

**Planning the Future of the Underground:
Taking Toronto's PATH to the Next Level**

by

Ryan Chow

supervised by

Laura Taylor

A Major Paper submitted to the Faculty of Environmental and Urban Change
in partial fulfillment of the requirements for the degree of
Master in Environmental Studies
York University, Toronto, Ontario, Canada

November 30, 2023

Abstract

The Toronto PATH is among the world's largest examples of underground pedestrian systems, offering sprawling subterranean corridors linking major office buildings, subway stations, shopping centres, and other destinations throughout downtown Toronto. Nearly entirely privately constructed, owned, and operated, the PATH was primarily built in the mid- to late-20th century to cater to the convenient, climate-controlled circulation of downtown Toronto's population of office workers. As I experienced walking through the PATH during the COVID-19 pandemic, I thought to myself how this network of once lively urban spaces was impacted by the pandemic, such as through the consequent rise in popularity of working from home. This ultimately prompted me to write this paper, which serves to explore the history of the PATH network, record the current conditions of the PATH, and evaluate its future role in serving Toronto. Underground pedestrian systems have not been heavily researched and I found that as the world was exiting the COVID-19 pandemic, this would be an ideal opportunity to rethink the purpose of the PATH as an urban space. Through the review of literature, many site visits to the PATH, and discussions with several individuals knowledgeable on the PATH, I sought to answer: What kind of space can the Toronto PATH underground pedestrian system be in the future? While the PATH did suffer from severe drops in pedestrian activity during the core of the pandemic, the networks have seen a rebound to nearly pre-pandemic levels on most days of the week. It is not anticipated for the PATH to see any revolutionary changes to its approach as a transportation system in the near future, however, new retail options and experiences can be expected as well as improved wayfinding. Nevertheless, the PATH should not rest on its laurels and would benefit from greater efforts towards keeping it relevant and purposeful for the future. New uses, expanded network coverage, continued improvements of the PATH's spaces and their given amenities, and better integration between above-ground and below-ground spaces are encouraged for the PATH to become less dependent on its core office commuter clientele and live up to its full potential.

Résumé

Le réseau PATH de Toronto est parmi les plus grands réseaux piétonniers souterrains du monde, avec ses couloirs tentaculaires qui relient une vaste variété de destinations à travers le centre-ville de Toronto, incluant les tours de bureaux, les stations de métro, et les centres commerciaux. Le réseau PATH a été presque entièrement bâti par le secteur privé pendant la seconde moitié du 20^e siècle, avec le but de fournir des couloirs de transport pratiques et climatisés pour les employés de bureau du quartier financier. En visitant le réseau PATH pendant la pandémie de COVID-19, j'ai témoigné une baisse de trafic dans ce réseau une fois si dynamique et si animé. Par conséquent, je me suis mis à réfléchir les impacts de la pandémie sur le réseau PATH, surtout avec les tendances comme le travail à distance. Comme le réseau PATH m'a si intrigué, j'ai eu l'inspiration d'écrire cette étude pour mieux explorer l'histoire du réseau, pour noter son état actuel, et pour évaluer son avenir. Il existe relativement peu de recherches sur les réseaux piétonniers souterrains, et encore moins à propos de ces réseaux dans le contexte de la période postpandémique. J'ai donc trouvé que ce serait une excellente opportunité pour reconsidérer et réévaluer l'objectif et le rôle du réseau PATH comme espace urbain dans la ville de Toronto. Pour répondre à ma question « Quelle genre d'espace pourrait devenir le PATH dans le futur ? », j'ai effectué une recherche documentaire, des visites sur place, et des entretiens avec des personnes connaissant bien le réseau PATH. Malgré qu'il y eût une grande réduction de la fréquentation du réseau PATH au milieu de la pandémie, le réseau PATH a récemment vu un rebond presque au même niveau de trafic pré-pandémique. Des changements révolutionnaires du réseau PATH comme réseau de transport et réseau piétonnier ne sont alors pas anticipés dans un proche avenir par les propriétaires du réseau PATH. Cependant, des nouveaux choix de magasins et d'expériences, et des améliorations du système de signalisation du réseau sont prévus. Néanmoins, pour que le réseau PATH puisse rester durable et pertinent aux besoins des Torontaises et des Torontois dans le futur, le réseau PATH devrait penser à comment mieux améliorer et évoluer ses espaces. Des nouvelles utilisations, des nouvelles routes et connexions, des espaces attentivement réaménagés, et des meilleures intégrations entre les espaces souterrains et les espaces au niveau de la rue feront le réseau PATH moins dépendant sur sa clientèle traditionnelle et permettront le réseau PATH d'exister à la hauteur de son plein potentiel.

Foreword

At the start of York University's Master in Environmental Studies Planning program, I was asked to create a 'Plan of Study', a requirement of this program where I would identify what I wanted to learn over the next two years, set goals for myself, and draft my own tailored set of courses that I would enrol in to achieve my personal educational goals. Towards the end of the program, I would be required to write a Major Research Paper, this paper right here, which would allow me to use the knowledge I accumulated since the start of my time here at York University, delve deeper into a topic of my choice related to my interests as highlighted in my Plan of Study, and generate my own unique contribution to research in Environmental Studies.

I titled my Plan of Study's area of concentration as *Planning Communities with Urban Design and Multi-Modal Transportation*. I listed Land-Use Planning, Transportation, and Urban Design as urban planning topics that I sought to learn about. This Major Research Paper is about Toronto's PATH underground pedestrian system, a network of subterranean corridors linking dozens of destinations throughout the city's downtown core, housing its own set of uses such as retail, dining, and services, and serving as a uniquely located urban and social space. In other words, the writing of this Major Research Paper has given me the opportunity to think deeply about the relationships between Land-Use Planning, Transportation, and Urban Design matters, the exact topics identified in my Plan of Study. The Toronto PATH and other underground pedestrian systems have not been frequently researched, let alone my particular research focus on the post-pandemic future of the Toronto PATH. My Major Research Paper therefore also fulfils the purpose of contributing new research to my home city of Toronto as well as new research that can benefit the greater realm of urban planning around the world.

After many months of thought and hard work, I believe that I have completed this paper in a way that satisfies the overall goals and intentions of my Plan of Study, and in turn, I have written this paper in a way that contributes to the fulfilment of the requirements of the Master in Environmental Studies Planning Degree. Writing this paper has allowed me to hone my oral communication, written communication, research, and critical thinking skills. I have consequently performed many of the core competencies identified by the Ontario Professional Planners Institute as required functional and enabling competencies to practice as an urban planner in the province.

Acknowledgements

Firstly, I would like to thank and recognize Laura Taylor, who took on both the roles of being my research supervisor and my advisor in the past year. I would not have gotten this far without your meaningful advice, insights, and support.

I would additionally like to thank and acknowledge my other professors and instructors who have made my time at York University so fulfilling, rewarding, and worthwhile. Thank you all for the valuable knowledge that you have given me as I begin my career in Urban Planning.

As I think back to being dropped off at pre-school for the first time and look now to how far I have come as I complete the final stages of my student life, thank you to my parents for everything that you have ever provided to me and for your unconditional love. Particularly, thank you to my mom for (unknowingly at the time) sparking the initial idea for this paper. If it was not for your office's contest on who could walk the most steps, we would not have been walking in the PATH in the winter of 2022.

Thank you, Kayla, for your unwavering support, encouragement, love and good times since we met in Grade 12.

Thank you, Jordan, for being a sounding board to my ideas as I wrote this paper and for our conversations that always spurred new ideas.

Thank you to anyone else I crossed paths with during my 2 years at York University who made my graduate school experience as great as it was. Lastly, on a less serious but still important note, thank you to my laptop for holding up until now, albeit in a very worn-out and beat-up condition.

Table of Contents

Pt. 1: Introduction – Welcome to the Toronto PATH	1
Pt. 2: Methodology – Why am I digging into this?	2
<i>2.1 Motivation for this Study</i>	<i>2</i>
<i>2.2 Research Questions</i>	<i>3</i>
<i>2.2 How am I researching this?</i>	<i>4</i>
Pt. 3: Deep History - Looking at the History of the PATH	11
<i>3.1 A Brief History of the Toronto PATH</i>	<i>11</i>
<i>3.2 UPSs around the world today</i>	<i>16</i>
Pt. 4: Using the PATH, Past and Present Conditions	17
<i>4.1 Past Decades</i>	<i>17</i>
<i>4.2 My personal ‘path’ in mastering the PATH</i>	<i>21</i>
<i>4.3 The PATH during the COVID-19 pandemic</i>	<i>21</i>
<i>4.4 Using the PATH in 2023 – Summary of Site Visits</i>	<i>25</i>
<i>Where does the PATH go?</i>	<i>25</i>
<i>Activity in the PATH</i>	<i>31</i>
<i>Design Features</i>	<i>40</i>
Pt. 5: Buried Alive? – Thinking About the Present and the Future	52
<i>5.1 Evaluating the PATH</i>	<i>52</i>
<i>5.2 Talking More about the Future of the PATH – Summary of Interviews</i>	<i>68</i>
Pt. 6: Recommendations	77
Pt. 7: Light at the End of the Tunnel – Conclusions	87
References	93
Appendix	96

Pt 1: Introduction - Welcome to the Toronto PATH

In downtown Toronto, the buzz of conversation and the pitter-patter of dress shoes resounds several times a day if you know where to listen below the ground. In the last century, Toronto has grown not just horizontally or vertically towards the sky, but also down into the ground. Toronto's PATH network, a collection of over 30 kilometres of interconnected corridors underneath downtown Toronto, is among the most prominent of examples of underground pedestrian systems (UPS) around the world. Every weekday morning and afternoon, people rush through the PATH to travel between work and home. In between these hours, people accumulate in the PATH's spaces to grab meals, run errands, obtain services, host meetings and interviews, or catch up with family and friends. For years, the PATH has seen hundreds of thousands of users each and every day. This sprawling collection of below-grade spaces adds another dimension of productivity and space all without occupying any valuable downtown land above ground.

While underground urban spaces are not the most common of topics discussed in everyday urban planning, it is something garnering more and more attention. Many city planners, leaders, and builders are taking deeper looks at their cities, quite literally, as they envision what can be done below the ground to make more efficient use of their most urbanized places. Underground spaces can have attractive propositions for sustainability and productivity: more activity with less space.

In 2021, during the Covid-19 pandemic, I had the opportunity to walk Toronto's PATH end to end many times. I began thinking of how the usual hustle and bustle of the system was gone as much of the PATH's usual clientele, workers from the offices above, worked remotely from home.

How people visit, use and interact with cities continues to evolve into the future, and especially after the Covid-19 pandemic, an opportunity is presented to reevaluate UPSs like the Toronto PATH and rethink the potential that these spaces have in serving the needs of their cities.

Pt. 2: Methodology - Why am I digging into this?

2.1 Motivation for this Study

My inspiration for studying the Toronto PATH first ignited in 2021 amidst the COVID-19 pandemic. In a time blurred by social distancing policies, ever-changing lockdowns and closures, and work-from-home routines, the PATH was, at times, virtually void of any human life. I consequently took advantage of the PATH's empty labyrinthine spaces to get a change of scenery, reach my daily walking goals, and simultaneously explore this vast expanse of urban space buried under downtown Toronto. After numerous occasions walking through the PATH from one end to the other, I began reflecting on how the PATH, and even downtown Toronto as a whole, was once so animated with social exchanges, interactions, business, and movement. I reflected on what role the PATH played in Toronto before the pandemic, and if such a role could remain relevant after the pandemic. I wondered if with so many working from home, and with many adapting to new routines, the PATH would still have purpose in Toronto's central business district in the future.

My intrigue and fascination with the PATH lead to me looking up more on the PATH's history as well as how the PATH had been affected by the pandemic. In doing this, I learned that quite a few UPSs not dissimilar to the PATH existed around the world. I learned about the value and potential that existed in the development of underground spaces in cities. I also saw how underground urbanism was becoming an increasingly researched topic in urban planning. Furthermore, I realized that the questions I was asking myself on the PATH were possibly unanswered questions. To date, academic research on how the pandemic has affected UPSs and how UPSs can improve for the future is few and far between.

Being in my hometown, the PATH has a personal connection to me. More relevantly, however, the PATH has presented characteristics that make it ideal for examination among UPSs around the world. The PATH is a UPS that demonstrates many of the known advantages of underground urban spaces.

Being such a large system, the PATH has often been mentioned in literature regarding underground developments, whether as a specific case study or just anecdotally. With the PATH's high level of recognition in previously studied topics on underground developments, it is quite suitable and appropriate for the PATH to be studied in this new perspective regarding a post-pandemic future and future uses. Whatever possible ideas for future improvements to the PATH that could be conceived from this study, Toronto could benefit from making the most of this underground space. Research on the pandemic's impacts, the state of the PATH, and how the PATH could be improved resonates not only with Toronto, but also supports ongoing research and questions on best practices for the subterranean in cities around the world.

2.2 Research Questions

In one line, the overarching question that I sought to answer via this study was:

What kind of space can the Toronto PATH underground pedestrian system be in the future?

To better answer this question, I further contemplated: What has been the impact of the COVID-19 pandemic on the PATH? And, how might the PATH remain useful and relevant to Toronto in a post-pandemic world?

This study therefore led me to evaluate the current state of the PATH and any issues that the PATH is facing, including any effects of the pandemic. Following this, I aimed to determine what possible improvements could be made and explore how the PATH could remain relevant in the future. I evaluated the users of the PATH. Who has had, and who currently makes use of the PATH? I evaluated uses in the PATH. Could new uses be promoted, and through this, could new types of users be attracted to the PATH to expand its functionality? What could be possible ideas for new uses? Furthermore, had any plans for the future of the PATH been disrupted by the pandemic? Were any new ones being created? Finally, I evaluated how the PATH is managed. Who is responsible for what segments of the PATH and how could governance affect the ability to build or implement changes to the PATH?

Ultimately, through this study, I aimed to yield a set of recommendations that a PATH planner or operator could consider when looking at the future of the PATH, its expansion, and how it may be utilized.

2.3 How am I researching this?

A qualitative approach was used to conduct this study, through a sequential research design with several methods. A review of literature and an observational study of the PATH were first conducted to ensure a thorough basis of knowledge of the PATH and an acknowledgement of the current state of the PATH. Following the literature review and observational study, I conducted interviews with various individuals. Interviews allowed access to more profound, up-to-date, and research-specific information that could not have otherwise been extracted through other sources.

Literature Review

The literature review considered academic sources, grey literature such as government policies and documents, and other forms of media such as news articles. The PATH, UPSs in general, the COVID-19 pandemic's impact on commercial and business areas of cities, urban design, transportation planning, and public spaces were among the topics of the literature consulted. Considering these subject areas allowed me to understand the PATH, its condition, and its functions holistically from various lenses and perspectives.

Observation

The exploratory nature of this study made observation an ideal data collection method, complementing the literature review with a primary source of information. Observation also helped me prepare for the interview component of the study. As my research questions ask how the PATH can remain useful and relevant to Toronto in the post-pandemic future—and understanding of the current state of usage and users would contribute to answering this overall question—an observational study allowed for better understanding of how the PATH is used at the present. Being physically in the PATH allowed me to see common, everyday uses, activities, and behaviours. Up-to-date

sightings of patterns and features that would not necessarily be described in existing literature was uncovered. While interviews featuring expert individuals with a variety of backgrounds also brought valuable data on the current state of the PATH in hopes of identifying any room for improvement in the PATH, the observational study supported findings from these interviews. For example, data collected during the observational studies filled gaps of information not mentioned by interviewees while also confirming what an interviewee had said about the PATH.

To provide a comprehensive understanding of current PATH usage, and for more reliable (consistent and reproducible) and valid (accurate and representative) results, I visited multiple locations within the PATH at different times and on different days. Figure 1 depicts each of the approximate areas within the PATH that were visited, circled and numbered. Table 1 lists each of these locations. This sample of locations was strategically chosen as the PATH connects different property types such as office buildings, residential buildings, transit stations, hotels, and attractions. The PATH also has many food courts within its corridors which can be popular destinations and hubs of activity. These selected areas of the PATH offered the possibility of experiencing different usage patterns and behaviour in correlation with their local contexts.

Observations were done in a naturalistic manner. I was present in the given spaces but not actively interacting with any people, manipulating any behaviour, nor stimulating any activity (Bhandari, 2023; Punch, 2005). My observational study could be considered a form of ethnographic study, ethnography being a qualitative research method popular in the social sciences where one inserts and immerses themselves into a particular culture, community, or environment.

Field notes were taken using a general structure of what to observe and what to record in order to establish consistency and adaptability.

It should be noted that while I aimed to conduct the most structured parts of my observational study solely as an observer, I also took on the role of a participant-observer at times. During my visits to the preselected locations of the PATH found in Figure 1, I

acted as an observer and simply observed the activities and events happening around me. However, in order to move between my preselected observation locations, rather than walking at street-level or using other modes of transportation, I travelled via the PATH. During these walks, I was able to continue to observe characteristics and user behaviour in the PATH while being a user myself, therefore further expanding the extent and coverage of my observational study. In these circumstances, I took on the role of a participant-observer. Anecdotes are also mentioned in the following sections of this paper of past occasions prior to this study where I was solely a user of the PATH, and not in the PATH for research-related reasons. I felt that these anecdotes from the past were important to include as they were relevant to my analysis of the PATH.

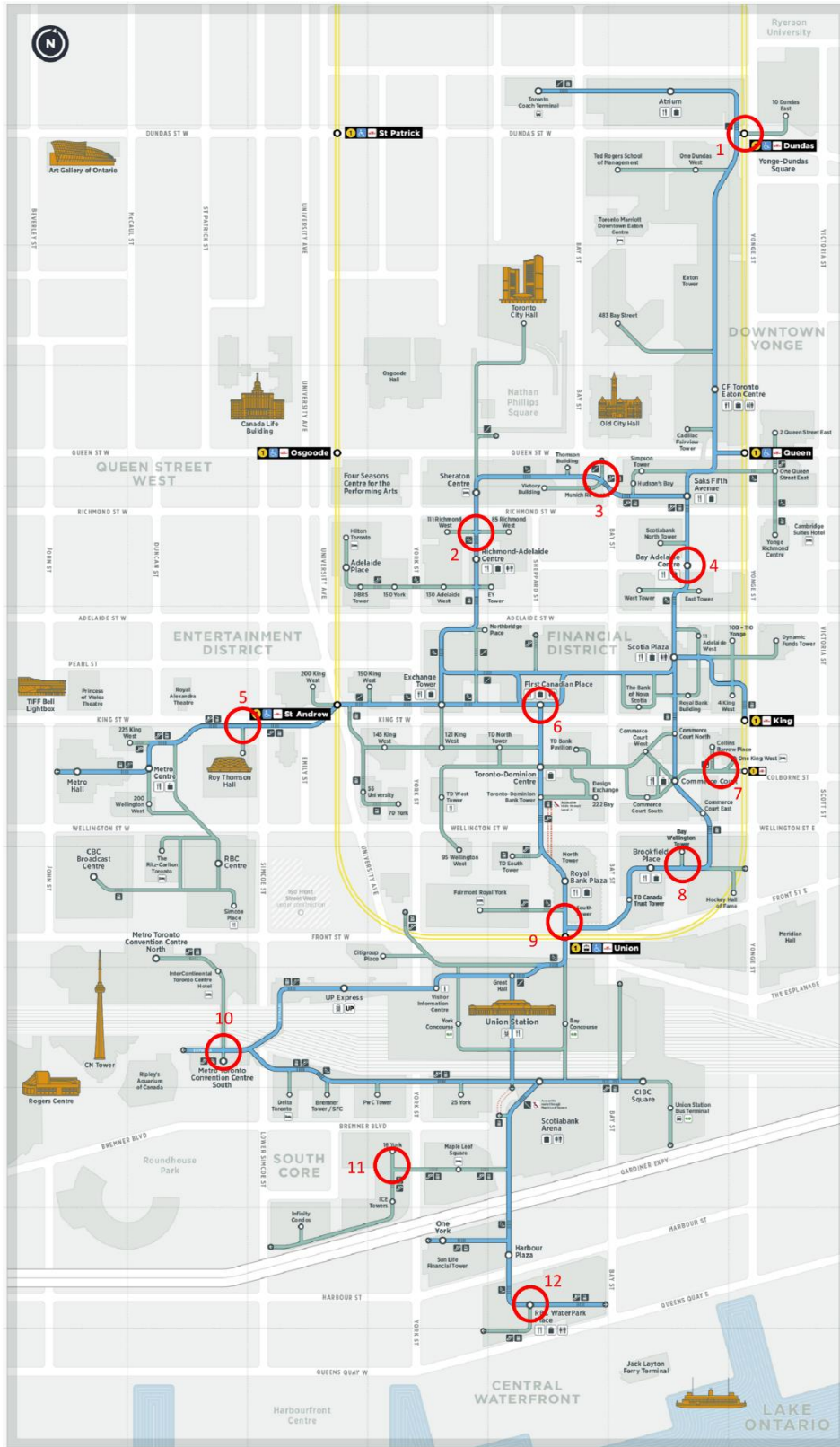


Figure 1: Site Visit Locations within the PATH

Table 1: PATH Site Visit Location Characteristics

Site	Transit Connections	Access to Offices	Access to Residential	Access to Hotel	Food Court	Additional Points of Interest
1 - Eaton Centre North/Dundas Subway Station	Yes - Dundas Subway Station	Yes	-	-	-	Yes - Eaton Centre, Yonge-Dundas Square, Downtown Yonge District
2 - Richmond Adelaide/85/111 King W	-	Yes	-	Yes	Yes	-
3 - Munich Re	-	Yes	-	-	-	Yes - Eaton Centre, Nathan Philips Square
4 - Bay Adelaide	-	Yes	-	-	Yes	-
5 - Entertainment District	-	Yes	-	-	-	Yes - Roy Thompson Hall, David Pecaut Square, Royal Alexandra Theatre, Entertainment District
6 - First Canadian Place	-	Yes	-	-	Yes	Yes - Financial District
7 - Commerce Court/King Subway Station	Yes - King Subway Station	Yes	Yes	Yes	-	-
8 - Brookfield Place	-	Yes	-	-	Yes	Yes - Hockey Hall of Fame
9 - Union Station/Royal Bank Plaza	Yes - Union Station GO/TTC/ VIA/Amtrak/ UP	Yes	-	Yes	Yes	Yes - Union Station, Scotiabank Arena
10 - Skywalk	-	-	-	Yes	-	Yes - CN Tower, Ripley's Aquarium, Rogers Centre, Roundhouse Park,

						Rec Room, Flyover Canada, Metro Toronto Convention Centre
11 - South Core Condos	-	Yes	Yes	Yes	-	-
12 - RBC WaterPark Place	-	Yes	-	-	Yes	Yes - Waterfront, Jack Layton Ferry Terminal

Interviews

Interviews were conducted in either semi-structured phone conversations or via email with pre-selected participants. A purposive sample of participants for the interviews was created using an expert sampling strategy, meaning that I chose interviewees based on their fields of expertise and professions.

In phone interviews, open-ended questions were pre-written to ensure nothing was missed and that the information requested was carefully thought out. The open-ended format gave the benefit of flexibility in interviewee responses and in the flow of the conversation. Through an open-ended format, interviewees were able to freely contribute additional, potentially valuable qualitative information in their responses that might otherwise not have been found (George, 2022). Being semi-structured interviews, I had the opportunity to adapt to the direction of the conversation as the interview played out and add follow-up questions where necessary.

I interviewed the following individuals:

- Karen Chapple, Director of the School of Cities at the University of Toronto. Chapple discussed the pandemic’s effect on downtown Toronto in several talk show radio segments and has recently written many articles and blog posts on post-pandemic downtown recovery. Overall, her research has covered inequalities in the planning, development, and governance of regions in the Americas, with a focus on economic development and housing.

- Benjamin Hoff, Partner at the Urban Planning and Design firm Urban Strategies. Hoff had a leading role in writing the Toronto PATH Master Plan as well as a breadth of experience working on developments and Master Plans around North America.
- Andrew Roberston, Planning and Advocacy Manager at the Financial District Business Improvement Area (FDBIA). The FDBIA is involved with many matters related to the PATH including maintaining and managing the PATH branding and wayfinding programs, and communicating with PATH stakeholders.
- Michael Saunders, Economic Partnership Advisor at the City of Toronto. Saunders was the former PATH Manager at the City of Toronto.
- Jordan Wheeler, Graduate of the Bachelor of Commerce - Hospitality and Tourism Program at Humber College, and Server at Miku Toronto Restaurant, situated in the PATH-connected RBC WaterPark Place complex. In addition to seeing PATH usage trends from the perspective of an employee in a PATH-connected dining establishment, Wheeler has considerable insights on the state of the Hospitality and Tourism sector in Toronto.

Pt. 3: Deep History - Looking at the History of the PATH

Urbanism has encountered the subterranean many times throughout history; Derinkuyu's ancient underground city is early yet impressive proof of this (Alcini et al., 2015). Modern-era ideas of redirecting urban activity to underground spaces has existed since at least the 19th century. French architect Eugène Hénard, for example, strongly believed in the subterranean world being used to serve our needs of waste management, fluids, movement of goods and traffic (Besner, 2017). Another French architect of the time, Édouard Utudjian, also agreed on and envisioned for better use of underground spaces in the future. Subways have been around since the 19th century, where the idea to move people below the ground to improve the efficiency of movement in above-ground spaces was revolutionary. In 1941, the first underground parking lot was opened in San Francisco, while across the continent, New York City's Rockefeller Centre was opened with 19 buildings over a concourse linking them all to shops, services, and the New York Subway. Another example of a major underground development, in 1969, Tokyo's Yaesu Mall opened as an underground shopping mall, becoming one of Japan's largest malls.

3.1 A Brief History of the Toronto PATH

When considering the earliest existing underground pedestrian corridors below downtown Toronto, it can be said that the precursors to the Toronto PATH have existed in the city in some shape or form for over a century now. While some extent of coordinated network-wide planning has occurred, the PATH has generally grown into what it is today in a rather organic way primarily through private sector development. Several factors drove this growth. Between the start of the 20th century and now, the developments that now form part of the PATH network can be grouped into several notable waves of construction. Toronto's network of underground pedestrian corridors did not bear its collective name 'PATH' until the 1990s.

Toronto saw its first wave of underground corridors built through private and unrelated developments on opposite sides of the downtown core at the start of the 20th century (Barker, 1986; Urban Strategies, 2012). By 1917, the T. Eaton Company, the largest department store in Canada at the time, had built five sheltered tunnels to serve its staff

and customers. The tunnels joined its main store building, its catalogue store, its bargain annex, and its stable. While Eaton's department store had its share of underground corridors on the northern end of downtown Toronto, situated approximately where the Toronto Eaton Centre shopping centre stands today, on the southern end of the downtown core, Toronto's Union Station was also under construction. It too included underground spaces in its design. Construction of Toronto's main passenger rail hub took place over the course of the 1920s, and featured a multi-storey design that would provide grade separation between arrival and departure areas with skylit ramps to give intuitive and visually interconnected access to different levels. Union Station added a tunnel to connect it directly to the Royal York Hotel in 1929. As the hotel was developed and operated by the Canadian Pacific Railway, the tunnels served passengers by providing direct indoor access to the railway station from the hotel and provided the hotel with a competitive feature versus other hotels. Union Station and the Royal York Hotel are still connected underground today, and this underground connection forms part of the larger PATH network. Up to the mid-2000s, Union Station was considered the southernmost extremity of the PATH and the Toronto Eaton Centre still remains nearly at the northernmost extremity of the network (Belanger, 2007).

