

**CONVERTING ABANDONED RAILWAYS TO ACTIVE TRANSPORTATION ROUTES:
CREATING A FRAMEWORK FOR THE CITY OF WINNIPEG, MANITOBA**

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ABSTRACT

The proposed research explored the conversion of existing abandoned railway corridors to Active Transportation (AT) routes. This project was inspired by the work of the “Rails to Trails” movement in North America (Ackelson, 1996).

A maximum of three precedents (two international and one domestic) were studied. Each of the example projects were in cities that have characteristics similar to Winnipeg, Manitoba. These characteristics included size, climate, density, growth and topography. The research aimed to help create a potential framework for the cycling and pedestrian community in Winnipeg. This framework led to improved transportation solutions throughout the city, thus enabling citizens to experience the efficiency, health benefits, and added economic benefits, as well as a greater sense of neighbourhood appreciation – all while using the renewable resource of the abandoned railway.

The majority of the research proposed for this project was drawn from precedents beyond Manitoba. However, the information gathered provided lessons learned for the conversion of abandoned railway corridors to AT routes in Winnipeg itself. Winnipeg could benefit greatly from understanding how other cities have capitalized on these under-utilized resources and taken advantage of existing transportation networks.

The precedent research focused on cyclists and pedestrians, who were commuting to and from work, as well as recreational users. Research explored what these cities have experienced in the development of their specific projects. It examined how stakeholders achieved favourable outcomes as well as addressed unforeseen challenges during the process.

Factors that were considered in the precedent studies included railway company participation, environmental concerns, route connectivity and accessibility, economic

development, project costs, community engagement, funding opportunities, and operations and maintenance. Social and health benefits were other key considerations in the development of this type of infrastructure. As well, how these AT corridors perform in winter cities, where climate and seasonal differences are key considerations, may aid Winnipeg in developing this type of infrastructure.

The study compared each city's characteristics and looked at the different strategies used to gain consensus on how their projects came to fruition. Lessons learned were a key outcome from the research.

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Since arriving home one evening in 2013 with the idea of getting a master's degree, Wendy (my ethical and moral navigator and lifelong partner) has supported me in this effort. At times when I robbed her of nights and weekends together, quitting or giving up was never in her dialogue. Her passion for education and life-long learning has been an inspiration.

Gabrielle and Jake watched as I “did my homework”. I do not want to count the hours I missed with them while reading about city planning, working on assignments and coming home late at night from class. I thank them for their patience. However, I hope I was able to set the example that education has no shelf life or expiration date. Parents, like their children, must maintain curiosity and a desire to learn. My return to university could not have come at a better time in my life - or theirs. This was not only a privilege for me, but possibly a gift for them.

To my trusted advisors on this academic journey. Professor Rae Bridgman, or Rae to me, has worn the hats of lead thesis advisor, professor, colleague and has “graduated” to friend. Her excitement to learn, and her vast number of creative ways to do so, has been a treat. Professor Richard Milgrom, my internal faculty advisor, met me over coffee in 2013 and, when asked if I should start a master's in city planning, his reply was, “Are you sure you really want to do this?” My external thesis advisor, colleague and friend, Doug Corbett, was able to provide multiple perspectives to this shared thesis topic. Yvonne Halden, graduate student advisor, was my administrative calming. Navigating academic administration was at times more difficult for me than the graduate program itself. Yvonne was a tremendous help, resource and calming agent. We often joked about my part-time status and who would cross the finish line first – her retirement or my graduation. I won. Kimberley Massaroni, a longtime friend, educator, and now my executive proofreader, made sure this document went to print with every “i” dotted and every

“t” crossed. Her excitement to perform this grueling task was over the top. In addition, thank you to Jacob Janzen and Eleni Fragkiadaki who were my formatting experts.

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This research would not have been as well-rounded and personal if the information gathered had come solely from articles, books or even actual site visits. The content is richer when a personal element is added. I had the great fortune of talking to people, both across the table and across the globe, and learned from their direct experiences with the abandonment of railway tracks and the development of active transportation routes. I even enjoyed the benefit of experiencing “the ride” itself with a few of them, on the Baana and the Midtown Greenway. Their time and their interest in this project are appreciated and acknowledged. Their familiarity with the subject and personal input has greatly expanded this thesis. My sincere thanks to these participants.

Michael & Abby Mouw, Midtown Greenway Advocates

Otso Kivekäs, Helsinki Cycling Association, Head of the Finland Green Party

Tim Springer, Past Executive Director, Midtown Greenway Coalition

Kirsi Rantama, Architect, City Planning Department, Helsinki

Krista Muurinen, Architect, Past Partner, LOCI Landscape Architects, Helsinki

Leena Buller, Past Project Architect, LOCI Landscape Architects, Helsinki

Doug Duncan, Past Senior Officer, CN Railroad Company

INSPIRATIONAL SUBJECT EXPERTS

During the summer of 2016 I visited the cities of Copenhagen, Oslo, Stockholm and Helsinki. These destinations are amongst the top cycling cities in the world and presented the rare opportunity to connect with cycling's potentially greatest advocates. Prior to this trip, I identified foreign subject experts (list follows) and arranged for meetings to explore my eventual thesis topic. The meeting venues were as varied as the conversations; hotel lobbies, bakeries, coffee shops, and rides along the Baana in Helsinki (a precedent used in this study). One visit even consisted of an early morning swim in one of Copenhagen's canals. What remained consistent, however, were the discussions around "why" and "how" these Scandinavian countries remain so progressive with cycling infrastructure. Some conversations were recorded, others just noted. Similar conversations took place with subject experts in Minneapolis and Winnipeg, who also added to the North American context and provided insight, guidance and spark. They all agreed to participate in my research (when the time presented itself) and were informed that nothing would be formally documented without their consent. Moreover, they all provided the unwritten word and social connection of a mutually enjoyed topic. To these kind people, I owe my thanks for their time and interest.

Foreign Subject Experts

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Stephanie Whitehouse, City of Winnipeg Active Transportation, Winnipeg

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DEDICATION

This thesis is dedicated to my three biggest fans

Wendy, Gabrielle and Jake

Their love and support are hidden between each line in this book

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DEFINITIONS AND KEY WORDS

1. **Abandonment** / As used by railroad companies, “abandon” means to cease operation on a line, or to terminate the line itself. Abandonment is official when the Surface Transportation Board (STB) has issued an order authorizing abandonment of the line AND the railroad has notified the STB that it has consummated the abandonment.
2. **Active Transportation or AT** / Human-powered transport, including bicycles, wheelchairs, in-line skating, skateboards, and walking.
3. **Bike Lane** / An on-street cycling route that can be demonstrated by painted lines, often found in suburbs and downtown cities.
4. **Bike Path** / A bikeway delineated for use by cyclists, sometimes shared with pedestrians and other human-powered transport.
5. **Bike Trail** / Like a Bike Path, a Bike Trail refers to a less groomed thoroughfare often made of dirt or crushed gravel.
6. **Brownfield** / An urban site for potential building development having had previous development on it. A former industrial or commercial site where future use is affected by real or perceived environmental contamination.
7. **CN** / Canadian National Railway
8. **CP** / Canadian Pacific Railroad
9. **Connectivity** / The ability to connect sites, services, and neighbourhoods or districts along a designated bike lane, bike path or bike trail.
10. **Contamination** / Land containing harmful or potentially harmful substances to the environment or to health

11. **Conversion** / The planning and construction process required for changing abandoned railway infrastructure into an Active Transportation (AT) route - being a bike lane, bike path or bike trail.
12. **Corridor or Rail Corridor** / The path of a railroad right-of-way, including the railroad tracks and specified track of land on either side of the tracks
13. **Cyclist** / A person who rides a bicycle.
14. **Cycling Infrastructure** / Cycling infrastructure is interconnected, cycling-specific routes and facilities.
15. **Due Diligence** / The process of evaluating risk and value.
16. **Environmental** / The combination of social and cultural conditions that influence the life of an individual or community.
17. **Ethnography** / The study of people and cultures for the purpose of examining cultural phenomena, involving a researcher's observation of a group from the subject's point of view. A graphic and written description of the culture of a group is considered an ethnography.
18. **Infrastructure** / The basic facilities and structures (e.g. power supply, and roads) required for the operation of a society or enterprise.
19. **Participants (or Informants)** / The individuals who were interviewed, using semi - structured questions, as part of this research.
20. **Pedestrian** / A person walking along a road or in a developed area.
21. **Planning** / The act or process of making or carrying out plans.
22. **Project** / This task or problem being solved usually by a group, can be an arrangement, design, master plan, program, scheme, strategy, or system.

23. **Railbanking** / Condition allowing a railroad to “bank” a corridor for future rail use if necessary. During the interim, alternative trail use is a viable option.
24. **Rail Line** / The main route on a railway. (A Loop-line is a railway branch line that separates from the trunk line and later rejoins it.)
25. **Railroad** (Railroad Company) / The entity that operates a railroad track or trains. Such a company can either be private or public.
26. **Rails to Trails** / The conversion of disused railway tracks into multi-use paths, for any of the following: walking, cycling, horse riding, or snowmobiling.
27. **Railway Conversion** / For the purpose of this research it means the entire procedure of railway abandonment, political approval, design and construction and commencement of the project (precedent or case study).
28. **Rail-with-Trail** / A trail on or directly adjacent to an active railroad corridor.
29. **Remediation** / The action of remedying something, of reversing or stopping environmental damage.
30. **Right-of-way** / The legal right, established by usage or grant, to pass along a specific route through grounds or property belonging to another.
31. **Route or Cycling Route** / A road, street or pathway marked as a “bicycle route”.
32. **STB** / Surface Transportation Board
33. **Winter City** / For the purposes of this study, the designation of a winter city is used to describe an urban environment where there are four distinct seasons, one of which includes a long, cold and snowy winter. Examples of winter cities mentioned in this report include Winnipeg, Manitoba; Minneapolis, Minnesota and Helsinki, Finland.

CHAPTER 1

INTRODUCTION

PROBLEM STATEMENT

Railroads have been an integral part of many countries' transportation systems, including Canada's. Their tracks have created opportunity to move people and freight from the most rural parts of the country to the most densely populated cities. Most tracks were laid down when urban fabrics were less dense than they are today. Were the rails originally built around the city perimeter, or were they built through the city center and the city eventually grew to envelop the tracks (Duncan, 2018)? Regardless of the answer, today many of these rail networks are seldom used or they are completely abandoned. These easements are owned and maintained by the railroad companies. By the mere fact that real estate grew up around the easements, these empty strips of land also hold high price tags. Significantly, the seldom used or abandoned routes travel through the city without the interruption of traffic lights, automobile congestion or current building.

As cities experience population growth, automobile traffic increases and the conflict between pedestrian and automobile becomes more heightened. City dwellers express an interest in active transportation for multiple reasons, such as improved health, maintaining a sustainable environment, and economic benefit. However, reasons for not participating in active transportation are often similar. Riding or walking alongside automobiles and buses is nerve-racking and dangerous. Moreover, these activities are rendered more difficult in the winter months with the snow and ice. Connecting between two points, navigating directions, crossing

intersections, and too many starts and stops are just not worth the effort. These excuses eventually become deal-breakers and citizens default to using the car or taking the bus.

The question being asked and explored in this thesis is, "Why not take advantage of these ready-made, organic paths which are going unused?" In today's densely populated cities it would be next to impossible to create these networks from scratch. In most cases the land would not be available. The cost to move or expropriate existing buildings, install required utilities (which in most cases already exist) would not be feasible. There is life along these existing ribbons of steel, but the landscape often looks desolate and uninviting. People walk their dogs, but with the look of loneliness. This condition holds true in many North American cities, and the prospect of repurposing this unused land is an opportunity for the future health and well-being of these cities.

This thesis explores examples of two cities that grasped this opportunity and how, as a result, their citizens benefited. The cities of Minneapolis and Helsinki took their abandoned rails, which were unsafe, dangerous and unsightly, and converted them into urban jewels. The Midtown Greenway and the Baana have become places which promote community, health and economic benefit. These attributes are required for the sustainability of any city.

KEY RESEARCH QUESTIONS

1. What interesting winter city precedents in North America and Europe feature the conversion of abandoned railway infrastructure to an Active Transportation route?
2. What priorities and methods drove the planning process for these Active Transportation routes in each precedent city?
3. What lessons can be learned from each city's development process that may apply to the Winnipeg context?

RESEARCH FIELD

Two international cities have been identified in this research, both featuring the general characteristics of abandoned rail conversion to active transportation corridors. Re-use of rail infrastructure, community appetite for urban improvement, similar urban context, and comparable climates will be the primary focus.

Railroads have been an integral part of the development of major cities. Routes were created through the city to access various districts and milestones within a city. Warehouse and manufacturing facilities made up many of these access points for the railway corridors. As cities developed, and these industry functions moved outward to where land was more available and more affordable, rail corridors were less used and even abandoned. The warehouse and manufacturing buildings and supporting infrastructure slowly converted and gentrified into popular residential and retail areas.

When applicable, references to other cities and examples are also incorporated. Although the two precedents attract cyclists and pedestrians for many reasons, they share similar challenges that test a person's will to use this mode of transportation. The varying climate in these cities often discourages users. However, despite their challenging weather conditions, they remain high on the list of the world's most cycle-friendly cities. What attributes make it attractive to ride and walk in these cities?

CASE STUDIES

The leading precedent research used in this study features Minneapolis (U.S.) and Helsinki (Finland). The Midtown Greenway (Minneapolis) and the Baana (Helsinki) were abandoned below-grade level railway tracks that, over time, were repurposed to create AT routes through both cities.

In New York, the Highline was an abandoned elevated railway from the 1930's which now is a major pedestrian thoroughfare. The Highline, although not used as a leading precedent study, is also a prime example of how a repurposed transportation artery can create AT opportunities, as well as spur development, create economic growth and connect neighbourhoods along its path.

In Washington DC, the Met Branch Trail, focuses on accessibility to services. The route is adjacent to 16 schools within a half mile, five retail centers, two regional retail centers, seven metro transit stations and direct access to Union Station.

Two precedents were studied in Winnipeg as part of this research. The Northeast Pioneers Greenway was originally the Canadian Pacific Railroad constructed in 1878. It was the conversion of the former Marconi Spur rail line which now is a 6.5 km traffic-free route across the city. The Assiniboine Parkway was originally the Burlington Northern Railway which today remains an active rail which shares an adjacent bike and pedestrian path.

SIGNIFICANCE OF PROPOSED PROJECT / CONTRIBUTIONS

By creating safe and sustainable AT routes, one can explore the city in extraordinary ways. Cyclists and pedestrians can begin to learn about their city from a different modal perspective. Redirecting cyclists through alternative, more pleasurable routes may result in increased ridership and more desirable bike paths. Alternative routes using abandoned railway corridors may avoid high density areas of the city, resulting in the reduction of new and costly bicycle infrastructure.

Winnipeg's Exchange would be an example of one such district. However, a component of this infrastructure, the railway route, was never transformed. The railroad ties and steel rail may have disappeared, but the right of way may still exist. These access routes now have the potential to serve as a network, providing cyclists and pedestrians an alternate and dynamic mode of transportation through the city.

Many cyclists and pedestrians are deterred by city streets because of the constant stream of passing cars and buses, resulting in limited clearances. Others sometimes see the conditions of the road, sidewalk or intersections as obstacles. Crossing streets at intersections also adds confusion as to what rules apply to the walker, cyclist, car or bus. Bob Giordano, with the Missoula Institute for Sustainable Transportation, says that intersections, in particular, are very tricky, and major reconsideration of signaling might be necessary to make this a viable model (Arvidson, 2008). In his book, *Bicycle Transportation*, John Forester says "Bike lanes, bikeways, and side paths, make it more complex for everyone to operate properly, especially at intersections" (Forester, 1977).

The ability to successfully reach a desired destination is the other critical piece. When an active user is uncertain about their route it may lead to a decision not to ride at all. To have

relatively easy access to an AT route may eliminate many of these urban pitfalls. Providing citizens easy access to an uninterrupted transportation artery connecting various parts of the city would be a significant benefit. By allowing participants to travel freely, with access to restaurants, shops, parks, community centers and libraries helps promote route use as a transportation alternative (Arvidson, 2008).

The health benefits to younger cyclists are a consideration. This journey provides the most common opportunity for children to engage in regular physical activity and is the most shared form of travel for Canadian children (Binns, 2009). Considering today's generation of school children are experiencing unprecedented rates of obesity and physical inactivity, there are a variety of other benefits. The location of sixteen schools adjacent to the Met Branch Trail in Washington D.C was a planning consideration to promote school children to ride to school (Hare, 1998). Walking and bicycling to school also provides important opportunities for children to explore their neighbourhood, develop responsibility, and foster independence (Adams & Hillman 1995).

The re-purposing of valuable, unused urban right-of-ways would stimulate economic development along its path. Users of converted railway corridors spend money on products and services along these routes. The popular Freewheel Midtown Bike Center along Minneapolis' Midtown Greenway is only accessible by users of the route and offers full services. Other food stores, hotels and tourist locations also reported an increase in business. Studies have shown that real estate adjacent to these routes often increases in value (Ciabotti, Goodrich, Morris & Winslow, 2004).

BIASES, ASSUMPTIONS AND LIMITATIONS

I have been a fan of cycling for almost my entire life. As a child I spent countless hours on my bicycle. As a student and as a young adult I rode to classes and rode to work. While living in the United States and now in Canada, I have participated in numerous recreational and charity bike rides. I rode in two charity rides with my brother, Steve, each nine days and 560 miles along the California coast, raising money for arthritis. Since moving to Winnipeg in 2009, I have participated every year in the well-known Multiple Sclerosis (MS) charity rides with my son, Jake, raising thousands of dollars. In addition, my entire family, Wendy, Gabrielle and Jake, have supported the annual Cycle on Life event for the Riverview Health Centre. In 2014 I began chairing this event, where over 300 cyclists dust off their bikes the first Sunday in June and raise in excess of \$150,000. The underlying concept and message is that the simple invention of the bicycle has been the tool for generating millions of dollars for fundraising. I have developed friendships with a number of cyclists through my personal and professional involvement with these events. None of these “cycling colleagues” participated in my research for this project.

Recreationally I cycle year-round, in every weather condition possible and on every ground surface available; pavement, dirt and even ice on Winnipeg’s Red River Mutual Trail. I own four bikes, designed for all types of cycling, and I use them all.

As a professional bias within my role as an architect, I have always had a concern for both the environment and sustainability. My current studies in city planning have taken my interest with healthy buildings and expanded it to the health of cities and their occupants. Many of these occupants are cyclists. This combination of architect and cyclist naturally invites a bias toward the topic of my research. When selecting interview informants, my goal was to select individuals who did not hold strong opinions solely toward cycling and the expansion of cycling

infrastructure. However, this goal proved to be somewhat impossible and was not entirely achieved.

Assumptions during this research were related to people's attitudes toward active transportation and winter cycling. Certain people who were casually approached for conversation often appeared unenthusiastic about the topic. Therefore, I assumed they were against active transportation and, instead, advocates for automobiles and busses for their alternate mobility needs.

Limitations with this research relate to the number of examples that were studied as part of this project. In North America and Scandinavia there exists further examples with a wide range of characteristics. These untapped case studies have not been explored, nor have the people responsible for their development been interviewed. Distance was also a limitation to the research. Minneapolis and Helsinki are both a far distance from Winnipeg, and the ability to physically visit and experience the two active transportation examples posed a challenge. It was intended that a railroad executive from Helsinki would be interviewed to gain information on Finish challenges of rail conversion. This individual would have represented the "Player" role but time became a constraint in accessing this person. Brian Shekleton and Peter McLaughlin, both with Hennepin County in Minneapolis, were introduced and offered their perspective as "Implementers" of the Greenway. However, due to heavy political commitments, interviews could not be scheduled. With my informants from Helsinki, the language barrier was a limitation. The accent or limited vocabulary made it sometimes difficult to understand the true meaning of their spoken words. Their editing of transcripts and email communication had to be carefully read and/or interpreted.

OVERVIEW

This document is organized into six chapters. In Chapter One the problem statement is introduced, followed by three key research questions. The research field then describes the two leading precedent studies, the Baana in Helsinki and the Midtown Greenway in Minneapolis, as well as four minor precedents. This chapter ends with the significance of this proposed project and its contributions, as well as biases, assumptions and limitations.

Chapter Two compiles a synthesis of literature on the many characteristics, challenges, benefits and risks associated with the removal of abandoned rails and the future of an active transportation corridor. Specific topics in this chapter include the history of bike paths, challenges between the bicycles and other transportation modes, sustainability, health benefits, social and community attributes, economic and real estate development, safety features, accessibility and connectivity, and funding. These are all examined with the conversion to active transportation being the basis of the study.

Chapter Three describes the specifics of the research methods. There are four categories of informants: User, Founder, Implementor and Player. These titles describe four key roles in the rail conversion process. The intent was for both precedent projects to have informants in all four categories. Each informant was presented with semi-structured questions representing the various topics described in Chapter Four. Defining strengths, weaknesses and opportunities was the goal for this segment of the research.

Chapter Four explores the literature around the leading precedents and the characteristics which make up these projects. Chapter Five then presents personal insight, using semi-structured interviews, from those who participated in the creation of these rail conversions.

Chapter Six ends the research project with lessons learned from the two primary precedent case studies, as well as recommendations that can be made to the City of Winnipeg for the development of this type of cycling infrastructure. Assessment of the interviews, including questions for further research, is covered in this chapter. This final chapter concludes with a summary of the project and a personal reflection.

References and all supporting information, including semi-structured interview questions, informed consent forms, images and tables, can be found in the appendices.

SUMMARY

Winnipeg has no shortage of existing railways. As the city has grown the railroad infrastructure has been enveloped by buildings and roads. Where at one time these tracks may have traveled across empty prairie, today they are transportation arteries which, if converted or shared, could provide efficient access for active transportation. By identifying problems, asking key research questions, and exploring successful precedents, Winnipeg and other similar cities could benefit.

CHAPTER 2

LITERATURE REVIEW / HISTORY AND PRECEDENTS

LITERATURE REVIEW

This section will highlight the many number of issues that can influence the conversion of an abandoned rail to an AT trail. After understanding the complexity of each individual task, process and goal, one can realize that the construction of the physical route, the removal of the rail *and* the placement of asphalt, ironically might require the least effort. Each of the following subjects in this section becomes its own project with its own schedule, budget and list of stakeholders. Conversely, as separate as these sub-projects might appear, they are all connected and rely on each other's outcome in order to gain the planned success of the overall project.

Certain questions will begin to reveal a starting point in the planning process. How do other cities go about creating practical, affordable, easily maintained AT trails and infrastructure to support cyclists and pedestrians? What is important to citizens? What community concerns relate to economic development, and how do these paths affect commerce? Before exploring these questions, one must understand the history of this infrastructure type.

THE EARLY DAYS AND THE HISTORY OF BIKE PATHS

The first bicycle paths were constructed at the end of the nineteenth century, primarily in the United States (U.S.) and the United Kingdom (UK). Cycling was transforming from a hobby to an established form of transportation. The Netherlands introduced the bicycle in 1870. By 1920 it was the most popular mode of transportation, accounting for almost 75% of the population's means of transportation (HCI, 2016). The first most notable North American examples of bike paths were the Ocean Parkway in Brooklyn, New York in 1896 (Figures 4, 5, 6, Appendix D) and the California Veloway Cycle-Way in Pasadena in 1897 (Figures 1, 2, 3, 14, Appendix D). In Brooklyn the pedestrian way was simply split to accommodate bicycles. In Pasadena it was a newly constructed wood-frame nine-mile corridor built connecting Pasadena and Los Angeles.

Brooklyn's passion with cycling dates back to the nineteenth century. On June 15, 1894, Ocean Parkway became the first street in the United States to have a designated bike lane. The nearly five-mile stretch of road was designed by Frederick Law Olmsted and Calvert Vaux, the landscape architects behind Central Park and Prospect Park. The path was initially designed to be one of four spokes originating at Prospect Park and spanning across the borough. Today the road, although not demonstrating its original plan, runs parallel to Coney Island Avenue and remains an active conduit out to the Atlantic Ocean.

Bicycle travel has played a historic role in transportation. Before the invention of the automobile, the League of American Wheelmen (LAW) promoted improved travel ways (Forester, J., 2018). Formed in 1880, the beginning of the cycling age, LAW made it possible for American cyclists to coordinate their activities and represent their interests in cycling to the government and the public-at-large. The bicycle had become the King of the Road (Forester, J.,

2018). Between walking and the horse, in its inventors' vision, the bicycle was a cheaper and faster alternative. Trains, albeit faster, constrained travelers by limiting them to existing train schedules and railway locations. The invention of the bicycle was revolutionary, becoming the first practical vehicle on the highway since the invention of the horse-drawn cart (Forester, J., 2018).

For the bicycle to gain legitimacy as a roadway vehicle, new laws were introduced requiring bicycles to be operated as vehicles on the road, away from pedestrians (Forester, J., 2018). Pedestrian walkways were built in many cities to protect those on foot from the mud and dirt, kicked up by horses and wheels (Forester, J., 2018). In the early 1900s, (refer to "The Early Days"), the League of American Wheelmen ensured that lawful, competent cyclists exercised the rights and duties of vehicle drivers (Forester, J., 2018).

With the advent of the automobile around this time, there began the conflict between automobiles and bicycles. In Germany the powerful car lobbies began efforts to ban cyclists from the road, "so as to improve the convenience of motoring", and in the UK the cycling lobby was calling for the construction of special "motor roads" (HCI, 2016). In 1926 the Cyclists' Touring Club, a UK-based group that advocated for good roads, began pushing for the development of cycling paths to be built on each side of a road for "the exclusive use of cyclists" (Jones, 2001). Cyclists would be taxed, and the revenue used for the provision of these tracks. In 1934 the first dedicated roadside optional cycle track was built as an experiment for the Ministry of Transport. The project's intent was that "the prospect of cycling in comfort as well as safety would be appreciated by most motorists themselves" (Jones, 2001). These efforts did not show any real development until the late 1960s, and only then in some Nordic countries. Separate cycle track systems made little progress except in new towns. Sweden had developed guidelines

on urban planning and stressed that non-motorized traffic must be segregated from motorized traffic wherever possible.

In 1862, Charles Terrot founded a machinery factory in Germany and in 1890 started building bicycles in Dijon. In 1902 the Dijon factory made its first motorcycle. The company's early advertising, in the form of large-scale posters, artistically portrayed the conflict between "cycles and automobiles" and their struggle with the railroad (Figures 10a, 10b, 11a, Appendix D). Paintings implied the threat of speeding trains leaving a tunnel and heading for a cyclist. Another poster possibly demonstrates a solution where the motorcyclist is riding on a separated path, safe from the train. The rider is waving, which might make someone think he is content and safely detached from danger. Although there is no written evidence substantiating these advertising messages, hundreds of visuals might support this argument (Tamagno. (n.d.).

In Finland, as well as in other Scandinavian countries, bike paths grew more organically due to the long history of cycling as a way of life. For decades Helsinki citizens from all income and education groups have traveled by bicycle. Before the development of the Baana network, this historic demand for cycling created over 1,200 km older cycling paths (HBA, 2015). However, bicycle use declined from the post-war period up to about 1975 as automobile use increased and commuting distances increased. As pressure from the automobile continued to persist into the 1960s, there was increased removal of many cycle tracks in European towns to accommodate for more car parking. With the oil crisis in 1973 and an all-time peak in traffic deaths, local and national policy in some European countries such as the Netherlands and Denmark began to pay more attention to cycling.

