orders. Furthermore, Chen et al. (2021) reviewed multitemporal planet satellite images of five international cities to assess whether vehicular traffic volumes were impacted by the pandemic. Their work revealed that traffic densities significantly declined due to the pandemic and local policy interventions (Chen et al., 2021). As a result of decreased vehicular traffic in Chinese cities with lockdown policies, air quality improved and there were reductions of atmospheric particulate matter (He et al., 2020). Venter et al., (2020) noted a decrease of nitrogen dioxide by 60% and 31% of particulate matter in 34 different countries. The research links the declines of global vehicular transportation to reductions of nitrogen dioxide and highlights the significance of the transportation sector to air pollution and global health risk (Venter et al., 2020).

Public Transportation

Public transportation also experienced a dramatic decline during the COVID pandemic. At the onset of the global outbreak, public transportation was considered as a vector for viral spread, and in certain cities, service was restricted or discouraged (Gutiérrez et al., 2020; Sharifi & Khavarian, 2020). This perception of risk is also reflected in the Oxford Coronavirus Government Response Tracker (OxCGRT), which maps policy responses to the pandemic. One of the indicators tracked under the 'International and domestic travel' category is 'Public Transport', which maps policies on public transportation closures (Ritchie et al., 2020). As a result of this messaging and generalized anxiety, public transportation ridership was dramatically impacted by the pandemic. Rasca et al. (2021) conducted case studies of small and medium sized cities in Norway and Austria to understand how public transport ridership was affected by COVID-19. All locations observed decreased ridership; however, the length and severity of the pandemic, as well as confinement controls impacted people's willingness to use public transportation (Rasca et al., 2021). In New York, both the subway and bikeshare systems experienced substantial declines at the onset of the pandemic. Initially, the subway witnessed a

95% reduction of passengers and gradually returned to 30% pre-pandemic numbers by September 2020 (Wang & Noland, 2021). Public transportation in cities across the globe experienced significant declines in ridership and must now navigate how to move forward into the post-COVID era.

Active Modes: Walking and Cycling

While vehicular traffic and public transit ridership dropped at the onset of the pandemic, active modes such as walking and cycling experienced an uptick. Early in the pandemic, the World Health Organization encouraged people to ride a bicycle or walk when moving around because it allowed physical distancing and helped achieve required physical activity (WHO, 2020b). Mobility data from 10 cities in the United States during the first wave concluded that utilitarian walking declined but recreational walking recovered and even surpassed pre-COVID rates in some cities (Hunter et al., 2021).

Furthering expanding on the research in New York by Wang and Noland (2021), they observed that bikeshare usage decreased by 70% at the beginning of the pandemic but recovered pre-COVID rates shortly after. Their research suggested the while public transport was severely impacted, "bikeshare systems add to the resilience of transportation systems" (Wang & Noland, 2021, p. 270). Uptake of personal cycling is further confirmed by Kraus and Koch. Their research collected data from 736 bicycle counters in 106 European cities to determine that cycling rates increased between 11 and 48% on average (Kraus & Koch, 2021). In Canada, 2020 cycling rates decreased by 7.5% during the week, but increased by 28% on the weekends, in comparison to the previous year. This rate continued to hold strong into the winter months of 2020, as Canadian cycling averages increased by 29% in the last 12 weeks of the year (Eco-Counter, 2020). As strict stay-at-home measures were gradually lifted, cycling and walking became popular ways for people to get around.

3.2 Street Reallocation

To accommodate the new public restrictions and shifting patterns of travel and use of public space, cities began introducing 'street reallocation' measures. These measures essentially took

automobile road space and gave it to other mobilities such as walking, cycling, and various forms of rolling (Firth et al., 2020a; Fischer & Winters, 2020). Street reallocation accommodated social distancing requirements by giving more room for active transportation, exercise, time outside (Firth et al., 2020a), socializing, and visiting shops and restaurants (FCM, 2020a).
At the onset of the pandemic, many cities were looking to each other for inspiration and ideas. Eventually, design guidelines were created to assist cities wanting to implement new road space interventions. Some examples of design guidelines include:

NACTO Streets for Pandemic Response and Recovery

This NACTO document was created to inform cities and their partners on how to implement 'street strategies' to accommodate the challenges of COVID-19. Strategies include different types of street interventions, navigating transit conflicts, pick-ups and deliveries, and even streets for protest or voting (NACTO, 2020b).

Federation of Canadian Municipalities (FCM) Street Rebalancing Guide

The *Street Rebalancing Guide* instructs "how to temporarily redesign streets to ensure physical and mental health, safety, and well-being". The document is aimed at decision-makers and practitioners to guide them on how to 'rebalance streets' for socially distant commuting, commerce, and exercise. It provides strategies and practical guidance for applications during the three phases – rapid, recovery, and resilience — of COVID-19 response. The guide suggests the following considerations for rebalancing streets:

- Gaps in active transportation network
- Equity and marginalized communities
- Universal accessibility
- Narrow sidewalks
- Proximity to parks and green/open space
- Proximity to health care facilities
- Essential businesses
- Access to transit

These considerations can be factored into the 10 response strategies that communities can implement:

- Full street closure
- Shared streets
- Temporary pedestrian lanes
- Temporary bike lanes

- One-way multi-use pathways
- Curbside queuing area
- Separated bicycle and pedestrian pathways
- Priority loading areas
- Pedestrian pushbutton automation
- Temporary parklets and patios

The *Street Rebalancing Guide* informed the creation of typologies used for this study, and the design guideline will be referenced throughout this thesis (FCM, 2020a).

3.2.1 Street Reallocation from around the world

Examples of street reallocation initiatives can be found across the globe. According to the WHO, as of July 2020, at least 92 cities in 20 countries had installed street reallocations to create dedicated road space for walking and cycling while social distancing (WHO, 2020c). The following examples were demonstrations that informed design guidelines and other cities looking for innovative ideas.

Bogotá, Colombia

The first city to move on reallocating road space was Bogotá, Colombia, which became an example for the rest of the world. Building on the capital's existing 550km bicycle network, the city added 84km of temporary lanes in March and April of 2020. See Figure 3.1 for a map of the expanded bicycle network. The new lanes boosted the city's cycling ridership from 8% to 16% within the first summer. In addition, workshops were offered to those riding a bicycle on how to safely use the bike lanes and prevent the spread of COVID-19. The expanded Ciclovías enabled residents of Bogotá to choose an active, sustainable way of getting around, while helping to alleviate air pollution and viral contamination. Thanks to their long-standing experience with Sunday Ciclovías, Bogotá was well poised to adapt the streets to the COVID-19 pandemic (WHO, 2020c).

FIGURE 3.1. MAP OF BOGOTÁ'S TEMPORARY EXPANDED CICLOVÍA. SOURCE: @CARLOSFPARDO - TWITTER

Milan, Italy

The Italian city of Milan and the surrounding region of Lombardy were hit hard during the first wave of the pandemic. In response to the pandemic and as an effort to avoid a return to automobile congestion, Milan announced a plan to convert 35km of streets into pop-up bicycle lanes, improved and widened sidewalks, reduced speed limits to 30km/hour, and allocated pedestrian and cyclist priority streets. The Strade Aperte plan was announced in April 2020 and implemented over the summer. Officials state that the plan is an effort to reimagine how city streets function and create a new path forward post COVID-19 (Laker, April 21 2020).

Oakland, The United States

Another street reallocation strategy common in North America was to create Slow Streets. The City of Oakland, California implemented 21 miles (34 km) of Slow Streets in April through June of 2020 and later added intersection improvements at 21 'essential' locations. The program was intended to alleviate crowding of parks and green spaces, as well as encourage physical activity through various neighbourhoods in the city. Streets featured "soft closures" of barriers and signage indicating that they were restricted to local only traffic. The city also collaborated with

an artist and community members to create aesthetically pleasing and culturally appropriate signage (Oakland, 2021). However, some of the Slow Streets were met with strong opposition in certain neighbourhoods. While being warmly received amongst white, able-bodied and affluent residents, slow streets were met with more scepticism and disapproval amongst people of colour, low-income, and disabled folks. Criticisms were raised over lack of community consultation and mixed messaging, for example being told to stay home yet opening streets for activity (Bliss, January 6, 2021). In response to criticisms, the city began working with community partners to begin evaluating each slow street and deciding if it required updates or removal (Oakland, 2021).

FIGURE 3.2. OAKLAND SLOW STREET. SOURCE: CITY OF OAKLAND

Paris, France

Perhaps the most impressive and long-term (resilience strategy) European street alterations occurred in Paris. Before COVID-19 struck, Paris mayor Anne Hidalgo had vowed that every street in Paris would become bicycle-friendly by 2024. Since her election, Hidalgo had struggled to convert the Seine waterfront into a pedestrianized zone. When the world entered a global health emergency, Paris expedited it's "Plan Vélo" with €300 to accelerate a network of nine protected cycleways following metro rail lines into suburban communities, as well as temporary

'Corona cycleways' (Reid, 2020). Some of these temporary cycleways were installed in December of 2019 in response to a transit strike and initiated an increase in cycle ridership. However, the continued dramatic rise of people turning to cycling occurred over the pandemic. According to a survey conducted by the Île-de-France regional government, six in ten people travelling on the new bikeways were new to cycling. This increase is most notable amongst women, elevating the gender representation from 36% pre-COVID to 41% in the summer of 2020. The rapid deployment of additional temporary lanes was the product of an already-in-place initiative to create a 15-minute city, or 'une ville quart d'heure', to improve the living conditions for residents (Macmicheal, Feb 4, 2021). It was precisely these previous efforts that made Paris an international leader when the Coronavirus pandemic struck and demonstrates the importance of road flexibility when responding to crisis events.

FIGURE 3.3. IMAGE OF TEMPORARY CYCLEWAYS ON RUE DE RIVOLI IN PARIS. SOURCE: @BRICEPERRIN - TWITTER VIA FORBES

3.2.2 Canada in Context During COVID-19

Canada is an urban country. In 2019, 81.5% of Canada's population lived in urban settlements (Statista, 2021). Thus, when COVID-19 eventually made its way to Canada, decision-makers across the country needed to decide how to best accommodate public health measures and adapt to new transportation trends. To assist local governments, the Government of Canada provided additional funding through the Investing in Canada Infrastructure Plan (ICIP). ICIP provides $33-billion of funding to provinces and territories through a bi-lateral agreement to support four targeted funding streams: public transit; green infrastructure; community, culture and recreation; and rural and northern communities (Government of Canada, 2021a). At the onset of the pandemic, a fifth stream was created – the COVID-19 Resilience stream – that allowed provinces to allocate 10% of funding from each stream into the COVID stream and the government would match that with 80 cents to every 20 cents contributed. Funding in the resilient stream was designated for helping communities adapt to COVID, which included temporary bicycle and pedestrian infrastructure. Unfortunately, party divisions and political games complicated municipal access to funding. ICIP is a federal initiative from the liberal government and is managed by provincial governments; so, some conservative provincial governments prevented municipalities from accessing the full amount of funding available (Federal official, research interview, February 24, 2021). In response to this challenge, the federal government established the Canada Healthy Communities Initiative (CHCI) and the National Active Transportation Strategy.

Canada Healthy Communities Initiative (CHCI)

The Canada Healthy Communities Initiative was launched in February of 2021 in partnership with the Community Foundations Canada and the Canadian Urban Institute. The fund is a $31 million investment to adapt public spaces in response to COVID-19 and is directly available to local governments, charities, indigenous communities, and non-profits. Direct funds help support creating safe and vibrant public spaces, improve mobility options, and provide innovative digital solutions (CFC, 2021).

National Active Transportation Strategy

In early March 2020, before COVID-19 had become a health emergency in Canada, the federal government announced that it would develop a National Active Transportation Strategy. This

plan was understandably pushed to the sidelines during the pandemic. Then in February 2021 the government declared a $14.9 billion public transit fund, of which $400 million was allocated to the Active Transportation Fund, solely for supporting AT projects in communities across Canada. Following national consultation in collaboration with Vélo Canada Bikes, Canada's National Active Transportation Strategy 2021-2026 is now live. Funds are available directly to municipalities, Indigenous communities, provinces and territories, and not-for-profits (Government of Canada, 2021b). While funds weren't available immediately during the second summer of COVID, the strategy and funding will be available for communities to continue building on COVID initiatives.

During the summer of 2020 and 2021, the Government of Canada made funding available to communities to adapt their streets and introduce more active mobility initiatives. There are funds in place to continue developing the initiatives that first began during the pandemic and help communities be more adaptable to future situations.

3.3 Natural Experiment

COVID-19 provided a once-in-a-lifetime opportunity to watch a global experiment unfold before our eyes, in real-time. Not only did it allow researchers and policy makers to track the impacts of lockdown measures, but the associated health impacts of such policies. Natural or quasi-natural experiments have long been used to evaluate public health interventions or events and inform evidence-based policy making (Petticrew et al., 2005; Vocht et al., 2021). Similar to observational studies, the researcher of a natural experiment does not influence study controls, exposure, or allocation, rather, natural variations occur. Reported challenges with natural experimental design include complex interventions making comparability challenging, diverse study populations, and lack of control of intervention (Petticrew et al., 2005). Despite these challenges, Vocht et al. (2021) argue that natural experiments should be considered a type of study design rather than a tool for analysis of non-randomized experiments. Natural experiment studies (NES) possess unique benefits over traditional designs and allow evaluation of system change that could not be manipulated experimentally, examples of which include "large events, pandemics and policy change" (Vocht et al., 2021, p. 2). Furthermore, they allow for

retrospective evaluation and to examine variation in exposure through ‘as-if randomization’, which refers to how exposure allocation is not manipulated by the researcher and is essentially random (Vocht et al., 2021). Petticrew et al. (2005) attest that natural experiments contribute to a better understanding of social determinants of health inequities and can help to identify effective interventions.

Viewing COVID-19 as a global natural experiment can allow researchers to observe how street reallocation interventions impacted community health. Furthermore, because these measures were adopted in a variety of cities, in diverse socio-economic neighbourhoods with unique histories, and each embarked upon their own decision-making process, researchers can understand how street reallocation performs as a public health intervention, and how this can inform evidence-based policy making in the future.

4 Methodology

To understand how and why Canadian cities responded to COVID-19 with street reallocation measures, I conducted a qualitative investigation utilizing semi-structured interviews. Ten Canadian cities were selected for interviews with city officials and active transportation advocates, as well as a national active transportation advocacy group and a federal politician. A coding framework was created to apply thematic coding and pull out the data trends and nuances. Section 4.1 will outline why the research design was selected, section 4.2 will describe how data collection occurred, section 4.3 will detail the data analysis process, and finally, section 4.4 will reflect on my positionality within this work.

4.1 Research Design

Since the COVID-19 pandemic occurred in real-time during the data collection period of April 2020 to May 2021, I needed a method that would provide flexibility and adaptability to the continuously evolving circumstances. In the fall and winter of 2020-2021, Canadian provinces introduced restrictions on inter-provincial travel, and here in Montreal, a nighttime curfew. This meant that I was not legally allowed to travel to any of my study sites and collect research data in-person.

In the end, online semi-structured interviews were the best option to explore the research questions, while also getting a glimpse into the local context. As Galletta and Cross explain, "semi structured interviews allow for the exploration of the lived experience as narrated in the interview in relation to theoretical variables of interest" (2013, p. 9). Through this methodology I investigate how and why cities implemented street reallocation measures, while also making space for interviewees to self-direct and reflect on their community. In addition, the pre- and post-interview communication with participants allowed for clarification and follow-up questions, as well as updates on the changing municipal circumstances.

The COVID-19 street reallocation experience was multifaceted and complex. Not only were individuals' experiences shaped by their own personal circumstances, but the decisions of the elected officials and administrative staff. Often, many of these city decisions were influenced by outside actors like AT advocates, who had been pushing for street reallocation measures pre-COVID. For these reasons, I chose to interview both a city official and an AT advocate from each community. I selected city officials because I wanted insight into the institutional decision-making process as to how and why measures were taken (or not). I also chose to speak with advocates because these people are on-the-ground observers and intimately familiar with transportation challenges that their community faces. These people used the COVID street reallocations and could speak to how they worked, their challenges, and who they were or weren't serving. Additionally, I wanted to inform the work with a comprehensive national perspective from those who monitor national trends: a federal official and national AT advocacy group. In total, I conducted 21 online interviews over a span of four months.

When analysing the data, I followed a coding framework, applying thematic coding to uncover the technical trends, but also the nuanced narratives arising. From this work I could describe how cities responded, but also dig deeper into the broader trends that influence city decisions and social norms, as well as the lessons for city makers that came out of this experience and what this speaks to more broadly.

4.2 Data Collection

My research relied on two data sources: secondary data from existing open-sourced databases, and primary data from stakeholder interviews. The online public databases were instrumental for selecting my study sites, and in some cases, contacts for interview participants. Online resources were also integral for establishing an appropriate COVID-19 Street Reallocation Typology for this investigation. The following is a detailed account of how I collected my research data.

4.2.1 COVID-19 Street Reallocation Online Databases

At the onset of the pandemic in March 2020, multiple organizations and research groups began tracking transportation related COVID-19 response measures. These online, open-sourced

inventories allowed city staff, advocates, academics, and members of the public to describe how their community was responding to the pandemic. Measures were categorized, according to the database creator, and details such as location, measure, implementation date, media sources, additional notes, and sometimes contact information were compiled. The purpose and contents vary from one database to the next, but generally describe street reallocation measures. While each database had their own unique approach to capture global trends, I was able to corroborate sources to confirm measures and select study sites. I referenced the following four databases:

- **National Association of Transportation Officials [NACTO]: City Transportation Actions Updates**

  This Google spreadsheet documents COVID transportation response measures between the period of March to August 2020. Measures were sorted into the following themes: Maintain Transportation System, Maintain the Transit System, Support Ops & Remote Staff, Address Delivery & Pick-up, Relieve Crowded Areas, Create Clear Messaging & Outreach, Support Unsheltered & Vulnerable, and Administration & Budget Impacts. The document permissions were set to editing so that anyone with the link could contribute information. I was able to use the filter option to focus on the measures taken within Canadian cities and track these as the spring and summer progressed. While the database had extensive information, I found the breadth to be beyond what my research specifically needed. I mainly used this document to track measures around the globe and to later verify Canadian measures. (NACTO, 2020)
  https://docs.google.com/spreadsheets/d/1xBf6gMAwNSzNTr0-CbK_uTA0ZapWGiOP58Dfn6qeC6Y/edit#gid=1511672872

- **Vélo Canada Bikes: Canadian Cities Open Streets for Active Transportation**

  This initiative began in spring of 2020 by Vélo Canada Bikes (Canada's national AT advocacy group) as an effort to track new AT facilities being implemented across Canada. The dataset was open-sourced so anyone could contribute information, but members of Vélo Canada Bikes would verify to ensure data accuracy. The site was active during the spring and summer of 2020 but has since been cataloged and is no longer available to the public. I used this document to follow Canadian open streets efforts and compare with other data sources. (Vélo Canada Bikes, 2020)

https://www.canadabikes.org/canadian-cities-open-streets-for-active-transportation/ [archived]