The next wave of underground development came in the mid-20th century and over the next couple of decades, the PATH network expanded to nearly its present-day size. The post-World War II period brought high population growth, an economic boom, and momentum for new development across the city (Urban Strategies, 2012). Toronto's first subway line began construction in 1949 and opened its doors in 1954 with 12 stations along Yonge Street between Union Station and Eglinton Avenue. This was an important infrastructural advancement for Toronto and being underground, the Toronto Subway would factor into the success of underground pedestrian corridors in the coming years. Along with the subway, the Gardiner Expressway saw its completion in the early 1960s. During a time of rapid suburbanization, people found it easier to live in the suburbs than downtown. As the subway was being constructed, discussion was sparked among planners on providing connectivity to the subway (Belanger, 2007). Matthew Lawson,

Toronto City Planning Commissioner from 1954 to 1967 believed in the potential of grade separation in downtown Toronto to segregate pedestrian traffic from vehicular traffic and ease surface congestion for both those who travelled by foot and by car. Additionally, an incentive in planning policies at the time meant that developers could build additional levels of usable and leasable space below-grade without this floor space counting towards the City's maximum density requirements. Combined with the new subway line that acted as a catalyst for development, the density loophole allowed developers to build additional levels of space without giving up building height. On top of this, encouragement from the City's Planning department created a big wave of PATH expansion from the 1960s to the 1980s (Belanger, 2007). Such underground spaces could be used to attract tenants and business as a convenient asset, especially at a time where downtown spaces were competing heavily with the increasingly popular suburbs. Eventually, tenants of new downtown buildings and their everyday users and visitors began to expect no less than direct climate-controlled underground connections between adjacent buildings and the subway. Basement levels of buildings offered easy pedestrian access to other downtown destinations. Corridors were lined with shops and services to cater to pedestrian traffic. Past concerns of surface congestion on sidewalks at street level diminished. The financial district saw some of the biggest building booms in Toronto, above and below ground. 4 of Canada's 5 top banks opened their head offices in the vicinity of one another, and their high-rise office towers all had underground concourses that directly connected to one another. Grand lobbies uninterrupted by street front retail, urban plazas, and squares were built at street level complementing these towers' modern corporate aesthetic, as retail and other former street-level activities were located underground (Barker, 1986).

Not only was Commissioner Lawson supportive of underground pedestrian corridors, but the City of Toronto's Planning department also brought forward monetary initiatives that truly demonstrated their support of the PATH. Subsidies were implemented so that developers would not only expand the growing network of underground corridors but build them with higher standards of quality and connectivity (Belanger, 2007). A 1969

City report stated that the City would cover half the cost of construction for below-grade pedestrian crossings (Urban Strategies, 2012).

By the 1970s, there was a realization that street level pedestrian spaces were suffering from reduced traffic. Downtown foot traffic and activity was down due to trends such as suburbanization and the emergence of shopping malls. In fact, downtowns across North America were seeing a downturn (Wachs, 2013). The City did not ignore the PATH as one of the factors for decreased downtown street level activity, as the PATH certainly drew some of the remaining downtown pedestrians underground. While not outright prohibiting further underground developments, the city ceased its encouragement of underground pedestrian corridors by eliminating subsidies and financing schemes. The 1975 Toronto City Plan included new policies to prioritize street-related commercial activity and encourage street life (Belanger, 2007). However, even without the encouragement from the city and even after the end of the subsidies, developers continued to connect buildings underground with their own funds. Due to the proven desirability of the system and due to tenants coming to expect underground connections downtown, the momentum of PATH expansion continued. Competing suburban developments were an additional force putting pressure on developers to do whatever they could to make their downtown properties appealing.

By the mid-1980s, over 30 office towers, three hotels, City Hall, two department stores, five subway stations, 20 parking garages, and Union Station were all connected underground. The corridors themselves were home to over 1000 retail, dining and service establishments. Over 100 street level entrances existed (Barker, 1986). The City Planning department resumed some involvement in the underground corridors and recognized the need for more comprehensive planning. The City began working on a new system-wide signage and wayfinding program for downtown Toronto's underground corridors. Acknowledging the growth of the network and the need for better coordination, Paul Arthur, the graphic designer known as the father of wayfinding, was commissioned to conduct studies of underground wayfinding and how to facilitate navigation below ground. Arthur's report led to a signage program that coordinated with 32 property

owners and won a merit award from the American Society of Environmental Graphic Design. In 1987, the City officially became the co-ordinating agency of the PATH and the designing of a network-wide wayfinding system would be entirely funded by the City. In the 1990s, PATH signage was developed and implemented, and the collective name of the network of underground corridors, the PATH, was officially born (Belanger, 2007; City of Toronto, 2023).

Since the 2010s, another wave of PATH development has occurred at the south end of the network past Union Station, as the South Core district of downtown Toronto has seen immense development. In addition to the South Core, the entire network has continued to see steady expansions, as well as notably new uses such as a handful of residential towers. Recent and current expansion is discussed in Part 4 of this paper when I describe the current conditions of the PATH. The network's corridors surpass 30 kilometres in length and currently connect over 90 buildings including countless office towers, residential uses, City Hall and Metro Hall, numerous tourist attractions and entertainment venues, hotels, several department stores and the Eaton Centre, six subway stations, and Union Station. Still mostly privately built, owned and operated, 35 corporations are involved in the PATH and each segment of the PATH is run by the owner of the property through which it runs (City of Toronto, 2023).

Listed below are only some of the PATH-connected developments that went up during the 1960s to 1980s boom, along with their year of completion:

- Richmond Adelaide Centre (1966)
- Toronto-Dominion Centre (1969)
- Sheraton Centre (1972)
- Commerce Court (1972)
- First Canadian Place (1975)
- Marriott Downtown Toronto (1975)
- Cadillac Fairview Tower (1979)
- Royal Bank Plaza (1979)

- Atrium on Bay (1981)
- Exchange Tower (1981)
- Standard Life Centre (1984)
- Sun Life Centre (1984)
- Scotia Plaza (1988)
- BCE Place (1990)

3.2 UPSs around the world today

Vast underground networks catering to pedestrians are not as ubiquitous in cities as are roads, sidewalks, and traffic lights. While they are not necessarily common or expected, numerous examples of varying scales do exist worldwide. In Canada, in addition to Toronto's PATH is the Montreal RESO (also known as the Montreal Underground City), a UPS of similar size and scale to the PATH situated under downtown Montreal. Several Canadian university campuses feature tunnels linking campus buildings together to facilitate access for both students and faculty members, including the University of Calgary and Carleton University. Some systems, while not fully considered UPSs, combine underground corridors with above-grade enclosed bridges to form a network of climate-controlled connections between buildings. This includes the Calgary Plus 15 network, the Edmonton Pedway, the Halifax Downtown Halifax Link, and the Winnipeg Walkway system. South of the border, UPSs can be found in Chicago (the Chicago Pedway), Dallas (the Dallas Pedestrian Network), and Houston (the Houston Tunnel System). Smaller-scale underground concourses that connect buildings and spaces within the same property rather than traverse entire neighbourhoods and across multiple properties can also be considered. For example, this can include the Rockefeller Centre or Penn Station in New York. Across the pond, Paris' Chatelet-Les Halles, for example, connects multiple subway and regional rail lines with many corridors and ground-level access portals as well as a major underground shopping centre.

Pt. 4: Using the PATH, Past and Present Conditions

Whether it was to aimlessly wander and explore the network as a visitor or to actually use the corridors for the sake of getting to my destination, I have used the PATH countless times. Over the past few months, my visits have been more thorough as I have made it a goal to cover all the different areas of the network, paired with a good amount of notetaking on what I was noticing around me as a PATH user. My site visits have allowed me to get an up-to-date idea of the current state of the PATH.

Before getting into that however, I would first like to examine what the PATH may have been like from the perspective of a user in the past. Hard as it may be to find anecdotal records recounting the PATH in its earlier days, the handful of articles on the PATH's developmental history can also give some sense of what the PATH was like to use a few decades ago.

4.1 Past Decades

The 1980s

Michael B. Barker's 1986 article provides a brief account of what it felt like to use the PATH in the mid-1980s. As noted, by this decade, the PATH had a cluster of corridors at the core of the financial district connecting many of the newest office towers, as well as another significant cluster further north around the Eaton Centre shopping mall and its basement shopping level, direct connections to Dundas and Queen subway stations, and adjacent properties. Barker noted that the Financial District's set of PATH corridors was busiest during weekdays, and the shops and services that lined this set of corridors experienced peak pedestrian traffic times between 10:00 a.m. and 2:00 p.m. from the neighbourhood's office workers. In the Eaton Centre segments of the PATH, Saturday was generally the busiest day. However, one could find this part of the PATH to generally be busy throughout the week at any time of day, especially relative to the PATH's Financial District corridors. At the time, the Toronto Eaton Centre was the city's most visited attraction receiving an average of 50,000 visitors daily. The mall had the same opening hours as the subway stations connected to it, from 6:00 a.m. to 2:00 a.m. Stores were

open late with the exception of the department stores which had more limited business hours.

While the 1980s PATH was generally appealing to users, it certainly did have flaws to its design and user experience. Accessibility features were said to be poor, such as vertical access into the PATH. Another notable issue, related to accessibility, was wayfinding. Efforts were underway to improve the usability of the corridors, but wayfinding features were lacking and problematic, especially in the Financial District segments. Most regular users seemed to find their way using knowledge of the routes acquired over time, yet for occasional or new visitors, the network was complicated and confusing. In the northern segments of the network around the Eaton Centre, occasional users had less difficulty navigating the below-grade corridors due to elements that made it feel more approachable. Being part of the shopping centre, promotional events and special programming served as placemaking elements and made for a welcoming and navigable atmosphere. Galleries and atriums were a physical design feature that appeared at several points throughout the PATH, and one of the prime example of this was found at the Eaton Centre. As the shopping centre featured a long open galleria with natural light entering from a glass roof above, visual interconnectedness between the above and below-grade portions of the mall was established.

The PATH's ownership and management model also had its limitations. The PATH was still primarily privately owned and operated despite having the appearance of a public space and generally being publicly accessible. This could be deceiving to users. For example, policing and security was at the will of the many different property owners who owned the various interconnected segments below each building. Furthermore, operating hours were not consistent throughout all the corridors leaving incomplete routes at times, for example, at the segments crossing through the Eaton's and Simpson's department stores which had more limited hours. Issues of poor wayfinding could also be blamed on the privately-run nature of the PATH due to a lack of network-wide coordination in design.

The 1990s

Ken Jones' (of the Centre for the Study of Commercial Activity at Toronto Metropolitan University) conducted a study between 1993-1997 on the retail dynamics of the PATH. While focussed more on the economic aspects of the PATH, his telling of the state of retail throughout the PATH provides some idea of life in the PATH during the mid-1990s. The appeal and convenience of retail and commercial uses throughout the PATH persisted through this decade, with an annual average growth of 2.7% in retail tenants between the start and end of the study and 1053 tenants by 1997 (including the basement level of the Eaton Centre but excluding the shops and services of the upper levels of the mall). In the entire PATH, some of the top categories of tenant types were fashion, restaurants, food and pharmacy, personal and financial services (at 24.7%, 24.4%, 10% and 14.4 % of tenants, respectively). Restaurants tended to be grouped in the same areas forming food courts under office towers, while food stores often capitalized on convenient locations near subway stations. Personal and financial services were dispersed throughout the network indicating demand for them everywhere, but with a particular prominence in the Financial district. Fashion retail was also found throughout the network but with higher concentrations in larger complexes such as First Canadian Place, the TD Centre, Atrium on Bay, and of course, the Eaton Centre. Nearly half of businesses lining the PATH corridors were corporate-owned chain locations or franchises, higher than the average rate of 39% for all GTA shopping malls or 12.8% for street level in Toronto at the time. This made the PATH feel like a planned and controlled retail space and indicated how the PATH appealed to the leasing and operational structures of larger organizations. Despite net gains in tenants, lots of variability and volatility was found and a competitive environment caused continual change and turnover. With the trends in locations of different categories of retail, the types of retail available, and the prominence of corporate-owned chain locations, it can be presumed that like in the 1980s and prior, the 1990s carried on the PATHs appeal to office commuters.

The 2000s

Some insight on the usability of the PATH during the mid-2000s can be found in a 2007 article by researcher Paul Belanger. Consistent with what was found in the 1980s, Belanger wrote about the PATH being hard to navigate. Despite having several main axes and nodes forming a rather comprehensive network by the 2000s, the corridors appeared haphazardly routed. Belanger described the relationships between different corridors, nodes, and destinations to be a limitation to efficient pedestrian mobility. Despite Belanger's study being after the City's comprehensive PATH branding and wayfinding project, getting around the PATH was still difficult. Belanger stated how signage was drowned out by the overwhelming amount of existing signs from businesses found along the corridors, and the visual clutter did not make getting around any more intuitive. With 125 junction points between all corridors, providing clear signage at every spot where multiple routes converged was not an easy task. Belanger noted that First Canadian Place's physical design elements were exemplary of making navigation easier. The deepest corridors were connected to upper levels found in the complex's podium via open atrium spaces and logically placed vertical transportation (escalators and elevators). In addition to the visually interconnected spaces, water features at the lowest level provided a visual and aural landmark that made orienting oneself easier. At street level, multiple entrances provided easy access to draw people into the PATH network.

Belanger noted that pedestrian traffic generally seemed to flow South to North in the mornings, reversing direction in the afternoon. This could be attributed to Union Station being positioned at approximately the southernmost point of the PATH. Belanger also noted a peak traffic time around lunch hours, similar to what Barker had found in the 1980s. Also, like Barker's 1980s study, the PATH continued to be primarily used on weekdays during daytime hours, with the quietest times being weekday evenings and weekends.

Also in line with the findings of past studies, the private control of the PATH was identified to be a limitation of the network. Spatial control and surveillance was privately managed so who could be kept out of the PATH was at the will of each property's management despite the PATH feeling like it was a fully public.

4.2 My personal 'path' in mastering the PATH

In my earliest memories of using the PATH, well before I ever knew that I would be writing a research paper on the PATH, I did indeed find the PATH a challenge to navigate. Having a knack for exploration, an above-average sense of direction and orientation, and not being afraid to occasionally take a wrong turn, the PATH never felt overwhelming or daunting to me. However, with seemingly endless junctions and forks in the road, I could still imagine how the PATH could intimidate anyone, whether it be a routine user or a first-time visitor. As a teenager, I was able to navigate from Union Station to the Eaton Centre without ascending to street level via different PATH routes under the Financial District. The first times that I used the PATH, I would use a mix of signage found in each PATH segment along with regular looks at the official PATH route map. The map did not always make it clear what my exact location was. Using a combination of the PATH map and signage allowed me to analyze and infer my position. With time, the different routes that I could take through the PATH to get to different places became engrained in my mind. I began to be able to walk through the PATH without much second-guessing, and with not much more than the occasional glance at signage. Seeing certain design elements and retailers throughout the PATH served as landmarks in my mind and made different parts of the PATH feel very familiar.

Again, I do believe that I have an elevated sense of direction compared to many. However, my experience navigating the PATH does seem to echo what many others go through. While I may have figured out the PATH faster than others and with less practice, like what past studies on the PATH have suggested, there is a learning curve to using the PATH and many users depend on memory and routine to make their way around. To visitors and occasional users, the PATH can be daunting and hard to navigate.

4.3 The PATH during the COVID-19 pandemic

During the second year of the COVID-19 pandemic, as I was looking for safe ways to get a change of scenery and get out of the house without excessive risk of contracting or spreading anything, the PATH became a favourite destination for me. I had guessed that it would not be busy because downtown Toronto altogether was not a very busy place at

that time, and indeed, the PATH was especially quiet. On several occasions throughout 2021, I parked my car in an underground parking lot in the Financial District then walked directly into the PATH to spend hours at a time walking up and down the corridors for exercise and for the sake of exploration. I made it a goal to try to walk every corridor and see every nook and cranny of the PATH. I was intrigued by the PATH, by its design elements and features, and by how much life it would have otherwise seen passing through its spaces had the pandemic not struck.

During 2021, the access points that I used to enter different parts of the PATH were nearly all open. Doors that sat between segments of the PATH, such as between buildings or subway stations, were all unlocked and people could enter and exit anywhere they wished. Despite this, the corridors were virtually empty and if I could guess a number, I would say that I only saw another single passerby every five minutes of walking. It should be added that I mostly visited on weekends, a quiet time of the week for the PATH even before the pandemic.

A notable route discontinuity in the system was at the Hudson's Bay department store. Access to all destinations north depend on crossing through the basement level of the store, yet the doors leading into the store were locked as the store had to monitor its customer count for social distancing protocols. This required going up to street level then re-entering the Hudson's Bay store at street level.

While nearly all the spaces seemed to be left open, it was clear that the PATH was not fully in operation. For example, lights throughout the corridors were often dimmed or partially turned off. The presence of security guards was also felt, as I occasionally noticed guards patrolling back and forth in their respective areas. While there may not have necessarily been more guards than usual, the limited amount of users made any guards present stand out much more. With this higher perceived ratio of guards to users combined with the dimmed lights, the PATH did not always feel free and comfortable to roam. Especially with the ever-changing pandemic safety protocols, I felt like I could never fully stay in one place for too long even just to take a seat as I would feel a guard

could come up to me and tell me any given area was closed. As an additional sign of the times, signage promoting social distancing and mask-wearing could also be found throughout the PATH.

Finally, many retail units in the corridors were closed, including many that were permanently out of business. Retail unit vacancies appeared to be more plentiful than before the pandemic.

On one weekend, I noticed a convenience store that was open in one of the PATH corridors of the South Core, just a stone's throw from Union Station. Even outside of the pandemic, many stores in the PATH would only open on weekdays, so I was surprised to see this one open on a weekend. As I bought a drink, my conversation with the store owner led to him voicing his frustration on how slow business had been due to the pandemic. He expressed that his sales were down some 75% compared to when he initially took ownership of the store in 2019, shortly before the pandemic.

While few formal studies have been done on the pandemic's impacts on the PATH, the impacts have been evident. My observations during my walks through the PATH support this. News articles published in the past few years can also confirm this. A CTV News article written in October of 2020 called the PATH a 'ghost town' due to the lack of office workers to create foot traffic and retail sales in the PATH and expressed the desperate necessity of a return to in-person office work (McKenzie-Sutter, 2020). One of the few fast-food restaurant owners that decided to reopen (for takeout only) after the first set of lockdowns told CTV News that a 95% reduction in sales was estimated versus before the pandemic.

Not only were restaurants either temporarily closed or open with significantly reduced business due to the lack of office workers to patronize them, but many of the other types of retail in the PATH also found their businesses suddenly irrelevant due to the pandemic. The owner of a dry-cleaning business explained in the same CTV News article how they could no longer predict if they would even get a single customer on any given day as office workers staying home meant that dry cleaning their office clothes was no

longer needed. Another article from BNN Bloomberg around the same time noted similar discussions with numerous struggling PATH businessowners (George-Cosh, 2020). One dry-cleaning business owner expressed frustration that she used to get about 50 customers each day yet after pandemic lockdowns, this had slowed to one customer per day. The owner of a shoe-shine stand stated that prior to the pandemic, he could get over 20 customers per day including bank CEOs and executives typically visiting him at lunchtime, yet in 2020, even finding one customer per day was a challenge. The owner of three fast-food restaurants temporarily closed two of his locations, and the one location he had left open in the Commerce Court complex had only gotten enough business to cover expenses without any leftover profit. The BNN Bloomberg article called the PATH the Financial District's 'unofficial community hub ... where connections get made, the next big idea is fostered and the place where some million-dollar deals get struck' (George-Cosh, 2020). Yet with so much less foot traffic, this was no longer the case. In addition to a lack of retail sales, businessowners and users alike shared sentiments on the loneliness felt in the PATH due to the pandemic. The social aspects of the PATH no longer existed and this further discouraged and deterred users from going back to the PATH, keeping the PATH in a quiet state.

A year later, a Global News article reported a rebound in PATH activity and business, albeit a slow one (Vella, 2021). One owner of a menswear store said that at the start of the pandemic, his sales were down about 95% versus pre-pandemic figures. By 2021, sales were improving but still 75% less than before the pandemic. As expected, office workers working from home was still keeping the PATH relatively empty. At street level, foot traffic was recovering at a faster rate, but the PATH was having more difficulty in re-attracting its users. According to representatives of retail and commercial real estate companies, despite being both a transportation network and a retail space, the PATH's unique location underground meant more distinct solutions would be required to revitalize business (Vella, 2021). Another year later, a March 2022 CityNews article reported a more optimistic outlook as the return of PATH traffic was ramping up at a faster pace, yet interviews with real estate companies, business associations, and

businessowners still linked the clear need for more people to return to the office in order to get the PATH back to its former levels of hustle and bustle (McAllister & Bond, 2022). Figures by commercial real estate company Avison Young were cited in the article, stating that weekday visitor volumes increased weekly since the beginning of 2022 and was up 56 per cent since March 2020. John Tory, Mayor of Toronto at the time, also noted in the article a need to ensure transit capacity increase again and that people were made confident that transit was safe to use.

4.4 Using the PATH in 2023 – Summary of Site Visits

In the Spring of 2023, I made numerous planned (and some additional unplanned) visits to the PATH. With the goal of examining its current state, I visited the PATH at multiple times of the day and on several different days of the week to better understand the PATH's usage and activity. Following my visits, I marked key characteristics that I noticed of the present-day PATH in regard to the destinations that it connects, the times at which the PATH was busiest, the PATH's ease of use, and its overall interior design features. (See appendix for detailed notes on each of my visits)

Where does the PATH go?

Routes of the PATH

The PATH currently passes through and links together buildings in the Financial, Entertainment, Downtown Yonge, South Core, and Waterfront districts of downtown Toronto. Belanger's 2007 study of the PATH described the network as seemingly haphazard yet organized in a system of axes and nodes. As I walked through the PATH network, I thought of how Belanger's description of the PATH's layout still stands nearly two decades later. Each PATH-connected building has its own PATH corridor or set of corridors owned by the property above, often lined with retailers and services. Food courts and atriums that are typically centrally located underneath major office complexes serve as hubs of social and retail activity. Going between office complexes and buildings, short passageways and sets of doors are often used to connect the PATH corridors of different properties. Due to jogs, corners, and irregular alignments of corridors, as well as

noticeable changes in design after passing through doors and passageways between adjacent buildings, the PATH did indeed still feel haphazard, sprawling yet uncoordinated. As Belanger described, however, points in the network where multiple corridors join or where people gather could be considered nodes, whereas corridors and passageways providing links between these nodes act as axes or spokes.

Several core routes can be identified within the PATH network. For reference, PATH routes can be very roughly compared to the streets above. However, they do not follow the exact street grid as the PATH was built more so to cater to the configuration of the buildings above rather than to the streets, as well as to circumvent existing underground infrastructure such as subway tunnels. One important north-south route consists of the corridors linking Union Station to the Atrium on Bay, running roughly parallel to Yonge Street via the east side of the Financial District and the Eaton Centre. The Eaton Centre is officially considered part of the PATH network therefore walking through the shopping mall is considered part of the PATH route (as mentioned in older studies on the PATH, this still causes a discontinuity of the PATH network as the mall hours may differ from the hours of adjacent PATH corridors). An additional important north-south route runs west of the aforementioned route between Union Station and Toronto City Hall via the Financial District. This route runs roughly parallel to Bay and York Streets above. Forming an east-west axis for the PATH, another route is formed with the corridors spanning across the Financial District between the King Subway Station and Metro Hall. This route is roughly parallel to King Street West and links the Financial District to the Entertainment District. Important routes also exist south and west of Union Station, where the PATH's latest additions connect properties in the South Core, the Waterfront, and several major attractions.

The incorporation of subway stations into the PATH network decades ago remains an integral part of the PATH network. Dundas, Queen, King, Union, and St. Andrew Subway Stations are directly connected to the PATH and offer the ability for transit riders to go from their subway train to their desired downtown PATH-connected destination without stepping outdoors. I observed this to be the most common way for people to access and

use the PATH. Additionally, even for non-subway riders, subway entrances are an easy way for street-level pedestrians coming from parts of downtown not connected by the PATH to enter the PATH and continue their trips underground.

For other PATH users not getting into the PATH from the subway stations, the PATH can typically be accessed from street level via building lobbies. Many of the major buildings also offer underground parking lots, where drivers can park their vehicles below-ground and enter the PATH directly from the parking area without going outdoors. Some standalone PATH portals exist, such as one at the intersection of Front Street and University Avenue. Here, a pair of modern glass enclosures offer an elevator and stairs into the PATH, with a signage pole behind the enclosures displaying the PATH logo at its top and a PATH map at its base.

As it has since the mid-20th century, the Financial District remains the geographical centre of the network and where the majority of PATH-connected buildings can be found. In the Financial District, the primary above-ground land uses are high-rise office towers, although some hotels can be found. Many major Financial District office towers are grouped within larger office complexes with shared podiums, open spaces, and underground retail areas, such as the four-tower Commerce Court complex and the five-tower Toronto-Dominion Centre. These complexes can be considered hubs or nodes of the PATH, typically offering popular food courts and larger varieties of retailers. While most corridors are transitional spaces meant for walking through to get to other PATH-connected destinations, these complexes and their food courts can attract users who actually intend to spend time in the PATH, such as to socialize or eat.

Newest Routes in the South Core

The newest additions to the PATH network can be found south of Union Station, with the station being a major node and a junction for all points north, south and west. Union Station itself recently completed a multi-year renovation and expansion, which tripled the capacity of its GO Transit concourses while adding new retail and dining spaces below track-level that are now considered part of the PATH network (City of Toronto,

2023). Prior to this revitalization project, Union Station only had main entrances facing north towards the Financial District, as much of the area immediately south of the station was historically industrial land. During Union Station's revitalization, which coincided with the redevelopment of the lands south of Union Station, new PATH corridors were added creating Union Station's first ever south facing entrances and creating a link to new mixed-used developments (Attfield, 2014). The 2010s saw a major building boom in this area that has become known as the South Core and is now home to tens of thousands of residents and jobs.

Very noticeable in the South Core's PATH corridors is that unlike in most of the PATH network, the PATH in the South Core is found nearly entirely above-grade, routed through the podiums of the area's high-rise towers and through enclosed, elevated pedestrian bridges between buildings. Pedestrian bridges are also found over Lakeshore Boulevard sandwiched under the elevated Gardiner Expressway. The unique above-grade approach was chosen for the South Core PATH corridors due to shallow sewer infrastructure in the area and the placement of the Gardiner Expressway. Due to the Gardiner Expressway and Lakeshore Boulevard being a limiting factor of walkability in the area, PATH connectivity was essential to the new developments and considered a necessity by developers to attract tenants and residents to the area (Attfield, 2014; B. Hoff, personal communication, September 15, 2023). Unlike the PATH in the Financial District which nearly exclusively serves office towers, the South Core area is more of a mixed-use area, and the buildings connected by the PATH in the South Core consist of a mix of office, residential, hotel, and entertainment uses. Retail and dining are also offered in these buildings, both along streetfronts and along PATH corridors. In addition to the South Core destinations directly connected by the PATH, users can also take the PATH in the South Core then exit outside to reach points of interest, hotels, and residential properties along the waterfront, the Jack Layton Ferry Terminal for transportation to the Toronto Islands, and the Maple Leaf Square public space outside of the Scotiabank Arena. Another important PATH route stems from the west side of Union Station and connects to several major points of interests and event venues. Known as the Skywalk, from Union

Station, this route first runs parallel to the rail corridor while also providing access to the UP Express train platforms for frequent train service heading to Toronto Pearson International Airport. The Skywalk then crosses over the rail corridor and terminates at a long gradual ramp that descends to an open square surrounded by the CN Tower, Ripley's Aquarium of Canada, the Rogers Centre, The Rec Room arcade and entertainment venue, the future FlyOver Canada flying theatre attraction, Roundhouse and Olympic Parks, and the Toronto Railway Museum. Secondary passageways connect to the main Skywalk corridor to link the Skywalk to the Metro Toronto Convention Centre's north and south halls, the Intercontinental Toronto Centre hotel, and the Delta Toronto hotel. Another PATH route continues through the Delta Toronto hotel to join the South Core. Built before the South Core's many above-grade PATH corridors, the Skywalk is a unique part of the PATH network due to its above-grade alignment as well as the fact that it primarily joins entertainment and tourism uses rather than offices.