It was also during this period that traffic deaths, especially among children, peaked dramatically. For instance, as many as 500 children were recorded as fatalities in car accidents in

a single year in the Netherlands (Wagenbuur, 2013). This focus on children, considered to be the most vulnerable of road users, formed the mass protest movement, *Stop de Kindermoord*; which literally means 'Stop the Child Murder' in Dutch (Figures 7, 8, 9, Appendix D). The success of this movement would change the face of the nation's infrastructure. As the bicycle became viewed as critical in promoting safety and livability, Dutch government policy began to restrict motor vehicle use in its towns and cities and promote other forms of transport, starting with the bicycle (Wagenbuur, 2013).

This pressure eventually led to increased bicycle facilities, specifically the separation of cycle tracks, which also meant taking road space away from motor vehicles. Government soon followed with subsidies for constructing bike paths alongside secondary and minor roads. Two notable European examples were the 1970 Master Plan for Milton Keynes in the UK, and the Amsterdam's Traffic Circulation Plan of 1978 (HCI, 2016). Both these documents gave priority to segregated cycle/pedestrian paths and dedicated bicycle facilities. Until this time, Helsinki had many old routes that were, and still are, shared by both pedestrians and cyclists.

BICYCLES AS LEGITIMATE AND SUSTAINABLE TRANSPORTATION

Bicycling is recognized by transportation officials throughout the United States as an important transportation mode. A policy statement, released in early 2010 by the U.S. Department of Transportation, emphasized the need and requirements to integrate bicycling and walking into transportation systems. More than a quarter of the population in the United States over the age of 16 rides bicycles (Forester, 2018). Nationwide, people are recognizing the convenience, energy efficiency, cost effectiveness, health benefits, economic development, and environmental advantages of bicycling (Forester, 2018). Local, state, and federal agencies are responding to the increased use of bicycles by implementing a wide variety of bicycle-related projects and programs.

The bicycle has been recognized as a legitimate, sustainable transportation mode (Matwie & Morrall, 2001). However, the planning and construction of infrastructure designed for these sustainable patterns of transportation will need to be flexible and will require future proofing (Cox, 2008). As people use different forms of transport other than the automobile, and as they change their patterns and practices, the legitimacy of this modal shift can be determined by the number of trips taken (Cox, 2008).

The U.S. example cites the State of California, and their collaboration with the University of California in Los Angeles, creating what would eventually become the Association of American State Highway and Transportation Officials Guide for Bicycle Facilities (USDOT, 2012). Could there be taxes imposed on the commercial tenants where paths are located to help fund construction? Would this in turn create a higher income stream for those businesses? Examples from New York's Times Square can demonstrate where business along bike lanes has improved.

Facilities need to provide cyclists with a high level of safety. Road safety audits have been recognized as a fundamental part of transportation planning, design, construction and maintenance. Audits have been conducted in countries such as Great Britain, Australia and New Zealand for some time, but the concept is relatively new in Canada. One in-depth case study in Calgary, Alberta was undertaken to determine the safety of their existing bicycle facilities (Matwie & Morrall, 2001). The bicycle is the most vulnerable when compared to motor vehicles using the same roadway. A true bikeway safety audit, when compared to a roadway audit, is that the bikeway audit is conducted from the perspective of the cyclist only (Matwie & Morrall, 2001). Eventually, on and off-street bikeway checklists were created. In Shanghai, considered to be one of the greatest cycling cities in the world, the biggest threat to the safety of cyclists is the chaos which prevails at road junctions throughout the city. Poor accommodation of conflicting movements, and poor discipline amongst drivers, prevent the efficient operation of the junction (de Boom, Walker & Goldup, 2001).

Cycling is a healthy, low cost form of travel that is available to most people spanning every age. It effectively transports people from place to place, hence it is one of the most energy-efficient modes of transport, emitting no pollution, requiring no external energy and promoting efficient land use. As such, it is without harmful environmental impacts. This mode of transport assists communities in addressing issues of traffic congestion, climate change, and healthy living. Surveys show that people support active transportation, bicycling, and walking, because it makes neighbourhoods safer and friendlier, saves on transportation costs, provides a routine for physical activity, and reduces transportation-related emissions and noise. Active transportation increases flexibility and mobility options, especially for short-distance trips. Bicycle

transportation is particularly effective in combination with other transit systems, when used together, and expands the range of other modes (Forester, J., 2018).

A goal of the League of American Wheelmen (refer to “The Early Days”) was to get the bicycle recognized as a legitimate roadway vehicle. Because pedestrians were more upset by mud and dirt, walkways had been built in many cities. It was rapidly discovered that all wheeled vehicles operated in one way, while pedestrians operated in a different way. Therefore, it became law that bicycles should be operated on the roadway as vehicles and should stay away from pedestrians and their facilities. Thus, one prime purpose of the League of American Wheelmen was to ensure that lawful, competent cyclists have the rights and the duties of drivers of vehicles (Forester, J., 2018).

Cycling provides solutions to many different concerns and challenges that communities throughout the United States face. The bicycle is an appropriate vehicle for many trips and can play a significant role in sustainable land-use planning, transportation, recreation, and economic development. Like other users of the transportation system, cyclists need access to jobs, goods and services, recreational activities, and other destinations. Active transportation improvements can provide an opportunity to enhance the safety and convenience of bicycle travel (Forester, J., 2018).

CAN TRACKS SOLVE THE PROBLEM?

With the advent of the automobile around this time there began the conflict between automobiles and bicycles. In Germany the powerful car lobbies began efforts to ban cyclists from the road, “so as to improve the convenience of motoring” and in the UK the cycling lobby was calling for the construction of special “motor roads” (HCI, 2016). In 1926 the Cyclists’ Touring Club, a UK-based group that advocated for good roads, began pushing for the development of cycling paths to be built on each side of a road for “the exclusive use of cyclists” (Jones, 2001). Cyclists would be taxed and the revenue used for the provision of these tracks. In 1934 the first dedicated roadside optional cycle track was built as an experiment for the Ministry of Transport. The project’s intent was that “the prospect of cycling in comfort as well as safety would be appreciated by most motorists themselves” (Jones, 2001). These efforts did not show any real development until the late 1960s and only then in some Nordic countries. Separate cycle track systems made little progress except in new towns. Sweden had developed guidelines on urban planning and stressed that non-motorized traffic must be segregated from motorized traffic wherever possible.

The pressures of the automobile persisted into the 1960s, with the removal of numerous cycle tracks in many European towns to accommodate for more car parking. In the 1970s, however, there was a resurgence in some European countries, such as the Netherlands and Denmark, due to increased traffic congestion and the oil embargo. It was also during this period that traffic deaths, especially among children who were the most vulnerable road users, peaked dramatically. Local and national policy began to pay more attention to cycling. Two notable European examples were the 1970 Master Plan for Milton Keynes in the UK and the

Amsterdam's Traffic Circulation Plan of 1978 (HCI, 2016). Both these documents gave priority to segregated cycle/pedestrian paths and dedicated bicycle facilities.

Choosing Active Transportation - Determining Factors

The underlying question is whether cyclists and pedestrians will choose alternate transportation routes based on personal lifestyle decisions or policy. Creating an AT framework might provide a bridge to make riders and pedestrians feel safer and more confident about this choice of transportation. In the UK provision of infrastructures to enable safer or more attractive cycling conditions often move cyclists off roads onto parallel paths, creating entirely segregated facilities. This frequently results in cyclists being integrated or mixed with pedestrians. (Cox, 2008). In Germany, there have been conflicting views since the early 1970s regarding the substantial growth of cycling in the country (Maddox, 2001). Some German experts give planning and public policy less credit than citizens personally responding to urban congestion, the oil prices in the 1970s, environmental awareness and urban form (Maddox, 2001).

Bicycle safety seems to be the most significant concern for cyclists in the urban context. The automobile continues to be the largest threat and reason for cyclists to choose not to ride. City master plans, regardless of increased cycling popularity, strive to creatively separate these two modes of transportation. Protected bikeways, bike lanes, shared lanes and bike boulevards are four overarching methods of bicycle access the City of Minneapolis identifies in their 2015 Bicycle Master Plan. The Plan further breaks down smaller infrastructure components which are also safety-driven (City of Minneapolis, 2015). The City will consider a variety of criteria when implementing protected bikeways, as described in the following table (Minneapolis Bicycle Master Plan, 2015).

Table 1: Project Selection / Criteria

Transportation Criteria

- High bicycle demand
- High traffic conflict
- Good network integration

Equity Criteria

- Racial/ethnic populations (census data)
- Economic Areas of Concentrated Poverty
- Economic Areas of Racially Concentrated Poverty

Other Considerations

- Routes identified in the overall Bicycle Master Plan
- Street reconstruction projects already programmed
- Linkages to other projects (e.g. Hennepin County and Mn/DOT)
- Projects must be definable – termini make sense
- Project can't be too small or inefficient
- Other unique circumstances

History of Rails to Trails Movement (Background)

In the early 1980s the rapid abandonment of railroad corridors and the dismantling of this valuable network was alarming and, in 1983, forced the US Congress to pass an amendment to the National Trails Systems Act. This law allowed for unwanted rail lines to be “rail-banked,” or set aside for use in the future as transportation corridors, while being used as trails in the interim (Ciabotti, Goodrich, Morris & Winslow, 2004).

The Rails-to-Trails concept organically began in the 1960s, with no credit given to an inventor or founder for this movement. The formal introduction occurred with the founding of the Rails-to-Trails Conservancy formed in 1986 by Peter Harnik and David Burwell. The organization is an American nonprofit based in Washington, D.C. that works with communities to preserve unused rail corridors by transforming them into rail trails. In North America there were less than 200 rail-trails by the mid-1980s. By 1996 there were over 800 rail-trails stretching 12,585 miles, with over 100 million users per year (Ciabotti, Goodrich, Morris & Winslow, 2004). Because the rail corridors are flat, or even contain the slightest grade, they attract cyclists, hikers, walkers, runners, skaters, cross-country skiers and people with disabilities. The trails have created transportation conduits between neighbourhoods and workplaces, congested urban areas and open spaces. Environmental benefits include historical recycling, land conversion, wildlife habitat and historical preservation, non-motorized transportation, and physical fitness. The Rails-to-Trails movement has not only served independent communities but has enhanced existing recreation resources by linking neighbourhoods and schools to parks, waterfronts, recreation centers and other facilities. Recreational facilities, economic renewal and growth, increased property values, healthy living, and connecting people and communities will be other factors identified in the case studies contained in this paper.

Active vs. Inactive or Abandoned Rails

Not all rail corridors are abandoned, although their appearance and sense of inactivity would imply otherwise. The first step in the development of this repurposing exercise is to determine the corridor status and if the rail line is “active” or “abandoned.” This information is typically found through federal Surface Transportation Boards.

A line can be active whether the railroad at the time is profitable or not. It can also be considered active if a train passes once an hour or once a year. Although the rail might appear relinquished, it can be considered active during the entire time abandonment proceedings are taking place, sometimes years (Ackelson, Allen & Iurino, 1996).

Active rail lines may become candidates for abandonment in a very short time. The relocation of a manufacturing plant that had been previously served by a particular rail line may be enough to generate an abandonment application. The decline of service to a certain area may trigger abandonment discussions with the railroad company. Inactive rail lines, which have usually remained under the ownership of the railroad company, still have tracks and ties in place but no longer have trains operating on a regular basis. These examples are good candidates for abandonment, and it is often a requirement that a railroad company notify the local community when it intends to abandon a corridor.

Abandoned corridors generally no longer have tracks and ties. However, the caution is that the removal of these elements by the railroad does not necessarily constitute abandonment (Ackelson, Allen & Iurino, 1996). The main reason a railroad decides to abandon a line is a lack of profitability. An unprofitable line has one or more of the following characteristics: the line carries little traffic, the line is paralleled by a better route, high maintenance contributed to by

frequent flooding or numerous grade crossings or, finally, poor track conditions or other structural problems (Figure 115, Appendix D).

In North America a line is technically abandoned when the railroad has applied to the Surface Transportation Board (STB) for abandonment authorization and the STB has issued an order authorizing abandonment of the line. In the early 1980s the rapid abandonment of railroad corridors and the dismantling of this valuable network was alarming and, in 1983, forced the US Congress to pass an amendment to the National Trails Systems Act. This law allowed for unwanted rail lines to be “railbanked,” or set aside for use in the future as transportation corridors, while being used as trails in the interim (Ciabotti, Goodrich, Morris & Winslow, 2004).

Environmental Remediation

Organizations interested in purchasing and converting railway corridors must be concerned with evaluating the risk of ground contamination associated with a line. Possible hazards must be identified and a plan implemented to identify possible environmental hazards.

The type and extent of contamination along rail corridors fall into two general categories: residual contamination found along any length of a corridor, and contamination associated with industrial uses alongside the rail.

Along the rail, some risks include wood-treated chemicals in the railroad ties, spilled or leaked liquids along the line, removal of transformers and capacitors used in train controls and, finally, the residue deposit from fossil fuels to power years of train mobility. Industrial uses adjacent to a line which add contamination can be repairs and general maintenance, and manufacturing facilities that require loading and off-loading where contaminants have spread onto the rail bed. To determine the extent of contamination on or near the proposed rail due diligence must be conducted, most often by means of Phase I and Phase II Assessments. A Phase I Assessment uses research from the property's history along with visual inspection. If the results from a Phase I Assessment present a high risk, a Phase II Assessment is usually required. This would include testing of water, air and soils samples and extensive site investigation (Ciabotti, Goodrich, Morris & Winslow, 2004).

Communities developing rail-trails potentially have to address known, potential or perceived contamination along a corridor. Contamination does not necessarily prevent the development of the rail-trails, as long as appropriate steps are taken to ensure the safety to trail users. Communities that wish to convert rail corridors into multi-use trails seek to answer the following questions:

- What potential contamination may be encountered along rail lines?
- What steps need to be taken when contamination is found?
- What are the state and federal resources available to assist communities as they deal with legal, funding, testing, remediation and construction issues?

Social Issues

Along with the benefits of the 5.7-mile Greenway, and the more than 5,000 people it serves on peak days, comes the other reality of the several dozen homeless who take up residence under the bridges and overpasses (Brandt, 2015). This social problem did not arrive when rail disappeared and was replaced with cyclists and pedestrians. Transients have been living in the Greenway's trench at least as far back as the Depression. It's secluded, and freight trains could be hopped there (Figures 45, 46, Appendix D). But trains have long since stopped running on most of the Greenway's roughly 6 miles (Brandt, 2015). Bike patrol volunteers pay close attention to these areas of the corridor, especially after dark. "These people are not harming Greenway users. They're keeping to themselves. It's more of an aesthetic thing," said Soren Jensen, executive director of the greenway's coalition. This can be a health issue. City crews must spray under bridge abutments along the Greenway, cleaning away human fecal matter along with bird droppings and road salt (Brandt, 2015). Litter and drug paraphernalia also add to the landscape.

CHAPTER 3

RESEARCH METHODS

The research conducted for this project was gathered using two methods. Precedent research (case studies) as well as semi-structured interviews with key subject experts. The interview effort focused on identifying a variety of stakeholders who had different roles and responsibilities on the project and at various phases. The intent was to do this for both the Midtown Greenway and the Baana. From the strengths, weaknesses, opportunities and threats, identified in this research we can better understand the project. The assessment of the interview process will help validate the findings.

PRECEDENT (CASE STUDY) RESEARCH

Reasoning from past experience is widely recognized as a cognitive phenomenon in design (Oxman, 1996). The precedent study exercise was a predecessor to the analysis. Descriptors, which feature the evaluation of the results, including an explanation of how the solution principle affected the design, proved to be one way to present the material (Oxman, 1996).

For precedent research, two projects in cities with similar characteristics to those of Winnipeg were identified. The Midtown Greenway in Minneapolis, Minnesota and the Baana in Helsinki, Finland were chosen. Both regions have similar climates and are often considered “winter cities”. In addition to these primary examples, other secondary cities were studied, with the understanding that these smaller examples would recognize certain elements to assist with the research. The High Line in New York City (Figures 161, 162, Appendix D) and the Met Branch Trail in Washington DC (Figure 146, Appendix D) represent these secondary precedents.

During the primary cities' early development, railways were carved through the city centre serving industrial and manufacturing facilities. In certain cases, the railways may have been there first, and the city grew up around them (Duncan, 2018). As businesses relocated to outside the city, these tracks were abandoned. Other similarities include many active transportation advocates, as well as a desire from urban dwellers to address environmental and health benefits. Historical data from the precedent research reports number of users, economic development along the route, costs of construction and operations, seasonal usage, future planned growth, and community involvement. The similar projects in other cities were discussed, but not used as the primary precedent examples.

SEMI - STRUCTURED INTERVIEWS

For the interview process, subject experts were identified and interview questions were drafted. In each of the precedent cities, specific subject experts were identified and interviews were conducted. Participants were first contacted by email and then with a formal follow-up Letter of Introduction (See Appendix A Semi-Structured Interview Questions) explaining the research project and anticipated results. Once the invitation was accepted, University Ethics Board Consent Forms (See Appendix B Informed Consent Forms) were distributed, signed and returned prior to any interviews taking place. Prior to each interview the drafted interview questions were given to each participant, which not only offered each participant an opportunity to prepare but provided a guide or outline for the conversation (See Appendix A, Semi-Structured Interview Questions). Interviews were conducted using video conferencing software called GoTo Meeting.

These individuals represented key stakeholder categories that were critical in the development of each city's project. Although interviews were semi-structured, comparing responses to the same questions, and referring to different time periods in the planning process, should be compared (Christensen, 2015). This comparison could uncover not only how physical attributes affected the project, but also how time was a factor.

One interview stakeholder category featured the perspective of the “**User**”. A commuter and recreational cyclist, runner, walker - with or without young children - will speak to route choice, desirable destinations and other AT priorities.

A second interview stakeholder category featured individuals representing the “**Founder**” of the project. This person might be someone from an activist group or cycling organization that may have been involved in initial lobbying for the project. Pertinent

information gathered here might address community engagement, funding opportunities and political will.

A third interview stakeholder category featured individuals who were active in the nuts and bolts and considered to be the “**Implementer**” of the project. This person would be a government agency representative or a project manager who could speak to the technical or structural aspects of the rail conversion. “Structural” is used here in terms of project strategy. City, Provincial or State representatives will be able to address how policy was created and how the approval process played out. It is anticipated that questions in this interview category will bring to light the how-they-got-it-built challenges.

Optional interviews were conducted with a fourth interview stakeholder category identified as a “**Player**.” Players may be business owners who may or may not have benefitted from increased traffic in their geographic commerce area. Also, interviewing a railway company executive with knowledge of how the rail right-of-way was transferred may add additional perspectives. This subject expert might inform how potential sites were identified and the steps leading to the conversion of their non-functioning rails.

For **Question #3**, an interview with a current “**user**” of the precedent route offered insights about how the infrastructure is “performing” today and provide lessons learned. This user’s viewpoint of current route-performance can be compared with how the route was initially meant to perform. To gain answers to Research **Question #2**, an interview with the originator or “**founder**” of the project addressed how the railway conversion concept became a defined planning strategy. Answers can also inform how community engagement grew into funding and eventually into implementation.

KEY INFORMANT INTERVIEWS

The interview structure for this project was created to understand key stakeholder roles surrounding the entire railway conversion project. It was intended to engage with participants who were front and center with the original concept, the abandonment and rail conversion process, the design and construction of the new infrastructure, and the project's final use. The questions asked were intended to bring a personal "boots on the ground" perspective to the challenges that may be missing from the literature. Nuggets of information, not found in the literature, were discovered in the areas of economics, political challenges, community engagement, unanticipated growth and current function. Key informant interviews were conducted trying to target four perspectives of the rail conversion process and the AT route's further current viability.

The "Users" of the precedent route offered insight into how the infrastructure is performing today and provided lessons learned. Questions which were created for these two participants were also intended to address Research Question #3; What lessons can be learned from each city's development process that may apply to the Winnipeg context? Semi-structured interview questions were created to encompass subjects such as current safety and efficiency on the route, activities relating to design and construction, quality of amenities, services and access, and cultural and historical references.

The "Founders" were the individuals who created the initial concept and lobbied for the project. Questions which were created for these two participants were intended to address Research Question #2; What priorities and methods drove the planning process for these AT routes in each precedent city? The creation of the big idea, and how crucial coalitions, organizations and activist groups participated in that effort, as well as community opposition,

were key interview topics for these participants. Development opportunities, highest priorities and objectives, connectivity and accessibility, and the integration of the railway conversion process were equally important.

The “Implementers” were individuals who were to be government representatives and project designers, as well as architects and project managers who would speak to the technical or structural aspects of the rail conversion. “Structural” is used here in terms of project strategy. The gap in this part of the research was the inability to secure two key stakeholders representing City, Provincial or State positions who might have addressed policy and political will. The two Implementer interviews focused on phases of the development process; pre-planning, approvals and permitting, design and construction, budget, scope, and schedule. Challenges associated with those various phases were discussed. Inquiries were also made into Project Enabling; the potential and often the requirement of further ancillary and unforeseen projects.

The “Players” were intended to represent two entities. Business owners who may or may not have benefited from increased traffic in their geographic commercial area, and railroad company executives with knowledge of how rail easements are transferred. No business owners alongside either precedent city route, nor any railroad executives in Helsinki or Minneapolis were interviewed. These would have been key stakeholders in the research. However, information and data from a past Winnipeg-based CN executive exposed many challenges of the railway conversion process. There are no plans in Winnipeg to abandon existing rails, nor to rail-bank a dormant rail with the intent of potential conversion. Costs related to converting an existing rail, political issues that arise surrounding the abandonment, and how swapping abandoned railways can often result in nationwide infrastructure reconfiguration were all

discussed. Challenges surrounding demolition and environmental remediation are also game-changers in the process.

Prior to each interview, informants were provided Informed Consent Forms, as required by the University of Manitoba. When each interview was complete and conversation was transcribed, drafts were given to informants for their secondary approvals.

SCOPE OF INTERVIEWS

A total of ten interviewees were originally identified and contacted, representing the four key stakeholder categories. From these ten potential participants there were seven that committed to being interviewed and providing their historical knowledge and perspective. One of the seven, Otso Kivekäs, identified as a “User” in one of the precedent cities, was never able to schedule a semi-structured interview. However, I did have the opportunity to meet Otso on August 6, 2016 and spend the morning riding the Baana, learning about the project and having an “informal” interview. I have included excerpts from that valuable experience. In addition to interviewing Michael and Abby Mouw, also identified as “Users” in the other precedent city, I was also able to ride with them along the Minneapolis Greenway, years earlier. Although not all interviewed, all informants were contacted and extended permission to use their names and photographs in this document.

RESEARCH ANALYSIS

The two selected research methods, those being precedent studies and semi-structured interviews, began to uncover comparative factors with each city's railway conversion. From these findings, analysis was undertaken. With this research the results can later inform steps in the planning of a similar conversion project in Winnipeg.

Through comparatives, various elements of this process were uncovered. From the literature review there appears to be no shortage of subjects which affect the conversion of an abandoned rail to an AT route. A similar strength is the increased usage of each route (precedent) from the time it was built and became functional. A common weakness appears to be that the planning process is more challenging than the actual implementation. The comparison explored political will and funding which these projects encountered. Opportunities were uncovered when the vast number of amenities that feed in to the route's appeal were linked. The real bricks and mortar were less important than the accessibility, services and connectivity which complement the route. Threats were: the debate over current rail ownership, opposition to re-zoning, and the potential economic better use of these infill parcels of land where rail lines currently exist.

A limitation of this analysis procedure is that it often prevents proper communication, discussion, and verification of all external and internal factors put forth by participants in the research (Koch, 2000). These results sometimes prove less reliable of an input and the results are sometimes never meant to be used for input to a future strategy generation process (Koch, 2000). Another limitation (and caution) is that some researchers "are interested in subjective experiences, work inductively, and study phenomena in their natural setting" (Bergman, 2010).

Further research began to identify useful data that can be used to compare the two precedent studies. This informed recommendations and lessons for Winnipeg and how to

facilitate a similar AT project in that city. In addition to learning how each precedent attempted a different planning process, specific features were compared. Challenges surrounding urban planning, funding, approvals and community engagement might better inform a future project. How often are the precedent routes utilized per day, per year and per season? How frequently are the routes used for commuting vs. recreation? The type and number of amenities along a route, and the amount of accessibility to adjacent services such as shops, restaurants, parks and schools were measured. Bicycle Accounts, published by the Helsinki City Planning Department and the Minneapolis Public Works Department, are two planning resources that were used to retrieve some of this data (Figures 157, 158, Appendix D).

ASSESSMENT OF INTERVIEW PROCESS

The interview process, like any process, had its challenges and opportunities. The key to success with any process is the organization and preparation required for this effort. Once this was complete, the implementation was smooth, enjoyable and informative.

Initially there were ten informants identified. They represented the two precedent case studies and the four key stakeholder categories; User, Founder, Implementor and Player. These research participants were located primarily through articles, internet searches, and personal and professional contacts. Time was spent to create a well-rounded group of informants. There were three informants who did not respond.

Email correspondence was sent introducing myself, my background, the project description and an invitation to participate. There were explanations of the interview process, the topic of study, and project intent. Not all informants were familiar with the academic process and needed further explanation. In addition, all documentation and consent forms required by the University of Manitoba Ethics Board were sent. This entire outline set the stage for the interview process.

Once each informant agreed to participate in the research, pre-written semi-structured questions, targeted specifically to the individual stakeholder type, were sent two weeks ahead of the interview. This gave each informant an opportunity to formulate answers or request clarification. These questions would not dictate a rigid format to the interview, but rather guide the discussion. Very seldom did the informant follow the exact order of the questions. These questions can be found in Appendix A; Semi-Structured Interview Questions.

Interview dates and times were then established. Working with informants in foreign countries, time changes and language barriers all had to be considered. GoTo Meeting was the

video conferencing software used with all interviews. Answers to interview questions were transcribed and organized into informant backgrounds and nine subject topics. Once the text was complete, draft copies were sent back to informants for their editing, proofing and approval.

Soft skills were critical in this process. The politeness and gratitude extended to informants who were volunteering their time made a significant difference when it came to responsiveness and buy-in to this project. Solidifying future contacts in this field and developing strong relationships will be a result of these efforts. Speaking to informants added a personal connection to the subject matter and specific case study. There were also unusual stories which might never have been discovered in the literature. I felt that all informants ended their work with a sense of appreciation for being asked to participate, which made the process a very positive experience. All informants requested final copies of the project when complete.

