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Analyzing Perceptions of Residents Living with Flood Protection in Lower Hutt, New Zealand

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Analyzing Perceptions of Residents Living with Flood Protection in Lower Hutt, New Zealand
Analyzing Perceptions of Residents Living with Flood Protection in Lower Hutt, New Zealand

An Interactive Qualifying Project submitted to the faculty of WORCESTER POLYTECHNIC INSTITUTE in partial fulfillment of the requirements for the Degree of Bachelor of Science

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March 1, 2018

Submitted To:
Project Advisors:
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Project Sponsor:
Ross Jackson, Greater Wellington Regional Council
Abstract

The RiverLink project aims to improve flood protection, community engagement, and transportation in Lower Hutt. Our project assisted the GWRC in assessing perceptions through community and expert interviews as well as through naturalistic observation. We found that the river parks along the Hutt River were underutilized and perceived to be unsafe, and there was a mixed level of awareness regarding RiverLink. To address these concerns, we recommended improving sight lines, adding park amenities, and increasing community engagement during construction.
Executive Summary

Introduction and Background

According to research conducted by the UN Office for Disaster Risk Reduction and the Center for Research on Epidemiology of Disasters, in the past 20 years, 43% of all natural disasters worldwide were floods. Due to climate change, the frequency and severity of flooding is projected to rise, placing more social capital at risk (Myers, 2016). The Hutt Valley, a region north of Wellington, New Zealand is particularly at risk of flooding. The Hutt Valley consists of two major cities, Upper Hutt and Lower Hutt, and the surrounding suburbs. Running through this valley is the Hutt River, a 56 kilometer river that serves as the sole route for water to travel from the 655 square kilometer catchment area into Wellington Harbour. Since this river serves such a large catchment, it is highly susceptible to flooding during large storms, particularly in narrow sections of the channel. If a severe flood were to occur, it would result in an estimated 6 billion NZD (4.41 USD) worth of damage to the Hutt Valley (GWRC, 2004). In efforts to increase flood protection, mitigation measures implemented since the early 20th century include channel widening, redirecting the river path, and building stopbanks.

The primary organization responsible for managing natural resources and flood protection in the Hutt Valley is the Greater Wellington Regional Council (GWRC). In 2001, the GWRC published the Hutt River Floodplain Management Plan (HRFMP). The report designed a long-term plan to raise the level of flood protection from the Ava Bridge to Kennedy Good Bridge section of the Hutt River from a 1 in 100 year standard to a 1 in 400 year standard, the equivalent of a 2300 cumec flood. The report outlined detailed upgrades for existing stopbanks in the region and proposed additional flood protection measures including channel widening and bank erosion prevention. Additionally, the report included a community engagement strategy and environmental strategy to preserve natural species along the Hutt River.

Following the publication of the HRFMP, several major flood protection upgrades have been implemented in the Boulcott, Alicetown, and Strand Park suburbs of the Lower Hutt. The remaining section is the stretch between Ewen Bridge and Melling Bridge, adjacent to the Melling suburb. In order to address the need to implement flood protection upgrades along this portion of the river, address transportation issues in the Lower Hutt, and revitalize the Central Business District (CBD), the GWRC created the RiverLink project in 2012. This project is a collaboration between the GWRC, Hutt City Council (HCC), and New Zealand Transport Agency (NZTA) to address all of these issues through one overarching partnership. The GWRC is responsible for the flood protection components, the HCC is responsible for the revitalization of the CBD, and the NZTA is responsible for renovating the Melling Bridge and moving Melling Station closer to the CBD.

Five years since its inception, RiverLink is still in the approval stages, however, extensive work has been completed to ensure the public is informed of the coming changes. The goal of our project is to assist the GWRC in understanding the perceptions of residents living in the Melling suburb, the location of the future stopbank upgrades, as well as the perceptions of residents living in the Alicetown, Strand Park, and Boulcott suburbs, the locations of previous stopbank upgrades.
Methodology

In order to accomplish the above goals, our project was divided into four main objectives. Our first objective was to develop a complete understanding of past flood protection works and the RiverLink project from the perspective of project experts and field observations. In order to do so, we interviewed individuals from key organizations relating to the RiverLink project, including the GWRC, HCC, NZTA, and Whaiťua Committee, local Māori natural resource management committee. We also conducted naturalistic observation along the river parks.

Our second objective was to assess the perceptions of residents living in Alicetown, Boulcott, and Strand Park, areas with previous flood protection upgrades. In this community, we identified a survey catchment of 137 households. In order to accomplish this, we used two different surveying methods to the target these specific residents, door knock interviewing and an online survey that was available through the flyers we passed out in the community as well as the GWRC Facebook, Instagram, and Twitter pages.

The third objective was to assess the perceptions of residents living in Melling, the area where flood protection upgrades will be implemented in the future. In this community, we identified a survey area of 50 households. In order to accomplish this, we used the same two survey methods previously mentioned, door knock interviews and an online survey available through the flyers we distributed in the community and the GWRC social media accounts.

The fourth and final objective was to compile the data collected from the expert interviews, naturalistic observation, and community interviews, analyze the results in order to develop recommendations for the GWRC regarding how to best manage community perceptions of RiverLink, as well as how to best use the new space created on the Melling stopbanks. In order to analyze all of the quantitative data collected, we conducted a statistical analysis to find common responses from the multiple choice and scaled questions from the door knock interviews and online survey. Additionally, we coded the open response sections of the door knock interviews and online survey. We also determined the usage rate and type of usage per hour from the naturalistic observation. In order to analyze the qualitative data, we conducted several comparative analysis by creating comprehensive data structures. The first data structure compared common themes found throughout the expert interviews. The second data structure consisted of finding common themes related to community perceptions and the perceptions experts anticipated of the community. We also compared several key questions asked to both residents living where stopbanks have been upgraded in the past and in locations where they will be upgraded in the future.

Results and Discussion

Results: Understanding of Past Flood Protection Works and the RiverLink Project

In total 12 interviews were conducted. We met with seven GWRC employees, including project engineers, project managers, and elected officials involved with both past flood protection upgrades and the RiverLink project. We also met with three HCC employees, the city urban designer, and two elected officials. Additionally, we met with a project coordinator from the NZTA and a member of the local Whaiťua Committee. After coding all of the information from these interviews, we identified three aggregate dimensions. This first was that the Lower Hutt community is disconnected from the Hutt River. This was identified as a concern of representatives from every organization we interviewed. The next aggregate dimension was the general a lack of community awareness regarding the project process, scope, and outcomes of
both past flood protection upgrades and the RiverLink project. This was identified by both the GWRC and the HCC. The third aggregate dimension was that community members are concerned about the construction process of the future flood protection upgrades. This was identified by the GWRC, HCC, and NZTA.

In order to gain an understanding of how the river parks are currently used, we conducted five different naturalistic observations in one or two hour increments. Over the course of these five observations, 327 stopbank users were observed. Only 2.45% of these users stayed for more than 30 minutes, while the rest were either walking, jogging, or biking through. We also determined that portions of the stopbanks felt unsafe.

Results: Perceptions of Residents Living in Areas with Previous Flood Protection Upgrades

In order to assess the perceptions of residents living in Alicetown, Boulcott, and Strand Park, we conducted a total of 25 door knock interviews. Additionally, we received 9 online survey responses from residents of these areas. For the questions that appeared on both the door knock interviews and online survey, we coded and analyzed together. In general, community members had a positive perception of the flood protection upgrades that occurred near them. 25 out of 29 respondents said that their perception of the upgrades is either neutral or positive. When asked how to make the river parks more accessible, 11 out of the 28 respondents said they are already accessible. According to one resident “[The river parks are] well used already, there are always people walking dogs and riding bikes along river.” This is supported by the fact that 29 out of 34 use the river park spaces at least 1 or 2 times per week.

Results: Perceptions of Residents Living in Melling

In order to assess the perceptions of residents living in Melling, 16 door knock interviews were conducted. In general, the community felt very positively towards the RiverLink project, as 15 out of 16 respondents said they felt “somewhat positive” or “extremely positive” in regards to the project. Despite this overwhelming acceptance, there was a wide variety of responses related to how informed the community members felt about the project process and the different components that are part of the RiverLink project, such as the Riverside Promenade, Melling Station changes, and Margaret Street Pedestrian Bridge.