Uses Connected

The official PATH map lists 93 buildings connected with the network. 67 of these 93 buildings (or about 72%) are office towers. Eight buildings of the 93 (or about 9%) are hotels. Seven buildings (or about 8%) are event and/or entertainment venues. This includes event venues like Design Exchange, music halls like Roy Thompson Hall, Scotiabank Arena, the Metro Toronto Convention Centre (North and South halls counted separately), and the Hockey Hall of Fame, which is the only museum connected to the PATH. While many office towers have retail uses as an accessory use (whether below-grade in the PATH, at street level, or in their podium), six buildings of the 93 (or about 7%) are primarily retail establishments or mixed-use with a primary retail use combined with at least one other land use. These include the Toronto Eaton Centre, Saks Fifth Avenue department store, Hudson's Bay department store, Atrium on Bay (mixed-use), Maple Leaf Square (mixed-use), and 10 Dundas East (mixed-use). Only three fully residential complexes are connected to the PATH, making residential uses only about 1% of all PATH-connected buildings. These are the Infinity Condos, the ICE Towers, and Harbour Plaza (although the PATH map considers these three destinations, each condo

complex in fact has multiple residential towers, so the proportion of residential buildings in the PATH could be doubled if counted by tower rather than by the entire complex). Lastly, in the entire PATH system, three institutional uses are found. This includes Toronto City Hall and Metro Hall, which house government offices, and the Ted Rogers School of Management. The 10 Dundas East mixed-use could also be counted as institutional among its several uses, as it does offer supplementary classroom space for the nearby Toronto Metropolitan University.

While these uses are ones that are found above-ground and connected via the PATH, the actual PATH spaces mainly serve the use of transportation. Accessory to this use is retail, catering to passersby who can make stops during their trips to access goods and services.

Unlike many other parts of downtown Toronto, the Financial District has limited retail, dining and services at street-level. Many Financial District office towers maintain facades with vast lobbies, prominent architectural elements, and an appearance free of storefronts. The PATH replaces street-level retail uses and street-level commercial activity for this part of the city. The types of retail, food, and services found in the PATH vary, but are generally comparable to what was found in Ken Jones' 1998 retail analysis study of the PATH. For example, as it was in the 1990s, fashion, restaurants, food retailers, pharmacies, personal services, and financial services are commonly found. Services such as doctors' offices, dental clinics, hair and beauty salons, and shoeshine stands can also be found throughout the PATH. Certain services appear more strategically positioned than others, such as car rental agencies being situated closer to Union Station and shoeshine stands only being in the busiest parts of the Financial District. Nearly half of PATH retailers in the 1990s were said to be corporate-owned or franchised brands, and this still appears true today. While independent shops and food establishments exist, popular corporate fast-food chains, fashion retailers, and pharmacies are very common and dominate the network.

With the abundance of retail areas and retail units lining many PATH corridors, many segments of the PATH feel very 'mall-like'. The Eaton Centre is unique in that rather than

being ‘mall-like’, it is in fact a real (in the traditional sense) full-scale mall. The mall’s basement shopping levels officially make up part of the PATH and connect directly to adjacent PATH corridors, yet the levels above-grade, while not part of the official PATH network, form the rest of the mall. Unlike much of the PATH’s retail offerings, the Eaton Centre draws people to use it as a shopping destination, whereas much of the PATH’s retail is not a final destination but contrarily, a convenience to stop at on the way to elsewhere.

Activity in the PATH

Most activity in the PATH is comprised of users walking through to get from one point to another. As a whole, the PATH remains primarily used by office workers which lends to noticeable spikes of traffic throughout the day and the week. Overall, these peak times and this main demographic remain consistent with what was the case decades ago when underground corridors first started linking Financial District office towers to each other (Barker, 1986; Belanger, 2007).

Peak Hours in the PATH

Over the course of my weekday and weekend visits, weekdays were by far the busiest days, and also the days when peak times were most pronounced. The greatest amount of people walking through the PATH were in the mornings as people headed to work, around midday until when people were in the PATH during their lunch breaks, and in the late afternoon until the early evening when people were using the PATH to return home. The differences between weekday peak times and off-peak hours were especially drastic in the Financial District. In certain parts of the Financial District, the midday lunch peak was the busiest time of all, where spaces would come alive with vibrant levels of activity and movement, both for pedestrians walking through and with those as eating, socializing, and shopping. This was in contrast to weekday evenings as well as weekends, where the Financial District became very quiet spaces. Compared to the Financial District, the south parts of the PATH, namely the Skywalk and in the South Core, saw more even distribution of traffic throughout the day and the week, and the difference in

activity between weekdays and weekends were not as drastic. The Eaton Centre also saw heavy use regardless of the day of the week, although, opposite of most of the PATH, weekends were slightly busier than weekdays.

The Financial District

Among the busiest corridors of the PATH were found to be at the core of the Financial District under the major office complexes including Royal Bank Plaza, Brookfield Place, Commerce Court, Scotia Plaza, First Canadian Place, and the Toronto-Dominion Centre. These office complexes are occupied by the staff of the headquarters of Canada's 'Big 5' Banks, in addition to the tens of thousands of other workers in the nation's financial hub. It was evident that most users of the Financial District PATH corridors were office workers.

On weekdays during daytime hours, I observed most people here to be middle-aged and dressed in business attire, but diverse in gender and ethnicity. In the mornings and afternoons, many people travelled with laptop bags, work bags, lunch bags, and identification badges and keycards. As these office complexes are surrounded by a loop of subway stations plus Union Station to the south, the flow of traffic was consistently greater from these transit stations in the morning to the offices, and from the offices towards the stations in the afternoon. Union Station appeared to be the greatest source of pedestrians, with more people heading to and from the station than any of the subway stations. When observing PATH traffic flow in Commerce Court, which is slightly closer to the King Subway Station PATH entrance than to the Union Station entrance, the majority of people headed towards Union Station. This may be explained by Union Station offering greater connectivity to GO Transit commuter rail and bus lines, and to a lesser impact, national and international rail. While one can get to Union Station via the other subway stations to avoid walking, the Toronto Subway requires an additional paid fare with no free transfers to GO Transit at Union Station. With the PATH offering a practical, well-used, indoor pedestrian connection to Union Station, many people appeared to prefer walking the entire way between their office or destination and Union Station rather than taking the subway. Often, the pedestrian traffic between points in the

Financial District and Union Station appeared much busier in the PATH than on sidewalks at street level.

During a Wednesday visit at 5:20 PM in the Royal Bank Plaza PATH corridor (among the closest office complexes to Union Station), I counted approximately 150 people passing by every minute with over three-quarters of people heading south to the immediately adjacent Union Station. The remainder of people were headed in other directions, including north from Union to the Financial District or points beyond, to street level, or to the adjacent PATH-connected Fairmont Royal York hotel. Visiting Commerce Court and First Canadian Place shortly after, I counted roughly 75 people passing by every minute in each area, each with over half of pedestrians appearing to head towards Union Station.

Especially during morning and afternoon rush hours, users walked at a brisk pace and virtually every user appeared very confident in where they were going. Expectedly, the walks seemed routine and memorized, with people turning corners and going through doors between buildings without hesitation or second glances at maps and signage. While many people walked alone, it was common to see groups of people walking together, particularly in the afternoons. Often, groups all wore the same identification badges indicating their likelihood of being colleagues. In spite of the rapid walking speed, people within these groups often talked to each other as they walked. Those that walked alone sometimes had earphones or used their phones as they walked. This behaviour could indicate peoples' comfort levels walking through the PATH compared to walking at street level, where using a phone for extended periods or talking to colleagues may not be possible due to environmental conditions and hazards such as vehicular traffic, noise street debris, extreme temperatures, or precipitation.

At midday, the PATH saw considerable amounts of activity throughout the financial district. In addition to people sitting in the food court and other seating areas or gathering along corridors to socialize or run errands at retailers, in several parts of the Financial District PATH, this time of day saw the highest amounts of pedestrian traffic

beating out morning and afternoon periods. For example, when visiting Commerce Court's PATH area on a Thursday at 12:50 PM, I counted over 250 people passing by every minute, with traffic evenly split in every possible direction. When I went to First Canadian Place's PATH area at 1:30 PM on a Thursday, I counted approximately 100 people passing by every minute with even traffic flow in all directions. These pedestrian counts were calculated standing in spots that were main junctions for visible access from all directions and where the food court was within close proximity. During lunch, similar to during my morning and afternoon visits, most people appeared to be office workers based off of their attire. As my visits took place in Spring, on cooler and rainier days, it was especially clear that most of the lunchtime PATH users came into the PATH directly from their offices and with no intention of going outdoors as few people were dressed for outside weather, forgoing jackets, sweaters and umbrellas. While the behaviour of people walking by was still nearly as brisk as in the morning and afternoon peak periods, and while many people still appeared to know exactly where they were headed, the PATH corridors appeared much livelier and much more vibrant midday. Retailers and services were nearly all open for business and this appeared to be their peak time for business. In many food courts, extensive lineups were found at virtually every food vendor.

On my weekday visits during late evenings, while a steady flow of pedestrian traffic remained, the Financial District PATH corridors quieted down quite a bit, and my pedestrian counts demonstrated this. Virtually all retailers, food vendors, and services were closed at this time. In the late evenings, people appeared to be walking at a more leisurely pace than during the daytime. During a Wednesday 8:00 PM visit to Commerce Court's PATH area for example, I counted approximately 5 people walking by every minute, with no particular direction of travel being busier. At this time, apart from one young couple walking through, most people were alone and middle-aged, appearing to be leaving work late. There was an even split in gender. Over half of people observed were still in business attire, but less than during the daytime. Despite the One King West Hotel's lobby-level restaurant and bar being very busy on the evening that I visited, and despite relatively lively sidewalks on the streets above, the Commerce Court PATH was

very quiet. I visited Brookfield Place shortly after at 8:15 PM, where I counted approximately 15 people per minute with most of them headed towards Union Station. Many people were in business attire, and were middle aged or older, except for a larger group of young adults also headed towards Union Station. During a Wednesday 8:15 PM visit to Royal Bank Plaza, I also counted about 15 people passing by every minute. This part of the PATH was quiet but people came by at a steady rate. Users were diverse, but many were in business attire. Traffic flow was even to and from Union Station at this time. Overall, over half of the late evening usage of the PATH in the Financial District appeared to be people leaving their offices late with the remainder of people being those travelling through the area for reasons other than work.

In addition to the users counted walking through the Financial District PATH corridors, I also took note of other activities taking place. Typically, the busier a corridor was, the greater chance there would be of people also lingering and spending time in the space. This included people leaning on walls or standing in place to rest or look at their phones. This also included people standing in groups and talking. If seating areas such as benches, chairs and tables, or sofas were provided in the middle of a corridor, people would often also sit down to rest, look at their phones, socialize with their party, as well as eat, drink, or work on their laptops. In most Financial District food court areas (where expectedly, there would be a high concentration of seating as well as easy access to food, beverages, and retail), the weekday midday lunch peak would attract large crowds. In many of these food courts, seating was nearly at capacity during the lunch period. While many people appeared to have purchased food, it was nearly as common to see people without a food purchase, either consuming their own meal brought from home, sitting alone resting or working, or sitting with others just to chat. During weekday afternoon rush hours, food court seating areas saw less use and anywhere from a tenth to a quarter of seats could be expected to be occupied. This was in spite of the afternoon rush hour coinciding with dinnertime. Food vendors were closing for the day by that time. People using seating areas during the weekday afternoon rush hour appeared to be resting, looking at their

phones, occasionally using a laptop and working, or socializing with a group. Some people would be eating their dinners, which appeared to be packed from home.

On weekdays, many retailers and services in the Financial District closed between 5:00 PM and 7:00 PM. While the occasional user was seen walking into any given pharmacy, beauty salon, convenience store, fashion retailer, or coffee shop amidst the heavy flow of pedestrians headed home, PATH businesses did not appear very busy at this time in most places.

Outside of the Financial District

Looking at the periphery of the Financial District, while several routes offer important links between different areas of the core Financial District to further destinations in Downtown Toronto, pedestrian traffic is generally slower. For example, I observed pedestrian traffic flow in the Richmond-Adelaide Centre and the Munich Re Centre PATH corridors. Both these corridors are within proximity of the Sheraton Centre, a large hotel and event venue. These corridors offer additional connections to the Eaton Centre, the Hudson's Bay and Saks Fifth Avenue department stores, the core of the Financial District via First Canadian Place, and major points of interest such as Nathan Philip Square.

However, despite being so well-situated to destinations that are busy at any time of the week (such as the Eaton Centre), during my pedestrian counts, the Munich RE corridor only saw around 20 people passing by each minute on a Thursday at 1:45 PM and around 10 people passing by each minute on a Wednesday at 6:00 PM. Even during other quick weekday visits that I made to this corridor; the space always felt quiet. Users were typically dressed in an even mix of casual and business attire whether it was a weekday or a weekend, differing from the busiest parts of the PATH at the centre of the Financial District where business attire was most prominent on weekdays from the high proportion of office workers. During all visits, I spotted at least a few people walking with luggage. I occasionally also saw casually dressed people headed between the hotel and the Eaton Centre, indicating the possibility that visitors to Toronto were making use of the PATH.

These could be travellers using the PATH to reach the Sheraton Centre. My visit to the Richmond-Adelaide Centre was on a Saturday at 3:00 PM, on a Wednesday at 6:15 PM, and on a Thursday at 1:45 PM. I counted approximately five people passing by per minute on the Saturday afternoon visit, approximately 20 people per minute on the Wednesday evening visit, and approximately 30 people per minute on the Thursday midday visit. The Richmond-Adelaide Centre has recently renovated their food court, but despite a very modern, well-equipped, and well-appointed seating area, most food stalls had not yet opened for business as of Spring 2023. This food court therefore did not draw nearly as large of crowds as found at the core of the Financial District. Some people could be found sitting, resting, working, or socializing, yet I never saw over a quarter of seats occupied. During all of my visits, the nearby Sheraton Centre was hosting several conventions, meetings, and events. As the meeting and event rooms at the Sheraton Centre are located at the same level as the PATH, I could see event attendees coming and going from the meeting rooms particularly during breaks in their meetings. Some would chat with their colleagues outside of the meeting rooms or take a seat on benches scattered throughout the Sheraton's foyer. However, only a handful of the dozens of attendees took the time to venture out into the PATH, often only to make a quick purchase at a convenience store.

Interestingly, when visiting the PATH corridor between St Andrew Subway Station and Roy Thompson Hall on a Saturday afternoon, I was approached by two people who asked me for directions after briefly glancing at a wall-mounted PATH network map. One of them explained that they had heard that the PATH had plenty of shopping areas and that they were keen on exploring but could not find any of the stores. I explained to them that while many parts of the PATH offer retail, these stores are usually only open on weekdays. I told them that the Eaton Centre is also considered part of the PATH and being a major shopping centre, this would be the place with the greatest concentration of retailers anywhere in the PATH network on any day of the week.

Skywalk

I visited the Skywalk on a Sunday at 5:30 PM, on a Wednesday at 4:45 PM, and on the same Wednesday at 9:00 PM. During these visits, I counted approximately 30 people

passing by per minute, 20 people per minute, and 15 people per minute, respectively. In addition to these visits, I have used the Skywalk on other occasions and I have noticed a relatively steady flow of traffic regardless of the day or time. During all visits, most people walked at a leisurely pace. People appeared more relaxed in the Skywalk than in the Financial District PATH corridors. Casual attire was more common than business attire. Users were always very diverse, and more families and groups were present compared to other PATH segments. While other parts of the PATH often had primarily middle-aged users, the Skywalk had a noticeably greater presence of younger users. During most of my visits, I noticed up to a tenth of users carrying luggage, which can be attributed to the easy access to Union Station, the Union Pearson Express, and many nearby tourist attractions and hotels. While observing the Skywalk on the Sunday at 5:30 PM, I overheard a casually dressed group with carry-on luggage discussing how much free time they had left before their UP Express train, indicating some of these people could be travellers on a short layover in Toronto or spending their last moments of an extended trip before returning home. Unlike, other parts of the PATH, virtually everyone in the Skywalk was walking, with few people stopping to chat, lean on walls, sit down, or linger. The space was used exclusively for transportation at all times with no accessory uses and additional activity found elsewhere in the PATH. Compared to the Financial District and other parts of the PATH in areas with higher concentrations of offices, the Skywalk did not appear to experience the dramatic peaks and troughs between weekday rush hours and lunch hours versus weekends and weekday evenings. When the Skywalk can experience additional foot traffic is during major convention periods at the Metro Toronto Convention Centre, a major sporting event or concert at the Rogers Centre, or at peak tourist periods for the CN Tower and Ripley's Aquarium.

South Core

As mentioned, the South Core has brought more diverse uses into the PATH network. During visits to the PATH entrance of the ICE Towers residential complex on a Saturday at 4:00 PM, on a Wednesday at 4:30 PM, and on the same Wednesday at 8:45 PM, I noticed that while there were never any particularly busy periods, I was still able to count

a constant flow of around 10 people passing by per minute during each visit. Compared to other parts of the PATH, users generally appeared younger, with many users appearing to be between 20 and 40 years old. Other than age, users were diverse. Despite not drawing in as many people as a non-residential property, the ICE Towers still attracted enough users to consider its PATH corridor an important and appealing piece of infrastructure for residents and visitors alike. While some users heading to the condos were dressed in business attire, many were casually dressed. I noticed many people dressed in loungewear on a cooler day, carrying groceries from the PATH-connected Longo's supermarket. I also noticed occasional people dressed in athletic gear carrying gym bags coming from the PATH. Some people would also stop in the space to chat with others, or to lean on a wall and check their phones. The PATH corridor presented a rare example of how a residential property could make use of a PATH connection, with evidence of residents using the PATH regularly to run errands or to commute to work. In addition to residents, I noted the occasional user coming from the street and entering the PATH network from the ICE Towers entrance, indicating the benefit of this PATH area to others in the area.

Additionally, I made multiple personal visits to the Winners department store in the shared podium of the One York office tower and Harbour Plaza condos, situated within the complex's PATH corridor. I noticed this store to be well-frequented during daytime hours throughout the week, and also noted that this store was open on weekday evenings and weekends unlike most Financial District PATH retailers. During a conversation with a cashier on a Saturday afternoon in August, I mentioned how busy the store seemed and how long the lines were. The cashier explained how typically, weekday lunches and weekday evenings were their busiest times, however, in their recent memory, weekends had been very busy and possibly busier than some weekdays. They said that this could be attributed to the back-to-school season, frequent Blue Jays games at the nearby Rogers Centre, and other events that appeared to draw people into their store.

In my interview with Jordan Wheeler, server at Miku Toronto, an upscale Japanese restaurant situated at street-level in the RBC WaterPark Place office complex, I was given additional insight on PATH usage trends in the South Core. While RBC WaterPark Place

is connected to the PATH, the restaurant does not have a direct PATH connection thus requiring patrons to exit the PATH at street level then access the restaurant following a brief walk outdoors. I learned that many of Miku's regular customers are workers from the RBC WaterPark Place complex as well as nearby office buildings, and that the restaurant depends on businesspeople as their main clientele. With businesspeople as the primary type of customer, this restaurant sees relatively stable revenue year-round and less increases and decreases in activity due to seasonal events, holidays, and climate. Wheeler stated that while other competing dining establishments in more entertainment-oriented areas may see drops in customers on days with inclement weather as well as experience low seasons, Miku can count on a regular flow of customers on days with bad weather or at times of the year where there are less visitors in the city. While talking to his patrons, Wheeler regularly hears people mention that they used the PATH as part of their trip to the restaurant, particularly during inclement weather events where the PATH ensures they can still comfortably and safely reach the restaurant. The PATH therefore helps to feed a regular flow of workers from the nearby office towers to Miku.

Design Features

The aesthetic appearance of a space, its amenities, and its design elements influence people's activities, behaviour, and interactions with an urban public space. This is as true for the PATH as it is for any other space in the city, above or below ground.

When walking through the entire PATH system, an eclectic mix of interior design styles is very noticeable. Caused by the PATH's initially uncoordinated expansion connecting the underground levels of individually owned buildings, the PATH's conglomeration of separately designed spaces can be considered both an advantage and a flaw of the network. As individual segments of the PATH feature interior designs corresponding to the property above, this makes it very clear to users that they are in a different part of the PATH, compared to if all corridors were uniform in appearance. Despite seeming to add complexity to the navigation of the PATH, the changing architectural styles, materials, colour palettes, lighting fixtures, furnishings, and other design elements gives intuitive visual cues and landmarks to help users understand their movement through the PATH,

even if it is their first time in the PATH. With regular visits to the PATH, users can begin to remember the appearance of different parts of the PATH, with their minds signaling design elements as landmarks to aid with navigation. Consequently, PATH users can navigate corridors with increasing confidence and decreasing levels of effort to reach their most frequently visited destinations.

Furthermore, in addition to making the PATH more intuitive, the variety of different interior design styles imparts uniqueness and contributes to the appeal and desirability of using the PATH.

Architecture

The core of the Financial District boasts exceptional pieces of Art Deco, International, Modernist, and Post-Modernist architecture by world-renown architects, each towering over Toronto whilst also carrying a taste of these architectural movements into the underground.

Ludwig Mies van der Rohe's Toronto-Dominion Centre features signature monolithic matte black towers with interior design elements carefully curated to match its exterior aesthetics. Sleek, minimalist, and consistent glass paneling and black framing of retail storefronts in the Toronto-Dominion Centre's PATH corridors, paired with consistent, high-contrast overhead directional signage, warm, diffused lighting; and travertine, marble, and granite surfaces exemplify Mies van der Rohe's 'less is more' mantra and continue the complex's International style of architecture below ground. The lack of visual clutter and distractions in the space make it easy to travel through, while the high-quality materials and warm, natural tones ensure that despite a minimalist appearance, the space exudes a welcoming and approachable feeling.

First Canadian Place's architecture further demonstrates marks of the International style, but with a decidedly white theme. The rich white marble cladding (recently replaced with glass cladding) of the tower's facades corresponds with the very liberal use of white marble in the podium and PATH corridor interiors, creating bright and airy spaces. First Canadian Place's bright theme is a stark contrast to the adjacent Toronto-Dominion

Centre's spaces. Both feel welcoming and well-appointed, yet walking from one to the other creates distinct experiences that help users distinguish exactly where they are in the PATH.

A few minutes away and entirely different eras of architecture present themselves in the nearby Commerce Court's PATH corridors. With the complex being comprised of four towers built at different times throughout the 20th century, Modernism co-exists adjacent to one of Toronto's most well-known examples of Art Deco architecture. The PATH corridors of Commerce Court are therefore a hodgepodge of sections with different styles aligning with the architecture found in the towers above. The Art-Deco segments are appointed with decorative ceiling tiles, prominent chandeliers, patterned flooring, and ornately detailed storefronts with bay windows and older-styled cabinetry. Other segments, on the other hand, appear to retain a style reminiscent of a few decades ago. The food court, which is roughly at the centre of all the corridors, appears recently renovated with contemporary lighting fixtures and furnishings.

Design for Optimal Movement

A common trait of many high-traffic areas of the PATH, like the segments just mentioned, is the high quality of their interiors. Materials and attention to detail with decorative elements makes spaces pleasant and appealing. Design and usage have some extent of a symbiotic relationship. While location and nearby destinations certainly impact how busy a PATH corridor is, people would not be drawn to using an unpleasant space. Thoughtfully designed interiors attract more people and encourage traffic. In turn, where a corridor sees high traffic, more effort and resources are invested to enhance the space and maintain a high caliber of design.

As mentioned earlier, while the PATH is first and foremost a transportation system, many spaces in the PATH do attract activity other than walking. Design features encourage what activity takes place and how people behave and interact with the space. Contrasting colours on floor tiles are strategically located to naturally guide users in the right direction towards the intended destination. Lights can sometimes be brighter towards the

intended destination. Corridors are wide and open, with few obstacles. An example of this could be walking from the Dundas subway station entrance into the Eaton Centre. Being such as heavily travelled corridor, among the hundreds of people walking through at any given moment, there is a chance someone may want to stop for a variety reasons. Some people do lean on walls and check their phones, sit on the floor and eat, or stand on the edges of the corridor and socialize. However, this space is left wide open and is more functional and utilitarian in appearance than welcoming and aesthetically pleasing. Catering more to efficient movement of people rather than a space for people to linger, relative to how many people are passing through, few people actually do stop. Those who do stop do not appear to stay for long. Spaces such as the corridor between Union Station and Royal Bank Plaza or the corridor between First Canadian Place and the Toronto-Dominion Centre are also examples of spaces designed for efficient movement. While these office complexes offer high aesthetic qualities, these corridors are wide and open. Especially at peak times, people walking through them move briskly and confidently, looking like they know where they are headed and like their trip through these corridors is a routine affair. There is always a chance for a handful of people among the hundreds passing through to want to find reasons to briefly stop and lean against a wall, or stand on the spot. However, with few features in the space encouraging this, most people remain on the move.

Seating Areas

On the other hand, many PATH corridors do feature amenities that encourage people to spend time in them. Urbanist William Whyte released his highly influential film 'The Social Life of Small Urban Spaces' in 1980 where he used time-lapse footage to observe human behaviour and activity in New York City public spaces. He uncovered correlations between the features of these urban spaces and how people interacted with them. Successful public spaces attracted people, and the more people there were, the more people would keep coming. Through human observation, it was revealed how people hold innate and common desires for exploration and freedom of movement (Whyte, 1980). The most used spaces were pleasant in appearance and easily accessible. They provided

shelter from the sun and other elements. Furthermore, they made use of different textures, surfaces, and subspaces. These spaces provoked a sense of exploration and encouraged people to look around and feel like they had choices on where to go. Furniture pieces as simple as moveable chairs were most popular for the same reason. The film captured people's desire to be able to position chairs in exactly the way they wanted to suit their activities, to be facing in their desired direction, to be positioned for privacy, or to be closer to other members of their party. The movement of their seats represented autonomy and choice. Having ledges, benches, decorative features, and places to lean on provided even more options for where people could gather.

During my observations of activity in the PATH, the general principles of successful urban spaces taught by Whyte were very applicable. I found seating areas in the PATH of all shapes and sizes. Some were as simple as regularly spaced-out benches in moderately busy corridors. The nature of these benches encouraged quick breaks during a trip, whether to chat with someone or sit down and rest. Other seating areas were more elaborate and featured different varieties of lounge chairs, armchairs, couches, and benches. Unique flooring under seating areas such as rugs or differently coloured tiling plus unique lighting fixtures above placed an emphasis on the space and beautified it. Where longer stays were even more encouraged, additional amenities could be found to cater to users. Small touches such as nearby waste bins and moveable accent tables encouraged people to spend more than a few moments in an armchair. For example, with a table and a place to dispose of trash, someone could easily stop to enjoy a drink or snack. Evidently, the more comfortable a space appeared; the longer people would be likely to stay. Offering options for where people can gather creates interest and allows for greater usage and vibrancy of the space. In any space that offered a wide array of different seating options, people would be evenly drawn to using all the different options that they were given.

Among seating areas, food courts are evidently the prime location for activity in the PATH. As mentioned earlier in the description of uses and destinations in the PATH, food courts act as a hub of activity. Not only do people use the food court to purchase and

consume food during the lunch hour, but people also spend time using the seating spaces for social activity. These food courts have been known to be a gathering place. When visiting them during the busy lunch period, it was common to see groups gathered having friendly chats, people conducting business meetings and interviews, and people taking phone calls. Some came alone and worked on their laptops or browsed their phones, whether they were with or without food. With many food courts providing a variety of seating choices from barstools and high tables, booths, armchairs, benches, to traditional chairs and tables, users were typically provided with options to suit their exact needs and make themselves comfortable. Outside of the peak weekday lunch periods, even with many food vendors closed, food courts often still managed to fill up to a quarter of their tables. By providing an abundance of attractive seating options, even at the quietest of times, food courts in the PATH drew people in to sit down with their friends and families to socialize, or to bring their laptops and use the space for productivity. I was surprised to see numerous people on weekends sitting in PATH food courts eating and drinking takeout goods. As vendors in the immediate food court area and the nearby corridors were all closed, this indicated that people would bring their food and drinks from outside and make the effort to bring it into the PATH. Features such as large television screens showing the local news, events in the area, sports, and other entertainment commonly pulled people into space. I often saw people sitting at tables with their eyes fixed at the given screens for extended periods of time. Charging ports and outlets also encouraged long stays in food courts. As these were already popular in smaller seating areas for a quick recharge, having them incorporated into the larger scale of food court seating attracted people at all times of the day to stay longer than their laptop batteries would otherwise allow.