CHAPTER 4

CASE STUDIES: PROFILES

CASE STUDY BACKGROUNDS / MIDTOWN GREENWAY AND BAANA

The Midtown Greenway

The first cycle paths were built by the Minneapolis Park and Recreation Board in 1895, with numerous cycle paths to follow until 1898. Within 10 years the cycling craze was over, and many of the cycle tracks disappeared. By the early 1900s streetcars, bicycles, horses, wagons, automobiles, and pedestrians caused traffic congestion at many of the city's intersections (Minneapolis Bicycle Master Plan, 2011), (Figure 12, 13, Appendix D). The City of Minneapolis has been at the forefront of bicycling since bicycles were introduced to the United States in the late 1800's. By 1902 the City Engineer reported that there was a total of 43 miles of bicycle paths. A headline in the 1900 *Minneapolis Journal* article read, "Bicycle Inspector Connors Has More Than He Can Handle" and went on to report that the full-time bicycle inspector was in need of another officer to assist in the problem of "stolen wheels" (Minneapolis Bicycle Master Plan, 2011). Today, Minneapolis has 127 miles of paths. The Midtown Greenway is a 5.5-mile long former Milwaukee Road railroad corridor in south Minneapolis (Figures 44a, 44b, Appendix D). The rail line was originally built between 1879 and 1881. This corridor had been abandoned west of Hiawatha Avenue, but is still active east of Hiawatha as part of the Minnesota Commercial Railway (Pflaum, 2011).

As traffic increased in the city, Minneapolis mandated a trench be built between Hiawatha and Irving Avenues in 1910 (Figures 113, 114, Appendix D). By the early 20th century, trains crisscrossed with densely built residential streets, thus making accidents and

deaths inevitable. Local residents pressured the Minneapolis City Council to address the issue, resulting in 1910, in the proposed construction of a 2-year project to sink certain tracks below street level (Figures 113, 114, Appendix D). Other railroad grade separations of the period involved elevating the tracks or building roads over or under tracks, so this was a unique proposal.

Almost immediately, a legal battle ensued pitting businesses along the tracks against the city of Minneapolis. In July 1912, the Minnesota Supreme Court ruled in favour of the city and the project which, at the time, was the second-largest public works venture in Minnesota's history. It included the trench and more than three dozen bridges preserving the city's street grid.

By the early 1990s, there was little freight traffic in the rail corridor and the trench had become a dumping ground (Figure 112, Appendix D). A railroad photographic website recorded it as a pile of "bikes, shopping carts, and mattresses" (Caniglia, 2016). Then Hennepin County Commissioner, Peter McLaughlin, stated, "You had to make sure your tetanus shots were up to date" if you chose to walk there. Now known as the Midtown Corridor, a mix of modest residential neighbourhoods and industrial buildings, areas around the railroad trench were then plagued by blight and crime (Caniglia, 2016).

As part of the Reinforced-Concrete Highway Bridges Act in Minnesota, the trench, bridges and retaining walls were evaluated in 1989, and subsequently listed on the National Register of Historic Places in 2005. Later, in May 2016, the Minnesota Department of Transportation released a preliminary draft of a reevaluation that explored the ramifications of keeping, altering, or revoking that historic designation.

In 1993, the railroad property was purchased by the Hennepin County Regional Transit Authority and now is maintained by the City of Minneapolis. The route travels along 29th Street, across central Minneapolis from Lake Calhoun in the west to the Mississippi River to the east.

The intent for the railroad bed was to combine rail transit service with bike and pedestrian trails. For most of its distance across the city, the corridor is grade-separated from the street grid, either in a gorge passing under bridges carrying streets overhead, or on a levy with traffic passing underneath it. Today this offers barrier-free bicycling that can make cross-town trips faster than going by car. The first phase of paved trails opened in August 2001, the second phase in September 2004. The third phase from Hiawatha Avenue to the Mississippi River was opened in September 2006. In 2007 the building of the Martin Olav Sabo Bridge (Figures 149, 150, Appendix D) was opened by Hennepin County and the city as Phase Four, eliminating a dangerous at-grade crossing at seven-lane Hiawatha Avenue (Rybak, 2007).

The Greenway serves a very ethnically and economically diverse community (midtowngreenway.org). Minneapolis` the Midtown Greenway runs parallel to nearby Lake Street, a popular commercial strip with hundreds of retailers, restaurants, and other businesses. The Midtown Greenway is plowed in the winter (Figures 41, 43, 116, 117, Appendix D), lit at night, and open 24/7. Security cameras are posted in strategic locations along the paved path, and a volunteer group called Trail Watch polices the Greenway daily to protect the public. On average, between 4,000 and 5,000 people use the trail every day, amounting to 1.5 million trips a year (midtowngreenway.org). In June 2010 *Bicycling* magazine named Minneapolis top bike-friendly city in the US. Between 2007 and 2011, bike traffic in Minneapolis grew by 47 percent.

The Midtown Greenway Coalition is the grassroots organization that successfully advocated for the installation of the Midtown Greenway by public agencies (Figure 42,

Appendix D). Volunteers began working on the Greenway in the late 1980s by meeting with neighbourhood leaders all along the corridor. The Coalition became a nonprofit organization in 1995. Made up of neighbourhoods, organizations, and individuals who work to protect and enhance the Midtown Greenway, their mission is to empower communities to develop, improve, protect, and enjoy the Midtown Greenway as a green urban corridor to improve people's lives (midtowngreenway.org).

The Coalition continues to engage community in protecting, improving, and using the Greenway. The Greenway, dubbed the “superhighway of cyclists,” assists in the comfort of commuting by bicycle. “There’s actually a rush hour on the trail, especially in summer,” says Soren Jensen, Executive Director of the Coalition (Asp, 2013), (Figures 39, 47, 51, Appendix D). It has since become one of the busiest bikeways in Minnesota and recognized as the best urban bike trail in the nation (midtowngreenway.org).

According to the 2007 Midtown Greenway Land Use Development Plan, the historical function of the Midtown Greenway as a freight rail corridor is physically evident in its linear orientation and its grade separation from the city’s street grid above. Today, the Greenway still serves as a transportation corridor by providing a paved trail for bicyclists and pedestrians who use the Greenway as a commuting route and place of recreation. This function makes the Greenway a unique transportation amenity that highlights the city’s commitment to the provision of multi-modal transportation opportunities for its residents (Rybak, 2007).

The Baana

In 1894 a railway line was constructed on the edge of the Helsinki city centre, routed between the central train station and the city's West Harbour (Länsisatama), (Figures 98, 101, 102, Appendix D). This required excavating an open-air canyon seven meters deep, an average width of 15 meters wide, and almost a kilometer and a half long (Figures 55, 56, 66, 67, 68, Appendix D). The railway line had to be quarried out of the massive granite bedrock that is typical of Finland, creating a man-made canyon that was spanned by several bridges as the city expanded (Figure 63, 79, 88, 89, 135, 136, Appendix D). The tracks divided the city centre from the districts to the north for decades. Helsinki continued to expand and although this cavity was eventually crossed by seven bridges, it still established a gash in the urban fabric. In 2008, the West Harbour cargo port was moved to another city neighbourhood (Vuosaari, n.d.). Work then began on a new residential district in the West Harbour area. The railway connection was no longer necessary and questions about the future of this below-grade corridor were being asked. As part of Helsinki's cycling program, efforts to increase the modal share of cycling, the network of cycling infrastructure in the city, and sub-centres have been upgraded. The Baana offered a fast, direct and disruption-free route from the centre of Helsinki to the employment hub and newly-created residential areas built in place of the former harbour (Figure 87, Appendix D).

The implementation of the Baana has highlighted the urban image, with respect to the history of the old harbour railway line, without overlooking functionality for pedestrians and cyclists or the quality expectations regarding contemporary public spaces (Rönkä, T., & Muurinen,). The aim of the design was to reinforce local characteristics by combining both historical and modern aspects. The design was meant to be kept simple and straightforward (Rönkä, T., & Muurinen, K., n.d.). The guiding principal was to retain the rugged appearance

and dark image of the railway line. The local industrial and railway history inspired a design solution where the new structures also refer to the past (Rönkä, T., & Muurinen, K., n.d.). The original structures and materials were used in the design as much as possible. Elevation changes in the topography were achieved by reusing boulders that were initially used for the drainage structures of the original railway line. The original walls and granite rock face were retained as much as possible. Where the walls of the trench were deemed structurally unsound, those rock faces were covered and reinforced with concrete to protect the pedestrians and cyclists. The new concrete was painted dark grey to match the original natural granite. The more expansive concrete surfaces were covered by vines. Bridges spanning the corridor were renovated and special lighting was installed to highlight their architectural features (Figure 131, Appendix D).

Covering the canyon to make an underground tunnel and restore continuity to the urban layout was an expensive and time-consuming option. Alternatively, the process that involved residents, university students and a range of municipal departments, explored temporarily converting the space into a corridor for pedestrians and cyclists. Linking Länsisatama with the city center by way of a series of landscaped areas pervaded with railway motifs, the track was named “Baana”, or “Rail” in colloquial Finnish. Asphalt bike lanes were created and access was provided from both sides, although the original tracks and stone walls were conserved (Figures 57, 121, 123, Appendix D). Today, the rugged darkness of the cutting contrasts with nearby sports and artistic installations in colors as bright as those of the goods containers that used to move along the track (Bravo, 2014), (Figure 58, 61, 125, Appendix D). This recycling of the railway track has been embraced by very different kinds of users. Local Architect David Bravo Fruit described the project as a complex process of cooperative endeavor involving the administration, academics and residents. This example of temporary urban planning safeguards

industrial memory, saves resources for the future, and establishes a non-commercial shared space. With this successful balancing of costs and benefits it would seem the alternative project of covering up the railway could wait (Bravo, 2014).

The Baana provides an efficient way to bike through the downtown expanse of Helsinki, while adding to non-commercial space in the heart of downtown. This creative, repurposed urban infrastructure received an honourable mention in the European Prize for Urban Public Space Competition in 2014. The purpose of the competition, recognizing 274 projects from almost 200 cities, was to highlight high-quality public space projects around Europe (Belluz, 2015).

Some of the results which have come from the Baana's development were unplanned and have needed adjustment. The Baana is a pleasant green city setting serving all of Helsinki, with hundreds of trees and thousands of shrubs and flowers. The rugged look is retained as a reminder of the corridor's history; the massive rock and stone walls that flank the Baana date back 100 years. It has become not just a bike path to ride through as fast as possible, but also an urban park-like amenity where Finns come to relax and play. In addition, it is a setting for city art where in one location a sculpture in the shape of the word 'Helsinki' has been carved out of concrete. The skateboarding culture has become entwined and, although this adds recreational diversity, it creates challenge and controversy (Figure 125, Appendix D). The path was not originally designed for skateboarding but has succeeded in being popular with advocates of the sport. However, after some complaints about noise from nearby residents, a compromise was made and time limits surrounding this activity were imposed. The differences in speed between cyclist, skateboarder and walker can be a safety consideration. When adding basketball, table tennis, or just a mild stroll to the mix, this can become a complicated exercise in safety coordination (Figures 72, 124, 126, Appendix D).

Between June and December of 2012, the Baana was used by approximately 320,000 cyclists plus an unknown number of pedestrians (Figure 62, Appendix D). From January to April of 2013, nearly 46,000 cyclists used Baana, again with an unknown number of pedestrians (Figure 60, Appendix D). It is estimated that 4,810 cyclists per day (estimated in summer) use the Baana (City of Helsinki, 2015).

Otso Kivekäs, past Minister of Transportation and now with the Helsinki Cycling Association stated “After five years of use, I'd say that the most significant aspect of Baana is that it was done. We have currently planned for a 140 km baana network to Helsinki and several other cities and even countryside municipalities are building their own baanas. Baana became the word for cycling superhighway. The concrete design of Baana contains several flaws, especially that the cycle path is too narrow. It will likely need to be re-planned within a decade”. However, Helsinki is a dense, urban city with centers of workplaces, housing and various seasonal recreational activities resembling small towns (Figures 62, 127, 130, Appendix D). These “towns within the city” are socially and geographically equal. Next to rail traffic, riding a bicycle and walking are the more efficient means of transport for moving between these centers (Manninen, 2013).

COMMUNITY ENGAGEMENT

Community Outreach

Behind the development of some AT projects there exists a body of volunteers. Sometimes referred to as a coalition, this group of neighbourhoods, organizations, and individuals combine their efforts and talents to develop the project. During the development phase these non-profit organizations promote and fundraise. Many of the organizations initially plant the seed for the creation of these projects. Examples of two of these are the Midtown Greenway Coalition in Minneapolis and the Coalition for the Metropolitan Branch Trail in Washington D.C. These are member-based groups of neighbourhoods, organizations and individuals that wish to protect and enhance the green urban corridors in these cities through the use of abandoned railway corridors. These groups can then present data and community feedback to agencies responsible for creating comprehensive transportation plans, for which AT is a component.

In 2008 The City of Atlanta undertook its first ever comprehensive transportation plan. Atlanta's City Planning Director, Heather Alhadeff, said it is likely to be "a more holistic way of looking at transportation" (Arvidson, 2008). Bicycles will be considered, as well as pedestrians, cars, and rail. To begin the planning process initial community information and input meetings took place. These were designed to educate the public on transportation issues and push them to consider how investments will be chosen. At this early stage, specific facilities and details are not discussed. The planning process will bring the community through the pros and cons of bike lanes and other options (Alhadeff, 2008).

Community Engagement / Midtown Greenway

Founders of the Midtown Greenway (MG) started working on the concept in the late 1980's by meeting with neighbourhood leaders all along the corridor. The mission was, and still is, “to empower communities to develop, improve, protect, and enjoy the MG as a green urban corridor to improve people's lives” (About the Coalition, 2018). The coalition became an official nonprofit organization in 1995, with the goal of completing each section of the Greenway from 2000 to 2007. The coalition advocated for the MG trails to be implemented by public agencies. The Coalition has a seat on its board for each of the 17 neighbourhoods along the MG Corridor, as well as four at-large seats (About the Coalition, 2018).

As documented in the 2007 Midtown Greenway Land Use Development Plan, The City of Minneapolis formed a project Steering Committee before preparing the Midtown Greenway Land Use Development Plan (2007), to provide process guidance and assist with community outreach. In addition to Steering Committee meetings, beginning in 2005 seven public meetings and one developer round table discussion were held. These public meetings were publicized on the city's project website, through flyer handouts, in local newspapers, through neighbourhood and business organizations and on community radio stations. Attempts were made to see that all members of the community were represented and invited to these public meetings, including neighbourhood organizations, homeowners, renters, business organizations, business owners and managers, advocacy groups and property owners (Rybak, 2007).

For the first meeting city staff presented the project team, stakeholders, purpose, process and final product examples. Participants were invited to ask questions regarding the purpose of the project, existing land use, zoning, development and market conditions in the Greenway. The second and third meetings were to obtain input and feedback from the western and eastern halves

of the Greenway project area. Preliminary opportunity sites along the corridor were also presented. Meetings four and five were to facilitate small group discussions to help obtain input from participants on the development concepts for each Case Study site, and also solicit new ideas for redevelopment.

Meeting six became more defined as the consultant team reviewed development trends in the corridor, as well as street and block patterns, types and conditions. Greenspace implementation strategies, preliminary ownership and management suggestions, and preliminary development guidelines were presented to participants. Small participant groups of eight to 10 discussed greenspace strategies and development guidelines, and provided feedback and suggestions.

For the final meeting the consultant team and City staff presented an update on the project's background and processes. The draft future land use plan was presented, along with updated development guidelines, public realm features, and open space management strategies.

Community Building was part of the discussion during the community engagement sessions. The Minneapolis Plan addresses individual chapters and themes, and not only the achievement of citywide goals. The Midtown Greenway Land Use Development Plan speaks to opportunities and activities that allow neighbours and residents to get to know each other better. It supports commercial activities that provide neighbourhood-scale gathering places such as bookstores, art galleries, coffee shops and ice cream shops. In the plan, Minneapolis encourages both private and public development that provides gathering spaces in city neighbourhoods and develops new facilities that act as gathering spaces in parks and on other publicly owned land.

The Midtown Greenway Land Use and Development Plan contains a Vision and Principles of Development Vision Statement. This is a is a comprehensive and inclusive

visioning statement. This vision allows the community to express its overall goals for the Plan and serves as the community's image of success for the Midtown Greenway and its surrounding neighbourhoods. "The greenway area is distinctive in its proximity to exciting and convenient commercial districts, in the availability of outstanding transportation options, and in the presence of the Midtown Greenway amenity itself. Over time it will grow as a place where the natural and built environments work together, where mixed-use development patterns of varying intensity are complemented by open space and traditional urban neighbourhoods. New private development, and enhancement of the public landscape, will add to its commercial, residential and recreational assets, and strengthen its sustainability and connectedness" (Short Elliott Hendrickson Inc., Cuningham Group, Quam Sumnicht & Associates, & Maxfield Research., 2007).

Another mandate of these community engagement strategies was not only to develop and maintain the basic asset, but to also bridge that piece of infrastructure with other adjacent elements of the community. In the case of the Midtown Greenway Coalition, those would be enhancements to adjacent development, improvements to trail access and accessibility, landscape and cleaning, as well as increased safety measures.

The Midtown Greenway slices through the urban fabric much like its predecessor, the railroad, did. The rail, however, required fewer pedestrian and commercial connections. In contrast, the number of connection points to neighbourhoods and retail areas are greater. Dozens of developments, on land adjacent to the Greenway, have modified their plans so they enhance the Greenway instead of wall it in. Greenway friendly buildings allow for new access stairways and front doors (Figures 133, 134, Appendix D). New buildings, on land adjacent to the

Greenway have entrances facing the path, rather than placing parking lots or loading docks there (About the Coalition, 2018).

Installing and maintaining sustainable gardens in the Midtown Greenway with volunteer power has created opportunity to showcase native plants, on-site water management, and ecological sustainability. Along with public and private partners and many volunteers, the Coalition has helped plant about 3,000 trees in the Midtown Greenway during eight annual arbour day events.

Local outreach has also been another form of community engagement. Engaging hundreds of Hispanic immigrants and Native people via group walks on the Greenway has resulted in many families now using the Greenway regularly on their own. Organizing volunteers to sweep up broken glass, maintaining communications with police and the City about trail and crime issues, coordinating the Trail Watch bike patrol, and advocating for improvements in traffic control devices at the trail's at-grade crossings with roadways has promoted safety through community engagement (Figure 147, Appendix D).

Community Engagement / The Baana

In the case of the Baana, a form of community engagement was a design competition. The Helsinki City Planning Department, in collaboration with the Department of Architecture at Helsinki Technical Institute and the Industrial Design University of Helsinki, invited student entries for the artistic look, lighting and functional arrangements of the canyon, the path of the abandoned trail. Matti Kalliala, Aleksi Niemelainen, Teemu Seppanen from Helsinki Technical University, were a few of the participants. Leena Buller and her schoolmate, Leena Kemell, shared third place for the European prize for urban space (Buller, 2018).

On the day the Baana opened in 2012, officially named Bicycling Super Day in Helsinki, a bicycle center built by the city opened at the Kamppi transportation and commercial hub, a public square and one of the busiest places in Helsinki. Run by entrepreneurs, the center offers bicycle rental, supervised bicycle parking, instant servicing, and information. The center serves Helsinki cyclists through the main bicycling season to the late fall (Gokcen, 2012). Similarly, the popular Freewheel Midtown Bike Center on the Midtown Greenway is only accessible by users of the route and offers full services to cyclists and pedestrians (Figures 49, 52, Appendix D). Publicly-funded services to cyclists in Helsinki include an online journey planner, which determines the best route from start to finish and according to the preferred type of way; either paved or unpaved.

Public Process

A public process to develop a plan will invite community support. This process includes opportunities for the public, stakeholders, and other interest groups to participate and be heard. Public input should include a combination of strategies such as public workshops, hearings, notices in the media and outreach events. Findings from these strategies can be reported to agencies and elected officials, transportation and enforcement officials, and can also welcome diverse viewpoints. Community participants may include planners, engineers, health and safety advocates, educators, business leaders, law enforcement personnel, bicycling advocacy groups, transit personnel, people with disabilities, elderly, and people who are economically disadvantaged. Local officials, whether elected or civil servants, who are responsible for implementation should participate in this process. Outreach should be conducted to acquire the opinion of a broad cross section of the community, including experienced, casual, and novice bicyclists of all ages. These efforts could include a website, mailed surveys, school visits, or community bicycling audits to document bicycling resources and/or opportunities (USDOT, 2012).

ECONOMICS

Project Costs

Cycling opponents in San Francisco, one of North America's most bike-friendly cities, state that "there's no way we can keep spending so much on bike lanes with so many other pressing needs in San Francisco" (Andersen, 2014). Calling this a “myth”, the San Francisco Bicycle Coalition referenced a report defending their claim that the cost of improving biking and walking in a city is negligible compared to other transport projects. Cycling ventures take up less than one percent of the municipal transportation budget. Typical cost figures include one mile of Bay Bridge span extension costing \$2.07 billion, one mile of central subway extension costing \$1 billion, and one mile of Doyle Drive extension costing \$571 million – all compared to one mile of protected bike lane costing \$445,000.

Table 2: Construction Costs



As identified in the Minneapolis Bicycle Master Plan from 2011, it is estimated that it costs “\$50,000 to stripe a bike lane, \$100,000 per mile to install a bicycle boulevard, and

\$3,000,000 per mile to construct a trail. It currently costs \$2 per linear foot to maintain a trail, bike boulevard, or bike lane” (Pflaum, 2011). There are substantial costs to continued maintenance of the Midtown Greenway system. Maintenance costs can include signage replacement, new pavement markings, sweeping, plowing snow, sand/salt applications, and minor pavement restoration.

Table 3: Average Bikeway Maintenance Unit Costs

Bikeway Facility Type	Maintenance Practice	Annual Cost per Linear Foot
Trail	Clear Snow & Sweep Weekly	\$2.00/LF
Bike lane with enhanced sweeping (per direction)	Clear Snow & Sweep Weekly	\$1.00/LF
Bike lane with enhanced year-round maintenance (per direction)	Remove Snow & Sweep Weekly	\$3.75/LF
One-way protected bike lane (per direction)	Remove Snow & Sweep Weekly	\$6.50/LF
Two-way protected bike lane on one side	Remove Snow & Sweep Weekly	\$10.00/LF

Source: Minneapolis Public Works Transportation Maintenance and Repair Division

Economic and Real Estate Development

Economic development along an AT route can be substantial. The creation of one of these corridors can spur the growth of residential development such as condominiums and apartments. Direct accessibility to the newly created route can be highly beneficial. Non-adjacent restaurants and retail can also be invited to re-locate adjacent to the route.

With the purchase of an abandoned rail right of way come additional land, which borders the track (Figure 139, 140, Appendix D). One must not assume the rail is a perfectly defined twelve foot wide path that meanders through the city. The property alongside the track can be very fluid, widening or narrowing depending on its location. This land can provide opportunity for future development, and even funding assistance, for the actual rail acquisition. In the case of Vancouver's acquisition of the nine-kilometre Arbutus rail corridor from CP, "the deal also included revenue sharing on money earned from land alongside the corridor, which is almost as wide as a city block at some points at the southern and northern ends" (Bula, 2016).

Micro Retailing

Micro-retailing was a concept recently discussed at the 2017 CanU9 Urban Design Conference in Winnipeg (Gordon, 2017). This partially involves a recommendation that zoning along an AT route would be changed to allow small retail establishments to operate inside the home. Square footage, hours of operation, and types of goods and services would be defined. This would allow users of the route access to a variety of retail establishments within a smaller defined area. In the town of Seydisfjordur, Iceland, various shops are located along the walking paths that exist along the water. These tiny shops occur on the ground floor of homes, in a converted living room or dining room. The remainder of the home has moved to the second level.

The trail then becomes a route for function and not only recreation. John Valentine, president of the Downtown Neighbourhood Association and consultant for the Urban Redevelopment Authority is a nearby resident to one of Pittsburgh's trails. He uses his bike three or four times a week, not only for recreation, but also for errands. He cites an example of when preparing a dinner and needing a last-minute ingredient, he hopped on his bike, quickly accessed the route, and rode to the Strip District to make the small purchase.

Funding Options and Opportunities

The method in which active transportation routes are funded is always heavily discussed and debated. This financial challenge can be examined by looking to other cities, domestic and international, to understand how they creatively fund other forms of transportation infrastructure. Private Public Partnerships (PPP), Adopt-A-Highway, or even buying a plank for a bridge are scaled examples which call on the private sector to participate in costs but also allow businesses to reap some financial rewards through marketing (Figures 141, 142, Appendix D). Other sources are as follows:

- Non-Governmental Funding
- Individuals
- Corporations
- Foundations
- Fundraising
- Sale of Excess property
- State or Federal
- General and Special Appropriations
- Set-Aide Programs

Infrastructure Funding Sources for the Midtown Greenway

Project costs vary widely depending on whether they are completed independently or in coordination with other maintenance and reconstruction efforts. Engineering and construction costs, unanticipated conditions and acquisition costs may increase originally established budget projections.

Each type of infrastructure has advantages and disadvantages. For example, bike lanes can be implemented quicker and cheaper than the conversion of an abandoned rail. Rail trails, however, appeal to a wider range of users because of their ability to serve as a bicycle freeway.

Many infrastructure funding sources require a local match, or have other conditions that are required with the funding. It usually takes multiple funding sources to fully fund a bicycle infrastructure project.

In the case of the Midtown Greenway, some capital funding sources considered and used were Federal Funding comprised of Surface Transportation Program funds and Federal Transportation Enhancement funds. The project required a 20% match, plus design/engineering fees to be paid with local sources. It was determined it took 65 cents of local money to match a dollar in federal funding when factoring all project costs. Once a project is awarded funding, it is programmed 5 years into the future for construction (Pflaum, 2011).

The Midtown Greenway also received Federal Earmark, where members of Congress were allowed to set aside funding for special projects in their district. This funding option has since been terminated. However, there is still discussion about restoring the practice in a more competitive manner.

There are other funding sources which were not used as part of the Midtown Greenway, but are options with the City of Minneapolis with recent infrastructure projects; The Non-Motorized Transportation Pilot Program and TIGER grants, State Bonds, the Department of Natural Resources, Legacy Funding, Net Debt Bonds and Private and Corporate Donations (Pflaum, D., 2011, Minneapolis Bicycle Master Plan).

The Non-Motorized Transportation Pilot Program and TIGER grants are two examples of recent federal programs that have appropriated significant funding toward bicycle projects in a number of cities. These are Federal one-time programs and typically do not reoccur. State Bonds, on a bi-annual basis, create a bonding bill with specific projects and programs included. There is typically no funding match needed. The Department of Natural Resources administers a number of grant programs including the Local Trail Connections Program and Regional Trail Grant Program. Legacy Funding is a new funding source created when voters passed a sales tax referendum to improve the outdoors and the arts. Net Debt Bonds are local property tax funds managed by the City of Minneapolis. This flexible capital funding source can be used for a local construction match, for design and engineering fees, and internal overhead. Net Debt Bond projects are determined as part of the annual city budget process. Private donations and corporate gifts can be accepted by the city for capital projects, but must be accepted by the City Council and Mayor.

Non-Infrastructure Funding Sources (for the Midtown Greenway)

It is not clear as to what non-infrastructure funding occurred during the planning and construction of the Midtown Greenway. Non-Infrastructure funding sources are those that are commonly used for education, enforcement, and encouragement initiatives in addition to infrastructure. This funding might come from the health industry and bike and other sports industries. However, as part of the on-going funding, the Minneapolis Bicycle Master Plan identifies bike rides and bike races as excellent fundraisers for non-infrastructure projects. Safe Routes to School is a federally funded initiative that is passed through the states for education and infrastructure improvements. Many schools also dedicate staff time toward this effort. Private and corporate donations from individuals and businesses is another possibility (Pflaum, D., 2011, Minneapolis Bicycle Master Plan).