- **Mike Lydon's COVID-19 Livable Streets Response Strategies**
  Mike Lydon, who helped write the NACTO *Streets for Pandemic Response and Recovery* (NACTO, 2020), created this database in the spring of 2020. I first became aware of it through Twitter threads, but it was also cited as a further reference on the Pedbikeinfo database. Response measures are categorized as the following: open streets (full opening/closing to vehicular traffic), open curbs, slow streets, temporary bikeways, and intersections (signal changes). The response typologies in this database closely resemble that of the FCM *COVID-19 Street Rebalancing Guide*, thus I used this document to guide my site selection process. The database also ranks the 'Top 20' international measures according to the proposed/existing mileage of response facilities. In this ranking, Montreal is listed as second, Vancouver as fourth, and Toronto as twelfth. (Lydon, 2020) https://docs.google.com/spreadsheets/d/1tjam1v0NLUWkYedIa4dVOL49pyWIPIyGwRB0DOnm3Ls/edit#gid=0
- **Pedestrian and Bicycle Information Center [Pedbikeinfo]: Local Actions to Support Walking and Cycling During Social Distancing Dataset**
  Led by Professor Tabitha Coombs at the University of North Carolina Highway Safety Research Centre, this database is the first iteration of a comprehensive international COVID-19 mobility and public space inventory. The database was created to track international measures, but also as a reference for communities looking to support mobility and social distancing. Information included: city, country, action type, description, date announced, status, comments, primary news source, and contact info. Action types contained 27 classifications, with the four main types as: filtered/banned non-local traffic, implemented shared streets, reallocated outer lane/curb space, and closed streets to motor vehicles. People wanting to contribute information to the dataset needed to submit a form to the Pedestrian and Bicycle Information Center, which provided more reliability of this data source compared to the open source databases. For this reason, I primarily relied on this data source for site selection and to help verify other databases. Figure 4.1 is an image of the Pedestrian and Bicycle Information Center's

database, for reference. (Coombs, 2020)
http://pedbikeinfo.org/resources/resources_details.cfm?id=5209

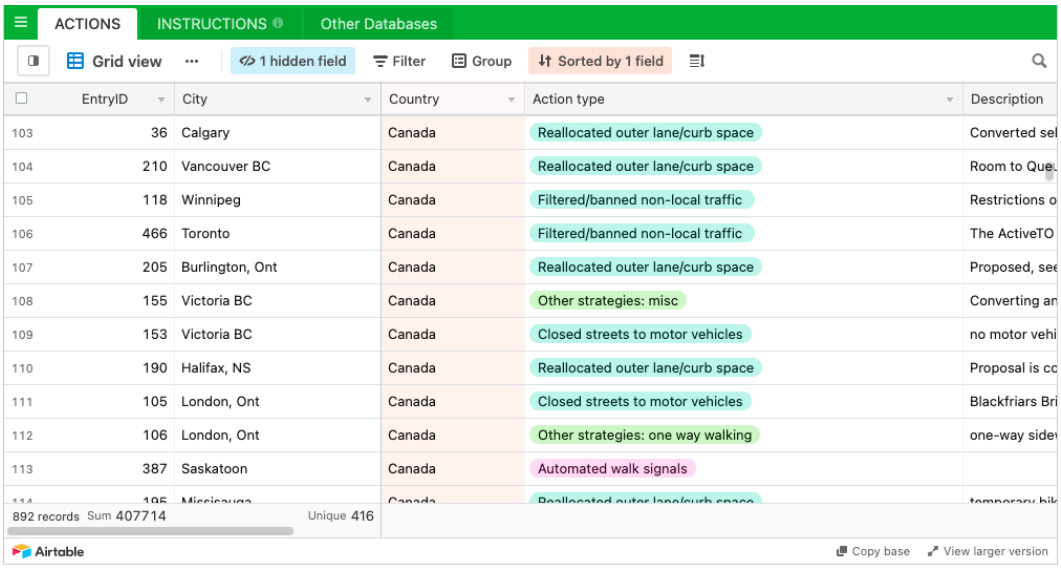


FIGURE 4.1. PEDBIKEINFO.ORG COVID-19 STREET REALLOCATION ONLINE DATABASE

4.2.2 Site Selection

As the COVID-19 pandemic continued to evolve from the spring into the summer of 2020, some Canadian cities announced new or expanded street reallocation measures. During this time, I monitored online databases, followed COVID transportation themed Twitter threads, attended various urban planning and community building webinars, and read various articles on the topic. My efforts connected me to the global conversation on COVID-19 responses, case studies and how they were working, and the challenges that many cities were facing during this time. In addition, I also worked part time over the summer of 2020 installing bicycle and pedestrian counters around the city of Montréal, which allowed me to make on-the-ground observations about how the public was interacting with the city's new COVID facilities. This position allowed me to draw parallels between site observations and global conversations around street reallocation measures.

Since the pandemic was continuing to develop over the summer months and then again into the winter season, I closely monitored the Canadian situation while narrowing down my research focus. In the fall of 2020, I compiled all my notes and corroborated the databases to create my own comprehensive Canadian street reallocation spreadsheet. This list was the backbone for my site selection and was eventually narrowed down to 10 sites, see Figure 4.2 for reference. The following is my criteria for selecting study sites:

- **Geographic distribution across Canada**

  My research needed to be representative of Canada and its various regions of Canad. This meant choosing cities on the East coast, West coast, southern Ontario, Québec, and the Prairies. The only region that is missing is the territories because I could not find an example from there.

- **City population size**

  It was imperative that my study sites reflected the different kinds of cities that people live in across Canada. Recognizing that the three largest cities – Toronto, Vancouver, and Montréal – had many response measures, I felt it was also important to showcase examples from smaller cities which implemented one or a few measures. These cases were important to me because many of these cities did not have as much experience with street reallocation projects, both from the internal and general public perspective. Including this diversity of city size helped ensure that my work would resonate with a larger audience. Small city was the lowest scale I could examine because, generally speaking, towns and more rural places did not have street reallocation responses to COVID. Thus, I selected highly urbanized large cities with dense downtown cores, to mid and small sized cities with less downtown centric development.

- **Urban design and transportation network**

  I also felt it was important to feature different kinds of urban design and transportation networks. As mentioned in the above section, large cities tend to have downtown centric transportation networks, while smaller to mid-sized cities have a less pronounced version of this urban design. I wanted to include older cities with non-grid street patterns and narrow right-of-ways (like Halifax); while also including newer cities with broad streets and expansive development (like Calgary); and smaller and suburban cities that do not design their transportation networks to funnel downtown (like Kelowna or Brampton).

Including a variety of urban morphologies allowed me to explore if and how the physical environment influenced response measures.

- **Familiarity with active transportation and tactical urbanism**
  Regardless of the chosen study sites, each city has its unique history, experience, and expertise in implementing AT facilities and tactical urbanism projects. I wanted to include cities with both existing AT networks and experience with tactical urbanism, as well as cities that had no experience with these types of projects. The contrast, and everything in between, could provide insight into institutional decision-making and capacity.
- **Diversity of response measures**
  It was integral that the study sites demonstrated a variety of response measures, according to the Federation of Canadian Municipalities *COVID-19 Street Rebalancing Guide* (FCM, 2020a). From this variety, we could examine each measure in detail and then compare and contrast to gain a deeper understanding.
- **Include a city with no reallocation measures**
  Furthermore, I also felt that it was important to speak with a community that chose NOT to implement response measures so that I could examine the decision-making process and justifications behind this outcome. In addition, this could allow me to compare the process with other cities and gain a deeper understanding of what happened in all Canadian cities during the spring and summer of 2020.

In the end, my study sites consisted of:

1. Halifax, Nova Scotia
2. Montréal, Québec
3. Ottawa, Ontario
4. Toronto, Ontario
5. Brampton, Ontario
6. Winnipeg, Manitoba
7. Regina, Saskatchewan
8. Calgary, Alberta
9. Kelowna, British Columbia
10. Vancouver, British Columbia

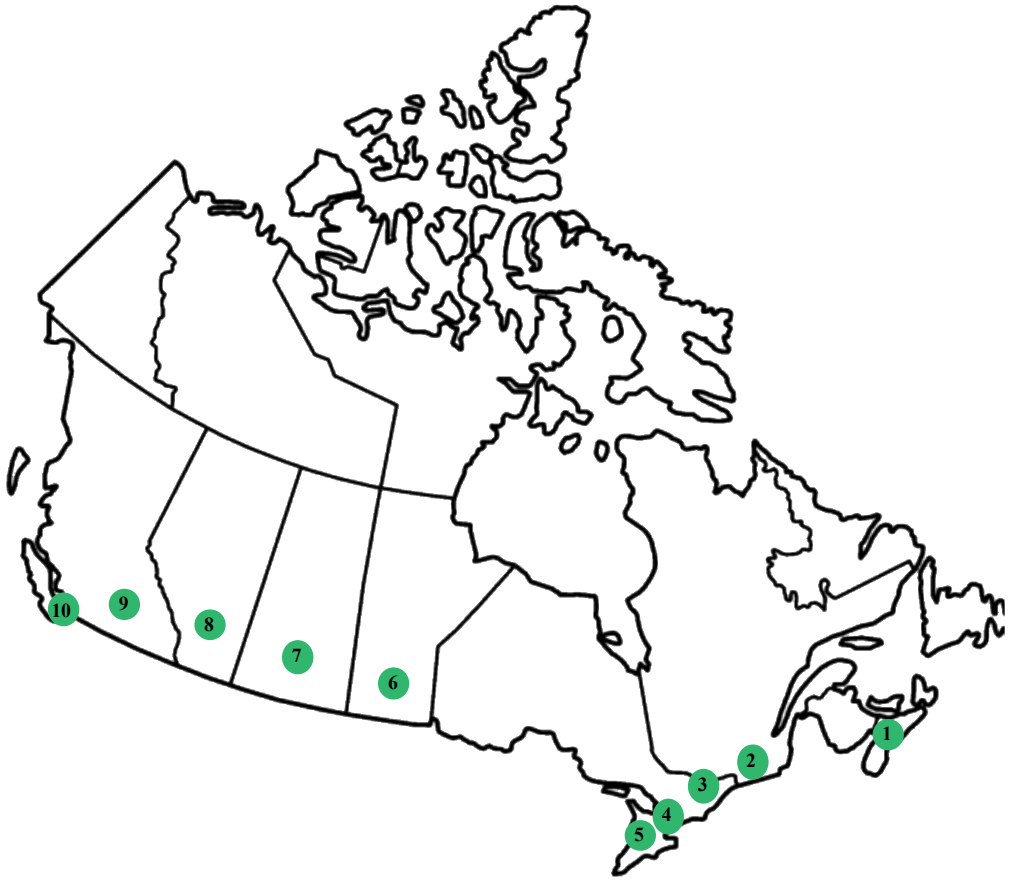


FIGURE 4.2. MAP OF 10 STUDY SITES ACROSS CANADA. BY AUTHOR.

4.2.3 COVID-19 Street Reallocation Typology

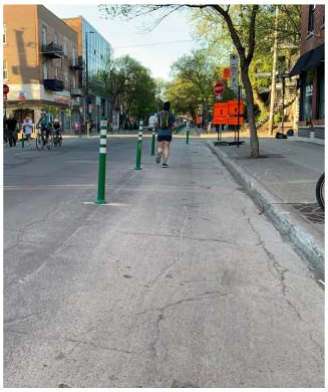
As previously mentioned in Section 4.2.2, study sites were selected to represent a diversity of response measures. Serving as the basis of response classification and categorization, the Federation of Canadian Municipalities [FCM] *COVID-19 Street Rebalancing Guide* informed the creation of a COVID-19 response typology for this study. The *COVID-19 Street Rebalancing Guide* identifies 10 different response strategies in its toolkit to assist communities in their approach. They include:

1. Full Street Closures
2. Shared Streets
3. Temporary Pedestrian Lanes
4. Temporary Bicycle Lanes
5. One-Way Multi-Use Pathways
6. Separated Bicycle and Pedestrian Pathways
7. Curbside Queuing Areas
8. Priority Loading Areas
9. Pedestrian Pushbuttons Automation
10. Temporary Parklets and Patios

It is worth noting, that the *COVID-19 Street Rebalancing Guide* was published in June of 2020, thus, the response strategies listed in the guide are based on first-mover city examples and early pandemic circumstances, which included strict lockdown measures. As the collective understanding of the virus evolved, cities had more time to implement and adapt their response approaches to the changing pandemic realities. For example, the City of Montréal introduced curbside queuing areas along Mount Royal Avenue in April & May of 2020 but beginning in June they converted Mount Royal to a full street closure to provide more space for people to get around and support local businesses.

Thus, I adapted the FCM response strategies into a COVID-19 street reallocation typology that suited the research questions of this study. Measures included in this typology were common in Canadian cities and focused on helping people move around their communities. While the list is appropriate for this study, it is not an exhaustive list of all summer 2020 COVID response measures. This typology is mainly based on measures that were emphasized in interviews and some measures may have been missed or underscored in conversations. Additionally, temporary parklets and patios are mentioned when they were in conjunction with other street reallocations, but they are not a major focus of this study. See Figure 4.3 for the final COVID-19 Street Reallocation Typology for this study.

Street Reallocation COVID-19 Typologies



1. Sidewalk Extensions
Source: Author

2. Loading Zone
Source: Toronto.ca

3. Pop-up Bike Lanes
Source: Author

4. Shared/Slow Streets
Source: Author

5. Total Road Closure
Source: Author

6. Traffic Signal Changes
Source: @DowntownKelowna

FIGURE 4.2. STREET REALLOCATIONS COVID-19 TYPOLOGIES.

4.2.4 Stakeholder Interviews

Primary data for my research came from semi-structured stakeholder interviews. Interviews were conducted online using either Zoom or Microsoft Teams, depending on what program the interviewee was more comfortable with. In total, I conducted 21 interviews with city administration staff (urban planners, engineers, and management), elected officials, and active transportation advocates (some paid staff, but mostly volunteers). Typically, interview duration was between 1 - 1.5 hours long, with the longest being 3 hours. Interviews were recorded and securely saved on the McGill server for later analysis.

Participant Recruitment

After identifying which cities would be studied, I needed to find a willing participant from the city administration or elected official and a local AT advocate. Generally, it was easier to recruit advocates than it was city officials. When identifying prospective interviewees, I first relied on my own personal network or snowballing within this network. If this approach wasn't successful, then I would contact the publicly available email either for the advocacy group or a municipal department, this worked more with advocacy groups. If I didn't receive an email response, then I would search and contact people directly through either Twitter or LinkedIn. In some cases, cities were included because I was provided a contact for someone even before deciding to include that city in the study – the serendipitous nature of COVID research provided me new opportunities.

In some cases, the research contact would request that one other person join the conversation. In these cases, I spoke with both stakeholders at the same time. This occurred in conversations with city officials, local advocacy groups, and the national advocacy group.

Semi-Structured Interviews

According to Galletta and Cross, semi-structured interviews "offer great potential to attend to the complexity of a story in need of contextualization" (2013, p. 9). My research participants were the storytellers to inform me of the local context and fill in the knowledge gaps. The process of semi-structured interviews offered the versatility to present questions according to phenomena theme, while also following the lived experience and knowledge of the participant (Galletta & Cross, 2013). I had arranged my questions according to theme and would begin at the same starting point for each conversation but would follow the lead of the informant to further explore areas of their expertise. In practice, this meant asking follow-up clarification questions, challenging responses, and encouraging critical reflection.

During the interviews I took notes of key statement, subtle non-verbal communication from the interviewee, and anything else worth noting. I would later refer to these notes when transcribing and analyzing my data (Cope, 2016). I also made notes to myself about how to improve my question flow and precision for future interviews, as well as ideas for codes.

My interview questions were consistently organized according to key research themes, but I created four interview guides tailored to each stakeholder type. Please reference Appendix A for the detailed interview guides. The interview question themes were:

- Measures: what measures were implemented?
- Planning & Decision-Making: what was this process, internally and externally?
- Motivations & Justifications: what were they?
- Implementation: what was the installation process and what materials were used?
- User Experience: what was it like for the users and did it impact their travel patterns?
- Compare: how did this experience compare with non-COVID street reallocation projects?
- Results: was it successful and how do you define success?
- Future: what are the lessons from this and how does it impact future urban mobility?

4.3 Data Analysis

Research analysis is "locating and labeling thematic patterns, which reflect ideas evident in the data" (Galletta & Cross, 2013, p. 122). My research interviews offered rich insight into what, how, and why street reallocation response measures were implemented in each community, as well as the deeper political, social, and economic factors at play. To untangle the various threads that came up during my interviews, I needed to conduct a thorough and consistent analysis. The first step of my data analysis process was to transcribe all my recorded interviews into text, the second was to thematically code the transcripts, and lastly to interpret the results in an accurate and consistent manner. The following is a detailed description of how I conducted these steps.

4.3.1 Transcription

Since all interviews were conducted using online platforms, I was able to record the conversations, with the permission from participants. Video recordings were then uploaded to the program Otter.ai, an automated transcription program. Using Artificial Intelligence (AI) technology, Otter creates a text version of the recording. While the AI technology is mostly accurate, it is not perfect, and some text was misinterpreted. Thus, I needed to go through each interview transcription while listening to the audio content to edit automatically generated text

errors or gaps. While doing so, I was able to create my own notes in the transcripts for later reference. Furthermore, this process of listening, editing, and note taking greatly assisted me in the beginning of my comprehension and synthesis of the results. The finished transcripts were ready to export as a word or PDF file for further analysis.

4.3.2 Thematic Coding

Once my conversations had been translated to text, I needed to begin the coding process to decipher the trends and nuances embedded in the text. Coding is the "assigning of interpretive tags to text based on categories or themes that are relevant to the research" (Clifford et al., 2016, p. 45). This coding process identifies the categories and patterns that are present, but also the intersections of these trends and a deeper understanding of the information (Clifford et al., 2016). My coding framework consisted of a hybrid of a priori and in vivo thematic coding. A priori coding identifies thematic coding before the data collection begins, which is informed by existing literature and the research questions. In vivo coding is descriptive in nature and an iterative process that continuously verifies if the a priori themes reflect the emergent trends in the data and adds or adapts themes as analysis progresses (Clifford et al., 2016; Cope, 2016; Dedoose Support, 2013). I adopted this hybrid model because the coding structure is 'circular', requiring researchers to continuously revisit and reconsider their coding framework (Clifford et al., 2016). I used the computer program Dedoose to embellish my coding framework and to code the transcripts.

Coding Framework

The foundation for my a priori themes or categories were my research questions, which also shaped the creation of my interview questions. These fundamental questions organized my interview flow and structured my coding framework. Once I identified the initial coding framework, I asked my supervisor and colleagues who were familiar with my work to review my coding structure. The original coding framework consisted of:

- Response measures
- Decision-making process
- Implementation
- Motivation and justifications

- Barriers and issues
- Lessons and take-aways

After identifying these main themes, I was able to elaborate by identifying hierarchical parent and child codes. The codes were informed by the existing body of research related to street reallocated and my COVID secondary data collection efforts. As the coding framework moved away from deductive to inductive structure, I added more child and grandchild codes to supplement the data while transcribing and coding the text. In addition, I also kept notes to assist myself on what my codes meant, when to use them, and when not to. In the end, I had 7 parent codes, 64 child codes, and 43 grandchild codes, for a total of 114 possible codes. Appendix B presents my final code tree (coding framework) after iterative updates.

4.3.3 Interpretation

After meticulously applying the coding framework to all 21 transcripts, I moved from the analysis to the synthesis phase of research. The synthesis and interpretation phase seeks out the relationships between coding patterns, my previous COVID research and current international conversations, as well as the literature (Galletta & Cross, 2013).

I first explored the visualizations tools built into Dedoose, which helped to quantify the coding themes and articulate trends. Some basic tools that provided immense insight into my analysis were code frequencies and co-frequencies. These tools not only demonstrated the usefulness of my coding framework, but also the thematic relationships within the data.

Next, I wanted to look across conversations and explore the network of meanings in relation to each research question. I was able to flesh out the meanings by examining my thematic trends in relation to articles on COVID, theory and literature, and in current urban planning discourse. To build my conceptual framework I followed Galletta and Cross's (2013) layers of analysis: relational context, structural conditions, and historical and sociopolitical context. In my conceptual framework the relational context refers to the individuals' experience with response measures and their personal views; the structural conditions are institutional layers, policies and practices in place; and the historical and sociopolitical context is rooted in the local and national

perspective, as well as its impact on social norms. Through this conceptual framework I was able to draw out the results and how they contribute to the discussion. Please note that when interpreting and writing Section 5: Research Findings, I chose to maintain the confidentiality of the participant's name, title, and location. Generally this information is not cited, but there are a few instances where identifying facts disclose the speaker's location or position (as city official or advocate), never anything more.