In November and December of 2022, Scotia Plaza broadcasted soccer games on two large screens specially brought in for the FIFA World Cup. The screens were placed in a central location in the building's PATH space, surrounded by cushioned benches, armchairs, couches, planters and side tables. Large signage promoted the space as a FIFA World Cup viewing lounge and announced broadcast schedules. I walked by the space on a Saturday

afternoon and noticed a small crowd of people watching the broadcast. Among the quiet but steady flow of people walking through the PATH at that time, many passersby were slowing down to glance at the score or stopping briefly to stand by the screens and watch the game for a few minutes. Over 40 people were sitting down, most with their jackets and winter outerwear taken off and many with beverages and food laid out next to them on the easily moveable side tables. Most of these people looked like they had made themselves comfortable and intended to stay for a while, if not until the end of the game. Across from the seating area, the Winners department store was on Christmas season hours, meaning it was open on Saturdays instead of its usual weekday-only schedule. The animation provided by the soccer broadcasts appeared to positively contribute to the shopping activity in addition to already higher shopping activity due to the holiday season. The FIFA World Cup Broadcasts make for a great example of a PATH space's features encouraging vibrant activity. While Financial District PATH corridors are typically not very busy on weekends, the amenities provided encouraged people passing by to stop and spend extra time in the PATH.

Biophilic Design Cues

The incorporation of nature is another interesting design trait that I found throughout the PATH. Biophilia is defined as the human connection and need for nature. Catering to this, designers have long attempted to include biophilic design elements in public spaces. Integrating features that remind people of nature, such as vegetation, organic shapes and forms, features that stimulate human senses, and natural light, have been proven to enhance people's wellbeing and mood, as well as their attitude towards a space (Bochart, 2019; Ortegón-Cortázar & Royo-Vela, 2019). Shopping malls have long implemented natural and artificial plants, green areas, water features, and natural light sources and this has been shown to create more favourable customer experiences and encourage more visits and shopping (Cheng & Marzuki, 2023; Ortegón-Cortázar & Royo-Vela, 2019).

Several water features stood out to me during my visits to the PATH. This included an illuminated waterfall feature at First Canadian Place. This water feature flanks an elevated seating area and elevators to the upper levels of the podium and the tower above and is

strategically positioned next to a high-traffic junction for PATH users coming from multiple directions. At Royal Bank Plaza, a food court can be found one level below the main PATH corridor and the escalators leading to and from this lower floor are surrounded by water cascading into a pool. Lastly, the Eaton Centre features a circular pool in its lower level, with jets that shoot water upwards to be visible to shoppers from balconies of upper floors. These water features are all attractive features that elevate the quality of their respective spaces. Additionally, they enhance users' ability to navigate these areas of the PATH, by acting as visual and aural beacons.

Allowing access to natural light may be challenging while underground, however, many areas in the PATH successfully manage to draw outside light into its spaces. Natural light can facilitate the user experience by making orientation and navigation an easier and more natural task. When sunlight is let into a PATH space, this visibly signals that a connection to an above-ground space is available. I found numerous examples of this. For example, at the Bay-Adelaide Centre, a large opening in the PATH corridor offers a clear view of escalators going up to lobby and street level. Due to the high ceilings and large glass panelling in the lobby, natural light gleams into the PATH and also illuminates an art piece prominently displayed on the wall seen as one walks towards the escalators. Atriums and skylights are used in many places. In these spaces, an opening to above creates sightlines from the PATH to street-level and upper floors. This gives visual interconnections between the PATH and destinations above, integrating above grade and below grade spaces by design. Examples of this can be found at Commerce Court, Brookfield Place, First Canadian Place, the Eaton Centre, and the Atrium on Bay, among others.

First Canadian Place's podium in particular does a good job of not only connecting but also integrating above and below ground spaces. While the lower level of the podium is officially part of the PATH route and provides wide and efficient walking spaces as well as retail, retail and services are also found in the two storeys above this. All floors are left open down the centre with clear views of vertical transportation (stairs, escalators, and elevators) and what is available on each floor. A large food court is located at the top floor

of the podium, and from the food court, access to an outside terrace is provided. This terrace, equipped with plenty of seating options, acts as an extension of the indoor podium and PATH space into the outdoors. During my visits to First Canadian Place, the lunch period and rush hour periods saw efficient flow between corridors and between floors. At lunch time on a Spring day, the terrace was as well used as the busy indoor spaces of the food court with people both sitting and standing around, eating, enjoying beverages, and socializing with one another.

Brookfield Place's food court and PATH corridors are situated below the Allen Lambert Galleria, a 130-metre long steel and glass atrium between Bay Street and Sam Pollock Square. Among the most photographed pieces of architecture in the Financial District, the Galleria was designed by renown architect Santiago Calatrava and the organic arches of its canopy were meant to evoke a tree-lined avenue (Richardson, n.d.). While the below-ground PATH level is not fully open to above views of the atrium, multiple strategies are used to integrate the natural light-filled atrium space above with the PATH. Prominent staircases are placed at the centre of the seating areas and views up the stairs provide a grand entrance into the atrium space. Light spills from these staircases into the food court. Furthermore, glass block flooring is used throughout the atrium space which allows natural light to flow from above into the PATH below. The food court's ceiling also makes some use of organic curves flowing gracefully upwards towards the centre of the space. While these curves are not as dramatic as the sharp one in the atrium's canopy above, they keep with the thematic design of the space and create an aesthetic connection with the atrium. During my visits to this space, not only did I always find users in the food court's seating areas at all times of the day and week, but I also observed multiple separate groups of people taking portraits of one another from the staircases with views of the atrium behind them.

Artificial natural elements have been used in many places, particularly planter boxes and artificial vegetation, owing to the challenge of sustaining natural plants below-ground. In the Bay-Adelaide Centre's PATH-level food court, in addition to a modern and well-kept space as well as artificial plants throughout, a unique touch was backlit panelling on the

ceiling with imagery of the sky and clouds. While mimicking natural light, this motif gave the impression of a larger, more airy and more open space with higher ceilings. Similarly, in the York Concourse of Union Station, I found a TD-Canada Trust customer kiosk. Emerging from the top of a brown signpost with the bank's logo were several digital displays with imagery of foliage and the sky. In an underground space with lower ceilings, this design mocked the shape of a tree and enhanced the feeling of the space. Furthermore, throughout the PATH, where digital displays were present, I often saw imagery of water, foliage, and other natural scenes being played. Some displays used these natural themes as a background while presenting local news, wayfinding, and other broadcasts on top, while other displays rotated between other pieces of information and full-screen images of nature. The common occurrence of nature-linked scenes and imagery could be related to biophilic design's proven effect on user wellbeing. In some narrower corridors, large floor-to-ceiling displays presenting such natural scenery had a positive impact on making an otherwise claustrophobic and bland space more comfortable to travel through.

Wayfinding and navigation

Wayfinding has been a longtime weakness of the PATH network, as described in studies of Toronto's underground passageways from decades ago. This has been the case, even after the official branding of the PATH in the 1990s and the City's efforts to implement a comprehensive and consistent set of directional signs throughout the network. The PATH wayfinding signage system has been updated many times since then yet inconsistencies in signage quality and cohesiveness exist. Walking between different segments of the PATH, the effectiveness and clarity of signage can vary by property, and signs that appear to be from different time periods are noticeable.

As mentioned earlier, the varying architectural elements in different parts of the PATH as well as other landmarks and navigational beacons can make navigation more intuitive. This is especially true for a frequent user as a person gets increasingly familiar with their routine PATH route. However, signage that is informative, concise, easy to read, and universally understandable is crucial. Signage confirming directions to different

destinations, amenities, and exits are not only required for ease-of-use, but also deal with a matter of safety. Especially in an underground environment that does not always evoke the same sense of orientation as above-grade spaces, being able to know what to expect from signage and being able to depend on signage is important.

In most parts of the PATH, at a minimum, the standard PATH logo is displayed at entrances between properties and different corridors as well as on any directional signage. Simply using this recognizable logo goes a long way as it provides confirmation to unfamiliar users that they are still in the PATH network and within a PATH route. In several properties, I noticed very similar or identical signage styles, using the same fonts, symbols, levels of information, and colours. Ideally, PATH network maps should also be provided to complement directional signage, as well as neighbourhood maps of the streets above displayed within close proximity. I found maps to be frequent enough, often found at access points between different properties. However, the frequency of PATH maps was not high enough that I could always expect to see one when I needed it.

Unfortunately, with some properties, different styles of signage are used and the appearance and levels of information can be inconsistent. The location of signage can also be inconsistent, with some segments of the PATH providing wall-mounted and ceiling-mounted signage in specific places, and other parts of the PATH having less expected signage locations.

At one point in history, the PATH attempted to implement ceiling mounted compasses throughout the network. On the ceiling over a junction between corridors, four small arrows would be visible coloured in the PATH-theme colours. Blue, red, yellow, and orange arrows represented north, south, east, and west, respectively. These compasses can still be found dispersed throughout the network. However, these compasses do not appear practical. Figuring out which colour represents which direction requires standing directly under the compass and looking straight up. Furthermore, not everyone is familiar with cardinal directions. Additionally, the PATH's corridors do not always travel in straight lines (heading north may require taking a detour west first, for example). The

compasses are also now so infrequently spaced out throughout the network that they become undependable.

Among good examples of signage, the wayfinding at Royal Bank Plaza presented an example of very clear digital displays in addition to traditional signs. These displays are highly-legible, provide up-to-date directions, show directions not only to directly PATH-connected destinations but also towards points of interest beyond the PATH network such as the Waterfront and the Jack Layton Ferry Terminal, and also give estimated walking trip times.

The Toronto-Dominion Centre also presented me with an example of effective and clear overhead signage. Signage in the Toronto-Dominion Centre complements the complex's minimalist interior. Signs are therefore easy to find as they are not drowned out by excessive signage from retailers. Unfortunately, while the complex's wayfinding system is outstanding when evaluated in isolation, when looking at the Toronto-Dominion Centre's signage in relation to the PATH network as a whole, the Toronto-Dominion Centre's signage design is rather different and strays far from more standardized designs found in adjacent buildings.

Pt. 5: **Buried Alive? – Thinking About the Future**

In this section of my paper, I present my analysis of my findings drawn from information gathered from my interviews, as well as site visits, literature, and other data collection methods.

5.1 Evaluating the PATH

At the start of my research, I looked for studies on UPSs around the world. While literature on UPSs has been relatively uncommon in Urban Planning research, pieces that have been published about UPSs have often provided a general overview of UPSs to serve as an introduction to this understudied type of urban space. In these articles, common advantages and disadvantages of UPSs have been recognized, which can increase understanding on why UPSs are built around the world and how they function (Besner, 2017; Bobylev, 2009; Broere, 2016; Cui et al., 2019; Hunt et al., 2016). The typical strengths of UPSs have included contributions to sustainability and liveability goals, desirable isolation from weather conditions, and economic benefits. Nonetheless, governance, management, and competition with above-ground uses have been found as common weaknesses of UPSs.

Now, after having looked at the history of the PATH, having spent considerable time visiting the PATH, and having talked to individuals involved with or knowledgeable on the PATH, I can certainly see how the PATH has made the most of its strengths to find success as well as the network's shortcoming.

Strength - Contribution to Sustainability Goals

A commonly associated strength of UPSs is their contribution to cities' growing goals of land use, sustainability, and liveability. UPSs help reach these goals through improving density and efficient transportation in urban area (Besner, 2007; Broere, 2016; Ciu et al. 2019). There are many ways in which the PATH supports the ongoing cause of planning sustainably. The PATH provides comfortable walking spaces and encourages walking as a healthy and environmentally friendly mode of transportation, provides a well-received

first-and-last-mile solution, and increases employment and floor area density to foster more efficient land use in Toronto.

Land use and transportation have always been closely related. People have always needed to access workplaces, essential goods and services, social occasions, and recreational opportunities, thus settling relative to the location of these needs (Banister, 2012). With the birth of mass car ownership, early 20th century planning concepts demonstrated grand utopian visions of what cities could turn into when people had access to cars that could bring them farther distances faster. Things could be spread out and people could still access them relatively easily. Access to personal vehicles was thought as key to ensuring an elevated quality of life, contrary to more recent planning ideals that now realistically factor in the harsh environmental and social detriments of cars. Throughout the 20th century, the use of cars encouraged segregated land uses with increased distances between places and low densities. Society has realized that having a heavy dependence on cars in everyday life has its downsides. More recently, planners have consequently turned to developing land more efficiently through mixed uses and higher densities, ultimately lessening travel distances required to obtain everyday necessities and promising for more efficient and less car-reliant transportation (Banister, 2012; Forsyth & Southworth, 2008; Newman et al., 2015).

Density can make cities more efficient in how energy and resources are used, and how people get around to access goods, services, employment, leisure, and housing. With the right balance of density, cities can become more liveable and sustainable, with more complete and comprehensive communities that offer what residents need within close access while reducing transportation emissions. UPSs can contribute to this (Besner, 2007; Broere, 2016; Ciu et al. 2019). As UPSs often incorporate additional below cities, UPSs can permit more density by adding more usable space without increasing the surface area or height of a building.

The particular concept of walkability goes hand-in-hand with more sustainably planned communities. While walking has existed since the dawn of civilization, the term

'walkability' was only made popular in the 1960s when the natural expectation for communities to be walkable was getting forgotten amidst the popularization of cars (Dovey & Pafka, 2020). Since walking is a mode of transportation freely available to the majority of people, walkability has been said to make cities more environmentally friendly, have healthier residents, and be more equitable (Dovey & Pafka, 2020). A walkable city is laid out with short distances between destinations to make walking competitive in someone's decision-making process on what mode of transportation to choose; has barrier-free access to provide easy transportation for any situation; has a safe feeling with low perceived dangers; and has appropriate infrastructure such as quality surfaces, street furniture, and landscaping (Forsyth & Southworth, 2008).

In trying to reduce car dependence in a quest to ameliorate cities, modes of transportation other than walking and cars must be considered too, as trips can be a combination of a variety of different modes. While strategic land use planning can encourage people to not have to travel as far to access their needs, there will always be personal situations where people may need or want to travel further. Combinations of travel modes are realistic. For example, someone may take a car to a transit station, followed by a train ride across a longer distance, and terminating with a walk to the final destination. This example demonstrates the 'first and last mile' issue in transportation planning. A mode of transportation like transit can be appealing, however, getting to and from where transit picks someone up and drops them off can impact their decision to comfortably choose transit over other modes and lessen transit's convenience. Transit operators can influence first and last mile issues through the location of stations relative to where riders are situated, however, issues extend to a broader scale when considering physical connectivity quality through sidewalks, bike lanes, roads, and perceived safety (Tilahun et al., 2016). Furthermore, if there is not enough density and riders are spread out, this makes planning transit station locations more challenging. First and last mile issues are a limitation to the success of many modes of transportation such as transit, and a limitation to efficient city growth altogether (Lesh, 2013).

With so many people combining the PATH with transit usage, the PATH functions as a great first-and-last-mile solution by transporting people the final brief distance in their trip where transit services let them off to the entrance of their destination. This was the case historically, and still continues to be the case today. With its abundance of retail, food, and services, the PATH additionally adds more uses, revenue, activity, and employment opportunities below already dense downtown towers. The uses found in PATH complement the uses above and make downtown Toronto more complete with uses that meet the needs of its residents, workers, and visitors.

More transit-related PATH trips may also be anticipated for the future as transit services in Toronto undergo major expansion projects. For example, the PATH may see changes in activity and traffic patterns when GO Transit expands its service frequency and capacity through its Regional Express Rail (RER) plans.

At the moment, many of GO Transit's services from Union Station run at a frequency that requires riders to conform to a fixed schedule as missing a scheduled trip would require an inconvenient wait until the next trip. This is unlike rapid transit services such as the subway, which run frequently enough that users need not consult a trip schedule before walking to a station. A subway can be expected to arrive within minutes at any given time of day. In many parts of the PATH, heavy pedestrian traffic moves outbound from Union Station in the morning and back towards Union Station in the afternoon due to GO Transit's current train schedules. As GO aims to have all-day two-way frequent service on many of its routes, these peak traffic times in the PATH may be less drastic. People will still flow out of Union Station heavily during the morning period and head back to the station in the afternoons. However, many more people can be expected to move in and out of Union Station throughout the day and during the late evenings. The afternoon peak period may no longer be as pronounced as people may take more time to run errands and shop after work before getting on their train or bus as taking time to step into a store will require less planning. People may consider staying later downtown before heading home. Currently, many retailers close by the evening. Midday lunch periods are more popular for PATH users to access the PATH's retailers and services to run errands.

Despite the lunch period being more time-constrained for office workers to run their errands, people possibly prefer rushing to run an errand on their lunch breaks than to do them after work and miss their scheduled train, possibly delaying their arrival home significantly.

Strength - Isolation from the Outdoors

Another recognized advantage of UPSs is their isolation from environmental conditions. The PATH certainly provides this advantage immensely to its users. Underground corridors are climate-controlled, with constant temperatures and relatively consistent air quality. Indoor spaces can be perceived as cleaner and can be void of natural occurrences of dirt, pollen, and other outdoor pollutants. In cities with harsh weather or extreme temperatures, walking underground can be much more appealing than walking at street level. Underground structures also provide natural protection against major environmental events and natural disasters such as earthquakes, hail, rainstorms, and tornadoes (Besner, 2007; Broere, 2016; Ciu et al., 2019).

Toronto's Climate and a Solution for Walkability

In a city with as much seasonal variation as Toronto, where hot and humid summers quickly change to cold and snowy winters then back again, the climate-controlled comfort of the PATH and its lack of precipitation, exterior dirt, pollen, and other pollutants make it a great draw for its users. The PATH can certainly thank its below-ground location void of environmental conditions for its success. Even the noise of the street and possible physical conflicts with vehicular traffic can be avoided by walking through the PATH rather than on the sidewalks above. Visiting on a rainy or cold day, many people can be found in the PATH not dressed appropriately for the weather, or even with a jacket on hand. Even on weekends, where there is a higher mix of casual visitors and people are less likely to be heading straight to their office, people can often be seen walking through the PATH not at all dressed for the weather outside. When I spoke to Jordan Wheeler, server at Miku Restaurant at the PATH-connected RBC WaterPark Place, he stated how he would regularly hear patrons used the PATH to get

from their office towers to the restaurant, especially during inclement weather conditions.

Weakness - Economic Disadvantages and Competition with Street-level

While it has been acknowledged that UPSs can stimulate economic activity such as through its retail offerings, UPSs can have economic disadvantages if not well integrated with its surroundings and with above-grade uses. The unique conditions of every city determine how a UPS will function. UPSs may become competitive against above-ground uses if not well planned and not well-integrated with above-ground counterparts. Spaces and uses found below and above the ground can become redundant causing either UPSs to be unsuccessful or causing a decline of activity at street-level. Additionally, building any occupiable space underground can have high construction costs (Ciu et al., 2019).

Toronto has known the PATH for so long that it is hard to imagine its downtown without it. It is hard to guess if without the PATH, Downtown Toronto would be more or less vibrant, busy, walkable, or active. The competition UPSs may have with above-ground uses are a known disadvantage and the PATH may very well play a part in reducing street-level animation in Toronto. In my discussion with Benjamin Hoff, a partner at Urban Strategies who has been involved with a PATH study done on behalf of the City, Hoff stated that the PATH has been a legacy from the past for the Financial District, where modernist towers on top of grand plazas and lobbies put all activity and animation below grade and this has had a lessened impact on the at-grade 'Bay Street' architectural experience. He noted that unfortunately, a shortcoming of this was that funneling everyone underground and leaving the street primarily for cars does not necessarily make for good urban design (B. Hoff, personal communication, September 15, 2023).

While the Financial District has been known to have these street fronts barren of retail and animation, much of this part of Downtown Toronto was built at a time where North American downtowns were facing downturns amidst post-war suburban exodus (Wachs, 2013). Without permitting the market-driven and primarily private expansion of the

PATH, the boom of office towers built between the 1960s and the 1980s may have not been so large. The convenience of the PATH was sought by offices and made downtown locations appealing enough for tenants who may have otherwise gone to the suburbs. The convenience of the PATH encouraged workers to work downtown by facilitating access to their offices. The question may be posed of how much the PATH stole from potential street-level vibrancy. Possibly, without the PATH, the city could have found other strategies and interventions to enliven its main business district and gotten the same amount of movement found in the PATH at street-level. Conversely, it is also possible that Toronto could have gone the way of many other North American cities and none of that downtown activity would have existed, regardless of whether it was above and below the ground. Toronto did see a decline in downtown activity in the 1970s, but it could have been worse and Toronto could have left its downtown to completely disappear in the shadows of the suburbs. With that being said, as many downtowns across North America are seeing a resurgence and renaissance, the PATH can be thanked for helping to keep downtown Toronto alive and prospering all this time.

While street-level vibrancy and walkability are highly sought after in any city, the reality of Toronto's context is that weather can be extreme throughout the year. In a major urban centre with dramatic swings from heat to cold and everything in between, the PATH can be praised for at least getting people walking through downtown Toronto, even if they are not at street-level. The PATH is an acceptable adaptation and intervention that has worked for Toronto's local climate and needs.

When I visited Dubai in May of 2023, I similarly thought of strategies and interventions that allowed Dubai to urbanize while adapting to its extreme climate. I had heard of Dubai being heavily planned around the car, and indeed, wide, sprawling roads were apparent during my visit, even through the densest and most urbanized areas. Many parts of the city did not appear hospitable to street-life. However, during my trips via the Dubai Metro to different parts of the city, I found some areas to be rather convenient to travel to by foot. Many Metro stations had elevated, climate-controlled bridges connecting them to adjacent destinations. For example, the walk from the Burj Khalifa-Dubai Mall station

to the nearest entrance to the Dubai Mall was nearly one kilometre. This entire walk could be done within an enclosed bridge, with direct connections to other buildings along the way. With many residences, offices, and tourist attractions in the area, users of this busy pedestrian route appeared to be a mix of local commuters and visitors. Similarly, to the PATH, convenience retail such as snack shops could be found along the way within this pedestrian passageway. While not exactly walkable at street-level in a traditional sense, I would consider this part of Dubai as relatively walkable due to its implementation of pedestrian bridges. In a part of the world where the sun beats down hard and outdoor temperatures can surpass 40 degrees (Celsius), just like in Toronto where extreme weather can be experienced, interventions and adaptations are necessary. Older parts of Dubai do demonstrate long-proven passive design strategies such as closely spaced, lightly coloured buildings with awnings and canopies between them, used to somewhat mitigate the discomfort of the sun and heat. Be that as it may, shaded and air-conditioned pedestrian bridges between transit stations and adjacent destinations are a modern and acceptable way to get large masses of people walking to their destination efficiently, safely, and comfortably.

During weekdays regardless of the weather, many parts of the PATH are bursting at the seams with life. The streets above may not be packed to the brim with people, but the Financial District's sidewalks are also not concerningly empty. In a time where walkability and more sustainable lifestyles are being so encouraged, the PATH gets people walking to their destinations where they could have otherwise driven.

Other Weaknesses of UPSs

Several other common disadvantages of UPSs have been identified (Besner, 2017; Bobylev, 2009; Broere, 2016; Cui et al., 2019; Hunt et al., 2016). Cities new to the idea of UPSs may acknowledge the disadvantages of UPSs and be discouraged from permitting UPSs from being built despite their advantages possibly outweighing their disadvantages. As UPSs are often novel ideas and not as commonplace to build compared to above-grade developments, they may initially require additional planning, thinking and interventions. However, many of these disadvantages can be overcome with the right efforts.

Isolated Environment

Isolation has been seen as a disadvantage of UPSs (Ciu et al., 2019). While being isolated from the weather can be advantageous and appealing to many UPS users, being underground can have natural deterrents to human occupancy. This includes concerns of perceived safety, lack of natural light, lack of natural outdoor markers of orientation, and artificial air circulation. While being underground can be beneficial in many inclement weather conditions, underground spaces can also be more prone to flooding. Furthermore, getting underground inevitably requires vertical transportation (such as ramps, stairs, escalators, elevators). Implementing underground spaces can therefore also bring forth concerns of accessibility, whether to descend into the UPS or in an emergency evacuation situation.

The incorporation of biophilic design cues and the ongoing efforts to improve wayfinding demonstrate how PATH stakeholders have attempted to mitigate the impacts of isolation in an underground setting. More can be done however to improve the PATH and make it a desirable space to spend time in. Many of the nicest as well as most well-frequented parts of the PATH use design features that optimize the integration of above and below ground spaces, and design elements to make spaces feel more open and welcoming. Continuous updates to spaces to include appealing features that encourage activity and in turn improve perceived safety and comfort are always welcome. More work can also be done to improve accessibility into the PATH, for example, with greater access to elevators.

Governance and Management

Governance and management are disadvantages of many existing UPSs as well. This is regarding the ownership, control, regulation, planning, security, and maintenance of UPSs. While property ownership above-ground is engrained in existing laws and processes, ownership of underground spaces can have complex models. Delegating responsibility and control over underground spaces can be complicated. Utilities and infrastructure are often located below the ground and managed by many levels of

government and private companies, and extensively building space accessible to people can be difficult when determining who the underground area belongs to (Besner, 2017). Master Plans and Official Plans are often implemented by municipalities as a guiding vision for the city's growth and development, including land use allocations. However, underground spaces and underground infrastructure have not traditionally been included in cities' Official Plans. Official Plans as well as accompanying planning by-laws and tools have traditionally seen cities rather two-dimensionally other than through some height and built form policies. To ensure forethought and to encourage better UPSs, planning tools will have to evolve to see the city three-dimensionally with more consideration of what happens below the ground. Underground infrastructure, utilities, and spaces will have to be more clearly accounted for, tracked, and comprehensively planned (Bobylev, 2009; Ciu et al., 2019)

Underground Space as a Finite Resource

Limitations of physical space can be a disadvantage of UPSs and any underground development. While using underground spaces as functional pedestrian corridors is a way to maximize the use of land, underground space is not an infinite resource. Not all land can be excavated to provide underground spaces due to natural geological limitations. In many cities, other existing uses such as utilities and public transportation tunnels already extensively occupy underground spaces (Bobylev, 2009). Utilities such as sewers and communication cables can be placed at quite shallow depths, while other underground infrastructure, such as subways, can be found at greater depths. Careful planning and coordination is required to build around these things (Broere, 2016). Furthermore, once UPSs are already built, due to the nature of constructing underground, it is harder to redevelop them or return the earth to its original state. This is especially the case when a property above is exceptionally tall or expansive (Ciu et al., 2019).

Planning the PATH and Private-sector Influence

As well-used as the PATH may be, the factors that have made it so successful can be double-edged swords. For example, the private-sector's influence on the PATH has

allowed it to grow to where it is today yet is also limiting in how the PATH will continue to grow in the future. The PATH's underground location is attractive for its climate-controlled and convenient spaces yet is also a detriment to ease of use and to coordinated planning of the network. The PATH's role as a transportation system has encouraged walkability and activity in downtown Toronto, yet at the same time it has possibly taken away from street-level activity and vibrancy.