Results: Comparative Analysis and Findings

Based on the data drawn from stakeholder interviews, naturalistic observation, and door knock interviews, we developed six overall findings to describe the status of current community and expert perceptions regarding flood protection upgrades, RiverLink, and river park usage in the Lower Hutt. The findings are outlined as follows:

1. The river parks are underutilized and disconnected from the Lower Hutt community
2. Melling community members feel positively towards the RiverLink project and expect their lifestyle and the way the community uses the river park to improve
3. Residents of Alicetown, Boulcott, and Strand Park currently use the river parks near them more frequently and find them more accessible than the residents of Melling find the Pharazyn and Marsden Street river parks
4. GWRC staff accurately identifies community perceptions of RiverLink and the mixed levels of awareness among community members
5. Alicetown, Boulcott, and Strand Park community members felt informed about the flood protection upgrades and satisfied with the outcome, yet voiced concerns
regarding the construction process

6. Community members perceive sections of the river parks to be unsafe, and therefore avoid frequenting these areas

Recommendations

Based on the six findings that were determined through expert interviews, naturalistic observation, and community interviews, we developed three recommendations for the GWRC. These recommendations are twofold, river park design recommendations, which focus on changes than can be physically implemented on the river, the berm, and the stopbanks themselves, and project process recommendations, which suggest ways to involve the community with RiverLink. The recommendations are as follows:

1. Improve safety in the river parks
2. Make the river a destination
3. Engage the community with the project process

In order to develop specific usage recommendations to improve safety and make the river a destination, we developed a decision matrix and identified 11 recommendations. Some of the smaller suggestions include: park benches, trash cans, and animal waste bag dispensers. Some of the larger scale and more costly recommendations include: public toilets, a car park, and an amphitheater. In order to engage the community with the project process, we developed several infographics that can be incorporated into the existing RiverLink newsletters in order to quickly communicate information with the community. We also recommend developing a community notification system to inform community members via text or email of construction updates once the project begins. Additionally, we recommend increasing in person opportunities for Melling community members to speak with GWRC representatives or other community members who have experience flood protection upgrades in the past. This can be accomplished through pop-up tables in the community or community meetings.

Conclusion

As the RiverLink project is approaching the implementation phase, it is vital to ensure that the community understands and supports the proposed changes in order for the project to be successful. Our recommendations proposed to the GWRC are intended to address the above needs, and to encourage positive relationships between the community, the river, the RiverLink project, and the GWRC. By incorporating amenities and safety features into the design of the Pharazyn and Marsden Street stopbanks, community members will be more likely to frequent these locations, and stay for longer periods of time. Continuing to engage the community with the project process and providing succinct and visual information, a greater portion of the community will be informed of the process and outcomes of RiverLink, thereby improving project outcomes and community perceptions. Our team's belief is that the collected data, the summarized findings, and the proposed recommendations accurately represent the views of both the community members and the experts in the field, and we hope these recommendations will be of assistance to the GWRC as RiverLink nears construction and designs for the Pharazyn and Marsden stopbanks begin.
Acknowledgments

Sincere thanks to our sponsor Ross Jackson, Alistair Allan, and everyone at the Greater Wellington Regional Council for being so welcoming and helping us understand and approach the project; our advisors, Professor Michael Elmes and Professor Carolina Ruiz, for providing us with feedback throughout the project process; and Professor Steven McCauley for helping us prepare for the project.
All group members contributed to collecting survey and interview responses, and coding and analyzing these responses. In terms of the written report, the authorship is as follows:

<table>
<thead>
<tr>
<th>Report Section</th>
<th>Primary Author(s)</th>
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<tbody>
<tr>
<td>Abstract</td>
<td>Toby Macaluso</td>
<td>Heather Bourassa</td>
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<tr>
<td></td>
<td></td>
<td>Alana Sher</td>
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<tr>
<td>Executive Summary</td>
<td>Heather Bourassa</td>
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<td></td>
<td>Alana Sher</td>
<td>Toby Macaluso</td>
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<tr>
<td>Introduction</td>
<td>Alana Sher</td>
<td>Toby Macaluso</td>
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<td>Alana Sher</td>
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<tr>
<td>Background</td>
<td>Heather Bourassa</td>
<td>Heather Bourassa</td>
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<td>Alana Sher</td>
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<td>Methodology</td>
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<td>Alana Sher</td>
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<tr>
<td>Results and Discussion</td>
<td>Toby Macaluso</td>
<td>Heather Bourassa</td>
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<td>Alana Sher</td>
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<td></td>
<td></td>
<td>Alana Sher</td>
</tr>
<tr>
<td>Recommendations and Conclusions</td>
<td>Heather Bourassa</td>
<td>Heather Bourassa</td>
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<td>Graphics</td>
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<tr>
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<td></td>
<td>Alana Sher</td>
</tr>
</tbody>
</table>
# Table of Contents

Abstract .......................................................................................................................................................... iii

Executive Summary ....................................................................................................................................... iv

Acknowledgments ......................................................................................................................................... viii

Authorship ................................................................................................................................................... ix

Table of Contents ........................................................................................................................................ x

List of Figures and Tables .......................................................................................................................... xiii

- Figures ....................................................................................................................................................... xiii
- Tables ............................................................................................................................................................ xiv

Chapter 1: Introduction ............................................................................................................................... 2

Chapter 2: Background ............................................................................................................................... 4

- 2.1 History of the Hutt Valley .................................................................................................................. 5
- 2.2 Flooding Susceptibility of the Hutt River ......................................................................................... 6
  - 2.2.1 Climate Change ............................................................................................................................ 7
  - 2.2.2 Heavy Rainfall ............................................................................................................................ 8
  - 2.2.3 What is at Risk? .......................................................................................................................... 9
- 2.3 Hutt River Floodplain Management Plan ....................................................................................... 10
  - 2.3.1 Ava to Ewen Bridge Upgrades: Alicetown Stopbank and Strand Park Stopbank ................. 11
  - 2.3.2 Boulcott Stopbank .................................................................................................................... 13
- 2.4 RiverLink Project .............................................................................................................................. 14
  - 2.4.1 Flood Management Upgrades ................................................................................................. 15
  - 2.4.2 Central Business District Revitalization .................................................................................. 17
  - 2.4.3 Transportation Upgrades ......................................................................................................... 18
- 2.5 Community Engagement in the Riverlink Project ......................................................................... 19

Chapter 3: Methodology .............................................................................................................................. 21

- 3.1 Objective 1 Methodology: Developing an Understanding of Flood Protection Works ... 21
  - 3.1.1 Interviews with the Greater Wellington Regional Council ................................................... 22
  - 3.1.2 Interview with the Hutt City Council ....................................................................................... 22
  - 3.1.3 Interviews with the New Zealand Transport Agency ............................................................... 23
3.1.4 Interviews with Whaitua Committee .................................................................................. 24
3.1.5 Naturalistic Observation of River Parks ............................................................................. 25

3.2 Objective 2 Methodology: Understanding Community Perceptions of Previous Work. 26
3.2.1 Door Knock Interviews .................................................................................................. 26

3.3 Objective 3 Methodology: Understanding Community Perceptions of Future Works ... 28
3.3.1 Door Knock Interviews .................................................................................................. 28

3.4 Objective 4 Methodology: Analyzing the Data and Creating Recommendations .......... 29
3.4.1 Data Analysis ................................................................................................................ 29
3.4.2 Creating Recommendations .......................................................................................... 30

3.5 Project Implementation ...................................................................................................... 31

Chapter 4: Results and Discussion .......................................................................................... 32

4.1 Objective 1 Results: Developing an Understanding of Flood Protection Works .............. 32
4.1.1 Interviews with the Greater Wellington Regional Council .............................................. 32
4.1.2 Interviews with the Hutt City Council ............................................................................. 41
4.1.3 Interviews with the New Zealand Transport Agency (NZTA) ............................................ 46
4.1.4 Interviews with Whaitua Committee .............................................................................. 48
4.1.5 Naturalistic Observation of River Parks in the Lower Hutt .............................................. 51

4.2 Objective 2 Results: Community Perceptions of Previous Work ...................................... 52

4.3 Objective 3 Results: Community Perceptions of the RiverLink Project .............................. 57

4.4 Objective 4 Results: Comparative Analysis and Outcomes ............................................... 61
4.4.1 Comparison of Expert and Community Perceptions ......................................................... 61
4.4.2 Comparison of Alicetown, Boulcott, Strand Park, and Melling Resident Perceptions ....... 64
4.4.3 Identifying Findings, Deliverables, and Recommendations ............................................. 65