4.4 Positionality

Conducting qualitative research requires a balance between "taking the opportunity to encounter the research setting while maintaining the principles of social science" (Holliday, 2007, p. 8). While this balance is important, there are also limitations to what is possible. Research itself is situated in the knowledge of the researcher and the participants, as well as the local context (Cook et al., 2005; Rose, 1997). Thus, approaching academic research as a 'relational process' can help to deconstruct the 'politics of knowledge' (Cook et al., 2005, p. 16). Rose outlines the feminist geographer approach to reflexivity as acknowledging the position of 'the researcher, the researched and the research context' (1997, p. 305). I follow this guidance to reflect on the knowledge situated in my study.

4.4.1 The researcher

I approach this research from a background of academic, professional, and advocacy roles. My formal academic training is situated in the fields of Geography and Urban Planning and very much influences how I see my community and the world around me. I have also worked in the field of active transportation and urban planning (either as a paid position or as an intern) which has further tilted how I perceive urban issues. As mentioned previously, I worked for Eco-Counter installing bicycle and pedestrian counters throughout Montreal during the summer of 2020. This experience filtered my perspective of street reallocations towards Montreal's experience. Furthermore, I have been and still am an active transportation advocate. I hold a bias that active transportation facilities are implicitly 'good' and help to achieve broader urban planning objectives like complete streets or reduced greenhouse emissions. I acknowledge that I hold a subjective perspective on urban issues, which is only magnified in the echo chamber of

planning professionals and academia. In recognition of my positionality, I step into my research from a position of inquiry and strategy. When conducting research, I tried to be open, curious, and professional in all my conversations, so as not to expose my opinions or influence the respondents answers.

4.4.2 The participants

Not only is my own knowledge situated in my experiences, but the same is true for the research participants as well. As Rose states, "all knowledge is produced in specific circumstances and that those circumstances shape it in some way" (1997, p. 305). I find this to be particularly true for city officials who often exist in department silos or advocates who work amongst like-minded others; their knowledge is shaped by their experience, especially in a quick moving crisis. This was evident in the interviews with city officials when they informed me that they only knew about projects happening within their own department and couldn't speak to the approvals or decision-making processes that occurred in other departments or at higher authority levels. I also found it interesting to learn that when cities declared a state of emergency, some administration staff were shuffled into other departments to work on other COVID tasks. I often wondered about the knowledge limitations in these situations or the dissemination of information with the other staff members who were shuffled out. How would these circumstances influence the positionality of the city representative that I was speaking with? What positionality were they bringing into our conversation? How could I be sure that the interviewee was informed on all the aspects I was inquiring? Is it even possible to speak with a city official who knows everything that happened, especially when things happened so quickly and under unique circumstances?

Reflecting on the positionality of city officials, I also included interviews with advocates to include external community perspectives and diversity of experiences, thus trying to further enrich the data. In the end, only 8 of the 25 participants (32%) identified as female and only 1 of 25 (4%) was a racialized person. These startling statistics echo concerns of equitable representation in urban decision-making and advocacy work. I believe that the cohort of research interviewees reflects larger patterns in urban and transportation planning, community building, and mobility justice. By examining who has voice and power, it allows us to better understand who does not have a voice in decision-making.

4.4.3 The research context

Interview participants were recruited through my personal network or through a connection of a connection, and two were recruited through LinkedIn. Even if I personally knew the contact, I upheld the highest level of professionalism and academic integrity during my communication and interviews with participants. I tried to treat everyone equally, whether I knew them or not. In doing so, I think this helped to maintain objectivity and professional relating in the interview process. Additionally, since most people that I spoke to were either professionals, experts, or very well versed in their field, there were no power dynamics in my advantage. I was not in a position to influence, mislead, or persuade the interviewees, especially since the interviews were online and low-cost investments for the participants.

5 Research Findings

Research findings from the 21 semi-structured interviews revealed the street reallocation responses, the motivations and decision-making processes behind these responses, general barriers to street reallocations and how these decision-making processes were different during COVID-19, and finally, the lessons learned. This section is organized into five sections: brief **study site snapshots** to provide context; the **COVID-19 street reallocations**, which breaks down the measures taken as well as the motivations for measures; the **decision-making process**, which highlights the five decision-making themes; the **barriers and COVID differences**; and finally, the **lessons learned** section, which presents the interviewee perceived lessons from COVID street reallocations.

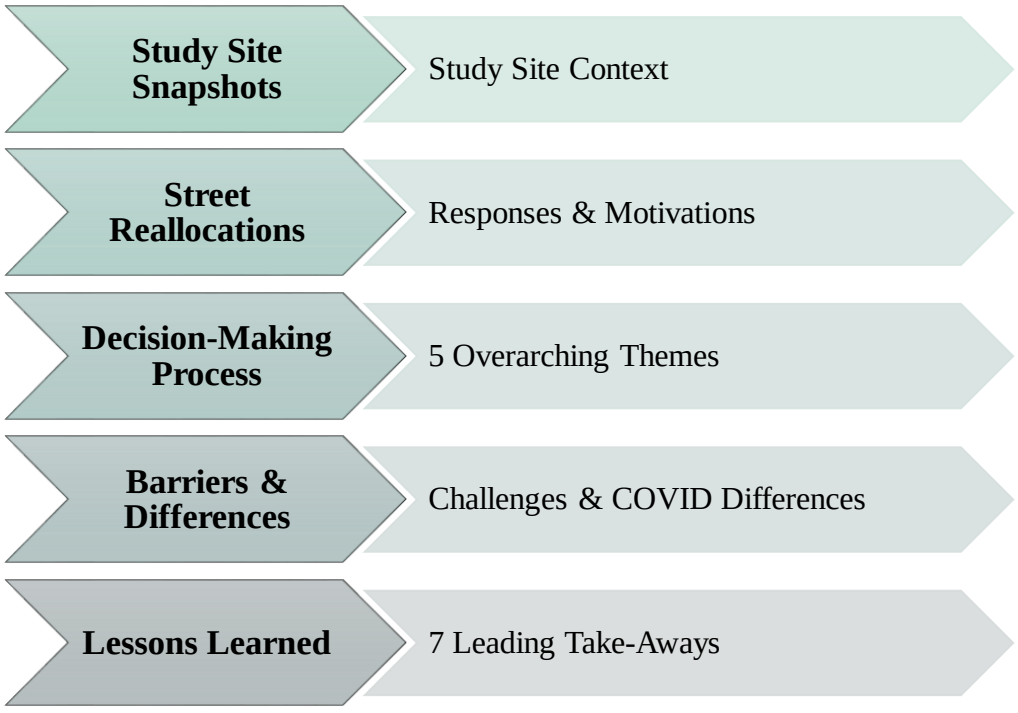


FIGURE 5.1. FIGURE OF RESULTS SUB-SECTIONS

5.1 Study Site Snapshots

The study site snapshots provide community context. It is a detailed account offering insight into the conditions present before the health crisis, and how these laid the groundwork and positioned communities to respond to the crisis. Context information includes the municipality population and walk, bike, and 'other' (scooter, rideshare, etc.) mode share percentage from the 2016 Canadian Census (Stats Can, 2018), as well as the pre-COVID active transportation conditions and the community's experience with tactical urbanism projects. Finally, these are framed by the community's COVID street reallocation (SR) responses.

5.1.1 Halifax

Population: 403, 390 (Halifax Regional Municipality [HRM])
2016 Walk, Bicycle and Other Mode Share: 10.5%
Pre-COVID Active Transportation: HRM has a network of sidewalks, local street bikeways, on-street bicycle lanes, protected bicycle lanes, and multi-use pathways. The *Integrated Mobility Plan* (IMP) was passed in 2017 to guide the city in developing and expanding its walking and cycling network (HRM, 2021a).
Pre-COVID Tactical Urbanism: As part of the IMP, there is a dedicated program to tactical urbanism project called the *Street Improvement Pilot Projects*. The program is aimed at testing new street design and placemaking projects to enhance the safety and comfort of pedestrians (HRM, 2021b).
COVID SR: Space to Move, Space to Load, Space to Queue, Space to Support Business.

FIGURE 5.2. MAYNARD SLOW STREET IN HALIFAX. SOURCE: CITY OFFICIAL RESEARCH PARTICIPANT

5.1.2 Montréal

Population: 1,704,694 (Ville de Montréal)

2016 Walk, Bicycle and Other Mode Share: 13.4%

Pre-COVID Active Transportation: As stated on the Ville de Montréal's webpage, "Montréal est une ville de vélo" (Montréal is a city of bicycles/cyclists). Throughout the city and island of Montréal, there is a vast network of pathways and bike lanes designed to transport people to amenities, parks, and along the river. Montréal is home to a designated "4 saisons" (4 season) network with priority winter clearance and le réseau express de vélo (REV), which is the core network of express routes connecting to Montréal's neighbourhood routes (Ville de Montréal, 2021a). The City of Montréal also established the non-profit – Bixi – in 2014 to run their bikeshare program. The network has more than 9,000 bikes, some of which are electric bikes (Bixi, 2021).

Pre-COVID Tactical Urbanism: Montréal has a variety of permanent and seasonal pedestrian or shared streets, some of which include street fairs or festival closures (Ville de Montréal, 2021b). In addition, the city has money dedicated to resident projects through participatory budget voting. Also, the city has experience implementing parklets and summer terraces in

previous years. These projects are small in scale and tactical in nature (Ville de Montréal, 2021c).

COVID SR: Slow streets (les corridors sanitaires), sidewalk extensions, pop-up bike lanes (les voies actives sécuritaires), total road closure (les rues piétonne/cyclopiétonne).

FIGURE 5.3. MOUNT ROYAL ROAD CLOSURE IN MONTREAL. SOURCE: AUTHOR.

5.1.3 Ottawa

Population: 934,243 (City of Ottawa)

2016 Walk, Bicycle and Other Mode Share: 11%

Pre-COVID Active Transportation: The *Ottawa Pedestrian Plan* and the *Ottawa Cycling Plan*, both approved in 2013, support its residents to choose active modes of transportation. The cycling network is comprised of on-street facilitates, multi-use pathways (often located on federal National Capital Commission property), and raised cycle tracks. In the winter, 40km of this cycling network is cleared and maintained for winter users (City of Ottawa, 2021).

Pre-COVID Tactical Urbanism: The City of Ottawa had a Streetside project, converting parking spots into parklets, patios, or vending stalls. In total, there are only 25 permits available, and it seems that the project did not continue beyond 2016 (City of Ottawa, 2016).

COVID SR: Slow streets (Ward specific), pop-up bike lanes, sidewalk extensions, total road closures

FIGURE 5.4. LANE CLOSURE ON BANK STREET BRIDGE IN OTTAWA. SOURCE: BIKE OTTAWA 2020 ANNUAL REPORT ON CYCLING.

5.1.4 Toronto

Population: 2,731,571 (City of Toronto)

2016 Walk, Bicycle and Other Mode Share: 12.4%

Pre-COVID Active Transportation: The City of Toronto Cycling Network Plan was passed in 2016 and informs present and future cycling investments. The cycling network is comprised of cycle tracks, contra-flow yellow bike lanes, multi-use trails, bike lanes, and quiet on-street routes. Additional plans and strategies complementing active transportation in Toronto include the Walking Strategy, to make Toronto a "great walking city"; Road to Health, to improve walking and cycling in Toronto; Active City, to adapt the built environment to promote physical activity on Toronto streets; Vision Zero, to reduce traffic related fatalities and serious injuries for the most vulnerable road users; Complete Streets, adapting roadways to be safer and more comfortable for all street users; and TO360 Wayfinding, to provide better signage for non-drivers navigating the city (City of Toronto, 2021b).

Pre-COVID Tactical Urbanism: The Enhancing Our Streets & Public Realm program oversees StreetARToronto, an initiative to incorporate art into public spaces; Neighbourhood Improvements, projects to increase the safety and functionality of boulevards; street furniture, to incorporate more furniture in public spaces; sidewalk cafes; and parklets (City of Toronto, 2021a).

COVID SR: ActiveTO - Quiet Streets, pop-up bike lanes, and road closure; CurbTO & CaféTO - sidewalk extensions (pedestrians and patios) and loading lanes; and RapidTO – bus rapid lanes that we shared with bicycles.

FIGURE 5.5. POP-UP BIKE LANE ON DANFORTH AVE IN TORONTO. SOURCE: TORONTO.CA

5.1.5 Brampton

Population: 593,638 (City of Brampton)

2016 Walk, Bicycle and Other Mode Share: 2.7%

Pre-COVID Active Transportation: The City of Brampton council endorsed its first ever Active Transportation Master Plan in 2019. After three years of consultation, the plan identified the policies and projects to create a connected pedestrian and cycling network. Principles of complete streets and sustainable community design guide the plan's direction (City of Brampton, 2021).

Pre-COVID Tactical Urbanism: No known history with tactical urbanism projects.

COVID SR: Pop-up bike lanes – Vodden Street.

FIGURE 5.6. BEFORE: POP-UP BIKE LANE ON VODDEN ST, BRAMPTON. SOURCE: BRAMPTON.CA
FIGURE 5.7. AFTER: PERMANENT BIKE LANE ON VODDEN ST, BRAMPTON. SOURCE: BIKE BRAMPTON

5.1.6 Winnipeg

Population: 705,244 (City of Winnipeg)

2016 Walk, Bicycle and Other Mode Share: 7.7%

Pre-COVID Active Transportation: The City of Winnipeg does not have an official plan, but they have the *Pedestrian and Cycling Strategies* to promote active modes within the community. The priorities guide the strategy to direct capital investments and infrastructure projects. Currently, the cycling and walking network contains multi-use trails, sidewalks, bike paths, cycle tracks, bike lanes, diamond lanes (shared between buses and cyclists), and bicycle boulevards (traffic calmed streets). Additionally, Winnipeg has been hosting a Ciclovía style event, also known as the Sunday/Holiday Bike Routes, on four different streets since 2009 (City of Winnipeg, 2021a).

Pre-COVID Tactical Urbanism: While the City of Winnipeg doesn't specifically have a tactical urbanism program in place, parklets and planter boxes have been integrated into the City's 'Walk Bike Projects' to provide connections in the existing network (City of Winnipeg, 2021b).

COVID SR: Open Streets - Slow streets

5.1.7 Regina

Population: 215,106 (City of Regina)

2016 Walk, Bicycle and Other Mode Share: 6.2%

Pre-COVID Active Transportation: Walking and cycling projects fall under the purview of the *2017 Transportation Master Plan*, which will direct transportation projects for the next 25 years in the City of Regina. Prior to 2019, the City of Regina's cycling and walking network heavily relied on its extensive pathway system. Then beginning in 2019, Regina pledged an annual minimum $250,000 of funding to improve the pathway and bike lane network. This network currently consists of sidewalks and crosswalks, pathways, shared-use lanes, bike-only lanes, and bike boulevards (City of Regina, 2021b). Regina also has a Recreation Master Plan which briefly mentions multi-use trails and mountain bike trails, there seems to be no other connection to active transportation or urban spaces (City of Regina, 2021a).

Pre-COVID Tactical Urbanism: No mention of tactical urbanism type programs or initiatives.

COVID SR: No street reallocation measures

5.1.8 Calgary

Population: 1,239,220 (City of Calgary)

2016 Walk, Bicycle and Other Mode Share: 8%

Pre-COVID Active Transportation: In 2019 and 2020, the City of Calgary began updating and revising the *Calgary Transportation Plan*. This document steers land use and transportation decisions within the city for the next 50 years. A major component of this long-term plan is the Pathways and Bikeway plan, which was recently updated to include the Always Available for all Ages & Abilities (5A) Network. The established cycling network has approximately 900km of pathways (mostly constructed in the 1990s) and 400km of on-street bike routes (ranging from shared lanes to protected cycle tracks) (City of Calgary, 2021b). The city also approved its Pedestrian Strategy in 2016, which includes 49 actions to make Calgary a safer and more inviting place to walk (City of Calgary, 2021c).

Pre-COVID Tactical Urbanism: One of the actions that has been identified to achieve the Pedestrian Strategy, as well as the Neighbourhood Streets Toolkit, is tactical urbanism. The City of Calgary views tactical urbanism as temporary and quick interventions, that are conducted in

collaboration with or led by the community. It seems that Calgary is still in the early stages of adopting tactical urbanism as common practice. In addition, traffic calming and placemaking are listed as important tools as well (City of Calgary, 2021a).

COVID SR: Pop-up bike lanes, sidewalk extensions (general lane closures)

FIGURE 5.8. SIDEWALK EXTENSION/PATIO PROGRAM ON 17TH AVE, CALGARY. SOURCE: CITY OFFICIAL

5.1.9 Kelowna

Population: 127,380 (City of Kelowna)

2016 Walk, Bicycle and Other Mode Share: 11.9%

Pre-COVID Active Transportation: The City of Kelowna boasts that it has the most extensive bicycle network of a city of its size in Canada. The network is made up of 280km of bike lanes, 70km of multi-use paths, supplemented by an additional 412km of sidewalks and walkways. There have also been additions of separated cycle tracks within the past couple years, prior to COVID. Maintenance and continued development of this network is guided by the Pedestrian and Bicycle Master Plan (City of Kelowna, 2021).

Pre-COVID Tactical Urbanism: Some tactical urbanism projects have been tried or proposed in the past, but the City of Kelowna does not have any tactical-type programs in place.

COVID SR: Sidewalk extension, total road closure, traffic signals

5.1.10 Vancouver

Population: 631,486 (City of Vancouver)

2016 Walk, Bicycle and Other Mode Share: 21.3%

Pre-COVID Active Transportation: Transportation 2040 is the City of Vancouver's long-term plan to direct transportation and land-use decisions. Some projects included within this plan are the Active Transportation promotion and education campaign, the School Active Travel program, and various complete streets initiatives. Vancouver has a goal of 2/3 of trips within the city to be by walking, cycling, and transit by 2040. Continued investment into AT initiatives will help the city to move towards this goal (City of Vancouver, 2021).

Pre-COVID Tactical Urbanism: The City of Vancouver created an 'innovation platform' called VIVA Vancouver to focus on tactical urbanism and public space. They are short-term actions "to inspire and enable long-term change". Its goals include street reallocation, equitable access and distribution of public space across the city, empower and support marginalized groups, reduce barriers to participation in public life, promote value of public space, and foster a culture shift towards equitable and inclusive public spaces. Past examples include pop-up activations like parklets and pavement-to plaza projects, pedestrianization, and public art (City of Vancouver, 2021b).

COVID SR: Slow streets, loading zones, pop-up bike lanes, sidewalk extensions

FIGURE 5.9. POP-UP BIKE LANE ON BEACH AVE, VANCOUVER. SOURCE: @LUCYINCANADA

5.2 The COVID-19 Street Reallocations

Over the spring and summer of 2020, the ten study sites implemented a variety of COVID-19 Street Reallocations. See Table 5.1 for a summary of responses, according to city.

TABLE 5.1. STREET REALLOCATION APPLICATIONS IN THE 10 STUDY SITES

	Sidewalk Extension	Loading Zone	Pop-up Bike Lane	Road Closure	Shared Street	Traffic Signals
Halifax	✓	✓	✓	✓	✓	✓
Montréal	✓		✓	✓	✓	
Ottawa	✓		✓	✓	✓	
Toronto	✓	✓	✓	✓	✓	
Brampton			✓			
Winnipeg					✓	
Regina						
Calgary	✓		✓			
Kelowna				✓		✓
Vancouver	✓	✓	✓		✓	

As observed, pop-up bike lanes were the most common response, followed by shared/slow streets and sidewalk extensions. According to the research interviews, loading zones and traffic signal changes were the least common; however, it is worth noting that the interviewee may not have been aware of all measures taken or did not think to mention them. The responses are reflective of general trends in Canadian city responses to COVID-19. A final note, the City of Regina explicitly chose not to introduce street reallocations, as seen above.

5.2.1 Response Motivations

The second research question of this study explored the decision-making process behind COVID street reallocations, but also the motivations for doing so. While the coded motivations are not derived from official city media releases, they reflect how staff and the public interpreted city decisions and what the perceived priorities were. The following results were gathered from the city officials and the advocates from each study site. It is worth noting that in some cases, city officials and advocates perceived city motivations differently, which reflects the diversity of opinions on these projects. Participant responses were filtered into 14 categories: health and safety (primarily social distancing measures), recreation and leisure, business needs and economic stimuli, access to essential services, transportation, physical activity, equity and mobility justice, essential workers, mental health and well-being, supplement transit impacts, access to parks and green space, decreased vehicular traffic, placemaking and livability, and sustainability and environmental concerns.