Project Enabling

“Project Enabling” describes the sub-projects that occur as a result of an initial project. These projects may not involve new building projects or even renovation projects; they can involve demolition or relocation assignments. They may include tangible architecture, landscape or infrastructure related assignments that involve community engagement, or new policy creation.

When a highway or a transit corridor is created or enlarged, land is often acquired. Houses and other buildings are demolished, prompting the removal and relocation of underground utilities. This expropriation of property may be equalized by a political promise to provide a new neighbourhood park. If a new project is near or on a brownfield, site environmental remediation may be required. These three examples - the relocation of utilities, the new park and the remediation - would all be considered enabling projects.

In the case of Helsinki’s Baana, the corridor - another term for the current transportation route - was designed partially as a temporary solution, as one portion is earmarked for a proposed tunnel that would reduce traffic in the city center. Krista Muurinen, a member of Baana’s design team, says that if the tunnel is built this portion of the corridor would be moved up to the street level on top of the current Baana (Muurinen, 2013). This, too, would be an enabling project.

The process of rezoning can also be considered an enabling project. Property surrounding a converted rail line might require conversion from a transportation use to a commercial or residential use in order to spur development. This can be a lengthy process and become a unique and isolated project. Planning Enforcements, as referred to in the UK, are becoming more common, both for buildings and for land use, as councils try to enforce their planning policies

and standards. This can lead to highly stressful situations for property owners (Peter D. Kyte Associates, 2016).

Leena Buller, past Project Architect with LOCI Landscape Architects in Helsinki, described the Baana as a trench carved out through the existing dense urban fabric (Figures 135, 136, 160, Appendix D). The adjacent buildings, roads and supporting infrastructure which currently surround the Baana were in place and didn't get built as a result of this railway conversion. Concert halls, city parks and public squares (Figures 78, 90, Appendix D) were all in place prior to the conversion from railroad to an active transportation route (Buller, 2018). When compared to building projects which grew up adjacent to the Midtown Greenway in Minneapolis (Figures 133, 134, Appendix D), the land which borders the Baana had been previously developed. In Minneapolis new apartment buildings, condominiums and community gardens all represent enabling projects.

RAIL ACQUISITION

Rail Acquisition

For more than a century railway companies have owned the rails. What exactly this means is more complex than one may assume. The sale or the transfer of ownership can be very complicated. It can involve the reallocation of tangible and non-tangible assets. Tangible assets may include the steel rail, wooden ties, mechanical switchgear, lighting, underground infrastructure, maintenance sheds, roads alongside the rail required to service the route, and even bridges and tunnels. Non-tangible assets can be easements, rights-of-way, and liabilities relating to past and future environmental concerns.

In addition, before determining an abandoned railway has potential for conversion to an AT route, the following criteria must be established: An assessment of existing or potential amenities along the route must be performed. These amenities can feature economic, historical, social and natural characteristics.

These reshuffles can be substantial in size. In March of 2016, the City of Vancouver acquired the nine-kilometre Arbutus rail corridor from Canadian Pacific Railway (CP) for \$55-million to transform it into a greenway (Bula, 2016).

When considering the purchase of a corridor, the railroads will often know more about the asset than the potential buyer. This information will consist of original ownership, history of the rail itself, the current condition of the rail, and current operating costs such as taxes, charges and maintenance. Ownership documents would be titles, land records, zoning ordinances, subdivision rules and possible restrictions on the use of the property. Much of this information is publicly recorded. History of the rail will explain past environmental problems with the corridor,

accidents, and spills. Newspaper articles and library archives can be a valuable source because this information may not always be available online or given out freely by the railroad.

Representatives of the railroad, who may be responsible for thousands of miles of track, may never have seen the actual rail. If this is the case, permission from the railroad can be obtained and on-the-ground inspections can be requested by potential purchasers.

Pre-Abandonment Acquisition - discussions to acquire a line that has not yet been abandoned - are usually directed to the railroad's legal department or the asset management department. These groups might also be called "Plant Rationalization" or "Strategic Planning" (Ackelson, Allen & Iurino, 1996). They are responsible for continuously evaluating the profitability of all rail corridors in a railroad's system. Once the analysts find that a line is not making a profit, the railroad determines whether it is in the company's long-term interest to continue operating that line. This is when the railroad decides how to dispose of the property.

In the United States, the Surface Transportation Board (STB) begins the process of abandoning a corridor. If the STB finds that salvaging the line will result in significant environmental impacts, they can impose conditions on the abandoning railroad requiring them to address the issues before abandonment can proceed. Communities developing rail-trails occasionally must deal with known, potential, or perceived contamination along the corridor. The type and extent of contamination along rail corridors falls into two general categories: residual contamination that may be found along any stretch of corridor and contamination associated with industrial uses alongside it.

Whether a corridor is considered active or abandoned must be considered. The term Abandonment, as used by railroad companies, means to cease operation on a line or to terminate the line itself (Ackelson, Allen & Iurino, 1996). A line is abandoned when the railroad has

applied to the STB for abandonment authorization, the STB has issued an order authorizing abandonment of the line, and the railroad has notified the STB that it has consummated the abandonment authorization. Lines are considered active if trains are running and the railroad is profitable or not. The line can also be considered active even if trains are not using the rail. If the railroad is undergoing abandonment proceedings with the STB it can still be considered active.

Railbanking

Rail corridors have several ownership types along the length of track. This condition is irrelevant to a railroad company while the corridor is in active use, since the railroad had acquired the right to lay down tracks and operate a train over the entire corridor. Once the railroad decides to abandon a corridor these ownership differences become critical. The railroad now loses control over all the parcels of land within the corridor to which they merely held an easement. Although the corridor may look no different in appearance, it legally no longer exists. At this point, the acquiring of a corridor may become highly complex since it may be owned by several different entities. In North America, however, if the line has not been abandoned the acquisition can be far less complex due to this US statute referred to as Federal Railbanking. With so many abandoned corridors, congress thought something needed to be done to preserve the nation's rail system for future transportation uses.

Under this U.S. Statute the railroad can remove all its equipment with the exception of bridges, tunnels and culverts. As with many things in life, railbanking comes with risk. Any railroads may legally decide to re-establish rail service on a railbanked corridor. Should this occur, the trail managing agency would be entitled to compensation from the railroad that wants to re-establish service. Compensation would be determined based upon fair market value for the property as well as improvements to all developments. Railbanking is a voluntary act and the railroad must be convinced that railbanking is in the railroad's best interest.

Two examples of abandoned rails in Winnipeg are the Red River Bridge and an unnamed industrial spur. The first connects the Western Yards between Raleigh Street and Gateway Avenue. The latter is located in Saint-Boniface near Bertrand Street (Abandoned Rails, 2017).

Researching the Property

Prior to any purchase or acquisition of a rail corridor comes the intense, and often, time consuming due diligence period. This research will provide information that helps shape the strategies in designing the transaction and negotiating the acquisition. Time, money and technical support make up this process. Groups need to balance the cost of research with the likelihood of the purchase. The primary step involves gathering existing and readily available information to help assess whether to proceed with further negotiation and the ultimate acquisition. The second step involves the review of formal titles, environmental titles and other reviews. These reports are usually expensive and require professional experience.

Due diligence and the inventory of potential hazards along a railroad corridor may initiate a Phase I and Phase II environmental assessment. A Phase I environmental assessment combines research into the property's history with a visual inspection. This assessment may be all that is necessary to determine if the property poses a contamination threat. Various sources such as courthouse records, title abstracts, historic aerial photographs, and newspaper accounts provide some insight into the property's history. Interviews with local government representatives, adjacent landowners, and state and federal officials may also uncover relevant historical events unknown to many. A Phase II assessment undertakes comprehensive testing of water, air, and soil and is a more detailed investigation of the site. A Phase III assessment provides a remediation plan for clean-up if contamination is found.

What do you need to buy?

Land is often considered “a bundle of rights” (Ackelson, Allen & Iurino, 1996). Like any piece of real estate, a rail corridor consists of a wide range of property interests, a collection of tangible and non-tangible interests, and a combination of rights to the property. These would include surface rights, sub-surface rights and air rights.

Surface rights are those related to the need to use at least a portion of the land surface. One question is how much of the surface is enough for the type of conversion proposed? Will the AT route require merely a defined path carved in one direction or will there be the requirement to use other surface structures adjacent to the trail? Sub surface rights are equally and sometimes more valuable. These below ground utilities can be very valuable and hold the right to use or lease. They include water or sewer mains, gas pipelines or telecommunications. Access to these utility lines usually requires above-ground contact and may alter the integrity of an AT route. Finally, air rights make up the third layer of this three-dimensional transportation corridor. Power companies, cable companies and high voltage transmission lines often travel along these rail corridors. These are valuable arteries for their transmission facility locations. All of these rights can be purchased, so the railroad cannot sell them to third parties. However, if bought, they can then be leased to collect additional revenues.

Joint use is trail usage adjacent to an active corridor. Railroads are reluctant to allow joint use, but these arrangements can be as safe as a Rail Trail if properly designed and managed. Once the acquisition of a rail has concluded, improvements are then made to make the route functional.

Easements are parcels of property that the railroad company does not own but do, however, have the right to use for certain purposes. The railroad company may have purchased

the easement if it was less expensive than buying a complete parcel of land. Easements imply limited rights, limiting the railroad to rail use only. However, some courts have interpreted “rail use only” or “for railroad purposes only” to mean any transportation use (Ackelson, Allen & Iurino, 1996).

Considerations and Challenges

- Transfer of ownership
- Tangible assets
- Non-tangible assets
- Environmental issues
- Titles and land records
- Zoning and subdivision
- Restricted uses of property
- Pre-abandonment acquisition
- Easements
- Surface rights
- Sub-surface rights
- Air rights

Methods

- Purchase
- Option to buy
- Land lease
- Purchase and lease back
- Bargain sale
- Eminent domain
- Rail banking
- Railroad negotiation

DESIGNING FOR SAFETY

Bicycle safety seems to be the most significant concern for cyclists in the urban context. The automobile continues to be the largest threat and reason for cyclists to choose not to ride. City master plans, regardless of increased cycling popularity, strive to creatively separate these two modes of transportation.

As recorded by the League of American Wheelmen in the early 1900s, society managed cycling as a child bicycle use. The creation of "bike-safety" training programs strengthened this opinion, as seen by cycling-ignorant motorists (Forester, 2018). Most thought bicycle riders were physically and mentally unable to obey the rules of the road and their prime duty, for their own safety, was to stay out of the way of cars. "The cyclist who rides in traffic must either delay the cars, which is Sin, or, if the cars don't choose to slow down, will be crushed, which is Death, and the Wages of Sin is Death." (Forester, 2018).

Different organizations promote the sport of cycling safely through diverse approaches. In Manitoba, for instance, the Manitoba Cycling Association "*promotes excellence, participation and interest in cycling as a sport pursuit, recreational activity and a mode of transportation throughout Manitoba.*" (*mbcycling.ca*, 2017). Bike Winnipeg presents background information and bike-friendly recommendations to as many government agencies and related organizations as they can manage with their limited resources (*bikewinnipeg.ca*, 2017).

Certain North American cities have taken baby steps to improve safety through AT infrastructure. Salt Lake City built a "protected bike intersection," one of first in the U.S., following the Dutch pioneering infrastructure model. According to Giddings (2015), these intersections incorporate four principal safety elements: corner refuge islands which act as protected curb extensions for bicycles, forward stop bars that are waiting areas for cyclists in

front of car traffic, setback bike crossings which are buffer zones between bikes and car traffic, and bike-friendly signal phasing which are special lights to indicate when bikes should cross.

Open Street events organized by the City of Minneapolis, promote safety by allowing locals of all ages to explore their neighbourhoods at these events. In 2015, more than 65,000 people attended one or all of the eight Open Streets Minneapolis events happening around the city (Giddings, 2015). Originally created by then-mayor Richard Riordan more than two decades ago, the Los Angeles Bike Tour gives Angelinos the opportunity to ride safely through the streets of their city, free from automobile traffic, hours before the scheduled Los Angeles Marathon. More than 20,000 cyclists ride in this event each year.

Reports from New York City's Department of Transportation show that protected bike lanes are improving safety for cyclists, pedestrians and car occupants alike. The protected bike lane on Columbus Avenue, for example, brought about a 56 percent increase in weekday cycling and a 34 percent decrease in crashes overall, even as vehicular traffic remained stable (Giddings, 2015). The first statistical studies of car-bike collisions in 1976 show 30 percent of car-bike collisions were caused by the cyclist doing what the bike safety training encouraged them to do; the most obvious being turning left from the curb lane and changing lanes without looking (Forester, 2018).

Many of the objections to the conversion of abandoned railways to AT routes stem from the railway companies themselves, and often safety is their number one caution flag. Patrick Hare, principal of Hare Planning and Design in Washington D.C. says "we must first overcome the objections of railroads, which worry about safety and lawsuits. We must also work to change the public perception of rail corridors as places of urban decay and crime. These are political problems more than practical ones" (Hare, 1998).

Railway corridors quite often travel through less desirable areas of a city. Busy suburban thoroughfares are more dangerous than a well-fenced rail line. People regularly walk and bike safely along sidewalks of neighborhoods once considered marginal (Hare, 1998). In fact, the decline of urban rail yards is a condition that can make this infrastructure ripe for conversion.

A report from the University of California concluded that cities have a responsibility to promote cycling, walking, and public transport because the physical and economic benefits of a healthy population are immense, as well as increasing green space and limiting car usage (Mueller, 2015). “A city’s ability to compete depends on an active population,” said Chad Spoon of the University of California’s Active Living Research Department. The research is clear on this. It shows how an active city can be a low-cost, high-return investment (Spoon, 2015). This report noted that if cycling were made safer, the percentage of all bike trips in the U.S. would rise from 8 percent to 40 percent. Also, if traffic were not a problem, 44 percent of the 1,800 adults surveyed who did not own a bike would start riding at least once per week. Safer streets would draw more cyclists (Mueller, 2015).

Since the late 1800s, when rail crossed through the center of cities, the discussion of safety has taken place. Like the conflict between the automobile and pedestrian, the railroad posed a similar threat. In 1882 the Chicago, Milwaukee, St. Paul and Pacific Railroad laid down track along what was then the southern edge of Minneapolis. By the early 20th century the city had enveloped the tracks, making them a part of the denser population. Trains were now crossing dozens of densely built residential streets at grade, causing conflicts which sometimes resulted in death.

In 1910, after local residents began pressuring the Minneapolis City Council, the railroad company proposed a two-year project to sink its tracks below street level. This was a unique

solution, in that other cities with this similar challenge were elevating railroad tracks or rerouting roads to go over or under existing railroad tracks. New York City's High Line is an example of elevating an existing rail rather than carving a below-grade path (Figures 153, 154, 155, 156, Appendix D). Today there exists segments of the Greenway where the path is not below grade and safety challenges still exist. In 2007 Hennepin County completed the Martin Olav Sabo Bridge enabling cyclists and pedestrians to bypass the light rail tracks and seven lanes of Hiawatha Avenue. Proposals for additional light rail and streetcar lines continue to progress (Figures 38, 143, 144, Appendix D).

Protected bikeways, bike lanes, shared lanes and bike boulevards are four overarching methods of bicycle access the City of Minneapolis identifies in their 2015 Bicycle Master Plan. The Plan further breaks down smaller infrastructure components which are also safety-driven (City of Minneapolis, 2015). The Plan identifies separated trails and states that separating bicycles from pedestrians not only improves safety, but also improves capacity where there are a lot of cyclists. Law enforcement is also addressed in the Plan. Police officers receive general training regarding bicycle-related traffic laws and are constantly staying abreast of changes in state statute and city ordinance. The Greenway Code Blue emergency phones are directly linked to 911 dispatchers and are supplemented by security cameras (City of Minneapolis, 2015).

From the outset of the rail conversion to the Greenway becoming an active transportation thoroughfare, safety considerations have included consistent signage and wayfinding, lighting, security, and bicycle patrolling (Figure 147, Appendix D). These remain priorities to help users navigate the Greenway and safely travel to and from the Greenway when gaining access from surrounding neighbourhoods.

The urban design team at the City of Minneapolis, staff from Hennepin County, the Midtown Greenway Coalition and local Councils have worked together in producing wayfinding signage on fences and bridges over the Greenway, including painting icons and designs on the pavement (Figure 48, Appendix D). “Riding or walking on the Greenway, especially where it’s below street level, can be disorienting,” says Lisa Middag, a Hennepin County planner. “But so many destinations are literally just a minute away, which makes it convenient to hop off the Greenway to grab a bite, run errands, or do other activities. We are working on effective strategies to support and encourage that” (Middag, 2015).

Wayfinding and signage are a priority for participants using both the Baana (Figures 69, 70, 71, Appendix D) and the Midtown Greenway. Colourful signage and other temporary design experiments connect the greenway to nearby destinations and have attracted the attention of bicyclists and pedestrians at various key access points along both these routes (Hennepin County Seeking Public's Input on Greenway Signage, 2015), (Figures 50, 53, 54, Appendix D). On the Baana in Helsinki electronic digital signposts identify traffic patterns and the number of riders in real time (Figures 151, 152, Appendix D).

In 2015, an urban design team at the City of Minneapolis collaborated with staff from Hennepin County, the Midtown Greenway Coalition and the Lake Street Council to develop pop-up improvements, including creative wayfinding signage on fences and bridges over the Greenway and various painted designs on the pavement to help people find their way to the Greenway (Middag, 2015).

REAL ESTATE DEVELOPMENT

Economic development along an AT route can be substantial. The creation of one of these corridors can spur the growth of residential development such as condominiums and apartments. Direct accessibility to the newly created route can be highly beneficial. Non-adjacent restaurants and retail can also be invited to re-locate adjacent to the route.

Development Along the Greenway

The Midtown Greenway Land Use and Development Plan is a document which sets policy direction for land use and development in the Midtown Greenway corridor for 10 to 20 years, commencing in 2017, with implications for private development and investment in the public realm.

The Midtown Greenway brings together several neighbourhoods and areas that are important to Minneapolis residents. The Greenway passes through ten city neighbourhoods, connecting them to the major recreational and ecological features as well as commercial and entertainment centers such as the Uptown and the Midtown Exchange areas. Persons traveling by bicycle, or other active transportation modals on the Greenway corridor, can connect to downtown Minneapolis and other employment centers via the arterial streets that cross the Greenway (Rybak, 2007). Residential land uses represent 50 percent of the total land area in the project area. Commercial land uses are concentrated along commercial and community corridors. Industrial land uses comprise about 4 percent of the project area and tend to be located adjacent to the Greenway trench (Rybak, 2007).

While Greenway transit may be dependent on the political climate of the current administration and public funding determined at multiple levels of government, real estate

development in the area continues to expand (Figures 30, 33, 37, Appendix D). In the fall of 2012 there were five residential projects, totaling more than 1,200 units, under construction. This was unique considering the economy was recovering from a recession that began in 2008. To that point, development continued along the Greenway throughout the recession. Between 2005 and 2014, \$750 million in building permit activity occurred in the Midtown Corridor (defined as a quarter-mile [0.4 kilometer] on each side of the Greenway) according to a long-term evaluation of the Community Works initiative produced in 2014 (Caniglia, 2016).

Development has also flourished with the repurposing of existing architecture. The heritage 1928 Sears and Roebuck and Company store on East Lake Street reopened as the Midtown Exchange with international dining and shopping, a hotel, and more than 300 affordable market-rate residences (Figures 31, 32, Appendix D). The northern side of the Midtown Exchange includes entrances to the Greenway and offers meeting rooms and patios that overlook it (Figure 132, Appendix D). Smaller developments also continue to infill other pockets along the Greenway. In 2015 Greenway Heights, a 42-unit affordable apartment building for working families, opened just east of the Midtown Exchange. Real estate values in the Midtown Corridor increased, on average, by 98 percent between 2001 and 2013, compared with an average of almost 82 percent in adjacent areas (Caniglia, 2016).

Table 4: Real Estate / Economic Development

Land Use	1990		2000		Change	
	Acres	Percent	Acres	Percent	Acres	Percent
Retail/Office/General Commercial	182.7	23.2%	197.5	25.1%	14.8	8.1%
Institutional	50.2	6.4%	55.2	7.0%	5.0	9.9%
Commercial Total	232.8	29.6%	252.7	32.2%	19.8	8.5%
Industrial	146.6	18.7%	75.2	9.6%	-71.3	-48.7%
Industrial Total	146.6	18.7%	75.2	9.6%	-71.3	-48.7%
Single Family	131.5	16.7%	206.9	26.3%	75.4	57.3%
Multi-Family	210.3	26.8%	148.7	18.9%	-61.6	-29.3%
Vacant/Undeveloped	10.8	1.4%	17.2	2.2%	6.4	59.0%
Residential Total	352.6	44.9%	372.7	47.4%	20.2	5.7%
Park, Recreational, & Preserve	47.1	6.0%	72.0	9.2%	24.9	52.7%
Open Space Total	47.1	6.0%	72.0	9.2%	24.9	52.7%
Major Highway	3.0	0.4%	9.5	1.2%	6.5	216.3%
Water	3.6	0.5%	3.6	0.5%	0.0	0.1%
Other Total	6.6	0.8%	13.1	1.7%	6.5	98.7%
Grand Total	785.7	100.0%	785.7	100.0%	0.0	0.0%

“We are pleased about the development that’s taken place. This is almost entirely infill development, so it’s making the city denser and bringing in new residents,” says Commissioner Peter McLaughlin of Hennepin County in Minneapolis. “But that means we need to balance private development with green spaces and public spaces, or else we’ve defeated the purpose of the Greenway. So we are careful about preserving the original vision for it.” (McLaughlin, 2016). This private development has also resulted in the addition of plaza and public promenades that are built at street level. Some of these public spaces are accessible to the Greenway as well as city sidewalks.

In a 2015 Star Tribune article, Thomas Fisher, past dean of College and Design at the University of Minnesota, noted that developers invested more than \$200 million along the greenway in that past decade. Fisher stated, “People increasingly want to live by such amenities, and the transformation of the former industrial area into one of the city’s hottest housing locations, in such a short time, testifies to the power of a place like this” (Bruch, M., 2015).

Development Along the Baana

Each end of the Baana corridor is located in a significant area for urban construction. The Töölönlahti bay in the City Centre was developed into a major outdoor public space lined by public buildings and new office blocks. The park was already surrounded by national landmarks such as Parliament House, Finlandia Hall, the Museum of Contemporary Art Kiasma and the new Helsinki Music Centre. These buildings are now joined by a central library. The western end of the Baana is situated in the new Jätkäsaari residential district, where modern apartment buildings have replaced the stacks of shipping containers in the West Harbour.

The eastern end of the Baana is reached via Töölönlahti, the main recreational area or park in the city centre, and the southern tip of Helsinki's own "Central Park" (Keskuspuisto). This area has been developed with new parks, squares and streets to create a uniform urban image. Töölönlahti is undergoing a process of change and is gradually being developed with new buildings. The recently completed Kiasma Park (Kiasmanpuisto) serves as a connecting urban space between Töölönlahti Park and the Baana, complete with an integrated network of pedestrian and cycle paths (Rönkä, T., & Muurinen, 2018).

Greenspace Development Along the Greenway

Development along the Greenway is not only measured in bricks and mortar, vertical growth, or boosting property values. Preserving and adding green space along the edges of the route has been critical due to the limited supply of nearby green space (Caniglia, 2016).

The Adopt-A-Garden Program, created by the Midtown Greenway Coalition, provides an opportunity for organizations to enhance the Greenway by planting and maintaining their own gardens. Referred to as adopters, these community groups, schools, businesses, churches, and other volunteering groups are responsible for choosing, planting and maintaining their parcel over a two-year period (Hedge, 2015). In addition to thriving community gardens, volunteers plant almost 5,000 trees and shrubs each year on Arbour Day (Figures 34, 36, 40, 138, Appendix D).

ACCESS TO PATH AND SERVICES - LIVING NEAR A TRAIL AND CONNECTIVITY

Access to Services

What would make a cyclist feel comfortable in their journey to venture out to a specific destination? If a cyclist or a family of cyclists knew it was safe to ride to a shopping center, to a movie, to a museum or to a restaurant, would their decision to take their bike be made easier? If there were protected bike lanes connecting those various venues, making navigation along heavy traffic areas safer and more accessible, cyclists might target those areas, in turn increasing economic benefit to those retailers along the route. Anchor destinations might be identified, similar to anchor stores at each end of a shopping mall. This chosen route between two “anchors” may not need to be the shortest distance between anchors, but might show a potential journey which may attract users.

The methods to improve the economy through cycling can be a partnership between public and private entities. Government is often relied upon to provide the infrastructure needed to grow the number of riders. However, as seen in other bike-friendly cities, the business community does their fair share of attracting biking clientele.

A Winnipeg example is the Mountain Equipment Co-op store (MEC) on Portage Avenue. Where parking is often scarce on Portage Avenue, MEC provides a large bike parking facility outside its front door. In Portland a large super market chain, New Seasons Market, opened a store having more space for parking bikes than for parking cars (50 vs. 36). The store’s small footprint and central location allowed it to pilot unique transport options. “In addition to the bike-heavy parking ratio, the new store offers grocery delivery by bike, a patch kit and air station available free to all customers, and hand carts and wagons to walk your groceries home (or

creatively pull them on your bike)” (Blue, 2011). These cycling implementations, according to a 2008 study, have identified the bicycle-related industry alone as contributing \$90 million to the local Portland economy every year (Blue, 2011).

Connectivity

Cities with viable AT routes often work to improve their infrastructure around the nucleus of a specific district. The challenge lies in the ability to connect these hubs to one another. The distances between various parts of the city are often long and without adequate paths that offer continuous and uninterrupted active travel. Jonathon Vlaming, senior manager of planning at the Three Rivers Park District in Minneapolis, works closely with Hennepin County transportation engineers to, literally, bridge these gaps. “I always like to think of the regional [off-road] trails as the primary arteries of the overall bicycle system.” Vlaming makes sure their systems interconnect” (Arvidson, 2008). Although the park district’s off-road trails, which often run on old rail corridors and connect regional parks, may have been historically seen as recreational facilities, they are increasingly used for commuting.

Access to and from the Baana

The Kamppi Bicycle Centre is part of Helsinki's cycling program, a service concept modelled after international examples of bike service centres. It was developed for Helsinki and opened in 2012, simultaneously with the Baana. Moving away from traditional, infrastructure-centred transport planning, the Kamppi bike centre is an example of more forward-looking, demand-oriented planning (Makinen, K., Kivimaa, P., & Helminen, V., 2015). Smooth and centrally located services are considered necessary complements to high quality infrastructure in efforts to increase the modal share of cycling. The bike centre brings together multiple cycling services, from repair services and tools for repairs to bike rentals, information on routes and cycling attractions to secure bicycle parking, as well as providing a venue for cycling related events. Named the Pyöräkeskus, the bicycle centre services include emergency repair, where cyclists can service their own bikes, and obtain information. Additionally, there is a supervised bike parking area which serves commuters who wish to arrive at the centre by public transport and proceed by bike. Various organizations can hold events at the centre which also serves as a meeting point for cycling tours.

