interActive

Designing the Active City through Urban Plug-ins

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00 ABSTRACT

Designing Active Cities focuses on improvements to the built environment that will promote active lifestyles and healthy habits. An Active City is successful when physical activity becomes a regular part of the population's everyday lives. Active Cities make physical activity a priority by transforming the urban environment into spaces that encourage activity for the urban population. Providing the opportunity to move, play, and interact are ways that urban design and architecture can ensure the built environment is supporting active living. Active City design has become a relevant topic of discussion across Canada following research from the board of health that identifies Canadians to be increasingly inactive due to their surrounding environments. The relationship between the built environment and active living is mutually dependent, where improvements to the population's activity levels depend on improvements to the city's urban fabric. Activity should be accessible to everyone, considerate of all ages, schedules, and classes of people. This thesis explores how design can address the issue of inactivity in the city and contribute to improving activity levels among the population through interActive Plug-ins that transform the urban fabric of Toronto, Ontario.

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01

Introduction

01 INTRODUCTION

A "D" grade, or a failing grade; that's what the Canadian adult population, as a whole, is achieving as their overall physical activity grade in 2019.¹ Canadian adults are failing to meet the most elementary standard of activity to maintain their general health and wellbeing. Activity levels are becoming less achievable across the nation, where individuals are struggling daily to meet recommended guidelines of physical activity. Today, more than ever, would it be applicable for a wider range of professions to understand the significance of this issue and respond in creative ways to help Canadians get active again. The human body is designed to move, where immobility can become the precursor to the body's deterioration. Participating in an active lifestyle relies on the equal existence of human desire, education, understanding, and supportive surroundings. The environments around us shape our behaviors and habits. When these environments do not stimulate activity and instead promote sedentary and immobile lifestyles, it could have an impact on the population's overall health. However, environments that allow people to interact and participate provide the incentive to be active in these sites. Therefore, the built environment can help or hinder the population's ability to attain a healthy level of physical activity in their daily lives. When cities address the issues of inactivity within the built environment and choose to make activity easily attainable, these actions are put towards the notion of Active City planning. An Active City is defined as a place that puts physical activity as a priority in city planning to help initiate healthier and more active lifestyles. Active City designs focus on implementing ways in which activity will become a natural part of the population's daily lives.² Cities do so by transforming spaces into places with an active objective. Active spaces should include recreational facilities for

¹ Livingstone and Tedesco 2019, 11.

² Toronto Public Health 2014, 1.

extracurricular activity, event spaces for spontaneous activity, and daily stimulations for everyday activity. Activity must be accessible to people of all ages, conditions, and classes, it should be convenient so people with a range of schedules can find the time to interact, and finally, it should educate users on the value of being more active throughout the day.

Active City planning has become an important topic of discussion recently as activity levels throughout Canada have significantly dropped. Modern-day lifestyles in the West have seen a surge of sedentary behaviour due to the reduction of manual labour jobs, technological advances, and fatigue from overworked schedules. It is understood that the daily routines and the prevalence of technology will not change for the better of the population's physical health, in fact, it may add to its decline. The question at hand is how can physical activity find its way into today's modern lifestyles and mentalities, especially when some may not see the importance of it? Statistics Canada, the Board of Health, and ParticipACTION have published data that indicate Canadians need a wake-up call when it comes to their physical health. This data quantifies that only 16% of Canadians are achieving the recommended amounts of physical activity of 150 minutes per week. Approximately 86% of the population is spending an average of 9.5 waking hours sedentary, however, 74% of the population admit they would like to be more active in their near future.³ This data suggests there is a discrepancy between the interest of Canadians who want to be more active and their failure to do so because of their habits or surroundings.

Connecting individuals to the possibility of interActive surroundings are where the built environment enters the conversation. If the built environment encourages activity, voluntarily or involuntarily, it could contribute to a rise in activity levels across the nation. Canada's environment is not an active enough site to influence people's actions, if it were, the statistics would read differently. Cities and communities can be designed and built to set people up for success so that healthy choices are made unconsciously. The most effective approach to influencing physical activity rates is likely to be one that applies multiple interventions to the built environment and is sensitive to all types of people. An Active City requires all disciplines to contribute

³ Livingstone and Tedesco 2019, 23-33.

to create a universally healthy environment. Architecture and urban design can play an important role in determining how design can influence activity levels. The built environment heavily relies on the discretion of architecture and urban design, and when these disciplines consider active design as a planning approach, behaviours could inevitably change.

Active City design strategies will be explored in the context of Toronto, Ontario as a site where design can play a role in improving the population's overall activity levels. Toronto has adopted the Healthy City initiative that promises change to the built environment to benefit the population's health and wellness.⁴ Interest in improving the state of health within the city of Toronto is equally shared between the Government, the Board of Health, and residents, however, there is a chance for design to insert itself in this narrative. The city of Toronto defines the parameters of the Healthy City initiative in the report "Active City - Designing for Health", and agrees that design plays a significant role in this topic. It states "healthy cities do not just happen. They result from creative vision, strategic decision-making and thoughtful implementation that respects the needs and challenges of all residents. They happen by design – through intentional investment and provision of infrastructure, programs and services with health in mind."⁵ Through the lens of architecture and urban design, an intervention can be designed to contribute to increasing activity levels within the city. In addition to the anticipation of potentially increasing activity levels, site engagement, public use, and sociability can improve simultaneously. This thesis envisions the future of Toronto, Ontario to become an Active City with the help of micro-architecture interventions in the urban context. This thesis pays special attention to the daily routines and habits of a large group of Toronto's population, to present a potential series of micro-interventions that will allow physical activity to be more accessible alongside the everyday functions of these citizens. The thesis analyzes existing urban spaces in Toronto to understand how the built environment determines certain human behaviours that may be contributing to inactivity. A significant finding becomes the question of how the efficiencies of the modern city has led to deficiencies in physical health. These theories are then considered

⁴ Toronto Public Health 2014, 9.

⁵ Ibid, vi.

through a design intervention that presents a collective approach to constructing the interActive City. The interActive City is a network of active urban spaces that are plugged into the urban fabric to promote active behaviours. The interActive Plug-ins will re-appropriate urban sites that have the potential for activity or instead remove a mode of efficiency in the urban fabric and input an active objective. As active designs are plugged in, they are connected to the community through an interactive digital app setting to determine a feedback loop between the user and the site. The digital component of this intervention ensures the interActive Plug-ins are responding well with the community and can adapt when change is required. The intervention is an accumulation of active designs that are plugged into the city and over time will connect to one another to create a network of urban activity.

02

Activity in the Environment

02 ACTIVITY IN THE ENVIRONMENT

Sedentary Lifestyle

In the "2019 ParticipACTION Report Card on Physical Activity for Adults" a sedentary lifestyle is determined by the number of steps people achieve per day. The report identifies that 18% of adults 18 to 79 years living in Canada achieve less than 5,000 steps per day, falling within the 'sedentary lifestyle' category.⁶

A **sedentary lifestyle** is one that consists of little to no physical activity throughout an individual's day. Health professionals provide a science-based standard on the amount of weekly activity individuals should aim to meet. Activity guidelines inform individuals on the benefits of daily activity and how it is relative to overall physical health. In Canada, people over the age of 18 should aim for 150 minutes of moderate to vigorous activity each week, and children should be physically active 60 minutes per day.⁷ By engaging in these activities routinely, health professionals claim that bodyweight will stay regulated, and severe health risks across the nation will be less widespread. Today, 62% of Canadians are overweight, meaning that almost two-thirds of the population are at risk of heart disease, stroke, diabetes, and other health issues associated with harmful weight gain. Heart disease is now the leading cause of deaths in North America, killing 1 in every 4 people.⁸ Heart disease is a medical condition that stems directly from diabetes, obesity, poor diet, and physical inactivity. A lifestyle that neglects physical activity could put these health risks in hand's reach.

LET'S GET PHYSICAL

Adults spend 9.6 hours a day being sedentary (on average), excluding time spent sleeping.

Fig. 01 Sedentary Behaviour Pie Chart.

Today, few Canadians are meeting the physical activity guidelines, meaning that the majority of the population is not able to achieve at least 20 minutes of physical activity each day. Instead, Canadians are spending more than 8 waking hours a day completely sedentary.⁹ Sedentary lifestyles across Canada are more prevalent today than ever as manual labour jobs disappear, technology increases the reliance on

⁶ Livingstone and Tedesco 2019, 26.

⁷ Ibid, 23.

⁸ Fung and Noakes 2016, 25.

⁹ Livingstone and Tedesco 2019, 26.

inactive screen time, and modern advancements promote dormancy. Around 84% of Canadians over the age of 18 are not meeting the recommended weekly activity guidelines. This means only 2 in every 10 adults are considered active Canadians.¹⁰ Participating in a sedentary lifestyle is common, comfortable, and addicting. However, meeting physical activity guidelines can be achieved in unique ways. Thinking about ways to alter daily habits that promote inactivity will slowly contribute to the overall goal of 150 minutes of activity per week. The "Blue Zones Lessons for Living Longer from the People Who've Lived the Longest" by author Dan Buettner states "be active without having to think about it; the key to longevity is to engage in regular, low-intensity physical activity often and as part of a daily routine. Rather than exercising for exercising, make your lifestyle active."¹¹ When physical activity becomes part of a daily routine, it becomes an almost subconscious habit. By making small changes throughout the day to help encourage physical activity, weekly activity targets may be easier to achieve. Buettner suggests that inconveniencing can be a tool for the inactive population to gain physical activity throughout the day. Making life a little tougher provides the opportunity for supplementary activity.¹² In this case, taking the stairs instead of the elevator or walking to a further bus stop are examples of how transforming an easy task into a challenging one provides the potential for additional activity in today's environment. When the built environment contributes to developing habits of inactivity, designers must understand how design affects human behaviour. Authors Richard Thaler and Cass Sunstein explain this theory in their work "Nudge" by stating "as good architects know, seemingly arbitrary decisions will have subtle influences on how the people who use the building interact... Small and apparently insignificant details can have major impacts on people's behavior. A good rule of thumb is to assume that everything matters. In many cases the power of these small details comes from focusing the attention of users in a particular direction."¹³ Designers are responsible for the actions and reactions caused by the environments they create. When environments are designed with no means of activity, humans will behave sedentarily. As the built environment continues to be designed with a lack of intention for activity, poor habits of inactivity could increasingly develop. Charles Duhigg, delves

¹⁰ Statistics Canada, 2018.

¹¹ Buettner 2008, 224.

¹² Ibid, 225.

¹³ Thaler and Sunstein 2009, 3.