Thinking about these factors that have shaped the PATH is helpful in thinking about the future of the PATH. The PATH has seen a gradual rebound in traffic following the pandemic and is now fortunately back to being busy at its usual times. The PATH briefly retreated into the darkness and slipped away from being able to serve its role and cater to its target demographic during the pandemic, yet it is back to business. However, thinking about its future and brainstorming what can be done to improve the PATH is a better option than keeping the status quo. Looking at the post-pandemic future of the PATH and how the PATH can evolve, some of its shortcomings become apparent as limitations of potential growth.

In an email conversation with Andrew Robertson, Planning and Advocacy Manager of the Financial District Business Area, I discussed the sentiment of property owners toward any changes or new uses to the PATH. According to Robertson, in the eyes of developers and property owners, the PATH is still a transportation system and it is foreseen that it will remain that way. As a transportation system, it is but a bonus and not something that property owners fully depend on or rely on for business (A. Robertson, personal communication, September 22, 2023). It is and has been desirable for a property to have a PATH connection, but downtown properties are already generating profits above ground without the PATH. Mostly, the PATH is viewed as just an extra asset. The retail and other uses located in the PATH are an additional bonus on top of that, an accessory use to an already accessory part of their properties. With that being said, there is therefore little motivation for landowners to evolve the PATH beyond any changes that they have already made (renovations to spaces, for example, but nothing more revolutionary or new

than this). The spaces are already doing what they need to do as far as developers are concerned.

As for expansions or changes to the PATH, market-driven development from the private sector as well as private operations of the PATH have allowed the PATH to expand where revenue would be most optimal. Credit can be given as this has gotten an extensive network built but this also contributes to flaws in the system. In serving the role of a transportation system, the PATH could have more routes that while not drawing in high levels of traffic, could make the system more comprehensive and practical. These routes could connect to a greater variety of destinations and uses, considering the PATH has always primarily linked to office buildings. In publicly run transportation systems, such as roads and sidewalks, routes get built to all places even if they are not expected to draw high amounts of traffic or turn in profits. They are seen as essential. With the PATH's privately-run model, some new routes may help the city's needs and make transportation more accessible, but if such a route is not geared towards making money, it is unlikely to get built. This includes getting more residential buildings connected to the PATH. This is not as appealing because developers do not see the funds spent on a residential PATH connection worthwhile relative to how this could be used as a selling point or how many people would actually use the connection versus in a non-residential PATH addition (B. Hoff, personal communication, September 15, 2023). While residential connections do not have as high of traffic numbers right now as compared to non-residential properties, including more residential uses would feed more people into the PATH throughout the day versus the current rush hour weekday peaks that the PATH experiences. This would allow businesses in the PATH to operate for longer hours and for gathering spaces in the PATH such as food courts to remain busy for more hours of the day. As more people learn about any new residential PATH connections, these connections may be used more by residents and gain increased popularity. While balance needs to be made to ensure people are encouraged to both use the PATH and street-level pedestrian routes, PATH routes can permit better accessibility and safety for residents from all walks of life and levels of ability to access essential goods and services.

In addition to the above ground uses connected by the PATH, the uses within the PATH are also at the mercy of the private sector and generating revenue. Common uses within the PATH such as convenience retail do have a demand and indeed provide revenue to landowners, but there are other less profitable uses that could be located in the PATH to benefit the city. This may include other types of retail and commercial activity. This could also include new community uses and public spaces. Large efforts to add such new uses may not be seen as the PATH has rebounded after the pandemic and as the PATH is now seeing enough traffic to satisfy property owners, but new uses can ‘future-proof’ the PATH, make it more resilient and less dependant on its core demographics, and make it better serve the desires and needs of Toronto.

Being privately developed and operated, there is little that municipal planners can do if they identify any desired changes or additions to the PATH for the future. In new builds, developers may choose to add PATH corridors and connections if so desired. When new development applications are submitted to the City’s Planning department, zoning and site plan control regulations can help somewhat regulate PATH additions, however, there are no major PATH-specific policies that are enforced. Toronto’s Official Plan mentions the PATH only a handful of times and does vaguely encourage PATH connections and improvements where beneficial, as long as these connections do not compromise street-level activity. (City of Toronto, 2023). One interesting mention of the PATH that I did find in the City’s Official Plan was in the Railway Lands East Secondary Plan (commonly known as the South Core neighbourhood), where Section 37 provisions are stated to allow the city to request the owner of a site to “provide knock-out panels to accommodate a potential future connection to the PATH system and enter into the Wayfinding Agreement” and “provide improvements to the PATH system” (City of Toronto, 2023). Other than the Official Plan and the Secondary Plans within it, the City does have a PATH Master Plan and a PATH Design Guidelines document, although these are more passive documents for reference rather than enforceable policies. These PATH-specific documents were published in 2012 and were written by planning firm, Urban Strategies.

In talking to Benjamin Hoff of Urban Strategies, I asked him if during his involvement with Urban Strategies' PATH study on behalf of the City, he ever believed the City was looking for more or less responsibility and control of the PATH. He stated that City did not shift its perspective on responsibility or governance by initiating their 2011 study of the PATH. The City did not want to take on more costs, control or risks and still relied on the private sector for any PATH additions or improvements. They just initiated the study for research purposes.

The result of Urban Strategies study was the PATH Master Plan as well as a PATH Design Guidelines document, published in January 2012. Urban Strategies was consulted and retained for the creation of these documents as the City was rethinking the future of the PATH. Hoff (who was one of the main contributors for these documents) explained to me that at this time, the City was dealing with a wave of new projects proposing new PATH connections in the up and coming South Core neighbourhood. These buildings ended up being connected to the PATH via above-grade elevated bridges and routes through podiums in an ad hoc and not fully coordinated manner. Due to the poor walkability and restricted access from the rail corridor and the Gardiner Expressway separating the South Core from Union Station and the rest of downtown Toronto, many developers did not want to advance their projects without these new PATH connections. As many of these developments got built, the City began contemplating if the PATH network should be permitted to continue its ad hoc expansion, particularly as the latest additions had been above-grade. City staff had concerns with some of these above-grade connections now that multiple had been built or proposed, including worries on the obstruction of sight lines and the impact on the public realm. As the City prepared for potentially more development applications that might seek above-grade PATH connections based off the precedent set by the South Core, the PATH Master Plan and Design Guidelines came to be. Being Master Plan policies and Guidelines, the contents of these documents are not legally enforceable like a Zoning By-law. They serve solely as documents to be consulted for reference when future development applications with PATH connections come in, as a

guide on best practices for implementing the proposed PATH connection (B. Hoff, personal communication, September 15, 2023).

More on the PATH Master Plan and Design Guidelines

The Master Plan was created during a year-long study in 2011 that included interviews and consultations with stakeholders such as property and landowners, major institutions, public agencies, emergency services, Business Improvement Areas (BIAs), and resident associations about the topics of PATH expansion; and PATH uses, designs, and functions.

With a copy of the PATH Master Plan provided to me by Hoff, I noted that many of the issues identified during this study over a decade ago still apply today. The study listed concerns at the time being in the poor marketing of the PATH leading to missed opportunities for expansion from developers and missed potential traffic from visitors and residents alike; improvements in design and a contrast between renovated or new versus older PATH corridors; improvements needed on wayfinding, and accessibility and safety concerns.

The Master Plan identifies that private development will continue to build the ultimate PATH network, in coordination with strategic public investments and the shared vision of the Plan. In anticipation of high population and employment growth in downtown Toronto, the Master Plan recommends expansion beyond the Financial District to diversify the destinations and uses connected and to provide better gateways to other neighbourhoods and streetscapes. The PATH is seen as a network that can complement the streetscape and activity above, but not compromise active street life. Portals leading to and benefitting already animated streets are encouraged, but the PATH shall not be extended through established neighbourhoods where it may result in lessened street life. While still being a hub of convenience retail and services for office workers, the Master Plan envisions more diverse retail uses that cater to a broader audience, more arts and culture uses, and improved connectivity to target neighbourhoods. The Waterfront (with links coming from the North and terminating at Queens Quay), South Core, and Financial District are encouraged to have future connections to offices, institutional

developments, hotels, and residential developments. The PATH is also acknowledged to be a valuable way to encourage transit usage and links to the subway are supported. Improved wayfinding, design, marketing and promotion of the PATH, and accessibility are also objectives of the Plan.

Wayfinding and Ease of Use

Since the Urban Strategies study and the resulting Master Plan and Design Guidelines, no further studies on the PATH have been initiated by the City. The Master Plan was never officially implemented, but rather, continues to act as a passive tool for Planning staff's reference (B. Hoff, personal communication, September 15, 2023). When I spoke via email to Michael Saunders, Economic Partnership Advisor and former PATH Manager at the City of Toronto, Saunders informed me that while the City used to have a PATH Manager role, the PATH manager was responsible for the coordination of PATH wayfinding matters (such as signage and maps) with stakeholders (such as property owners), the review of PATH wayfinding agreements prepared by the City's Legal Services Division, and the preparation of waivers and agreements for the use of the PATH nameplate. The use of the PATH nameplate is now administered by the City Manager's office while the other responsibilities have been handed off to the FDBIA (M. Saunders, personal communication, September 29, 2023).

Wayfinding is still in need of improvement as was found during my visits to the PATH, in past studies on the PATH, through random interactions that I have had with users in the PATH, in conversations about the PATH that I have had with those in my life, and through the PATH Master Plan. Other than the initial subsidies provided by the City to partially cover costs for PATH expansion decades ago, coordinated wayfinding may be one of the most fruitful and significant contributions that the City has made to the PATH in its history. Yet with the scale of the PATH network, wayfinding has required continuous work and still requires attention. Using the PATH has a learning curve, and most of those using it, being regular commuters, have learned to use the PATH by routine and repetition. For less frequent users and for visitors, navigating the PATH can be a

daunting task and relying on just existing signage and network maps does not guarantee an easy trip.

Following reaching out to Michael Saunders at the City of Toronto and learning that the FDBIA had taken over many of the City's former PATH branding and wayfinding responsibilities, I had an email conversation with Andrew Roberston of the FDBIA. He explained to me that the FDBIA now chairs the PATH Partnership Group, which is a group delegated authority from the City of Toronto to maintain PATH branding, keep wayfinding material up to date, and set standards for wayfinding. Furthermore, the Partnership Group provides a forum for major PATH stakeholders (Other major downtown BIAs, property owners, and various City Departments) to discuss and agree upon concerns in the PATH. (A. Roberston, personal communication, September 22, 2023). In response to me asking what recent examples of concerns have been brought up by stakeholders, Robertson stated that previous concerns have been about mapping updates, access to the PATH, and questions on the City's TO360 program for city-wide wayfinding beyond the PATH. He noted a specific current concern relates to the City's street renaming schemes, such as a potential plan to rename Dundas Street, which would require signage updates throughout the PATH. My understanding is therefore that while much of the work to improve the PATH lies with the private sector, branding the PATH and in turn, maintaining a consistent wayfinding system is something that the City and the BIA have the power to do.

5.2 Talking More about the Future of the PATH – Summary of Interviews

When asked about how the PATH has been affected by the COVID-19 pandemic, Andrew Roberston of the FDBIA stated that to date, PATH usage has declined due to the pandemic, however, the PATH is still busy on most weekdays and high levels of traffic are experienced at rush hours. Mondays and Fridays are much less busy than before as less people work in the office on those days. While the complete results are not publicly available, these changes in PATH traffic and the nature of downtown work can be confirmed through the FDBIA's workday population stop-and-ask surveys conducted in the PATH every two years. As stated in an earlier section of this paper, many news articles

from the past couple of years identified reduced traffic in the PATH due to the pandemic, work-from-home trends, and less office workers commuting to downtown Toronto. In my visits, the PATH was generally very busy, and Roberston's statements confirm that while the PATH's activity has rebounded and is seeing high levels of traffic, this is still lower than before the pandemic. There is a correlation between the pandemic, the PATH's dependence on office workers commuting to downtown Toronto, and the reduced traffic. After consideration of the PATH's post-pandemic state, and despite its general rebound of activity, there continues to be reasons to re-evaluate the PATH for improvements. For example, the objectives and visions of the PATH Master Plan from 2012 are still quite relevant. The listed objectives of this Master Plan on making the PATH more diverse in use should in fact be even more emphasized post-pandemic. While property owners may not be entirely motivated to make vast changes to the PATH due to the PATH's existing formula of success and sufficient revenue levels, evolving and improving the PATH is still worthwhile to ensure the continued success and long-term resilience of the network.

From the perspective of the PATH as a transportation system, wayfinding, accessibility, and new routes are improvements that can be made. Yet while the PATH may be considered and treated primarily as a transportation system by its property owners, the accessory uses of retail, services, and dining in addition to above-ground connected uses have a key relationship in the success of the PATH as transportation. Improving these uses and improving the variety of uses available within the PATH are important. Whether above or below ground, it is important to remember how land-use and transportation benefit each other greatly.

The PATH certainly has the potential to reach new heights when it comes to the uses found in it, allowing it to keep up with the latest trends, to better serve its current and future users' needs and wants, and to stay relevant as a place to be in downtown Toronto. If the PATH is seen as a transportation system firstly, then secondly, it can be considered a shopping mall. As traditional shopping malls also evolve above ground, the PATH can take a similar PATH below ground, albeit with some differences in approach to not only consider but also embrace its subterranean location.

In spite of property owners' general stance that the PATH continue to exist in its current state and condition, discussions with several individuals lead to some common ideas on new uses that could be introduced to the PATH.

Thoughts from Benjamin Hoff (Partner, Urban Strategies)

When I asked Hoff what he thought about the future of the PATH, he first acknowledged that the PATH was built assuming full occupancy of these offices with nearly everyone coming in to work all five days of the week. The retail uses and capacity of the PATH were built to reflect those conditions but this population of office workers is no longer present to the same extent. Hoff stated that this makes for an opportunity for the properties leasing the retail units to think of what to do next and try to lease spaces differently, as these office occupancy rates are unlikely to revert back to 100%. The PATH can continue to be physically open all hours of the day matching the same operating hours as the Toronto Subway System, but that does not mean people will want to use the PATH all day. The usage of the PATH is dependent on the market, and this market is currently office workers. Getting people into the PATH opens up the broader concern of making Downtown Toronto more diverse and dynamic in activity in light of the office market crumbling. The PATH's underground location and funnelling everyone underground is not necessarily good urban design. The Master Plan points to this. For example, portals and access points can be improved for more transparency between what is happening below grade and what is happening above grade. Wayfinding can support better connections between below and above ground spaces. To help the PATH, what is above ground must also be considered and improved. Bringing animation to street-level may in turn bring animation underground.

I further prompted Hoff with the question of what types of users he thought could be brought into the PATH, and what new uses could be brought into the PATH. I also asked what uses he thought Downtown Toronto could gain altogether, not just looking at the PATH. Hoff answered back with the questions of who owns the PATH spaces and who would want to encourage new uses. Would this be property owners attracting more people to their retail units? Or, the BIA trying to support the PATH and taking a

coordinated approach to enlivening downtown? Who can intervene? The City, for example, does not have much power on this and the concern is not regulatory. Hoff continued by saying that these questions and thoughts were not necessary before the pandemic, however, if there is a drop in the PATH's traffic and revenue, then what can the PATH stakeholders do to be more creative?

Hoff gave the example that the PATH currently has a high proportion of chain stores, and many small retail areas scattered throughout the network. The market needs to attract people into the PATH and draw them in. At-grade public spaces are made interesting and dynamic through a mix of retail, not just chain stores, convenience retail and small-scale retail. This applies underground Experience-based retail and experience-based establishments are becoming popular. For example, food halls are the next evolution of food courts, where instead of fast food, an enhanced dining experience is provided. Furthermore, public open spaces for welcoming people to sit down and hang out could be reproduced in an underground setting. Community-oriented uses and community facilities could also be introduced.

Thoughts from Karen Chapple (Director, School of Cities – University of Toronto)

In asking Chapple about what she thought of the future of the PATH, she approached the question from the perspective of retail. She stated that in her research, when she completed regression models and tried to predict post-pandemic downtown recovery rates based on economy and other factors, retail recovery rates were very mixed and were complex to model. Some places in some cities saw positive growth, while others were negative. Retail is very specific to each city and looking at the local context is very important. If the retail is office-serving, Chapple explained that there are high chances it is not doing well, whereas retail that serves a regional market like a restaurant area or a tourist draw currently have a greater chance of showing positive growth. Chapple predicted that office districts may never return back to the way they were before the pandemic, and if the office blocks above are struggling, the PATH will follow suit below.

Chapple observed that the PATH has many chain stores and this can be a losing proposition as people are unlikely to make a dedicated trip to visit a chain store. Generic chain stores, as well as fast food, are not attractive to a larger market. With stores that are rare, unique and cannot be found elsewhere in the region, people can be drawn in. Chapple stated that when looking at other underground shopping areas, such as Penn Station (New York), these spaces also do not have destination-retail. Penn Station draws people in for its train services, and the retail is secondary. Destination retail can help revitalize the public realm (although Chapple was unsure of how applicable this would be below-ground as it is above-ground).

When I asked Chapple about her thoughts on new uses other than retail and suggested the possibility of more community uses in the PATH, she agreed uses such as a community centre, library, or other institutional and community establishments could be added to the PATH. These would get more people into the PATH, especially when Downtown Toronto is increasing its residential population yet struggling with a lack of open spaces and activity spaces relative to the suburbs. Chapple further suggested uses such as health clinics, classroom spaces, after-school programs, collaborations with post-secondary institutions and the Toronto District School Board, or not-for-profit organizations. However, Chapple indicated that such uses may need to be implemented with partnerships and subsidization, otherwise, rents would have to come down significantly.

Thoughts from Andrew Robertson (Planning and Advocacy Manager, FDBIA)

After Robertson explained to me the role of the FDBIA in the PATH and made clear the private nature of PATH ownership and management, I asked Robertson if with less office workers in the PATH, there had been any desire to encourage new types of users to use the PATH or any re-evaluation of the uses in the PATH? I further asked what would be the sentiment of businesses and property owners on trying to attract new users beyond the typical office worker? Robertson stated that it is not foreseen for the PATH to change, and it will remain a transportation network. While he could not speak to the strategies of individual landlords on any changes that may happen, he stated that for large buildings in

the Financial District, the PATH is not financially significant and is just a bonus. He stated that for any improvements sought by landlords, the FDBIA is supportive of landlords using the PATH to offer their tenants and employees a desirable office experience. Robertson explained that a greater variety of tenants in the PATH has been seen compared to prior the pandemic. Experiential retail has been catching on in some buildings, with the intention of improving the overall office experience. Landlords have been working on new experiences, and this includes events such as art installations, live music, and galleries. The FDBIA helps facilitate and coordinate the PATH and is supportive of anything that boosts the profile of the public realm, but does not generally get involved with programming. Where the FDBIA does take initiative is with wayfinding standards throughout the PATH network, as well as marketing and social media for the PATH to promote new and existing PATH retailers. Robertson stated that the FDBIA has an extensive marketing plan for 2024 for example, as well as a newly redesigned wayfinding system (2018) that has recently began implementation.

Thoughts from Jordan Wheeler (Graduate, Humber College Bachelor of Commerce, Hospitality and Tourism Program)

Due to his knowledge of the tourism sector and tourism trends in Toronto, as well as experience living and working in Downtown Toronto in the hospitality industry, I asked Wheeler what he thought of the PATH. I asked him about his opinion on the PATH as it relates to serving and catering to visitors to Toronto, and what he thought about the future of the PATH. Wheeler discussed his belief that the PATH can indeed play a role in serving visitors and in contributing to Toronto's tourism sector.

Wheeler firstly explained that despite Toronto being Canada's biggest and most well-known city, Toronto has struggled to have an identity for itself, an issue which has both affected its own residents and harmed its image and reputation among those coming from outside. He rhetorically asked, what is Toronto known for? What does someone associate Toronto with? Compared to many other major cities, Toronto does not have the same depth or breadth of unique places, things, and characteristics that differentiate it and brand it from its counterparts. From the perspective of someone coming from outside

of the city, the CN Tower stands out as an iconic and distinctive symbol of the city, however, few other structures or attractions found in Toronto are distinct enough to be associated as symbols of the city. By the same token, less tangible unique symbols of Toronto such as social and cultural elements are hard to find. When someone thinks of a major city, they should be able to conjure up an image of that city as well as things and places in that city that complement and support this image. For example, while a much bigger city, New York brings to mind a certain lifestyle, character, image. Many symbols and places in New York sell this image and contribute well to the city's overall identity.

The image and identity of cities come quasi-organically over the course of their existence. They grow over time, but many factors along the way contribute to this. Wheeler explained that as a first big step, Toronto needs to have a vision for what it wants to be. This does not necessarily have to occur through directly tourism-related initiatives. Whether this is through building new neighbourhoods or growing its economy and strengthening its major industries, putting people first to create places they can be proud of and associate with is an important part of having a vision and creating a cohesive and strong image of a city. Growth and change in Toronto has been profit-driven and utilitarian. For example, despite having some of the greatest amounts of cranes in the sky on the continent, the abundance of recent and upcoming residential towers is being built in a way that prioritizes profit and convenience to catch up on the city's lack of housing. However, these developments are lacking in stand-out aesthetic qualities and similarly, entire new communities and urban spaces are being built in a manner that does not convey character nor include people-first amenities. Having a vision to build a city with a distinct image can make Toronto a place that residents associate to, take care of, and contribute to with great pride. Simultaneously, with a strong image, Toronto can better draw visitors and strengthen its tourism sector. Wheeler further stated that of course, in thinking 'people-first', developments need to balance being accessible, usable and appealing to both tourists and locals alike. Locals need to be able to connect to and be proud of their city as much as outsiders want to visit it.

With all that being said, Wheeler began to discuss the PATH more specifically. The PATH can be marketed more strongly to visitors and locals alike and be promoted on the basis of being one of the largest underground systems of its kind in the world. New uses in the PATH can be sold as novel experiences that generate great interest in part due to their subterranean location, then be tied in with other similar attractions and features of the city. Wheeler provided the example of getting more entertainment and nightlife into the PATH, which could result in the PATH being known for underground nightlife. He stated how the PATH currently has plenty of fast food chains, however, speakeasies, bars, diverse independent dining establishments, and entertainment venues could be popular. Looking at the big picture, the enhancement of nightlife in the PATH could complement the other entertainment districts found in Toronto to create a cohesive image of Toronto as an entertainment destination.

Wheeler presented me the case of Nōksu, a Japanese fine dining restaurant tucked away behind a nondescript door within New York's 34th Street – Herald Square subway station. On top of offering an exceptional dining experience to its customers, Nōksu has garnered attention and praise for its novel underground location. Being hidden underground within a subway station in the former space of a barber shop and newspaper stand, the restaurant's location has given it an air of novelty and exclusivity. Nōksu therefore creates a unique and desirable experience while also drawing attention to the famous New York City subway system, and also tying in to the city's well-known culinary scene and image of diversity.

To market the PATH, as well as tourism throughout Toronto, Wheeler also brought forth the idea of attraction packages or 'passports'. Destination Marketing Organizations (DMO) or other groups can group similarly themed places of interest to raise awareness of multiple attractions to target demographics, and to get people to see more of the city. With this example, I realized that I had seen similar packages and 'passports' in other cities. For example, in wanting to see one attraction in Niagara Falls, Niagara Parks encourage me to buy a bundle of several attractions throughout Niagara Falls at a discounted rate, with a transit pass included. I was already considering one attraction to

see a view of the waterfall, and in buying the bundle, I was suddenly able to access sites permitting me to view the waterfall from many different ways and learn about the waterfall's history. Packages of attractions tickets were also available in Niagara Falls' entertainment districts where many arcades, games, and activities could be bundled together at a more economical price. Similarly, when I visited Montreal, I saw ads for comprehensive museum passes that included unlimited access to dozens of historic sites and institutions throughout the city during a short-term period. In the Southern Georgian Bay area of Ontario, I have visited parts of the Apple Pie Trail, a self-guided tour with an accompanying mobile app that recommends many culinary attractions focussed around the region's locally-grown apples. Similarly, I have also partially completed Oxford County's Cheese Trail, a self-guided tour created by Oxford County's DMO to promote agriculture and dining throughout the region via stops at cheese makers, restaurants, museums, and shops. In many of these self-guided tours, keeping track of how many attractions have been visited would result in promotional gifts, discounts, or other incentives. After telling Wheeler about these examples of attractions packages that I had encountered during different trips, Wheeler continued to express the benefits of such packages and emphasized how such passes or packages could get people to try out new things throughout the PATH.

Lastly, Wheeler mentioned a common complaint from visitors to Toronto being the distance between existing attractions and areas of interest. In addition to Toronto not having a connected theme or image, attractions are spread out across the city rather than being located in clusters or with animated and vibrant spaces between them. This disconnect can be detrimental to the visitor experience of the city. The PATH can help with this issue by improving connectivity between different parts of the city. With improvements to its spaces to make them more vibrant and easier to navigate, the PATH can be an attraction and something to see while on the way to other major above-ground points of interest.

Pt. 6: Recommendations

Following the review and analysis of my site visit observations, my conversations with various knowledgeable individuals, and a variety of literature and research, recommendations can be made for the PATH that can lead to an answer to this paper's overall question: What kind of space can the Toronto PATH underground pedestrian system be in the future?

New Retail Uses within the PATH

I recommend new uses within the PATH to draw a more consistent flow of people into the PATH network throughout the day and throughout the week to support everyday animation and activation of the PATH spaces, making them less reliant on the core office commuter demographic. The current uses of the PATH are for transportation, retail and dining, services, and social gathering spaces. Retail, dining, and services primarily cater to office commuters, with limited weekday daytime hours, goods and services benefiting quick, daily errands, and a high presence of well-known chain brands. Social gathering spaces are mostly found in the form of food court seating areas, where office workers gather at midday lunch hours, and to a much lesser extent, during the late afternoons. As found, property owners may not find urgent need or motivation to add uses to the PATH. Simultaneously being the owners of the properties above the PATH, which are primarily office towers, in their eyes, the PATH is successful enough. The PATH is appealing enough to the workers that fill up their office towers and the PATH generates additional yet not essential revenue for them.

However, the city around the PATH continues to evolve and change. Constantly relying on the same demographic because it works in the present may lead to an eventual demise of the PATH. The pandemic led to new trends and patterns in office commutes and usage. Bringing new uses would not compromise the PATH's existing uses but would instead complement them to ensure the PATH's resilience and relevance to the city in the long-term. New uses would help 'future-proof' the PATH, filling any gaps from office commuters no longer in the PATH as often with a more diverse user base.

The retail and dining sectors of the PATH could be strengthened through a greater mix of tenants and lower proportions of chain brands. Experienced-based establishments could be added, and this was a common suggestion found in many of my discussions. While organizations with overarching influence over the entire PATH network such as the FDBIA and the City do not have the power to force such uses into the mainly privately-operated PATH, incentives and campaigns can be run to promote new businesses in the PATH and attract a more diverse set of tenants and greater economic development. Users other than routine commuters will not be drawn to visiting the PATH for a chain drug store or convenience store that they can find elsewhere. These serve the office commuter market. People are, however, increasingly drawn to unique experiences and experience-focused retail opportunities are becoming more popular. This can include food halls, artisanal markets, rotating events, and retailers that have a greater emphasis on unique goods and unique environments. Such establishments have been showing up throughout traditional retail spaces above-ground and can make their way below-ground as well.

Dining experiences in the PATH can be further diversified by encouraging more full-service restaurants of all cuisines, styles, and price-points. Similar to the retail situation, while much of the dining found in the PATH is fast-food oriented to cater to office commuters, bringing unique dining into the PATH would be more regionally-serving and would draw people from further to visit the PATH.

New Cultural, Institutional and Community Uses within the PATH

Further non-traditional uses of the PATH's retail-type spaces can be introduced, such as gallery and museum spaces. While art galleries and museums have been known to express unique exterior designs as a reflection of their institutions, they often use interior spaces that are very disconnected from the outside, with plain white walls, very strategic lighting, and little natural light. Gallery spaces follow this typology of clear and plain spaces to offer flexibility for different rotating exhibitions and programming, as well as to place emphasis on the displays and artefacts rather than the surrounding environment. Gallery spaces with a variety of programming and rotating exhibits can be brought into

the PATH and entire museums can forgo needing a visible exterior shell, taking advantage of the PATH's underground location.

