

SYDNEY HARBOUR CONNECTOR

Project Team 1

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ABSTRACT

Trails have become a popular outdoor recreation destination in North America. The joy and impact that trails deliver for people, places and the planet is what has made it so popular. Trail networks are a top priority since they are vital to prosperous, healthy communities thereby establishing safe pathways so that everyone can walk, bike, and be active outdoors. Since there are many abandoned rail lines in North America, there have been many conversions from rail to trails. This study is to determine whether the residents living in Sydney Nova Scotia would be in favour of the conversion of an abandoned rail line to a trail or if they would prefer to see freight services resumed. To achieve this the project also aims to conduct separate surveys for both public as well as local businesses.

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CHAPTER1: INTRODUCTION

1.1 Overview

Railways played a major role in the process of industrialization and daily commutes. With the development of speedier air travel and faster automotive mobility, railway abandonment started to occur widely in the middle of the 20th century.

Active transportation involves commuting between two places, such as home to work or school. When something is moved by human activity, it is called "Active Transportation." It is a form of transportation that includes walking, running, cycling, and other personal mobility variants, such as wheelchairs and skateboards, that replace auto transportation. Active Transportation facilities include physical infrastructure for active transportation, such as sidewalks, paths, bike lanes, multiuse trails etc.

Physical inactivity has become a big health issue in the modern world (Sari, 2008). “According to Statistics Canada, (2012), In 2011, only 54% of Canadians were considered active or moderately active” (VanBlarcom, B., & Janmaat, J 2013). Canadians spent an average of 28.5 hours a week watching television in 2011, up 30 min from 2010 according to Canadian Radio-Television and Telecommunications Commission in 2012 and they spend, on average, 42 hours a month on the internet, almost twice the worldwide average and approximately 33% more than the average American at 30 hours according to ComScore study in 2012 (VanBlarcom, B., & Janmaat, J 2013).

In Canada, trails are valuable assets for both travel and recreation. In many cases, rail lines make ideal sites for the construction of trails. The creation of a trail may be a preferable choice in cases when the railway use of a corridor is discontinued since the current rail bed can be affordably converted by improving the surface material. North America is home to numerous

examples of successful rails-to-trails projects. In Nova Scotia, the 7,400 kilometers of coastline and over 1,100 kilometers of abandoned rail lines offer numerous opportunities for enjoying coastal hiking trails (Norman T J, 2010).

This project focuses on converting an abandoned railway which was once an active rail path for freight services into a recreational trail that starts from Sydney River to Downtown Sydney, Nova Scotia. This abandoned rail line covers an area of 3.2 kilometers and is known as the Sydney Harbour Connector Project. This should be converted into a multi-use path to provide residents and visitors to gather, socialize, and recreate as trails are an important part of communities all over the world as they promote and add value to their health and well-being. Encouraging other modes of transportation, such as walking, running, or cycling, can reduce obesity, stress, and other health issues linked to sedentary lifestyles. Additionally, trails provide an alternative active transportation method especially where conventional transportation is high.

1.2 Purpose Of Study

This study focuses on converting abandoned rail tracks into walking or bicycling trails from the Sydney River to Sydney Downtown, known as the Sydney Harbour Connector Project, which covers 3.2 kilometers. This rail line was once an active freight rail service that has been abandoned for over 10 years now (Ryan MacDonald, 2023). The goal is to evaluate the viability and community backing for either reintroducing freight rail services or transforming an existing rail line into a versatile multi-use path in the Sydney Harbour area. The goal is also not to let the abandoned train lines remain abandoned.

1.3 Purpose of Proposed Research Project

This project aims to survey the local businesses and residents to determine if they would be in favor of the conversion of the current rail line into a multi-use route or the reinstatement of

freight services in the vicinity of their establishments. Researching or analyzing related projects in terms of their positive effects on society and the economy is another goal.

This project focuses on Active transportation and measurably reduce vehicle commuting. The trail line could be used for commuting to work, school, parks or to complete day-to-day activities that might otherwise require travel by car. With the trail, elderly people in wheelchairs can move around freely who might otherwise require assistance. By making active transportation more convenient, safe, simple, and enjoyable, this project seeks to encourage people to pursue active lifestyles. With this conversion it brings economic development, promotes tourism, and reduces carbon emission. It also Improves people's lives in measurable ways and promote more social fairness.

1.3.1 Major Research Question

Currently, Kings Road poses challenges for pedestrians and cyclists due to high traffic speed, volume, and poorly designed sidewalks. This project suggests a solution by creating a multi-use pathway for walking, running, wheelchair use, cycling, and other activities. This pathway would improve access for residents in nearby areas like Sydney River, Westmount, Coxheath, Kings Road, and surrounding areas, providing a safe way to reach downtown Sydney.

1.4 Background

1.4.1 The industry

When an ageing railway system reaches the end of its useful life, instead of being abandoned to decay, making it useful for Active Transportation is the best option found. Active transport is the start and finish of any journey. To go to work, we walk to the bus stop. We cycled to a local park with our kids to enjoy the playground. Numerous social, economic, and environmental advantages, such as improved health and lower levels of traffic, noise and air pollution, energy consumption, and greenhouse gas emissions. In addition to improving

community health and quality of life, pathways and trails that connect to public transport in an eco-friendly, safe and clean manner will also enable every Canadian to have a part in achieving the objective of net zero emissions.