Sedentary Behaviour

In the 2019 ParticiPACTION Report Card on Physical Activity for Adults Sedentary behaviour is defined as "any waking activity that uses very little energy while the person is sitting or in a reclined position."¹⁵

into the research of habits in his work "The Power of Habit" and explains the process by stating "first there is a cue, a trigger that tells your brain to go into automatic mode and which habit to use. Then there is the routine, which can be physical or mental or emotional. Finally, there is a reward, which helps your brain figure out if this particular loop is worth remembering for the future... Over time, this loop becomes more and more automatic."¹⁴ Relating this to the built environment and its relationship to the user, when designers implement inactive designs it gives the user a cue to become sedentary. The more times this cue is triggered, **sedentary behaviour** becomes a routine. For example, bus shelters designed with benches give the user a cue to sit while awaiting the arrival of the bus. The majority of bus shelters will have a bench, so every time the user arrives at the shelter, even if they are completely capable of standing, they will become accustomed to the routine of sitting and waiting for the bus to arrive. This is an example of how inactivity becomes habitual because of a cue, a routine and the reward of relaxation overpowering the brain. Duhigg expresses "the problem is that your brain can't tell the difference between a bad and a good habit and so if you have a bad one, it's always lurking there waiting for the right cues and rewards."¹⁶ For designers, everything matters, and how humans may react to a design should be considered. In the case of inactive environments, designers may be contributing to curating unhealthy habits.

FROM SEDENTARY TO IMMOBILE

Sedentary lifestyles feed a future of immobility. If the human population neglects physical activity, they will eventually forget how to be physically active. Muscle memory is a term used to describe the action where a repetition of the muscles will result in the long-term memory of a specific motor task. When muscles are consistently activated to perform certain tasks, they will subconsciously adapt to that task for the long term. In the opposite case, leaving the body's muscles inactivated, could eventually hinder the ability to complete tasks that were once familiar. If the built environment is driving humans away from daily physical activity, eventually humans will become incapable of being physically active. Exercising for the long haul is a concept that promotes the

¹⁴ Duhigg 2014, 19.

¹⁵ Livingstone and Tedesco 2019, 26.

¹⁶ Duhigg 2014, 20.

inclusion of daily activity in order to sustain mobility throughout a lifetime.¹⁷ Charles Montgomery, author of "Happy City" supports this as he states, "this is a troubling state of affairs, given that immobility is to the human body what rust is to the classic car. Stop moving long enough, and your muscles will atrophy. Bones will weaken. Blood will clot. You will find it harder to concentrate and solve problems. Immobility is not merely a state closer to death: it hastens it. Just spending too much time sitting shortens your life span."¹⁸ Neglecting physical activity will contribute to the possibility of health risks and deteriorate mobility. Physical activity is crucial to living a healthier, longer, and fuller life.

INACTIVE ENVIRONMENTS

Sedentary behaviours can be a result of the inactive spaces humans are forced to interact with. A built environment that promotes sedentary behaviors will ultimately contribute to the increase of inactive lifestyles. The book "Urban Sprawl and Public Health" states that "a century ago, physical activity was woven into the fabric of life."¹⁹ During this time, jobs depended on strenuous exertion, and transportation was predominantly active. In today's generation, the built environment has changed, and respectively so have the levels of activity. The post-industrial economy glorifies typical desk jobs, automobile accessibility, and other advancements that remove the need for excessive human exertion. Machines are replacing muscle power and are transforming the nation into a population of sedentary individuals.²⁰ Facing these problems in today's built environment, how can design promote cues for physical activity in order to improve the population's activity levels?

The environments people deal with in today's modern society are problematic because they are not designed in anticipation of increasing activity rates. Instead, they are designed for efficiency, focusing on how design can make life easier and more accessible. Without acknowledging human participation in the built environment, it becomes a place that abandons activity. The built environment must

¹⁷ Beuttner 2008, 224.

¹⁸ Montgomery 2014, 183.

¹⁹ Frank, Frumkin and Jackson 2004, 90.

²⁰ Ibid.

give its users the opportunity for activity. By integrating these opportunities into the built environment, users will find comfort, encouragement, and support to move away from their sedentary lifestyles. Jan Gehl, author of "Cities for People" suggests that the solution to the challenges of inactivity in today's built environment is that "the individual must seek physical opportunities and daily exercise, a concept which is no longer an integral part of daily life. Voluntary exercise requires time, determination, and willpower, which the majority of the population fail to possess"²¹, explaining why activity guidelines across the nation are not attained. Instead, physical activity should invite individuals to participate in the sites they currently interact with to make activity more convenient and accessible.

THE SCALE OF INACTIVITY

Urban sprawl environments continue to challenge progressive activity levels. Today, about 80% of Canadians live in an urban or suburban area,²² where the population of all Canadian metropolitan regions is growing faster along the outside edges than in their active cores. In Toronto, between 2006 and 2016 there was an 83% growth of total population within the suburbs, where 12% reside in active cores and 88% live in either an auto suburb, transit suburb, or exurban area.²³ Surveys suggest that Canadians are interested in living in suburban settlements, as 54% of the population see a future residing in the suburbs.²⁴ This group favors suburban qualities like highway access, large yards, quiet neighbourhoods, and proximity to family. However, they also value the importance of walkability, access to transit, and public space, qualities which suburban developments often fail to possess. It is common for Canadians to desire urban elements within suburban settlements. Sprawl communities are under scrutiny when the topic of activity levels in these environments are discussed. Due to the vast landscapes sprawl communities are developed within, the low density and connectivity of these areas are often associated with low physical activity. In these communities, there is less opportunity to walk, bike or participate within the built environment. Instead, residents depend on automobiles for transportation and

²¹ Gehl 2010, 113.

²² Tam 2017, 9.

²³ Gordon 2018, 2.

²⁴ Ibid, 6

independent recreation centers for physical activity. Studies found in author Jeff Speck's "Walkable City" suggest that in some regions every additional five minutes of driving leads to a 3% increase in obesity, while drivers who switch to public transit drop an average of five pounds.²⁵ Activity levels range depending on the walkability of an individual's neighbourhood. Speck also infers that higher levels of inactivity in sprawl communities "are due, in part, to a lack of opportunities for everyday recreation and the time-squeezed lifestyle of many residents who have long commutes."²⁶ The more time spent commuting means the more time spent completely sedentary, and commute times for Canadians are increasing. In Ontario, about 80% of the population commute by car, 14% by public transit, and only 8% walk or bike. Whether it be by car or public transit, the average distance traveled by foot during a commute is no more than 0.79km.²⁷ On average, Canadians take 4,819 steps a day,²⁸ which is approximately a 5km distance. Residents of sprawl communities find it more difficult to naturally partake in physical activity, unlike residents of an urban downtown. The report "Designing Healthy Living Toronto" states, "Canadians are more likely to be active if their neighbourhoods had places to walk to, free or low-cost recreational facilities or areas, specifically for cycling, good sidewalks, interesting features and a higher level of safety."²⁹ As urban sprawl continues to battle with distance and density, residents will suffer inactivity at the cost of their commute. Since these commutes are unlikely to change, active design must intervene along their daily routes to offer opportunities of increased physical activity. Improving public health within urban sprawl must focus on ways that seduce people out of their cars and onto sidewalks, bicycle paths, and public spaces.³⁰ As residents of sprawl communities are leading lives of physical inactivity, weight gain, and time-sensitivity, it is important for designers to consider these factors when making improvements to the built environment.

25 Speck 2013, 41.

26 Ibid.

27 Moovit, 2019.

28 CTV News, 2017.

29 Tam 2017, 16.

30 Frank, Frumkin and Jackson 2004, 108.

Routine

Routine behaviour of Torontonians during the workweek and their surrounding environments.

Waiting for transit to arrive results in moments of stillness and sedentary behaviour. As wait times lengthen, wasted time increases.

A brief moment of movement occurs in transition from transportation to workplace.

The smoke break releases people from their desks to the outdoors for a moment of stillness.

The plaza remains empty in this moment. It lacks engagement with bypassers.

Lunch break pushes people into the streets. They rush through the adjacent avenues to find a nearby point of interest.

The remainder of the lunch break is spent sitting in plazas of the workplace eating and conversing. There is no playful, unique or creative movement within the plaza.

People return to desk to sit and work.

Coffee breaks draw people out of the office and down into the concourses.

Buildings and their plazas are deserted while the work day finishes up.

People find their way to transit and wait for the arrival of their ride home. These wait times are usually long and dull.

Kilometers of travel are spent sedentary.

Fig. 03 Toronto's Time-lapse. Photographs taken of Torontonians during the work week to understand habitual natures and behaviours within the built environment.

CONCLUSION

Living an active lifestyle promotes mobility and longevity. By meeting weekly activity guidelines, several health risks may be avoided. By increasing movement throughout the day, the body will become accustomed to mobility throughout one's lifetime. A persistent interest in activity will feed human longevity and physical health. Just as humans should aspire to be active, the environments they interact with should encourage this objective. The built environment should support physical activity through interventions that drive human participation and movement in unique, playful, or subconscious ways to help individuals meet suggested activity targets.

03

Active City Design

03 ACTIVE CITY DESIGN

Active City

Medical Officer of Health for the City of Toronto in the report "Active City Designing for Health", defines an Active City as a "built environment that integrates physical activity into day to day living. This includes accessible recreation facilities, parks, and social spaces for people of all ages and abilities. By making physical activity fundamental to commuting, errands or appointments, an Active City makes healthier choices easier."³¹

COPENHAGEN

In the city of Copenhagen, physical activity is achieved through a network of active interventions within the urban fabric. Physical activity levels remain steady through the careful consideration of activating the built environment.

Fig. 04 Superkilen Park in Copenhagen, Denmark.

The city is continuously restructuring its street network to remove driving lanes and parking spaces for a better integrated and safer network of bike lanes. These bike paths are effective and convenient as they are detached from driving lanes and sidewalks to ensure safer conditions for cyclists. Many of the city's streets and parking lots have been converted into pedestrian only traffic zones or parks to accommodate public life. The city holds a vibrant urban life resulting from physical activity in the built environment.

An **Active City** creates and improves opportunities in the built environment to support physical activity. Active Cities find ways to integrate opportunities for activity into citizens' daily lives. These cities help to encourage active living by making movement easy and enjoyable. Investing in an Active City is a greater investment in the physical health of the city's population. Cities that promote physical health through the built environment have happier and healthier residents. Architects, planners, and designers play an important role in improving public health. Projects that encourage or initiate discussions related to activity have the potential to transform the city's built environment into one that encourages active lifestyles. Architecture and design have been crucial to solving epidemics in the past like cholera and tuberculosis and are now an essential part of combating today's public health issue; inactivity.³² Implementing Active City strategies will improve the conditions of inactivity in the city and will contribute to changing habits towards more active living.