Chapter 5: Recommendations and Conclusions ...................................................................... 70

5.1 Recommendations ............................................................................................................. 70
5.1.1 Improve Safety in the River Parks .................................................................................. 70
5.1.2 Make the River Parks a Destination .............................................................................. 73
5.1.3 Engage the Community in the Project Process ............................................................... 76

5.2 Survey Report and Data Sheets ......................................................................................... 77
5.3 Conclusion .......................................................................................................................... 77

References ................................................................................................................................. 79

Appendix A: Alicetown, Boulcott, Strand Park Door Knock Interview Questions .......... 82
Appendix B: Flier .................................................................................................................................................. 86
Appendix C: Social Media Postings on the GWRC Pages ................................................................. 89
Appendix F: Online Survey .......................................................................................................................... 93
Appendix E: Melling Door Knock.................................................................................................................. 98
Appendix F: Expert Interviews .................................................................................................................... 102
Appendix G: Naturalistic Observation Data Sheet....................................................................................... 118
Appendix H: Qualitative Naturalistic Observation....................................................................................... 119
Appendix I: Sample Alicetown, Boulcott, and Strand Park Survey Report and Data
Sheet ................................................................................................................................................................. 120
Appendix J: Sample Melling Survey Report and Data Sheets ................................................................. 121
Appendix K: Infographics and Sample Newsletters .................................................................................. 122
Appendix L: Sample Message Alerts ......................................................................................................... 125
List of Figures and Tables

Figures

Figure 1: Photograph of the Hutt River, Melling Station Shown on the Left, Lower Hutt Shown on the Right (GWRC, 2017) .................................................................................................................................................. 5

Figure 2: Photograph from a Major Flood of the Hutt River, as Seen from Melling Bridge (GWRC, n.d.) .............................................................................................................................................................................................. 6

Figure 3: Map of the Hutt River Catchment (GWRC, 2001) ........................................................................................................... 7

Figure 4: Major floods and Flood Protection Levels vs Flood Return Periods (GWRC, 2001) .... 8

Figure 5: Map of Locations with the Most Damage Costs as a Result of Floods of Varying Magnitudes (Lawerence, 2011) ......................................................................................................................................................... 10

Figure 6: Past Flood Protection Works Completed in Lower Hutt (Lower Hutt, 2018) .......... 11

Figure 7: Pictured Left to Right, Alicetown Stopbank, Ava to Ewen Bridge Project Overview, Strand Park Stopbank Project (Lower Hutt, 2017) ................................................................................................................. 12

Figure 8: Map of Boulcott Stopbank (Lower Hutt, 2017) ................................................................................................................. 14

Figure 9: Disconnect Between the Hutt River (right) and CBD (left). (GWRC,2017)............ 15

Figure 10: A Diagram of the Old and Upgraded Stopbanks (GWRC, 2001) .................. 15

Figure 11: Stopbank Upgrade Locations (Lower Hutt, 2017) ........................................................................................................... 16

Figure 12: Lower Hutt Riverbank Market (Lower Hutt Facebook page) ......................... 20

Figure 13: HCC Model of the Proposed Plans for the RiverLink Project .................. 43

Figure 14: Our Team Meeting with Mayor Wallace and Greater Wellington Regional Counselor Lameson (Jackson, 2018) ........................................................................................................................................ 44

Figure 15: Distribution of Community use of the River Park Spaces (average use for one hour) 52

Figure 16: Map Showing the Target Areas for Alicetown, Boulcott, and Strand Park (Lower Hutt, 2018) ................................................................................................................................................................................. 53

Figure 17: Alicetown, Boulcott, and Strand Park Frequency of Visits to River Park Space, Multiple Choice Question ................................................................................................................................................. 56

Figure 18: Alicetown, Boulcott, and Strand Park Resident Suggestions for Making River Park Spaces more Accessible, Open Ended Question ................................................................................................................. 56
Tables

Table 1: Performance Indicators in the Lower Hutt (The Wellington Region Situation Analysis, 2016).................................................................................................................................17
Table 2: Information Regarding Interviews Conducted with Project Stakeholders..............25
Table 3: Gantt Chart ......................................................................................................................31
Table 4: Greater Wellington Region Council Interview Data Structure ..................................40
Table 5: Hutt City Council Interview Data Structure.................................................................45
Table 6: Data Structure for Themes Expressed by Representatives from all Organizations ......50
Table 7: Alicetown, Boulcott, Strand Park Scaled Question Responses..................................54
Table 8: Alicetown, Boulcott, Strand Park Open Ended Question Responses .........................55
Table 9: Melling Scaled Question Responses 1 .........................................................................58
Table 10: Melling Scaled Question Responses 2 .......................................................................59
Table 11: Melling Open Ended Question Responses ..................................................................60
Table 12: GWRC and Community Members Identified that Community Meetings were Vital in Mitigating Concerns Relating to Flood Protection Upgrades ....................................61
Table 13: GWRC and Community Identified that Despite Available Information Regarding RiverLink, Many People are still Unaware ........................................................................62
Table 14: Support for RiverLink project .......................................................................................63
Table 15: Safety Concerns Identified by Community Members and Experts ............................64
Table 16: Comparison of Past Stopbank Residents and Future Stopbank Residents Perceptions 65
Table 17: Findings .........................................................................................................................66
Table 18: Decision Matrix ............................................................................................................68
Chapter 1: Introduction

Flood protection practices are becoming increasingly crucial as communities expand in terms of population and infrastructure, placing more social capital at risk of destruction. Over the course of the last 20 years, the frequency and severity of flooding around the world has increased dramatically due to climate change and urban development. Flooding now accounts for 43% of all natural disasters, making it the most common type of catastrophe (Myers, 2016). Flooding threatens the safety of individuals and the infrastructure they depend on. To combat this risk, there are many flood protection methods that can mitigate these negative impacts and enable communities to maintain their way of life.

Communities within the Hutt Valley floodplain, a region that lies about 20 kilometers north of Wellington, are at particular risk of flooding. Many regions in New Zealand, including the Hutt Valley, were once comprised of forests and wetlands; however, dramatic population growth in the nineteenth century led to land use changes, converting these spaces into farmland and urban areas. The expansion of urban development in Lower Hutt specifically has caused the effects of flooding in the Hutt Valley to be more severe and widespread, as more than 70,000 people now live in the floodplain (Westlake et al, 2016). If a severe flood were to occur in this region, the damage would cost an estimated 6 billion NZD (4.41 billion USD) (GWRC, 2004).

In efforts to improve existing flood protection methods, provide safer and more effective transportation, and revitalize the Lower Hutt Central Business District (CBD), the Greater Wellington Regional Council (GWRC), the Hutt City Council (HCC), and the New Zealand Transport Agency (NZTA) created the RiverLink project in 2012. This project plans to provide “better flood protection, transport, and lifestyle for the Lower Hutt” by combining the talents of the three agencies (GWRC, 2012).

In order to understand the impact of past flood protection works and prepare for the implementation of RiverLink, the GWRC has worked closely with the community to gather feedback and input through community review sessions and design workshops, as well as by hosting events to engage the community in understanding the importance of flood protection. As there are many controversies related to RiverLink, through these practices the GWRC would like to understand community perceptions of the proposed plans.
The goal of this project is to work with the GWRC to understand the perceptions of community members living in areas where flood protection upgrades have already been implemented, as well as areas where flood protection upgrades will occur in the future, in order to make recommendations to improve the RiverLink project. In order to achieve this goal, our project has four main objectives. The first objective is to gain a comprehensive understanding of the current state of the RiverLink project, the goals of the project, and any complications and controversies relating to RiverLink. The second objective is to understand the perceptions of community members living adjacent to the Alicetown, Boulcott, and Strand Park stopbanks, areas where flood protection upgrades have already been implemented. We hope to learn how the community was engaged and informed about these upgrades, as well as how their use and connection to the river parks have changed following the upgrades. The third objective is to understand the perceptions of the Melling community, an area where flood protection upgrades will occur in the future as part of the RiverLink project. We hope to learn how these residents have been involved in the planning phases of the RiverLink project, and how they feel about the future flood protection upgrades that will occur in their neighborhoods. After gaining a deeper understanding of the project and the perceptions of these community stakeholder groups, we will develop recommendations for future work of the RiverLink project.
Chapter 2: Background

The Hutt River, Te Awa Kairangi, located on the southern tip of the North Island of New Zealand, is an invaluable resource to the Greater Wellington community, supporting the economy, lifestyle, and culture of the Hutt Valley. The river is identified as a Taonga, a Māori word meaning treasure or sacred. The river serves as an attraction for both locals and tourists alike, as it is visited by over a million people each year (GWRC, 2010). The river offers many recreational activities, including swimming, walking, cycling, fishing, and scenic views of the Hutt Valley and of Wellington Harbour (Te Whanganui o Tara). From a more practical perspective, the Hutt River supplies half of the consumable water extracted for the 390,000 people living in Lower Hutt City, Upper Hutt City, Wellington City, and Porirua City, which equates to approximately 75 million liters of water per day (GWRC, 2017). An image of the Hutt River is shown in Figure 1.