According to Bissix G, 2012 the province's interest in developing trails started grow in the spring of 1974 when the newly established Department of Recreation in Nova Scotia, which is now part of the Department of Health and Wellness, sponsored a provincial trails conference. The department later changed its name to the Department of Health Promotion and Protection (HPP). Instead of using the Trails Act, HPP and the Department of Natural Resources (DNR) together implemented a Rails-to-Trails policy through the Crown Lands Act for more than ten years in favor of the abandoned rail corridor agenda. This allowed them to get around the Trails Act's non-motorized emphasis. The Rails-to-Trails policy called for community-based initiatives, collaboration, cooperation, and partnerships, among other safeguards against illegal trail development, even if it purposefully avoided the Trails Act—at least on paper. The overriding policy thrust was that abandoned rail trails should be a “good neighbour” that on the one hand ensured the public’s recreation access to the corridor but on the other balanced adjacent landowner concerns (Bissix, G 2012). Rail-trail development initiatives improve public health, lower vehicle usage, and stimulate local economic growth—all of which are social, economic, and environmental advantages that contribute to sustainability. The rail-trail and recreation economics suggest that having trails in a community can have many positive effects, including better health, more social contact, and higher property values.

1.4.2 History

The Sydney railway line The Sydney railway line was established to transport coal from different mines in Sydney and Louisburg. A large-scale industrialization came to Sydney when

two large conglomerates were formed in the 1890s. The Dominion Steel Company (1893) and the Nova Scotia Steel and Coal Company (1900). On February 1, 1893, Dominion Coal Company (DOMCO) was incorporated, and it purchased all coal mines and railway lines between Sydney and Louisburg. During the early 20th century, it was among the most modern railway lines in Canada. The rail line Cape Breton & Central Nova Scotia Railway (CBNS) operates was previously owned by the Canadian National Railway. It began its operation in 2004 after it was purchased in October 2003 by the holding company Railtex. On February 4, 2000, Railtex and all of its assets, including CBNS were sold to the holding company Rail America. On December 12, 2012, Rail America and its assets including CBNS were sold to the holding company Genesee & Wyoming (G & W). As of 2019, the railway line is still maintained by G & W and the province pays around \$4 Million Dollars a year for the upkeep of the railway line. The Subsidy is to be reviewed in 2020 (The Encyclopedia Contributors, 2023, November 13, Cape Breton Central Nova Scotia Railway).

CHAPTER 2: REVIEW OF THE LITERATURE

2.1 Purpose and Scope of Literature Review

The Sydney Harbor Connector project is a transformative activity aimed at repurposing deserted rail systems into an energetic multi-use way, enhancing the urban texture of Sydney. This literature survey endeavors to dive into the riches of information encompassing comparative ventures universally, looking to guide and direct the usage of the Sydney Harbor Connector. As urban arenas persistently advance to meet the different needs of communities, the transformation of neglected rail networks into multi-use ways has risen as a feasible and community-centric arrangement. By analyzing the encounters, challenges, and achievements of comparable projects,

this paper points to supplying profitable experiences for the viable arranging, planning, and execution of the Sydney Harbor Connector. Through a comprehensive investigation of existing studies and reports, we point to reveal the socio-economic impacts that can shape the victory of this driven endeavor. Hence, serves as the establishment for better decision-making, guaranteeing that the Sydney Harbor Connector not also it was strengthens the urban network but also adjusts with the broader objectives of supportability, community engagement, and financial imperativeness.

2.2 Literature Review

The escalating global demand for recreational and alternative transportation options has led to a notable surge in the proliferation of rail-to-trail projects, as abandoned rail corridors are increasingly repurposed into multi-use trails across the world. From mid-1991 onward, rail-to-trail projects experienced widespread popularity and increased prevalence, marking a notable surge in their adoption and development (Siderelis et al.,1995). This trend is growing because it's a smart way to repurpose old train lines, making them useful, enjoyable, and accessible to everyone. The abandoned railways, being mostly disconnected from regular roads, have gentle slopes, wide curves, and spacious corridors, making them perfect for creating enjoyable, safe, and easily accessible trails suitable for all, including children, the elderly, and those with limited mobility (Rovelli R et al., 2020). As Betz et al. (2003) assert, “The conversion of disused railway lines into greenways is relatively easy and the costs are low compared to the implementation of similar infrastructure starting from the ground up”. These inherent advantages ensure that the journey of rail to trail network goes on forever.

Establishing a rail-trail network not only promotes recreation but also fosters an enjoyable and peaceful lifestyle, contributing to overall happiness in individuals. The concept of

net benefit in recreation economics, measured as user willingness to pay beyond travel expenditures, becomes crucial in estimating the economic advantages of rail-trail sites, especially considering the projected growth in day trips for hiking and cycling (Siderelis et al., 1995). The local communities are linked together through rail-trails, fostering connection among residents and shared recreational space, bringing communities together also strengthening their ties as well as offering tourists the chance to meet the interesting local culture (Baker 2001).