Multiple actors, including city departments, private companies and non-governmental organizations, worked together to develop the centre and, since 2014, the Helsinki City Transport Authority has been responsible for its operation. Commercial services are provided by private businesses while the City provides facilities to house operations and bike racks. The Bicycle Centre was designed by Helsinki Metropolia University of Applied Sciences. The Bicycle centre is one of the City's activities to promote cycling. Additional bicycle centres modelled after the Kamppi centre are currently planned in major sub-centres (City of Helsinki, 2017).

Access to and from the Midtown Greenway

The Freewheel Midtown Bike Center is a collaboration among the City of Minneapolis, the federal government and some private companies, including hospitals. Allina Health Systems and the City of Minneapolis provide the Midtown and Twin Cities communities a full-service bike transport station, having long/short term bike storage, bike rentals, cafe, repair classes and a public self-service shop for cyclists. Furthermore, there are a full-service repair shop, a bicycle and accessory store, public toilets, showers, and ancillary facilities. Urban cyclists can additionally access products and the facility for community outreach. Annual membership in the Commuter Club provides access to 24-hour bike storage and priority access to showers and lockers.

Kevin Ishaug , the owner of Freewheel Bike Shop in Minneapolis, said the rising cost of fuel, the sluggish economy, and people's growing environmental awareness pushed forward the bike center's opening (Espinoza, A., 2008). "It's an unfortunate timing of circumstances, but I think we're in a position where we can provide solutions to a lot of those problems," said Ishaug. "And it's not as difficult as people think. It's actually quite fun" (Espinoza, A., 2008).

The Midtown Greenway is accessible from many different points along the almost six-mile route. While the path crosses under 44 bridges, there are 19 access points to enter the Greenway. Access can be achieved at grade and by ramps and stairs (Figures 75, 97, Appendix D). Along the Midtown Greenway and the Baana, long stairs have an added circular rail which is fastened to the stair risers. This allows a cyclist to wheel their bike up or down while walking next to it (Figures 120, 122, Appendix D). Aside from larger scale bike repair facilities, such as the Freewheel Midtown Bike Center and the Kamppi Bicycle Centre, there have evolved smaller self-operated kiosks. The bikeFIXTATION is a vending machine and repair station in one

(Figure 148, Appendix D). The first installation at the Minneapolis Uptown Transit Station is in a secure lobby, cash machine-style, automatically open from 6am - midnight 365 days a year (Rearden, 2011). More than 100 years earlier, the Minneapolis-based Minnesota Cycle Pump Company opened for business in 1900 and installed 500 pump machines on street corners in Minneapolis and Saint Paul. For a penny cyclists could get 40 cranks to fill up flats (Minneapolis Bicycle Master Plan, 2011).

Metropolitan Branch Trail

The Metropolitan Branch Trail (MBT), also called the Met Branch Trail, is an 8 mile (13 km) planned rail trail that runs from the Silver Spring, Maryland Transit Center to Union Station in the District of Columbia. Seven miles of the trail are within Washington, DC and one mile (1.6 km) is in Maryland (US District Department of Transportation, 1999). The trail gets its name from the Metropolitan Subdivision of the Baltimore and Ohio Railroad, which the trail parallels. Although the trail travels alongside the existing rail corridor and did not replace the rail, it is an example of how adjacent railroad property and possible easements can be utilized. The Trail was first conceived in 1988, in conjunction with the Washington Area Bicyclist Association and Rails-to-Trails Conservancy (Metropolitan Branch Trail, 2018).

The MBT serves city residents and visitors who want to travel to public schools and libraries, hospitals, museums, monuments, and historic sites (US District Department of Transportation, 1999). Access to services is evident by the trail's ability to serve 16 schools within a half mile, five retail centers, two regional retail centers, seven metro transit stations as well as Union Station (Figures 145, 146, Appendix D).

Chicago

In Chicago, the Lakefront Trail is an example of an AT route that can be high-performing in certain areas and not in others. The trail is not an abandoned railway line, but an expanse of concrete between Lake Shore Drive and Lake Michigan. South of downtown the trail has few walkers, joggers and skaters – just cyclists. However, near Lincoln Park and where the path crosses over Lake Shore Drive, the trail starts to populate with families venturing into the surrounding neighbourhoods where there are restaurants, attractions and residences. This trail replicates other multi-use trails all over the country. They are often partly funded by federal transportation money. They are heavily used where there is connectivity and easy access not to just recreational areas but also to a wide range of places people want to go - neighbourhoods, shops and restaurants (Arvidson, 2008).

Pittsburgh

In the City of Pittsburgh, 35 miles of bike trails have drawn homeowners to move closer to the trail so they can use the route for travel to and from work. Cycling or walking to work, shopping, or entertainment venues have become a way of life for those living near trails or bikeways. Visual evidence showing walkers and cyclists carrying their briefcases and backpacks with a change of clothes indicate their travel to the office (Karlovits, 2011). Adjacency to Pittsburgh's bikeways and walkways lure businesses and homeowners. A demand for increased bike parking and secured bike storage at apartment buildings adjacent to the route is another indicator of increased desired to access AT routes (Bercelli, 2011).

HEALTHY CITIES

A four-year study conducted at the University of Southern California, and led by researchers from the Institute for Preventative Medicine and the Center for Sustainable Cities, studied three trails in Chicago, Los Angeles and Dallas (Reynolds, K. & Wolch, J.). The three trails were chosen based on length, variety of development districts crossed, and demographic profile of residents in adjacent neighborhoods. Of the 500 users surveyed, cycling was the most frequent mode of travel, followed by walkers and then joggers. One of the study's conclusions was that those using the trails for recreation had higher levels of average weekly physical activity than those who use the trails just for transportation. The participants who claimed to use the trail for exercise also reported better health as well as social interaction. When it came to the proximity of schools, the trail did not promote children to ride. This may have reflected the nationwide trend of fewer children walking or cycling to school (Arvidson, 2008).

The U.S. Surgeon General estimates that 60 percent of American adults are not regularly active and 25 percent are not active at all. In a report from the Rails-to-Trails Conservancy Lessons Learned, in many communities across the U.S. people do not have access to trails, parks or other recreational areas close to their homes. Trails and greenways provide safe, inexpensive avenues for regular exercise (Ciabotti, Goodrich, Morris & Winslow, 2004).

CHAPTER 5

CASE STUDIES: FINDINGS FROM INTERVIEWS

INTRODUCTION

Before interviewing Key Informants summarized groupings were created as a guideline for each discussion. These groupings, or topics, represented a different aspect of the conversion process. The two initial groupings, backgrounds of the Midtown Greenway and the Baana, created a starting point for each interview. By listing these topics, it formed an outline for each conversation. This list of placeholders helped in assuring each grouping was addressed. However, because the interviews were semi-structured, there was no certainty this would occur. To further assist in the interview process, each Key Informant was given a list of questions ahead of time. This allowed for the interviewee to prepare.

In the section titled *Informant Backgrounds and Findings from the Interviews*, a short description of the participant is provided to set the stage for their involvement with the project. Fragments of information about the precedent city and project, in addition to quotes from the participant, make up the introduction and allows for the next part of the discussion.

Following these participant introductions, the remainder of this section is categorized into the 12 summarized groupings. The intent was that each Key Informant would speak to as many groupings as possible. This was not always the result but kept the information as organized as possible. With the combination of stated facts followed by Informant quotes, this gives the reader a balanced interview dialogue. The chapter ends with some of the key lessons learned from the participant discussions.

INTERVIEW SUMMARIZED GROUPINGS

- Background of the Midtown Greenway
- Background of the Baana
- Community Engagement
- Project Funding, Operations and Project Enabling
- Rail Acquisition
- Economic and Real Estate Development
- Planning, Design and Construction
- Safety
- Connectivity / Access to Route and Services
- Challenges and Opportunities
- Political Influence
- Lessons Learned

Key Informant	Title	Acronym Used in Reporting	Date of initial Interview
Otso Kivekäs User	Helsinki Cycling Association Head of the Finland Green Party	OK	August 6, 2016
Michael & Abby Mouw User	Midtown Greenway Advocates	MAM	August 2, 2018
Tim Springer Founder	Past Executive Director Midtown Greenway Coalition	TS	August 1, 2018
Kirsi Rantama Founder	Architect, City Planning Department, Helsinki	KR	September 6, 2018
Krista Muurinen Implementer	Architect, Past Partner LOCI Landscape Architects Helsinki	KM	August 1, 2018
Leena Buller Implementer	Past Project Architect LOCI Landscape Architects Helsinki	LB	August 16, 2018
Doug Duncan Player	Past Senior Officer CN Railroad Company Winnipeg	DD	September 25, 2018
Brian Shekleton Implementer	Principal Aide Hennepin County Minneapolis	N/A	No Interview Conducted
Peter McLaughlin Implementer	Commissioner Hennepin County Minneapolis	N/A	No Interview Conducted
Person never identified Player	Railroad Executive Helsinki	N/A	No Interview Conducted

INFORMANT BACKGROUNDS AND FINDINGS FROM THE INTERVIEWS

Otso Kivekäs

Helsinki Cycling Association, Head of the Finland Green Party
August 6, 2016

Although Otso was not available for a formal interview at the time of this writing, the experience of riding the Baana with a representative from the Helsinki Cycling Association was critical to understanding the realities of the Baana. This is a reflection of meeting and riding with Otso Kivekäs on August 6, 2016 (Figures 64, 65, 84, 85, 86, 168, Appendix D).

The ride started at our hotel. Otso met me with his cargo bike, where he was carrying his two very young children. We were in a very busy part of Helsinki, where most parents riding with their young family in tow might be a risk for many people. We very quickly rode to one of the access points to the Baana. This was near the Kamppi Bicycle Center, one of the enterprises that services the bike route.

There was a sense of calmness once we entered the Baana. There were only cyclists, walkers and runners. The route invites skate boarders but, on this morning, we saw none.

In the city centre, access to services along the route were far apart. The railway trench was deep here, so adjacency to services and on/off access was difficult. At certain points, stairs were the only option unless we rode further. Our ride did not include leaving the Baana. Otso wanted to show me the entire route and various neighborhoods along the route.

As we progressed from the city centre toward the harbour, the route widened. Otso seemed more comfortable to pull his bike over in this area, rather than earlier where the path was narrower. I believe his little girls were getting antsy in the cargo bike and needed a snack. A stop for ice cream was the answer.

Where the route widened, and the trench disappeared, users entered and exited the path almost anywhere. There were more service options (ice cream stands, etc.) and more residential units at street level. This was a benefit in one way, and a hazard in another. This created more on/off traffic and demanded more concentration from cyclists. In contrast to the Midtown Greenway, most of the residential real estate appeared older and more traditional. These buildings have existed for some time. Unlike the Baana, various stretches along the Greenway display countless new building projects.

Michael and Abby Mouw
Midtown Greenway Advocates
August 2, 2018

Abby Mouw, a photographer and ceramicist, came to Minnesota as an infant and grew up in Southwest Minneapolis. Ms. Mouw took advantage of biking and recreational facilities all her life. After leaving and returning to the city several times she now considers Minneapolis her home. Mr. Mouw, a media and technology professional, spent his childhood living in the western suburbs, not in the city. He has spent most of his life in Minneapolis, except for a ten year stay in Florida and Boston after which he moved back to Minneapolis for graduate school. Upon moving back, Mr. Mouw used the cycling infrastructure almost exclusively. The Mouws (Figure 164, Appendix D) were a two-car family and now they are a “plug-in hybrid one-car family (Mouw, 2018).” The Mouws just returned from living in Atlanta where Mr. Mouw rode to work each day.

“While residing in Atlanta, we purposely lived on a bike and pedestrian path which replaced an old rail line that circles the city. We purposely bought a condo on that path, called the Atlanta Beltline (Beltline). I could ride nine out of ten days to work. This is also how I got to the gym and the farmers market. The Beltline to the park then to the museum where I worked. For Atlanta it was extremely unusual to have a nice safe bike ride to work. The Beltline is a bit of a harried ride, especially on the weekends. They don’t separate the route for pedestrians and the bikers, and everyone, is dodging each

other. There are restaurants and bars on the path so there are also drunk drivers. They also just can't seem to finish [the Beltway]. It's taking decades." MAM

Tim Springer

Past Executive Director, Midtown Greenway Coalition

August 1, 2018

When I interviewed Tim Springer (Figure 165, Appendix D) he was spending the weekend in Detroit, Michigan. I was unsure of his whereabouts because he was sitting on porch swing with a character home as his backdrop. Mr. Springer lives in Minneapolis but shares his time in the Motor City, working on community engagement around a potential network of greenways with bicycle highways.

Mr. Springer holds an undergraduate degree in Biology and a master's degree in Energy and Resources from the University of California at Berkeley. In 1992, after leaving a career as a solid waste management consultant, he co-founded the Midtown Greenway Coalition and later became the first paid staff for that organization. He then spent time as a bicycle transportation consultant in Minneapolis and St Paul, where his work included a concept plan for a greenway to be created by vacating a road to motorized traffic.

In 2016 Tim conducted visioning sessions to help Detroit residents create a shared vision of Detroit as the world's greenways capital (Springer, 2018). They were sowing the seed for an entire network of bicycle highways. Already there is one greenway in Detroit that was constructed in an abandoned railway, the Dequindre Cut Greenway, an active transportation corridor like the Midtown Greenway in Minneapolis.

The concept involves a network of bicycle highways constructed through railroad and roadway corridors. Possible treatments in roadway corridors include vacating some roadway

corridors and converting them into bicycle highways, or maintaining lanes for motorized traffic with a bicycle highway and a linear park alongside the motorized travel.

“The consistent theme for all these bicycle highways is to offer cyclists an opportunity to travel without stopping. You offer a level of service for bicycle transportation similar to what the interstate freeways offer motorized traffic.” TS

When Detroit went through their economic decline, population dropped.

“The reason Detroit has such potential for a network of bicycle highways is because the population went from about two million people to about 700,000. When your population decreases by almost two thirds, you have an excess of public right-of-ways. Motor vehicle traffic counts decreased dramatically. Repurposing the roadways or portions of them is a more viable possibility here than in other cities where the roadway space is congested. Also, the city has a connected grid, offering many routing options, and the topography is flat, making bicycling easy rather than arduous. In addition, car insurance rates are also among the highest in the country. To insure a car can be \$4,000 to \$5,000 per year, largely a result of law suits related to car crashes.” TS

Kirsi Rantama

Architect, City Planning Department, Helsinki
September 6, 2018

Kirsi Rantama, an architect by profession, was responsible for planning the Baana project under leadership from the City Executive Office and the Helsinki City Planning Department (Figure 129, Appendix D). Ms. Rantama holds a degree in architecture from the Technical University of Helsinki (2011) and a postgraduate degree in urban planning in the Aalto Executive Education program (2015). Ms. Rantama currently works with the Urban Environment Division in the Helsinki City Planning Department. From 2002 to 2017 she worked as an architect on the West Harbour project and today works as a team manager on the Kalasatama-Malmi project.

Krista Muurinen

Architect, Past Partner, LOCI Landscape Architects, Helsinki
August 1, 2018

Krista Muurinen (Figure 166, Appendix D) was born in Raisio, Finland. She studied Landscape Architecture at Helsinki University of Technology in 1993. After three years of study Ms. Muurinen was unsure whether to continue with Architecture or pursue Landscape Architecture. She moved to Copenhagen as an exchange student and studied one year at the Royal Danish Academy of Fine Arts in the School of Architecture, Design and Conservation. After a year in Copenhagen she finally decided to continue studying Landscape Architecture at the Helsinki University of Technology under professor Tom Simons.

“I studied in the Department of Landscape Architecture. The professor of Landscape Architecture at the time was Steen Høyer. Without him I would never be a Landscape Architect. With him I understood that Landscape Architecture is architecture and it’s possibilities are limitless.” KM

Krista returned to Helsinki in 1998, continued studying and working in a landscape architecture office, and finally graduated in 2002. For some of that time she combined working with friends and being home with her daughter. In 2005, along with four partners, she founded LOCI Landscape Architects. In 2013 the LOCI office split and Krista, along with landscape architect Teresa Rönkä, founded the Landscape Architecture office Maanlumo Ltd. She is still there today. How did Krista and her partners get involved in the Baana?

“LOCI Landscape Architecture was profiled mostly to urban design. The projects I work with are quite urban like roads, squares and parks. That’s what I’m interested in. We had made projects before which showed we were interested in this kind of urban spaces.” KM

The design of the Baana was not chosen through a competition. The firm of Ramboll Finland Ltd. had been designing the Baana, and there was already a plan before LOCI came to the project. But the City of Helsinki wanted another opinion of what the Baana could be and look like (Muurinen, 2018).

“The meaning of LOCI comes from Genius Loci. It is Latin, literally the ‘spirit of the place.’ It comes from designing from the place itself. The sprit or essence of the place. Every place is unique and has its own character.” KM

Krista Muurinen worked with Leena Buller, another participant in this research, while at LOCI Landscape Architects. Krista’s role at LOCI was Project Leader and Main Designer, while Leena’s role was Project Architect.

“We were designing Baana as a team with Leena.” KM

When you relate Landscape Architecture to Architecture, how long were the various phases of design? Schematic Design, Design Development and Construction?

“Baana was not like a normal project because infrastructure work had already started when we came to this project. So we were in a big hurry. The main starting point was that it was supposed to be a bicycle and pedestrian route and the trench was already almost completely cleaned. We started by making analysis about development of the surrounding city from history to present to be able to understand the site. We studied how the railway project had changed the City and how Baana would change it. After analyzing we made a general concept design. First sketches were hand drawings, to make quick suggestions for the steering Committee at the City. We started planning in August 2010 and at Christmas we had a principal plan. We continued to make technical drawings right away. The Baana opened in June 2012. So that meant we only had one and a half years time to design and [perform] the construction work so it was quite a quick project.” (Figures 91, 92, 93, 94, 95, 96, 99 Appendix D). KM

“Canada is like Scandinavia. When we compare North American countries and climates, Canada is, more or less, like Scandinavia. Canada is a little bit colder. We have cold in Laplands but in Helsinki, well it depends on winter, but usually it’s not that cold. It’s nice to know someone is interested in Baana so it’s my pleasure to talk with you. We started designing Baana in 2010 but the idea was born in 2003.” KM

Leena Buller

Past Project Architect, LOCI Landscape Architects, Helsinki
August 16, 2018

Leena Buller (Figure 167, Appendix D) is a landscape architect in Helsinki who assisted in leading the design of the Baana project. Ms. Buller moved to Helsinki 18 years ago from Kuopio (<https://www.kuopio.fi/en/etusivu>), about 400 km north of Helsinki. She came to study

design at the University of Art and Design Helsinki, but found landscape architecture through the environmental art courses and then applied to Helsinki University of Technology.

“Landscape architecture combined all my interests from biology and geography to applied arts and designing in architectural scale.” LB

Before graduating she took a job with LOCI Landscape Architects, and completed her master’s degree in Landscape Architecture while still working. In 2010 the Baana project came to LOCI and was one of Ms. Buller’s first projects as a Project Architect.

“I didn’t lead the design but I worked closely with Krista [Muurinen]. I got to do some designing by myself. because we had quite similar design perception and vision of what Baana is or should be. We discuss and sketch together and that’s how the project evolved.” (Figures 100, 103, 104, 105, 106, 107, 108, 109, 110, Appendix D). LB

Her first role on the assignment was assistant to the Principal Designer, soon after becoming quite independent, and assisting Krista Muurinen, when needed, on the project. Ms. Buller now works with another firm which integrates landscape architecture into city planning and housing projects. When asked if she worked on similar projects:

“There has been nothing like that project. There is nothing like Baana, meaning that there isn’t this kind of interesting space left in the middle of the city structure. And also meaning that Baana was my test, my first constructed project, so it has a special place in my heart.” LB

Doug Duncan

Past Senior Officer, Canadian National Railways (CN)
September 25, 2018

Doug Duncan worked with Canadian National Railway (CN) for over 25 years. Mr. Duncan’s railroad background began in 1970 in Internal Audit and progressed to Regulatory Costing in 1973. In 1983 he became Manager of Research Services for CN’s Prairie Region. From 1986 to 1992 he was Regional Manager of Planning. In those years Mr. Duncan was responsible for branch line subsidies, railroad abandonments, network planning, rehabilitation of rail lines, the Forks Redevelopment in Winnipeg, and rail relocation. Although out of the

industry for more than a decade, Mr. Duncan's experience in Winnipeg tells us there are not too many abandoned rails left in the city (Duncan, 2018).

1. BACKGROUND OF THE MIDTOWN GREENWAY

George Puzak resurrected a 100-year old idea of creating a greenway across Minneapolis east-to-west and suggested putting this greenway in the 29th Street railroad corridor. Tim Springer, along with George and other Minneapolis residents, created the Midtown Greenway Coalition. Prior to that, Tim was advocating for an East/West bikeway on 31st Street to offer fast, safe, and pleasant bicycle travel across the City of Minneapolis, but use of the railroad corridor became much more compelling.

“George learned what I was pushing for and he said, ‘what about the 29th Street railroad corridor instead?’ and I said, ‘I don’t know, show me’. We took our bikes down there and had to walk them most of the way because there was a lot of broken glass, old railroad tracks and railroad ties, and debris. But I was sold right away. I said, ‘this is great, I’ll help’.” TS

In 1992 Hennepin County purchased the western two thirds of the 5.5 mile corridor for \$9.3M, and the western third became the first length of the Greenway trails to be constructed through Minneapolis. Once the corridor was publicly owned everything became more feasible. Hennepin County Regional Railroad Authority (HCRRA) did not purchase it for bicycle transportation, but rather so they could keep it and eventually use it for rail transit such as street cars or light rail transit (LRT). Freight rail tracks have since been removed from this western two thirds of the corridor. Freight still runs on the eastern one third of the corridor but at a frequency likely less than one train per day (Springer, 2018).

“Joan Vanhala worked for a neighborhood organization to improve lives in the urban core for people who live there. I wanted to offer fast, safe and pleasant bicycle transportation east and west across Minneapolis. George wanted a green connection

from the Mississippi River to the city's famous chain of lakes on the west side of city. All three of those objectives became married together. It was a nice triad of objectives." TS

"There are historical markers along the trail. There are weather proof graphics, texts and images on kiosks. Near the river there are acknowledgements of what was there before and what went on in these neighborhoods a hundred years ago. On a separate bike trail there is a memorial to the historic freeway collapse near the river." MAM

2. BACKGROUND OF THE BAANA

With the West Harbour being relocated, the railway serving the city Centre from the Harbour would not be required. The Helsinki City Planning Department's aim was to connect the railway area with city structures; mostly by using the lane as a public area for leisure, walking and bicycling but also looking for possibilities to build alongside the lane (Rantama, 2018). An example of this residential infill can be found in Winnipeg along an abandoned rail, traveling north - south between Academy Road and Corydon Avenue, and parallel between Lockwood Street and Centennial Street. There also remains a discussion to create a car tunnel where the Baana is today. This would allow traffic to flow underground from the harbour to the City Centre.

"There's still an idea to build a car tunnel under the City Centre. But now the plans take Baana into consideration [and now] it would remain. In the beginning of the process the tunnel would have taken the place of the Baana. At that time, you thought the Baana would be temporary but now people have taken to it." KR

3. COMMUNITY ENGAGEMENT

Tim Springer has never had a formal position with Hennepin County or the City of Minneapolis. The Midtown Greenway Coalition (MGC) never received money from the City or the County for its work, except for a subsidized city intern and perhaps some small project-specific funding. The MGC is a standalone advocacy organization not beholden to the City. The Board of Directors for the MGC was formed in 1995 and all seats were filled in 1996.

“The Board has a seat for each of the neighborhood organizations along the corridor throughout the city. Those organizations have been participants since early on. This was a strategy which creates formal representation and opportunity to vote on things, in the hands of community groups.” TS

After the Greenway was built, community engagement remained a priority. It was important to engage the people who live along the Greenway who didn't know it was for them, or who didn't even know it was there (Springer, 2018). A grant from the Minneapolis Foundation was awarded to the Coalition for an Immigrant Engagement Program. The Coalition hired part time Somali and Latino interns. These individuals connected with people in their community to explain the Greenway and invite them to enjoy it (Springer, 2018). Group walks and bicycle rides were created. Through work with local schools and churches, donated bikes were used to introduce young people to the benefits of the Greenway. Community garden programs alongside the Greenway are also a big part of community engagement.

“Community gardens provide an opportunity to make people feel like the Greenway is their space. This program relies on volunteer hours. Community engagement can happen during the planning process, but it can also happen as programming once the facility is in. And both are important.” TS

Many conversations around converting abandoned rails into active transportation focus on technical challenges. However, what have these paths done for community? Have they brought people together? Are people healthier?

“You run into family and friends on all the trails. My friend Beverly was here from Atlanta and we spent all day on our bikes. Kids get together for recreation and go places. Shops pop up around bike infrastructure. There are music concessions. There's food. I think it goes on and on.” MAM

“Socially when you're on a bike you can talk with people. It connects neighborhoods, people and community together whose [habitants] normally would not be talking to each other. I'm not sure why we would strike up a conversation with a 13-year-old. But on the bike path he might ask where we're riding, and we would have a conversation we might not ever have had.” MAM

Bikes have really changed to adapt to these routes (Mouw, 2018). A lot of riders have utility bikes and extended bikes with seats for children. Typical journeys include going to grocery stores, school drop-offs and carrying supplies from the home center.

“We have seen three kids on one bike with a parent. We’ve seen extended bikes, cargo friendly. Abby and I have touring bikes with bigger wheels and frames that allow for packs and baskets. As I flash through my mind what I saw people riding yesterday – I saw serious cargo bikes and serious commuter bikes – maybe a third of all the bikes I saw. The other third were rental bikes using the bike share program” MAM

In 2006 Helsinki held a design competition open to architecture students for the creation of the Baana (Figure 159, Appendix D). Community engagement created healthy competition and creativity.

“Competitions can give many good ideas, but crucial is how the solutions and design ideas turn in to the reality. The steering committee should understand the design goals but also to be able to guide the process to be a realised work.” KM

Leena Buller shared third prize with her schoolmate Leena Kemell. She stated that everyone was thrilled to have this kind of place in the middle of Helsinki (Buller, 2018).

“The intention was to make Baana a versatile urban space suitable for different user groups. The inclusion of an empty non-commercial space has intrinsic value. In terms of both scale and quality, Baana is suitable for a wide range of functions and uses. It has been purposefully designed as a simple and rugged urban space that is unique to Helsinki.” KM

4. PROJECT FUNDING, OPERATIONS AND PROJECT ENABLING

The Midtown Greenway was almost entirely funded by public dollars. Citizens were not used to seeing that kind of money, typically spent on motorized infrastructure projects, being spent on bicycle transportation projects. Projects like the Greenway needed a few years to live in the halls of government before being validated (Springer, 2018).