THE ACTIVE CITY INITIATIVE

The goal of an Active City is to improve the population's activity levels. In doing so, they also make cities more hospitable and livable. Since low activity levels are a national concern that is a result of inactive surroundings, it is important to understand the relationship between the built environment and physical activity. Cities that discourage active living by eliminating walkable destinations, promoting automobile use or neglect areas for public activity are at fault for making active lifestyles unattainable. Modern living contributes to inactivity seeing as though sedentary behaviours are

³¹ Toronto Public Health 2014, iii.

³² Bloomberg 2010, 18.

NEW YORK

New York City, an extremely dense urban fabric with a large population has set a good standard for Active City Design. The city is a massive network of overlapping infrastructure, architecture, urban design, and landscape urbanism where instead of having their own distinctive zones they blend together to form a stronger urban fabric. New designs will plug-in and adapt to their surroundings. New York City is always welcoming of visionary designs that promise to strengthen the unique livelihood of the city.

Fig. 05 The High Line in New York City.

In the example of the High Line, a re-purposed rail line scheduled for demolition, a moment of urban revitalization proved that investment in public space is a bigger investment to the city as a whole. The urban park that expands over a historic rail line re-imagined a desolate area of the city for urban activity. The High Line not only acts a hotspot for physical activity and tourism, but now marks the site for a new culture of architecture and urbanism.

more common, where jobs, chores, transportation, and entertainment are all less laborious causing inactivity levels to rise. Cities are contributing to inactivity when infrastructure and design make it difficult for people to walk, cycle, or participate. Jan Gehl in "Cities for People" clarifies that, "the price of the loss of exercise as part of a daily pattern of activity is high: a decrease in quality of life, a dramatic rise in health costs and a shorter lifespan."³³ Designing Active Cities is critical to protecting the population's physical health.

Active Cities can help boost the economic, environmental, and social aspects of a city. When designing active cities, the ability to walk or to cycle plays an important role. By making destinations more suitable for walking or cycling, it is possible to attract more consumers to a site, raise retail rent, and increase employment rates. Research suggests that properties with a Walk Score of at least 80, were worth up to 49% more value.³⁴ Cities or communities wanting an economic boost can look towards ways that attract pedestrians or cyclists. In the interest of making spaces more active, a city will seek environmental benefits. Designing active spaces often entails the addition of public space that encourages interactions within the built environment. Urban interventions can connect individuals to the built environment through playful and participative designs. Active City designs transform the built environment into an attractive, playful, and active landscape that people are drawn to. Through the addition of Active City designs, the social aspects of the city will flourish. Active design interventions rely on human interaction and participation, they work by calling individuals to use or operate a space. When design brings people together in a site, the benefit of social engagement can follow. These sites become hotspots for social activity and gatherings. Transforming spaces for the benefit of active living is a modern-day necessity when thinking about health, economics, urbanity, and sociability.

ACTIVELY INTERVENING

Designing for the Active City relies on prioritizing physical activity, using existing

³³ Gehl 2010, 111.

³⁴ Designed to Move 2015, 9.

resources, and planning for people to be active in the long term. These strategies help reshape environments that will encourage healthier habits among the population. In order to make physical activity a priority within a city, existing inactive spaces must be converted into active space and new designs must drive people's interest to be active. Integrating physical activity into the places people work, live, learn, travel, and play is the only way to ensure people move enough to benefit their physical health.³⁵ Because of the ambitious intentions, designing an Active City starts at the top and requires a team of devoted officials who will instill Active City values. Active City design requires visible leadership. Once the city recognizes the effects of the built environment on health, they must seek to understand the community's needs toward improving the city's health. A mix of social, economic, political, and environmental health policies is required to positively influence levels of physical activity.³⁶ Importance is also placed on collaborating with designers and agencies that will fund or support projects that promote physical activity. Building physical activity into the masterplan of a city is a way to ensure physical health is an important part of the framework of city planning. Physical activity can mend itself into public policy, building codes, or urban planning strategies in order to protect the value of public health.

Cities have existing resources that can be re-imagined for the sake of physical health. The idea is to rethink resources in ways that promote activity. Existing spaces can open up and invite people to participate. Sites can be reinvented for public use and hosting events. Activity can find its place in both ordinary and unconventional ways within the city. Physical activity should not be accustomed to parks or gyms, instead, it should find its place within the daily lives of inhabitants. Waiting at a transit stop, on lunch break, in the office, or on a day off, are opportunities where physical activity can weave its way into daily routines and lifestyles. Bringing physical activity closer and more comfortable to people will help express the idea that activity can be a natural part of the day. Converting traditionally inactive spaces where people find themselves spending a long duration of time helps to eliminate sedentary behaviour. People remain sedentary in spaces where a lack of activity or participation occurs. Introducing opportunities for activity within these spaces will break the threshold

³⁵ Designed to Move 2015, 3.

³⁶ Toronto Public Health 2014, 13.

Active Intervention

This thesis defines the term active intervention as a design that works to improve activity levels. An active intervention has intentions of motivating, encouraging, or depending on human movement and participation.

between a user with active intentions and their inactive surroundings. Designing **active interventions** along the routes and routines of individuals' daily lives is a way to transform modern-day sedentary lifestyles.

CONCLUSION

An Active City chooses public health as a valuable design parameter within urban planning. Active Cities focus on how policies, developments, and designs can benefit the physical health of its population. Today Western cities are lacking opportunities for physical activity and therefore, are contributing to sedentary lifestyles and decreasing activity levels among the population. The human body was designed to move and cities should foster that necessity. When places neglect opportunities for movement, participation, and playfulness, the repercussions of such a design could cause a national health crisis. In order to improve physical activity levels, activity should be integrated into the urban fabric.

04

Towards an Active City

04 TOWARDS AN ACTIVE CITY

Toronto and its surrounding municipalities (commonly referred to as the GTA: Greater Toronto Area) is seeing enormous growth in population. As the population increases at a rapid pace, so does the need for infrastructure, residences, and commercialization. As these developments have made the region richer both economically and culturally, they have also put stress on Toronto's physical and social structure.³⁷ Toronto must provide a place to work, live, socialize, interact, and entertain for a large population. Toronto has responded to this challenge, by continuously exploring ideas on how to reshape the urban fabric, through new infrastructure, rezoning areas for bike and pedestrian use, expanding transit networks, and filling in vacant spaces for public use. As Toronto and its surrounding areas have seen extraordinary growth in a relatively short time, the way people are interacting with the city is beginning to change. The streetscapes of Toronto are becoming heavily populated presenting the potential for a strong relationship between the built environment and its population. Ken Greenberg, an urban designer in Toronto elaborates on this inference as he states in his book "Toronto Reborn", "the need for more space is accompanied by a change in how we perceive and use that public space. The kinds of experiences we seek in public space are also changing, more fluid, interconnected, less static, and bounded, leading to new forms and supporting the shift from the auto paradigm to active movement – cycling and walking. Reflecting public health concerns, as well, getting us back on our feet as we seek more active lifestyles."³⁸ Individuals can attain a connection to the built environment when they are encouraged to use and participate in the urban fabric, all of which are possible through activities that rely on human interaction. Design can help establish and bind a relationship between the user and

³⁷ Greenberg 2019, 15.

³⁸ Ibid, 162.

their surrounding environment. Ken Greenberg contextualizes this idea explaining that city building is about expanding and enhancing the public realm. The city's sidewalks and the ground floors of buildings are where a sense of place is formed. The in-between spaces in the city provide public space, services, and amenities at street level are where the public begins to animate and add richness to the urban fabric.³⁹ Toronto and its outlying areas are growing rapidly, and this expansion will begin to narrate the built environment. The way people interact with their surroundings is an important part of how the city functions by analyzing, learning, and responding to the needs and aspirations of civilians to create well-established living conditions.

BUILDING THE ACTIVE CITY

The Active City integrates physical activity into the built environment. The urban fabric has an impact on the physical activity levels of individuals, between building design, development density, mixes of land use, road networks, walking or cycling infrastructure, and public transit.⁴⁰ When the built environment promotes physical activity in these spaces, individuals will have the choice to behave more actively. It is the decisions made today about the city that will have a lasting effect on activity levels. Toronto, Ontario has taken steps towards the vision of an Active City for all citizens. The report "Healthy Toronto by Design" was released by the Toronto Public Health organization in October 2011 to inform the city of how the built environment shapes the health of its inhabitants. This report claims that **healthy cities** are livable, prosperous, and sustainable, and result from creative vision, strategic decision-making, and respectful thinking regarding all needs and challenges of the residents.⁴² Healthy cities are made in a combination of government support, research from health officials, and design interventions by creatives. The official plan for Toronto sets out a vision of detailed goals, objectives, and policies to manage and direct physical change in the city so people of all ages can enjoy a good quality of life. The report categorizes each quality of an Active City to help identify areas of concern for the city:

Healthy City

The World Health Organization defines a healthy city in the "Health Promotion Glossary" publication as a city "that is continually creating and improving those physical and social environments and expanding those community resources which enable people to mutually support each other in performing all the functions of life and developing to their maximum potential."⁴¹

³⁹ Greenberg 2019, 101.

⁴⁰ Toronto Public Health 2014, iii.

⁴¹ WHO 1998, 13.

⁴² Toronto Public Health 2014, vi.

1. An Active City shapes the built environment to promote opportunities for active living.
2. An Active City has a diverse mix of land uses at the local scale.
3. An Active City has densities that support the provision of local services, retail, facilities and transit.
4. An Active City uses public transit to extend the range of active modes of transportation.
5. An Active City has safe routes and facilities for pedestrians and cyclists.
6. An Active City has networks which connect neighbourhoods to city-wide and region-wide routes.
7. An Active City has high quality urban and suburban spaces that invite and celebrate active living.
8. An Active City has opportunities for recreational activities and parks that are designed to provide for a range of physical activities.
9. An Active City has buildings and spaces that promote and enable physical activity.
10. An Active City recognizes that all residents should have opportunities to be active in their daily lives.⁴³

ACTIVE INTERVENTIONS IN THE CITY

Following the release of the report "Healthy Toronto by Design", policies have been embedded to guide the development, as seen through investment in cycling infrastructure, public education on physical health, including a focus on improving pedestrian mobility and activity within the city. The urban fabric of the city is beginning to change through projects that challenge the modern architecture and planning of Toronto. These projects carefully consider the public realm and their relationship to the built environment. They are examples of revitalizing urban life within the city of Toronto through an active framework.

⁴³ Toronto Public Health 2014, 11.

BENTWAY

Fig. 06 The Bentway in Toronto, Ontario, converted into a skating rink during the winter.