Before European (Pākehā) settlement, the Hutt River formed a floodplain\(^1\) of wetlands and forests. Flooding was not only a part of the natural cycle of the ecosystem, but was vital for many native species to reproduce and thrive. The river had a number of Pa\(^2\) sites and Māori settlements along its length, that used these natural ecosystems as their food baskets and as the foundations of their economies. The river also served as the main north to south travel route for these early people. During the early twentieth century, the immigrant population increased, resulting in urbanization. This caused the land to be converted into farmland and developed communities, with few forested areas remaining (Flood Protection Group, 2001). Due to the decrease in natural flood protection and rise of population and infrastructure, the effects of flooding grew more severe as greater numbers of people and their assets populated the floodplain. In order to ensure the safety and continued way of life for the Hutt Valley, the river was constrained to a single channel, and stopbanks\(^3\) were implemented. This method continues to be the primary strategy for flood protection today (Westlake et al, 2016).

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1 An area of flat land next to a river or stream that often is flooded during periods of heavy
2 A Māori Village. Often used to refer to a defensive site.
3 An embankment made to prevent flooding. Also called a levee in the US.
2.1 History of the Hutt Valley

The Hutt River has historically been an invaluable resource to the Māori people living in what is now the Hutt Valley. The river provided transportation, food, materials, and vegetation to these early inhabitants. When the Europeans first settled in the Hutt Valley in the early 1800’s, the entire floodplain was densely forested. Between 1840 and 1841, approximately 250 residents settled in the Hutt Valley and began lives as farmers and laborers (Greig, 2017). Within the next 40 years, this area was cleared to make room for the increasing population and infrastructure. With most of this new community living in the floodplain, flooding became a major threat (GWRC, 2015). Over time, this flooding intensified. During the 1850’s flooding became more dangerous and frequent, destroying valuable infrastructure and resources. This flooding continued for the next 60 years with little attempt of introducing flood protection methods.

Stopbanks were first implemented by European settlers in the late 1800’s to control flooding of the Hutt River, and to protect the community and newly constructed infrastructure from damages (GWRC, 2015). Although these stopbanks helped residents feel safer, they were overall ineffective at containing floods due to poor construction. Throughout the 1900’s, improvements such as river straightening, gravel extraction, and banking reinforcements totaling 20 million NZD (14 million USD) were implemented; however, at the turn of the millennium, the Hutt Valley was still susceptible to severe floods (GWRC, 2015). By the year 1900, 21 major

Figure 1: Photograph of the Hutt River, Melling Station Shown on the Left, Lower Hutt Shown on the Right (GWRC, 2017)
floods were recorded, with the most devastating occurring in 1855, 1878, and 1898 (Wellington Regional Council, 1991). A photograph of the Hutt River flooding from an unknown date is shown in Figure 2.

![Photograph of Hutt River flooding](image)

**Figure 2: Photograph from a Major Flood of the Hutt River, as Seen from Melling Bridge (GWRC, n.d.)**

### 2.2 Flooding Susceptibility of the Hutt River

The Hutt River flows through the Hutt Valley, a feature formed by glacial erosion during the last ice age. The water flowing through the river is a mixture of rainwater and groundwater sourced from underground springs, making the river level highly variable and susceptible to flooding (GWRC, 2010). The river itself is a steep alluvial river fed by the Akatarawa, Pakuratahi, Mangaroa, and Whakatiki Rivers. The total catchment of the Hutt River is 655 square kilometers, starting in the Tararua Ranges and ending in Wellington Harbour, as shown in Figure 3. The river runs parallel to local fault lines, giving the land a unique and ever changing topography due to uplift and downwarping of the ground. This seismic activity as well as the geographic features of this region accentuates the impacts of flooding (Austin et al, 2017). Land use along the river is quite diverse. In the northern sections of the river, the surrounding land is densely forested and mountainous, while the southern parts are flatter, more developed, and have historically been used for farming (Austin et al, 2017).

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4 A river where the bed and banks consist of sediment that is mobile.
5 An area that collects water from rivers and tributaries that is surrounded by geologic features including mountains and hills.
2.2.1 Climate Change

In recent years, climate change has become a major issue, greatly influencing sea level rise and precipitation patterns in the Wellington region. Over the course of the last 100 years, the sea level has risen 0.2 meters, and is projected to rise 0.8 meters by the year 2090 (Tutulic, et al, 2015). This rise in sea level makes it increasingly difficult for rivers to drain into the ocean, thus the Hutt River will not drain as effectively and the stopbanks in Lower Hutt will have to withstand greater volumes of water. This suggests that the flooding of the Hutt River has the potential to be more even severe in the coming years as climate change progresses.

In 2011, researchers at the Victoria Institute of Wellington prepared a report for the New Zealand Climate Change Research Institute (NZCCRI) in order to assess the effects of climate change on the frequency and impact of flooding in the Hutt Valley. Researchers created a model which incorporated current flood protection technology, historical flood data, and river topography to simulate floods and predict financial damages (Ballinger, 2011). The model simulated flood magnitudes of 1900 cumec, 2300 cumec, and 2800 cumec in order to fully understand to what extent various sections of the river could handle flooding. The study focused

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6 A cumec is a measure for water flow, one cubic meter per second.
on the following three areas: Taita Gorge, Birchville, and Kaitoke, all of which have thresholds of stopbank breachings as low as 1200 cumec (Ballinger, 2011). This suggests that even minor floods can overcome current flood protection technology to cause immense damage in the region. The report concluded that as a result of climate change, flooding will occur more frequently throughout the twenty-first century, with flood period returns\(^7\) reducing to one fifth of their current values (Ballinger, 2011). Magnitudes of observed and predicted floods along with flood protection levels are shown in Figure 4.

\[\text{Figure 4: Major floods and Flood Protection Levels vs Flood Return Periods (GWRC, 2001)}\]

2.2.2 Heavy Rainfall

Excessive rainfall is an additional factor which plays a major role in the flooding of the Hutt Valley. The annual rainfall of the Lower Hutt region ranges from an average of 1.2 meters to 1.9 meters per year. The intensities of rain can often be as high as 25 millimeters per hour, or even higher in extreme cases. Furthermore, since the twentieth century, precipitation has increased by approximately two percent (Mohammed, 2005). Specifically in the Lower Hutt community, increased rainfall has affected the groundwater table such that only 40% of the catchment is available for recharge. As a result, it is more difficult for the Hutt River to drain into the Wellington Harbor, which again significantly greatens the risk of flooding (Tutulic et al, 2015).

\(^7\) Flood period return, also referred to as a recurrence interval, estimates the probability of an event such as a natural disaster from occurring.
2.2.3 What is at Risk?

Prior to recent flood protection upgrades, the Hutt Valley was susceptible to severe damages from just moderately ranked floods. Every year there was a 1 in 50 chance that a flood of the Hutt River would be severe enough to breach the stopbanks, flooding the residential and urban areas along the river.

A 1996 analysis conducted by the GWRC found that within those areas at risk of serious flooding of the Hutt River, there were 14,500 homes, 36 schools, 9 medical facilities, 175 community facilities, and 1,330 commercial facilities present. This included a total of 71,000 residents who lived in constant uncertainty and danger due to flooding (GWRC, 1996). Since these figures were generated, even more people and infrastructure has been developed in the region, making the risks even more severe and even more pressing.