Motivations were often associated with the street reallocation typology. Cities that introduced a variety of responses were likely to have a wider breadth of motivations, and vice versa. Below, Table 5.2 describes the reported motivations by participants. The first three motivations were the most common responses, mentioned by each city. The following five motivations were common responses but not mentioned by every city, and these are followed by six even fewer common responses. Table 5.2 provides a summary of the motivations and is organized according to the frequency in which motivations were mentioned.

TABLE 5.2. MOTIVATIONS FOR STREET REALLOCATIONS, IN ORDER OF FREQUENCY.

Motivation	Description
Health & Safety	Mentioned by all cities, specifically health measures to mitigate the risk of COVID-19 such as social distancing. This was the first and foremost priority for all decision-makers and city administration, even though it looked different for each community.
Recreation & Leisure	Space for people to recreate. Participants mentioned it was important that people could safely get outside and spend time with family and loved ones. This point was connected to physical activity, mental health, socializing, and all related leisure topics.
Business Needs & Economic Stimuli	Support for businesses and city economy. This motivation was associated with street reallocations adjacent to businesses and was sometimes enough of a motivator to introduce measures, Kelowna being an example.
Access to Essential Services	For some cities, providing people access to essential services like groceries, pharmacies, and hospitals were justifications for introducing street reallocations. Some of these measures were to help people get to services and others were to provide waiting space to access essential services. This included loading zones and areas to queue outside shops.
Transportation	Focus on transporting people to destinations, particularly essential services. This was a significant contrast to the barrier of perceiving active mobility purely for recreation.
Physical Activity	This motivation intersects with recreation as well as health concerns. Ability to safely get exercise outside, especially when gyms were closed. Officials wanted to ensure that people could be physically active.
Equity & Mobility Justice	For some communities, equity and mobility justice were motivations. These cities often integrated equity considerations into their decision-making process and spoke of 'equity mapping or layering'. Equity indicators included low-income communities; racialized populations; access to green space and parks; access to non-automobile transportation options; and populations dependant on social services. Some of the equity mapping features were updated to factor in pandemic realities like COVID infection rates and communities with essential workers, others were pre-existing equity considerations.
Essential Workers	At the onset of the pandemic, transportation patterns were changing and there was significant fear of the virus. Conversations included essential workers and their ability to get to work. This motivated some cities to introduce measures to assist essential workers, and thus maintain everyone else's access to essential services.
Mental Health & Well-being	Often associated with strict lockdown measures confining people to their homes. Decision-makers recognized the strain and wanted to provide safe spaces to support physical and mental health.
Transit Impacts	To compensate for impacts to transit services, mostly for transit-reliant individuals who were concerned or not able to take transit during the pandemic.
Access to Parks & Green Space	With the closure of gyms and social spaces, some cities wanted to provide access to parks and urban green spaces. Sometime in connection to mental health benefits, while others referred to 'local tourism' and alternatives to travel.
Decrease in Automobiles	Early in the pandemic, automobile traffic significantly dipped, thus providing a justification for decision-makers to reclaim this space and allocate it to other needs. Some officials shared that this change in traffic patterns allowed them to act and avoid opposition.
Place Making & Livability	Generally for cities with lower COVID infection rates and less restrictions on outdoor congregations. In these cases, street reallocations were placemaking projects and facilitated livability. Generally, this motivation was focused on creating opportunities for socialization and sometimes to support local businesses as well.

5.3 The Decision-Making Process

Municipalities are complex institutions layered with local histories, politics, and bureaucracy. These local governing bodies are then further embedded in provincial and federal politics. As one interviewee put it *"municipal decision-making is so different in every city, in every province"*. It is worth emphasizing that COVID-19 was an unprecedented event with no established practices for how to respond to a global pandemic. Each community took their own approach in consideration of their local context.

The following section seeks to understand the diversity in decision-making processes that led to street reallocation as a response to COVID-19 in the spring and summer of 2020. Within the decision-making process five overarching themes emerged: observation informed & evidence-based decisions, existing plans & policies, political & internal leadership, knowledge & capacity, collaboration & community resources.

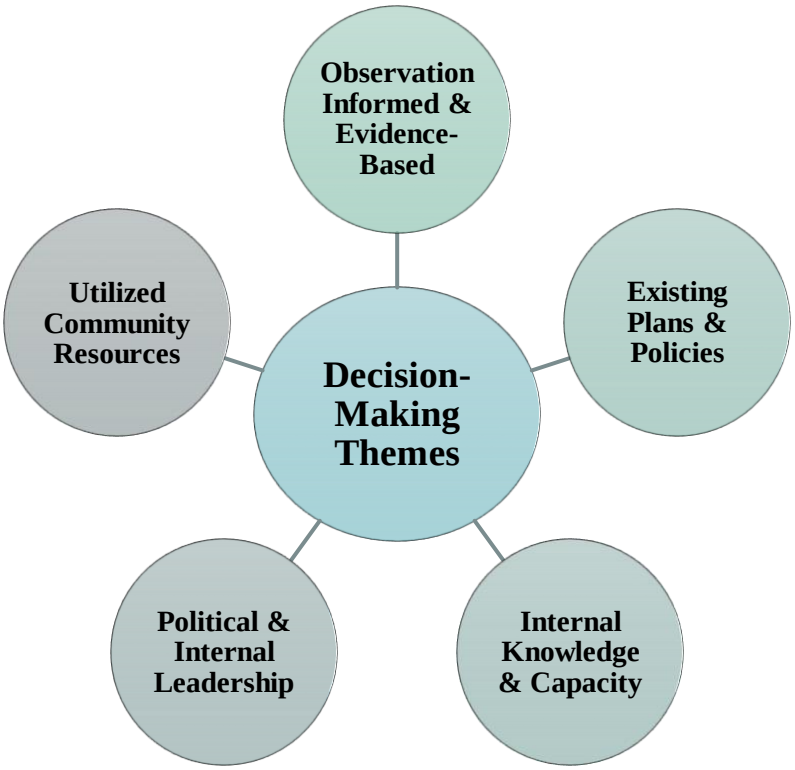


FIGURE 5.10. THE 5 THEMES OF STREET REALLOCATION DECISION-MAKING

5.3.1 Observation Informed & Evidence-Based Decisions

COVID-19 abruptly impacted people's everyday routines. Busy vehicular arterials became desolate expanses of pavement, weekend leisure pathways became busy every day of the week, and essential services regularly had lines-ups congesting adjacent sidewalks. These dramatic shifts were immediately apparent. During the interviews, many participants noted observations of crowding on pathways and sidewalks. However, the severity of these shifts varied from city to city, as well as the city's ability to address and accommodate the changing needs of residents and businesses.

It was apparent from the study sites that there were cities who used these observations as a driving force for decision-making, as well as ongoing adaptations. Standout examples of cities who took this approach are Vancouver, Montréal, Halifax, Toronto, and Ottawa. Response to observation is demonstrated by sidewalk extensions into a curb lane beside essential businesses, providing dedicated space for people to wait so they didn't crowd sidewalks. For example, the City of Toronto had 'CurbTO', the City of Halifax had 'Space to Queue', Montréal had 'Corridor Sanitaire', the City of Vancouver had 'Room to Queue', and Ottawa had a patchwork of unbranded sidewalk extensions. A clear connection between observation and city response is recounted by a City of Vancouver official as *"…there was this urgency right around Easter…I literally drove around Vancouver and made notes of where there were lineups"*. In our conversation, the City of Vancouver official reiterated that staff would identify appropriate solutions to address the issues that they were observing because they recognized that *"one size wouldn't fit all"*.

In contrast, other cities were less likely to use observations to formulate their responses, and this response typically changed little throughout the summer of 2020. This type of approach was more common amongst mid- to small-sized cities like Kelowna and Regina, but larger Canadian cities such as Calgary and Winnipeg also exhibited this. However, this is not to say that these cities did not adjust as the summer progressed. Kelowna continued to adjust traffic signals as vehicular numbers increased, Calgary switched from cones in their Adaptive Patios to barricades considering safety concerns, and Winnipeg expanded their Slow Streets program to include six additional routes. While these slight adjustments are encouraging to see, their programs did they

evolve to address new community needs. Another important point is that not all cities had similar crowding issues at the onset of the pandemic. An official from the City of Regina shared that at the onset of the pandemic COVID cases within the community were very low and *"…the main factor [not to introduce street reallocation] is that there just wasn't really that much of an issue early on in Regina"*.

Cities that used on-the-ground observations to inform their COVID response plan were more likely to create issue-specific solutions, rather than a one-size-fits-all solution.

5.3.2 Existing Plans & Policies

While some cities used observations to inform their response plans, others turned to their existing plans and policies as the foundation for their response or did a mix of both. Beyond that, some urban regions used the emergency scenario as an opportunity to expedite their existing active transportation plans.

Halifax, Calgary, and Vancouver all referred to existing plans and projects during the COVID-19 decision-making process. These places reported that their pandemic response reflected planned bicycle networks like Halifax's All Ages and Abilities (AAA) Bicycle Network from the *Integrated Mobility Plan*, Calgary's 5A Bicycle Network, or Vancouver's Bikeway Network. When speaking with officials from Halifax, they affirmed that their pandemic task force looked to existing plans and projects so they could identify opportunities for responding to the public health crisis. For example, the slow streets were chosen from the local bikeway streets in the AAA Bicycle Network. Another opportunity was to add tactical urbanism projects to their already-established *Streets Improvement Program*, giving COVID projects highest priority. By doing so, it was an opportunity to test implementing things that they already wanted to make permanent. Decision-makers leveraged existing plans and policies to inform their choices on how to accommodate shifting mobility patterns.

Some cities not only used existing plans to inform decisions, but for Toronto and Brampton, COVID-19 was the 'catalyst' to expedite implementation of their plans. The *Toronto Cycling Network Plan* was approved by council in 2016 with $100 million dedicated funds. The plan set

a goal of 34km of new cycling facilities per year, but these targets were regularly underachieved. Prior to COVID, council had authorized 16km of new bike ways to be built in 2020. Then in spring of 2020, Toronto announced that ActiveTO – Toronto's pop-up bike lanes – would build a total of 24km from the *Cycling Network Plan*. This addition of extra facilities was the result of emergency response protocols that granted authority to the administration without needing council approval. One official shared that *"we didn't have to go back to council to be able to install all these. They just trusted that we would use our best judgement, that we would consult as much as we could, and do the best that we could"*. The lanes were installed as a year-long pilots over the winter months. All pilot routes became permanent except for Brimley road.

While routes from Toronto's *Cycling Network Plan* were expedited to interim/pilot phase, one route from Brampton's *Active Transportation Master Plan* was expedited as a permanent feature. Vodden Street is Brampton's first East-West, on-street cycling facility and construction was meant to begin in 2019; however, it never rose up to priority status and kept getting delayed. Once the city declared a state of emergency in March 2020, council passed a motion to create temporary bike lanes on Vodden, but this was soon expedited to become permanent with a secure, protected design. The City of Brampton had been working in close collaboration with Bike Brampton, the local advocacy group, and councillors to implement Vodden street, but the pandemic that made it a reality. As Brampton's city official shared:

> *"…we have an environmental master plan, we have an active transportation plan, we have declared a climate emergency in Brampton… and all of those things, those different plans were a true test to see whether or not we were taking those plans seriously. How far are we actually going to go to identify opportunities to implement things that would support those plans and commitments…"*

COVID was a test for ciies across the world to commit to existing plans and policies, as well as a moment to assess whether those plans would support the community in times of crisis.

5.3.3 Internal Knowledge & Capacity

Similar to how some cities referred to existing plans and policies, others capitalized on established practices familiar to the community. These practices may or may not be part of long-term planning. Examples range from Winnipeg's Open Sunday Streets to Montréal's parklets and street closures. These kinds of active transportation and tactical urbanism style projects were familiar to city staff and scaling them up to meet the needs of the pandemic was a realistic option for these cities.

Winnipeg's Sunday Streets program has been in place for over 10 years which closes four streets to automobiles every Sunday and holiday during the summer months. Harnessing these established processes allowed the city to rapidly respond to COVID-19. This experience allowed Winnipeg to shift 'Sunday Streets' to daily 'Open Streets' from 8am to 8pm in April 2020. Then, when council directed staff to expand the program by an additional six routes shortly after, it was within their capacity to do so. The street configuration was previously identified, the by-laws were in place, staff knew the project requirements, the materials were readily available, and the community members were familiar with these street reallocation projects. While this existing knowledge and capacity was an asset to Winnipeg early in the pandemic, it remained their one-size-fits-all solution and never expanded to meet other pandemic challenges. This example emphasizes the importance of not only relying on what you know but using this as a base to experiment and adapt to emerging needs.

Montréal is an example of a city that has internal knowledge and capacity when it comes to implementing active transportation facilities, as well as temporary summer projects. The city's administration possesses comprehensive in-house expertise that has established processes for introducing temporary street reallocations, as well as design standards for active transportation facilities. For example, the city conducts a functional typology for each street to determine the corresponding updated geometries for street redevelopment or updates. However, the decision-making process in Montréal is more complex than most cities because of the local governance structure. Each arrondisement, or borough, has their own local level of administration that is paired with representatives at the central city level. Some aspects of city life are managed by the local borough, for example sidewalk and residential road maintenance, whereas other aspects are

managed by the central city, like arterial street maintenance. So, when the pandemic struck in Montréal, there were two separate levels of governance trying to accommodate the new mobility needs within the city. Since the Borough level is smaller in scale, they are quicker to respond. This meant that early in the pandemic, each Borough was implementing their own design for sidewalk extensions, which created inconsistency throughout the island of Montréal. Thanks to the central government's experience with design standards, the team normally tasked with this responsibility was able to swiftly pivot and create COVID-19 street reallocation guidelines to ensure standardized designs throughout the city. Furthermore, the central city was also able to conduct major street reallocation projects on roads under their jurisdiction, while supporting other Borough projects. An official from Montréal shared that they were able to do these projects because there was a precedent within the city:

> *"I think what made our COVID response a lot easier is that we already had a lot of recent experience with street reallocations… And what we heard resoundingly from all of [the stakeholders] is that a lot of stuff worked because we already knew how to do it, because we already did it somewhere. So they said it's actually not all that different, to close the street for a full summer than it is for a weekend because pretty much most of the same safety requirements and design requirements are in place... it's just the fact that we had already done a lot of these things that made it easier for us to do them and to do them in such number and scale... I think the other aspect is that the politicians already understand what it entails."*

In contrast, cities who do not have experience with these types of projects, especially with temporary materials, did not have the internal knowledge or capacity to do so during COVID-19. An official from the city of Regina summarized this dilemma with *"the question is more can we find the internal initiative and what's the external pressure pushing us towards one thing or another… do we have the internal organizational capacity and understanding of who needs to make the change, or who needs to be in the room to make the change?"* There are many considerations when deciphering tactical responses to COVID-19; however, this experience emphasized the importance of flexible and temporary projects so that they may be a familiar tool for future planning.

5.3.4 Political & Internal Leadership

Observations, plans, and internal knowledge were aspects that informed the decision-making process, but this research also strives to reveal who were the different actors responsible for initiating street reallocations. In the ten study sites, the drivers of change were often from two categories: elected representatives or administrative staff.

If the driving force was political, it often coalesced through partnerships between councillors, and sometimes including the mayor. In Brampton, a coalition of councillors and the mayor successfully tabled a motion in March to implement temporary bike lanes on Vodden Street. The temporary lanes were in place 10 weeks later and by the end of the summer the temporary lanes were upgraded to protected, permanent facilities. This political coalition worked closely with Bike Brampton, the local cycling advocacy group, as well as the planning department and public works team. The councillors demonstrated initiative by identifying key stakeholders and building connections to get the job done.

> *"And with this new term of council and Mayor… we are very much advocates, and have been since the beginning of our term, for active transportation and addressing climate change. And so the pandemic and the state of emergency provided an opportunity to expedite a lot of our priorities within our active transportation master plan, and prioritizing the need for a cultural shift…but some of our challenges have been trying to shift that culture internally within staff to buy into the idea that streets are for people and not for cars."*

One of the ways that Brampton worked to change public perception was local councillors meeting with concerned residents to address their issues in a one-on-one meeting. It was through this strong political leadership that street reallocation was possible. In other cases, political drive manifested as individual councillors making motions at council, which was the case for Halifax.

Sometimes leadership was a hybrid of political and administrative cooperation. Ottawa was an interesting case because, similar to Montréal, there are two different regulatory bodies who have authority over different parcels of land in Ottawa. The National Capital Commission (NCC) is a federal crown corporation and responsible for managing NCC lands in the Ottawa Capital

Region, which includes the parkway system (NCC, 2021). Ottawa's street reallocation projects were led by the NCC, individual councillors, or a collaboration with Business Improvement Areas (BIAs). Administrative leadership came from the NCC when they closed the Queen Elizabeth II parkway in April to automobile traffic from 8am to 8pm, every day. This closure was soon followed by other parkway closures as well. An example of councillor leadership was with the Bank Street Bridge closure, which closed two lanes of car traffic, dedicating them to active modes. The bridge was a pre-existing gap in the network with four lanes of car traffic, narrow sidewalks, and a steep bridge with sharrows (painted marking on the road that indicates the lane is shared with automobiles) in the bus lanes. *"It was only the bravest souls that would have gone…and within an hour of them blocking it off there were pictures of families going across for the first time."* Making this change was contentious because each councillor only had a budget of $50,000 for traffic calming measures, money that was allotted to them before the pandemic. Proposed street reallocation projects required these funds, detracting from other pre-budgeted projects. This budget limitation was the result of a divide in priorities of urban and suburban councillors: *"you've got the mayor with the suburban councillors that stand on one side, and then the other group of urban councillors that stand on the other side. And they all hold very different values."* Sometimes political leadership comes from one dedicated elected official, and other times it comes from consensus. Regardless of what form it takes, political will is key. And it was this political will that eventually led to the Bank Street Bridge project becoming a permanent feature as a result of COVID.

In other cases, leadership came from within the administration. Internal leadership manifested differently in each city. In Calgary, street reallocation decisions were made by senior leadership and then assigned to specific departments or people. Kelowna's Real Estate Department brought forward a report to council which was then assigned to other departments to design. Staff members in Vancouver were coordinating directly with contacts in other departments to prepare presentations to senior leadership. In Vancouver, Ottawa, and Halifax interdepartmental teams and task forces worked together to navigate the emerging mobility challenge. While leadership manifested differently in each city, it is important to note that this resulted from emergency measures and always needed some form of council support. These results emphasize the importance of collaborative internal leadership, from both administration and politicians.

5.3.5 Collaboration with Community Resources

As discussed in section 5.3.3, some cities have greater capacity to introduce street reallocation projects. While each city must be the sole stakeholder in charge of implementing measures, they can also draw on community resources and knowledge to support the project. Community resources play a valuable role in contributing to city resilience (Magis, 2010), and this was observed in some city street reallocation responses. During emergencies, community groups can assist with various tasks like education and data collection, and the cities that collaborated with advocacy groups were better equipped to respond to the health crisis.

The COVID-19 pandemic demanded immediate action and cities did the best that they could in the moment. The unparalleled sense of urgency resulted in certain cities making very quick decisions behind closed doors. Calgary, Winnipeg, Ottawa, Kelowna, and Regina's decision-making processes occurred behind closed doors. These communities did not benefit from the untapped knowledge, network, or skills that lie within the community. Again, it is worth noting that these communities were not wrong in their approach; they were navigating a global pandemic and trying to best serve their community. In the moment, insular decision-making seemed appropriate; however, it was a missed opportunity to harness available resources within the community. Most often these were capable resources, ready to support the emergency response. One advocate saw this approach as a learning opportunity *"the other lesson is that if you just sit in that isolated pool trying to make those decisions, you're not really…using the resources that you have at your fingertips, people that are willing to help you…and the knowledge that you can put to use"*.