The design exploits a great untapped resource that previously sat ignored and reclaimed it as a "civic living room" for a hybrid of public space. It is not only a park, a square or a trail, but has elements of all. It can be used for planned events or spontaneous activity. It presents a new way to celebrate the culture of Toronto as residents gather for community engagement. What was once the leftover space of the city simply needed the creative mind to transform it for the greater good of public activity.

Fig. 07 Summer on the Bentway. The Bentway during the summer months is a unique location for physical activity.

Fig. 08 Events at the Bentway. The Bentway holds events for the community year-round, such as yoga classes.

Fig. 09 Below the Gardiner. The Bentway sits beneath the expressway, an unused space in the city being re-purposed.

KING ST. PILOT

Fig. 10 The King Street Pilot Project in Toronto, Ontario is a site for pop-up urban activity. Creatives can display their designs for public use.

This project supports public transportation and pedestrianism to threaten the agency of motor vehicles. The project reduces vehicular traffic and instead promotes public transit, cycling and walkability. This incentive freed up space on the street, allowing storefronts to spill over onto the sidewalks, pedestrians to roam freely up and down the avenues, cyclists to see less competition with vehicles and public transit to work efficiently. The project was complimented with pop up designs to boost curbside appeal and public engagement. Bikeshare services, patios, and seating areas were added to attract and give back to the public realm. This project illustrates the notion of the complete city street, where public transit, cyclers and pedestrians can work simultaneously as well as find enjoyment in activities and develop a closer relationship between the streetscape and the buildings.

Fig. 11 Plan of the King Street Pilot Project illustrates how public transit is prioritized and sidewalks are designated for public activity.

Fig. 12 The King Street Pilot Project extends along the street where different pop-up installations create unique moments. Here, Muskoka chairs line the street for the public to use.

Fig. 13 Unique curb-side designs along King Street help to bring the public together in the pilot project's initiative.

UNION STATION

Fig. 14 Union Station in Toronto, Ontario where the annual Summer Market showcases local vendors and public activity.

The revitalization of Union Station aims to help the mass number of pedestrians that pass through the station everyday have a better user experience. Toronto's Union Station sees an estimate of 165,000 passengers daily and as transit networks around the city expand, as it intends to do so, the number of commuters will continue to increase. Union Station supports a mass of the public realm, and the revitalization has prioritized this clientele. The plaza of the façade extends forward to allow a transitional zone for commuters as they spill out of the station becoming a space for public activity. Here, year-round pop-up events will occur, such as markets during the summer or skating rinks during the winter. The pop-up culture of Union Station has become popularized and is now considered a destination rather than the stop on a route. People will commute down to the station to participate, or make sure they stop by on their lunch break to see what event is going on. The revitalization is an example of transforming the user's experience of the architecture to better serve the public realm.

Fig. 15 Union Station in the winter months transforms its public plaza into a skating rink.

Fig. 16 Toronto's Union Station keeps the city updated on each event, using social media to strengthen the public realm.

CONCLUSION

There are still many missing links for the city to fulfill until it can be considered an Active City. The government has done its part by presenting new health policies and the board of health has contributed public knowledge and education on the city's general health. Now design must enter the discussion to help bring these ideas to life and provide residents with interesting, playful, and helpful ways to get moving throughout their day.

In 2017, a report from the Chief of Public Health was issued to once again educate Canadians on their general public health and designers on how healthy living can be planned.⁴⁴ This report furthered its analysis to include the surrounding areas of big cities in Canada, taking into consideration suburban and exurban residents and how their living standards should be included when designing for health, just as urban centers are. As the population is growing as rapidly on the outskirts of Toronto as it is within the city, both living conditions need to be addressed. Whether people live and work in sprawl communities, live in sprawl communities but work in urban downtowns, or live and work in an urban downtown, the value of their physical health is of equal concern and interest. Designers must find ways to intervene in all living conditions to assure there is an equal chance among all residents to improve their physical health.

⁴⁴ Tam 2017, 1-70.

05

Modernizing the Modernist City

05 MODERNIZING THE MODERNIST CITY

Plaza

The Oxford English Dictionary defines the term plaza as "a public square, a marketplace."¹⁵

All cities hold the potential for urban activity, and through re-imagining, transforming, or re-purposing existing spaces for activity this potential can be successfully attained. Downtowns are to be a place where pedestrian activity can thrive, between the streets, the towers, and most importantly, the plazas. The plaza became a popular addition to the urban fabric during the modern era of architecture. When the International Style began to explore efficiency through materials and modules, a common form of construction became the pairing of a sleek-modern tower and the flat plinth. The plinth is expansive in nature, it sits at the bottom of a high rise tower and acts as the threshold between the city and the skyscraper. The term plinth morphs into what is more commonly known as the plaza when the public is invited into the design. The term plaza refers to a public square or open space in a town or city. The plaza is designed to restrict vehicular access to give pedestrians a space to roam at their leisure, unconcerned of their safety. Plaza's invite the user into the tower, define a space for recess, and in some cases mark a territory of architectural significance. A tower and its plaza are mutually dependent, it is a relationship that defines the boundary between public versus private. The plaza displays the performance of pedestrians, while the tower provides privacy for occupants. Therefore, the plaza must offer a sense of freedom, retreat, and community, complementary to the notion of the tower. Financial districts among cities are often denoted by a collection of towers and their shared plazas. These sites are a second home to the working class, as they spend the majority of their week here. Acknowledging the mass number of civilians who spend significant amounts of time in these sites daily, it is instinctive to imagine the plaza full of occupants, utilizing their rightfully claimed space to it's

¹⁵ OED Online, 2020.

perceived potential. However, today the plaza could not be more desolate. They have become barren paved lots, where the only pedestrian activities in sight are quick jolts from one building to the next, smokers huddled up against the nearest trashcan, and delivery personnel. In today's culture, the plaza has lost its connection to the pedestrian. The design of the plaza is no longer necessary or enticing enough for pedestrians to populate it. Today's modern culture has reshaped these public sites. In an efficiency-driven culture, fewer people are using allotted break times to play and interact with their surroundings and instead remain in the tower working. The introduction of underground concourses has stolen the street life of the city, by offering occupants of the tower an exclusive realm of shops and food stands, conditioned year-round. The plazas are therefore left behind, dated as no design interventions have come along to re-imagine these sites. As long as the plazas remain untouched, they will continue to be deserted. Plazas in the city present a potential for re-purposing existing space by re-imagining how active interventions can bring life back to the city's streetscape. The plaza must consist of engaging activities, spaces for retreat, and moments of participation to call the pedestrian back to the site. In order for the performance of pedestrians to occur, the stage must be set.

THE PLAZA AND THE PEOPLE

In the example of the Toronto Dominion Towers in downtown Toronto, similar claims regarding seldom utilized public space are illustrated. The TD towers sit in the heart of the financial district of Toronto, Ontario, and mark a territory of significant architectural history. They were designed by modernist architect, Mies Van Der Rohe in the late 1960s and are now acknowledged under the Ontario Heritage Foundation. On the site, the historical landmark plaque reads: "the complex is arranged around a granite-paved pedestrian plaza and originally consisted of three buildings; the 56-storey Toronto-Dominion Bank Tower (1967), the one-storey Banking Pavilion (1968), and the 46-storey Royal Trust Tower (1969). An underground shopping concourse is located beneath the granite plinth. The buildings are steel structures, clad with bronze-coloured glass, and black-painted steel, with steel I-beam mullions attached to the exterior. A leading example of the International style in Canada,

Fig. 17 Layered site analysis taken at the TD Tower complex between the months of September to March. Illustrated in drawing are common footpaths pedestrians take during their daily routines as well as habitual behaviours identified on the site. The site analysis helps to visualize how the built environment shapes certain human reactions and relationships.

the Toronto-Dominion Centre altered the Toronto cityscape and influenced many buildings throughout the country." Surrounding the complex, other city blocks were designed similarly as part of the financial district, where massive towers stand among designated pedestrian plazas. The financial district in Toronto defines a site that sees a mass number of people inhabiting the towers, streetscape, and underground concourse throughout the traditional workweek. In the case of the TD Towers, an estimated number of 21,000 people⁴⁶ work in the complex, and in some ways may consider this a second home. To understand human behaviours and relationships with the site, an ongoing site analysis was recorded between the months of September to March. Illustrated in the site analysis (Fig. 17) are common footpaths that people determine daily, habitual events, and points of interest. What became evident is that although the plaza is designated for public use, it is in fact poorly utilized. The site analysis determined that the only activity in the plaza was walking to or from the workplace, smoking, taking a private call, and delivery service personnel using the plaza as a loading dock.

However, when looking back to images of the plaza around the time it was constructed the occupancy rate appeared much differently. People filled the plaza in imaginative ways, they spread out among the manicured lawn and perched themselves upon raised railings for seating. The photos below were taken in the seventies and eighties, illustrating how activated the plaza was through public use. Figure 18 and 19 capture a moment in the plaza where lunch-time concerts during the week would entertain the employees of the towers. It brought people out to the plaza to engage, socialize, and relax. Figure 20 captures the plaza in 1984, on a regular afternoon during lunch break. The lawn is covered with people picnicking, socializing, and sunbathing. Seeing these images presents a disconnect of how the plaza was used in the late 1900s to today. These images suggest that the plaza was a place for activity and social engagement, whereas images of today suggest the plaza is now used as a pedestrian path or a smoker's area. The comparison of images makes one question if today's modern culture has depicted a different narrative of public plazas. Do the designs of these plazas not entice contemporary use, or has the modern work-life concept shifted to a point where people cannot imagine the workplace as a place of leisure as well?

⁴⁶ Draaisma, 2017.