Rail-trail plays a vital role in shaping a person's health and enhances the overall metabolism. According to VanBlarcom, B., & Janmaat, J (2013), the study evaluates the health benefits of a proposed gravel surface rail trail in Nova Scotia, projecting 430 daily trips and estimating an annual value of \$456,000 from increased physical activity. The present value analysis indicates that the health benefits of the trail outweigh the costs ninefold. However, allowing all-terrain vehicle access could reduce trail use and health benefits by nearly 50%, equivalent to a \$220,000 annual reduction in health benefits. In the 21st century, physical inactivity become a major public health concern, which leads to chronic diseases and a sedentary lifestyle which leads to a higher number of fatalities. The community suggests promoting physical activity by building things like walking and biking trails, and the rail trail provides level-grade surfaces for many physical activities. The studies show that using these rail-trails positively affects physical activity in the local area (Abildso, C 2012). According to Cape Breton Municipality Transportation Plan (2022), they plan to implement Active Transportation Plans among residents to minimize the usage of cars, create greater social equity, reduce the maintenance cost of transportation networks, and improve the safety of youth and seniors.

“According to the University of Massachusetts, rail-trails provide excellent recreation and transportation opportunities, preserve critical open space, create natural corridors for

wildlife, and enhance communities in the process. But rail-trails do even more, they bring money into the communities through which they pass” (Beeton, S 2003). That’s why the rail-trail network acts as a magnet for tourists, enhancing the overall appeal and economic vitality of the areas through which these paths traverse. Which preserves cultural and historical elements, enriching the tourist experience and providing a unique way to explore the local environment. It also enriches heritage tourism by offering visitors a deeper understanding of the local culture, beliefs, and traditions inherent to specific communities. Rail - trails are being created more and more with the aim of boosting tourism. The study indicates potential economic and social benefits that, for example, cycling tourism can deliver to rail trail host communities, particularly in regional and remote areas that often look to tourism to diversify their economic portfolio (Scherrer, P et al., 2021).

This development in tourism also contributes to the local farm markets, craft beverage producers and restaurants, accommodation, and other businesses. The Rail-trail layout a glimpse into the local history and culture which entitles the neighborhood appreciation and connectivity.

Finally, the rail-trail multi-purpose path has a positive growth in the market value of the land. Rail-trail also increases the property value of residents close to the trails and influences municipal and property taxes (Zhang W et al., 2018). According to Zhang W et al., 2018, “decreasing the distance to the closest trail entrance by one foot (meter) increases a house’s property value by US\$0.92 (US\$3.02) when using network distances”. The landscape bears the imprint of fundamental urban and rural elements, shaping the cultural fabric of a region. Within this framework, the urban landscape emerges as an intricate system. Greenways, integral components of urban structures, are delineated as linear corridors that enhance environmental

quality and offer opportunities for outdoor recreation (Bichis-Lupas, M., & Moisey, R. N. (2001).

2.3 The Similar Projects in Atlantic Canada

2.3.1 *The Celtic Shores Coastal Path (Nova Scotia):*

This path is a portion of the Trans Canada Path and is found in Cape Breton, Nova Scotia. It takes after the course of the surrendered Cape Breton and Central Nova Scotia Railroad, giving shocking coastal views. It is a 92km multi-use trail (Celtic Shores Coastal Trail, Inverness County Trails | A scenic cycling and shared use Coastal Trail in western Cape Breton, Nova Scotia).

2.3.2 *The Confederation Path (Prince Edward Island):*

The Confederation Trail is a path that covers the whole length of Sovereign Edward Island. It was created on the deserted rail lines of the Ruler Edward Island Railroad and offers a picturesque route for strolling, cycling, and other open-air activities. It is a 470 km recreational rail trail system. It was developed in 1990, s following the December 31, 1989, abandonment of all railway lines in the province by the Canadian National Railway (Confederation Trail | Tourism PEI).

2.3.3 *The T'Railway (Newfoundland and Labrador):*

The T'Railway is a framework created on the previous Newfoundland Railroad line, extending over the island of Newfoundland. It gives openings for climbing, cycling, and snowmobiling in different sections. It was established in July 1997 as a rail trail (Newfoundland T'Railway - bikepacking.com. 2022, July 27).

CHAPTER 3: METHODOLOGY

3.1 Project Design

The Sydney Harbour Project is set to be developed along the Sydney Harbour from the Sydney River to downtown Sydney, consisting of two distinct phases. Phase one will cover the area from the Sydney River to the Seaboard Industry on Kings Road, while the second phase will extend from the Seaboard Industry on Kings Road to downtown.

The discussion regarding this project has been going on for many years, Although, various challenges related to the ownership and technical problems became a barrier to the project's progress (Ian Nathanson, 2023). However, in August 2022, the CBRM Council approved an updated active transportation plan and they have given more prioritization to the Sydney Harbour project compared to the other project plans (CBRM Active Transportation Plan, 2022).