Some communities capitalized on this hidden wealth, but the degree to which cities collaborated with community and advocacy groups ranges. Cities like Halifax consulted with the local AT advocacy groups, the Halifax Cycling Coalition (HCC), to get their input on typologies and design before implementation. This relationship was established pre-pandemic, so in a moment of need, city officials knew who to contact and had a foundation of understanding between the parties. Valuing community resources is an important first step to resilience, but empowering local members and groups to be active agents in community well-being ultimately leads to true

community resilience (Magis, 2010). Thus, the cities that engaged with community capital to play a role in pandemic response and recovery not only distributed the workload but demonstrated community resilience. Both Brampton and Vancouver integrated AT advocacy groups into their pandemic response. An advocate from Vancouver's AT advocacy group – HUB – was contacted by city staff at the onset of the pandemic to discuss response proposals and seek their support with the project. HUB is an independent organization and the work they do supports the city's active transportation goals. *"We have been told by the city at times by their senior planners that you push us, you need to do that. Don't stop doing that."* For example, HUB conducted pedestrian counts at intersections along the pop-up bike lane on Beach Avenue to understand what directions people were travelling. This data complemented the city's automated counter recording cycling counts. HUB also conducted public engagement to understand where people's journey originated because Beach Avenue was experiencing the highest bicycle counts in Vancouver's history. This effort was constructive in assessing the value of the new lane because it revealed that people were travelling there from all over the city, province, and country. This work revealed that the bike lane attracted people and was informative for future mobility policy decisions.

The City of Brampton even went one step further and made Bike Brampton, the local AT advocacy group, a key stakeholder in their street reallocation efforts. The Brampton official shared that *"the mayor and I were very determined, and emphasized the importance of making this a collaborative effort with particularly the cycling community… we needed that support and that advice and feedback to get it right…it was absolutely essential."* Bike Brampton helped inform the active transportation master plan which informed the pandemic response. The group was consulted on COVID measures, they helped build relationships between staff and council members, and they also helped produce educational material to share on social media. Even though Brampton is a rapidly growing suburban community with little experience of on-street cycling facilities, they capitalized on community resources and empowered them to be a valuable contributor to their pandemic response. Brampton demonstrated that when internal capacity and experience are lacking, community resources can fill this gap and make the community even more resilient in the face of adversity.

5.4 Street Reallocation Barriers & COVID Differences

This research provides a unique opportunity to examine the usual barriers to street reallocation projects, which of these barriers were absent during the crisis, and how COVID-19 projects differed from non-pandemic circumstances. For the context of this research, barriers refer to the challenges within the governance structure, politics, urban planning and engineering, or socio-cultural values that create resistance to new active transportation or tactical projects. Questions with interviewees focused on identifying these barriers, as well as the perceived differences or opportunities during COVID. Firstly, I will describe some of the most common non-pandemic barriers noted by participants, and then I will describe the COVID differences and opportunities.

5.4.1 Barriers & Issues

The barriers are listed in sequence of the five most cited by participants. These are the day-to-day challenges that impede AT and tactical projects, which are often interconnected and difficult to pull apart. For reference, see Figure 5.11 for an analysis chart from Dedoose of the code co-occurrence for barriers.

Political and Cultural Values

The most common barrier identified during the interviews was the intersection of political and socio-cultural values. This challenge is the product of generations of auto-centric urban planning that is upheld by historic practices (Dunn, 1998) producing habits that are entrenched in people's lifestyles. An example of this mentality was described in Kelowna when the province spent nearly $66 million to add two extra lanes to the highway leading to the University of British Columbia Okanagan. This project was supported by the public and local council but paving the adjacent multi-use trail (for a fraction of the cost) was mainly funded through private donations. Public money was available for automobiles but not for pedestrians and all other mobility devices. It was described that this is *"the idea that more roads means less congestion and that's what we still see at the city and the province"*. These values infiltrate decision-making at all levels of governance and fail to acknowledge the principle of induced demand, or the gradual increased use of new facilities which only temporarily alleviate congestion. Many participants shared a similar frustration that politicians and the public don't acknowledge the value of public space or diversified transportation options. Practices that prioritize automobiles and ignore other

options are continually reinforced by political and socio-cultural values. Dunn (1998), states that challenging automobility is a political challenge and incredibly difficult.

Another nuance to this barrier is that politics are generally guided by public opinion. If the public consensus does not support street reallocation projects, politicians will often follow this lead. While pressure groups, like advocacy groups, can push to change the status quo (Henstra, 2010) sometimes this is not enough to create an appetite for change. Numerous participants lamented about the common political debate on whether there is a 'war on cars' and how this creates policy resistance to street reallocation projects. This can be observed in Regina's previous council attitude of *"don't rock the boat"*. As well as Kelowna's council and administration *"who by their nature won't rock the boat, will not make waves, won't push".* If a proposed AT or tactical project is controversial, it takes bold leadership to see it through. Not only do stakeholders need to be convinced, but socio-cultural values must be challenged.

Existing Infrastructure & Design Practices

These socio-cultural values dictate the existing infrastructure by political direction and design practices. For the most part, the same design practices have been in place for over 50 years and are the foundation of cities and towns across North America (Bruntlett & Bruntlett, 2018). The established design practices and resulting infrastructure are the second most cited limiting factor for street reallocation. In their own words, a few of the complaints include *"fundamental sidewalk width problem", "roadways where the sidewalks just go from building to street", "they put parking for cars ahead of safety for cyclists", "this is a dedicated cycle track that they're using for snow storage".* Some themes that arose were outdated infrastructure, auto-centric urban design, reliance on trails and pathways for cycling network, suburban sprawl and automobility, poor AT infrastructure maintenance, and unequitable neighbourhood design in lower income and racialized communities. All these points are organized into two broad categories: existing infrastructure makes dedicating space to people and other transportation options challenging, and lack of access and familiarity to progressive design and maintenance standards for street reallocation projects. The challenges of existing infrastructure and design practices are numerous and were reported by participants.

Recreation Focus

A fundamental barrier that many participants expressed was that walking and cycling are not perceived as viable modes of transportation. As one advocate expressed *"our mayor and suburban councillors still consider getting around by foot or bicycle or other means as recreation. It's not a use of transportation"*. Repeatedly, advocates and officials confessed that active transportation facilities have previously been, and especially during the pandemic, focused on recreation purposes. They were *"a nice place to go for a walk or a nice place to go for a ride…to get people out of their houses, as opposed to helping people get to where they needed to go safely"*. In the context of COVID-19, the cities that have extensive recreational pathway networks used this as an excuse not to introduce further street reallocation measures, or just mimicked the pathway networks without providing access to essential destinations, including Ottawa, Regina, and Calgary. In general, the cities that focus on recreation have unambitious goals for on-street facilities in their official plans. Furthermore, most of the pathway and trail networks in cities are at least 20 years old and were not built to accommodate modern high volumes of various mobility devices. This recreation focus does not facilitate people walking or cycling as a safe way to get to destinations.

Absence of Equity Considerations

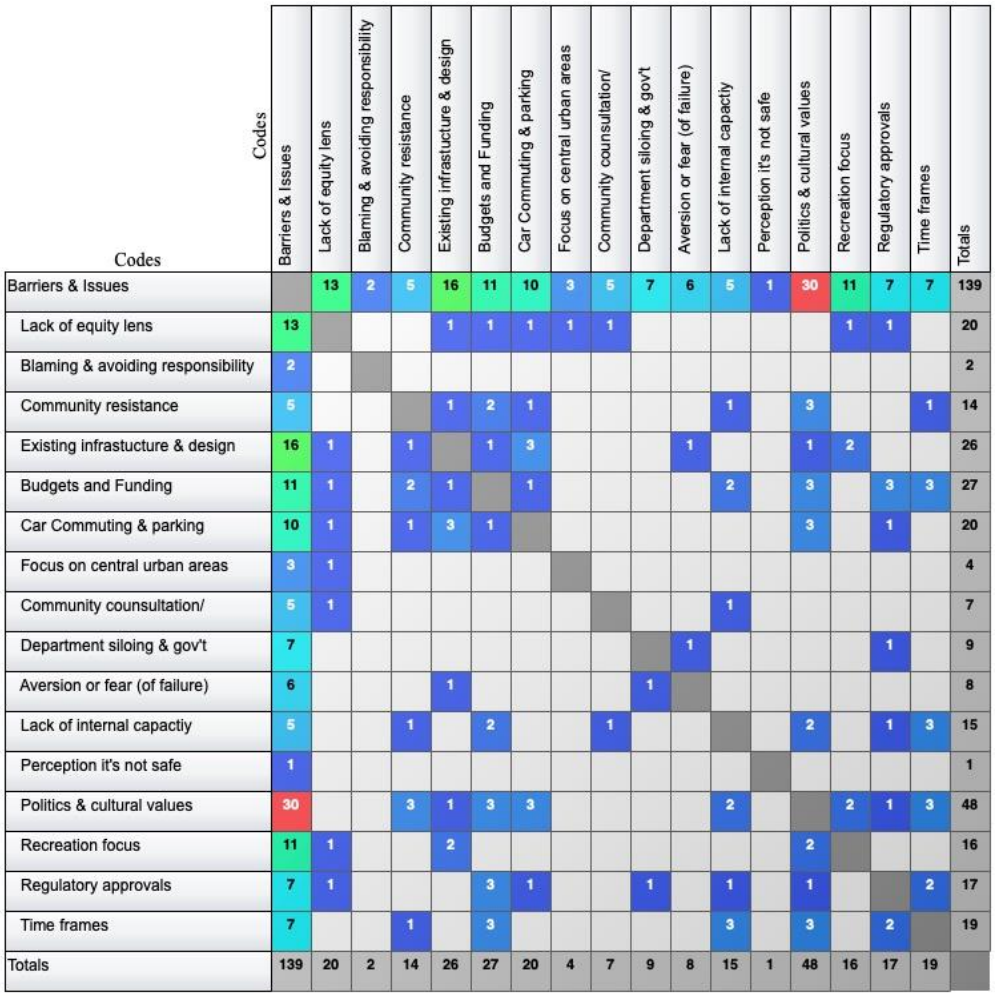
Another common barrier, either explicitly or indirectly mentioned, was the absence of equity or mobility justice considerations. This barrier is linked to all the other barriers because it is a systemic issue. This issue was expressed as two-fold (1) lack of consideration of equity (Agyeman, 2013; Fainstein, 2010) and mobility justice (Kuttler & Moraglio, 2020; Sheller, 2018) in decision-making, and (2) the engagement processes to give people voice do not fairly represent marginalized communities for various reasons (Fainstein, 2010). One participant expressed that the processes are taken advantage of by those who know how to: *"the squeaky wheel gets the grease"*. These loud voices influence decision-making (Henstra, 2010) which then direct funding, which shape the built environment, creating unequitable neighbourhood design and access to transportation options (Kuttler & Moraglio, 2020).

Often, there is little to no political motivation to introduce street reallocation in marginalized communities. This is apparent from the ten study sites in this research project. Only Halifax and Vancouver mentioned that they made some effort to provide street reallocation measures to

disproportionately impacted communities. As one participant confessed *"we're not very good at including equity questions in our thinking, generally speaking, and even less so when we're in times of emergency"*. This issue is reflective of larger trends in urban planning and decision-making (Fainstein, 2010). One official shared that unless they received a proposal from the local neighbourhood, then they didn't consider implementing street reallocation measures *"because we don't know what the community needs until we hear about it"*. This disconnect from community needs reflects a lack of prioritization, and that projects are not viewed from an equity or justice perspective.

Budgets and Funding

As mentioned earlier, funding can also be a barrier to tactical and active mobility projects. Budgets are entangled in politics and can be influenced by the previous barriers. Some cities struggle to resource enough money for street reallocation proposals; other cities have allotted funds for priorities in AT plans, yet the money goes unspent. When funding comes from higher levels of government there are often stipulations, such as a deadline by when the money must be spent. This time constraint often does not align with the two to three years that it takes to plan, design, and implement an active mobility project. The consequence is that sometimes these funds cannot be dedicated to the highest priority project, but rather to quick and easy projects.



Codes	Barriers & Issues	Lack of equity lens	Blaming & avoiding responsibility	Community resistance	Existing infrastucture & design	Budgets and Funding	Car Commuting & parking	Focus on central urban areas	Community counsultation/	Department siloing & gov't	Aversion or fear (of failure)	Lack of internal capactiy	Perception it's not safe	Politics & cultural values	Recreation focus	Regulatory approvals	Time frames	Totals
Barriers & Issues		13	2	5	16	11	10	3	5	7	6	5	1	30	11	7	7	139
Lack of equity lens	13				1	1	1	1	1						1	1		20
Blaming & avoiding responsibility	2																	2
Community resistance	5				1	2	1					1		3			1	14
Existing infrastucture & design	16	1		1		1	3				1			1	2			26
Budgets and Funding	11	1		2	1		1					2		3		3	3	27
Car Commuting & parking	10	1		1	3	1								3		1		20
Focus on central urban areas	3	1																4
Community counsultation/	5	1										1						7
Department siloing & gov't	7										1					1		9
Aversion or fear (of failure)	6				1					1								8
Lack of internal capactiy	5			1		2			1					2		1	3	15
Perception it's not safe	1																	1
Politics & cultural values	30			3	1	3	3					2			2	1	3	48
Recreation focus	11	1			2									2				16
Regulatory approvals	7	1				3	1			1		1		1			2	17
Time frames	7			1		3						3		3		2		19
Totals	139	20	2	14	26	27	20	4	7	9	8	15	1	48	16	17	19	

FIGURE 5.11. CODE CO-OCCURRENCE FOR BARRIERS & ISSUES. CHART FROM DEDOOSE.

5.4.2 COVID Differences & Opportunities

Many of the usual street reallocation barriers listed above were diminished or absent during the COVID-19 pandemic. When discussing these differences and opportunities, interviewees revealed four common categories: culture shift and political will, expedited process, consultation and engagement process, and sense of experimentation. Differences were perceived as positive or negative outcomes of the pandemic. Figure 5.12 lists the differences in a chart from Dedoose of the code co-occurrences.

Culture Shift and Political Will

Political and cultural values were perceived to be the most common barrier by the interviewees; conversely, a shift in cultural values and political will were the most distinct differences during the pandemic. The state of emergency permitted swift action on things that would have normally faced bureaucratic delays and community opposition. The public understood these measures were necessary and were open to them. Further, cities had declared states of emergency that delegated authority to staff, expediting the process. Influenced by an urgency to respond to pandemic needs, there was an overall willingness to take action within the administration and council. Furthermore, the persistent fear of failure was absent. As a national advocate noted *"the overriding limitation in government, whether it's staff, whether it's bureaucracy, or elected officials, the overriding limiting factor is fear of failure".* An elected official shared that there wasn't a need for political calculus to assess if they wanted to align with street reallocation, it was just the right thing to do. Some participants speculated (and hoped) that political will and cultural openness to street reallocation may be a long-term result of COVID.

Expedited Process

Another significant difference because of COVID-19 was how long it took to make decisions and implement interventions. In comparison to non-pandemic measures, *"the timelines were like lightspeed"*. Every city in this study had declared a state of emergency, thus, the approval process involved less regulations and steps. An official expressed *"we were liberated from the usual processes through the emergency measures act*". Some city councils voted on on-street reallocations, while other cities just had *"touch points"* with council and never went to a vote.

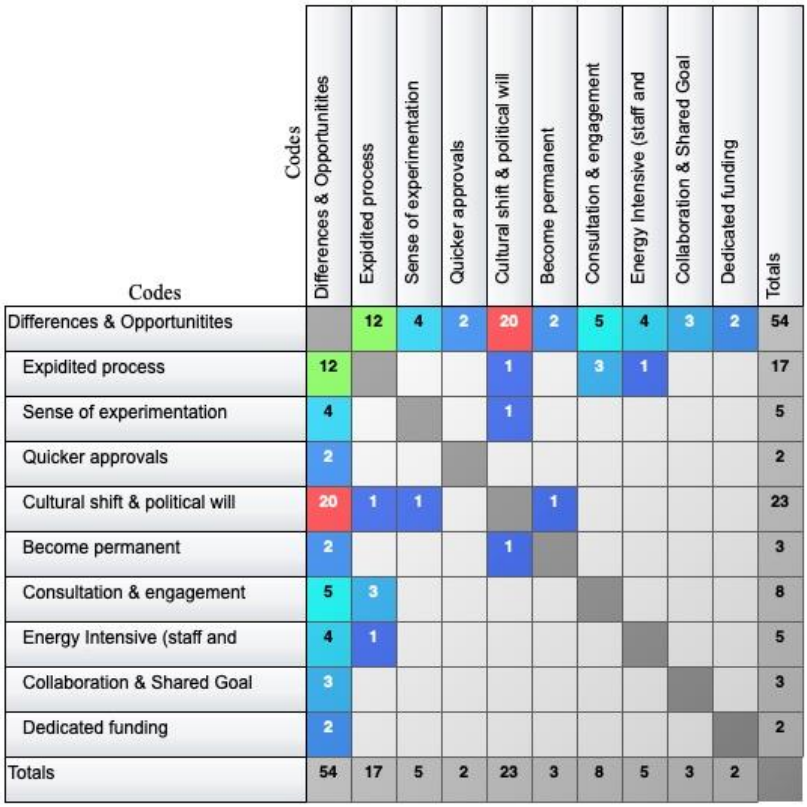
Within the administration, city resources were dedicated to essential services and expediting the response time. In some cases, this meant reorganizing department staff, creating separate 'taskforces' or teams to oversee COVID measures, or dedicating money to pandemic measures. In pre-pandemic times, a new AT project would usually take two to three years to implement, whereas, some cities were working on timelines of four to ten weeks. A participant from Brampton revealed that the Vodden street bike lane *"just wasn't rising to the top of the priority list until COVID came along*".

Consultation and Engagement

The predominant reason for COVID project expedition was the significant reduction or complete circumvention of public engagement and consultation. Many officials confided that most of the normal time for planning street reallocation is spent on public engagement, and multiple rounds of it. They acknowledged that this process is important because it informs the design and integrates community input. This is not to say there was no consultation. All officials echoed that public works, public transit (if applicable), and emergency services were consulted. Often the business improvement area/district (BIA/BID) was also consulted. Sometimes even advocates and key stakeholders were consulted or informed. However, many noted that this unprecedented turnaround did not allow for consultation with marginalized communities and it overlooked certain issues – particularly that of universal accessibility – mainly due to not having enough time. As an effort to mitigate this issue, cities like Halifax, Vancouver, and Toronto took an implement first, engage later approach.

Sense of Experimentation

Another common difference or opportunity expressed in interviews was a sense of experimentation from the city. This difference is inextricably connected to political will because it's reflective of a cultural shift within city management and politics. Many officials shared that there was a sense of experimentation that they had never witnessed before from senior leadership or politicians, and the support of both is crucial. This openness to trying new things came from staff, even if there was a bit of resistance at the onset *"there's some city staff that are opening up and open to different ideas"*. Many interviewees expressed a similar shift within politicians as well.



Codes	Differences & Opportunitites	Expidited process	Sense of experimentation	Quicker approvals	Cultural shift & political will	Become permanent	Consultation & engagement	Energy Intensive (staff and	Collaboration & Shared Goal	Dedicated funding	Totals
Differences & Opportunitites		12	4	2	20	2	5	4	3	2	54
Expidited process	12				1		3	1			17
Sense of experimentation	4				1						5
Quicker approvals	2										2
Cultural shift & political will	20	1	1			1					23
Become permanent	2				1						3
Consultation & engagement	5	3									8
Energy Intensive (staff and	4	1									5
Collaboration & Shared Goal	3										3
Dedicated funding	2										2
Totals	54	17	5	2	23	3	8	5	3	2	

FIGURE 5.12. CODE CO-OCCURRENCE FOR DIFFERENCES & OPPORTUNITIES. CHART FROM DEDOOSE.