Fig. 18 South courtyard of the Toronto Dominion Centre. Aerial photograph taken during lunch time where concerts would entertain the employees of the complex as they enjoyed their lunch break. People would gather in the courtyard and spread out across the plinth, laying on the lawn, sitting on ledges, or walking along the plaza. (1970)

Fig. 19 Lunch time at the TD centre. Captioned in the Toronto Star: More than 4000 downtown office workers soaked up the cool sound of the Ellis McLintock band; under the warm sun; at yesterday's noon-hour concert held at the Toronto Dominion Centre. It was one of a series of concerts to be staged in the south concourse of the centre at noon each Monday, Tuesday and Thursday. (1970)

Fig. 20 Aerial photograph of the lawn populated with people during lunch time. Captioned in the Toronto Star: When you're hot, you're hot; Whether it was at the Toronto Dominion Centre; above; or Metro's beaches; many people found the best way to beat the heat yesterday was to just sit back and relax. (1984)

ORIGINS OF THE PLAZA

Architecture and its relationship to the urban environment become complimentary through the notion of the tower and its plaza. When they work together, they can provide a form of urban life in the city. The plazas in this analysis are a result of historically significant urban measures that shaped many cities in North America. They are categorized as "privately owned public space", a space created as a result of zoning bylaws for public use and access. Although they are privately owned and exist on private property, they are to be accessible and usable by all civilians.⁴⁷ The origin of these distinctive spaces began in New York following two significant zoning acts that sought to change the urban fabric of the city for the health of city dwellers. The first in 1916, called to securitize light and air on the streets of New York.⁴⁸ As buildings grew taller and larger, access to air and light at street level was a commodity going extinct. This zoning act enforced buildings to limit the mass of its building area as the towers grew taller, in order to allow light and air to reach the streets. As this law defined New York City's skyline, the following zoning act defined the city's streetscape. Before 1961, many of New York City's skyscrapers surrendered the city's urban footprint. The large masses that sat at the first few levels of substantial skyscrapers were consuming the potential for public activity. Until 1958 when the Seagram building in New York altered the way in which the streetscape met the skyscraper. Mies Van Der Rohe, architect of the Seagram Building in New York City, re-imagined the way a building would greet the user. He began with a grand gesture to the public by setting back the Seagram 100 feet from the street's edge, to create an expansive open plaza that would enhance the user's procession to the skyscraper. This act became a precedent for future construction in New York City. William Whyte, American Urbanist author of "The Social Life of Small Urban Spaces", states that "the plaza of the Seagram Building was the place that helped give the city the idea for the plaza bonus. Built in 1958, this austere elegant area had not been planned as a people's plaza, but that is what it became. On a good day, there would be a hundred and fifty people sitting, sunbathing, picnicking, and schmoozing - idly gossiping, talking "nothing talk"."⁴⁹ The 1961 zoning act challenged designers by forming an incentive-based zoning law for

⁴⁷ Rautiola 2016, 92.

⁴⁸ Kayden 2000, 7.

⁴⁹ Whyte 1980, 14.

developers to give up some of their lot space for public use, in return allowing them to build taller skyscrapers.⁵⁰ This zoning law forged a new urban fabric lined with open plazas along the streets of New York City. The zoning law influenced developers to incorporate privately owned public spaces within or around their buildings, but more importantly preserved the pedestrian realm by extending space for public activity. The 1961 zoning law was enforced through a series of guidelines distinguishing the way in which these plazas were expected to be designed. Following the guidelines, tall skyscrapers grew across city blocks and for every square meter of public space the building provided, a bonus between 3 and 10 square meters of extra floor space was added.⁵¹ However, interest was directed more towards the awe of building taller, rather than designing a new public realm at street level. This became evident as these plazas were designed according to standardized measures. By guidelines, these plazas were to stay open during specific hours, have certain lighting, as well as include a standard number of seating, trashcans, and trees.⁵² As simple as the guidelines were outlined, the plazas were designed. Once designed, the plazas were used by the city in various ways, either as a place to sit at lunch, a meeting spot, a smoker's nook, or a shortcut through the avenues. Though these plazas were not elaborately designed for social success among the public realm, they were inhabited by pedestrians throughout the day. Even in the design of the Seagram, it is noted that "when Mies Van Der Rohe saw people sitting on the ledges, he was quite surprised. He had never dreamt they would."⁵³ It is questionable to know how much these plazas were intended for public use, when during the design phase architects like Mies never dreamt of the public actually using the space. According to Whyte, the Seagram was a special case. In Whyte's analysis, he claims to have not witnessed much activity occur in the plazas other than pedestrians walking across.⁵⁴ In his research, he concludes by suggesting that public plazas do not always work and their success is dependent on seating supply, plaza size, sun exposure, food vending, and the adaptability of space for personal needs.⁵⁵ A successful plaza that supports the livelihood of the public realm must first consider the public.

50 Kayden 2000, 11.

51 Rautiola 2016, 8.

52 Ibid, 7.

53 Whyte 1980, 15.

54 Ibid, 15.

55 Larice and Macdonald 2013, 206.

Fig. 21 Few pedestrians walking through the plaza.

Fig. 22 A group of smokers huddled under the cantilevered entrance.

Fig. 23 Few pedestrians walking through the plaza.

Fig. 24 People gathering in the lobby rather than the courtyard.

Fig. 25 Empty courtyard.

Almost 60 years after the 1961 zoning law, these plazas stand still in time, as if they were just constructed. Is it because they are so well-kept that a stroll through the plaza escapes one to the 60s? Or is it because the plazas have slowly become deserted, untouched by the public, a misfortune of lost land, that the plazas remain unscathed? Today the plazas are pictured quite differently than in the sixties. As a new culture emerges, the plaza's designed in the modernist era no longer find use today. Whyte states that "zoning is certainly not the ideal way to achieve the better design of spaces. It ought to be done for its own sake", suggesting that if urban spaces aren't designed with the public in mind, it could eventually become useless to the public realm when they experience a disconnect between user and design. The way in which the Toronto Dominion plaza is inhabited today lacks any form of social performance and participation. What was once the main stage of urbanity, begins to resemble the backstage in today's culture. The backstage is a production of efficiency, where the operators are focused on completing specific tasks for the show to go on. The smoker, the parcel delivery man, and the business executive all travel through the plaza undisturbed by their surroundings, only concerned with executing their prescribed task. Today the plazas lack participation, engagement, and sociability, all of which are elements that could help initiate more daily activity (Fig. 21-25). The plazas that neglected to be designed for public use but rather to gain tower height, are certainly not able to provide a successful public realm today without re-imagining and revisiting the design of these spaces. It is important to understand that the way spaces are designed can inflict certain human behaviours. When these spaces are determining the way in which people act or react, it is vital to design in ways that promote positive actions such as higher levels of social engagement and activities. In today's culture where efficiency is highly valued, and activity levels have coincidentally declined, it is important to analyze and intervene in large public realms like the plaza.

Fig. 26 Today's view of lunch time in the courtyard. A recent photograph taken of the courtyard displays an unpopulated plaza during lunch time, September 2019.

ACTIVATING THE PLAZA

Activity should be considered individualistic, where interest will vary from one person to the next. Activity is not one size fits all and it should not be designed in that sense. Therefore, when designing active interventions, the idea of performance versus prescription must be considered. A **prescriptive design** tells the user how to participate. It may tell the user to sit or to stand, and the directions to do so are usually quite clear. The problem with prescriptive design is that it might fail to entertain all users because of its one-dimensionality. With a **performative design** it allows the user to be in charge of how they want to participate and it could cater to a wider range of participants. Performative design strategies are exemplified through designs that activate once the user participates, where each activation is unique and dependent on the user. Performance is a critical design approach that helps bring life to urban spaces as well as demonstrates the relationship between humans and the built environment. Through performative designs with active intentions, the built environment can be a place that promotes human participation, social interaction, and increased activity. Understanding the plaza as a site for potential activity and performance as a design strategy, the notion activating the plaza can

Prescriptive Design

This thesis defines Prescriptive Design as a design that tells the user how to interact or react. It will prescribe certain human behaviours based on familiarity, or its single dimensionality. Prescriptive designs assign structure to a space and create habits within society.

Performative Design

This thesis uses this term to convey the idea that performative designs allow the user to determine their interaction with the object or space. The user can interpret the design and respond at their own discretion. When a design is unfamiliar or offers a multiplicity of uses, the user has the opportunity to dictate a unique performance.

begin to be illustrated. In today's new culture, the plaza requires much more than a few benches and trees on a paved plinth to attract human participation. The plazas must be re-imagined with performative design strategies in order to enhance public engagement. The questions to be asked are as follows. How can the plaza attract people off the street, out of the tower, and up from the underground concourse? How can the design of the plaza increase human interaction rates or sociability? How can the plaza help to increase activity levels during people's busy schedules or their sedentary break times?

ACTIVE PLANNING ANALYSIS

The following site analyses and vignettes are an exploration of possibilities to re-imagine the plaza that would suit today's cultural needs. Understanding that low physical activity levels are a concern for Canadians, as well as acknowledging that the built environment is playing a role in the decline of activities, public plazas are significant sites that present an opportunity for active interventions to bring back site engagement. Today, the plaza is a poorly used site, in a busy downtown core that could become a point of active interest for people of all ages and classes. The idea here is that revisiting poorly used sites in heavily populated areas presents a prospective theory of urban revitalization. These images take careful consideration of the design of the TD Tower complex and the resulting human behaviours found on site today to construct a theoretical approach to re-imagine the plaza. Although this site is protected under the Ontario Heritage Foundation, these explorative images can identify both the problems and potential of the urban fabric in order to construct further extrapolations for Active City design and will act as a guide for the design intervention of this thesis.

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Fig. 27 Mies Van Der Rohe's perspective of living room through the south glass wall of the unbuilt Resor House project (Jackson Hole, Wyoming), 1937-1941.

Fig. 28 Mies Van Der Rohe's Resor House project, Jackson Hole, Wyoming (Interior perspective of living room [view through north glass wall]), 1937-41.

Fig. 29 Mies Van Der Rohe's interior perspective with view of site of the Georg Schaefer Museum Project, Schweinfurt, 1960-1963.

The following analyses of the Toronto Dominion Centre plaza are explored through collage technique, similar to how Mies Van Der Rohe would illustrate his designs. His compositions tended to dematerialize the architecture,⁵⁶ using x-ray like technique by inverting the boldness of construction lines to emphasize textures, furniture, and nature. Jennifer Shields in her work "Collage and Architecture" explains that "Mies exploited collage-drawing to reveal not only spatial and material qualities of his architectural proposals but to illustrate a dialogue between the architecture and its natural or built context."⁵⁷ His collages (Fig. 27-30) would often frame the view of nature to blur the boundary of what is interior and exterior. In this sense, he allows nature and architecture to become complimentary. The following analyses of the plaza use a similar collage technique to emphasize the connection between the site, urban design, and the public realm. These collages are looking back to the collages of Mies Van Der Rohe's. They illustrate a theoretical exterior environment that would be framed in his collage if the urban environment was re-appropriated to present a potential for urban activity in today's culture.

Fig. 30 "Georg Schaefer Museum Project, Schweinfurt, Germany (Interior perspective with view of site)" Mies Van Der Rohe, collage (1960-1963).

⁵⁶ Shields 2014, 75.

⁵⁷ Ibid.

NORTH-EAST ENTRANCE

Fig. 31 The North-East Entrance in plan drawn by Mies Van Der Rohe.