The current operation and maintenance of the Midtown Greenway is unique. It is maintained by the Department of Public Works and not a parks agency, as with most trails. This

creates a higher level of care and a more important status of infrastructure than what Parks and Recreation would demand. The public agency that owns the route does not have 100 percent responsibility for its maintenance. As owner of the route, the Hennepin County Regional Road Authority contracts with other vendors for weed whacking, painting, removal of graffiti and managing vegetation. The City of Minneapolis Public Works Department performs snow plowing, lighting maintenance and signage while the Police Department offers security services (Springer, 2018).

“This is a combined effort which brings more resources to the table and that’s a good thing. It’s important to note that the Midtown Greenway is maintained by City of Minneapolis Public Works Department and not a parks agency. When you maintain something for the purpose of bicycle transportation, as opposed to recreation, then you have a higher bar to meet in terms of snow plowing, lighting and hours of operation. There are wider lane widths and turning radii. It’s a different animal than if it was a just recreational trail. The Greenway is not only for recreation. People have become dependent on it for their daily life. When you design it to be highly functional, users will commute by bicycle. Whether to get a carton of milk, to go to work or to college, or to go out on Saturday night, you are using it to get somewhere. And if its functional for that necessity then it is functional for recreation, as well.” TS

Project Enabling is a concept in which new building projects or even renovations occur as a result of the initial project. Demolition, relocation, new construction and infrastructure can all stem from the initial project. Regarding the Baana, was there project enabling that occurred? Were there projects that evolved as a result of the Baana development, which may not have been foreseen?

“The project was so fast, almost two years from start to finish. No extensions to the Baana happened because it is so narrow of a space. There is no [room for expansion] because it is confined. Because the Baana is in the middle of the city there is not that much room for new development. Nowadays when they (Helsinki) build cycling routes, these quality roads for cycling use this Baana name to describe it. There are other Baanas all over Helsinki. It has spread all over, but the original Baana is just this 1.5 km [section]” LB

Because the Baana is narrow, limited in space, and below the city street level, it is already surrounded by existing city context. Because of its age as city infrastructure, it does not affect the surrounding buildings and infrastructure in adjacent neighborhoods. Only one new cafeteria has been built next to the Baana. This might be the only new service-supporting element built and without the Baana it wouldn't be there (Muurinen, 2018). Other key city amenities exist along stretches of the Baana but were not developed as a result of the route.

The Baana's location is central. It starts from the Musiikkitalo (music hall), the Museum of Contemporary Art Kiasma (Figure 78, Appendix D) and Kansalaistori Square and Parliament House. It's a link between the City Centre and an old harbour area, nowadays turned to a new residential area, Jätkäsaari. The Baana continues as a bicycle and pedestrian route around Töölö Bay (central park). Although near the Baana, this park has existed for years and serves as a link to the rest of Finland. The Oodi Library is the only newly built public building.

5. RAIL ACQUISITION

When planning the Midtown Greenway was there opposition from the Railroad companies?

"I was not in the room during negotiations between the Hennepin County Regional Railroad Authority and Canadian Pacific Rail. I think they were pretty much a willing seller. There was one remaining freight rail user along the corridor at that time. That freight rail customer was able to consolidate operations at a different location in a way that made business sense for them. When there were no more freight rail destinations along this corridor, routing freight trains here was no longer essential." TS

Mr. Springer shared a different, more challenging, story about a public sector purchase of a railroad corridor; this one in Detroit regarding a corridor needed for the proposed Joe Lewis Greenway. There has been a huge struggle to acquire the rail. From the seller's perspective, the railroad company does not want to take responsibility nor hold the liability of pollution and

environmental impact. From the buyer's side, the City of Detroit does not want this responsibility either. This led to a multi-year negotiation (Springer, 2018).

The transferring of rail properties is a heavy legal process and is treated like any commercial real estate transaction (Duncan, 2018). A small rail yard occupies land along the Burlington Northern line, south of the Assiniboine river in Winnipeg (Figures 17, 18, 19, 20, 21, 22, 23, 24, Appendix D). This land around the yard is considered heavy industrial. If the railroad company decided to abandon that section of rail, the adjacent land would be part of the transaction (Duncan, 2018). Historically, Winnipeg exhibits the Hart Trail, the Northeast Pioneers Greenway (Figures 25, 26, 27, 28, 29, Appendix D), and the Burlington Northern Railroad (Figures 17, 18, 19, 20, 21, 22, 23, 24, Appendix D), three examples of abandoned rails converted to active transportation routes.

"Fifteen years ago we were getting rid of problem lines. A problem line is one that doesn't have any traffic on it. They cost money. The kind of lines you [Michael] would be looking at within cities would be spur lines to industries, which for the last 20 years have been disappearing. Most rail lines today go into rail yards and freight from there gets trucked to industry." DD

What environmental concerns or required remediation are associated with a rail that has been abandoned? The extent of environmental remediation is dependent on whether the line is urban or rural. When a line is abandoned the property needs to be rehabilitated. In most cases there would exist a type of pecking order (Duncan, 2018). The rail would first be offered to the Federal Government, then to the Provincial Government, and finally the Municipality. If there were no takers the property would then be commercially sold. Mr. Duncan never worked with the concept of rail banking. This is when rails are removed from the corridor and the corridor is given to a third party for the development of an active transportation, with the possibility of the railroad company taking the property back at any time (Duncan, 2018).

Rail abandonment and the sale of that easement is treated like any other real estate transaction. With larger parcels, [real estate] negotiations can become complex (Duncan, 2018).

The Forks in Winnipeg is an example of an involved and far-reaching transaction.

“When we were redeveloping The Forks that was a negotiation between CN, the Federal Government, and interests in Vancouver. There were swaps, multimillion-dollar swaps of property between CN and the government to allow those kinds of developments to take place. The property rights for the Customs House, a building in downtown Vancouver, went to CN as part of the Forks deal. This is a commercial real estate negotiation. To make it work, how much is your property worth here? How much does this guy owe you? What do you want somewhere else? That was a big deal.” DD

There are soft and hard costs involved in abandoning a rail line. Hard costs can be the actual removal of track, surrounding infrastructure, and remediation. Soft costs are legal fees and land-transfer costs. However, the highest cost risk is in low-to-zero volume rail lines and the replacement of bridges and culverts. When a bridge fails it is not economical for the railway company to rebuild them. The company will not expense those capital funds to replace that infrastructure on zero traffic lines (Duncan, 2018).

For the Baana, were there challenges in acquiring approval to remove the rails? Were there environmental concerns?

“The rails were already removed when we (LOCI) began the project. It was so good, the steel, so I think they just sold it. We brought the rails back in certain areas, like a memorial to the railroad. [In other cases] we painted them on the asphalt. The rails were brought back by painted lines on the asphalt, the lines are just the reminiscence of the rails. There wasn’t or isn’t any pieces left of the real rails.” LB

6. ECONOMIC AND REAL ESTATE DEVELOPMENT

Along the Atlanta Beltline the city is allowing developers to drive growth which ends up dwarfing the active transportation route (Mouw, 2018). Developers first build condos, then build a section of the Beltline. Contrary to Atlanta, the Minneapolis development of Sears and

Roebuck Open World Market grew naturally along the already-built Midtown Greenway (Mouw, 2018).

“What comes first, the development or the path? ‘If you build it, they will come’ (Field of Dreams, 1989). [Development] was slow in Atlanta even though taxes went to pay for it. It was messaged that ‘we’ll finish this 20-mile route by 2030 or 2040’. Ryan Gravel wrote his Georgia Tech master’s thesis, [Belt Line – Atlanta: Design of Infrastructure as a Reflection of Public Policy]. He is the mastermind behind the Atlanta Beltline.” MAM

The City of Helsinki owns 70% of its land in the city (Rantama, 2018). Most development is publicly decided.

“We have quite a monopoly to design the city. We do the city plans, the master plans. Of course, we do that together with consultants, but we are the ones who mostly take the initiative for the projects like the Baana.” KR

Prior to creating the Midtown Greenway in Minneapolis, certain neighbourhoods were less developed and various stretches were suffering from urban decay. When the Greenway was developed, condominiums, apartment buildings, retail and hospitality gravitated along the Greenway path. In contrast, commercial and residential real estate along the Baana was already of a higher quality.

“There is really high-quality space everywhere along the Baana (City Centre). On one end is the railway station. On the other end is the West Harbour area which is growing into a new popular housing area. So already the surrounding area is really growing and developing in a good direction.” KR

The Sears and Roebuck building, an iconic heritage site, is geographically located, east to west, in the center of the Greenway. When this building was converted to commercial, retail and residential space, it needed access to the Greenway. When the City refused to fund the connection, there was a privately funded, \$300,000 landscaped stairway constructed (Springer, 2018). Quite often the sidewalks along large residential developments adjacent to the Midtown Greenway are privately maintained but publicly accessible (Springer, 2018).

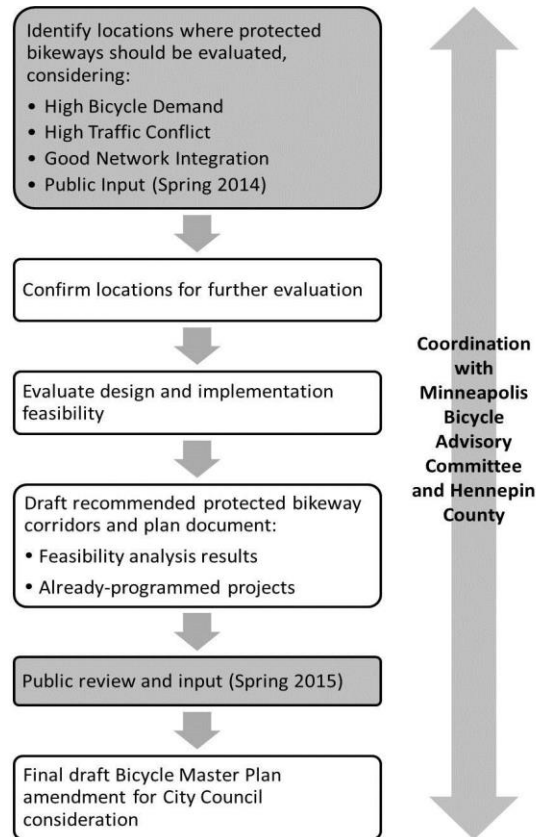
Are there requirements that developers need to address when their project faces the Greenway? Are there development fees? Are there design standards or access requirements? Do developers need to maintain greenspace along the route? Developers must start these conversations with City Council and Planning Department. Developers require approvals to increase density above what is allowed based on current zoning of given land parcels, approvals that may require zoning changes or other city actions. To get what they want, developers have to appease the City so they are ready to have conversations.

“The City will typically say talk to the neighborhood organizations and talk to the Midtown Greenway Coalition. We educate them, and we shame them, and we entice them to be a good neighbor to the Greenway. They soon realize that it’s in their own self-interest to have an interface with the Midtown Greenway. Improved Greenway access, safety and Greenway aesthetics, will improve marketability for their projects.” TS

7. PLANNING, DESIGN AND CONSTRUCTION

The Midtown Greenway Coalition worked with the City of Minneapolis on five different land use plans to guide development along the Midtown Greenway. The mother of these plans was the Midtown Greenway Land Use and Development Plan (Springer, 2018). This plan offers design guidance for all development along the route. Another guide was the Minneapolis Master Plan Draft which created a planning process (Draft, 2015).

Table 5: Background of the Greenway / Minneapolis Master Plan Draft



One example is there should be a public edge at the street level rim along the trench segment of the Greenway, so people can walk or ride from block to block. This improves access to entrance ramps to get down to the trail in the Greenway. This also allows for more eyes and ears to observe the activity in the trench below. Another recommendation which came from the Land Use and Development Plan is solar access to the Greenway. When buildings are built along the south side of the Greenway, the building's massing is stepped back as the building grows taller. This allows for sunshine to reach down onto the trail to melt snow and ice and maintain a habitable environment in the winter. Developers and their architects debate this policy because it results in the building's loss of valuable square footage, but potentially the total allowable square footage for a given building site can be achieved anyway through creative design.

When the Midtown Greenway was being planned and constructed, various activities took place. Community engagement, disruption of traffic, and project phasing were just a few. From 2000 there were four phases, with the Martin Olav Sabo Bridge being the final phase in 2007. At the onset, one only noticed the 100-year old bridges that crossed the abandoned rail. It went through a part of town that no one paid attention to (Mouw, 2018). America's first bicycle freeway was near the lakes in Southwest Minneapolis. The newly built Greenway route had connections to bicycle trails from western suburbs to downtown and to the university, as it runs across the southern neighbourhoods of the City to the Mississippi River (Figure 163, Appendix D).

"As a citizen, your thinking was, is that really the smartest place to put a bike path across the city? Now it's an amenity but back then we were scratching our heads asking, 'wow, is this really the best place to do this'? And now what a feeling - being able to get off the streets. Once built, everyone realized how nice it was to be off the streets. And it was such a connector." MAM

Kirsi Rantama described the small budget as one of the greatest challenges (Rantama, 2018). The Baana, as an active transportation route, was intended to be a temporary project. If years later the City decided to implement a tunnel for automobiles, the Baana would be no longer. For this reason, the construction budget was fixed and limited when LOCI inherited the already-planned project (Muurinen, 2018). Design decisions were based on these parameters. For the Baana, what were other goals and priorities for the project?

"Due to the depth of the trench, proper and functional connections to street level was a concern. Of course, the connections [must] work. This east-west connection as well as those because the steepest is seven meters below the street level. It was really important that all the connections to the street level be function, but also that they shouldn't overdo it." KR

"We are quite happy that it wasn't made for 'forever' because I think it wouldn't be so rough and it would be perhaps something you would just [over design]. We did so well because the budget was so low. It was designed as temporary. It's so nice. It's so rough. And the designers were really careful." KR

“This gave us the opportunity to leave it as rough. The rocks are not all plastered - you see them. You have really rough stairs. It’s not overdone like it could have happened. Of course, because it’s passing the parliament for instance, so many could say you can’t have a public space looking like this beside the parliament.” KR

The bottom of the path is below the average city level. New drainage had been built when LOCI started the assignment. For added security to cyclists and pedestrians, the elevation at the bottom of the path was raised. This provided additional depth needed for underground drainage and infrastructure (Muurinen, 2018).

“It was little bit tricky. I wouldn’t have planned the drainage that way. I would have liked to use the water in the trench so that the plants could use it. But they (City of Helsinki) wanted [the traditional well system] for street drainage.” KM

The trench had to be completely cleaned out and re-built. This was this a significant piece of the construction. Fire escapes, stair cases, and security were required because the route sits seven meters under the normal street level (Muurinen, 2018).

“The designers had to make sure if something happens, people need to get away. There were old rock faces, some seven meters high rock. [This was] ok for trains but when turned into a bicycle route for pedestrians it needed to be made safe with concrete. We wanted to make everything the same as it was, the original plans. [We wanted to] keep all the trees and all the shrubs. We have wild nature that has been there a long time so why take it away? We wanted to keep the rock faces. But the rock was not solid enough. There were big decisions made while under. We wanted the old railway tracks to stay raw and pure. We wanted to respect the old history.” KM

The City of Helsinki, as opposed to a private railroad company, owned the land where the railway tracks of the Baana exist. The North American concept of Rail Banking was eminent, as the city can take back the current tracks at any time and convert them from cycling path to automobile tunnel. The last time the tracks were used was 2008. They had already been abandoned for more than two years.

The Baana is divided into four sections, each with its own unique characteristic (Muurinen, 2018). The first section of the Baana is the stretch between the Parliament House and its extension, which is one of the most central environments in Helsinki. The second section is narrow and deep and similar to the original railway line. In the third section, the Baana curves and the corridor widens. To maintain old space, tall trees have been planted along the sides of the corridor. Tall grasses have been planted in the shape of freight train wagons at the place where the steep hill required a lot of effort from the locomotives (Muurinen, 2018). The fourth section widens in certain places and was designed for different activities.

Successive plant arrangements and activity areas are reminiscent of the trains that once persistently blocked the busy main road at the end of the Baana. (Muurinen, 2018). The train wagon theme was used to create a series of sitting areas, recreational platforms, pétanque fields, table tennis areas and basketball courts. These “train wagons” are linked together by lines that have been painted on the asphalt in the style of train tracks (Muurinen, 2018). The concrete sculpture “I love Helsinki” and mural by artist Janne Siltanen are located in this area.

Although approvals for the Baana project were completed when LOCI came on to the project, community meetings between with landscape architects, architects, and city leaders still took place. Further convincing and permission was needed to have basketball courts and table tennis along the route. Where should lines be drawn between these activities? The city was already making these decisions. (Muurinen, 2018).

“The ongoing risk is that the narrow part is still earmarked and could become a car tunnel. There might be one day when the Baana might not exist because they are using it for automobile traffic. Right now, it’s a scar of history that you see. If it becomes a tunnel [that scar] disappears. The tunnel has been talked about for 20 years. That’s why the budget [for the cycling and pedestrian path] was temporary. It was only a ten-year plan. I hope that because [the Baana] is so popular that it won’t disappear.” KM

The conversion of these corridors into active transportation routes almost always involves environmental concerns and planning for remediation. This is more typical at rail yards than at individual branch lines (Duncan, 2018). The impact on the ground can be substantial depending on what the rail carried. The Canadian Transport Commission is responsible for assessing the severity of ground contamination and remediation.

“If you look at CP’s Westin Yards and consider redeveloping those, you are into massive ground site problems. 25 years ago, CP and CN were extremely active in identifying site problems right across the entire rail system and beginning remediation measures. You are possibly dealing with the deposit of heavy metals and god knows what else.” DD

8. SAFETY

How do all the active transportation modes work together on the same trail? Cycling, walking, running and skate boarding. Compared to the Baana, the Midtown Greenway is a bike highway. Consideration is given primarily to bike lanes. There are skate boarders and pedestrians, but priority is still given to cyclists. In the 1970s, there was a fatal accident when a cyclist collided with a pedestrian near one of the lakes (Mouw, 2018). The City of Minneapolis immediately began separating bike lanes and pedestrian lanes. Although there are 10 mph speed limit signs posted, it remains a question whether this is really enforced and if anyone pays attention. Motor-assist bicycles and scooters also contribute to higher speeds (Mouw, 2018).

“On the [Atlanta] Beltline, when [different vehicles] get added, like scooters or motor-assist bikes, on the weekend it becomes too dangerous with all the different modes. [Contrary to the Beltway], the Midtown Greenway is an example of one nice infrastructure with dozens and dozens of paths and lanes that flow together. There are so many options of where to go. You’re not just stuck on one path. However, during rush hour, these people go flying by you on legal vehicles.” MAM

Users of the Midtown Greenway are safety conscious. People take enforcement into their own hands to help control traffic and increase safety (Mouw, 2018). There is a biking etiquette in the cycling community. Some of the usual shout-outs are, “You’re going the wrong way. You’re

walking on the bike path. The pedestrian path is just over to your right. On your left.” (Mouw, 2018). Bike bells are also very popular and very accepted. One out of every 100 pedestrians will not enjoy your bell and say something crabby. In Atlanta if you ‘ding it’ once it’s as if a cyclist dropped a metal object. The rule is to ‘double ding it’ (Mouw, 2018).

“Other safety and security concerns are that the route travels in a ditch, below street grade, for much of its length. Some of the neighbourhoods along the route might be a little more marginal than others. Most areas are pretty crime-free, and the trail is well received. This was an abandoned place. We all knew what a great amenity it would be. Before the Martin Olav Sabo Bridge went in, a rider used to have to stop at intersection, one of the busiest intersections in the city, crossing seven lanes. Now there’s no stopping and the bridge offers beautiful views of downtown. This completed the whole thing.”
MAM

The City and the Parks and Recreation Department each maintain their own form of police in Minneapolis. The Midtown Greenway Coalition also patrols with Bicycle Police and maintains lighting safety and emergency phones.

“Because [the trail is] under grade, kids have thrown bricks and rocks at riders. Peace Coffee is a roaster and importer, delivering all products by bicycle. A delivery person was struck by a molotov cocktail. Fortunately, the explosive hit the trailer and then the street.” MAM

“Let’s just say if there were people hanging out on a bridge, I would keep an eye on them as I rode under. But it’s a rare thing. Public art and maintained landscape make it look nicer and helps make it safer. [The path] has thousands of commuters [which adds to the safety]. I’m a winter rider so I love the fact that they plow the bike paths very quickly, so you can use them. It seems they plow and brush the trails faster than the streets.” MAM

9. CONNECTIVITY / ACCESS TO ROUTE AND SERVICES

“The best part of Baana is connecting two different city areas and its accessibility. The way to think about Winnipeg is what parts of the city am I connecting with this pedestrian bicycle route? What kind of different possibilities does it give me? How can people enjoy the space? It should be planned for children, elderly and bicycles. How do you design for everybody? How do you make an ecological link for animals and for drainage? It can be very fascinating and can give the city many different opportunities to make the living better in the city. If the railroad tracks are not used anymore, they should be turned to bicycle or pedestrian areas and be given to people and to nature.” KM

Leena Buller still works in Helsinki, with most of her projects being landscape architecture integrated in housing and city planning projects. Ms. Buller briefly explains access and connectivity.

“Developers and designers are including access to active transportation routes as part of their plans. They are incorporating bike parking. They are trying to make this city a more bicycling environment. There is a music hall, a museum along the Baana route and a park at the end of the Baana. These places are nice but they didn’t [come as a result] of the Baana.” LB

10. CHALLENGES AND OPPORTUNITIES

In Helsinki, the opportunities for growth and further development can be seen by way of example. The success of the original Baana has influenced the expansion of the active transportation network.

“It really has caused this theme Baana to continue over all Helsinki. It’s just the ‘Mother Baana’. It has many daughters and brothers so it’s now the name for all the new bicycle roads. It really affects what they (residents) really wanted and needed. People really think that everywhere there should be good quality for bicycles as there is in the (original) Baana. So, I think that’s the most important effect.” KR

Challenges from the designer’s perspective.

“The site wasn’t a park or wasn’t a road which is usually what the City Development Department [is used to] building. It was kind of hard to handle because, what is it? We had to do plans in different scales. It doubled the [drawings]. The road construction plan drawings are in a smaller scale than the planting [drawings that] were needed. There were other consultants in infrastructure and structural design, not always easy to communicate with which is challenging in general, in any project between team members.” LB

When the Midtown Greenway was proposed and later developed, was there opposition? Were there naysayers who were against the idea? According to Springer, there was almost no opposition to speak of (Springer, 2018). One angry woman in the Powderhorn Park neighbourhood wanted the corridor used as a Limited Stop Rapid Busway, which she felt would serve more people. She argued that its use as a bikeway would not serve enough people. Instead

of fighting against a busway, which the Coalition felt would destroy the character of the Greenway, the Coalition fought for street cars as a way to offer mass transit alongside the bicycle lanes (Springer, 2018).

“There was one other person who was ironically a cyclist and said, ‘how dare you plan this fancy project when it will eat up all the dollars for bicycle infrastructure and we won’t have any money for anything else like bike lanes on the street.’ And of course, that’s short-term thinking, that’s small thinking. Because you put in a project like this, the Midtown Greenway transformed the City into a bicycling city and then there’s a lot more interest and more support, and a lot more money for a lot more bicycling infrastructure. So he was just plain wrong. Otherwise, there were no opponents. For elected officials, the Midtown Greenway was like kissing babies. What’s not to like?” TS

An enormous challenge, according to Mr. Duncan, is the relocation of existing rails. He cites examples in Regina, Montreal and Toronto where moving rails from the City Centre can be incredibly costly, highly political and can take sometimes decades to complete (Duncan, 2018). Duncan cites a Winnipeg example, where the CN Intermodal Terminal was once located near the new IKEA store. The newly relocated yard is now a vastly more efficient rail operation (Duncan, 2018).

“A good example where the relocation process can work properly was the CN Intermodal Terminal which was not entirely efficient, and the city wanted to get rid of it. Eventually a deal was made for CN to move the railyard into the east end of Symington Yard. CN got a better operating facility and that would have been the only reason they would have entertained making the move. You have to get an equivalent or a better operating facility to encourage a railway company to make a relocation.” DD

11. POLITICAL INFLUENCE

Plans to expand the “Baana network” are being considered (Rantama, 2018). Being the mother of all future Baanas, but currently restricted with a set scale and containment, the challenge of expansion becomes a political test. In order to grow the network, the corridor must cross over the existing railway tracks at the City Centre Railway Station.

“Actually, it probably will grow. But because there is now the problem that you will end up in the railway station, you have the railway lines and you are again trapped in the City Centre. There was the question whether there should be a bridge over the railway lines to connect better to the east. The city officials thought a tunnel was the only way to solve it but there were other politicians that were against our planning and thought a bridge [was better] because it was a lot cheaper. There are now plans to go under the railway lines. It should be continued. [The Baana] really now needs a continuation to the east.” KR

Recent Minneapolis Mayor R.T. Rybak was an advocate for healthy transportation and connectivity. Former United States Congressman from Minnesota, Jim Oberstar, was recent Chair of the U.S. Transportation Board and gave the City and State incentives toward active transportation (Mouw, 2018). Upstate there are hundreds of miles of Rails to Trails conversions because of their interests. Minneapolis has congressional and federal interest in active transportation (Mouw, 2018).

The most difficult part of Springer’s job was dealing with public agencies. Staff did not have the authority to approve something that was not inside their current tool box or in their current budget. Quite often Coalition staff would work around the public agency staff and go directly to elected officials (Springer, 2018).

“When talking to some public agency staff people and explaining that this is what makes sense, all we would hear is ‘no’, so we had to bring ideas to the elected officials. It was a pain in the butt for the elected [officials] and egg on the face of the staff people, that they didn’t wake up and bring it to the elected officials themselves. There were some staff people that were extremely dismissive and disrespectful to all of us all the way through. There was a common theme that they were not imaginative and that they were not ready to accept things outside the box. Direct relationships with elected officials was very important but can be defined as dynamic tension. When we didn’t agree with them we didn’t just roll over.” TS

12. LESSONS LEARNED

According to the Mouws, the two case studies, the Midtown Greenway and the Baana, both display cities with similar characteristics such as climate, winter city features, a cycling

culture, comparable infrastructure, and abandoned rails. With experience living in both Minneapolis and Winnipeg, what recommendations would you make to Winnipeg in converting these abandoned railways into active transportation routes?

“Get on it, ASAP, and be sure the rail trail that you build connects to the streets and the other trails, so you can get off the trail safely to the street and get where you’re going, street side. Don’t waste any time. Become the ‘Brian Gravel’ of Atlanta. Get in front of everyone and get your message out there and it will take on a life of its own. Come up with a jazzy name for it and make sure it’s beautiful. Brian Gravel is keeping development controlled, keeping a cost of living component, and keeping it transportation-focused. He’s trying.” MAM

“I lived in Winnipeg and cycled to work. When you start building the cycling infrastructure, connect the routes. When you think about it, its like connecting gems on a necklace. Connecting Birds Hill Provincial Park to the Forks would be a gem and an amenity. The Midtown Greenway connects the River to the Lakes to the creek. There needs to be safe connections. [People who ride] get to stretch their legs and really ride. More than a transportation route, [if the trail travels] from gem to gem to gem, that would be fantastic. Why can’t we get from the Forks to Birds Hill Park? The city is screaming for it. The ride is part of the joy. It’s not just a ride. What would Abby do as queen for a day? Get the smoothies back at the [Freewheel] Cycle Center, put in nice drinking fountains, good water resources, and maybe a Bike Parade.” MAM

Mr. Springer offered these Community Engagement recommendations and lessons learned when introducing this concept to Winnipeg.