5.5 What are the Lessons?

The final and most important objective of this research is to uncover the lessons from implementing street reallocation measures as a response to the COVID crisis. Each participant was asked what the lessons or take-aways are from this experience. Their responses were sorted into nine categories: how street reallocations inform future urban planning; the various benefits of street reallocations; the opportunity to try new ideas and experiment; the city is adaptable; the importance of equity and mobility justice in planning; the power dynamics of decision-making and personal agency; and continue to build on the 'bike boom'. Figure 5.13 provides a snapshot of lessons in a code co-occurrence chart from Dedoose.

FIGURE 5.13. THE NINE TAKE-AWAY CATEGORIES FROM COVID STREET REALLOCATIONS

5.5.1 Inform Future Urban Planning

This theme describes how COVID street reallocation imparts lessons for future urban planning. The most common lessons mentioned were rethinking public engagement and communications, the need for better materials to do temporary projects, the value of better design standards, experience with tactical and temporary installations, and the demand for permanent traffic calming.

Rethink Public Engagement & Consultation

When participants were speaking to the theme of future urban planning, a common topic that came up was regarding the process of public engagement and consultation. More generally, this can be expanded to how the city communicated with the public and stakeholders, either to gather feedback or to inform. A couple concerns were raised: what kind of projects deserve consultation, are the current consultation processes effective, are diverse voices being represented, and are decision-makers aware of the lessons from COVID?

Many interviewees shared a similar frustration with current public engagement and consultation processes. They lamented that major, multi-million-dollar highway expansion projects or major road development projects do not need to undergo any public consultation; however, new and much cheaper AT facilities require public engagement. They expressed that it is socially acceptable to not have any public engagement for auto-focused planning, but all other modes of 'alternate' transportation must ask the public what they think. This is not to say that the participants do not think that engaging the community is important, many acknowledged that listening to the community is important and that it creates more informed plans. The main concern is the unequitable bureaucratic steps that must be navigated to do an AT project versus an automobile project, and people wondered if COVID may shift our focus on current processes. One of these shifts could be restructuring how engagement and consultation occurs. Interviews confirmed that the existing processes are staff time and energy intensive and not efficient. Another important concern that was previously recognized, is that only certain voices are being heard at public engagement sessions. Many questions were raised on how to include those voices that were not in the room prior to COVID and faced greater consultation barriers during COVID. Few avenues were available for people to contribute feedback during the pandemic, and these were almost exclusively virtual. This raises concerns for those who have limited access or skills to computers and the internet.

> "*I think this is an issue with engagement in general, is that you hear from a lot of groups that hold a lot of privilege, and have access and understand how government works and know the staff people who are in place, and that kind of thing… But what about people who don't have access to home computers, or internet connections? How… [do they] tell us what they need*?"

Many wondered whether there could be more efficient systems in place to better balance community concerns with acting more quickly. The experience of COVID opened these conversations.

> *"During COVID we did do a lot of things more quickly. But we talked to a lot fewer people and we may have missed talking to people that we've been trying, as a city before COVID, to*

really try and do more equitable engagement. Deeper engagement. Try and find opportunities and different ways to connect with groups. And I think…it's how do we move forward…"

Issues with equitable engagement will be further discussed below, but the lesson focuses on restructuring engagement to provide equal opportunities for groups and interests to be represented in an efficient way. Participants in cities with closed COVID decision-making processes spoke to how they did not tap into community resources and knowledge. Not only would community groups provide insight, but a helping hand. So, the question and lesson from this: how do cities restructure public engagement and consultation to represent various perspectives and harness community resources in a way that is efficient?

Need for Better Materials & Implementation

A common point from city officials was the need for better temporary materials. At the onset of the pandemic, all the study cities used materials that they had readily available, which were often construction materials. The use of construction pylons, barrels, barricades, and other materials caused confusion amongst the public, especially when it was not accompanied with communication about what was happening. As the summer of 2020 progressed, the cities that did not upgrade to non-construction materials received many complaints from the public and businesses that the street reallocations were not aesthetically pleasing. Maintenance issues began to appear with slow street projects and sidewalk extensions when people began moving the materials because they were an inconvenience, or they disapproved of the measures. Furthermore, accessibility advocates expressed concerns about the safety of these materials for those with mobility limitations or impairments. Acknowledging this lesson, many participants reflected on the challenges of using more appropriate materials such as storage, cost, and maintenance. While these challenges are valid, the complaints and concerns of summer 2020 street reallocation materials are a learning lesson for future temporary projects.

Value of Design Standards

When interviewees were discussing the engagement and consultation process, a point that often came up was on design standards and the weight that they carry. Interviewees questioned why design standards for street reallocations do not hold as much accountability as auto-focused standards. Participants revealed that in some cases, the city is flexible with AT standards and make it work for the project they are working on and the stakeholder interests. Scenarios like this

are more common in cities that look to external resources for their street reallocation design standards, meanwhile cities like Montréal have developed their own design standards for AT facilities and tactical projects. In non-COVID times there is never any question about how to design cycling facilities; however, this changed when COVID hit. Through COVID, city staff created design guidelines specific for street reallocation projects. It was the experience of implementing street reallocation measures that allowed some cities to develop new design guidelines and protocols.

> *"We've gotten a wakeup call, I think to re-examine our construction standards for sidewalks of public places, away from that kind of 1960s traffic engineer trap we're mired in, and to flip the switch really, over to designing cities and communities for humans, for people, for pedestrians, for cyclists. So I think that's probably the great lesson for us."*

COVID street reallocations were a learning opportunity for cities to create design standards and to streamline the process to implement them.

Experience with Tactical & Temporary Installations

As a continuation of the previous lesson, many participants reflected on how COVID provided an opportunity for cities to experience designing and implementing tactical and temporary installations. Whether a city created design standards for these types of projects or not, they all gained experience in street reallocations. Some participants mentioned that it allowed them to identify gaps in the existing network and fill them in with temporary measures instead of having to wait for capital projects. COVID measures provided a nice contrast to the lengthy timelines for most AT and tactical installations. For example, one official shared they were trying to implement a zebra crossing outside a school and was told it would take approximately four years to implement, in contrast to two-to-four-month implementation of street reallocations during COVID. Participants suggested that temporary projects, like the COIVD street reallocations, can provide interim measures, while permanent facilities run their due course.

> *"And I think maybe what we'll take away is that I think there might be more confidence going forward with respect to doing things, I guess more sort of temporary or tactical kind of urbanism type projects. So that might be like one of the big takeaways."*

Another valuable take-away from the experience with these types of measures is to navigate challenges that arose during the pandemic and how to avoid these in the future. Some examples of these challenges include temporary bus stops, intersection treatments, and the need to view these measures from an accessibility lens. COVID street reallocations provided the base knowledge for future projects.

Demand for Permanent Traffic Calming

Finally, the experience of COVID street reallocations informs future planning because it validates the importance of more permanent traffic calming interventions. Many participants noted that with decreased traffic volumes, vehicular speeds went up; thus, emphasizing the need to 'manage speed'. Along with this COVID outcome, officials were hearing similar things in their cities, people were asking for speed humps, curb extensions, and 'local traffic only' street signs. *"The general feedback is we need traffic calming. This was an okay attempt during the pandemic, but this is not what people are looking for. They want more permanent solutions."*

5.5.2 The Benefits of Street Reallocations

Not only did COVID street reallocation inform future planning, but it also allowed people to realize the benefits of such measures. The benefits that were mentioned in the interviews include an opportunity to see streets in a different way, it facilitated community building and placemaking, it supported local businesses and economy, made people realize active modes are viable forms of transportation, and finally, that it was possible.

See the Streets in a Different Way

Perhaps one of most unsuspecting take-aways was that COVID offered people the chance to see streets in a different way. This rare opportunity challenged people's perceptions of what is possible and their notion of permanence. Suddenly, there was reduced automobile traffic, less noise, diminished pollution, and greater safety for vulnerable road users. Collective understanding of streets and public space was cracked open, and this created small changes in cities. Pre-COVID, it would have been difficult to convince decision-makers that roads could be adapted for other uses, but the pandemic helped people to realize that even the concrete corridors can be adaptive to different needs.

"so I think the lesson we were able to learn…was a better understanding of how public space works, and how it can be flexible to changing needs, and how those things can happen fairly quickly… I think we're better able to talk about public spaces because of it."

Numerous people spoke about how this is a paradigm shift and one shared *"I'm hoping people remember that for a long time."*

Community Building & Placemaking

This next point was often co-coded with the previous one. Not only were people challenging their understanding of streetscapes, but they were discovering that these spaces can also foster a sense of community and facilitate placemaking. People realized *"how that roadway sort of fit into their thinking about their neighbourhood, I think it became much more of an open place to go and to meet neighbours and have that community feeling."* One participant spoke about how COVID partially decentralized the city and encouraged people to explore their local area more. While other measures like terraces and patios contributed to the *"street life and public life"*. Regardless of the street reallocation typology, there was consensus that these measures were *"a community building tool".*

Support Local Businesses & Economy

For the interventions that were adjacent to businesses, many supported local businesses trying to stay open. Early in the pandemic before mask mandates were in place, street reallocations made it possible for businesses to serve their customers and helped people feel more *"safe and comfortable"* when visiting local businesses. As the summer progressed and more street closures and patios were implemented, they proved to be a *"great economic development initiative"*. They kept businesses open, saved small businesses, and helped hire staff. Some places like Calgary's 17th Avenue saw huge success with their Adaptive Patio program. According to a survey with the businesses that were involved with the patio program, 98% said they would like to participate with the program beyond the pandemic.

Walking and Cycling as Transportation

As mentioned in the barrier section, there was a common perception that walking and cycling were only recreational activities; however, during the pandemic more people were cycling and

walking than ever. Cities across the world were reporting bicycle shortages and long waits for bicycle repair services. COVID reintroduced many adults to cycling and many participants saw this as a lesson that people will view cycling as a good option to get around. For some cities, the pandemic highlighted the need to balance recreation with transportation needs when it comes to AT facilities. Brampton even took the opportunity to mandate that all new road development projects must include AT facilities. People discovered you can walk and cycle as a mode of transportation.

It's Possible

For cities who have struggled to introduce new AT or tactical measures in the past, whether it be public opposition or lack of leadership, COVID demonstrated that it is possible, *"that it's completely possible."* The experience of street reallocations informed city administration how to reorganize, plan, and design and *"work together in different ways to achieve great things together."*

5.5.3 Try New Ideas & Experiment

Another theme that emerged from the lessons was an opportunity for cities to try new ideas and experiment. Whether it was introducing never-tried-before installations, or just scaling-up and adjusting old ideas to meet the needs of the pandemic, there was consistently an openness to experiment. Participants spoke of a willingness from decision-makers to try new approaches because the measures were temporary and there was less pressure to get it perfect from the beginning. From an administration perspective, there was more of an understanding that they would try an idea and then adjust or adapt as they went. As a participant noted:

> *"we're going to implement that, and then we're going to see how it goes. And then we're going to make adjustments as we go. And where projects were given the chance to do that it was actually pretty successful. And in some cases, the city was also very agile in recognizing that this wasn't a good idea, and they just walked things back."*

Through trying new ideas, cities discovered what worked well and what needed improvement. This approach not only benefited users during the pandemic, but it also informed institutional knowledge for future projects. As one planner put it:

"it allowed us to kind of pilot some new ideas, and to test them and to see how they worked. And I think that was a really valuable process for us, because I feel like, even when we're trying to do tactical things, we're getting much better."

Street reallocations were an iterative process that allowed cities to improve as time went on, if they were willing to adjust and be dynamic in their approach. Some officials even disclosed that reoccurring pre-COVID challenges were solved through pandemic experimentation, for example, raised transit stops along bicycle lanes in Montréal and single traffic lane bus stops in Vancouver.

Not only were decision-makers and professionals assessing how projects were going, but the public also submitted feedback, either through formal or informal avenues. Another planner shared *"I think doing these types of pilots and initiatives is a way of engaging"*. The iterative process provides learning opportunities for the city and helps build social trust to introduce new ideas. An official confirmed *"I think we've learned a lot, and it can only help for the future and just showing residents and councillors that there can be different approaches."*

5.5.4 The City is Adaptable

This notion of adaptability further builds on the previous point of experimentation. While cities were trying new ideas, they were also becoming more adaptable at how they approach projects and function internally. Not only did cities need to be adaptable with the materials available to them, like using construction materials, but they also needed to be adaptable with their existing plans. Cities that could implement projects from their AT plans on the turn of a dime were able to achieve two goals at once: responding to the pandemic and advancing their priorities. Further still, this work was possible through adapting municipal governance structures, specifically staff reorganizations. Some cities created task forces to respond to COVID demands. An official from Ottawa described how this process adapted and evolved for them:

"We basically created a big department, the large COVID department, that we didn't really have in 2020. We're trying to pick pieces from different departments and put them together… so now, we've actually created a much better business process to build on"

These municipal internal adaptations challenged the processes that were in place and how staff conducted their work. Profound lessons have emerged from this experience highlighting the potential of functional and structural adaptability. One staff reflected on this point:

"I think this has also opened up a lot of conversations for us to think about how we do our work better, and how we change the way we deliver it to support more people, or support people who might be more reliant on it."

5.5.5 Equity & Mobility Justice in Planning Practice

COVID, and the associated street reallocations, held a magnifying glass to the inequities of mobility and transportation. Some of the research participants noted the lack of equity in their city's transport system. Two general learning points were raised, the first is where the street reallocations were located, and the second is who can use them? Generally, this learning was more prominent for advocates, but some officials were very candid about their city's weakness on incorporating equity into response measures and how this was a significant take-away from COVID.

The first learning point centers on where street reallocations were located and who had access to them. Some of the interviewees admitted that measures were often located in affluent areas with access to other transportation options, and that they were usually not in communities with greatest need. As one participant shared, *"COVID has kind of continued to perpetuate some of those inequities, especially around transportation"*. These patterns of mobility disparities are reflective of historic planning practices. One planner confided:

"we also recognize that our relationship with some of those communities has been us going in and making decisions for them and making changes without them. And even though we were doing temporary infrastructure, I think we were hesitant to just go in and lay some of that

down in places where we hadn't had any previous engagement, or conversations with the community."

The historic legacies of unequitable mobility became more apparent during the pandemic and elevated the discussion of fair access to transportation options. One participant reflected on how to focus on *"the communities where it can have the most impact"* and asking *"how do we prioritize those communities?".* One person emphasized *"I think there is some value in thinking about how we build those relationships over time"* so that they can move towards a more collaborative approach in supporting mobility choices. After all, *"you can't do things for the community, you need to do it with the community".*

The second learning point was on accessible design. Participants noted that measures were designed for able-bodied individuals and accessibility concerns were not factored into the quick implementations. When health authorities recommended maintaining a 2m distance from others, people realized how narrow sidewalks are and how challenging navigating these spaces can be. However, for those with reduced mobility, this is a daily struggle. Interviewees echoed that COVID provided a new perspective on public space and accessibility. Participants agreed that accessibility considerations need to be at the forefront in planning, even in crisis scenarios.

5.5.6 Power Dynamics & Personal Agency

The theme of power and agency speaks to who was able to influence decisions during the pandemic, how this was different from non-pandemic times, and what it can teach us about local governance. Two main points emerged within this theme: first that people have the agency to speak up for their community, and the second is that political will is key to making things happen.

Stand up & Speak up

Both advocates and officials addressed that community residents have the ability to influence local politics, either by voting or through civic engagement. One participant stated that participating in city politics is the most direct democratic action people can take. Advocacy action was also seen as a valuable contributor to pandemic measures, depending on the city. One

participant stated that advocates and the public need to hold politicians and the city accountable to the policies and plans they have in place, because *"we certainly can't assume that the politicians are going to do the right thing"*. The lesson is that *"people have to speak and be heard. And it's incumbent on decision-makers to create forums for those voices to be heard, so you make sure you use your voice."*

Political Will is Key

Just as important as it is for people to speak up, COVID taught that having the political will to take risks and try things is critical. The pandemic marked a notable uptick in political will towards street reallocations. This willingness demonstrates the significant impact that political leadership has on our communities. Political leadership determines staff responsibilities, as well as influences social support for projects. As one advocate shared *"well, I think there's one lesson, which is when there's political will, you can get things done."*

5.5.7 Continue to Build on the 'Bike Boom'

The final lesson from COVID street reallocations is to continue to build on the 'bike boom'. Politically, socially, and economically, society is more receptive to cycling and walking than ever before. Participants noted that they need to continue to build on the momentum by strengthening active transportation policies and expanding networks. As one person noted *"we're hoping that the bike boom that we've witnessed will have long lasting effects."*

Codes	Codes	Lessons & Take-Aways	Power & Agency	Political will is key!	Stand up & Speak up	Benefits of street Reallocation &	Local business & economic	It's possibe	Building community & Place	Cycling as transportation	See the street in a different way	Continue to build on bike boom	Adaptability, Improvement, &	Inform future urban planning	Design standards	Need better materials	Temporary & Tactical experience	Permanent traffic calming	Rethink public engagement &	Try Ideas & experiment	Equity & Mobility Justice	Totals
Lessons & Take-Aways			9	4	5	28	5	4	6	4	8	7	15	48	4	7	4	3	19	26	10	216

FIGURE 5.14. CODE CO-OCCURRENCE FOR LESSONS. CHART FROM DEDOOSE.

The experience of implementing COVID-19 street reallocations in Canadian cities revealed many intriguing research findings. From the ten study cities, the most common **street reallocations** over the summer of 2020 were pop-up bike lanes, followed by sidewalk extensions and slow streets. The most frequently cited **motivations** for implementing these measures were health and safety concerns, to provide recreation and leisure opportunities for people, and to support business needs and economic stimuli. Within the **decision-making process**, five overarching themes emerged to support street reallocations: observation informed & evidence-based decisions, building on existing plans & policies, demonstrated leadership & politics, utilizing internal knowledge & capacity, and harnessing collaboration with community resources. When participants spoke about the usual **barriers** to active transportation and tactical projects, they cited how political and cultural values add resistance to these types of projects. Meanwhile, participants identified cultural shift and political will as the most significant **differences** with non-pandemic times. Finally, the participant perceived **lessons** from this experience were how it informs future urban planning (most notably public engagement), the demonstrated benefits of street reallocations (to see the streets in a different way), how this was an opportunity to try new ideas and experiment, seeing the city as adaptable, and highlighting community equity and mobility justice issues.

6 Discussion & Policy Implications

COVID-19 significantly affected how and why people moved around their communities. In response to these changes, some cities dedicated road space for people to walk, cycle, and socialize, also referred to as street reallocation. This study explores how and why ten Canadian cities reallocated street space as a response to COVID-19 and the emerging lessons for decision-makers from this experience.

How and why cities responded is framed by the pandemic decision-making processes and how these differed from non-emergency measures. Street reallocations in cities were investigated to identify patterns of the types of street reallocations applied, the motivations for doing so, the decision-making process, COVID challenges and differences, and the perceived lessons from this experience. The first research question sought to understand what measures were implemented and why. The most common street reallocations in the study sites were pop-up bike lanes, followed by sidewalk extensions and shared streets. The three most common motivations named by city officials and advocates were health and safety, recreation and leisure, and business needs and economic stimuli. To further explain how and why street reallocation decisions were made, research findings highlighted patterns within the decision-making process: observation-informed, capitalizing on existing plans, drawing from internal experiences and knowledge, strong leadership, and community collaboration. The results also indicated that typical barriers to street reallocation projects were absent during the pandemic and created new opportunities such as political will and expedited implementation. Finally, this study explored the most salient lessons from this experience: how it informs future urban planning, affirmed the benefits of street reallocation measures, and instilled a willingness to experiment.

The findings from this study emphasize the need to examine every-day planning processes, as well as emergency management procedures. Research results revealed that existing city structures, priorities, and experiences informed pandemic responses; thus, the lessons from street reallocations provide insight on how to better prepare cities for the future. To further discuss the results and their significance, the discussion section will be organized into two sections. Section 6.1 will discuss the emergent themes from the results: local governance and decision-making,

and emergency response and preparedness. Next, section 6.2 will explore the significance of the lessons from this study, specifically focusing on urban adaptability and resilience, as well as equitable planning and mobility justice.