The North-East entrance of the plaza has the widest strip of street access facing King St. West. People travel into the complex in various footpaths, rarely crossing paths with other pedestrians because of the expansive nature of this area. Perhaps keeping the street access wide enough to invite pedestrians in but quickly pinching the walking paths as pedestrians travel through the complex could increase the potential of human interaction? The paved plinth offers no more than a bench to interact with, therefore creative activity in the plaza remains limited. By integrating urban designs adjacent to the pinched walking paths, it would allow pedestrians who need to efficiently walk through the complex go without disruption, but persuade others to take an alternative route and interact with participative designs. The green space is limited to a few planters that do not offer space for interaction with pedestrians. By extending the contained planters into lawns with performative furniture the pedestrian becomes invited into the green space.

Fig. 32 Collage of the North-East Entrance.

Fig. 33 Re-imagining the North-East Entrance in plan.

PLAN OF THE NORTH-EAST ENTRANCE

1. Keep street access off King Street wide and accessible to invite bypassers into the plaza.
2. Pinch walking paths to become narrow avenues that guide pedestrians through the plaza. This will help to increase possibilities for interaction because there will be more pedestrians occupying a smaller walking path.
3. Expand the existing planters into larger green spaces big enough for the public to occupy. Re-appropriate the greenspace with performative furniture that allows the user to determine how they will interact with it. This will create unique moments of activity in the plaza dependent on the user.
4. Furnish paved areas with activities and seating that invite pedestrians to interact in imaginative ways. Instead of a barren paved site, urban design interventions help call on the pedestrian to participate. Active interventions become a prompt for the public that tell them to activate the site.
5. Provide a wide range of active interventions, therefore the space becomes multipurpose and useful for all ages and classes of people. Extending the life of the plaza from the workweek to the mornings, evenings, and weekends for all of the city to use will strengthen the public realm.

Fig. 34 Vignette of the interActive North-East Entrance of the Toronto Dominion Centre.

SOUTH-WEST COURTYARD

Fig. 35 The South-West Courtyard in plan drawn by Mies Van Der Rohe.

The South-West corner of the complex acts as a central courtyard that helps to join the towers in the public realm. On one side, the courtyard remains at street level to invite people off the street for a place of retreat. On the other side, the courtyard is a few storeys above grade and offers a place to look out onto the streetscape. In essence, the courtyard is a protected pedestrian zone and a place for social retreat. However, as seen through the plan, certain urban elements of the courtyard continue to go unused by the public. The large manicured lawn is treated as if it has a sign labeled "stay off the grass", because pedestrians carefully avoid walking through it or sitting on it. The benches are located in awkward walking zones and fail to face exciting views. Instead, the plaza could benefit from allowing walking paths to cut through the manicured lawn to let pedestrians know that green space is for public use. Prescriptive benches could morph into performative activities like swing sets or sculptural seats. Green spaces can be better utilized if they called on the pedestrian to interact like in the example of community gardens.

Fig. 36 Collage of the South-West Courtyard.

Fig. 37 Re-imagining the South-West Courtyard in plan.

PLAN OF THE SOUTH-WEST COURTYARD

1. Pinch walking paths to become narrow avenues that guide pedestrians through the plaza. This will help to increase possibilities for interaction because there will be more pedestrians occupying a smaller walking path.
2. Break up the manicured lawn with walking paths to invite people back onto the lawn. Walking paths give a cue to the pedestrian to use the lawn as a shortcut. In the leftover green spaces of the lawn, furnish it with active designs so as pedestrians walk through they are enticed to hop off the path and interact with the greenspace.
3. On the edges of the courtyard where pedestrians neglect to use, bring greenspace and urban furniture to create smaller enclaves for public activity.
4. Furnish paved areas with activities and seating that invite pedestrians to interact in imaginative ways. Instead of a barren paved site, urban design interventions help call on the pedestrian to participate. Active interventions become a prompt for the public that tell them to activate the site.
5. Create a blend between activity and efficiency so pedestrians can navigate the courtyard easily when they are in a rush but are easily tempted to interact with activities that pop out at them when they have time.

Fig. 38 Vignette of the interActive South-West Courtyard of the Toronto Dominion Centre.

SOUTH-EAST CORNER

Fig. 39 The South-East Corner in plan drawn by Mies Van Der Rohe.

The South-East corner is a secluded area sheltered by two towers that corner the pedestrian in. Here the smokers collect, and private calls are taken. The stairs off street level become an area of heavy foot traffic where many pedestrians are seen j-walking across Wellington St. and spilling into the underground concourse. These stairs are not a place where people dwell, they are prescriptive and tell the pedestrian to go up to the plaza or down to the concourse. If these stairs became more performative and offered intermediate activities between the plaza and the concourse, people would have more options to activate their route. This paved area could offer more complexity in terms of its elevation, stairs imply that the users are already active, but it could become more playful and interactive.

Fig. 40 Collage of the South-East Corner.

Fig. 41 Re-imagining the South-East Corner in plan.

PLAN OF THE SOUTH-EAST CORNER

1. Pinch walking paths to become narrow avenues that guide pedestrians through the plaza. This will help to increase possibilities for interaction because there will be more pedestrians occupying a smaller walking path.
2. Expand the existing planters into larger green spaces big enough for the public to occupy. Re-appropriate the greenspace with performative furniture that allows the user to determine how they will interact with it. This will create unique moments of activity in the plaza dependent on the user.
3. Develop the paved areas in creative ways through elevation changes or interactive activities that challenge the pedestrian to interact in unique performative behaviour.
4. Provide a wide range of active interventions, therefore the space becomes multipurpose and useful for all ages and classes of people. Extending the life of the plaza from the workweek to the mornings, evenings, and weekends for all of the city to use will strengthen the public realm.
5. Create a blend between activity and efficiency so pedestrians can navigate the courtyard easily when they are in a rush but are easily tempted to interact with activities that pop out at them when they have time.

Fig. 42 Vignette of the interActive South-East Corner of the Toronto Dominion Centre.

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The design of the Toronto Dominion plaza presents a disconnect to the public realm in today's culture. It leaves participation and activation up to imagination through its simplistic design. Evidently, for humans to engage with the site they require a prompt. In the case of the TD Tower complex, the only prompts given to pedestrians are to walk, to sit or to smoke. Imagine the plaza was embellished with performative prompts that invited people to act, look, jump, climb, crawl, run, lean, touch, push, and pull, the amount of activity that would follow would be fascinating. The performance would finally begin.

06

The interActive City

06 THE INTERACTIVE CITY

+

The plazas of Toronto are now activated through performative design strategies, where each site is the host of unique activities attracting Torontonians to travel between active destinations and participate. The intermediate spaces admire the sudden attraction of the public plazas and begin to mimic them, becoming apart of the active narrative. New active spaces in the city latch on to existing appendages of activity and begin to resemble a network of active veins piercing through the urban fabric. The active veins begin in the densest parts of the city, run along the streets, through the towers, across the bridges, amass the parks and spill out to the city's border towns. The creatives design, the public participates, the feedback is collected; the urban fabric becomes a visionary project that transforms Toronto into the **interActive** City.

interActive City

This thesis defines the term **interActive City** as the resulting vision for a new city of Toronto that integrates physical activity into the urban fabric seamlessly and cohesively. The **interActive City** is a network of urban plug-ins that insert themselves into the city to bring more opportunities for activity everyday in Toronto.

The **interActive City** is a collective project that promotes activity through design and encourages active spaces to be well connected throughout the city. The project is a methodology of feedback, understanding when change is necessary and how to execute it effectively. The notion of the **interActive City** has mended itself from the understanding that low activity rates in Canada are relative to the built environment. When the built environment is designed to send cues to the user to respond more inactively than actively, poor habits contributing to sedentary lifestyles emerge. An **Active City** is one that puts physical activity at the forefront of design. As Toronto is growing both in population and urban development, active designs can be implemented coincidingly to improve activity levels, sociability, participation, and an overall dynamism of the urban fabric. The **interActive City** initiative must begin by re-imagining spaces that have the potential for a more ambitious urban life. These spaces in mind are sites that already see a large amount of foot traffic every day. For example, the plazas in the financial district host a mass amount of the public realm during the workweek, who often spend more time in the underground concourse than the public

plazas. If the project begins here by transforming these sites into fragments of urban activity, the first acknowledgement of how valuable daily activity is, but how forgotten it has become, occurs. In this first instance, activity is brought right to the footsteps of Torontonians, where instead of sitting in the concourse during a lunch break, there is a public plaza full of performative activities that could entice the user to interact with. From there, the vision of the interActive City becomes a tempting theory of urban planning. Why should activity be limited to only these micro-locations? Designers begin to curate their own active hubs in other desirable locations, because they see a profit of participation in other coordinates of the city. The feedback loop is formulated. Responses from the community are beginning to map out where activity is needed, and designers are immediately responding in creative ways. A commuter chimes in, "if instead of sitting in traffic on the Gardiner Expressway, there would be a moment where I could choose to exit my vehicle and walk the rest of the way along a beautiful park on the highway, right into my office..." The feedback is considered, approved, and is constructed to become yet another vein of the interActive City.

DESIGNING THE INTERACTIVE CITY

The interActive City can intervene in any location that chooses to upgrade or unlock its urban potential. An interActive design may choose to remove some of the efficiencies of today's modern city to gain activity in return. To effectively design the interActive City, it must be designed for today but adaptable for tomorrow. Collective designs under this initiative will act as Urban Machines in the city that will perform, inform, and continually transform the urban environment.⁵⁸ Marcela Del Signore and Gernot Riether in "Urban Machines: Public Space in a Digital Culture" depict the future of successful urban spaces in today's modern society. **Urban Machines** are essential to urban design, people, objects, architecture, and media devices. The role of the Urban Machine is to act as an apparatus or tool that has a sense of agency as it holds the capacity or potential for action within an environment. The Urban Machine acts as a plug-in in the built environment where these injections in the city respond to users who then become active producers of public space. They are a continuous

Urban Machine

Marcela Del Signore and Gernot Riether in "Urban Machines: Public Space in a Digital Culture" define Urban Machines as "interventions in the physical urban public space that function as a system or set of devices, and through information technology, mediate the relationship between the urban environment and the user."⁵⁸

⁵⁸ Del Signore and Riether 2020, 5.

⁵⁹ Ibid, 6.