Institutional and community uses can also be added to the PATH. This can include recreational spaces, educational spaces, community centres, libraries, and other non-profit community organizations. As Toronto's downtown population continues to increase and the city needs to seek more ways to serve residents with community spaces, the PATH could be an answer.

During my February 2023 visit to Montreal and its RESO UPS, I noted the inclusion of an indoor skating rink within the RESO. This was publicly accessible via paid admission, and appeared to be a popular attraction for a diverse set of users. In addition to the rink being well-used, seating and social spaces around the rink were very vibrant and bursting with what appeared to be families, groups of friends, visitors, and locals. The convenience and novelty of a rink situated within the RESO provided a great opportunity for recreation within downtown Montreal's business district.

Increased programming through events, festivals, and interactive activities can complement the diversification of uses and support the increased activation of PATH spaces at off-peak times. Different programming can also create placemaking opportunities, important for creating a welcoming and distinct image and environment that people can relate to and seek to come back to. When the FIFA World Cup was broadcast in the PATH level of Scotia Plaza on a weekend, passersby accumulated in the viewing area and spent additional time in the PATH. A simple act of broadcasting a sporting event drew people in and created a lively and vibrant atmosphere while also generating more traffic at nearby retailers. A few summers ago, I was walking through downtown Amherstburg in Southwestern Ontario on a weekend where I saw that the municipality had set up summer activities and seating throughout their public spaces. This included games such as cornhole, giant checkers, basketball, and ring toss. I noted how easily these activities were to set up yet how much more vibrant they made the downtown as so many people gathered to participate. Above-ground, events are often

used to make spaces more people-friendly, more interactive, more welcoming, and more exciting. Events create memorable experiences and strong impressions that encourage users to stay longer in space and return in the future. These principles can be brought underground into the PATH. When visiting Montreal's RESO UPS, I saw table tennis tables set up within an art installation in the Palais des congrès de Montréal segment of the RESO. This addition to what would have otherwise been a relatively plain pedestrian corridor drew people to gather and better enjoy the space.

New Workspaces and Gathering Spaces

The PATH's food courts have long been seen as hubs of activity and socialization for the office commuter demographic. In addition to these main concentrations of seating and gathering spaces, smaller seating spaces throughout many PATH corridors are used throughout the day by those looking for places to rest, socialize, or work. Continuing to add more gathering spaces would serve the downtown Toronto greatly by contributing to the city's selection of social spaces. With many people now working remotely outside of their traditional offices and with the abundance of students in downtown Toronto from adjacent post-secondary institutions, having welcoming, clean, aesthetically-pleasing, and functional spaces in the PATH could see great popularity. Spaces should be well thought-out with varied seating options and work surfaces, electrical outlets and charging stations, good lighting, Wi-Fi access, and nearby waste bins. Many people already bring their laptops to PATH food courts to work at any given time of the day, and many local libraries and coffee shops above ground are often crowded with people looking for comfortable places to work outside of their offices or homes. Even at off-peak times where restaurants are closed, it can be expected at least for at least someone to be sitting at a food court seat resting or working on their laptop. If spaces in the PATH are attractive enough and it is made-known that spaces are open throughout the day for use, people will come to the PATH to work and the PATH can take advantage of this phenomenon of remote-work. Businesses in the PATH such as coffee shops and food vendors could benefit from seeing the PATH transform from a place workers travel through to a place where workers enjoy working in.

Complementing the improvement and expansion of gathering and seating spaces in the PATH, I recommend property owners allow washrooms to be open during the same hours as PATH operating hours. It is currently very common for washrooms to be closed at off-peak times such as weekends. Public washrooms are a necessity in any urbanized area and while these may be more difficult to implement and maintain as standalone structures above-ground, the PATH already has an abundance of washroom facilities that could serve the needs of the public.

New Uses Above Ground and Improved Connections

I recommend continuing to support the connection of new developments to the PATH network. A common concern of PATH expansion has been the potential competition between the PATH and street-level spaces such as sidewalks for attracting users. Other concerns have been regarding the cost of building a PATH connection relative to how much a connection might be used. Buildings can continue to be connected to the PATH and the PATH can continue to experience growth without compromising street-level activity. Office towers, retail, and transit uses have succeeded in offering PATH connections since the earliest days of the PATH and can continue to do so. Non-office uses should concurrently be encouraged to be connected to the PATH, including mixed-use, residential, and recreational uses. While developers may expect that residential PATH connections may not capture as much usage as an office use and consider these connections to not be as worthwhile to spend on, getting more residential uses into the PATH network altogether would encourage greater use from residents and visitors alike. With the volume of high-density residential buildings existing in downtown Toronto, inputting more residential uses into the PATH would draw more people to use the PATH for reasons other than going to work at peak hours. Outside of typical workday hours, residents of Toronto could use the PATH to access shops, restaurants, services, and leisure within the PATH as well as above-ground throughout the city. The more people are fed into the PATH network from different sources, and the more destinations are provided within the PATH, the more people can be expected to make use of the PATH. This would have beneficial effects on the city as a whole by encouraging walking as a

viable mode of transportation. With more people walking in the PATH, more people can be expected to walk altogether therefore also encouraging walking at street-level. Any activity and improvements below-ground can positively affect what happens above-ground and vice versa.

Fixing missing links and discontinuities in the PATH are also a place for improvement. In linking new buildings and developments, new PATH routes can be made to create more direct trips between destinations. There are several parts of the PATH where indirect detours are required to get to adjacent destinations due to irregular route alignments. There are also some discontinuities caused by different operating hours within the PATH. While most of the PATH operates during the same hours as the Toronto Subway, an example of a discontinuity is through the Eaton Centre, which follows mall operating hours. Another example is the PATH corridor to access the ICE condo towers, which requires passing through a Longo's supermarket while the supermarket is open. Strategies such as encouraging the construction of alternate routes can ensure that the entire PATH provides reliable and consistent operating hours throughout its network.

In relation to connectivity and fixing missing links, accessibility needs to be improved for the PATH to reach its full potential. From my experiences visiting the PATH, in many places in the network, I can critique that only the bare minimum is being done to meet accessibility standards. While it is commendable that minimum standards that are in place in Ontario to ensure that spaces attempt to be usable for people of all levels of ability, these mandatory accessibility features can still cause inconvenience for those who are disabled. For example, in some places, steps and stairs are used due to grade changes. Alternate routes are provided, however these routes featuring ramps or lifts can be out of the way and take additional time and effort to use versus the main route with steps. In some places, even minor changes such as the relocation of an electronic door opener button would make a space more accessible and more user-friendly. Door opener buttons may have been included to meet accessibility guidelines and standards; however, little thought was put in on the placement of these controls for practical use. Designing spaces that cater to all people of different abilities to begin with rather than having to create

alternate solutions for the disabled would benefit everyone and allow the PATH to be approachable, usable, and appealing to a greater audience. Disabilities affect a large portion of the population and can impact anyone, whether temporarily from an injury or permanently. An accessibility audit and consultation with disability advocates and experts would be an excellent start to improving accessibility in the PATH. Creating PATH-specific accessibility guidelines that can be applied when designing future PATH spaces would be the following step.

Integration by Design of Above-ground, Below-ground, Outdoor, and Indoor Spaces

In redevelopments and new developments, I also recommend more thoughtful and cohesive integration between above-ground and below-ground spaces. Where possible, uses and spaces above-ground can match or complement what is found below-ground, and a subterranean space can become a clear and intuitive extension of its above-ground counterpart. Rather than see above-ground and below-ground spaces as competition to one another, designing spaces that integrate the two types of spaces can combine both into unified urban spaces, and in turn, larger and more productive urban spaces.

When I visited Montreal in February 2023, I was impressed by the recent improvements to the Place Ville Marie office complex and its unification of above-grade and below-grade spaces. This complex of office towers surrounds a prominent at-grade open space, Esplanade Place Ville Marie, and sits atop an underground concourse of shopping and dining that further connects to Montreal's RESO UPS. Esplanade Place Ville Marie features a newly built underground food hall enclosed in a glass box that rises slightly above-grade amidst the public square. Stairs lead down into the box, surrounded by landscaping, seating, and programming spaces. From inside the food hall, natural light and Montréal's business district are easily visible through the glass box's transparent enclosure. Connections into Montréal's RESO and the Metro are made possible from the food hall as well. From the exterior, the food hall can be partially seen glimmering beneath the glass, thus indicating a hub of activity to be discovered if one follows the stairs. The glass additionally acts as a reflecting pool for The Ring, a floating metal circle

above the square that acts as a striking focal point and public art piece. The square features year-round seating spaces, programming and events. Place Ville Marie therefore a notable example of meaningful connections made between indoor spaces, the outside, above the ground, and below the ground. Places to explore and things to do exist both inside and outside, with well-executed integration to make the entire below-grade and above-grade spaces feel like one continuous experience and destination.

Similarly, while visiting Paris in April 2023, I found Forum Les Halles to be an excellent example of integrating the subterranean into at-grade urban design and architecture. This large underground shopping centre with connections to one of Paris' busiest transit stations opens to a grand sweeping canopy with portions of the mall open to below when viewed from grade-level. Impressive open spaces surround the whole complex to form a cohesive space.

With the involvement of city planners, landscape architects, urban designers, and others involved in creating Toronto's public spaces above ground, PATH entrances could be better integrated to form a cohesive and complementary design with above-grade developments. Yonge-Dundas Square, Nathan Phillips Square, and David Pecaut Square are all popular, heavily trafficked spaces for tourists and locals alike. PATH connections to these spaces do not have to be constrained to small portals set off to the side or entrances through nearby building lobbies, with only the most utilitarian set of stairs, elevators, or other vertical transportation device. In future above-grade spaces that are near the PATH, grander entrances that mesh the design of the above-grade space could flow more gracefully into continued underground spaces that becomes extensions of the above development. Many office complexes in the Financial District currently feature public squares between their office towers, with their PATH corridors situated immediately below. These would be great candidates for redevelopment that would transform both the PATH corridors below and the squares above to turn them into more integrated spaces. Another existing segment of the PATH with potential for improvements is Roy Thompson Hall. The entertainment venue's PATH corridor is below-grade but with a glass wall that looks out to an outdoor sunken water feature and

event space. While this space is occasionally used for private events, this would make for a great destination for regular programming and public access, where the PATH's interior spaces would extend out to the outdoor space and create a strong integration of indoor, outdoor, above-grade, and below-grade spaces.

In already established commercial and entertainment districts with a high level of activity at street-level, the PATH can extend up to a central location in these districts and offer access points directly to the street rather than to a building. This would create portals or gateways to new destinations in the city. PATH access points would complement the high-quality public realm and urban design of these established neighbourhoods and be designed with prominent architectural elements to be appealing and enticing to both those coming and going. Access points would offer a grand entrance with a memorable design communicative of the PATH's role as a gateway to the city. The PATH would consequently be connected to more parts of the city without compromising street-level activity. Instead, access would be increased to these already vibrant neighbourhoods and greater levels of activity would be encouraged.

Wayfinding

I recommend the continuation of ongoing improvements to the PATH's wayfinding system, with the continued coordination and management of wayfinding projects from the FDBIA. The nature of underground spaces may make them more difficult to navigate, and the inconsistent design of PATH spaces through many privately-owned properties have been known to make travelling through the PATH less intuitive. Providing a standardized signage and map system that can be consistently relied upon to clearly provide directional information is critical to the success as well as safety of the PATH. Excellent signage has been introduced and the rollout of this signage through the entire network will greatly improve ease-of-use, accessibility, and safety in the PATH for new and regular users alike.

In reading online reviews of some businesses in the PATH, I found negative reviews commenting that users struggled to initially find a desired store because they did not

realize that the store was located underground rather than at street-level. I recommend the FDBIA consider also introducing guidelines for above-ground signage standards in addition to their existing underground PATH wayfinding projects. Having at-grade pedestrian-scaled signs that indicate what is available in the PATH below would drive people into the PATH and increase exposure to the services and businesses open in the PATH.

Furthermore, I recommend creating a comprehensive directory of PATH businesses similar to a shopping mall directory. According to the FDBIA, this has not yet been achieved (A. Roberston, personal communication, September 22, 2023).

Lastly, I recommend collaborations with popular navigation apps such as Google Maps. With the use of Google Maps being so widespread and with the app's versatility in offering walking directions, public transit itineraries, and multi-modal trip suggestions, the mapping of PATH routes and the inclusion of the PATH in the app's suggested itineraries would make the PATH more accessible and approachable to its users. As cellular signal reaches underground into the PATH and as select segments of the PATH offer Wi-Fi access, using a navigation app to get around the PATH would be possible. Additionally, the PATH could gain Google Street View coverage to further improve its ease-of-use and help users find their way.

Pt. 6: Light at the End of the Tunnel – Conclusions

Methodology Limitations and Reflections for Future Studies

Through this qualitative study, I have processed a wealth of information and gained meaningful insights through literature, site visits, and interviews. However, there were some limitations to my chosen research methods that can be highlighted here, as well as next steps that can be taken in future studies.

With a larger time-frame, I would recommend for future studies on the PATH to engage directly with users in addition to observational studies of the PATH's spaces. Due to a shorter timeline and logistical limitations, this study did not directly collect information from the users of the PATH. Information on how users interacted with and benefitted from the PATH was taken through observational studies during my site visits, as well as through the responses of select interviewed individuals. While this data collection strategy did paint an overall picture of the successes and faults of the PATH and how the PATH was used in everyday life, more precise and detailed information on how users engage with the PATH could be found through surveys and questionnaires with PATH users. However, such a study would have to be undertaken over a longer period of time to yield accurate and meaningful data and make the most of its data potential. A study using surveying could get important feedback from a large sample of users in the PATH on what they like and dislike about the PATH, what they think could be improved in the PATH, and why they choose to use the PATH. Surveys would have to take place at several times in the year during a variety of weather conditions, in different seasons, at different times of the day and of the week, and on days where different events and other factors and forces are at play in the city. Surveying people outside of the PATH at street-level in different parts of the city would also be beneficial. While people in the PATH are more likely to have some extent of positive thoughts on the PATH as they are actively using it, having discussions with those not in the PATH could lead to insights on why people choose not to use it. Such surveys could also provide information on the level of awareness of the PATH and for those that know about its existence, what their impressions of the PATH are.

To further reinforce this study and future PATH studies, quantitative elements would be beneficial, including traffic count studies, and the creation and analyses of databases that could track businesses and uses found in the PATH over extended periods of time.

In future studies, ideas of non-inclusiveness, Privately-owned Public Spaces (POPS), and a more critical perspective of these concepts can be taken. The PATH is considered a POPS and this ownership and management model certainly has advantages and disadvantages, some of which were briefly discussed in this paper. The concept of accessibility in design can also be further explored, and how different demographics and user types may have different needs that can be catered to through design interventions and features. Accessibility was briefly mentioned in this paper with some accessibility concerns identified in the PATH. There is also an abundance of studies already existent on accessible spaces. However, future studies on the PATH and other UPSs can focus on accessibility in a more specific way to better identify how to create accessible spaces in a below-grade environment.

This study was rewarding and intriguing but it only serves as a launching point for ideas and future discussions on what UPSs like the PATH can do for cities.

Concluding Statements

Between the time during the heart of the pandemic where I visited the deserted corridors of the PATH and the Spring of 2023 where I conducted PATH site visits for the sake of this paper, the PATH has seen plenty of change. The eerie quietness of some of my pandemic-time PATH visits really made me contemplate the meaning and purpose of the PATH, and its significance and place in Toronto. I questioned if a space primarily dependant on office workers and commuters would see a future if there were less office workers and commuters in the city. I held optimism that the world would go back to where it was before the pandemic and that there would be a rebound in normal, everyday activities. Indeed, the PATH has since experienced a rise in pedestrian traffic, as found during my site visits, in news articles, and through interviews. While it is not fully to the same levels of traffic as before the pandemic, generally speaking, it is busy and seeing a

respectable amount of people pass through it every weekday. However, I continue to question how sustainable the PATH's existence is if it remains dependant on one main set of users. As the saying goes, "don't put all your eggs in one basket". With the PATH and other UPSs being a relatively understudied topic in urban planning research, this paper has been a fantastic opportunity to rethink the PATH and what improvements could be made to it for the future.

Overall, this paper set out to answer the following question:

What kind of space can the Toronto PATH underground pedestrian system be in the future?

To answer this, there were two sub-questions:

What has been the impact of the COVID-19 pandemic on the PATH?

How might the PATH remain useful and relevant to Toronto in a post-pandemic world?

The PATH of the future can be a pedestrian transportation network that encourages urban walkability both at street level and below-ground, connecting a variety of destinations of all types throughout downtown Toronto and acting as a convenient gateway to different parts of the city, working well in conjunction with other modes of transportation such as public transit and above-grade walking routes. The PATH of the future can also be a network that equally doubles as a vibrant downtown-wide urban space, housing meaningful and unique recreational, leisure, tourism and hospitality experiences, community uses, and open social spaces, in addition to providing essential goods and services as it always has. The PATH of the future can be marketed and promoted through its unique subterranean location as a network that Torontonians can be proud of, associate with, and be known for around the world.

The PATH will and should continue to be a transportation system. As a city with extreme weather conditions throughout the year, traffic congestion issues, and strong population growth, Toronto is privileged to have such a system of convenient, comfortable and

climate-controlled spaces that encourage walking as a mode of transportation.

Arguments can and have been made that the PATH and other UPSs are detrimental to a vibrant city and to street-level activity. If people are walking, gathering, shopping, obtaining goods and services, socializing, and moving about, whether it is below-ground and above-ground, to me, that is a vibrant city. In a city such as Toronto that experiences hot summers and cold winters, the PATH is a reasonable and acceptable adaptation that the city has had to take. Furthermore, any activity that does occur underground should ideally influence the liveliness of urban spaces above-ground. The PATH should not be seen as competition to above-ground activation of spaces. It should not always be to blame for a reduction of street-level traffic. Rather, it should be embraced as a catalyst or as a complementary tool to get people enjoying and interacting with the city at street level. The city should be viewed as a whole, with above-ground and below-ground spaces working together as a unified urban environment. If there are enough people below-ground willing to walk through the PATH, these people can flow effortlessly between below- and above-ground spaces if the amenities, available uses, and destinations found in each space encourage them to.

The PATH is a vibrant and bustling space during weekday business hours because of its core clientele of office workers and commuters. While work-from-home trends has brought traffic down to some extent, and some days such as Mondays and Fridays are now less busy, it is anticipated that workers will continue to use the PATH into the future. The PATH of the future can and should connect to more non-office uses to bolster its purpose as a transportation system and urban space. The nature of the PATH's peak hours and main demographic is directly related to the uses that the PATH connects to: primarily office towers. Property owners may not be greatly motivated to make efforts to change this as the PATH is viewed as an additional asset for them rather than an essential source of revenue. Getting more non-office workers into the PATH may also appear as a threat to the PATH's target audience, where if new groups of users increase in presence in the PATH, office workers may find the PATH less appealing. However, the PATH sees its busiest times only at select hours of the week due to its office worker clientele. This is

during weekday mornings, lunch times, and evenings. Weekends and weekday evenings are lengthy periods of time where the PATH could also be bustling with activity, contributing to Toronto's economy and to the wellbeing of its residents and visitors, and generating further beneficial revenue for its property owners.

The PATH of the future should therefore be encouraged to connect to more non-office uses, including mixed-use developments, residential developments, recreational and tourism uses, and institutional and community uses. In isolation, connecting individual residential projects to the PATH do not currently seem appealing to developers when weighing expected usage of these PATH links against the cost of building them. However, the more non-office uses that are fed into the PATH overall, the more people will use the PATH knowing that the PATH can get them to the destination that they desire to reach. The PATH can input a more diverse set of users into its network and expand its reach to serve more people at all times of the day and of the week. The PATH can be busy all day long and on weekends and benefit the city by encouraging and increasing downtown activity.

The PATH of the future shall also have more uses located within in, in addition to uses connected above it. The PATH already has great retail spaces and social spaces (such as its multitude of food courts) under its belt. As downtown Toronto and many other urban regions face a scarcity of land and a lack of public spaces, the development of subterranean spaces to serve people's social and recreational needs is a compelling option. Just as urban waterfronts, gardens, forests, and industrial areas are seen as different urban environments, so should the subterranean. Humans have operated underground to varying extents for so long. Large thoughtfully appointed and uniquely-designed, aesthetically pleasing social spaces can be brought into the PATH as a sort of subterranean 'park' space for working, socializing, relaxing, and spending time in. Institutional uses such as community centres and libraries can easily be located in the PATH. Retail and dining can expand to beyond traditional offerings. The PATH of the future can therefore become a landmark destination that caters to visitors and locals

alike, providing conveniences and everyday needs alongside trendy and constantly evolving new spaces.

In these ways, the PATH can remain useful and relevant to Toronto in a post-pandemic world, serve Toronto's needs, and contribute to the prosperity and growth of Toronto. While the pandemic led to some darker days for the PATH as it did with many other urban spaces, this growing conversation on underground urbanism and the future of subterranean spaces brings me to a cliché but appropriate expression: there is light at the end of the tunnel.

References

- Attfield, P. (2014, January 7). The challenges of connecting Toronto's south core: A rival to the King-Bay area, this live-work community is shooting skyward, with creative upgrades at street level and below. *The Globe and Mail*, B4.
- Banister, D. (2012). Assessing the reality—Transport and land use planning to achieve sustainability. *Journal of Transport and Land Use*, 5(3), 1–14.
- Barker, M. B. (1986). Toronto's underground pedestrian system. *Tunnelling and Underground Space Technology*, 1(2), 145–151. [https://doi.org/10.1016/0886-7798\(86\)90052-0](https://doi.org/10.1016/0886-7798(86)90052-0)
- Belanger, P. (2007). Underground landscape: The urbanism and infrastructure of Toronto's Downtown Pedestrian Network. *Tunnelling and Underground Space Technology*, 22(3), 272–292. <https://doi.org/10.1016/j.tust.2006.07.005>
- Besner, J. (2017). Cities Think Underground – Underground Space (also) for People. *Procedia Engineering*, 209, 49–55. <https://doi.org/10.1016/j.proeng.2017.11.129>
- Bobylev, N. (2009, February). *Mainstreaming sustainable development into a city's Master plan: A case of Urban Underground Space use*. <https://doi.org/10.1016/j.landusepol.2009.02.003>
- Broere, W. (2016). Urban underground space: Solving the problems of today's cities. *Tunnelling and Underground Space Technology*, 55, 245–248. <https://doi.org/10.1016/j.tust.2015.11.012>
- Cheng, T., & Marzuki, A. (2023). Investigating the Influence of Introducing Biophilic Elements into the Shopping Mall Environment: Perception of Public Visitors. *Journal of Sustainability Research*, 5(3). <https://doi.org/10.20900/jsr20230011>
- City of Toronto. (2023, June). *City of Toronto Official Plan*. <https://www.toronto.ca/wp-content/uploads/2023/10/96of-city-planning-official-planoffice-consolidation-chapters1-5.pdf>
- Cui, J., Allan, A., & Lin, D. (2019). SWOT analysis and development strategies for underground pedestrian systems. *Tunnelling and Underground Space Technology*, 87, 127–133. <https://doi.org/10.1016/j.tust.2018.12.023>
- Dovey, K., & Pafka, E. (2020). What is walkability? The urban DMA. *Urban Studies (Edinburgh, Scotland)*, 57(1), 93–108. <https://doi.org/10.1177/0042098018819727>
- Forsyth, A., & Southworth, M. (2008). Cities Afoot—Pedestrians, Walkability and Urban Design. *Journal of Urban Design*, 13(1), 1–3. <https://doi.org/10.1080/13574800701816896>
- George, T. (2022, January 27). *Semi-Structured Interview | Definition, Guide & Examples*. Scribbr. <https://www.scribbr.com/methodology/semi-structured-interview/>

- George-Cosh, D. (2020, September 11). *Toronto's PATH remains eerily empty, six months into pandemic—BNN Bloomberg*. BNN. <https://www.bnnbloomberg.ca/just-surviving-toronto-s-path-remains-eerily-empty-six-months-after-pandemic-began-1.1492486>
- Glynn, N. (2019, December 4). Six Principles of Biophilic Design—Biophilic Design Elements. *Shepley Bulfinch*. <https://shepleybulfinch.com/evolving-our-connection-with-nature-six-biophilic-design-applications/>
- Hunt, D. V. L., Makana, L. O., Jefferson, I., & Rogers, C. D. F. (2016). Liveable cities and urban underground space. *Tunnelling and Underground Space Technology*, 55, 8–20. <https://doi.org/10.1016/j.tust.2015.11.015>
- Jones, K. (1998). *Retail Dynamics in the Toronto Underground System: 1993-1997*. Toronto Metropolitan University.
- Lesh, M. C. (2013). *Innovative Concepts in First-Last Mile Connections to Public Transportation*. 63–74. <https://doi.org/10.1061/9780784413210.007>
- McAllister, M., & Bond, M. (2022, March 22). *Toronto's PATH system looking to rebound after COVID-19 pandemic*. CityNews. <https://toronto.citynews.ca/2022/03/22/path-system-toronto-financial-district/>
- McKenzie-Sutter, H. (2020, October 15). “Ghost town” in Toronto’s PATH system amid COVID-19 pandemic | CTV News. <https://toronto.ctvnews.ca/ghost-town-in-toronto-s-path-system-amid-covid-19-pandemic-1.5146039>
- Newman, P., Kosonen, L., & Kenworthy, J. (2016). Theory of urban fabrics: Planning the walking, transit/public transport and automobile/motor car cities for reduced car dependency. *Town Planning Review*, 87(4), 429–429. <https://doi.org/10.3828/tpr.2016.28>
- Ortegón-Cortázar, L., & Royo-Vela, M. (2019). Nature in malls: Effects of a natural environment on the cognitive image, emotional response, and behaviors of visitors. *European Research on Management and Business Economics*, 25(1), 38–47. <https://doi.org/10.1016/j.iemeen.2018.08.001>
- Richardson, J. (n.d.). Allen Lambert Galleria, Toronto | Jack Richardson Architecture & Design. *Jack Richardson*. Retrieved November 8, 2023, from <https://jackrichardson.co.uk/portfolio-item/allen-lambert-galleria-calatrava-bce-place-toronto/>
- Tilahun, N., Thakuriah, P. (Vonu), Li, M., & Keita, Y. (2016). Transit use and the work commute: Analyzing the role of last mile issues. *Journal of Transport Geography*, 54, 359–368. <https://doi.org/10.1016/j.jtrangeo.2016.06.021>
- Toronto, C. of. (2023). *Union Station Revitalization Project* (Toronto, Ontario, Canada). City of Toronto; City of Toronto. <https://www.toronto.ca/services->

payments/venues-facilities-bookings/booking-city-facilities/union-station/union-station-revitalization-milestones/

Vella, E. (2021, October 19). *As businesses begin slow rebound, retailers in Toronto's PATH system continue to struggle*. Global News.

<https://globalnews.ca/news/8279797/covid-toronto-path-retail-economy/>

Wachs, M. (2013). Turning cities inside out: Transportation and the resurgence of downtowns in North America. *Transportation (Dordrecht)*, 40(6), 1159–1172.

<https://doi.org/10.1007/s11116-013-9501-6>

Whyte, W. H. (Director). (1980). *Social Life of Small Urban Spaces* [Documentary]. Municipal Art Society of New York.

Appendix

Descriptions of Spring 2023 PATH Site Visits

Dundas Subway Station/North end of Eaton Centre:

I picked this part of the PATH to observe as it directly connects the Eaton Centre with the Dundas TTC subway station, as well as neighbouring office and retail complexes. This part of the PATH is also in close proximity by foot at street level to Yonge-Dundas Square, Toronto Metropolitan University, and a high concentration of retail, food, and entertainment venues.