6.1 Emergent Themes from the Results

From the five results sections – study site snapshot, street reallocation responses and motivations, decision-making processes, barriers and differences, and lessons learned – it became clear that this study is much larger than just street reallocation measures. Emergent themes reflected systems of local governance and decision-making, as well as emergency management and preparedness. Particularly, the street reallocation motivations, decision-making processes, and structural barriers emphasized the role of local governance systems in place for emergency preparedness and day-to-day responsiveness. Section 6.1.1 will focus on how existing structures assisted pandemic decision-making, who are the decision-makers, and how is public engagement serving the community. Section 6.1.2 will discuss emergency response and preparedness.

6.1.1 Local Governance & Decision-Making

As discussed in Section 2.1, the local level of government is responsible for managing many essential services and coordinating emergency responses. In representative democracy, elected officials are responsible for setting policy (with input from executive management), while administrative staff are responsible for implementing this policy. Often the planning and implementation of policy objectives are done in an isolated, single-focused fashion (Stevens et al., 2018). The experience of the COVID crisis is an opportunity to critically examine how existing governance structures informed emergency management and the decision-making processes that occurred within transportation planning.

Local governance structures are the bedrock from which decision-making processes are formed. When examining *how* street reallocation decisions were made during the pandemic, the research findings revealed certain pre-pandemic characteristics that assisted in the response. Each city had a unique experience and approach to addressing COVID-19, but overarching patterns emerged

when they were examined in parallel. Qualities that better positioned local governance to respond include systems to integrate observations into evidence-based decisions; capitalizing on existing plans, especially those with prior public engagement; drawing on previous experiences and knowledge; strong and bold leadership; and community collaborations.

For example, cities that had data collection programs in place (Montréal) could use automated bicycle and pedestrian counters to observe how COVID was impacting usual mobility patterns. In comparison, cities that did not have data programs in place were not able to track how mobility patterns were changing. Additionally, cities that had existing active transportation plans informed by public consultation were already familiar with some of the community wants and needs (however issues with this system will be further discussed below), or at least had community contacts for consultation (Halifax). This is in comparison to cities that either did not have plans or limited prior public consultation. Also, Ottawa and Calgary spoke about how their experience managing past natural disasters better positioned them to come up with systems to respond to COVID. Their past experiences informed how to navigate the pandemic. In some cases, just having strong leadership was enough to assist the decision-making process. The City of Brampton's mayor and select councillors directed administration to implement street reallocations, which were based on previous engagement and plans. Finally, cities that collaborated with community organizations were more able to quickly adapt and respond to the pandemic. Further building on Brampton's experience, the city partnered with the local AT advocacy group – Bike Brampton – to help with education, engagement, and data collection. By doing so, this took some of the burden off city administration and councillors, while also empowering a community group. All these COVID approaches were built upon existing governance structures and systems within the city. This highlights how certain practices are not only important for on-going urban management but can also contribute to emergency responses.

Who are the Decision-Makers?

Not only is it important to examine governance mechanisms that facilitated decision-making, but also the power dynamics of pandemic governance. When examining *who* had authority to make these decisions, some patterns emerged. Decisions were made either through council approval (Winnipeg), executive management (Calgary), or a hybrid of the two (Halifax). Street

reallocation approvals were often a hybrid of the two because council and senior management were working in collaboration to respond quickly. These procedural changes were the result of declared states of emergency, which altered approval mechanisms to be swifter and more responsive. In nearly every study city, delegated authority was downloaded to senior management roles which meant that some pandemic measures did not need to be voted on in council. These differences were reflected in the results; the number one and two cited differences for COVID street reallocations were culture shift and political will, and expedited process. These two pandemic differences corresponded to internal structural differences and reflect how governance structures and decision-making processes adapted.

Surprisingly, the COVID-19 governance structures are not that new to some places; in fact, they closely resemble the City of Vancouver's Complete Streets Framework. In 2017 the City of Vancouver approved the Complete Streets Framework and amended the Street and Traffic By-law. The new framework is "a broader complete street lens recogniz[ing] the importance of looking at streets holistically, bringing land use, green infrastructure, public space and transportation considerations seamlessly together" (City of Vancouver, 2017, p.3). It builds on *Transportation 2040*'s mode share and safety targets while considering local context. Amendments to the updated Street and Traffic By-law delegated authority to the City Engineer to "facilitate more efficient delivery of important sustainable transportation and safety improvements" without needing council approval (City of Vancouver, 2017, p.2). Previously, the City Engineer was restricted to approving modifications only for automobile space, meaning they could remove a parking lane for automobile traffic but could not remove a parking lane for pedestrian or cyclist traffic. This had been the case since the by-law was first enacted in 1944. The changes support sustainable transportation by streamlining complete streets processes and redirecting staff time from writing council reports to dedicating more time on public engagement and consultation. The City Engineer will continue to report to the City Manager's office on larger projects to see if it should be brought for council approval (City of Vancouver, 2017). COVD-19 city emergency protocols mirrored the governance structure of the City of Vancouver's Complete Streets Framework by delegating more authority to staff and only requiring council approval for 'larger' decisions.

Evidently there are parallels between the pandemic emergency protocols and Vancouver's Complete Streets Framework. When we reflect on the structural processes and the people authorized to make decisions, it raises important questions. When is delegated authority to senior leadership appropriate, and what are the trade-offs when doing so? Does it make a city less democratic or more responsive? Furthermore, during the interviews multiple participants questioned why elected officials can influence decision-making when they have no formal training or education on planning topics. Councillors have power to influence decision-making. They are attuned to public opinion and make political calculus based on this; furthermore, they are subjected to lobbying by pressure groups with vested interests (Henstra, 2010). In some cities, mobility or tactical urbanism projects have difficulty moving forward because they get stuck in council deliberation. The pandemic produced an unprecedented moment to bring forth considerations like who city decision-makers are, why, and if it is time to restructure.

Public Engagement & Consultation

Perhaps a more revealing question would be to ask who was *not* a part of the street reallocation decision-making process, and why? Which voices were absent and were their needs prioritized? During the interviews, public engagement and consultation was a recurring theme when discussing COVID decision-making, challenges for street reallocation projects, COVID differences, and lessons. Participants identified two major issues: fundamental structural challenges within existing engagement processes, and the challenges of public engagement and consultation during the pandemic.

Some identified challenges within the existing engagement system include:

- lack of marginalized community representation;
- lack of equity considerations within the process;
- time and resource intensive for city staff;
- the process takes a long time and costs a lot of money;
- only people who know how to navigate the existing systems are represented;
- loud, oppositional voices get a lot of attention; and
- small cycling projects must undergo extensive public consultation, yet multi-billion-dollar road projects do not require any public engagement.

Participants acknowledged the imperative of public engagement in local decision-making; however, they spoke at-length about the systemic challenges within existing systems. The second major issue identified by research interviewees was the challenge of conducting public engagement during the crescendo of the pandemic. As identified, engagement issues were already present in many communities before COVID-19; however, these issues were only exacerbated by the pandemic. The third most cited pandemic difference from non-COVID times was the public engagement and consultation process, or rather the lack of. This difference is directly associated with the second most cited difference: expedited process. Street reallocations were implemented at 'light speed' because emergency measures expedited decision-making, and thus resulted in very little to no public engagement or consultation. Eliminating public engagement saved precious time during the pandemic but it left out community voices from the decision-making process, in a time when marginalized communities were disproportionally impacted by COVID-19 (CDC, 2020). Consequently, one of the leading take-aways from this study, under the umbrella of take-aways for future urban planning, was on how to improve consultation and engagement, generally and in emergency scenarios. When discussing this learning some questions were raised: what kind of projects deserve consultation, are the current consultation processes effective, and are diverse voices being represented and empowered?

According to Tate, public engagement is built into local governance to "sustain or strengthen a sense of democracy" (2021, p. 141). Public agencies are required to deliver a certain type and degree of participation for certain decision-making processes. While these procedural check boxes exist to encourage participation, the municipal administrative culture shapes the engagement and consultation process. If engagement is perceived as performative box ticking, then it will take more of an informative approach, versus a collaborative or empowering approach. Sadly, public engagement requirements do not specify how to produce *meaningful* outcomes (Tate, 2021). Krupa et al.'s research suggests "that an open public process is not always inherently good. Serious issues with equity, efficiency, and effectiveness can and do exist" (2020, p. 631). Similarly, Bickerstaff and Walker (2005) discovered that participation is often dominated by 'forceful' interests like civic, business, and institutions which overpower other voices, thus "reinforcing a distinctly unequal set of power relations" (Bickerstaff & Walker, 2005, p. 2138). Furthermore, they discovered strategies used by certain participants or

groups to influence the consensus position. To address systemic shortcomings in civic deliberation, systems must account for the political and cultural environments of decision-making, the power dynamics within existing systems, and how input can be traced to deliberative outcomes (Bikerstaff & Walker, 2005).

Local governance structures and decision-making processes dictate how cities are managed on a day-to-day basis and in emergency scenarios. COVID-19 provided an opportunity to critically examine existing governance structures and their management in a health crisis. Specifically, what current systems can help in a crisis, who are decision-makers and are these the appropriate people, and how can public engagement be improved for the future.

6.1.2 Emergency Response & Preparedness

Emergency scenarios present unique challenges to local governance structures. Further complicating this, many cities are lacking in robust emergency preparedness largely due to apathy in non-urgent moments (Henstra, 2010). Thus, how cities responded to COVID-19 was beyond governance structures and decision-making processes, but also associated with emergency management plans and preparedness.

During the interviews, all city officials mentioned that their city had declared a state of emergency. The emergency management procedures for this state of emergency manifested differently for each city. For example, Ottawa and Halifax had inter-departmental task forces responsible for developing specific measures. In Halifax the transportation task force was formed with various (mostly transportation) staff members, just in the first few months of the pandemic. While Ottawa fully developed their task force late in 2020 and early 2021. In contrast, Calgary's Operations Team immediately became the task force responsible for COVID-19 measures. All three of these cities spoke about responding to past natural disasters, and how that prepared them for managing COVID. Consequently, experience dealing with emergencies make cities more capable of managing future adversity (Magis, 2010). As previous emergencies prepared these cities to manage the pandemic, COVID-19 will prepare them to respond to future crises.

Cities are constantly balancing competing interests of service provision with resource availability. When emergencies occur, municipal governments are responsible for balancing needs while crafting emergency policies and programs in response (Henstra, 2010). In Henstra's (2010) work, he identifies rare emergencies as 'focusing events' which create 'policy windows', or brief moments for decision-makers to push policy solutions. These policies are influenced by competing actors and interests, and decision-makers must navigate this push and pull. Emergency planning is necessary to prepare for these events; however, there is often little public or political motivation to do so when not in crisis moments. Focusing events offer a window of opportunity to introduce new policies, integrate feedback, and improve emergency planning processes (Henstra, 2010). Similar to previous emergencies, COVID-19 was a focusing event for cities across the world and "bears implications for governance" (OECD, 2020b, p.3). As Henstra (2010) mentioned, there is heightened public interest in emergency planning following a focusing event; therefore, *now* is the time to reflect on local governance structures, emergency responses, and prepare for future scenarios.

The experience of COVID-19 has implications for governance structures in emergency planning and preparedness, but also in day-to-day mobility management. If systems are not in place to respond to emergencies, then governments will be less capable of meeting resident needs with evidence-based decisions. Through experience and preparation, emergency processes can be ready to facilitate responsive decision-making, also known as institutional resilience (Sharifi & Yamagata, 2018). Not only does the experience of COVID inform how cities can prepare better for emergency management, but it casts a spotlight on existing issues within governance structures and offers insight for improvement.

6.2 Lessons from Canadian COVID-19 Street Reallocations

The OECD referred to COVID street reallocations as part of the 'tactical urbanism movement' (OECD, 2020). In the report, *OECD Policy Responses to Coronavirus (COVID-19)*, it highlights "the need to rebuild cities long term, based on a new approach to urban spaces that takes better account of different needs, and shifts from a logic of *mobility* to one of *accessibility* to basic amenities and services" (OECD, 2020, p. 6). The report provides lessons and action-oriented

policy recommendations to “build back better cities”, including addressing structural inequalities, “accessibility to soft mobility”, recognizing “cycling as transport mode”, and promoting “an agile and flexible model of city governance through innovative collaborative tools, partnerships or contracts that put the interest of local residents at the centre and increase resilience” (OECD, 2020, p. 38-40).

The OECD report underscores the significance of studying the pandemic as a case study for city emergency planning, as well as needed changes to city governance and the built environment. In alignment with the OECD recommendations, this study identified seven key lessons: how this experience informs future urban planning (ranging from rethinking public engagement to the need for permanent traffic calming), the benefits of street reallocations, experimentation and trying new ideas, the adaptable city, focus on equity and mobility justice, reflections on power and agency, and the need to continue the ‘bike boom’. All the lessons call for change, ranging from literal surficial changes of road applications to deep systemic governance change. Section 6.2.1 will focus on the lessons about adaptability and urban resilience, touching on adaptive capacity and social resilience. Section 6.2.2 will discuss equitable planning, specifically minority representation, and mobility justice.

6.2.1 Adaptability & Resilience

The SARS-CoV-2 virus threatened people’s health and well-being, livelihoods, and sense of security. In response, governments introduced built environment and mobility interventions to mitigate risk and help people get around. Both governmental institutions and individuals needed to adopt creative problem-solving to adapt to the sudden new circumstances. This capacity to withstand unexpected stress and prepare for future uncertainty is known as resilience (Kuhlicke et al., 2014). Research results emphasize the role that adaptation and resilience played in street reallocations as a response to COVID-19. This will be explored through adaptive capacity and responsiveness, as well as social resilience.

Adaptive Capacity & Responsiveness

Masterson et al. (2014) view urban resilience as biophysical and community systems working together to reduce risk. The ability of a system to cope with and adapt to disturbance is reflective

of its adaptive capacity (Baldwin & King, 2018). City systems have many resources they can draw on to support adaptive capacity; these resources include social, economic, physical, and human capital (Masterson et al., 2014). In fact, adaptive capacity is a dynamic social process (Matthews & Sydneysmith, 2010), and this was apparent during the pandemic.

Cities were able to draw upon physical, human, and social capital at the onset of the pandemic. This is apparent when interviewees spoke about the common themes of street reallocation decision-making. Results suggested that many cities repurposed or adapted existing tools, programs, plans, and materials. Participants spoke about observing new trends either through site observations or data collection and responding accordingly. Examples include witnessing long lines outside essential services which were crowding sidewalks, thus, responding with widened pedestrian rights-of-ways. Another example was watching automatic counters for emerging mobility trends and adjusting facilities based on new patterns and needs. These street reallocations were sometimes based on existing plans, just adjusted for the new context, like the City of Brampton promptly installing an identified route in their *Active Transportation Master Plan*. Other times, cities adapted existing programs in accordance with the pandemic. An example is the City of Winnipeg changing their Sunday Streets program to a daily Open Streets program in the spring of 2020. Participants also spoke about repurposing existing materials to suit street reallocations, like French barricades or plastic cones along pop-up bike lanes or widened sidewalks. While these materials didn't always work as intended, it was a valuable lesson in responding to emerging needs and adapting as the situation progressed.

The theme of responsiveness and adaptability also appeared when participants spoke about street reallocation lessons. The lessons mentioned how COVID allowed cities to experiment and try new ideas thanks to political will and cultural shifts, which was inextricably connected to the takeaway that the city is adaptable. When discussing the lessons on how this experience informs future urban planning, participants discussed the importance of safer, sturdier materials when doing temporary street reallocations; the need for design standards to guide future implementations; increased familiarity and know-how for future tactical and temporary installations; and finally, this experience highlighted the need to permanently adapt streets to be safer for vulnerable road users. In summary, COVID was a test for how local governments could

be adaptive and responsive to the health crisis, and street reallocations are the manifestation of this adaptive capacity. These adaptations are examples of what Mike Lydon refers to as 'tactical resilience' or small, neighborhood projects that stress "the need for flexible responses to local needs" (2017, p.284). These examples demonstrate that urban spaces and 'social landscapes' contribute to adaptive resilience (Baldwin & King, 2018; Lara-Hernandez & Melis, 2020). At the very core, these spaces are about people.

Social Resilience

Not only did COVID-19 challenge cities to be adaptable and resilient, but it demonstrated that people are the heart of resilience. Community resilience, also referred to as social resilience, is the collective's ability to cope with emergencies (Baldwin & King, 2018). When certain groups are particularly vulnerable in emergencies, it creates gaps in the social resilience network and makes the overall system weaker. During the COVID crisis, historic health inequities compounded new risk to create fatal social vulnerabilities in society. Seniors and people with disabilities living in extended care homes were particularity vulnerable and accounted for 85% of COVID-19 deaths in Canada (Hsu et al., 2020). While minority and racialized groups experienced poorer health outcomes after COVID-19 infection (Obinna, 2021), and were more likely to be exposed to the virus as 'essential' frontline workers (Wright & Merritt, 2020). This vulnerability became very apparent to the rest of society during the crescendo of the Black Lives Matter Movement (BLM) in the summer of 2020, as a response to the health and structural inequities that Black people and racialized communities face. These vulnerabilities deserve attention because the health of at-risk populations impacts the health of everyone (Schachter, 2020). COVID-19 helped expose pre-existing vulnerabilities, as well as the ongoing challenges that certain populations still face.

During interviews, participants reflected on the vulnerabilities in their own cities. They acknowledged that an absence of equity considerations was a challenge for street reallocation projects and planning in general. This lack of focus is reflected in the motivations for street reallocations. Recreation and leisure were considered before mobility justice, essential workers commuting to work, or the impacts on transit. Some interviewees even reflected on the impact of BLM in their work by acknowledging the structural barriers that prevent racialized communities

and other vulnerable groups from participating in decision-making. This especially resonated when interviewees spoke about the power and agency of people speaking up and asking for measures that considered them. As one participant shared *"COVID just sort of highlighted specific gaps in our infrastructure… if you don't strengthen the weaknesses that already are so clear in the network… I don't think we're going to be very resilient for the next public health crisis."*

Magis (2010) emphasizes that community resilience is contingent on community resources and networks. Cities like Brampton relied on their AT advocacy group to inform their decision-making and communication processes. By doing so, they gained valuable input and downloaded some of the city's workload onto a trusted network. Not only did this help the city be more informed and responsive, but it also empowered the community group in doing so. Collaborating with community groups ultimately helped Brampton implement street reallocations; however, these groups did not represent the most vulnerable populations and their needs. Thus, working with groups that represent marginalized groups must be a priority moving forward. While city structures provide the framework and tools for resilience, it is human and social capital that complete a city's resilient capacity (Murphy, 2007). Therefore, it is critical to identify community vulnerabilities and center equity and justice when planning for resilience.

COVID challenged cities to be adaptable to the health crisis, but social vulnerabilities limited their ability to fully meet people's needs and be resilient. Resilience thinking demands transformation in planning culture and practice, especially when it relates to planning strategy and vision, public participation and capacity building, equity and empowerment of the marginalized, institutional reforms, social networks and support, land use planning, and urban infrastructure (Eraydin & Tasan-Kok, 2013). The experience of COVID calls for a shift in urban planning towards a human-centered approach, one that focuses on adaptive capacity and social resilience to make sure that everyone is cared for, even in emergencies.

6.2.2 Equitable Planning & Mobility Justice

During COVID-19 marginalized communities were more vulnerable to the impacts of the virus yet were excluded from the decision-making process. To address this gap, researchers urge that equity and justice should be central tenants of resilience planning (Fitzgibbons & Mitchell, 2021; Meerow et al., 2019; Murphy, 2007). Meerow et al. (2019) propose a tripartite framework for social equity dimensions that balances (1) distributional equity: equitable distribution of goods, services, and opportunities; (2) recognitional equity: acknowledgement and respects of different groups; and (3) procedural equity: equitable participation in decision-making processes. Their review of Resilience Plans from Rockefeller Foundation's 100 Resilient cities revealed that *if* plans integrate equity, they generally focus on distributional equity (Meerow et al., 2019). While this aspect is important, it signals the work needed to recognize diverse groups and integrate them into decision-making processes for on-going urban planning and emergency management. Take-aways from COVID street reallocations suggest that moving forward, consideration should be focused on meaningful minority representation and mobility justice.