Plug-in

Marcela Del Signore and Gernot Riether in "Urban Machines: Public Space in a Digital Culture" define the term plug-in to suggest how an urban design will insert itself into the fabric of the city. The term plug-in describes the act of inserting and removing easily, therefore, a plug-in must be temporary or flexible in its design.⁵⁹

hybridization and exchange between the city and the user, supporting the idea that the city is a living organism that constantly changes, and so should its design. Del Signore and Riether quote "the potential of temporary plug-in spaces is to act as a generator that attracts forces, from the social to the economic level... Such spaces begin to implement programs at the micro-level. The generative potential of these interventions is the capacity to catalyze processes of creation of the "open city", a city that is in constant evolution and that can be transformed through bottom-up and overlapping of functions while initiating processes that start the dialogue about urban visions in the surrounding community."⁶¹ Urban spaces should be as dynamic and flexible as the range of its users. The role of the Urban Machine is to be adaptable to individuality, experienced through feedback loops. The Urban Machine must understand its relationship with the user, know when it is working sufficiently, and when it needs to improve. Del Signore and Riether state "Urban Machines are a family of projects designed and developed to mutually enrich relationships between people, the space they inhabit, and the urban environment."⁶² The interActive City would prosper as a collective approach that calls on all designers to participate. Overtime designers would add to the series of Urban Machines that are constructed and altered depending on feedback from the community. Each micro-machine plugged into the city would be theoretically linked to one another through technology. The use of technology would help to create a network of active interventions so users can navigate their way through the nature of ever-changing designs.

Public urban space succeeds through interaction. Interaction in the urban fabric suggests a relationship between the user and the environment, where both entities affect one another. Interaction must be a driving force for the interActive City, where active design interventions rely on the user to participate. This notion of participation gives the user a sense of dependency, in that their position as a civilian is responsible for creating urban life. A loop between understanding the city's needs, responding with active designs and receiving feedback will become a cyclical, yet welcomed, set of events. The reliance on the user must be simple and easy to access, so feedback is never a chore but an opportunity. Collecting information about the user and the site

⁶⁰ Del Signore and Riether 2020, 13-14

⁶¹ Ibid.

⁶² Ibid, 6.

is an important part of the process, this data network helps shape the design of the interActive City by pinpointing potential locations for active designs and receiving feedback on existing interventions. Active interventions must have intentions of becoming viral. The objective of the interActive city is to invade as many city plots as possible with active interventions, making activity infectious. Designs should find connectivity to technology to create an online platform for generating information and promoting attraction. Let active interventions surprise city dwellers along their traditional daily routines to offer an alternative active version of their day. The interActive City has the potential of re-imagining how people interact with the built environment.

Fig. 43 Toronto's infrastructure in a layered axonometric drawing.

Fig. 44 Layered City Axonometric. An exploded axonometric drawing of Toronto illustrating the infrastructural elements that become a significant part in the design intervention of this thesis.

DESIGN PARAMETERS

The interActive City begins by acknowledging all the urban spaces in Toronto and presents a way to connect those sites through active routes, toward new active hubs. The notion of the active route is to naturally bring activity to the public along a route they may already take or choose to take instead, because of its active opportunities. Active veins within the city lead from larger urban spaces or parks (that people usually inhabit on recreational hours) to busy city centers (that people tend to populate primarily during the workweek). With these active routes in place, work and recreation are blended. The interActive City aims to re-populate urban sites through active design. For example, the financial district is a site that sees no use on the weekend or by families and children. However, through active interventions, this area can become multipurpose as a new destination for recreational activity. In the example of large urban parks in Toronto such as Trinity Bellwoods Park or High Park, they are only used during recreational hours because of their locations outside of the city's downtown core. By elongating an active route that connects the financial district to parks like these, it now invites people to use these spaces during all hours. If design expects an active relationship with the user, then people require a prompt asking them to participate. In the idea of the interActive City, these urban spaces and active routes will be infected with cues that tempt the user to interact. The trails of activity will become points of interest that are ever-changing. The city displays a new performance every day. Activity is intended to become habitual nature. The following maps (fig 45-50) illustrate how the interActive City will naturally grow alongside the urban fabric of the city. The interActive City begins in the densest core of the city, from Union Station up to University Ave. This area sees a heavy amount of pedestrian traffic daily, therefore active interventions along this fragment of the city would gain attention quickly. As data is collected through the active interventions, the interActive City will begin to understand the relationship between the public realm and the built environment. It collects information telling designers what locations would benefit from interActive interventions and receives feedback from users for input. As the data network collects information it responds through interActive Plug-ins that can be inserted into the urban fabric and altered when necessary. As the Plug-ins are inserted they begin to connect, like veins, promoting activity throughout the city.

Fig. 45 Map of the interActive City growing in its first stage.

Fig. 46 Map of the interActive City growing in its second stage.

Fig. 47 Map of the interActive City growing in its third stage.

Fig. 48 Map of the interActive City growing in its fourth stage.

Fig. 49 Map of the interActive City growing in its fifth stage.

Fig. 50 Map of the interActive City growing in its sixth stage.

DESIGNING AN INTERACTIVE PLUG-IN

interActive Plug-in

The term interActive Plug-in is a definition native to this thesis and is defined as a plug-in design built to function in the interActive city. An interActive Plug-in is designed to enhance opportunities for activity within the city and inserts seamlessly into the urban fabric. It combines design with technology to collect data and provide a modern-day experience for the user. Through data collection, the interActive Plug-in can determine when it is succeeding or when it needs to be upgraded based on feedback from the users. Therefore, an interActive Plug-in must be flexible and adaptable overtime to serve the public realm.

An interActive Plug-in is designed to present the potential for physical activity within the built environment. The notion of the plug-in as a design strategy suggests that each intervention is inserted seamlessly into the urban fabric and can be removed or altered when feedback suggests that change is necessary. The plug-in method is a way to keep design interventions timeless and adaptable to a future of cultural change instead of being static over time. Plug-in interventions are encouraged to re-imagine public space in ways that will promote activity, sociability, and participation. For the interActive Plug-in to insert itself seamlessly in the urban fabric it can choose to revitalize poorly used urban spaces or reclaim infrastructure for public use. Revitalizing urban space for activity is a way to ensure that space allotted for public use, like plazas and sidewalks are re-designed with participatory prompts that engage the user the interact with the built environment. Reclaiming pieces of infrastructure that evoke modern-day efficiencies like expressways, streets, or rail lines and transforming them into walkways or playgrounds promote the notion of replacing sedentary habits with physical activity. Some plug-ins will aim to revitalize public space, while others will reclaim infrastructure to provide an alternative opportunity for activity. The interventions are plugged into the city seamlessly and are encouraged to attach to other interActive Plug-ins so activity will run through the city continuously. As more interventions are plugged in, the interActive City network spans wider and will eventually reach the outskirts to offer active opportunities to every member of the city.

Fig. 51 interActive Plug-in existing Plan. Example of the process for designing an interActive Plug-in.

Fig. 52 interActive Plug-in Plan. Example of the process for designing an interActive Plug-in.

interActive
PLUG-IN MODEL

Fig. 53 interActive Plug-in Plan model: designing the plug-in.

interActive PLUG-IN MODEL

Fig. 54 interActive Plug-in Plan model: inserting the plug-in.

interActive PLUG-IN MODEL

Fig. 55 interActive Plug-in Plan model: collecting feedback in the plug-in.

interActive
PLUG-IN MODEL

Fig. 56 interActive Plug-in Plan model: adapting the plug-in according to feedback.

Feedback Loop

The term feedback loop is defined in this thesis as a cycle of events within the design of the interActive Plug-in to ensure longevity and practicality over time. The feedback loop of the interActive Plug-in cycles between the design and user participation. The design itself will have technological apparatuses that collect data as people use and interact with the plug-in. As data is collected designers will be able to interpret the information on how well the public is responding to the interActive Plug-in and if or when it needs to be upgraded.

Four-dimensional

Four-dimensional is a term used in this thesis to describe an alternate experience of space determined by technology. It is virtual in nature and exists only when activated by the user and technology. The fourth dimension is dictated by the technological apparatuses of the interActive Plug-in and creates a fantastical experience for the user.

The plug-ins connect to a network of data collection, where technology integrated into the design of the plug-in helps to provide a **feedback loop** on how the intervention is working over time. The public can offer feedback on how to improve the interActive Plug-in to better suit the public-realm or can help identify alternate locations for interActive designs. The data collected helps to keep these plug-ins adaptable over time by understanding when the urban plug-in is working successfully and when it is ready for an upgrade. The interActive Plug-in will then respond through alterations in its design as it plugs-out, adapts, and plugs back in. Each plug-in will integrate a technological component to its design for the user to interact with. This can be explored through an app, an interface, or other means of interactive technology. By integrating a technological apparatus, it allows the plug-in to be **four-dimensional**, creating a stronger relationship with the user in today's modern society. Interactive technology heightens the experience of space by offering an alternate realm of participation. An interActive Plug-in with an app component can be used for GPS data, space in virtual reality, or as a tool for feedback. An interActive Plug-in with an interface can allow the user to participate with technology when entering the Plug-in and can collect data and feedback upon moments of interaction. Integrating technology within urban space is necessary for today's culture, as it works to engage the modern population and is adaptable over time. More importantly, by integrating technology within the design of the plug-in it can combine activity with data collection in one form. With technology in place and data being collected, this presents the opportunity to use the information as an educational tool for the public. Data can identify how people are becoming more active by interacting with the plug-ins and educate users on the importance and benefits of increasing activity throughout the day. Using technology as a tool in the interActive Plug-in to further educate the public can help to make the idea of data collection more enticing for the user to participate in. Keeping information available for the public to interpret gives the public an agency with the plug-ins.

interActive DATA NETWORK

Fig. 57 InterActive Plug-in Plan Data Network Model.

METHODOLOGY

The interActive City will begin by identifying the first few plots of urban landscapes in Toronto that have a strong relationship to the public realm. The first interActive Plug-ins will be uniquely designed from one another, so they become identifiable hotspots for activity. Once the plug-ins are inserted, data will be collected immediately through technological apparatuses integrated into the design. These plug-ins will attract participants from all ends of the city, and data will begin to identify where people might be traveling from. With these footpaths identified, new interActive Plug-ins will be able to be created in other populated sites. Once several possible locations are located, the interActive City can open its call for submissions to the public so designers of all backgrounds can participate. A successful interActive Plug-in will most likely result from a design created by a multitude of creative disciplines. Over time, feedback continues to collect within each plug-in so that information is steadily flowing to the interActive database. When an interActive Plug-in is ready for an upgrade, the plug-in is sent out into the world of designers to work on its adaptation. The design of each interActive Plug-in is completely in the hands of Toronto's creatives. There are few guidelines to follow; to promote human activity on the site and to include a technological component. Therefore, the images presented in this thesis are not a result of a project but rather set up the methodology and the possibilities of the interActive City.

Fig. 58 The interActive city.

interActive PLUG-IN

Type: A) Revitalizes urban public space with active opportunities.

Location: Toronto-Dominion Centre, 66 Wellington St. W.

Connections: #0000002, #0000008

Description: Revitalizes the plaza with participatory activities to liven the sight during the workweek and make it a point of interest during recreational hours.

#0000001

interActive PLUG-IN

Type: C) Combines Type A and Type B, connects to other significant sites.

Location: Toronto Union Station, 65 Front St. W.