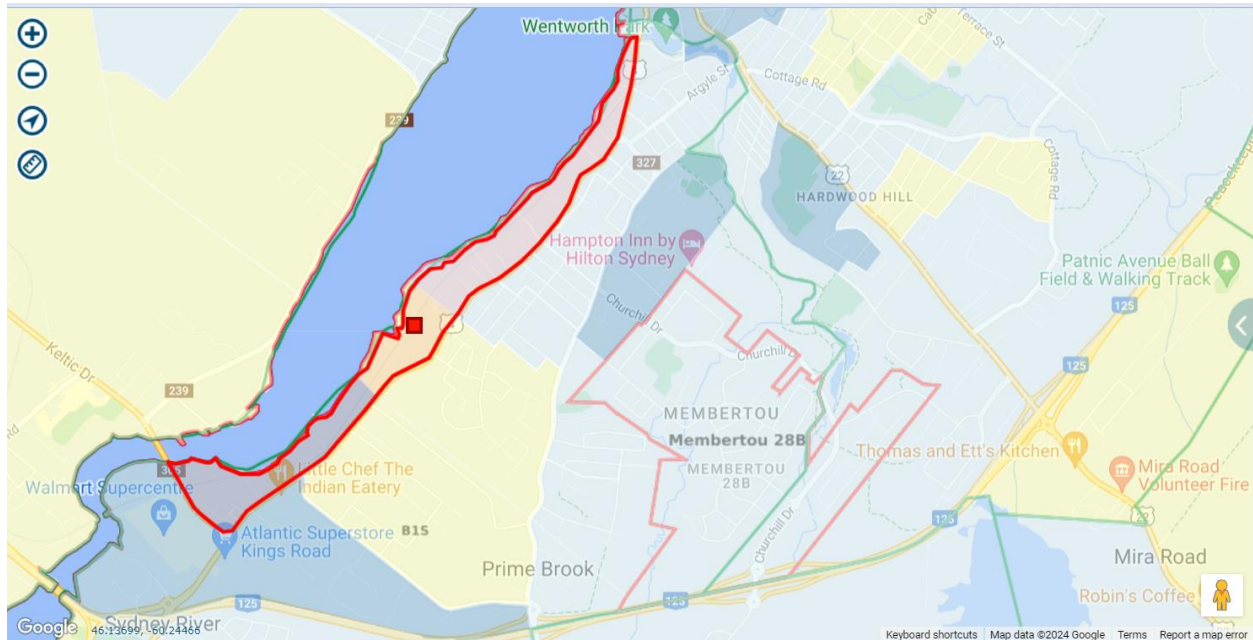
As a part of this project, we intend to survey the residents and local businesses in Sydney to seek public opinion regarding the conversion of the inactive rail line into a multi-use trail from Sydney River to downtown or the return of the freight services in the existing rail line Sydney.

3.2 Data collection

In this survey, we are focusing mainly on the residents and local businesses near the existing rail line. To assess the population, we have segmented the demographic into two distinct divisions. Division one focuses on individuals residing between Kings Road and Sydney Harbour along the existing rail line. The second Division, termed the general community, encompasses individuals living throughout and nearby places of Sydney.

3.2.1 Map of Division 1

The map below illustrates the focusing study area covering residents living near the existing rail line between Kings Road and Sydney Harbour.



Division 1 study area from Sitewise v3.2.0

Based on Sitewise data from 2021, the highlighted study area on the map was home to approximately 519 people. However, following the construction of two large apartments in the vicinity, it is estimated that the population has increased. Considering an average family size of 2.6, the two new apartments likely house around 260 tenants in total (calculated as 100 rooms multiplied by 2.6). Therefore, the current estimated population in this area is 779 people.

We conducted the survey using two methods: direct response and online survey. We distributed flyers and delivered them to every mailbox in nearby areas and set up a survey booth at the Farmers Market in Sydney to collect people's responses regarding this project. We have developed an MS Office form to gather responses from residents and local businesses,

established a Gmail project account, and generated QR codes for surveys. We also utilized social media platforms like Facebook, Instagram, Twitter, and WhatsApp for outreach.

3.3 Benefits of the Project

Transforming inactive rail lines into trails revolutionizes the scenery of Sydney while enriching local communities and improving the quality of life. We aim to make it customary for every community to view a trail network as a gateway to sustainable living, enhanced well-being, and economic growth. It also improves economic benefits, community partnership, and collaboration with local businesses in this surrounding area, also providing a boom in Tourism. This project is an alternative source of transportation. It connects neighborhoods, businesses, schools, and parks and would be safe and useful for pedestrians and cyclists of all ages and abilities. Currently, traveling from Sydney River to downtown via the sole route, Kings Road has become a challenging and perilous endeavor. Converting an unused rail into a trail provides a better space for walking, jogging, and running and in turn ignites a healthy community in Sydney. It provides green space, recreation options, and public space for enhancement programs in the dense. Moreover, protects the biodiversity and natural ecosystem in the surrounding area. This helps to enrich the local businesses and also preserve the heritage and tradition of this society, especially the Mi'kmaq community in Sydney.

Transforming the rail to trail system also promotes an eco-friendly atmosphere by reducing the reliance on private transportation. According to the CBRM's active transportation plan, 2022 they tend to focus on replacing car trips in Cape Breton Community. Consequently, this multi-use path will serve as a means to diminish air pollution by mitigating the usage of cars and promoting active transportation. This rail-trail track is one of the major ways to improve the

scenic beauty and vegetation of Sydney. This project attracts tourists and outdoor enthusiasts, boosting local economies through increased spending on accommodations, dining, and recreational activities.

In Addition to this, the market value of nearby residential properties and the standard of living of the people will rise. Additionally, they get an opportunity to improve their community engagement and entertainment. Also, the people from the neighborhood community such as Westmount, Coxheath, and north Sydney could access this pathway and improve connectivity and engagement towards people.

CHAPTER 4: RESULTS

4.1 Findings from Results

From the public, we have received approximately 707 responses. Among these, 86% expressed support for converting the inactive rail into a trail, while the remaining respondents favored a return to freight services in Sydney.