Minority Representation

As discussed above, street reallocation motivations revealed city priorities and who was considered during decision-making. Marginalized communities were not at the table, nor were their needs or concerns. The absence of public engagement during street reallocation decision-making expedited implementation but excluded diverse community perspectives. Representation issues with public engagement are not unique to COVID and are pervasive in non-pandemic times, "the voices and historical presence of people with less power continue to be overlooked or ignored. We need to find new ways of paying attention to, and ensuring space for, these voices so that outcomes can be better and fairer" (Tate, 2021, p. 152).

The fact that absence of equity considerations was identified as a pervasive issue within existing governance structures reinforces calls to impactfully integrate more diverse voices and perspectives into public engagement processes (Fainstein, 2010; Tate, 2021). Cattapan et al. (2020) offer recommendations to make public engagement more inclusive. Their work centers on engagement strategies during COVID-19 confinement to improve pandemic-related policymaking, but also to help build a stronger foundation for future crises. Through their work

they identify four key lessons: engagement should be flexible to centre on the needs and voices of marginalized communities, engagement is easiest when it builds on networks that are already working, engagement requires multiple (low- and high-tech) approaches, and engagement that is intersectional and inclusive takes time and resources (Cattapan et al., 2020). Building community relationships based on trust and respect takes time. This work is important because "establishing and maintaining these networks in an ongoing way will ensure that they are ready to be drawn on when another crisis emerges, creating a solid basis for reacting and responding to change." (Cattapan et al., 2020, p. S294). In a moment of urgency, broad and extensive engagement is not feasible. However, if the city has a history of doing so and has nurtured relationships with local groups to identify trusted leaders with local knowledge, then they can act as stakeholders in emergencies. For some cities, they did not have these integral networks or relationships in place when COVID-19 hit. This was evident when one official shared that they wanted to implement temporary measures in a neighbourhood but chose not to because they had not developed contacts in that area and wanted to consult before implementing.

COVID-19 street reallocations have highlighted the importance of developing more inclusive and equitable engagement processes on an ongoing basis, as well as the need to integrate these efforts into emergency planning. Addressing power dynamics and systemic issues within local governance not only makes cities more equitable places to live, but better positions cities to act in times of crisis.

Mobility Justice

Mobility justice is "an overarching concept for thinking about how power and inequality inform the governance and control of movement" (Sheller, 2018, p. 14). According to Spinney (2021), mobility is "actively produced, unevenly distributed and experienced differentially" (p. 125), and this could not have been truer during COVID. At the onset of the pandemic traffic densities significantly declined due to local travel restrictions (Chen et al., 2021). Public transportation also experienced a dramatic decline because it was perceived as a vector for viral spread (Gutiérrez et al., 2020). Meanwhile, utilitarian walking (Hunter et al., 2021) and cycling (Eco-Counter, 2020) rates decreased while recreational rates increased. To accommodate these new realities, some cities installed street reallocations to help people get around. While street

reallocations were a unique example of adaptability, they were not implemented with the most vulnerable in mind.

This lack of consideration of the most vulnerable is not an issue exclusive to the pandemic, addressing equity concerns was listed as one of the top day-to-day challenges for street reallocation projects. Further, equity and mobility justice were less of a motivation for street reallocations than recreation or business needs, and only a handful of cities factored equity into their decision-making process. Participants acknowledged that the measures were mostly in affluent areas and for able-bodied people. They also recognized that their cities had a history of not centering mobility decisions on equity or mobility justice. As a result, addressing equity and mobility justice was listed as a key lesson for decision-makers. The take-aways were distinguished by two major concerns: where street reallocations were located and who had access to them, and second, who could use them and did they have accessible design.

Results from this study complement those from similar studies. Lin et al. (2021) discovered that Toronto COVID-19 cycling facilities improved accessibility to population centers, jobs, groceries, and parks in low-stress cycling environments. Consequently, these benefits were mostly felt by people living in central, socially advantaged neighbourhoods where COVID lanes connected to existing networks (Lin et al., 2021). Fischer & Winters (2020) found similar results in three mid-sized Canadian cities. Their research located street reallocations in mostly downtown cores with higher densities, higher rates of AT, in proximity to essential services, and areas with fewer visible minorities (Fischer & Winters, 2020). This is important because the "COVID-19 crisis shows that the relationship between privilege and bodily movement is currently being recalibrated" (Kuttler & Moraglio, 2020, p. 2).

By examining COVID street reallocations and the associated lessons, it helps decision-makers to address systemic issues and prepare for the future. Firth et al. (2021a) examined socio-spatial differences in access to street reallocations and how they connect to existing active transportation networks, especially for communities who face mobility inequity. The research suggests that street reallocations can help move cities towards mobility justice if measures like neighbourhood mobility, economic stability, and long-term population health are considered and evaluated.

Furthermore, their work emphasizes the necessity to develop relationships with communities and involve them to 'co-create' roadway changes (Firth et al., 2021a). Street reallocations can be tools for mobility justice and resilience if they are centred on the most vulnerable people and their needs. The City of Oakland learned this from their COVID Slow Streets Program. Initially, the program was well received by high income, white residents, while racialized residents and essential workers expressed concerns about the program. In response, the Oakland Department of transportation conducted corridor-specific outreach to better understand neighbourhood needs and adapt the program. In the end, all temporary measures were removed to implement long-term improvements based on the feedback. These changes were only possible because the city was committed to listening and responding to community needs (City of Oakland, 2022).

Results from this and other studies revealed that mobility planning must be centered on equity and mobility justice. Though examining COVID-19 street reallocations, systemic issues within existing governance structures and mobility planning are exposed. It echoes calls to integrate minority voices into decision-making and working in partnership with communities. In addition to the calls for increased representation and processes centered on mobility justice, governance structures must examine how to foster adaptive capacity and social resilience. Solutions to some problems are complimentary to others. Building relationships with marginalized communities and existing advocacy groups not only helps to integrate their voice into decision-making and public consultation, but it also fosters adaptive capacity and social resilience, as well as creates trusted contacts and stakeholders during urban emergencies.

COVID-19 provided a rare opportunity to unveil governance structures and critically reflect on how these systems function in emergency scenarios and on a day-to-day basis. It also provided a glimpse into how and why Canadian cities implemented street reallocations as a solution to the pandemic. This study revealed that COVID street reallocations allowed cities to be adaptable in their approach and operation, and to learn by experimentation. Additionally, this experience allowed communities to see streets in a new way and value active transportation and public space in a way that they had not before. Furthermore, COVID-19 exposed systemic issues within

governance structures and decision-making, as well as emergency management. It highlighted issues of meaningful minority representation in decision-making, neglect of community vulnerabilities, and ignorance of community resources and insight. The experience of COVID-19 is a **call to action** for decision-makers and practitioners to reflect on lessons of power dynamics within governance structures, the importance of emergency preparedness, the value of meaningful public engagement and consultation, the benefits of adaptive capacity and resilience, and the imperative to center equity and mobility justice within the planning practice. As the OECD (2020) claims, "such lessons provide useful insights in rethinking cities and urban policy in the post COVID-19 world".

6.3 Research Limitations

While this study tried to be as representative of Canadian COVID street reallocations as possible, I was bound by time and capacity and could only select a sampling of communities across the country. Additionally, this work was occurring in real-time and this made it difficult to always be informed of what was happening in each place and how this developed over time. Conditions in each city were evolving as time went on, and this study strived to be as representative of this as possible.

Further, I only spoke to city officials (planners, engineers, administration staff, and elected officials) as well as active transportation advocates. While this balanced insider perspective with outsider perspective, it was still limiting of perspectives. I did not interview or survey street users to understand their experience of street reallocations.

6.4 Further Research Recommendations

The scope of this research is limited to COVID measures of summer 2020. Further research is needed to understand how the experience and takeaways from the first summer of COVID translated into the following summer and ultimately became permanent features. Additionally,

this research could not fully address the many government systemic issues because it was beyond the scope of this research. Examples of systemic issues include departmental ‘siloing’ (institutionally compartmentalized thinking), miscommunication or lack of communication between government departments, and institutional equity concerns. Future research integrating geospatial methods could help to further verify data.

7 Conclusion

COVID-19 completely disrupted people lives, particularly how and why people moved around their cities. In an effort to try and accommodate changing mobility patterns, cities introduced street reallocation measures. Examples of these measures include widening sidewalks, pop-up bike lanes, road closures, and slow streets. This research sought to understand how and why ten Canadian cities implemented street reallocations as a response to COVID-19, what occurred in the decision-making process, what were the motivations, and what were the barriers and how were the decision-making processes different from non-pandemic circumstances. Finally, this work pulls out the lessons from this experience to inform future emergency planning and resilience building.

Research findings revealed that in the ten study cities, total road closures were the most common street reallocation measure, followed by slow streets and sidewalk extensions. The most common motivations for implementing these measures were for health and safety concerns, recreation and leisure, and business needs and economic stimuli. Within the decision-making process there were five major themes that emerged: observation based and evidence-informed decisions, responses based on existing plans and policies, utilizing existing knowledge and internal capacity, strong leadership and political will, and collaboration and community resources. Barriers include political and cultural values, existing design and infrastructure, recreation focus, and absence of equity considerations. While differences range from cultural and political shifts, to expedited processes, absence of consultation and engagement, and sense of experimentation. The take-aways identified by participants were how this experience informs aspects of future urban planning, realization of the benefits of street reallocation, opportunity to try new ideas, realization the city is adaptable, and focus on equity and mobility justice.

The research findings emphasize the importance of studying the COVID-19 pandemic as a case study for city emergency preparedness. The experience of COVID-19 highlighted structural gaps and social vulnerabilities that impede a city's ability to withstand crises. The resulting implications call for critical examination of local governance structures, including public engagement and consultation process, emergency preparedness, and resilience building. More importantly, COVID-19 has demonstrated that all these measures must be centered on equity and

justice. Finally, the pandemic has taught that streets and public spaces, when equity-focused, contribute to overall community resilience. These lessons are important for decision-makers and practitioners to help make our cities better places for people to live and more prepared for the next emergency.

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Appendices

Appendix A: Interview Scripts

The City Official

1. Can you introduce yourself and your role?

2. What: What measures did your community take to help people get around during the COVID-19 pandemic?
    a. street space for pedestrians and cyclists in response to COVID-19?
    b. FCM typologies/recommendations

3. Plan & Design: What was the decision-making process in deciding what measures to implement?
    a. What steps were taken?
    b. Sources of inspiration/guidance?
    c. How long did it take?
    d. Who was involved?
    e. Community engagement or consultation?
    f. Road user needs and mobility equity?
    g. Funding & budgets. Costs and benefits?
    h. BARRIERS

4. Equity: What were the motivations or justifications for reallocating street space?
    a. low-income or essential worker communities? If so, what are the considerations?
    b. business needs considered?
    c. personal physical and mental health considered?
    d. access to public transportation and mobility equity a consideration?
    e. Racial equity. incorporate the varying needs of different racialized groups as a consideration? (Be prepared to contextualize this)
    f. adaptive capacity, community resilience, or sustainability considered?

5. Implementation: Describe the implementation process.
    a. Who did this?
    b. Maintenance, who, how?
    c. Opposition? (how addressed?)
    d. Temporary or permanent?

6. Users: Do you think that the COVID street reallocation measures changed the way people moved/or continue to move around your community?
    a. Collect data or evidence?

b. Safety compared to other projects?

7. Compare: Can you compare this process to previous street redesigning/street calming/active mobility projects in your community's past?
    a. Input from community members, stakeholders, advocacy groups?
    b. AT advocacy groups specifically.

8. Result: How would you define a successful AT response to COVID?
    a. How do you feel about the actions that your community took?
    b. similar measures for spring/summer/fall of 2021?

9. Future: How do you think COVID has impacted the future of urban mobility and planning, in your community, and generally? LESSONS!!
    a. What do you think we can learn from this process?
    b. What is the legacy of the COVID pandemic? Does this change anything?
    c. What are the bright spots?

The Active Transportation/Livable Streets Advocate

1. Can you introduce yourself, your organization and your role?

2. What: What did your community do to make it safer for people to walk and bike during the COVID-19 pandemic?
    a. Broadly
    b. Safer to walk and ride a bicycle?

3. Plan & Design: Are you aware of what the decision-making process was?
    a. Did the city communicate this? How?
    b. How long?
    c. needs of different road users were considered?
    d. community engagement or consultation? Was your organization consulted or contacted?

4. Implementation: What was the implementation process?
    a. What were the materials and structures like?
    b. Maintenance?
    c. Temporary or all season?
    d. opposition to proposed measures? how was it addressed?

5. Equity: Do you know what the reasons, motivations, or justifications for reallocating street space were?
    a. for low-income or essential worker communities? If so, what are the considerations?
    b. business needs?

    c. physical and mental health?
    d. access to transportation and equity?
    e. racial justice?
    f. safety
    g. adaptive capacity, community resilience, or sustainability?

6. Users: Do you think that the COVID street reallocation measures changed the way people get around your community?
    a. safe or safer than conventional facilities?
    b. Do you think people liked them?

7. Your role: What was your organization's role in the COVID-19 response?
    a. Was your organization asked/took the initiative to collect street counts/data?
    b. considered a valuable stakeholder when the city is making AT decisions? Is your organization ever consulted by city officials?

8. Results: How would you define a successful AT response to COVID?
    a. Are you satisfied with the actions that your community took?
    b. Do you think normal barriers for AT projects were expedited/overlooked/overcome? Why?
    c. similar measures for spring/summer/fall of 2021?

9. Future: How do you think COVID has impacted the future of urban mobility and planning, in your community, and generally?
    a. What do you think we can learn from this process?
    b. What is the legacy of this event? Does this change anything?

Appendix B: Code Tree (Coding Framework)

Street Reallocation Response Measures

- Lane closure
  - Sidewalk extension
  - Pop-up bike lane
  - Loading Zone
- Slow/Open streets
- Total road closure
- Tactical Urbanism
- Traffic Signals

Decision-Making Process

- Funding
  - Municipal
  - Prov/Federal
- Community Input & Actors
  - Emergency services
  - Community groups
  - Advocacy groups
  - Businesses & Business Improvement Areas (BIA)
  - Special interest group
  - Advisory committee
  - Existing engagement and consultation
  - Other agencies/ Regulatory bodies
  - Public input
- First Mover City Trends & Inspiration
- Adapting to changing circumstance
- Internal Decisions
  - Staff analysis, recommendations, and presentations
  - Existing plans and projects
  - Observations
  - Across-departmental collaboration
  - Staff authority
  - Try new things approach
- Legalities
- Municipal Politics
  - Councillors
  - Council Motion and directive

Implementation

- Installation
- Community partnerships
- Data & data collection

- Communication
  - Signage
  - Press release & media coverage
  - Leaflets (print)
  - In-person conversations
  - Online & social media
  - Survey or interactive website
- Maintenance
- Timeframe
  - Interim
  - Temporary/ Pilot
  - Permanent

Motivations & Justifications

- Mental health & well-being
- Access to parks and green space
- Business needs & economic stimuli
- Equity & mobility justice
- Essential workers commuting
- Decreased traffic volumes
- Access to essential services
- Physical activity
- Place making & livability
- Public health & safety measures
- Recreation & leisure purposes
- Sustainability & environmental reasons
- Transit
- Transportation

Barriers & Issues

- Community resistance
- Blaming and avoiding responsibility
- Lack of equity lens
- Existing infrastructure & design
- Budgets & funding
- Car commuting and parking prioritized
- Focus on central urban areas
- Community consultation/ engagement process
- Department siloing & government organization
- Aversion or fear of failure
- Lack of internal capacity
- Perception it's not safe
- Politics & cultural values
- Recreation focus

- Regulatory approvals
- Time frames (takes too long)

Difference & Opportunities

- Become permanent
- Sense of experimentation
- Quicker approvals
- Cultural shift and political will
- Expedited process
- Consultation & engagement process
- Energy intensive (staff & resources)
- Collaboration & shared goals
- Dedicated funding

Lessons & Take-aways

- Power & agency
  - Political will is key!
  - Stand up & speak up
- Benefits of street reallocations
  - Supporting local business & economic stimuli
  - It's possible
  - Building community and place making
  - Cycling as transportation
  - See the streets in a different way
- Continue to build on bike boom
- Adaptability, improvement, & potential
- Inform future urban planning
  - Temporary and tactical experience
  - Need better materials
  - Design standards
  - Permanent traffic calming
  - Rethink public engagement & consultation
- Try new ideas & experimentation
- Equity & mobility justice

Appendix C: Interview Consent Form

Participant Consent Form

Researcher: Kara Martin, Masters Student, McGill University, Department of Geography, (438)336-5090, kara.martin@mail.mcgill.ca

Supervisor: Kevin Manaugh, Department of Geography and McGill School of Environment, (514)709-7853, kevin.manaugh@mcgill.ca

Title of Project: How did Canadian cities respond to COVID-19 with street reallocations and what can we learn from this experience?

Sponsor(s): SSHRC Canada Graduate Student Master's Award

Purpose of the Study: This is an invitation to participate in a research study. The purpose of the study is to investigate how Canadian municipalities responded to the COVID-19 crisis with street reallocation and active transportation measures, and what this experience can teach us about community resilience and well-being. This knowledge will help better prepare city planners and decision-makers for future adversity.

Study Procedures: The interview will take approximately 45 to 75 minutes via online video call using Microsoft Teams or Zoom. The researcher will request to record the interview either with or without video. The footage will solely be used by the researcher for note taking purposes that allows the researcher to commit full attention during the interviews. The footage will not be disseminated.

Voluntary Participation: Participation is voluntary, you may refuse to participate in parts of the study, may decline to be recorded, may decline to answer any questions, and may withdraw from the study at any time, for any reason. If you withdraw, your data will be destroyed until the point that publication occurred. Following publication, data must be retained, but will be withdrawn from any further analysis or future publication. Once combined in analysis, it may not be possible to withdraw your data in its entirety. Identifiable data will be kept for 7 years.

Potential Risks: Participant names and professional titles will not be disclosed in written research results (unless explicitly granted permission to reveal role [see below]). Measures to protect identity will include referring to participants as "city official" or "stakeholder". However, the name of study sites will be printed. Place identification presents an increased risk of secondary re-identification of participants. As a result, participants could conceivably face social or professional repercussions for expressing their views, and/or if their views do not match those of their employer or community.

Potential Benefits: By participating in this study, your responses will help contribute to building knowledge on: crisis management, resilience-oriented urban planning, mobility justice, and the role of active transportation in communities. Your participation will help Canadian communities better prepare for the future.

Compensation: There is no compensation for participation.

Confidentiality: The name and role of the stakeholder will remain confidential, unless the participant grants permission to disclose their role [see below].

In some cases, multiple participants from the same organization may agree to or request to be interviewed together. In this case I/the researcher cannot guarantee confidentiality during the interview, but will maintain confidentiality in the results.

The data collected will be stored in a password protected folder on the researcher's computer and password protected on the McGill OneDrive. Once videos are transcribed, the video will be destroyed and each participant's identity will be given an alias. The researcher and her supervisor will be the only people who will have access to this information. The final results of the research will be disseminated in the form of a master's thesis and possibly in related articles.

Permissions:

Yes:____No:____ You consent to be identified by your professional role in reports (i.e Senior Transport Planner, Executive Director).

Yes:____No:____ You consent to have your video turned on during the interview recording.

Please note, participants are responsible for obtaining any necessary permissions from their employer. Be aware that this may make your contribution to this study identifiable to that person or persons.

Questions: Please contact Kara Martin with any questions/clarifications about the project at (438)336-5090 or kara.martin@mail.mcgill.ca

If you have any ethical concerns or complaints about your participation in this study, and want to speak with someone not on the research team, please contact the McGill Ethics Manager at 514-398-6831 or deanna.collin@mcgill.ca

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Name of participant: _____

Signature of participant: _____

Date of signature: _____