Direct access to the mall and to several office and retail complexes (such as Atrium on Bay) means that this part of the PATH was designed to handle large flows of people and be a busy convergence point for foot traffic. I stood right at the entrance of the subway station where I could see sets of doors leading into the mall, the southbound subway platforms at the same level, several sets of stairs leading up to various street-level portals, and corridors leading to adjacent properties. To access northbound trains, an underpass with stairs is provided. Overhead wayfinding is provided but there is no area map and minimal use of the PATH logo. Despite the lower levels of the Eaton centre officially being a part of the PATH, this is not made clear in any wayfinding within the mall's spaces. Going past the mall into the subway, then PATH signage resumes to indicate routes to adjacent destinations. There is no seating and amenities are limited as space is left open to cater to free-flowing movement over people lingering. Some garbage cans can be found within the subway station but none are within sight past the doors into the mall. Among amenities and features, the subway station area also has a hand sanitizer pump, a defibrillator within the fare-paid area, an assistance intercom button within the fare-paid area, and visible security cameras. Advertising posters are also placed along some stretches of walls, not directly facing the passersby, but visible enough peripherally as someone were to quickly walk by. Free Wi-Fi networks are provided by both the mall and the TTC. The mall is climate-controlled, however, the subway station area is not. The overall feel of the space, both on the mall side of the doors and in the subway station is rather utilitarian, with evenly-diffused lighting and floor tiles designed with contrasting colours to lead people in the right direction intuitively.

Users looked diverse during all my visits, which were on a Saturday around 1:30 PM, on a Wednesday just after 12:30 PM, at 5:50 PM and again just over an hour later. Ages, genders, and ethnicities were always mixed, particularly at weekends. On the weekend, most people appeared dressed for leisure, while the occasional person was in business attire with a work bag. A noticeable amount of people held shopping bags (although as many stores no longer give bags for environmental reasons, many more people may have made purchases in the mall than what was visible). During my weekday visits, many more people appeared dressed for work in an office, with office badges and ID cards visible on their outfits. No teenagers or children were present at the lunch hour but many people in their mid-twenties (both in office attire and in more casual clothing) were present, possibly due to the proximity of Toronto Metropolitan University. At my 5:50 PM visit, I

estimate just under half of users were in business clothing. At this time and later into the evening, many young people were also seen.

At any given time, pedestrian traffic volume was busiest between the mall and the subway platforms, with only the occasional person headed down a corridor towards another destination such as the Atrium on Bay complex. The flow of people coming from the mall into the subway station was constant, while the flow of people from the subway to the mall came in waves in relation to train arrivals. Doing a visual count of pedestrians passing by during the span of a minute, I counted somewhere between 150-200 people per minute during my daytime weekend visit and my weekday evening visit. At weekday lunch, I counted roughly 100-150 people per minute. At weekday late evening, I counted about 75-100 people per minute. This only included people passing by and not those who were staying in one spot. As I described, this part of the PATH appears designed for movement, and indeed, nearly everyone was passing by. Without any seating areas or features to encourage someone to linger, individuals or groups of people would lean against a wall to rest, check their phone, socialize, or to drink or eat takeout presumably from the mall food court. The nearest place to sit is inside the Real Fruit drink store, located a couple of storefronts from the mall entrance. This place was regularly busy, although those sitting inside it had made drink purchases at the store. The weekday evening visit saw people walking the fastest, with the lowest amount of people stopping. The weekend daytime visit as well as the weekday lunchtime visit saw more groups of people stopped standing and socializing. At these times, I also saw people sitting on the ground leaned against walls. On the weekend, I also saw one individual laying on the floor in a quieter corridor leading away from the subway station, with his possessions also on the floor.

Richmond-Adelaide Centre/85 King West/111 King West:

I explored the PATH segments below the Richmond-Adelaide Centre leading up to the Sheraton Centre and near the junction of 2 adjacent office buildings, 85 King West and 111 King West. I chose this area of the PATH for observation due to its abundant connectivity to nearby office buildings as well as its proximity to non-office uses such as hotels and entertainment venues. There are direct nearby connections to the offices of the EY Tower, 103 Adelaide West, 150 York, the DBRS Tower, and Northbridge Place. From the Richmond-Adelaide Centre, the Sheraton Centre, a large hotel and events venue, as well as Nathan Philips Square and City Hall are accessible within a minute of walking in the PATH. An additional hotel, Hilton Toronto, is directly west of this PATH segment, although the route to get to this hotel is more direct when walking at street-level as its PATH connection requires briefly travelling further south, turning west, then heading north again. The Four Seasons Centre for the Performing Arts, Osgoode Hall, Old City Hall, and Osgoode subway station are also in very close proximity to this segment of the PATH, yet these points of interest are not connected to the PATH and require stepping outside to access them.

This segment of the PATH has several notable amenities and design features. The area below the Richmond-Adelaide Centre and the segment below the Sheraton Centre have

vastly different architectural styles as well. At the centre of the Richmond-Adelaide Centre segment, a food court with a mix of cuisines exists, plus several additional retail, food, and service establishments lining the corridors leading up to the food court. This includes a Miniso (chain retailer selling a variety of low-cost household goods), True North Mortgage, The Alley (for tea-based drinks), Nadege (pastry shop), a travel agency, a print shop, and a currency exchange. Nearly all of these establishments are only open on weekdays during daytime hours. A few retail units were vacant and for lease. The food court incorporates some welcoming design elements to mimic an outdoor environment including artificial plants and backlit panels with images of the sky on the ceiling above the food court's seating areas. The segment typically has recessed lighting providing an even and diffused illumination of the space, with the most highly illuminated areas being in the food court's seating areas. The seating areas offer a variety of different seating options including higher bar tables with stools under large black and gold pendant lights serving as a focal point, booths, and tables with moveable chairs. The space uses a contemporary design with a high-contrast colour palette of whites and black, plus light wood used for tabletops and some accent panels. Many televisions are mounted along columns throughout the seating area displaying news broadcasts. The contemporary design appears to be built for practicality, with darker flooring and brighter lighting used to draw people to the centre of the seating areas, and lighter flooring with less impactful lighting used in the transitional spaces around the seating spaces. The unique touches such as the artificial skylight, artificial plants, and wood surfaces enhance the comfort and appeal of the space. Wayfinding makes use of the property's own font style and signage rather than the standardized PATH symbols and signage found elsewhere in the network, but it does indicate PATH connections to adjacent properties. Wayfinding can be found overhead as well as mounted on walls. As soon as I walked north past the food court and into the area run by the Sheraton Centre, it was very evident that I was in a space managed by another owner. The Sheraton Centre's PATH segment had a much more dated aesthetic. The Sheraton Centre's exterior can be described as modernist and has been well-maintained since its construction in the 1970s. While its street-level common spaces such as its lobby and bar have been updated to a very contemporary style, the PATH level of the complex presents its original interior from the 1970s. Tiled walls, flooring, ceiling grating and furniture use warm tones such as salmon, beige, red, orange and yellow. While the preservation of past architectural styles can be appreciated, I was under the impression that the Sheraton Centre's PATH space was not as well-tended to compared to the Sheraton Centre's above-grade spaces, or even the neighbouring Richmond-Adelaide Centre's PATH space. This was due to the presence of many vacant retail units in both a small food court area and along the corridors connecting the hotel's event and banquet area to the Richmond-Adelaide Centre and City Hall. Seating is provided, particularly in the food court, but with an overwhelming count of vacant units, very dim lighting through the ceiling grating, and a lack of operational businesses, the space does not feel welcoming but rather neglected and underused. PATH signage using standardized PATH wayfinding material was presented overhead, however. As the Sheraton Centre's event spaces are at the same basement level as the PATH, doors

separate the two areas to allow for the more publicly accessible PATH area to be easily blocked off from any private events as well as the elevators to the hotel's upper floors.

Varying levels of human activity were observed during my visits, which took place on a Saturday at 3:00 PM, on a Wednesday at 6:15 PM, and on a Thursday at 1:45 PM. During my Saturday visit, the adjacent Sheraton Centre had 2 events in its banquet and convention centre, which is situated below the hotel at PATH level. This included a conference for a dermatological injection company and a workers' union convention. While I was there, there was a 30-minute break between meetings for the injection conference and when I walked up the PATH corridor towards the hotel, I could see guests exiting meeting rooms to socialize and walk around, yet very few walked into the PATH let alone very far into it. The conference was likely catered by the hotel plus being a weekend, most retail and food in this part of the PATH was closed, giving little reason of conference-goers to explore this PATH segment. During my Thursday visit, 5 conferences for various companies were being hosted at the Sheraton Centre. As it was later in the evening, most meetings were done for the day, and it was clear that the hotel had many guests based off the level of activity in its lobby bar at street level. However, few ventured down into the PATH.

Among other users observed, on the Saturday visit, I roughly counted an average of 0-5 people passing through each minute. The area was very quiet. Most people walking by moved at a leisurely pace. Some of the few observed users could be seen with luggage and were heading in the direction of the Sheraton Centre. Two people were sitting at one food court table talking while another person sat alone browsing their phone at another table further away. During my Thursday midday visit, the space was still relatively quiet yet with an average of 30 people passing by each minute, quite a bit busier than the weekend. People emerging from the hotel towards the Richmond-Adelaide Centre food court and a nearby Nicholby's convenience store could be seen. Some people also used the PATH to walk from the hotel towards the Eaton Centre. It should be noted that these 2 points have a more direct and easier to follow route above-ground.

Munich Re Centre:

The Munich Re Centre is situated at the northern end of the Financial District right in the middle of an east-west PATH corridor between the Sheraton Centre and the Saks Fifth Avenue department store. I picked this part of the PATH for observation particularly due to it being a direct link from a hotel to the Eaton Centre with connections to offices along the way, providing an opportunity for use from not only the PATH's usual demographic of office workers, but also visitors and tourists. Direct access to the Victory Building, the Thompson Building, the Simpson Tower, and the Hudson's Bay Department Store can be found along this corridor. Going through the Saks Fifth Avenue store provides further connections north to the Eaton Centre and the Queen subway station. From this part of the PATH, taking any exit to street-level leads to major points of interest such as Nathan Philip Square and Old City Hall, as well as several other office towers not directly connected to the PATH.

Several storefronts are found in this corridor, but roughly a third were vacant units. A TD Canada Trust branch has a large storefront and the location appears to be two storeys, with a main entrance and space at street level and an additional basement level in the PATH. The bank branch is open Monday to Saturday, however, the PATH entrance is possibly only open during weekdays except for access to ATMs. Among other commercial units, there is a dental office, a Scotiabank, a convenience store, a shoe repair business, a Freshii (chain fast food), a coffee shop, and a beef patty store. The beef patty place is the only one of those businesses open on weekends. In regard to design, this part of the PATH presents a relatively simple selection of materials and a plainer appearance versus other areas of the PATH. The corridor is narrower compared to some areas in the core of the Financial District and it provides limited amenities. Some standing tables can be found at the far end of the corridor approaching the Sheraton Centre, but no seating or garbage cans can be seen. Virtually no wayfinding is visible. I also noticed dust, litter, and spills on the floor, which was different compared to my experience in other parts of the PATH which have typically been very clean. Additionally, I found two accessibility concerns while visiting this part of the PATH. Walking towards the Sheraton Centre, a grade change requires several steps to continue and while an accessible alternative is provided via a ramp, this ramp is routed behind a commercial unit and using it means passing through a darker, narrower space with blind corners. This could make the user feel uncomfortable or unsafe compared to using the main set of steps. Walking towards the Hudson's Bay store, stairs are required to enter the store. An accessible alternative to these stairs is provided however this is by way of an elevator that can only be operated by store staff. A phone number is provided and this must be called to request the use of the elevator. If more attention was paid to making the general space accessible to all, having to provide alternative and less practical routes for those with mobility issues would not be required and the entire space would be rendered more inclusive.

This PATH corridor appeared relatively quiet during all three of my visits, which were on a Saturday at 3:00 PM, on a Wednesday at 6:00 PM, and on a Thursday at 1:45 PM. The Saturday afternoon visit saw less than 5 people passing by each minute, and while the corridor was very quiet, the flow of pedestrians was steady. Equal numbers of people were headed in each direction. Users were diverse and were mixed between business attire and casual attire. Most people were alone and walking at a normal pace. The Wednesday evening visit saw roughly 20 people passing by each minute, with an even proportion of people walking in each direction walking at a casual pace. The users were similar to those seen on the weekend, with an even mix of people in business attire and in casual attire. On the Thursday evening visit, I counted around 10 people passing through every minute with even flow in both directions, and less people in business attire compared to my weekday afternoon and weekend afternoon visits. During this visit, I also noticed more users appearing to be in their teenage years and in their 20s. Regardless of what time I visited at, this part of the PATH seemed like more of a transitional space at any time versus a space for people to linger and spend time in. At most, someone would lean on a wall for a short moment to look at their phone, but nearly everyone was there just to walk

from one end to the other. Even the food establishments in this space were takeout counters.

Bay Adelaide Centre:

The Bay Adelaide Centre is located at the northeast end of the Financial District, south of the Saks Fifth Avenue and Hudson's Bay department stores as well as the Eaton Centre. The Bay Adelaide Centre's PATH segment makes up part of the north-south PATH route that crosses through the eastern part of the Financial District. Continuing south on this route for 10 minutes leads to Union Station. Connections to the Queen Subway Station are also near this part of the PATH. This part of the PATH was chosen for observation because of its position along this route and in between the Eaton Centre to the north and numerous office complexes to the south.

Along this segment of the PATH, retail and food is available, however, storefronts are more spaced out than in other places in the PATH. A Shoppers Drug Mart, open only on weekdays from 8:00 AM to 6:00 PM, is a prominent storefront in the corridor and can be found directly across from a newly renovated food court area. A few other retail units are found but many are under construction with signs indicating they will be opening soon. The food court also has many units not yet open for business. The food court area, being newly renovated, features a very contemporary design with a neutral colour palette and natural tones. White tiles are used around seating areas while darker tiles are used in spaces meant for movement. A variety of seating options are provided from booths to high tables with barstools, and conveniences such as coat hooks and charging outlets are included. A water bottle refill station and several garbage bins are provided. Varied lighting fixtures over the seating areas provide great visual interest and draw attention to the space. Lighting over the seating areas much brighter than the softer diffused lighting found in the corridor leading to adjacent properties. Over some booths, slim linear matte black pendants hang over the tables, while round smoked glass pendants hang over certain high tables. A set of tables in the middle of the space is illuminated by an array of several hundred exposed lightbulbs hanging from black rods and emerging from a portion of the ceiling coloured black for further emphasis. Washrooms are available on weekdays, however, a long hallway with blind corners is needed to access them. No consistent security cameras or mirrors are used in this hallway. The entire space feels open and airy, whether in the food court or in the corridor area. Wayfinding, however, can be hard to see from afar. Signage indicating directions to connecting office buildings is mounted on walls near junctions leading to different destinations, but users must already be near these junctions prior to seeing any indication that they are approaching their desired destination. Overhead signage that can be seen easily ahead of time is not well implemented. Notably, one corridor that is intuitive and well-designed for navigation is the corridor with stairs leading to street level and to the Bay Adelaide Centre East Lobby. Large windows in the lobby allow plenty of natural light to illuminate the stairs and to spill into the PATH. A large art piece is also mounted prominently on the wall. With the natural light and artwork, it is very clear for users that these stairs lead to a street-level entrance and to the floors above.

I visited this part of the PATH on a Saturday at 2:00 PM, on a Wednesday at 6:00 PM, and on a Thursday at 2:00 PM. On my Saturday midday visit, I counted approximately 0-10 people passing by each minute. Pedestrian flow from the south was steady but coming from the north, the flow of people came in waves likely due to trains arriving from the nearby Queen Subway Station. Users were diverse, with a mix of ages, genders, and ethnicities. Most people were dressed for leisure, with occasional users dressed in business attire and carrying a work bag. Some people coming from the direction of the Eaton Centre were carrying shopping bags, indicating they possibly went shopping. On my Wednesday evening visit, I counted around 30 people passing by every minute, with nearly all people briskly walking north. People were nearly all dressed in business attire and were mostly middle-aged. This could indicate that people were coming from their nearby offices in the south and were heading to the subway station or to the mall. During my Thursday midday visit, I counted around 50 people passing by each minute, with even flow both northbound and southbound. Just over half of people appeared to be in business attire, with the rest of people in more casual clothing. While most people were middle-aged again, I witnessed more elderly users during this particular visit. At all times, the space appeared rather transitional despite the availability of seating in the food court. Some people did stop to run errands, such as to shop at the Shoppers Drug Mart, and the occasional person would sit down in the food court to rest, socialize with someone, or look at their phone. The food court's vendors not yet being open for business could be a cause for the lack of people spending extended periods of time in this part of the PATH and instead just passing through. However, oddly, in many other food courts found in the PATH, more people sitting can typically be found, even at hours where vendors are closed. Being so recently built, people may just not be familiar with this food court yet or may not find it approachable due to its newness.

Roy Thompson Hall:

During this site visit, I stood east of the doors leading into a corridor that goes across the basement level of Roy Thompson Hall and leads to the westernmost extremity of the entire PATH network. Travelling west in the PATH from here provides access to the Metro Centre and Metro Hall, the Ritz-Carlton hotel, the CBC Broadcast Centre, and several other office complexes. Just east of Roy Thompson Hall is St. Andrew Subway Station. This part of the PATH can also be used to access several points of interest that are not directly connected to the PATH but that are within close proximity of PATH-connected buildings. This includes the Royal Alexandra Theatre, the Princess of Wales Theatre, the TIFF Bell Lightbox, and many dining and entertainment establishments found in the Entertainment District along King St West.

Walking through this part of the PATH between St. Andrew Subway Station and Roy Thompson Hall, there is a very clear change in design midway through the corridor, indicating construction at different times or different ownership. Ceiling-mounted and wall-mounted signage using standard PATH logos and symbols, as well as a PATH map mounted on the wall provide clear wayfinding for users. This segment of the PATH is nothing more than a corridor for travel, with no additional uses. On the walls, ads about

events at Roy Thompson hall and their partner venue, Massey Hall, are displayed. There are no retail units or food establishments, and no seating is provided. A unique aspect of this part of the PATH is that while the entire corridor remains below-grade, part of the segment traversing the Roy Thompson Hall complex features glass panels overlooking an open-from-above courtyard with a water feature. Uncommon in most of the PATH, a clear view of the outside is given and natural light is brought into the PATH. In this corridor, exterior and interior design have been well integrated. There are doors leading to the courtyard, however, they were closed during all my visits and this landscaped space does not appear to function as a publicly-accessible area. A set of stairs is provided to reach street-level. Stairs and a one-way escalator heading up are also provided within the corridor due to a slight grade change. An elevator is provided to provide access to the upper and lower parts of the corridor as well as street-level, however, this can only be operated by staff who can be contacted via a posted phone number.

My visits to this part of the PATH occurred on Saturday at 5:00 PM, on a Wednesday at 4:45 PM, and on the same Wednesday at 9:00 PM. On the Saturday afternoon and in the late evening on Wednesday, users were mostly in casual attire and of mixed ages. On Wednesday at 4:45 PM, however, approximately half of users were in business attire and were typically middle-aged. The Saturday afternoon and Wednesday late evening visits had about the same level of activity, with approximately 0-5 people passing through each minute. People were coming equally from each direction. The space felt very quiet, despite there being lots of pedestrian activity immediately above at street-level along King Street West. I caught several people on the Saturday visit stopping by the wall-mounted PATH map, then turning back around after consulting the map indicating they were not headed the right way. One group of people approached me and told me that they had heard that the PATH had plenty of shopping and they wanted to explore this. I had to tell them that while many of the PATH corridors below the centre of the Financial District had plenty of shopping opportunities, this was nearly all closed on weekends. I suggested they head to the Eaton Centre, as if they wanted to continue walking through the PATH, this would be their best chance for any shopping. On my Wednesday afternoon visit, being rush hour, I counted higher traffic numbers, with around 30 people passing by each minute and more of these people heading east towards St. Andrew Subway Station. At this time, more people were walking at a brisk pace than at other times of day. Notably, I saw one person with a rolling laptop bag have to struggle to carry the bag down the set of steps leading further down the corridor. Had an escalator been provided for each direction of travel, or had the elevator been open at all times without an operator's assistance, this person would have been able to carry their belongings with less difficulty. I also noticed someone stop by the PATH map briefly prior to continuing their walk. Most people, however, appeared confident in the direction they were headed and their walks looked routine and natural.

First Canadian Place:

I chose the First Canadian Place complex's PATH segment for observation as First Canadian Place has a prime location at the centre of the Financial District and in the

centre of the entire PATH network. First Canadian Place is about equidistant to St. Andrew Subway Station, to King Subway Station, and to Union Station. The adjacent properties that are connected to it via the PATH include Scotia Plaza, the Toronto-Dominion Centre, and the Exchange Tower. These are among the tallest and most prominent office buildings in the city.

First Canadian Place's PATH segments comprise of a square shaped layout of relatively wide corridors surrounding elevators in the middle leading to the above offices. From this square, corridors radiate out in every cardinal direction towards adjacent properties and are lined with retail, services, and food. Several floors actually exist below grade and extend up into the complex's podium, therefore integrating the underground and above-ground spaces into one seamless shopping-mall-like area. Large atriums make the different levels visible from afar and provide intuitive visual cues for easy navigation. The atriums also provide natural light in addition to ample and bright artificial lighting. A contemporary, minimalist design is used with primarily white surfaces. The spaces feel well-kept and of high quality, with abundant uses of marble. A water feature surrounding the elevator shafts serves as a focal point and can also be heard from around the complex thus aiding in navigation and creating a memorable landmark. A large food court is partially hidden in an upper level of the podium but is still visible from the lower levels of some atriums. The food court provides access to an outdoor terrace, therefore extending the indoor gathering space into the outdoors. Very abundant seating options are provided both in the food court and throughout the corridors. Retail and food options are very diverse, and retail units vary in size, price point, and selection. Many major chain retailers are found, including designer fashion brands and higher-end stores such as Maison Birks. A shoe shine stand is also available. Unfortunately, like in many segments of the PATH, retail and food options are nearly all only open on weekdays during the daytime. The ground floor of First Canadian place features a very large BMO branch accessible to customers, which is notable as BMO is a main tenant of the First Canadian Place office tower.

I visited this portion of the PATH on a Sunday at 2:00 PM, on a Wednesday at 5:30 PM, and on a Thursday at 1:30 PM. The Sunday visit saw approximately 10 people passing by every minute, and while it was quiet, the flow of pedestrians in every direction was steady. The food court at this time, however, was nearly empty. Unlike on weekdays, the water feature was shut off on the Sunday that I visited. I have noticed this feature turned off on past weekend visits as well. Visiting on the Thursday at 1:30 PM, First Canadian Place's PATH corridors as well as the upper levels of the podium were all very loud and busy. Standing at the south end of the central square where I could view several corridors meet, I counted over 100 people passing every minute, many walking briskly. Most people were dressed in business attire and were middle-aged, but gender and ethnicity were mixed. People were evenly flowing from every direction within First Canadian Place's corridors and levels, and between adjacent buildings. The space felt like a major hub or intersection of activity. The people I counted did not include those who were lingering, just people passing by. Many people were additionally sitting on benches and couches, standing in place, or leaning on walls, either alone on their phones or resting, or in

groups socializing. Retail stores all appeared well-frequented, and the food court appeared to be nearly at capacity for seating despite its large size and its partially hidden location on an upper floor suspended above the main areas. The terrace was also well used as an eating and gathering space. During my Wednesday 5:30 PM visit, standing in the same spot, I counted approximately 75 people passing by every minute. Differing from my lunchtime visit where pedestrian flow was equal in every direction, at 5:30 PM, over half of people were headed south, presumably towards Union Station. People were walking very briskly, although, there were also people standing in groups socializing and people resting in the seating areas.

King Subway Station and Commerce Court:

Commerce Court is a major office complex found within the core area of the Financial District featuring 4 office towers surrounding a courtyard. A PATH corridor crosses under Commerce Court along a major north-south PATH route that links the Financial District, Union Station, and the Eaton Centre. Several other secondary corridors feed into this main corridor and link Commerce Court's 4 towers together as well as destinations east and west of the complex. These destinations include the Design Exchange, 222 Bay, Collins Barrow Place, the One King West Hotel and Residence, and King Subway Station. This also includes the Toronto-Dominion Centre, which leads to an alternate route towards Union Station. I visited the entire set of Commerce Court PATH corridors but my main observations were taken from the easternmost area of Commerce Court in the corridor linking Commerce Court to Collins Barrow Place, One King West, and King Subway Station. I picked this location to observe its levels of pedestrian traffic and activity with the consideration that One King West houses residents and visitors and feeds directly into a major office complex as well as the subway. While Subway stations and offices are common destinations found throughout the PATH network, residential properties are rarer, especially in the Financial District. This location also keeps the large food court visible, which is also a generator of foot traffic and activity.

The Commerce Court complex consists of office towers that were built at different times over the last century and therefore follow different popular architectural styles of those times, including Art-Deco and Modernist architecture. Similarly, the PATH corridors of Commerce Court feature sections with different design styles which also appear to have been built at different periods. All corridors appear very well-maintained and high-quality. The oldest Art-Deco segments have retained their historic features including decorative ceiling tiles, prominent chandeliers, ornately patterned flooring, and detailed storefronts with bay windows and older cabinetry. Other corridors, on the other hand, appear to retain a style reminiscent of a few decades ago. The food court, which is roughly at the centre of all the corridors therefore forming a central hub, appears recently renovated with contemporary lighting fixtures and seating areas. Televisions broadcasting local news events are mounted from the ceiling. Just past the food court, an atrium lets natural light come in and offers a glimpse at the street-level lobby above. The atrium gives an open feeling and a sense of unity, very effectively connecting Commerce Court's series of PATH corridors. Tiles are patterned in the form of a compass at the middle of

the atrium, symbolizing the purpose of this atrium for providing connections. At the time of my visit, an art piece with interpretive signage was also on display at the centre of the atrium. The food court has a large selection of vendors, and some retail is found around it. This includes a Rexall pharmacy as well as some beauty salons, independently owned fashion stores, and a fitness centre. With CIBC being a main tenant at Commerce Court, the ground floor of this building, situated one level above PATH level, features a large CIBC branch accessible to the bank's customers. At the eastern portion of Commerce Court's PATH corridors, doors and a narrow hallway lead to the One King West Hotel and Residence. This door requires a key card for access between midnight at 6:00 AM. Following the hallways, elevators can be used for direct access to the hotel and residential floors of the building. Stairs also lead into the property's event and dining space. Additionally, past the elevators and stairs, a historic basement bank vault from this building's past uses has been preserved and is on display. Grills around the vault's exterior panels, the vault's doors, and the locking mechanism are all visible. The vault's doors are left open but grills prevent people from stepping inside. Signage indicates that one is looking at a historic former vault, but there are no interpretive signs providing additional history or context. Finally, Commerce Court also provides a direct entrance to the King Subway Station, which is also located at the easternmost part of the complex's PATH corridors adjacent to the One King West Hotel and Residence entrance. Accessing the subway currently requires stairs due to the subway platforms being one storey below PATH level but signs advertise the TTC's project to improve this subway entrance and add elevators. The signs indicate that this project is estimated to be complete in 2024. Wayfinding throughout the complex uses a mix of wall and ceiling mounted signage incorporating standardized PATH symbols and logos. Some digital signs are used as well, incorporating wayfinding with broadcasts of local events. The standardized PATH compass is mounted on the ceiling of select locations, such as near the atrium. These are unfortunately not easily visible nor easy to read.