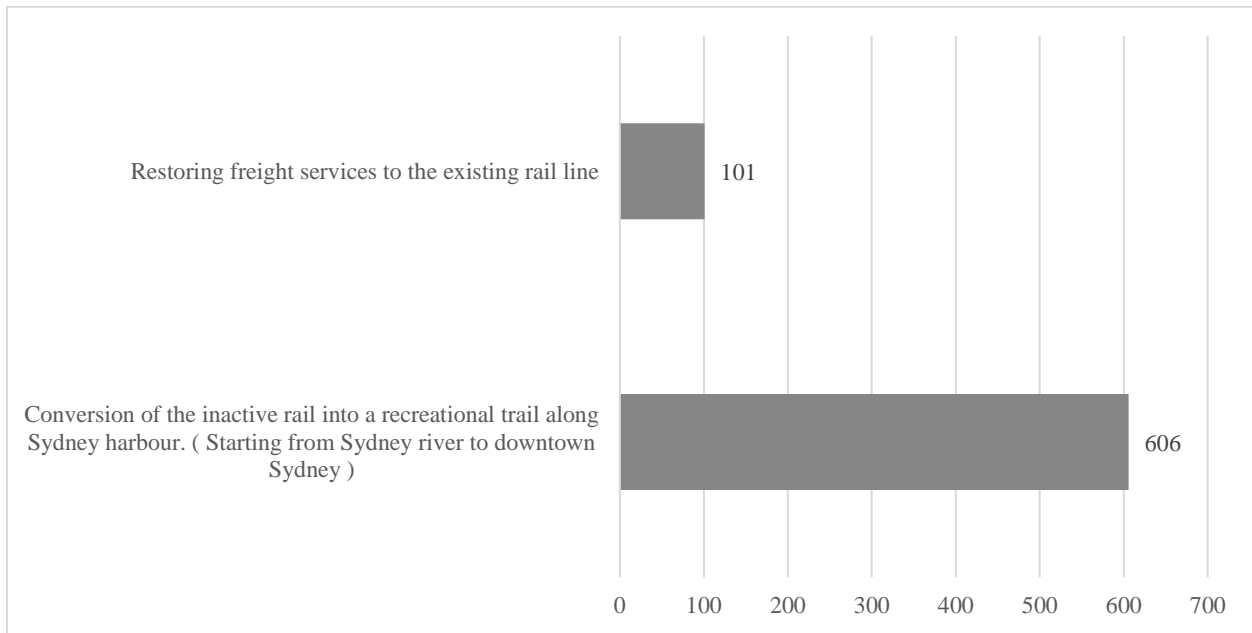


Figure 1: Preference of residents supporting a trail or railway

In our focused study area Division 1, there are approximately 779 residents residing between Kings Road and Sydney Harbour. Despite this sizable population, only about 33% of the residents participated in our survey.

The graph below illustrates the distribution of residents in our primary focus area, Division One, and those residing in Sydney representing the general community, Division Two. Out of the total respondents, 260 belong to Division 1, while the remaining 447 are part of Division 2. Within the study area Division 1, nearly 213 (82%) tenants voiced their support for the walking path, with only a minimal percentage advocating for the return of freight service on the existing line. Among the total responses in the general community, 393 (88%) expressed support for the conversion of the rail line into a multi-use walking path, while the remaining 54 (12%) favored reinstating freight services.