“You are going to need champions to keep it moving. It’s best if you have champions outside City Hall and champions inside City Hall, including elected officials. Someone that gets excited about all of this and says ‘I’m going to make this happen.’ You must do meaningful community engagement, so people feel like it’s being done with them and for them instead of to them. It is not enough to put a meeting on a calendar and send out fliers and expect stakeholders to show up and feel like they have a say. Meaningful community engagement means its rooted in or with local grassroots organizations.” TS

When asked what the biggest challenges from the Baana project were, Ms. Muurinen offered these thoughts.

“The challenges were that there were a lot of issues to combine. There were many different city aspects. People liked it and people didn’t like it. If you want to succeed you have to listen carefully. What is the point? Why is it good for some people? Why is it bad for other people? How can you balance between all these facts, different limitations and

boundaries? There are private properties and there are public properties. How are the private owners accepting the Baana? If you think about competitions, you can get many good ideas. Thinking out of the box and how to turn [concept] into reality. How can you handle the 15 balls at the same time? The challenge is creating a solution which is good for everybody.” KM

What were the lessons learned from the Baana project? What recommendations would you have for a similar project in Winnipeg? Ms. Muurinen offered this.

“I am terrified that some people want to make [the tracks] more commercial. Old railroad tracks should [remain] where people are left to explore. Today we are too much in a hurry - not enough time for planning. If you make this kind of project in Winnipeg, I hope you take the time for planning. Consider what you really want. I think we were in too much of a rush. It was not our fault. ‘More time, thank you.’ Our firm now only takes the projects which have the time for proper planning. That’s how we try to do it. We take projects where people need to know it takes time to make decisions. If we convince clients we need time, then it will be good. This is for quality of life. We have our own firm so we can decide how we choose to work.” KM

Ms. Muurinen continues to work, hoping to attract similar projects as the Baana. Raw areas like the Baana are few and far between. City parks are already developed and have boundaries and limitations. However, the Baana, with its old tracks and deep history are forgotten lands which make it great to be able to design and repurpose that kind of space.

“There aren’t many projects like the Baana anymore. Raw areas like the Baana are few and far between. The railway tracks and old industrial areas are disappearing. Old tracks and local history are forgotten and redesigned to something totally different and new. It’s sad because the past makes every place original and meaningful. It’s the genius loci- the spirit of the place - that is often forgotten or lost. We hope the world is waking up to plan more unique pedestrian and bicycle routes to help citizens’ daily life. It’s also a concrete step towards more sustainable city.” KM

When asked what the biggest challenges from the Baana project were, Ms. Muurinen offered these thoughts.

“The challenges were that there were a lot of issues to combine. We wanted to keep Baana’s aesthetics and activities quite simple and offer a free empty space for citizens. There are still many different aspects what the Baana should be. Some people liked it the way it is planned and some people would like to make it partly commercial. The planning process is always a challenge and one has to balance between all hopes and wishes, different limitations and boundaries.” KM

SUMMARY

The opportunity to speak with professionals who were involved first hand on the projects often provided insight which could not be obtained from photos or written documentation. The conversation and associated body language provided an emotion which is unachievable with any other medium. This project began with the literature review. It followed, in no particular order, with visiting the precedent cities and examining the identified examples. Finally, these interviews delivered the perfect conclusion to this research. They completed the research puzzle, in that the key formants provided the “fourth dimension”.

With respect to the participants’ time, interviews were held to one hour. In most cases this was not enough time. Participants would get off topic and depart from answering the original question. However, this would often unveil another aspect of the project. Although the interview questions were pre-established, each discussion created another question which had not been anticipated.

Additional participants, in both the public and private arenas, could further enhance this research. In Chapter 6, Conclusion, future research and additional questions were identified as a result of these thoughts.

CHAPTER 6

CONCLUSION

INTRODUCTION

The conclusion of this research does not represent closure. To the contrary, it invites recommendations and lessons learned. The two similar precedents used in this study are two of the finest examples of this urban infrastructure reuse. However, there are differences which still exist. There are future research questions which should still be asked. The answers can only improve the quality of this converted, reclaimed historical treasure.

When experiencing first-hand one of these significant pieces of municipal infrastructure, it is easy to forget or even acknowledge the amount of effort, coordination, funding, and political and community will it took to create this urban treasure. I am sure when the original rails were laid down more than a hundred years ago the same determination was seen, except then to provide a different form of transportation. A century later, the city's arteries are still functioning with the flow of smaller tires and feet of all sizes, absent the locomotives. The multi-faceted economic, political and social components it took to build the rail are no different than those of today in building the AT route.

It is necessary to revisit the original key research questions and summarize the findings from these enquiries. What interesting winter city precedents in North America and Europe feature the conversion of abandoned railway infrastructure to an AT route? The Midtown Greenway in Minneapolis and the Baana in Helsinki are among the two most significant examples. Both precedents, although located in cities which are culturally different, have similar physical elements and characteristics, similar climates, and similar challenges and constraints.

Both railroad tracks began at street level through the city and were eventually relocated below grade carving their way through the city centre. Both cities have four distinct seasons, including winter, when residents continue to cycle and utilize other forms of active transportation. Political will, community consensus, and project funding remain the common denominators when designing, constructing, and converting abandoned railways to active transportation routes.

What priorities and methods drove the planning process for these AT routes in each precedent city? For years the railway tracks in these precedent cities lay abandoned, inviting crime and urban decay. Ironically, these deteriorating swaths of real estate, carved right through the city, held high economic value and great potential for active transportation options. It became a municipal priority to activate the conversion process and repurpose this valuable piece of historical infrastructure. This repurposing would hopefully revitalize a segment of the urban fabric. Although the concept is simple, the methods used are complex and lengthy. Private and public funding, as well as fundraising, volunteering and community coalitions are methods used to pay for and maintain these public amenities. Community engagement and political lobbying are further approaches often used in this highly controversial and expensive infrastructure conversion.

What lessons can be learned from each city's development process that may apply to the Winnipeg context? Winnipeg shares many of the same characteristics and challenges as those of Minneapolis and Helsinki when it comes to converting abandoned railways to active transportation routes. There are differences though. Winnipeg is a smaller city in terms of population which translates in to a less dense city centre. Unlike the two precedent cities, Winnipeg's railway network originally was mostly around the city. As the city expanded, it grew to encompass the existing rails. There are exceptions where tracks still exist within the perimeter

but still appear to travel through rural surroundings. Winnipeg's smaller population translates to a smaller audience, making it more difficult to sell the conversion concept to the city's citizens. In the precedent cities, cyclists in winter use active transportation routes for recreation and commuting to work. These paths are often cleared of snow before the roads. In Winnipeg, those using bike lanes in winter are considered extreme cyclists, resulting in low priority for bike lane plowing and winter maintenance.

RECOMMENDATIONS AND LESSONS LEARNED

With the analysis of the two case studies, a main objective is to make recommendations for how Winnipeg can take advantage of similar infrastructure opportunities. Minneapolis and Helsinki had many conditions, requirements and challenges which played a part in the development of the Midtown Greenway and Baana; climate, density, political will, funding, economic development, connectivity and creativity to name a few. The understanding of how these cities overcame these challenges can benefit the citizens of Winnipeg and their desire to create an equally positive asset in their city.

This is not to say that Winnipeg has done nothing to move along their want to increase the number of active transportation routes. Winnipeggers have advanced bike lane development. The downtown and surrounding suburban neighbourhoods are seeing a more connected cycling network. However, there remains an untapped resource that would further connect parts of the city like never before. That resource is the abandoned rail. Winnipeg is a city not short on railway lines traversing its geography. At various time periods in the city's growth most of these rail lines were very active. However, one can see now, with the redevelopment of areas like the Exchange District, and the redevelopment of farmland and manufacturing properties being converted to residential tracks with retail and commercial properties, the demand for inner city rail requirements are lessening. Rail lines are becoming less used and sometimes even turned off or "abandoned". This does not mean that these precious strips of land will have railroad ties and steel tracks disappear overnight. These easements, once given to the railroad company in order to promote economic growth for the city, are valuable and not easily transferred. This is the economic challenge. "Let's grab abandoned rail lines", said then Mayor Sam Katz in a Winnipeg Free Press article dated October 23, 2009.

The opportunity around increased connectivity exists in Winnipeg, much like it does in the other two cities. The abandoned railway routes are direct pathways through the city. The required width, the amount of side clearance needed, the land needed for supporting infrastructure; these requirements were identified and allocated decades ago and have not changed or affected the residential or commercial growth since being built. The beauty of this reality is, if and when that strip of land is converted into an active transportation route, there would be minimal disruption to the adjacent properties.

By creating safe and sustainable AT routes, one can begin to explore the city in extraordinary ways. Cyclists and pedestrians can begin to learn about their city from a different modal perspective. Redirecting cyclists through alternative, more pleasurable routes may result in increased ridership and more desirable bike paths. Alternative routes using abandoned railway corridors may avoid high density areas of the city, resulting in the reduction of new and costly bicycle infrastructure.

Winnipeg's Exchange would be an example of one such district. However, a component of this infrastructure, the railway route, has seldom been transformed. The railroad ties and steel rail may have disappeared, but the right of way may still exist. These access routes now have the potential to serve as a network providing cyclists and pedestrians an alternate and dynamic mode of transportation through the city.

Many cyclists and pedestrians are deterred by city streets because of the constant stream of passing cars and buses, resulting in limited clearances. Others sometimes see the condition of the road, sidewalk or intersections as obstacles. Crossing streets at intersections also adds confusion as to what rules apply to the walker, cyclist, car or bus. Bob Giordano with the Missoula Institute for Sustainable Transportation says that intersections, in particular, are very

tricky and major reconsideration of signaling might be necessary to make this a viable model (Arvidson, 2008). In his book, *Bicycle Transportation*, John Forester says "Bike lanes, bikeways, and side paths, make it more complex for everyone to operate properly, especially at intersections" (Forester, 1977).

The ability to get to a desired destination is the other critical piece. When an active user is uncertain about their route, it may lead to a decision not to ride at all. To have relatively easy access to an AT route may eliminate many of these urban pitfalls. Providing citizens easy access to an uninterrupted transportation artery connecting various parts of the city would be a significant benefit. Allowing participants to travel freely, with access to restaurants, shops, parks, community centers and libraries, helps promote route use as a transportation alternative (Arvidson, 2008).

The health benefits to younger cyclists are a consideration. These rides provide the most common opportunity for children to engage in regular physical activity and is the most shared form of travel for Canadian children (Binns, 2009). Considering today's generation of school children are experiencing unprecedented rates of obesity and physical inactivity, there are a variety of other benefits. The location of sixteen schools adjacent to the Met Branch Trail in Washington D.C was a planning consideration to promote school children to ride to school (Hare, 1998). Walking and bicycling to school also provide important opportunities for children to explore their neighbourhood, develop responsibility, and foster independence (Adams & Hillman 1995).

The repurposing of valuable, unused urban right-of-ways would stimulate economic development along its path. Users of converted railway corridors spend on products and services along these routes. The popular Freewheel Midtown Bike Center along Minneapolis' Midtown

Greenway is only accessible by users of the route and offers full services. Other food stores, hotels and tourist locations also reported an increase in business. Studies have shown that real estate adjacent to these routes often increases in value (Ciabotti, Goodrich, Morris & Winslow, 2004). In the case of the Baana in Helsinki, the Kamppi Bicycle Centre provides cyclists immediate access to bicycle products and services without having to venture off the route (Figures 77, 80, 81, 82, 83, Appendix D).

SIMILARITIES AND DIFFERENCES

The finest Winnipeg example of an abandoned railway adaptation is the Northeast Pioneers Greenway (NPG). The rail-to-trail conversion of the former Marconi Spur rail line has been embraced by the community. Constructed in 1878 and originally a Canadian Pacific Railroad (CPR) rail line, it is now a popular active transportation corridor. Originally built in 1878, the abandoned property was acquired from the railway by businessman-philanthropist John Buhler in 2006 at a cost of \$1.5 million. He sold it to the city at cost and donated a further \$150,000 for the establishment of a trail to connect East and North Kildonan.

This conversion more closely resembles the Baana in that the NPG involved the complete removal of original tracks and related rail infrastructure, whereas the Midtown Greenway still has active rail along sections of its route. The NPG railway infrastructure was removed in favour of a multi-use pathway. Native prairie habitat grows along the NPG and there remains remnants of tall grass prairie, wetland meadows and river bottom forest. Interpretive signs assist in identifying flora and fauna. Historical signs along the NPG honour pioneers, which inspires and educates users of the trail. The existing route provides connectivity between various communities. Future plans are to connect this trail to pending and existing networks, eventually creating a corridor from the Forks National Historic Site to Birds Hill Provincial Park. Two trails, the Trans Canada Trail and the Bunn's Creek Trail, connect to this route which allows this active transportation network to further expand. Two urban parks, Centennial Park and Michael Hrushovetz Park, provide points of interest for users (Winnipeg Trails Association). Services along the Midtown Greenway include community and recreation centres, a grocery store and a coffee shop.

Speaking with key stakeholders in Helsinki and Minneapolis who were instrumental in the creation of the Baana and the Midtown Greenway, there were similar philosophies about collaboration, community engagement and political will. Each representative expressed that the planning process is always a challenge and there must be a balance struck between hopes and wishes, and different limitations and boundaries, when wanting to achieve a tangible outcome. The challenge is creating a solution which is good for everybody.

There also must exist political, economic and community champions to keep the planning and implementation process moving forward. Champions with the political will, outside City Hall and inside City Hall, must exist. There must be meaningful community engagement; people must feel like the project is being created with them and for them, instead of to them. Meaningful community engagement means the ideas are rooted in, or with, local grassroots organizations.

Connectivity is a major factor when comparing the Baana, the Midtown Greenway and various sections of Winnipeg's growing number of abandoned rail routes. In Helsinki, because the original railway route was so defined, and continued without interruption from the harbour to the city centre, the Baana maintains a consistent path. This is true whether the Baana route is in the trench or rises to street level. This is similar in Minneapolis, where the original Milwaukee Road Railroad has existed since the mid 1800s. However, where Minneapolis has wanted to extend the route beyond the original length of the Milwaukee Road Railroad, issues of connectivity become a challenge. Crossing busy intersections and creating new paths through neighbourhoods where bike lanes never existed makes it difficult to maintain consistent connectivity. This test of connectivity becomes even more daunting in Winnipeg where few true abandoned rail conversion projects exist today.

There is a noticeable cultural difference between Helsinki and Minneapolis regarding people's desire for cycling. In Finland, cycling has been a way of life for generations. Bicycles are used for many aspects of daily life. When asked why you ride a bike, the answer is often "why wouldn't you?" Therefore, the want and the need to create the Baana would be easy to promote and achieve. Conversely, Minnesotans, although living in a similar climate and with the availability of similar railway infrastructure, might be less inclined to initially understand the benefits of an active transportation route, other than recreational.

The ownership of the existing railway formed a different challenge. In Helsinki the railway was owned by the city. There was no purchase or exchange of property and no debate over easements and rights of way. Helsinki owned the rails and the ground beneath them and could, theoretically, do what they wanted. The city of Minneapolis, on the other hand, had to purchase the property from the railroad companies. One can only imagine the challenges of a public agency and a private agency sitting across the table from one another, negotiating a land sale.

Similarities of the two main case studies, as well as examples from Winnipeg, are clear. All three are identified as winter cities. All three cities have rich railroad histories. The train has been a cultural symbol of how people and goods have traveled through these cities. The conversion of these historic routes is not the elimination of a rich history, but rather the repurposing of a notable transportation artery.

FUTURE RESEARCH / QUESTIONS

There are numerous drivers which make up the development of an active transportation route. The route's characteristics and personality are often determined by the creativity of its designers, builders and users. Where the Baana offers amenities like adjacent basketball courts, table tennis and public art (Figure 128, Appendix D), the Midtown Greenway offers community gardens and repair stations. However, both precedents, as well as others cited in this project, have a common theme and a fixed constraint which is the actual route itself. The railway corridor is the only non-fluid restriction. Its location has not moved, in many cases, for more than a century. Its permanency and grounding require all other parts, such as real estate development, retail and hospitality, accessibility, safety, security and even public art, to evolve around it.

Although this research offered numerous insights into many of these features, it did not offer a deep study into the specifics of planning, construction methods and costs associated with this kind of project type. The cost of consulting services and construction would be a topic of further research. With that would be exploring constructability methods, project sequencing and scheduling, and disruption to commercial services, traffic and infrastructure during the conversion process. Because this is a unique building type and offers limited examples, these questions would better define potential risk.

How the planners defined the scope of work would also be a topic for further research. These railway corridors travel through and past various urban locations, each offering different challenges as well as opportunities. Although the path is set, the questions remain; What and where to build on that now-vacant strip of land that once carried a railroad? What level of quality are you wanting to achieve? How was the program developed? What were the deciding factors when prioritizing project scope, project schedule and project budget?

Political strategy is another area where further research is invited. In this research, we begin to understand how important it is to align with the political powers that be, and gain political will. However, we are still absent of the process that took place within the halls of government in these two precedent cities. Examples of how to navigate decision making, how to understand the referendum process in city government, and what are the selling points and specific priorities to citizens when wanting to obtain public funding?

Examples of commercial partnerships and creative community engagement strategies are what lack in these two case studies. These concepts not only require further investigation in Helsinki and Minneapolis, but also research in other domestic and international cities. Although these concepts are less tangible than others, they are important and are what make up sustainable and rich city planning. How can entrepreneurs better collaborate with designers and builders of active transportation routes? What are the barriers that prevent these conversations from occurring? Are there other examples in other cities where these opportunities are better performing?

The economics of the planning and implementation (Construction) process can be furthered studied. Understanding soft costs for planning, design and permitting, and hard costs for construction, maintenance and operations could be further explored. Obtaining construction budgets for the various projects would be beneficial.

PERSONAL REFLECTIONS

This thesis project started when I was five. It started when I first learned to ride a bike and discovered the freedom that the simple invention called a bike allowed me. With this thinking, the acknowledgments would extend as far back to people who are not even present today but influenced my love of cycling. My parents, who bought me my first purple Stingray with the banana seat and the high handle bars. My friend, Steve Andrews, with whom I spent every post-school afternoon with on our bikes until the sun went down. Even the motorcyclist that ran into me, while I was riding through an intersection in my hometown village of Lake Arrowhead; to that unknown man I dedicate the section on “Safety.” That accident, which luckily only injured my ego, possibly led to my passion for cycling safety.

I have always experienced a sense of quietude, meditation, thinking, adventure, exploration, socializing, and exercise while riding. I question where one can get all these benefits in one event? Cycling is truly my happy place. When I was five, and on my bike, I am sure that these characteristics were present and working but I didn’t know it then. Academic research was not on my physical agenda at the time. However, the curiosity of benefits to cycling may have been. It was more about getting to the penny arcade (the future) as fast as possible, rather than interviewing riders along the way, and creating a new route to get there.

A bicycle can be as complex or as simple as you want it to be (Figure 11b, Appendix D). It can be a finely tuned machine, which has been designed and engineered to shave off seconds over a 2,500-kilometre race through Europe, or it can be rusted metal with two rubber tires carrying you and your family to the local ice cream shop. Riding with my children, or rather my children allowing me to ride with them, invites an acknowledgement to my two sweet cycling companions, Gabrielle and Jake (Figure 15b, 74b, Appendix D). As soon as they could hold their

heads up they were placed into the bike seat, staring directly at my back. Up in the wee hours, heading off to Starbucks for our early morning scone and visit, Gabrielle would enjoy the simplicity of the tour with the wind in her hair. Jake, on the other hand, threw his helmet to the pavement in protest, maybe thinking to himself, “I’m two and I want my own bike.” As they got older I planted them together, towing them in the Burley chariot, hoping they could work out their differences between themselves. This type of cycling led to longer adventures like the Los Angeles Marathon Bike Rides, 25 miles through Los Angeles along with 15,000 of their future cycling partners (Figures 73, 74a, Appendix D). This introduction to cycling was an early indication that if cycling as a culture was to grow, it needs to be introduced early in a child’s life so that they pass it along as a lifestyle and not just an occasional event. These children, as well as I, evolved into using their bikes for transportation, sport, social interaction, and recreation.

My passion for more adventurous and longer riding began with charity events, as well as moving to a harsh winter climate. I soon discovered that riding my bike to work in minus 30 degree temperatures was kind of fun. With the Arthritis rides, I thank my brother, Steve, for being my partner on two consecutive events, travelling nine days down a 600-mile stretch of California coastline. Brotherly love took on a new meaning. How wonderful life would be if it were as simple as eating, sleeping, and riding your bike, mixed in with a little fundraising. This variety of cycling, far from routine biking, increased my curiosity and ambition to explore riding as far as you can (and as cold as you can) and still live to talk about it. These California rides with my brother, Steve, grew into Manitoba rides with my son, Jake. Multiple Sclerosis (MS) became the benefactor of these 100-mile charity trips (Figure 15a, Appendix D). Riding along the Pacific Ocean looks a little different than peddling on the prairies. However, both offer picturesque views, as well as competition with those other 4-wheel and 18-wheel devices. These

rides all offer the use of the bicycle as a tool for charity, fundraising, and social action, while at the same time building community and, in my case, the blessing of family bonding.

On a more social action note, I have enjoyed the good fortune of leading the Cycle on Life for the Riverview Health Centre. This ride has two benefits - the dollars raised (using the simple invention of the bicycle once again as a tool for social action) to help fund this local Winnipeg community health centre, as well as providing the blessing of spending the day with my family on our bikes. Cycling has also brought into my life a series of unexplainable twists and turns. While in Copenhagen doing research for this project, my wife, Wendy, stumbled across Cycling Without Age - a program created in Copenhagen with the mission of providing the physically impaired the opportunity to experience a simple bike ride, while capturing the joy of a once cherished social piece of a senior's life. Combining, once again, the bicycle with Wendy's passion for making the world a more compassionate place, we introduced this program to our Winnipeg community.

This thesis, or should I say the entire master's program, was an evolution. It started with the idea of wanting to go back to school at the ripe "young" age of 53, in order to fulfill some personal goals. It is never too late to learn something new and, even better, I have explored a topic in a concentrated effort; not just reading one magazine article, one book or watching one documentary, but studying intensely within a broad program. It has been rewarding to feel that sense of accomplishment, to have started a journey and completed it, and to not only check off that final box but to check off many smaller boxes in the process. Writing a paper, presenting a topic, and completing a project with my cohorts were all sub-accomplishments along the way. And finally, I have been able to set examples for my children. It brought me great joy each time I was able to have conversations with both Gabrielle and Jake while they, too, were travelling their

academic road. We related on so many academic topics. I could understand when they were frustrated with course registration or not being able to contact a professor. I could also identify with their excitement about a professor who was engaging, or an assignment that was challenging and filled with teachable moments. We shared stories of university life and frustrating deadlines, and discussed valuable assignments (compared to time-wasters) and the tackling of administrative hoops.

I would be doing homework while they were doing homework. It opened a world we could share that, otherwise, might have been worlds apart. Instead of just observing their postsecondary experience from a distance, which for most parents is the norm, I was able to, in various ways, experience that learning with them. This process, in some way, condensed the age gap between generations. I think continued education tends to do that. What a gift to give your children - the gift of parents who feel and act young at heart.

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APPENDIX A

SAMPLE OF SEMI-STRUCTURED INTERVIEW QUESTIONS

Tim Springer

Past Executive Director, Midtown Greenway Coalition

Stakeholder Category: **Founder**

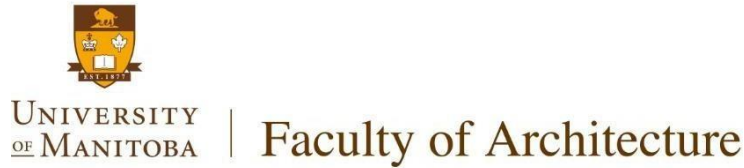
Minneapolis, Minnesota

August 1, 2018

- What is your professional background and what responsibilities have you had with the City of Minneapolis and Hennepin County?
- How did you first start thinking about the idea of creating the Midtown Greenway?
- What coalitions, organizations or activist groups participated in the idea and development of the Midtown Greenway and what were the roles of these organizations?
 - Do these groups continue to support and/or advocate for the current route?
- How is the Midtown Greenway currently operated and maintained?
- Can you describe any community engagement that was established for this project?
(Surveys? Focus Groups? Advertising?)
- Was there community opposition with the project? (Usage? Cost? Physical disruption?)
- How was the project funded? (Privately? Publically? Combined?)
- If the railway company was a key stakeholder in the project, what was their involvement?
 - How early in the process did the railway company become involved?
 - Was there cooperation and/or pushback in the development of the project?
- What were the highest priorities and objectives behind the creation of the project?
(Connectivity? Accessibility to services? Safety?)
- Was the original plan smaller in scope or shorter in length than what exists today?
 - If yes, what was the process for expansion?
- Are there any other issues you would like to speak about that we've not already covered?

APPENDIX B

SAMPLE OF INFORMED CONSENT FORM



Department of City Planning
201 Russell Building
Winnipeg, Manitoba
Canada R3T 2N2
Telephone (204) 474-9458
Fax (204) 474-7532

RESEARCH PARTICIPANT INFORMATION AND CONSENT FORM Individual Interview

Michael R. Erlanger

Street Address
City, Province, Postal Code
Email, Phone

Research Project Title: "Converting Abandoned Railways to Active Routes: Creating a Framework for the City of Winnipeg, Manitoba"

Principal Investigator and contact information: Michael Erlanger, erlangem@myumanitoba.ca

Research Supervisor and contact information: Dr. Rae St. Clair Bridgman, Department of City Planning, rae.bridgman@umanitoba.ca | 204-474-7179.

This consent form, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

Purpose of this Study

You are being asked to participate in a research study involving a semi-structured interview. This research study is being conducted to explore the conversion of existing abandoned railway corridors to Active Transportation (AT) routes. This project is inspired by the work of the "Rails to Trails" movement in North America. What interesting winter city precedents in North America and Europe feature the conversion of abandoned railway infrastructure to an AT route? What priorities and methods drove the planning process for these AT routes in each precedent city? What lessons can be learned from each city's development process that may apply to the Winnipeg context? For selected precedents refer to "Study Procedures" (below).

Selection of Participants

You are being asked to participate in this study because as an original stakeholder from one of the precedent projects your input is valued. Participants are being drawn from the following four categories. A "User" may be a commuter and recreational cyclist, runner, walker, with or without young children and will speak to route choice, desirable destinations and other AT priorities. A "Founder" of the project may be an activist group or cycling organization that may have been involved in initial lobbying for the project. Pertinent information gathered here might address community engagement, funding opportunities and political will.

An “**Implementer**” is a government agency representative or a project manager who can speak to the technical or structural aspects of the rail conversion. Municipal, state or provincial representatives will be able to address how policy was created and how approval processes played out. Finally, a “**Player**” may be business owner who may or may not have benefited from increased traffic in their geographic commerce area. Railway company executives with knowledge of how the rail right-of-way was transferred may add additional perspectives.

A total of ten (10) participants are being asked to participate.