My visits to this part of the PATH were on a Wednesday at 5:45 PM, on the same Wednesday at 8:00 PM, and on a Thursday at 12:50 PM. I stood near the food court, with the subway and One King West Hotel and Residence entrance in sight. On my Wednesday 5:45 PM visit, I counted approximately 75 people passing by each minute, mostly walking at a brisk pace. As the food court is situated near a point where several corridors coming from different directions converge, I noticed movement in every direction. However, the majority of movement appeared to be from the north and heading south. People were presumably headed towards Union Station. Some people walked towards King Subway Station but much less than the Union-bound crowds. This was peculiar as the King Subway Station is much near if one was seeking access to transit, compared to Union Station which is a few minutes walk from Commerce Court. One possibility of this phenomenon is that people heading to Union Station may be using GO Transit, and since there is no fare integration between GO Transit and the TTC, they would rather walk to Union Station rather than pay an additional fare to use the subway from King Subway Station. In addition to the users walking, people were also sitting in the food court's seating areas at this time. Approximately a quarter of the tables were

occupied, which is notable especially since most food court vendors were in the process of closing for the day. The Rexall pharmacy, which closes at 7:00 PM Monday to Wednesday, and 6:00 PM on Thursday and Friday, was not busy despite all the people walking past it. When I came back at 8:00 PM, I counted about 5 people walking by every minute with no particular direction busier than another. Apart from one young couple walking through, most people were alone and middle-aged, appearing to be leaving work late. There was an even split in gender. Over half of people were in business attire. No one was sitting in the food court seating areas at this time, and janitors were actively cleaning it. All vendors and retail were closed for the day. Escalators were running despite the quieter traffic, which is notable because on brief weekend visits to this area in the past, I have noticed escalators being turned off. During my Thursday lunchtime visit, I noted over 250 people passing by every minute and the area felt very vibrant and full of activity. I briefly went up to street level and noticed that despite the weather being nice, the PATH was much busier than the sidewalks and public spaces above it. Pedestrian activity in Commerce Court's PATH corridors was coming from every direction and most corridors were very loud and very busy. In addition to the passersby counted, the food court's seating areas were nearly at capacity with people eating, taking calls while sitting at a table, working on their laptops, socializing in groups, or resting. Many people were also standing in the corridors talking with others. Many food vendors had lengthy lineups. Most people that were walking appeared rushed, and everyone looked like they knew where they were headed. Services such as beauty salons, doctors' offices, and dental clinics also saw people coming and going. Some people used the subway entrance, but most people appeared to be staying within the PATH and not headed towards transit. The One King West Hotel and Residence entrance was rarely used during any of my visits.

Brookfield Place:

Brookfield Place is well situated at the southeast corner of the Financial District. It is a couple of minutes of walking south from the Commerce Court complex or east from Union Station and Royal Bank Plaza. I chose Brookfield Place's PATH corridors for observation due to its proximity to Union Station, to many major office complexes, and due to its prime location along the major north-south PATH route through the Financial District between Union Station and the Eaton Centre. Brookfield Place also has direct PATH connections to the Hockey Hall of Fame, a major tourist attraction, the architecturally renown Allen Lambert Galleria, and a large food court.

The Brookfield Place PATH level uses high-quality materials throughout its spaces and appears thoughtfully designed for aesthetics. The main food court and retail area is a long rectangular space situated immediately below the Allen Lambert Galleria, with particular design features to visually connect the space together. The above-ground and below-ground spaces are therefore well integrated and work together to give a single cohesive space. For example, stairs and escalators along the middle of the food court allow for ample natural light to spill in from the galleria above. The openings for the stairs and escalators provide views upwards to the galleria's glass canopy. Glass block flooring in the galleria also lets some additional natural light come into the food court below. From

galleria level (ground-level), the glass block flooring glowing from the artificial light below and the prominent stairs and escalators make it clear that there is a space to visit below. The ceiling of the food court also curves up from the perimeter of the space into the centre. While not as dramatic as the Allen Lambert Galleria's parabolic arches, the curves are reminiscent of the galleria above and continue the galleria's theme. Seating is in the middle of the space, with food and retail vendors along the perimeter. Seating and surfaces appear to be recently replaced, with contemporary-looking white and light wood chairs, tables, barstools, countertops, and booths. Many tables are oriented diagonally, which give a more flowing, informal, and welcoming appearance. Thick columns that follow the edge of the seating area frame the seating area and define the row of vendors along the outside of the seating area as a corridor. In between the columns, benches with small accent tables provide additional seating. The accent tables are fixed in place and mounted directly to the bench, with enough surface space for a laptop or a drink. The tables are spaced out carefully so that each user has a single, private space to themselves. This seating is unique and offers an appealing additional option beyond traditional food court seating choices. Televisions are mounted throughout the seating area and broadcast local news channels. Background classical music is played at a low volume. Wayfinding uses standardized PATH signage and symbols, and is clearly mounted overhead listing nearby destinations. Food court vendors are diverse and offer a wide range of cuisines. There is also a Shopper's Drug Mart (open weekdays from 8:00 AM to 6:00 PM) and a The Market by Longo's location (open weekdays from 7:00 AM to 6:00 PM), a scaled-down urban-format Longo's supermarket. Northeast of the food court, a corridor leads to Commerce Court and to the Hockey Hall of Fame's secondary, PATH-level entrance. A corridor leading southwest from the food court is lined with retail units, as well as additional services such as car rental booths, and connects to Union Station. Elevators north and south of the food court lead upwards to the Bay Wellington Tower and TD Canada Trust Tower above.

I visited Brookfield Place's PATH segment four times. I visited on a Saturday at 4:45 PM, on a Wednesday at 5:15 PM, on the same Wednesday at 8:15 PM, and on a Thursday at 1:00 PM. On my Saturday evening visit, I counted approximately 15 people walking by per minute where I stood in the middle of the food court. I had a view of the corridor leading to Union Station, the corridor leading to Commerce Court, and the stairs leading up to the Allen Lambert Galleria. The flow of people was steady and even from every direction. In addition to my count of passersby, I noticed that somewhere between a tenth and a quarter of tables in the food court were being used. Being a very large food court, this amounted to quite a lot of people, and their presence could be heard. Many people sitting at the tables were in groups socializing. I noticed several users in different parts of the food court sitting in relaxed positions watching the televisions provided in the space. Several people were also on their phones, while some people were also using their personal computers. I noticed one person watching a soccer game on their computer. Many people were also drinking hot takeout drinks, despite all the vendors being closed. Furthermore, I noticed two groups taking portraits on the stairs with the view of the Allen Lambert Galleria above. The groups seemed unrelated to each other. Users were of all

ages, including children and seniors. Genders and ethnicities also appeared very mixed. Some people were dressed in business attire but many were casually dressed. During this visit, there was light rain outside. Some people were in wet jackets and with umbrellas, indicating they came from outside. However, many were completely dry and not holding any jacket or umbrella. These people were dressed for the indoors and may have planned their trip with consideration of the PATH and without the intention of going outdoors. During my Thursday lunchtime visit, I counted approximately 75 people passing by every minute, many walking at a brisk pace and appearing very familiar with where they were headed. People were both in groups and walking alone. People were also coming from every direction evenly. About three quarters of users were in business attire and most people were middle aged. The remainder of people looked like visitors, based off their casual attire, behaviour, and other characteristics such as carrying luggage. This could be attributed to the proximity to Union Station. I also spotted some older and younger people, which is not always found during daytime hours in other parts of the PATH. In addition to passersby, many people were spending time in the food court and over half of seats in this large space were occupied. People chose to sit not only for eating, but to rest, to look at their phones, to work on their computers, or to socialize with others. Nearly all the food vendors had evenly long line-ups. The Market by Longo's and Shopper's Drug Mart were busy with customers, as were many other retailers and services such as the hair salon. On my Wednesday 5:15 PM visit, I counted approximately 75 people walking by each minute. About three quarters of the traffic flow was towards the Union Station entrance and most people were walking at a rushed pace. Some people were walking in groups and talking to each other; however, most people were walking alone, some on calls and or with earphones. Most people were also in business attire, and sported bags and badges. Occasionally, families with kids would walk by. At this time, the food court vendors were either closing for the day, or already closed. The Market by Longo's and Shopper's Drug Mart had customers, although it was much quieter than at lunchtime. About a tenth of tables in the food court were occupied. Many people were sitting along looking on their phones, with their lunch bags, work bags, and coats on the table in front of them. These people appeared to be resting after work, or possibly waiting for a ride or transit. Some people were also working or looking up at the television screens. Groups of several people were also spotted sitting and chatting. These people often looked like coworkers. During my 8:15 PM visit on that same Wednesday, I counted approximately 15 people per minute, with most people headed towards Union Station. Most people were in business attire, and were middle aged or older. The pace was slower than at 5:15 PM. During my visit, I spotted a large group of young adults talking to each other as they headed towards Union Station. I also spotted a person emerging from Union Station with luggage, indicating that they may have been a visitor to the city. At this time, the food court had about a dozen people all scattered throughout the space. Many were sitting and using their phones. One person was standing and looking up at the television screens. There was a group of several people sitting and having a meeting. Another individual was eating their packed dinner. At this time, all food establishments, retailers, and services were closed for the day.

Royal Bank Plaza:

Royal Bank Plaza has an important location within the PATH network due to its position immediately north of Union Station. Union Station's national and international rail services, GO Train commuter rail services, and bus terminal are situated south of Front Street in the main station building. The Union Station Subway Station platforms are located two storeys below Front Street. Users coming from the main station building or from the subway platforms must use the subway concourse level, situated one storey below Front Street, to access the PATH's corridors leading to all points north. This includes PATH connections to the Financial District, the Entertainment District, Downtown Yonge, and the Eaton Centre. From the subway concourse, users can choose a corridor heading northeast through Brookfield Place towards the Eaton Centre. Users can also choose a corridor that crosses under Royal Bank Plaza and heads immediately north into the centre of the Financial District. This makes Royal Bank Plaza's location significant as it acts as the start of the PATH network's main north-south axis.

Royal Bank Plaza's PATH corridor uses high-quality materials and feels thoughtfully designed with aesthetics as a priority throughout. The space appears to use granite walls and flooring throughout. An atrium at the centre of the corridor provides a clear view of a large Royal Bank branch and the building's lobby at street level, as well glimpses of the outside through the lobby's floor-to-ceiling windows. The atrium is well lit through both natural light, rings of lighting on the ceiling, and an extensive light fixture hanging in the middle of the space. The fixture is composed of digital displays arranged in a spiralling ribbon. During my visits, the displays were playing aerial videos of coastal scenes, which complemented the airiness of the atrium while adding colour and vibrancy to the space. A set of escalators in the atrium leads up to street level, while another set of escalators leads downstairs to a smaller lower floor dedicated to the food court and additional retail. A water feature sits next to the escalators leading to the food court and are only visible while travelling downstairs. This water feature provides visual and aural connections between levels, however, it appears to only be operational during weekdays. The food court is comparable in size to other food courts in the PATH; however, its location feels isolated and this lends to a cramped feeling in the space. A good variety of cuisines and food types are available, as well as a mix of retailers and services. This includes a Shopper's Drug Mart and an LCBO store. Some upscale fashion chains are additionally available, such as a Brooks Brothers clothing store. There were vacant retail units during my visits, but these units had displays in their windows promoting other nearby businesses. This made the vacancies seem less evident and the displays blended in with the other occupied retail units and storefronts. Similar to most PATH food courts, food vendors are not open on weekend. However, at Royal Bank Plaza, the escalators to the food court are blocked on weekends rendering the entire space closed and inaccessible unlike other PATH food courts are seating can still be used at off-peak hours. As washrooms are situated in the food court, these are therefore also closed on weekends. An LCBO store, situated just north of the Union Station entrance, has the operating hours of 10:00 AM to 8:00 PM from Monday to Saturday. This is one of the few businesses open on Saturdays in this part of the PATH. Wayfinding in the Royal Bank Plaza's PATH

corridor is excellent. Standardized PATH symbols are used but much of the directional information is displayed on large, clear, ceiling-mounted screens. The screens are well designed to show advertising and local news while still having a portion of space reserved at all times for wayfinding. Clear white backgrounds with high-contrast font indicate directions to nearby destinations as well as estimated walking times. Popular destinations beyond the PATH are included in the signage, such as a sign that indicated to continue ahead to access the Waterfront, Jack Layton Ferry Terminal, and Scotiabank Arena.

I visited Royal Bank Plaza on a Saturday at 5:00 PM, on a Wednesday at 5:30 PM, on the same Wednesday at 8:15 PM, and on a Thursday at 1:15 PM. While I walked through Royal Bank Plaza's entire PATH corridor, I observed users from the southernmost part of the corridor, immediately north of the entrance to Union Station. On my Saturday 5:00 PM visit, I counted about 20 people walking by each minute. Users were very diverse. Most users were either walking towards or emerging from Union Station. The flow of people coming out of Union Station came in waves, likely linked to transit arrivals. Occasionally, I also saw people coming from or walking towards a non-Union Station entrance. This included the escalators leading to street level and a secondary corridor leading to the Fairmont Royal York. Some users stopped at the LCBO store to make purchases on their way to their final destinations. With no seating areas or spaces dedicated to gathering, few people were lingering and most people were moving at a fast pace. People also looked like they knew where they were headed. I noticed people carrying luggage, indicating the possibility of them being visitors to the city, or coming home from a trip. I also noticed some people carrying Hudson's Bay shopping bags, indicating that they may have just taken the PATH from the Queen Street Hudson's Bay store. On my Saturday visit, there was a hockey game at Scotiabank Arena. The occasional person in this part of the PATH was wearing a Toronto Maple Leaf's hockey jersey, although much more people wearing these jerseys could be found heading to and from Scotiabank Arena at street level. On my Thursday 1:15 PM visit, I counted approximately 75 people passing by every minute, walking at a normal pace. About three quarters of these people were heading south towards Union Station. Over half of people were dressed in business attire, and most users appeared to be middle aged. Some individuals were holding shopping bags from the Shopper's Drug Mart and other nearby PATH retailers. I also noticed some people with luggage, indicating that they could be travellers. In addition to people passing through, there were some groups of people standing in the corridor chatting with each other. As there are some steps leading to the Fairmont Royal York hotel entrance, I also noticed some people sitting on the steps looking at their phones. I briefly went one level down to the food court, which I noticed was not as busy as other food courts in the PATH. Line-ups to purchase food were not as lengthy and there were tables readily available. As the food court is on a separate level, people in the food court were intentionally there to eat, shop or sit. Unlike other food courts that are situated on the same floor as the PATH, there were no crowds around the food court exacerbated by through traffic. My Wednesday 5:30 PM visit was the busiest of my visits to this part of the PATH. I counted around 150 people passing by every minute. Users were primarily dressed in business attire, and diverse in gender and ethnicity. Most users were walking at a fast pace and

alone. Some people stopped at the Shopper's Drug Mart or the LCBO on their way. Over three quarters of users were coming from northern points and heading south towards Union Station. Very few people were coming from Union Station and heading north. Occasional users came directly from the escalators from street level and Royal Bank Plaza's lobby and headed to Union Station, while others occasionally walked towards or emerged from the Fairmont Royal York hotel entrance. During my Wednesday 8:15 PM visit, I counted about 15 people passing by every minute. The PATH corridor was quiet but people came by at a steady rate. Users were diverse, but many were in business attire. The occasional person had luggage with them. Traffic flow was even to and from Union Station, and people walked at a more leisurely pace than during the afternoon. All retailers were closed for the evening at this time.

Skywalk between Union Station and CN Tower:

Much of the PATH south and west of Union Station is routed through enclosed, elevated passageways or through the podiums of high-rise buildings. The Skywalk was among the first of these elevated passageways and connects Union Station to several major attractions west of Union Station. From Union Station, the Skywalk runs parallel to the rail corridor while also providing access to the UP Express train platforms for frequent train service heading to Toronto Pearson International Airport. The Skywalk then crosses over the rail corridor and terminates at a long gradual ramp that descends to an open square surrounded by the CN Tower, Ripley's Aquarium of Canada, Rogers Centre, The Rec Room arcade and entertainment venue, Roundhouse Park, and the Toronto Railway Museum. Secondary passageways connect to the main Skywalk corridor to link the Skywalk to the Metro Toronto Convention Centre, the Intercontinental Toronto Centre hotel, and the Delta Toronto hotel. Another PATH route continues through the Delta Toronto hotel to adjacent office buildings east of the hotel and to the Scotiabank Arena. Connections to entertainment uses rather than office uses as well as being above-grade make the Skywalk a unique part of the PATH network.

The Skywalk's first segment running parallel to the rail corridor is made up of a curved glass and metal arcade allowing the space to be fully illuminated by natural light during daytime hours. The arcade is open and airy and caters to free-flowing pedestrian traffic with no seating or amenities. Midway through the arcade, the UP Express train platforms offer a coffee shop that is open 6:30 AM to 8:00 PM on weekdays and 7:00 AM to 8:00 PM on weekends. Washrooms, seats and tables are also available. While these are primarily meant for UP Express passengers, they can be accessed without a train ticket by the general public. The UP Express space uses warm and modern tones with abundant natural materials such as wood wall and ceiling panels. At the end of the glass and metal arcade, elevators, escalators and stairs are required to continue further into the Skywalk. A street level exit is also found here. The Skywalk then turns south and turns into a concrete, steel and glass enclosed pedestrian bridge for the remainder of its route. Walls are glass for excellent views of the rail corridor, the CN Tower, and the Toronto skyline. The ceiling is exposed steel. Structural beams are also left exposed and the interior design of the space is utilitarian. Unlike the preceding segment that uses tiled flooring, this

bridge uses concrete floors. This space provides a transition from an outdoor to an indoor space, is more resistant to slipping and to dirt and water brought in from the outside, and is easier to maintain. Overhead signage using high-contrast black backgrounds with white font indicate upcoming destinations and exits to secondary corridors leading to the convention centre, the Delta Toronto hotel, and farther points of interest. The PATH logo is clearly displayed. Smaller signs mounted at eye-level on steel beams provide additional wayfinding. Overhead advertising boards are also regularly placed throughout the space, mainly advertising the Ripley's Aquarium of Canada at the time of my visit. Bright red railings continuously line the sides of the corridor and are also mounted onto the steel beams along the middle. To note, the enclosed pedestrian bridge to the Delta Hotel has a similar steel and glass structure, however, rather than glass walls and a plain steel ceiling, artists were commissioned to paint several interior wall panels and the ceiling with grey, black and white forms. Spotlights illuminate the space and the creatively painted surfaces, making the space feel more upscale and unique than the main Skywalk corridor.

I visited this space on a Sunday at 5:30 PM, on a Wednesday at 4:45 PM, and on the same Wednesday at 9:00 PM. For my observation of users, I stood in the Skywalk next to the Delta Hotel exit. This gave me a view of users accessing the Delta corridor, as well as the exit to the CN Tower, Rogers Centre and Ripley's Aquarium of Canada area. On my Sunday 5:30 PM visit, I counted approximately 30 people walking by each minute with even flow between Union Station and the tourist attractions. Occasionally, someone would use a secondary corridor towards the Delta Toronto hotel or the convention centre. Most people walked at a leisurely pace. Users were very diverse, and more families and groups were present compared to other PATH segments. While other parts of the PATH often had primarily middle-aged users, the Skywalk had more younger users. In my 5-minute stay, I noticed about a tenth of people carrying small luggage such as carry-on bags, indicating that they may be on their way to the airport via the UP Express. I overheard a group discussing how much free time they had left before their UP Express train. Some of these people could be travellers on a short layover in Toronto. Due to the UP Express, it is possible that additional waves of pedestrian activity on the Skywalk could occur in sync with train arrivals and departures. During my Wednesday 4:45 PM visit, I counted approximately 20 people walking by per minute. People walked at a generally leisurely pace. Over half of users were walking towards Union Station, while most of the remainder of users were headed from Union Station to the tourist attraction area. Every few minutes, I would see someone use the Delta Hotel corridor. Some people were in business attire but over half of users were dressed casually. Users were diverse, and there were teenagers and children present even on this weekday visit. Notably, I overheard a group discussing directions with one another and agreeing they were confused on which direction to head in. When I came back to the Skywalk at 9:00 PM, I counted approximately 15 people walking by each minute. Most people were headed towards Union Station. The Skywalk was quieter than during earlier times of the day, but usage was still steady. The general demographic of users was younger, with many users appearing to be between 20 and 30 years old. Most people were dressed casually. During

all my visits, I saw no one stop and spend time in the Skywalk. Unlike other parts of the PATH, no one even stopped to socialize or to rest.

South Core/ICE Towers:

The South Core is a high-density mixed-use neighbourhood situated south of Union Station and north of the waterfront. Previously industrial lands several decades ago, many buildings in this neighbourhood were built in the last decade. The South Core features several PATH routes connecting the neighbourhood to Union Station and the rest of the PATH network north of the station. Most of the South Core's PATH routes are above-grade using enclosed and elevated passageways that link buildings together. Through buildings, the PATH is generally routed through podiums. In these podiums, the PATH corridors often feature direct access to retail, food, and services, similar to the older, underground PATH corridors north of Union Station. The South Core PATH routes connect major destinations including Scotiabank Arena; several office buildings such as CIBC Square, RBC WaterPark Place, One York, and the PwC Tower; hotels such as Maple Leaf Square and the Delta Toronto; and condominium towers such as ICE Towers and Infinity Condos. Maple Leaf Square, the outdoor event space outside of Scotiabank Arena, and many attractions on the waterfront can be accessed by taking the South Core PATH corridors and exiting to street level.

My observations for this site visit were in the corridors leading to the ICE Towers and Infinity Condos. I selected this part of the South Core PATH corridors to visit as direct connections to residential buildings are not common in the PATH network. The corridors leading to the ICE Towers and Infinity Condos are situated below grade and are very simple in appearance. The corridors are also narrower than most of the corridors found elsewhere in the PATH. The corridors connect the condos to Maple Leaf Square, where the PATH continues. Users are required to walk through a Longo's supermarket that is situated in Maple Leaf Square's basement level. Signage for ICE Towers and Infinity Condos is non-existent throughout most of Maple Leaf Square's PATH route, except for signs immediately before the final corridor leading to the condos. According to a Longo's staff member, when the store is closed, users cannot walk through the store to continue to the condos and they must use an elevator in the building's parking garage to rejoin the PATH. The staff member indicated that this alternative route is not well known. At the end of the corridor, stairs are used to get to a glass-enclosed street level corridor linking to both condo's lobby areas. For those who cannot use stairs, the parking garage elevator must be used. To access the condo's lobbies, a key card is required.

I visited on a Saturday at 4:00 PM, on a Wednesday at 4:30 PM, and on the same Wednesday at 8:45 PM. On my Saturday afternoon visit, I counted approximately 10 people passing by each minute. People were typically walking at a leisurely pace. Some were alone while others were in small groups or in couples. Compared to other parts of the PATH, users generally appeared younger, with many users appearing to be between 20 and 40 years old. Other than age, users were diverse. An even mix of people were coming from the PATH and accessing the condo lobbies versus coming from outside to access the PATH. In addition to passersby, the occasional person would stop for an

extended period of time to chat with someone or to check their phone while remaining standing. During my Wednesday 4:30 PM visit, I counted approximately 10 people passing by every minute. Pedestrian traffic flow was even for both those coming from outside and heading into the PATH or coming from the PATH and heading to the condo lobbies. People were generally walking at a leisurely pace. Users were diverse in age, ethnicity, and gender. Some people were dressed in business attire. Some people had Blue Jays attire. As this visit took place after a Blue Jay's game at the nearby Rogers Centre, these people could have attended the baseball game earlier and stayed in the neighbourhood. They were now using the PATH to reach their next destinations. Additionally, I noticed some people coming from the condos dressed very casually and holding reusable Longo's grocery bags, indicating that they may be using the PATH to access the nearby Longo's supermarket. In addition to people walking through, I noticed several people standing in place and leaning on walls looking at their phones or chatting with one another. During my 8:45 PM visit on the same Wednesday, I counted approximately 15 people passing by each minute. At this time, most people were emerging from the PATH and headed into the condo lobbies. A mix of people dressed in business and casual attire were seen. Several people dressed in loungewear were bringing groceries back from the nearby Longo's supermarket. Several people also appeared to have come back from a gym. Some individuals were standing and chatting with one another.

RBC WaterPark Place:

RBC WaterPark Place is located at the southernmost point of the PATH network. The PATH is routed through the second storey of this office complex and two routes lead to escalators and elevators that bring users to street level with access to Toronto's waterfront. A food court is provided, along with some retail units including a Rexall Pharmacy location. Users headed north use a steel and glass enclosed bridge that connects RBC WaterPark Place with the podiums of Harbour Plaza, One York and the Sun Life Financial Tower. Past One York, users can cross through Scotiabank Arena to reach Union Station.

Being above grade, ample use of windows and skylights bring natural light into the food court and corridor spaces of RBC WaterPark Place's PATH area. The bright and airy space complements the modern furniture and fixtures. Also complementing the abundance of natural light are planters located throughout the space. A variety of seating options are available, including tables and chairs as well as bar seating. Some tables have charging outlets. Digital displays are mounted throughout the space. Television screens with local news and information are mounted from the ceiling in the food court area. In high-traffic areas, large digital displays are mounted on walls. These displays rotate between providing news, advertising, and nature scenes. Marble and wood flooring as well as wood accents throughout the space create a warm and inviting environment. Wayfinding is clear and easy to read with a mixture of digital and analog signs. Digital signs are mounted at the most high-traffic areas and include directional information and walking times. Backlit signs hang from the ceiling in other places. Standard PATH logos and symbols are used that are consistent with wayfinding in many other parts of the PATH.

Unfortunately, while PATH network maps are mounted in some places, I noticed some maps being out of date and missing new destinations such as CIBC Square and other nearby South Core buildings. Additionally, posters can be found advertising the property's app which allows employees working at RBC WaterPark Place to access the building's WiFi network, learn about building events and amenities, access retail offers, and connect with others in the building. Another notable amenity found is a short story dispenser. A small stand with a printer allows users to press a button to be printed a free short story.

I visited RBC WaterPark Place on a Saturday at 5:30 PM, on a Wednesday at 4:00 PM, and on the same Wednesday at 8:30 PM. During my Saturday 5:30 PM visit, I counted approximately 25 people passing by each minute when standing across the food court with a view of the pedestrian bridge to Harbour Plaza and One York. Users were diverse in gender and ethnicity, however, slightly younger than in other parts of the PATH. Pedestrian flow came in waves and could possibly be linked to transit schedules further north at Union Station, or even traffic signal timing at street level. People walked at a leisurely pace. Most people were either emerging from the north and heading southwest to the waterfront, or starting at the waterfront and heading north. Few people were travelling east or west across the food court from one end of RBC WaterPark Place to the other. In addition to passersby, several tables in the food court were occupied with people eating, looking at their phones, or working on their laptops. The short story dispenser was used a couple times during my 5-minute visit. During my Wednesday 4:00 PM visit, I counted approximately 60 people walking by every minute. About three quarters of people were headed from the southeast to the north (likely to Union Station), while the remainder of people in headed in other directions. Users were diverse in gender and ethnicity, although most were middle aged. Some younger children and babies were present. Over half of people were dressed in business attire, and many of these people were carrying work bags and identification badges. People were generally walking at a fast pace. In addition to the people that I counted passing through, some people were standing and chatting with one another. A third of the food court seats were occupied, with some people eating and many on their phones or laptops. Some people appeared to be having meetings and were without any bags, belongings, or outerwear, indicating they could be on a break and returning to their upstairs offices after. Food vendors were still open for the day and some were having clearance sales for the end of the day. The food vendors were not busy. The Rexall Pharmacy saw occasional customers as people would run errands while passing by. I also noticed a couple of people with luggage that had airline tags, indicating they could be visitors to the city. During my Wednesday 8:30 PM visit, I counted approximately 5 people passing through every minute. Users were headed in every direction. Users were walking at a more leisurely pace than in the afternoon and were dressed in a mix of casual and business attire. I noticed some people carrying gym bags and others with Winners and Dollarama shopping bags. The adjacent building, One York, has a Winners and a Dollarama store, both open until 9:00 PM. All retailers within RBC WaterPark Place were already closed for the day at this time. In addition to people walking through, several food court tables were occupied by people working alone on

their laptops. As the food court relies on skylights to provide natural illumination to its space, at this time, the food court was dimmer than usual as the sun was beginning to set. Janitors were actively cleaning the space and the entire space felt very quiet.