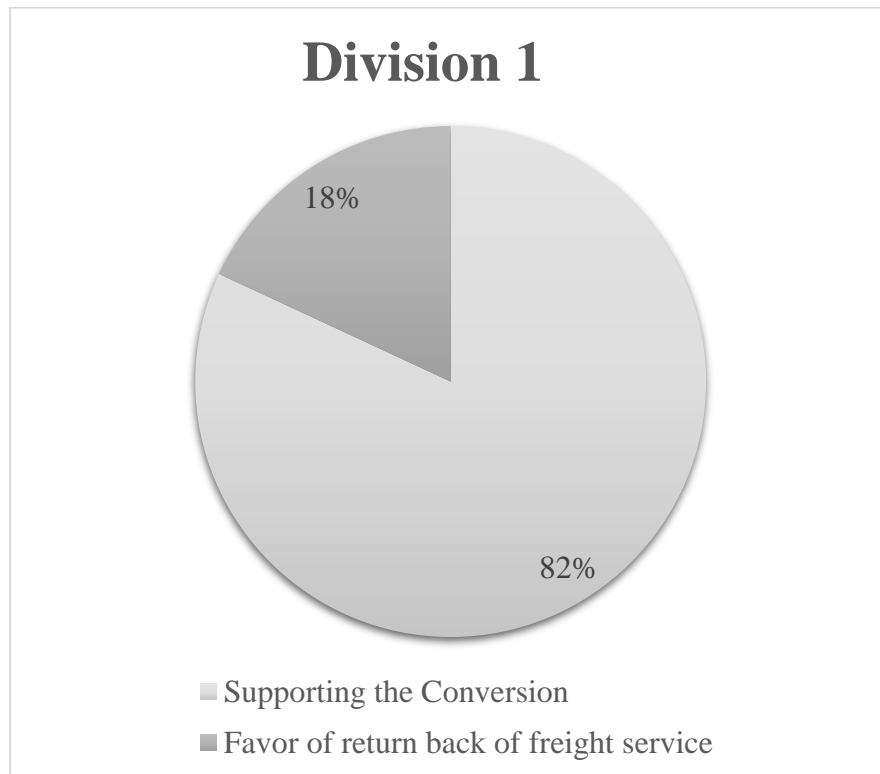


Figure 2: Responses of residents living in Division 1

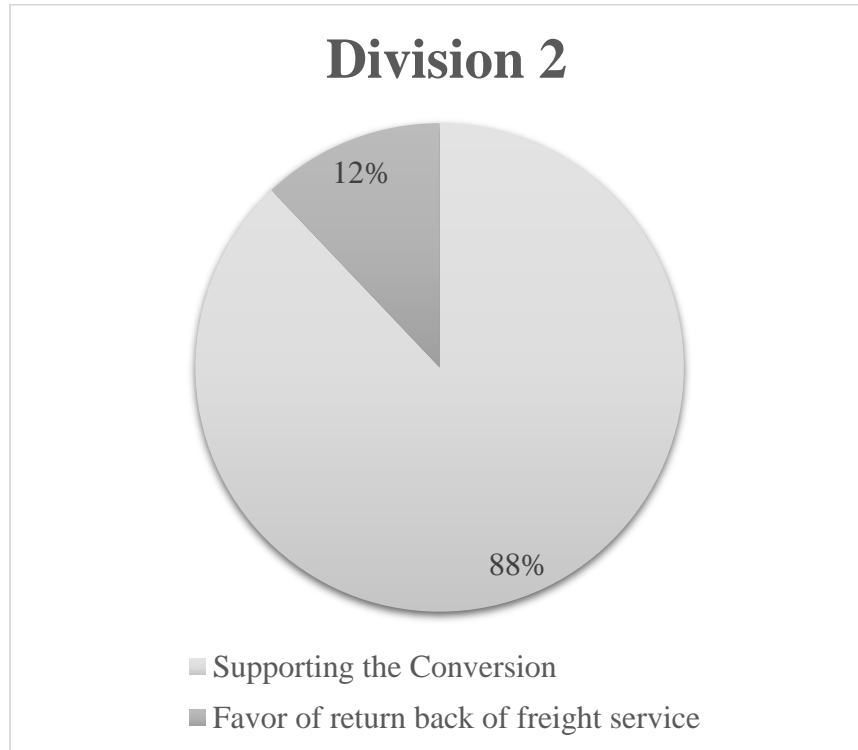


Figure 3: Responses of residents living in Division 2

The table below displays the various age groups that participated in the survey.

	Under 15 Years	15 – 30 Years (18%)	31 – 50 Years (46%)	51 – 65 Years (22%)	Above 65 Years (14%)
Conversion of the inactive rail into a recreational trail along Sydney Harbour	1	106 (15%)	283 (40%)	142 (20%)	74 (10%)
Restoring freight services to the existing rail line	1	22 (3%)	39 (6%)	15 (2%)	24 (4%)

According to the survey, residents in the age group of 31-50 years range 46% are responded in survey and most in favor of trail conversion, with a majority of 40% in this category.

The bar diagram below indicates the purpose of the multipurpose trail among those who are in favor of it. If the trail is established, people consider recreation and health & wellness to be most effectively utilized.

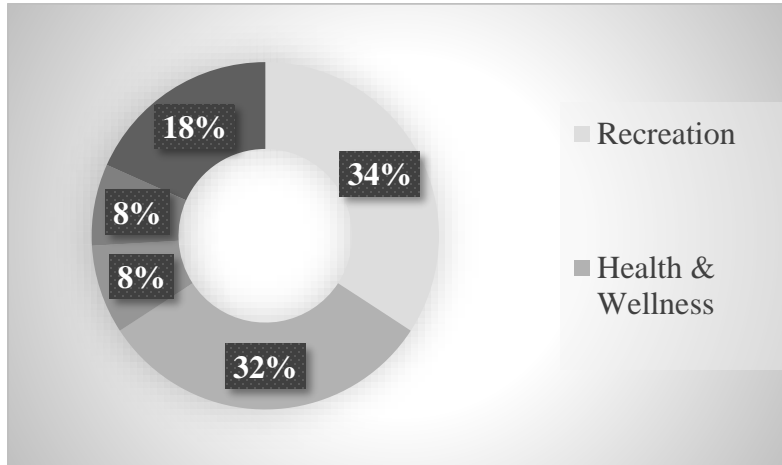


Figure 4: The people’s desires regarding the purposes of the trail

According to the survey, People consider jogging, biking, etc., but they prefer walking more than any other mentioned activities on the trail.