Connections: #0000001, #0000005

Description: Works as a connection piece in the interActive City by joining the financial district to Union Station through an activated walking path.

#0000002

interActive PLUG-IN

Type: B) Reclaims infrastructure for active opportunities.

Location: Simcoe St. and Front St. W.

Connections: #0000006, #0000008

Description: Repurposes parking lot to an urban playground.

#0000003

interActive PLUG-IN

Type: C) Combines Type A and Type B, connects to other significant sites.

Location: 35 Wellington St. W. - 120 King St. E.

Connections: #0000009

Description: Works as a connection piece in the interActive City by elongating an elevated walking path between St. James Park, Berczy Park and the surrounding buildings.

#0000004

interActive PLUG-IN

Type: C) Combines Type A and Type B, connects to other significant sites.

Location: 35 York St. - 1 York St.

Connections: #0000002, #0000007

Description: Works as a connection piece in the interActive City to connect Union Station to the waterfront and the Gardiner Expressway through activity.

#0000005

interActive PLUG-IN

Type: C) Combines Type A and Type B, connects to other significant sites.

Location: 60 Simcoe St. - 255 Bremner Blvd.

Connections: #0000003

Description: Works as a connection piece in the interActive City to connect Roy Thompson Hall and Roundhouse Park through activity.

#0000006

interActive PLUG-IN

Type: B) Reclaims infrastructure for active opportunities.

Location: Gardiner Expressway

Connections: #0000005

Description: Reclaims a lane of the Gardiner Expressway to provide a boardwalk along the skyline so travellers can choose an active form of transportaion.

#0000007

interActive PLUG-IN

Type: B) Reclaims infrastructure for active opportunities.

Location: 145 King St. W - 1 University Ave.

Connections: #0000001, #0000003

Description: Reclaims four intersecting streets to provide an elevated active sanctuary around the cluster of buildings.

#0000008

interActive PLUG-IN

Type: C) Combines Type A and Type B, connects to other significant sites.

Location: 161 Bay St. - 40 King St. West.

Connections: #0000001, #0000004

Description: Works as a connection piece in the interActive City to connect the plazas and alleyways of the financial district.

#0000009

interActive PLUG-IN

Type: C) Combines Type A and Type B, connects to other significant sites.

Location: 188 Wellington St. - 290 Bremner Blvd.

Connections: #0000003, #0000006

Description: Works as a connection piece in the interActive City to connect several landmarks and public parks.

#0000010

...

Revitalizing urban spaces in Toronto to provide more opportunities for activity and having fluidity between these active sites is the goal of the interActive City. The interActive City has intentions of growing and building over time, making activity hard to ignore in the urban fabric. With interActive Plug-ins as a tool, physical activity and recreation can be accessible at all times and locations. The structure of modern-day lifestyles in the West has made a clear distinction between work and recreation, causing physical activity levels to decline because of inaccessibility. The interActive City targets this by tempting the public with moments of activity throughout the day. The interActive City aims to be versatile in form so users can participate in their own unique ways, directing their own performances of activity. The interActive City questions the way the built environment is currently designed, how efficiency and standardization are removing the beauty found in public participation. Designing urban sites that are attractive to the public and call on the user to interact can create a stronger relationship between the city and its inhabitants all while giving people the opportunity to be active.

Fig. 69 Unfolded section of the interActive city part 1 of 3

interActive Plug-In

Fig. 70 Unfolded section of the interActive city part 2 of 3

interActive Plug-In

Fig. 71 Unfolded section of the interActive city part 3 of 3

Fig. 72 Vignette of an interActive Plug-in.

Fig. 73 Vignette of an interActive Plug-in.

07

Postscript

07 POSTSCRIPT

This thesis began with a personal interest in physical activity and questioned why modern-day lifestyles have become so inactive. This thesis explored the ways that modern day living is contributing to inactivity. Through extensive research it became clear that the built environment plays a role in determining human behaviours. A built environment designed for activity, participation, and socialization versus one that is designed for efficiency and standardization will not only look much different but also define different human behaviours. Today's built environment often chooses efficiency and standardization as a design parameter, prescribing the user to behave accordingly. However, as designs become more efficient and standardized, society is finding it less convenient and acceptable to insert moments of activity and recreation in their day. Activity is not a natural part of daily life anymore. Canadians are more sedentary than ever, which explains why the population is failing to meet the weekly recommended physical activity guidelines. Walking is replaced with driving, sedentary work is replacing laborious jobs and social lives are predominantly experienced online. The culture of today's modern society is changing and so is the built environment. The intent of this thesis is to bring activity into the conversation for designers, eventually manifesting into interventions that will help weave physical activity into the population's daily lifestyles. This thesis questions the role of the designer and makes a clear case that designers have a responsibility for creating fuller, healthier and happier lives among the public. How can designers create spaces that prompt the public to lead healthier lives?

Critiques at each colloquium have shaped the resulting project considerably. The reactions and responses have driven the design intervention into a prospective

approach that aims to bring activity into the future conversations of architects and urban designers. Throughout the duration of this thesis it became apparent that the topic of physical activity is extremely sensitive because everyone is equally qualified to contribute an opinion. When discussing physical activity through the lens of design, this thesis anticipates that design can use activity as a tool for improving not only human health but sociability, site engagement and a stronger relationship between the user and the built environment. This thesis does not intend to solve a national health crisis through architecture and urban design, but rather is responding to Toronto's initiative to designing an Active City. Architects, planners, and urban designers are responsible for building the environment, and these disciplines could see a positive response from the public realm when becoming apart of the active narrative.

The design intervention presented in this thesis aims to respond sensitively. It is a visionary proposal of how Toronto could design its Active City. It is not a one size fits all solution, because activity varies from one person to the next. The interActive City is therefore a diverse collection of active interventions that plug into the urban fabric to offer the public realm a variety of opportunities to participate. The intention is to bring active spaces closer and more frequent in the city in such a way that physical activity can once again be woven into everyday life. The thesis can anticipate critical reactions to the issues of safety within the interActive City. By including technology in the design to collect data on user participation, there is a potential for security issues. The project therefore, understands that users may feel uncomfortable giving up their privacy in return for activity. However, while individuals retain the ability to decide for themselves, it would also be important to build a secure system with rules and regulations that protect users from the misuse of information that they are willing to share. The personal information collected is a way to accurately educate the user. The idea of offering education to the user is a seducing approach to data collection and is a tool often used in health and wellness. People want to know more about themselves and feel like they are in control of their lifestyle choices. The interActive City is designed for the public realm, that is why feedback is necessary for the design to succeed. Each interActive Plug-in is designed to help people find the opportunity for activity and if the public is not responding as anticipated, it will learn

from data collection how it can better suit the public realm. The project is designed solely to benefit the public's experience within the built environment, so it is vital that the public realm is involved in the design process. The interActive City is a project that responds to a national concern and intends to mediate the disconnect between humans and decreased activity levels through design. This thesis envisions the future of Toronto's built environment to be playful, interactive, and sociable, an urban fabric that thrives on public participation.

GLOSSARY

Active City

Medical Officer of Health for the City of Toronto in the report Active City Designing for Health, defines an Active City as a "built environment that integrates physical activity into day to day living. This includes accessible recreation facilities, parks, and social spaces for people of all ages and abilities. By making physical activity fundamental to commuting, errands or appointments, an Active City makes healthier choices easier."

Active Intervention

This thesis defines the term active intervention as a design that works to improve activity levels. An active intervention has intentions of motivating, encouraging, or depending on human movement and participation.

Feedback Loop

The term feedback loop is defined in this thesis as a cycle of events within the design of the interActive Plug-in to ensure longevity and practicality over time. The feedback loop of the interActive Plug-in cycles between the design and user participation. The design itself will have technological apparatuses that collect data as people use and interact with the plug-in. As data is collected designers will be able to interpret the information on how well the public is responding to the interActive Plug-in and if or when it needs to be upgraded.

Four-dimensional

Four-dimensional is a term used in this thesis to describe an alternate experience of space determined by technology. It is virtual in nature and exists only when activated

by the user and technology. The fourth dimension is dictated by the technological apparatuses of the interActive Plug-in and creates a fantastical experience for the user.

Healthy City

The World Health Organization defines a healthy city in the "Health Promotion Glossary" publication as a city "that is continually creating and improving those physical and social environments and expanding those community resources which enable people to mutually support each other in performing all the functions of life and developing to their maximum potential."

interActive City

This thesis defines the term interActive city as the resulting vision for a new city of Toronto that integrates physical activity into the urban fabric seamlessly and cohesively. The interActive city is a network of urban plug-ins that insert themselves into the city to bring more opportunities for activity everyday in Toronto.

interActive Plug-in

The term interActive Plug-in is a definition native to this thesis and is defined as a plug-in design built to function in the interActive city. An interActive Plug-in is designed to enhance opportunities for activity within the city and inserts seamlessly into the urban fabric. It combines design with technology to collect data and provide a modern-day experience for the user. Through data collection, the interActive Plug-in can determine when it is succeeding or when it needs to be upgraded based on feedback from the users. Therefore, an interActive Plug-in must be flexible and adaptable overtime to serve the public realm.

Performative Design

This thesis uses this term to convey the idea that performative designs allow the user to determine their interaction with the object or space. The user can interpret the design and respond at their own discretion. When a design is unfamiliar or offers a multiplicity of uses, the user has the opportunity to dictate a unique performance.

Plaza

The Oxford English Dictionary defines the term plaza as "a public square, a marketplace."

Plug-in

Marcela Del Signore and Gernot Riether in "Urban Machines: Public Space in a Digital Culture" define the term plug-in to suggest how an urban design will insert itself into the fabric of the city. The term plug-in describes the act of inserting and removing easily, therefore, a plug-in must be temporary or flexible in its design.

Prescriptive Design

This thesis defines Prescriptive Design as a design that tells the user how to interact or react. It will prescribe certain human behaviours based on familiarity, or its single dimensionality. Prescriptive designs assign structure to a space and create habits within society.

Sedentary Behaviour

In the 2019 ParticipACTION Report Card on Physical Activity for Adults Sedentary behaviour is defined as "any waking activity that uses very little energy while the person is sitting or in a reclined position."

Sedentary Lifestyle

In the 2019 ParticipACTION Report Card on Physical Activity for Adults a Sedentary Lifestyle is determined by the number of steps people achieve per day. The report identifies that 18% of adults 18 to 79 years living in Canada achieve less than 5,000 steps per day, falling within the 'sedentary lifestyle' category"

Urban Machine

Marcela Del Signore and Gernot Riether in "Urban Machines: Public Space in a Digital Culture" define Urban Machines as "interventions in the physical urban public space that function as a system or set of devices, and through information technology, mediate the relationship between the urban environment and the user."

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