With so many assets within its floodplain, the Hutt River has the potential to be extremely costly for both the private and public sectors in the Hutt Valley when flooding. Current estimates predict that a large scale flood of the river could produce up to 6 billion NZD (4.1 billion USD) worth of damages in the Greater Wellington region (GWRC, 2004). A map depicting those regions with the most potential for high damage costs is shown in Figure 5, with larger circles indicating larger estimated damage costs. The largest circles represent approximately 3 million dollars (2.1 million USD) in damages (Lawerence, 2011).
2.3 Hutt River Floodplain Management Plan

In October 2001, as a result of 10 years of planning, the Hutt River Floodplain Management Plan (HRFMP) was published. This document was a collaboration between the Greater Wellington Regional Council (GWRC), Hutt City Council (HCC), Upper Hutt City Council, and Manawhenua. This report outlined a 40 year plan to reinforce the flood protection of a 3 kilometer length of the Hutt River. The goal of this plan was to upgrade flood protection between Kennedy Good Bridge and Ava Bridge such that the stopbanks could properly support a 2300 cumec flood: a flood likely to occur once every 440 years (GWRC, 2010). Flood protection techniques described in the plan include channel widening and adjustment, bridge replacements, and stopbank upgrades. In addition to flood management, the HRFMP planned to improve public perception of the Hutt River through flood awareness programs, community engagement, and urban planning. The plan was budgeted to cost approximately 26 million NZD (18 million USD).

\footnote{Mana Whenua is a Māori sense of belonging or power from the land. In this case used to refer to the Māori with jurisdiction in the region}
to implement (GWRC, 2013). Our focus in this project is specifically on the Alicetown, Strand Park, and Boulcott flood protection upgrades, as shown in Figure 6.

Figure 6: Past Flood Protection Works Completed in Lower Hutt (Lower Hutt, 2018)

2.3.1 Ava to Ewen Bridge Upgrades: Alicetown Stopbank and Strand Park Stopbank

Wellington was the first capital city for British colonization in New Zealand, established in 1839. In 1840, six ships arrived in modern day Alicetown in efforts to expand colonization. They established a settlement which they called Britannia; however, just months later, the settlement was flooded by the Hutt River, forcing the settlers to move and establish Alicetown (Maclean, 2012). Stopbanks in Alicetown were constructed in the early 1900’s to enable residential and urban development. As a result, during the 1940’s and 1960’s, there was significant residential development. Today, Alicetown is one of the smaller suburbs in terms of land in Lower Hutt, comprised of 122 hectares. There is a population of 1,971 people and a population density of 21.5 people per hectare (Census Quick Stats, 2013). Currently, the land usage for this area is residential and light industrial. This suburb consists of many recreational and community sites that are valued by the community, including Alicetown Community Centre,
Ava Park, and two schools (Alicetown-Melling, 2013). Strand Park refers to the area across the river from Alicetown, also stretching from the Ava to Ewen Bridges.

As part of the HRFMP, flood protection upgrades between Ava and Ewen Bridges consisted largely of three projects: upgrading the Alicetown stopbank, moving the river pump station, and upgrading the stopbanks along Strand Park. These upgrades were completed over the course of seven years, consisting of four stages. Stage one consisted of realignment of the Hutt River and enhancing of the stormwater system. The stormwater pipes were widened and a concrete slab was placed in the Hutt Valley Sewer. Stage two consisted of raising and strengthening the Alicetown stopbank. The new stopbank was built into the old stopbank, such that if a flood were to occur during construction, the community would still be protected. Stage three was the raising and strengthening of the eastern side of the Ava Rail Bridge, which shared the same process as stage two. Lastly, stage four was upgrading the Strand Park stopbank, as shown in Figure 7 photo 1 (Flanagan, 2005). This process is shown in Figure 7 photo 2. The Alicetown stopbank upgrade, as shown in Figure 7 photo 3, was completed in December 2006 with a total budget of 16.3 million NZD (11.8 million USD). Some of the site issues that occurred over the course of this project were heavy traffic from construction vehicles, vibrations and noise from machines compacting rock and soil, and the spread of dust due to exposed soil (Flanagan, 2005).

![Figure 7: Pictured Left to Right, Alicetown Stopbank, Ava to Ewen Bridge Project Overview, Strand Park Stopbank Project (Lower Hutt, 2017)](image-url)
2.3.2 Boulcott Stopbank

Boulcott is an additional suburb of interest in Lower Hutt that has undergone recent flood protection upgrades. This area is the site of the historic Boulcott Battles, a series of land disagreements between local Māori and the European settlers that occurred between 1845-1846. As a result, this area currently has several historic sites, including two Māori burials sites, a European colonial burial site, and a memorial at the corner of High Street and Military Road to commemorate eight British soldiers. Due to this, a number of precautions have been taken with all construction performed in the vicinity, including accidental discovery protocols and preliminary archaeological investigations (Boulcott’s Farm NZ Wars Memorial, 2017). Today, the Boulcott suburb has a population of 2,484 people and a land area of 158 hectares. The population density is 15.7 people per hectare. After European settlement, this land was primarily used for farming. The current land use is residential and recreational. Some of the major sites valued by the community in this area are the Boulcott’s Farm Heritage Golf Club, the Hutt Golf Club, the Boulcott Village Commercial Centre, and one school (Boulcott, 2013).

The Boulcott flood protection upgrades started in 2005 and were completed in 2011, as part of the HRFMP. These upgrades began with improving the river channel from Kennedy Good and Ewen Bridges and putting in a new stormwater drain. The next stage consisted of constructing a new stopbank along the Boulcott and Hutt golf courses and as well as implementing floodwalls and retaining walls to increase flood protection (Cox, 2009). An image of the Boulcott stopbank is shown in Figure 8 below.
2.4 RiverLink Project

In order to provide a long term solution to flooding in the Melling suburb and to connect the Central Business District (CBD) to the Hutt River, the GWRC, the HCC, and New Zealand Transport Agency (NZTA) joined together to create the RiverLink project. The intent of RiverLink is to improve “flood protection, lifestyle, and transport” in the Lower Hutt community from Kennedy Good Bridge to Ewen Bridge, as stated in the project mission statement. The total budget for this project is 192 million NZD (140 million USD) (Allan, 2018). Each partner organization will be working on a different aspect of this project. The GWRC will focus on flood protection, including upgrades along Pharazyn and Marsden Streets. The NZTA will focus on intercity transportation, specifically the Melling Interchange and the relocation of the Melling Railway Station. The main focus of the HCC is the revitalization of the CBD, specifically the proposed Riverside Promenade and the additional housing developments (Paki, 2017).

Despite being located adjacent to the Hutt River, the Lower Hutt CBD and the Melling suburb are currently very disconnected from the river. Most of the buildings along this stretch face away from the river, and thick patches of willows hide the river from view, as shown in Figure 9. RiverLink seeks to transform the Hutt River into a key feature of the community in order to attract more people and to revitalize the city while also improving flood protection.
2.4.1 Flood Management Upgrades

The GWRC will contribute to the flood protection component of RiverLink through physical upgrades to the stopbanks along Marsden and Pharazyn Streets in the Melling suburb of the Lower Hutt, as well as through river channel widening between the Melling and Ewen bridges (GWRC, 2015). The proposed stopbank renovations will be built upon previous stopbanks, which were last updated in the 1960’s (GWRC, 2013). These new stopbanks will be larger, higher, and will have a more gradual incline when compared to their predecessors, as shown in Figure 10. These upgrades will protect communities from the 1 in 440 year flood, which equates to river flows of up to 2,800 cumecs (Austin et al, 2017). Figure 11 outlines the location of the current as well as the new stopbanks on a map of Lower Hutt.
The GWRC will need to purchase 118 properties along Pharazyn and Marsden Streets in order to expand the stopbanks and widen the river channel. Thus far, 26 of these properties have been purchased, 49 are in negotiation, and 43 still need to be negotiated (Allan, 2018). According to Alistair Allan, the RiverLink project manager, upgrades to the Marsden Street stopbank are planned to begin in 2025, and upgrades to the Pharazyn Street stopbank are planned to begin in 2026.