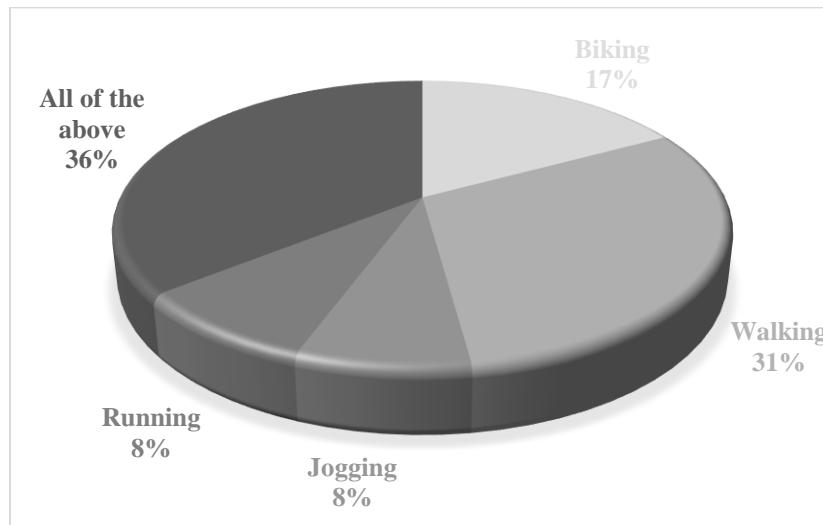


Figure 5: Activities that residents are interested in on the trail.

As per the survey, 36% of people would prefer to use the trail between 3 to 5 times a week.

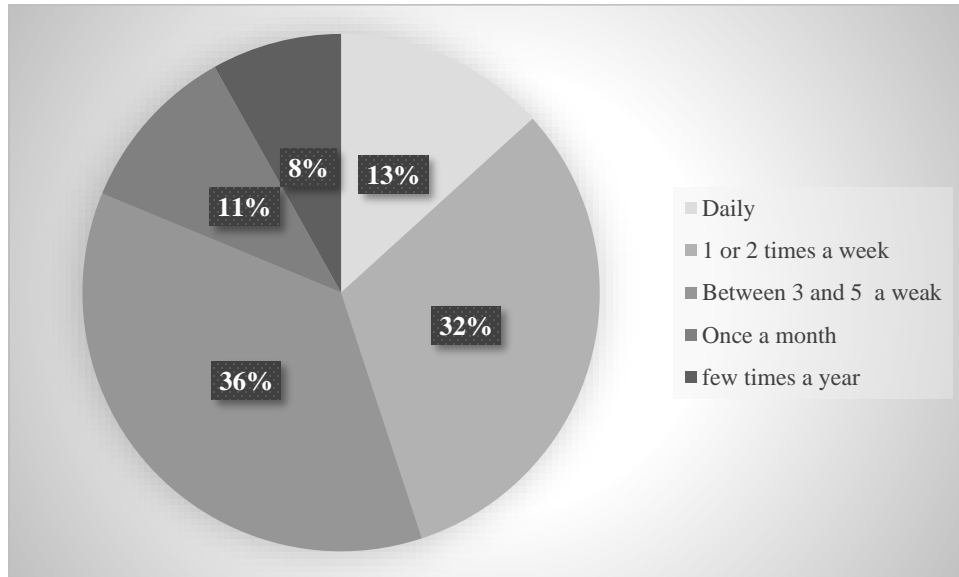


Figure 6: The frequency of trail use that locals would like to make.

The below bar graph shows the duration of people living in Sydney and that people residing in the area for more than 15 years support the highest percentage for the conversion of inactive rail to trail.

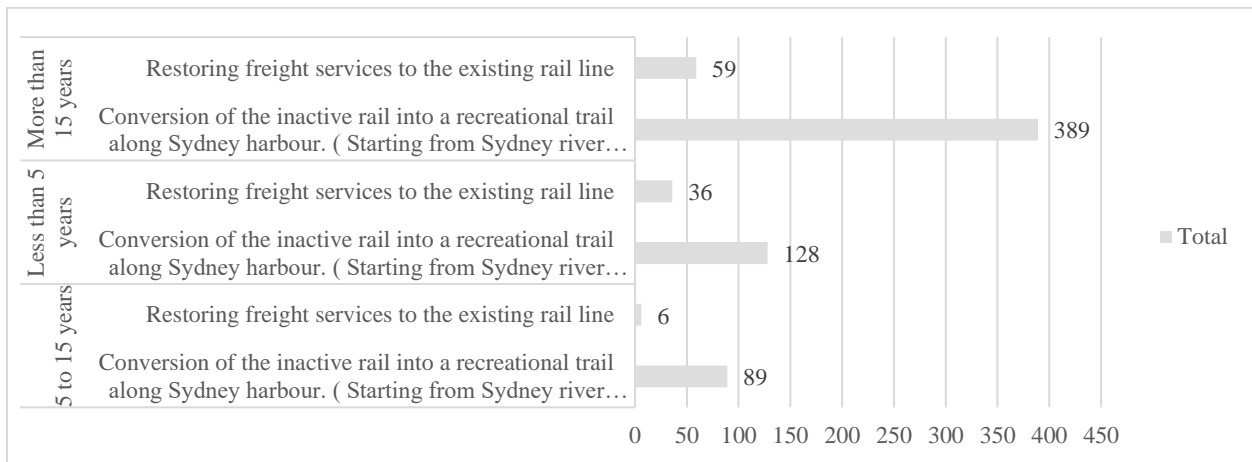


Figure 7: Duration of people living in Sydney and people staying for more than 15 years

According to the survey, almost everyone feels that the conversion of rail to trail enhances social connectivity, increases residential property value, and makes the community more appealing.

As per the business survey, 25 responses were received. The below graph depicts the number of business organizations whether they support the conversion or return freight service. 56 % of respondents support the conversion while the remaining 44% percentage in favour of the train back.