Study Procedures

- For precedent research, two projects in cities with similar characteristics with those of Winnipeg (the Midtown Greenway in Minneapolis and the Baana in Helsinki) have been identified. Both regions have similar climates and are often considered “winter cities.” During both cities’ early development, railways were carved through the city center serving industrial and manufacturing facilities. As businesses relocated to outside the city, these tracks were abandoned.
- For the interview process, subject experts in each of the precedent cities have been identified and interview questions have been drafted. These individuals will represent key stakeholder categories that were critical in the development of each city’s project.
- Participation in the study will be for one initial interview and a follow-up conversation for clarifications. If acceptable, email communication is also another form of communication.
- The interviews will be conducted with Michael Erlanger.
- You will be asked some questions relating to your knowledge of the project type, the precedent city, and specific involvement in the project’s evolution. These questions will assist in understanding how the project evolved from conception, various social, economic and political challenges, lessons learned and status of the precedent.
- With permission, the sessions will be audio-taped and the audio-tapes will be transcribed by Michael Erlanger to ensure accurate reporting of the information that you provide.
- The transcribed audio-tapes will be stored in locked files before and after being transcribed. Audiotapes (having password-protected data) will be destroyed once transcriptions are executed and the transcriptions will be destroyed within two (2) years after the completion of the study.
- The research will result in a Master’s thesis/practicum in City Planning, and will be available online through the University of Manitoba.
- Another venue for the dissemination of research results will be in conference presentations.
- Currently there are no plans for further reports or journal articles.
- Participants will have an opportunity to provide feedback on their individual summary. Participants will get to review transcripts of their interviews and an abbreviated set of quotations to be published. Participants will have the right to ask for modifications, additions or deletions to their transcripts and quotations before publication.

Risks and Discomforts

There are no anticipated physical risks to participants. You do not have to answer any interview question that makes you feel uncomfortable, and you are free to end the interview at any time.

Benefits

Being a participant may not help you directly, but information gained may help other people who are interested in converting abandoned railways to active transportation routes.

Costs

There is no cost to you to participate in this individual interview.

Payment for participation

You will receive no payment or reimbursement for any expenses related to taking part in this study.

Confidentiality

I will do everything possible to keep your personal information confidential. A list of names and addresses of participants will be kept in a secure file so I can send you a summary of the results of the study. If the results of this study are presented in a meeting, or published, nobody will be able to tell that you were involved in the study. Please note that although you will not be identified as the speaker, your words may be used to highlight a specific point.

With your permission, the audiotape of the interview and subsequent conversation will be transcribed and used to prepare a report. The audiotapes will be destroyed once transcriptions are executed. Typed notes will be kept for two years in a secure locked filing cabinet and then destroyed. The University of Manitoba may look at your research records to see that the research is being done in a safe and proper way.

Permission to Quote

We may wish to quote your words directly in reports and publications resulting from this. With regards to being quoted, please check yes or no for each of the following statements:

The researcher may publish documents that contain quotations by me under the following conditions:	
<input type="checkbox"/> Yes <input type="checkbox"/> No	I agree to be quoted directly (my name is used).
<input type="checkbox"/> Yes <input type="checkbox"/> No	I agree to be quoted directly if my name is not published (I remain anonymous).
<input type="checkbox"/> Yes <input type="checkbox"/> No	I agree to be quoted directly if a made-up name (pseudonym) is used.

Voluntary Participation / Withdrawal from the Study

Your decision to take part in this study is voluntary. You may decide not to participate, or you may withdraw from the study at any time. You have the right to withdraw from the study even after the interview is over, unless it becomes impossible, and not just inconvenient, to exclude your data (e.g., after submission of thesis is due to the Faculty of Graduate Studies, or when it is no longer possible to determine which data came from which participant). Recordings and transcripts will be destroyed if you choose to withdraw from the study.

The estimated thesis submission date to the Faculty of Graduate Studies is November 30, 2018.

Questions

If any questions come up during or after the study you may contact the principal investigator: Michael Erlanger or the research supervisor: Rae Bridgman (204) 474-7179, rae.bridgman@umanitoba.ca.

For questions about your rights as a research participant, you may contact The University of Manitoba, Joint Faculty Research Ethics Board Office at (204) 789-3389 or humanethics@umanitoba.ca.

The research will result in a Master's thesis/practicum in City Planning, and will be available online through the University of Manitoba M Space portal: <https://mspace.lib.umanitoba.ca/handle/1993/6/discover>

Consent Signatures

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and /or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

This research has been approved by the University of Manitoba, Joint Faculty Research Ethics Board. If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Coordinator at 204-474-7122; humanethics@umanitoba.ca. A copy of this consent form has been given to you to keep for your records and reference.

Participant signature _____

Participant printed name: _____

Date _____

(day/month/year)

Researcher Signature _____

Researcher printed name: Michael Erlanger

Date 20/06/2018

(day/month/year)

APPENDIX C

LETTER OF INTRODUCTION (SAMPLE)

Converting Abandoned Railways to Active Transportation Routes; Creating a Framework for the City of Winnipeg, Manitoba

Date: June 26, 2018

From:

Name
Street Address
City, Province Postal Code
Email Address / Phone Number

To:

Krista Muurinen, Past Partner, LOCI Landscape Architects, Helsinki

Dear Krista,

I am writing to solicit your participation in my master's research project entitled "Converting Abandoned Railways to Active Transportation Routes; Creating a Framework for the City of Winnipeg, Manitoba." This research is being conducted through the Department of City Planning at the University of Manitoba (Winnipeg, Manitoba) and is being supervised by Dr. Rae Bridgman. The research is inspired by the work of the "Rails to Trails" movement in North America. The study will compare similar projects in Helsinki (the Baana) and Minneapolis (the Midtown Greenway). Lessons learned will be a key outcome from the research.

I am an architect working and living Winnipeg, Manitoba, Canada, and a part-time graduate student. The reason for writing you is to ask for your help and possible participation in my research. I am exploring all aspects of the rail conversion process, including degrees of community engagement, economic development from the project, social impacts, costs and constructability challenges, among other aspects.

The interview will be conducted using video or teleconference and should take no longer than one hour. An initial interview will be arranged sometime between mid-July and mid-August. A two-week period at the beginning of September is assigned to revisit interviewees with any follow-up questions, clarifications and feedback.

Thank you for your time. I look forward to hearing back from you.

Sincerely,

Michael R. Erlanger
MCP Candidate, University of Manitoba

APPENDIX D

FIGURES



Fig. 1
California Veloway Cycle-Way, Pasadena, CA, 1897



Fig. 2
Pasadena Freeway, Pasadena, CA, Present



Fig. 3
California Veloway Cycle-Way, Pasadena, CA, 1897



Fig. 4
Brooklyn Pathway to Coney Island

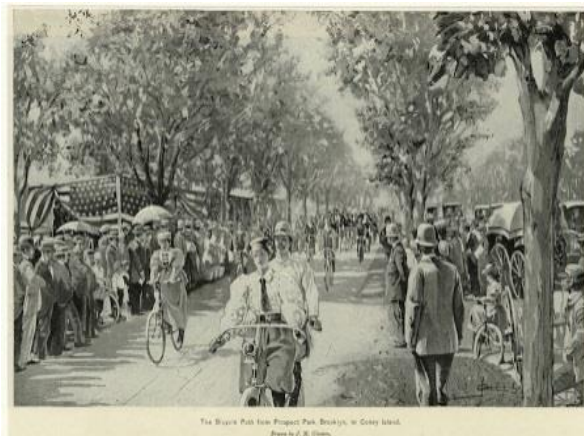


Fig. 5
Coney Island Cycle Path



Fig. 6
Brooklyn Pathway to Coney Island, Current



Fig. 7
Netherlands: 500 children killed in car accidents, 1972



Fig. 8
Netherlands: 500 children killed in car accidents, 1972



Fig. 9
Stop the Child Murder Protests

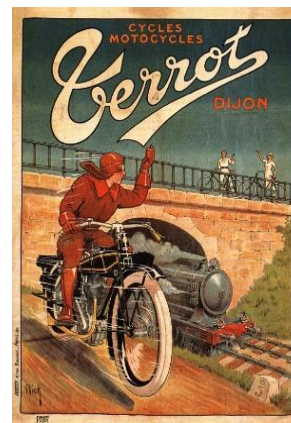


Fig. 10a
Terrot Bicycles Poster, Dijon, France, 1890



Fig. 10b
Terrot Bicycles Poster, Dijon, France, 1890



Fig. 11a
Terrot Bicycles Poster, Dijon, France. 1890



Fig. 11b



Fig. 12
Combination of pedestrians, bicycles, automobiles



Fig. 13
Combination of pedestrians, bicycles, automobiles



Fig. 14
California Veloway Cycle-Way, California, 1897



Fig. 15a
Jake & Dad, MS Ride Event



Fig 15b
Gabrielle & Dad on
Winnipeg's River Trail



Fig. 16
Sharing the Track



Fig. 17
Burlington Northern Railroad, Winnipeg



Fig. 18
Burlington Northern Railroad, Winnipeg



Fig. 19
Map of Burlington Northern Railroad, Winnipeg



Fig. 20
Path running alongside railway tracks / Bridge



Fig. 21
Path running alongside railway tracks / Ground Level



Fig. 22
Signage at Burlington Northern Railroad, Winnipeg



Fig. 23
Bridge over Assiniboine River, Burlington Northern Rail



Fig. 24
Burlington Northern Railroad / bridge



Fig. 25
Canadian Pacific Railroad, Winnipeg



Fig. 26
Canadian Pacific Railroad, Winnipeg



Fig. 27
Signage, Northeast Pioneers Greenway, Winnipeg



Fig. 28
Signage, Northeast Pioneers Greenway, Winnipeg

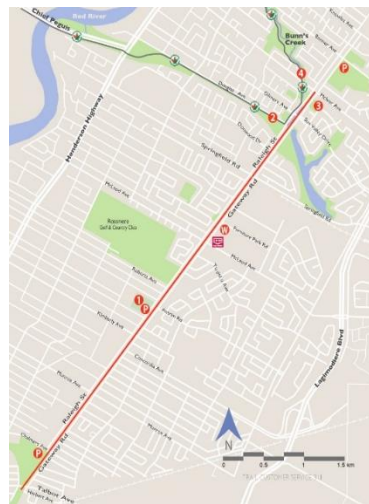


Fig. 29
Map of the Northeast Pioneers Greenway, Winnipeg



Fig. 30
Real Estate Development along the Midtown Greenway



Fig. 31
Midtown Exchange Building / previously Sears



Fig. 32
Midtown Exchange Building / previously Sears



Fig. 33
Real Estate Development along the Midtown Greenway



Fig. 34
Community Gardens along the Midtown Greenway

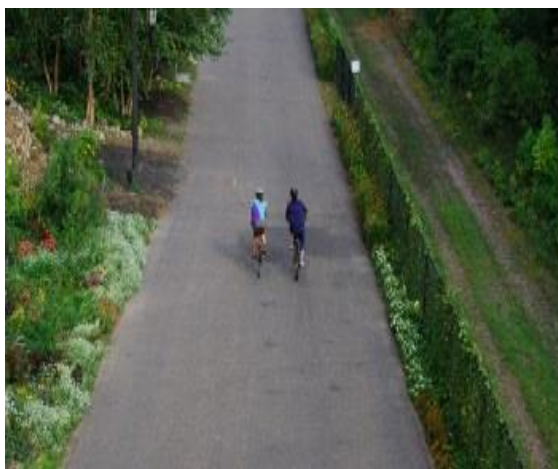


Fig. 35
Community Gardens along the Midtown Greenway



Fig. 36
Community Gardens along the Midtown Greenway



Fig. 37
Real Estate Development along the Midtown Greenway



Fig. 38
Real Estate Development along the Midtown Greenway



Fig. 39
Summer along the Midtown Greenway, Minneapolis



Fig. 40
Community Gardens along the Midtown Greenway



Fig.41
Winter along the Midtown Greenway, Minneapolis



Fig. 42
Logo for the Midtown Greenway Coalition



Fig. 43

Winter along the Midtown Greenway, Minneapolis



Fig. 44a

Map of the Midtown Greenway



Fig. 44b

Map of the Midtown Greenway



Fig. 45

Before the Midtown Greenway, Minneapolis



Fig. 46

Before the Midtown Greenway, Minneapolis



Fig. 47

Midtown Greenway, Minneapolis



Fig. 48

Signage along the Midtown Greenway, Minneapolis



Fig. 49
Free Wheel Bike Shop, Midtown Greenway, Minneapolis



Fig. 50
Access to the street along the Midtown Greenway



Fig. 51
Summer along the Midtown Greenway, Minneapolis

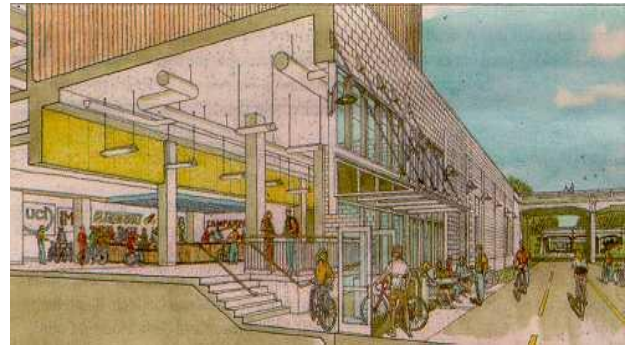


Fig. 52
Greenway Bike Station plans moving forward



Fig. 53
Signage along the Midtown Greenway, Minneapolis



Fig. 54
Signage along the Midtown Greenway, Minneapolis



Fig. 55
Abandoned Rail, later to become the Baana, Helsinki



Fig. 56
The Baana, Helsinki



Fig. 57
Access to the Baana, Helsinki



Fig. 58
Various activities on the Baana, Helsinki

Fig. 59
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Fig. 60
Winter on the Baana, Helsinki



Fig. 61
Public art on the Baana, Helsinki



Fig. 62
Walking and riding along the Baana, Helsinki



Fig. 63
Abandoned Rail, later to become the Baana, Helsinki



Fig. 64
Otso Kivekäs riding on the Baana, Helsinki



Fig. 65
Otso Kivekäs riding on the Baana, Helsinki



Fig. 66
The Baana, Helsinki



Fig. 67
Abandoned rail, later to become the Baana, Helsinki



Fig. 68
The Baana, Helsinki



Fig. 69
Night lighting on the Baana, Helsinki



Fig. 70
Public art on the Baana, Helsinki



Fig. 71
Signage on the Baana, Helsinki



Fig. 72
Walking and riding along the Baana, Helsinki



Fig. 73
Los Angeles Bike Tour with Jake, 2007



Fig. 74a
Bike Tour with Gabrielle and Jake

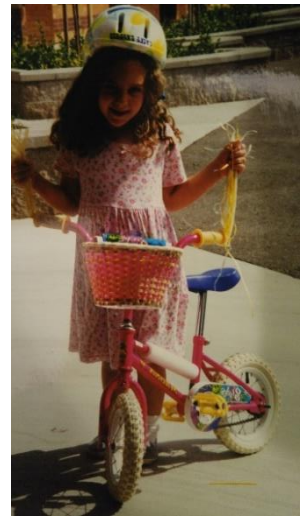


Fig. 74b
Gabrielle



Fig. 75
Construction, the Baana, Helsinki

Fig. 76
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Fig. 77
Kamppi Bicycle Centre, Helsinki



Fig. 78
Museum of Contemporary Art Kiasma



Fig. 79
Under construction, the Baana, Helsinki



Fig. 80
Kamppi Bicycle Centre, Helsinki



Fig. 81
New plans for the Kamppi Bicycle Centre, Helsinki



Fig. 82
Kamppi Bicycle Centre, Helsinki



Fig. 83
Kamppi Bicycle Centre, Helsinki



Fig. 84
Otso and his children riding on the Baana, Helsinki



Fig. 85
Michael riding on the Baana, Helsinki



Fig. 86
Otso Kivekäs and Michael riding on the Baana, Helsinki



Fig. 87
Pre-construction, the Baana, Helsinki



Fig. 88
Bridges spanning the Baana, Helsinki



Fig. 89
Bridges spanning the Baana, Helsinki



Fig. 90
Public Buildings along the Baana, Helsinki



Fig. 91
Under construction, the Baana, Helsinki



Fig. 92
Under construction, the Baana, Helsinki



Fig. 93
Under construction, the Baana, Helsinki



Fig. 94
Under construction, the Baana, Helsinki



Fig. 95
Under construction, the Baana, Helsinki



Fig. 96
Under construction, the Baana, Helsinki



Fig. 97
Under construction, the Baana, Helsinki



Fig. 98
The Harbor, Pre-construction, the Baana, Helsinki



Fig. 99
Under construction, the Baana, Helsinki



Fig. 100
Under construction, the Baana, Helsinki

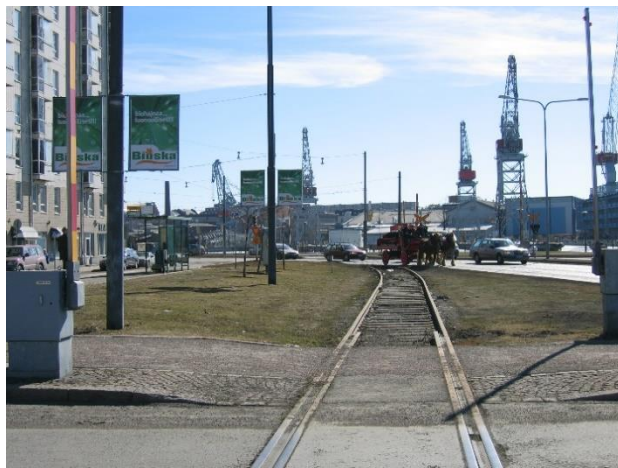


Fig. 101
The Harbor, Pre-construction, the Baana, Helsinki

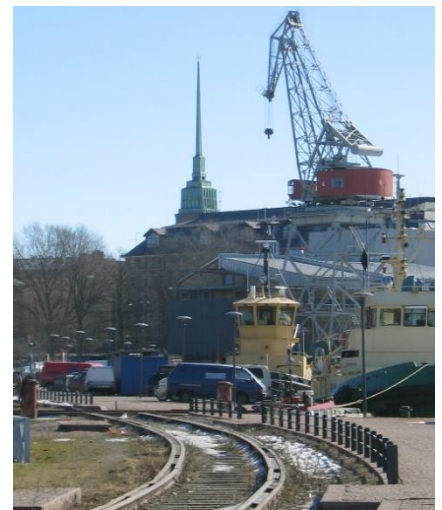


Fig. 102
The Harbor, Pre-construction, the Baana, Helsinki



Fig. 103
Pre-construction, the Baana, Helsinki



Fig. 104
Pre-construction, the Baana, Helsinki



Fig. 105
Pre-construction, the Baana, Helsinki



Fig. 106
Pre-construction, Winter on the Baana, Helsinki

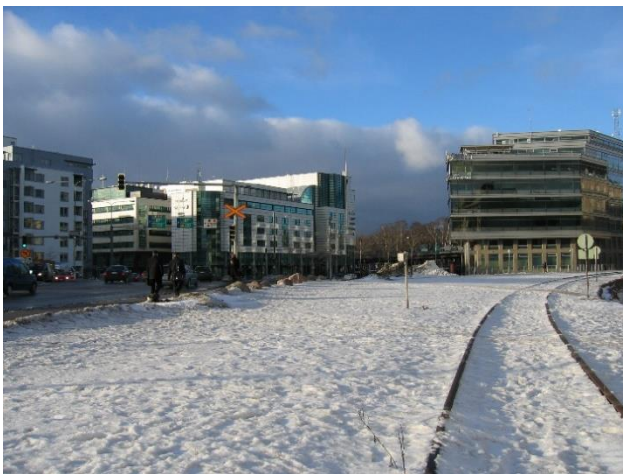


Fig. 107
Pre-construction, Winter on the Baana, Helsinki

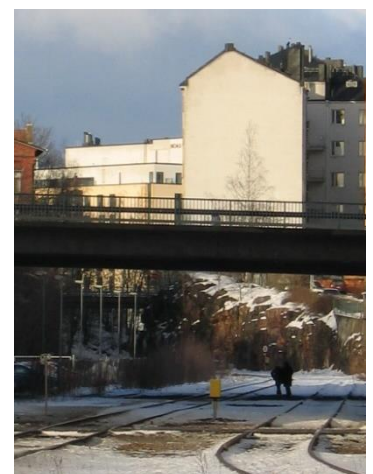


Fig. 108
Pre-construction, Winter on the Baana, Helsinki



Fig. 109
Pre-construction, the Baana, Helsinki



Fig. 110
Under construction, the Baana, Helsinki



Fig. 111
The conversion process from an abandoned rail



Fig. 112
The abandoned rail prior to the Midtown Greenway



Fig. 113
Lowering the Milwaukee Road Railroad



Fig. 114
Lowering the Milwaukee Road Railroad



Fig. 115
Abandoned rails prior to the Midtown Greenway



Fig. 116
Winter along the Midtown Greenway, Minneapolis



Fig. 117
Winter along the Midtown Greenway, Minneapolis

Fig. 118
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Fig. 119
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Fig. 120
Rail fastened to the stair / Access to the Baana, Helsinki



Fig. 121
Access to the Baana, Helsinki



Fig. 122
Rail fastened to the stair / Access to the Baana, Helsinki



Fig. 123
Access to the Baana, Helsinki



Fig. 124
Multiple uses along the Baana, Helsinki



Fig. 125
Skateboarding and public art along the Baana, Helsinki



Fig. 126
Basketball along the Baana, Helsinki



Fig. 127
Winter running along the Baana, Helsinki



Fig. 128
Public art along the Baana, Helsinki



Fig. 129
Kirsi Rantama



Fig. 130
Winter running along the Baana, Helsinki

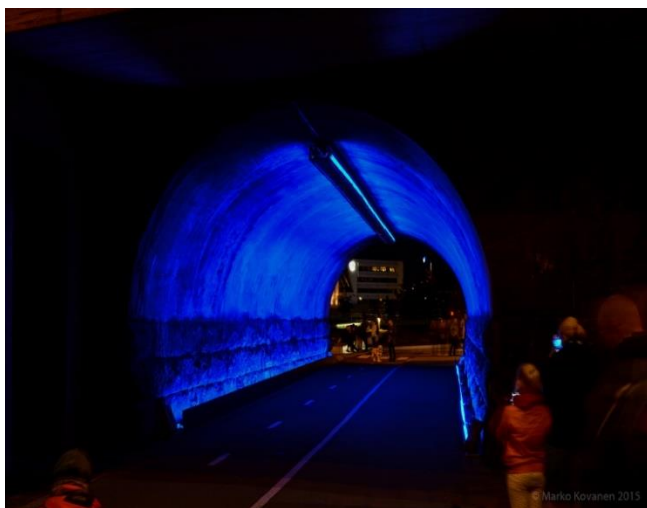


Fig. 131
Evening, the Baana, Helsinki



Fig. 132
Access to the Midtown Greenway, Midtown Exchange



Fig. 133
Access to the Midtown Greenway, the Elan



Fig. 134
Access to the Midtown Greenway, the Flux



Fig. 135
Creating a man-made canyon, the Baana, Helsinki



Fig. 136
Creating a man-made canyon, the Baana, Helsinki

Fig. 137
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Fig. 138
Community Gardens, Midtown Greenway, Minneapolis



Fig. 139
Abandon Rail / Location undetermined



Fig. 140
Burlington Northern line, Winnipeg



Fig. 141
Fundraising Opportunities / Met Branch Trail



Fig. 142
Fundraising Opportunities / Adopt a Trail



Fig. 143
Light Rail Proposal along the Midtown Greenway



Fig. 144
The Midtown Greenway, Minneapolis



Fig. 145
Met Branch Trail, Washington D.C.



Fig. 146
Met Branch Trail, Washington D.C.



Fig. 147
Bicycle Police on the Midtown Greenway, Minneapolis



Fig. 148
Bike FIXSTATION on the Midtown Greenway



Fig. 149
The Martin Olav Sabo Bridge, Minneapolis



Fig. 150
The Martin Olav Sabo Bridge, Minneapolis



Fig. 151
Digital sign posts identify traffic patterns



Fig. 152
Digital sign posts identify traffic patterns



Fig. 153
Elevated tracks, later to become the High Line



Fig. 154
Trains on street level before an elevated rail



Fig. 155
Current High Line, New York City



Fig. 156
Current High Line, New York City

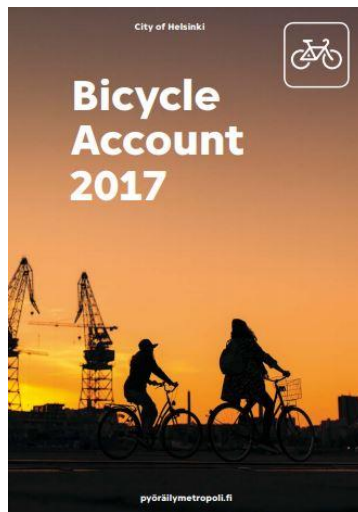


Fig. 157
Bicycle Account, 2017, Helsinki

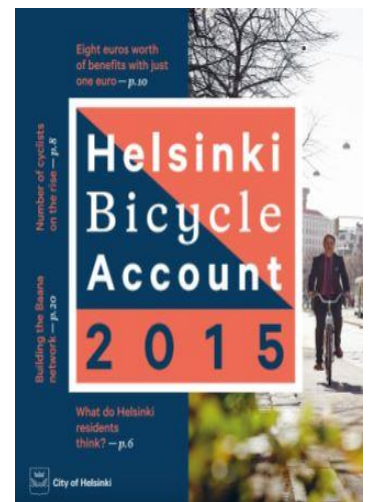


Fig. 158
Helsinki Bicycle Account, 2015, Helsinki



Fig. 159
Baana Design Competition, Helsinki



Fig. 160
The Baana, Helsinki



Fig. 161
Current High Line, New York City

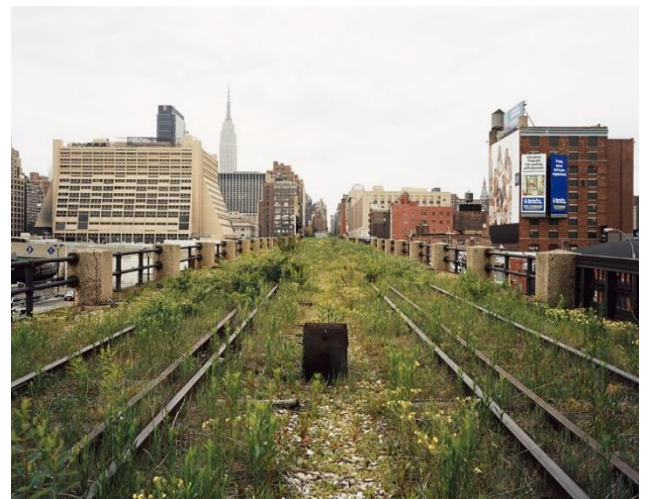


Fig. 162
Elevated rail line, prior to becoming the High Line



Fig. 163
Jake and Dad, Mississippi River, Minneapolis



Fig. 164
Michael and Abby Mouw



Fig. 165
Tim Springer



Fig. 166
Krista Muurinen



Fig. 167
Leena Buller



Fig. 168
Otso Kivekäs