When not containing flooding water, these grass covered floodways between the stopbanks and the river, known as river parks, are often used for recreational activities, such as for golf courses and parks. It is important to manage recreational usages in these floodways, however, as most structures will prevent clear flow of water during floods. Additionally, stopbanks can be damaged and made ineffective by many factors. Natural and recreational factors include tree roots, rabbit tunnels, and bike riding. Further damages can occur during excavation for utility services, such as for stormwater drainage and for electricity lines. It is very important to prevent these harmful activities from degrading the physical well-being of these stopbanks in order to maintain their longevity and functionality.
2.4.2 Central Business District Revitalization

In recent years, the CBD has been accused of lacking culture, excitement, and growth. In 2013, the CBD consisted of 262 businesses. By 2014, this number declined to 257, and is projected to continue to decline even further (Economic Development Plan, 2015). Table 1 shows numbers relating this population and economic flatline in the Lower Hutt. Due to this lack of growth, the CBD has become the focus of many revitalization efforts that seek to introduce vibrancy and culture to the area.

![Table 1](image)

Table 1: Performance Indicators in the Lower Hutt (The Wellington Region Situation Analysis, 2016)

In order to address this issue, the HCC has been working to develop a master plan to revitalize the CBD. The HCC’s Urban Growth Strategy seeks to attract more families and young people to the Lower Hutt in order to boost the economy. The first plan for developing the CBD and connecting the river to the city was created in 1987. This plan was replaced with the Hutt Plan in 2000, and again in 2005 with the Hutt CBD Heart Plan. The most recent replacement has been the Making Places project, an initiative to revitalize the CBD by the year 2030. This is the greater strategy that RiverLink is a part of. The HCC will contribute to RiverLink through the revitalization of the Lower Hutt community by incorporating new infrastructure into the stopbanks, such as a Riverside Promenade, and a mixed use complex of shops, restaurants, and housing. These plans will be privately funded, and are awaiting the approval of the HCC. Additionally, the HCC plans to build a pedestrian cycle bridge connecting the new railway station to the CBD.
2.4.3 Transportation Upgrades

The primary involvement of the NZTA in RiverLink is the Melling Interchange. In surveys conducted by the HCC, the community voiced concerns that this intersection is “dangerous,” “frustrating”, and “ugly.” Not only is the intersection unsafe, but the adjacent Melling Bridge obstructs traffic flow and is also a flood hazard. As part of RiverLink, this interchange would be redesigned and the Melling Bridge would be replaced. Additionally, the NZTA plans to move the Melling Station further south along the river, such that it is closer to the CBD.

2.4.4 Māori Involvement

Recently, the GWRC has sought to build a strong partnership with the Hutt region’s iwi\(^9\). In 2013, a partnership framework between the Tangata Whenua ki Te Upoko o te Ika a Maui\(^10\) and the GWRC, known as the Memorandum of Partnership was published (Māori Partnership Toolkit, 2016). The memorandum outlines the mutual goal of supporting the economic, social, cultural, and environmental well being of the region shared by the GWRC and the six local iwi authorities. The memorandum explains that the goal of this partnership is to create a relationship that is mutually beneficial, in good faith, such that all parties could continually work to further develop the partnership and share knowledge (Māori Partnership Toolkit, 2016).

Although the Māori iwis are not officially one of the partnering organizations involved in the RiverLink project, caring for the environment and natural resources is an inherent aspect of Māori culture. Kaitiaki is the Māori word for “caregiver” or “guardian”, in reference to the natural environment. In terms of projects specifically related to the Hutt River, the Wellington Harbour/Hutt Valley Whaitua Committee has recently been tasked with the responsibility of developing a Whaitua Implementation Programme (WIP) with regulations for water and land usage, which will be added to the existing Natural Resources Plan. The committee is comprised of both Māori and non- Māori (Wellington Harbour/Hutt Valley Whaitua, 2018).

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\(^9\) The Iwi is the Māori Tribe
\(^10\) Māori who are local to the Lower Hutt Region
2.5 Community Engagement in the Riverlink Project

In order to improve the RiverLink project process and ensure maximum public involvement, the GWRC and partnering organizations have sought to understand the perceptions of community members living in Lower Hutt. In January of 2017, the GWRC teamed with a group of WPI students to understand and evaluate community engagement and understanding of the RiverLink project. The team conducted interviews and surveys both in person and online in order to gauge public knowledge. One survey question asked respondents whether or not they had any knowledge of the RiverLink project. More than 70% of the 156 respondents had heard of this program. Another survey question which asked respondents about their level of interest in learning more about the RiverLink project found that 89% of respondents had at least a moderate level of interest in learning more. The areas that respondents were most interested in learning more about were flood protection, city environment, and transport improvements. In conclusion, the team developed five recommendations: implement engagement evaluation criteria, improve media management, improve pop-up beach, increase opportunities for youth, rebuild the community (Austin et al, 2017).

Since the project’s conclusion in March 2017, the GWRC, HCC, and NZTA each have made improvements in these suggested areas. In terms of opportunities for youth, there have been several festivals and events that engage all ages and demographics within the community. During Labor Day Weekend, October 20, 2017 - October 23, 2017, RiverLink hosted a “Down to the River” display as part of the Highlight Festival. The festival consisted of live entertainment and fireworks. The Down to the River display was a light show that demonstrated the importance of the Hutt River (RiverLink, 2017).

In terms of rebuilding the community, from February 25, 2017 - March 4, 2017, Common Ground hosted the Hutt Public Art Festival in order to demonstrate the importance and interconnectedness of the Hutt River and the surrounding communities. Some of the activities during the festival included water quality testing and a parade. Additionally, during this festival, the Common Ground Hub was open to the public with workshops and discussions. Some of the discussion topics included: “What Do Artists Contribute? River and flood management, science, and planning,” “Imagining a river and an aquifer - the role of storytelling, music, performance and art,” and “Advocating for Water: treating water a more than just a thing.” Full audio
recordings of these conversations were posted on the Common Ground website (Common Ground, 2017).

To further engage the community with the river, a riverside market is held every Saturday morning at the Rutherford Street car park, adjacent to the Strand Park stopbank. A picture of this market is shown in Figure 12. Trails for hiking, fishing, and kayaking were also established and continue to be improved by the GWRC to attract community engagement in the area (GWRC, 1996).

Figure 12: Lower Hutt Riverbank Market (Lower Hutt Facebook page)
Chapter 3: Methodology

This project is intended to assist the Greater Wellington Regional Council (GWRC) in understanding the perceptions of residents living near previously upgraded flood protection, as well as of residents living in areas where flood protection will be upgraded in the future. We worked closely with both of these stakeholder groups, as well as with experts from key organizations in order to develop recommendations to improve RiverLink, and to further connect community members with the river. To understand community perceptions in the Lower Hutt, we developed the following objectives:

1. Develop a complete understanding of controversies, perceptions, and usage related to past flood protection upgrades, as well as an understanding of the RiverLink project.
2. Assess the perceptions of residents living in areas where flood protection upgrades have occurred in the past: Alicetown, Strand Park, and Boulcott.
3. Assess the perceptions of residents in the areas where flood protection upgrades will occur in the future, Melling.
4. Use the information obtained from analyzing the gathered data to recommend ways to connect community members to the river and to improve the design and future usage of the planned Pharazyn and Marsden Street stopbanks.

3.1 Objective 1 Methodology: Developing an Understanding of Flood Protection Works

In order to understand past work related to flood protection and river park usage, in depth semi-structured interviews were completed with experts representing from the GWRC, Hutt City Council (HCC), New Zealand Transport Agency (NZTA), and Whaitua Committee. Additionally, we conducted naturalistic observation along the stopbanks to determine their current usage.

During the interviews, the respondents answered a series of open ended questions that led to diverging discussions. This interview style was beneficial for our research, in that questions were formed beforehand to help guide the conversation, however, new questions and discussion topics were also encouraged, unlike in highly structured interviews (Keller, 2010). This was preferable for our purpose, as we wanted to have certain questions answered, yet we did not want to restrict our respondents’ contributions, as we believed they would likely introduce more
valuable information in the open discussion format. Direct transcription was not necessary for these expert interviews; however, extensive notes were taken to gather key facts, statistics, and individual quotes. All interviewees, their roles, and the dates of their interviews are shown in Table 2.

3.1.1 Interviews with the Greater Wellington Regional Council

As the GWRC is our team’s sponsor and leading RiverLink coordinator, interviewing their staff to determine project history, current project status, and their individual opinions was vital. The following sub-objectives outline what the team planned to accomplish in these interviews.

Sub-Objectives:

- Understand factors relating to both past and future stopbank upgrades, including cost, labor requirements, property acquisitions, and project duration.
- Determine what the biggest challenges, controversies, and discussions in the planning and implementation of these stopbanks were.
- Gauge the opinions of the staff to determine what they thought the biggest strengths and weaknesses of this project were.
- Introduce the methodology and procedures we intend to use to our sponsors to gather feedback and recommendations.