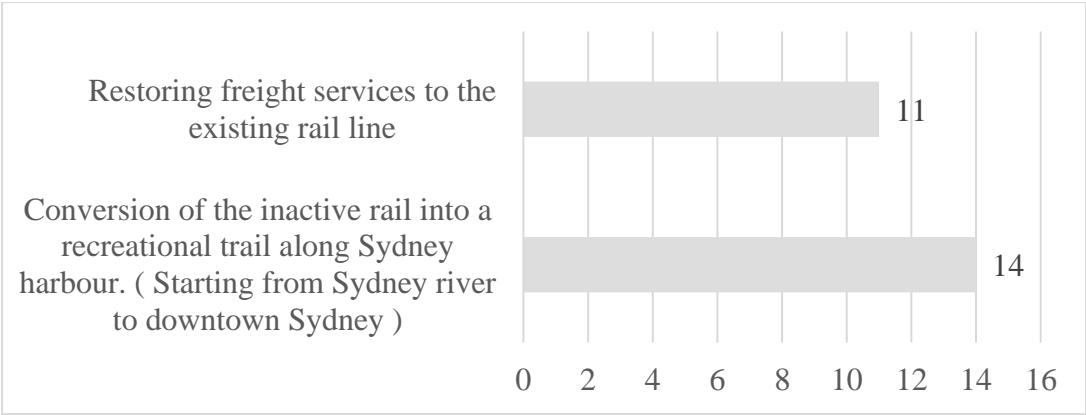


Figure 8: The number of business organizations supporting the conversion or return of freight service.

4.2 PESTEL Analysis

PESTEL framework is a tool to analyze and monitor the external factors that have an impact on the execution of a project.

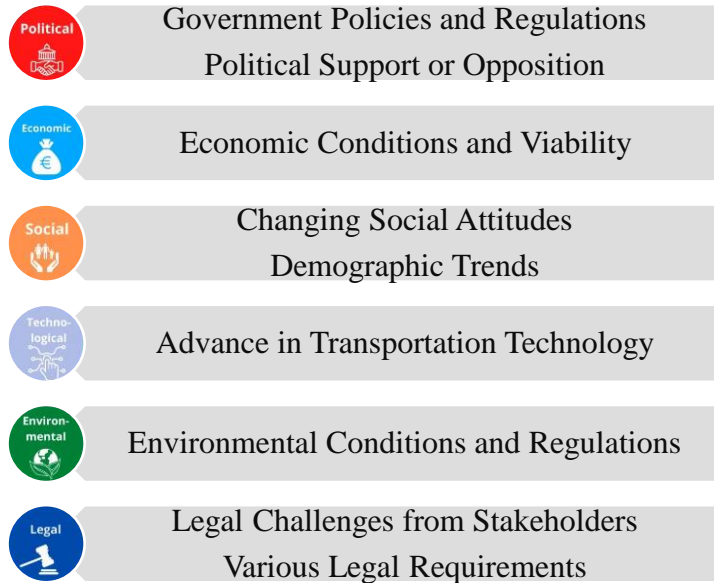


Figure 9: PESTEL Analysis.

4.2.1 Political

Different policies and regulations of the government on transportation infrastructure projects can impact the implementation of the Sydney Harbour connector. Also, the political support or opposition at the local, regional & federal levels can influence the fund allocation and project approvals.

4.2.2 Economic

The availability of funding depends upon various factors such as variations in GDP, inflation rates, and interest rates. Also, revenue and job creation can be a vital part of the viability of the project.

4.2.3 Social

Population growth & urbanization can affect the demand for recreational facilities and alternative transportation means. Also, the change in social attitudes towards transportation and environmental conservation may create opportunities for community support and engagement.

4.2.4 Technological

The implementation of digital platforms can enhance the experience of the users on the trail. Futuristic ideas such as electric bikes and smart mobility solutions could influence the design and function of the walking path.

4.2.5 Environmental

Different environmental regulations and issues with the conservation of the habitat and pollution control can impact the planning and execution of the project. Reducing carbon emissions and environmental sustainability can be a vital part of the selling point.

4.2.6 Legal

Different zoning regulations, land use permission, and crucial safety standards can be critical for the implementation of the project. Challenges from the stakeholders or interest groups can also negatively impact the outcome of the project.

CHAPTER 5: DISCUSSION

5.1 Limitation of study

We faced a lot of challenges during each step of the research project. We mainly focused on offline platforms for surveying residents and local businesses. However, we had to switch the platform to online mode due to the continuously inclement weather conditions.

CHAPTER 6: CONCLUSION

The Sydney Harbour Project is set to be developed along the Sydney Harbour from the Sydney River to downtown Sydney. This project analyzed the economic and social benefits of rail-to-trail projects across Atlantic Canada and through various case studies, it became evident that the conversion of rail to trail serves as a significant catalyst for the growth of Sydney. The ultimate aim of the project is to gather responses from the public and businesses. As per the survey results 86% of people would like to have a multi-use pathway along Sydney Harbour. The active participation was from the age group of 31 – 50 years and the lion's share of people inclined towards the trail for recreation and health & wellness.

CHAPTER 7: RECOMMENDATION

7.1 Recommendation

The studies on this project have been going on for a long time. It is time to Fast-track the process of establishing the trail because the entire phase of Sydney could be changed by this project. Moreover, this small portion of the rail trail can be the beginning of an extended bay-to-bay rail trail project.

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