In order to gather this information, longer semi-structured interviews with GWRC staff were conducted throughout the course of the project. Particular persons of interest included staff members who worked, or are working on our stopbanks of interest. This included both elected officials, as well as project engineers and project coordinators. In addition to the above goals, these interviews served as opportunities to request additional resources, establish key contacts, and share our procedures with our sponsor in order to gather feedback.

3.1.2 Interview with the Hutt City Council

As another main contributor to the RiverLink project, the HCC represents a project stakeholder invested in the public’s interest and in the greater good of Lower Hutt. By interviewing members who work for this council, our team hoped to determine to what capacity
the HCC has participated in the RiverLink project, and what their opinions are towards RiverLink. The following sub-objectives outline what the team planned to attain from these interviews.

Sub-objectives:

- Understand what role the city council has played and will continue to play in the RiverLink project.
- Assess how the city council members personally feel about the project, and what they believe are the project’s strengths and weaknesses.
- Determine what feedback regarding the RiverLink project the council has received from the community through personal interactions, votes, and meetings.
- Request any additional resources from the HCC that may relate to our project, including maps, designs, brochures, and meeting minutes.

To meet these sub-objectives, semi-structured interviews were completed with key individuals who work for the HCC, particularly those who have been heavily involved with the RiverLink project. We met with Margaret Cousins, a Lower Hutt City Councillor, Paki Maaka, an urban planner for the Lower Hutt region, and Ray Wallace, the mayor of Lower Hutt.

3.1.3 Interviews with the New Zealand Transport Agency

The next major organization involved with the Riverlink project is the NZTA. Interviews with this organization were important as the NZTA is a federal organization that provides a different viewpoint on the project as a whole. The following sub-objectives outline what the team planned to attain from these interviews.

Sub-objectives:

- Understand what role the NZTA has in the project and what they hope it will accomplish.
- Assess how the NZTA feels about the Riverlink project as a whole, and what aspects are most important to them.
- Determine what feedback, if any, the NZTA has received from the community.
3.1.4 Interviews with Whaitua Committee

The Whaitua Committee is an organization that is responsible for the regulation and utilization of water in the Hutt Valley. The committee is made up of local Iwi who are kaitaki caregivers of the land. This group represents the Māori interest in the river, and works to preserve the river environment. The following sub-objectives outline what the team planned to attain from these interviews.

Sub-objectives:

- Assess how the Whaitua Committee feels the RiverLink project will affect the river space.
- Determine what the Whaitua Committee would like to see from the RiverLink project

Kara Dentice, a senior advisor to Whaitua Relationships, was the primary contact from this organization. He was selected because of his extensive knowledge of the subject, as well as his previous relationships with the GWRC.
### Table 2: Information Regarding Interviews Conducted with Project Stakeholders

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<tr>
<th>Date</th>
<th>Interviewee</th>
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<th>Organization</th>
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<td>GWRC</td>
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<td>1/24/18</td>
<td>Paki Maaka</td>
<td>Urban Design Manager</td>
<td>HCC</td>
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<td>1/24/18</td>
<td>Sandra Greig</td>
<td>Former Regional Councillor</td>
<td>GWRC</td>
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<tr>
<td>1/29/18</td>
<td>Jacky Cox</td>
<td>Boulcott Project Engineer</td>
<td>GWRC</td>
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<td>1/30/18</td>
<td>Alistair Allan</td>
<td>RiverLink Project Manager</td>
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### 3.1.5 Naturalistic Observation of River Parks

In order to understand the successes and limitations of previous flood protection upgrades, our team examined the river, the stopbanks, and the adjacent land to determine the extent of the area’s recreational usage. To do so, we performed five sessions of naturalistic observation on the stopbanks over the course of several days. The following sub-objectives outline what the team planned to accomplish from these observations.

Sub-objectives:
• Increase our understanding of the current usage of river parks and the people that use them.
• Gather quantitative data reflecting the number of people using the river parks, what they are using the river parks for, and the duration of their stay on the river parks.
• Record both objective and subjective observations about the river park’s location and general atmosphere.

Our team’s naturalistic observation strategy involved spending time on sections of the river parks in Melling, Alicetown, and Strand Park. We did not conduct naturalistic observation along the Boulcott stopbank, as this area is a golf course and therefore the usage differs. During the naturalistic observations, we recorded the number of people spending more than 30 minutes on the stopbanks, as well as the number of people passing through. We also recorded the activity they were performing. In addition, we noted the general feelings we had regarding our level of safety or comfortability when spending time on the stopbanks and photographed these river parks and their usage for our records.

3.2 Objective 2 Methodology: Understanding Community Perceptions of Previous Work

After working with the GWRC to understand previously completed upgrades, we worked closely with the community to gain an understanding of their perceptions relating to these upgrades. In order to do this, door knock interviews and online surveys were conducted with community members living in close proximity to past upgrades.

3.2.1 Door Knock Interviews

For previous stopbank upgrades, we conducted interviews at houses which were adjacent to the renovated Alicetown, Boulcott, and Strand Park stopbanks. In these interviews, we asked the participants a variety of open and closed ended questions to gauge their opinions of the flood protection upgrades. These questions aimed to determine how residents perceive the project’s impacts on the local environment, economy, property values, culture, and flood protection levels. The following sub-objectives outline what the team planned to attain from these interviews.

Sub-objectives:
• Understand the residents’ perspectives related to the physical imposition of the flood protection upgrades located near their homes.
• Understand the residents’ perspectives related to the social and emotional impacts of the flood protection upgrades.
• Understand the residents’ perspectives related to the environmental and economic impacts of the flood protection upgrades.
• Gather residents’ opinions related to what could have been done better for the flood protection upgrades.

In order to gather this information, availability sampling for the neighborhoods listed above was conducted. The possible sampling frame for these interviews included 137 households across the three different suburbs. The data we collected represents responses from the residents who were home and willing to participate during the times we conducted the door knock interviews. In order to limit a sampling bias and to achieve the maximum number of responses, we varied the time and day of the door knock interviews. We interviewed on four separate occasions in these neighborhoods, during morning, afternoon, and evening. Our team split into groups of two in mixed gender pairings to try to maximize community member participation. Each interview lasted an average of ten to twenty minutes, depending on the interest level of the respondent. The questions asked in each interview can be found in Appendix A. Additionally, the team left flyers at those homes where there was no response, inviting residents to contact us and schedule a time for us to return or to take the survey online. This flier is shown in Appendix B.

3.2.2 Online Survey

An additional technique that was used to capture public perceptions was our online survey available through WPI Qualtrics. This survey was distributed to the Lower Hutt community via the GWRC Facebook, Instagram, and Twitter pages, as shown in Appendix C. Additionally, a flyer with a link to the online survey was distributed during the door knock interviews and at three daycare centers in Melling: Early Years, Community Kindy, and Little Footprints. In total, there were 214 children at these daycares, therefore distributing these fliers greatly increased the audience that would be aware of the online survey. The online survey was structured in a way so that respondents would be directed to a more specific survey depending on where they lived. There were three different possible survey paths: one for residents of Alicetown, Strand Park and Boulcott, one for residents of Melling, and one for residents that
did not live adjacent to a stopbank. The online survey can be found in Appendix D. The following sub-objectives outline what the team planned to accomplish from these surveys.

Sub-objectives:

- Determine the knowledge level and level of participation that respondents have with the RiverLink project.
- Determine how the community feels about stopbank implementations.
- Determine how respondents use the river parks currently, and how that has been changed by the stopbank upgrades.
- Understand how the community members are connected to the river and what limits their engagement.

3.3 Objective 3 Methodology: Understanding Community Perceptions of Future Works

The third objective of our project was to understand the perceptions of residents who currently live near the locations of stopbanks that will be upgraded in the future as part of RiverLink. These selected residents currently live in the Melling suburb of Lower Hutt. In order to determine the perceptions of these residents, we conducted the same door knock interview method as used in the Alicetown, Strand Park, and Boulcott suburbs, yet with a different focus for the questions.

3.3.1 Door Knock Interviews

To gauge the perceptions of residents who live near the locations of future stopbank upgrades, door knock interviews were conducted in the Melling community, and focused on the future proposed changes, as described by the RiverLink project. The questions asked in these interviews can be found in Appendix E. The following sub-objectives outline what the team planned to accomplish from these interviews.

Sub-objectives:

- Understand the residents’ perspectives relating to the future physical imposition of the flood protection upgrades located near residents’ homes.
- Understand the residents’ perspectives relating to the social and emotional impacts of the RiverLink project.
• Understand the residents’ perspectives relating to the environmental and economic impacts of the RiverLink project.
• Understand how the community members are connected to the river and what limits their engagement.

Unlike the sample size for the suburbs where past stopbank upgrades occurred, the sampling frame for the Melling community was relatively small. We identified a total of 50 houses in close proximity to the future stopbank upgrades. Due to the smaller sampling frame, a much greater focus was placed on conducting as many door knock interviews in this suburb as possible. As with the previous door knock interviews, we conducted an availability sample. We varied the time and day of the door knock interviews, in order to reach the broadest audience. Our team split into groups of two in mixed gender pairings to ensure that all participants would feel comfortable and therefore maximize participation. Additionally, the team left flyers at houses where there was no response, inviting residents to contact us to schedule a time for us to return, or to take an online version of the same interview.

3.4 Objective 4 Methodology: Analyzing the Data and Creating Recommendations

This final method combined all of the information gathered in the previous objectives, and analyzed it in order to identify and triangulate common patterns. Once these patterns were identified, the results were used to help formulate conclusions and future recommendations for the GWRC and other RiverLink partners.

3.4.1 Data Analysis

In order to analyze the interviews, we coded responses using several data structures. We developed a data structure for each organization in which multiple interviews were conducted (GWRC and HCC) in order to identify common themes that surfaced in each organization. This coding process consisted of identifying first order themes, such as direct quotes or key information, developing these into second order, more general, themes, and then developing these into aggregate dimensions. We then created a comprehensive data structure in order to identify common themes that were expressed across all organizations interviewed.

In terms of analyzing the naturalistic observation data, this was done in both a qualitative and quantitative way. The qualitative data consisted of recording any defining features of an
area, such as a noticeable separation between the river and the community, or a feeling of a lack of safety. The quantitative data analysis consisted of a statistical analysis of the number of river park users per hour, and the type of activity they were participating in.

In order to analyze the information collected from the door knock interviews, we used the same methodology for both the door knock interviews conducted in Alicetown, Strand Park, and Boulcott, as well as the door knock interviews conducted in Melling. There were two different types of questions asked to residents: open response questions and questions that were scaled from 1-5, with 1 being negative and 5 being positive. In order to analyze the open response questions, we coded for key words or themes that were repeated across interviews. We then determined the total number of times community members identified a certain word or phrase, and calculated the percent of the people in the given sample size that had identified that code. In terms of analyzing the scaled questions, we calculated the median response value, as well as the counts for each response option.

The next portion of the data analysis was a comparative analysis between community perceptions and the perceptions experts anticipated from the community. This was done by identifying key themes that were mentioned by both community members during door knock interviews, and by project experts during their interviews, and then determining whether the perceptions relating to the themes aligned for both groups. The final stage of data analysis consisted of a comparative analysis between community members living in the locations near the previously upgraded stopbanks and the community members living in the locations near the future stopbanks. This consisted of identifying key questions asked to both community groups relating to river park usage, improvements to accessibility, and the RiverLink project in order to determine the differences and similarities that exist between these two stakeholder groups’ views.

3.4.2 Creating Recommendations

After conducting in depth analysis of all of the data collected, we developed key findings. These findings were derived directly from the similarities or noticeable differences in the expert interviews, naturalistic observations, and community interviews. These findings were then used to develop recommendations for the GWRC, HCC, and NZTA. In order to select recommendations and narrow down the scope, we created a decision matrix which incorporated
the cost feasibility, community input, the impact on the Melling community, the impact on the
greater Lower Hutt community, and the rating of our sponsor into our choices..

3.5 Project Implementation

Upon arrival at the project site, the first few days were spent meeting with our sponsor,
Ross Jackson, and introducing ourselves to the flood protection staff at the GWRC. Ross Jackson
took our team on a site assessment of the Hutt River and its catchment area. In this first week we
reviewed the comments of GWRC staff members regarding our proposed methodology and
incorporated all feedback regarding how we should proceed with the project. Next, we began
reformatting the door knock interviews and developing the online Qualtrics survey. From there
we tested our surveys and interview questions with GWRC employees, in order to further refine
our methodology.

In week four we began conducting the door knock interviews and the online survey
became available to the community. During this time we also began conducting naturalistic
observation. As we collected this data, we entered it into excel spreadsheets to begin identifying
themes that could later be used as codes. In week seven, we focused on the data analysis and on
developing key findings, recommendations, and deliverables for the GWRC. A summary of the
project timeline is shown in the Gantt Chart in Table 3.

<table>
<thead>
<tr>
<th>Week 1</th>
<th>Week 2</th>
<th>Week3</th>
<th>Week 4</th>
<th>Week 5</th>
<th>Week 6</th>
<th>Week 7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tour of Hutt River Catchment</td>
<td>Update Door Knock Interviews</td>
<td>Create Online Qualtrics Survey</td>
<td>Test Door Knock Questions</td>
<td>Conduct Expert Interviews</td>
<td>Conduct Online Survey, Conduct Door Knock Interviews, Conduct Naturalistic Observation</td>
</tr>
</tbody>
</table>

| Table 3: Gantt Chart |
Chapter 4: Results and Discussion

The methodology described in Chapter 3 was applied in order to achieve the four objectives of our project. Our first objective was to understand the past flood protection upgrades, as well as the current state of the RiverLink project. This was done through interviews with the Greater Wellington Regional Council (GWRC), the Hutt City Council (HCC), the New Zealand Transport Agency (NZTA), and the Whaitua Committee, in addition to conducting naturalistic observation along the river parks. The second objective was to understand the perceptions of community members living in areas where flood protection upgrades have occurred in the past: Alicetown, Boulcott, and Strand Park. This was done through door knock interviews and an online survey. The third objective was to understand the perceptions of community members living next to the locations of future flood protection upgrades: Pharazyn and Marsden Streets. Finally, the fourth objective was to use all of these findings to develop recommendations for the future work of the RiverLink project.

4.1 Objective 1 Results: Developing an Understanding of Flood Protection Works

In order to understand the perceptions of stakeholders involved in both past and future flood protection upgrades, interviews were conducted with seven GWRC employees, three HCC employees, one employee from the NZTA, and one member of the Whaitua Committee. Detailed notes for each of these interviews can be found in Appendix F. Additionally, we conducted naturalistic observation along the stopbanks to determine their current usage.

4.1.1 Interviews with the Greater Wellington Regional Council

This section consists of interviews with current and former employees of the GWRC. James Flanagan, Jacky Cox, and Alistair Allan are all project engineers that were involved in the completed flood protection upgrades in Alicetown, Boulcott, and Strand Park, respectively. During these interviews, we gained valuable information regarding the technical achievements of these upgrades, as well as regarding the community input aspects. Based on this information, we were able to develop recommendations for the future flood protection upgrades along Pharazyn and Marsden Streets, as part of the RiverLink project. We also interviewed Alistair Allan, for a second time, and Rebecca Polvere, as they are project managers for the RiverLink project.
During these interviews, we gained valuable information regarding the current areas of success, and areas of improvement for the RiverLink project. Lastly, we interviewed Sandra Greig, a former regional councilor, and Paul Swain and Prue Lamason, current regional councilors. During these interviews, we gained valuable information regarding the political side of past and current flood protection upgrades, and their impact on the local community members.

**Interview with James Flanagan**

Flanagan is a Senior Engineer at the GWRC. He was Project Coordinator for the Alicetown flood protection upgrades from 2009-2010, and primarily supervised the physical construction components of the upgrades. The key points from this interview were:

- Most of the concerns from the community during the Alicetown flood protection upgrades were related to the construction process itself, as opposed to what was actually being constructed and the final outcome.
  - Noise, dust, vibration from heavy machinery, and not having access to the river park were all common concerns at the time.
- “People have a value attached to their property and the river space, and if you block access to the river [during the construction of flood protection upgrades] it causes heightened tension and bad publicity,” Flanagan said.
- When the construction works were being done and the GWRC was present in the community, residents voiced concerns about other issues that were not under the jurisdiction of the Regional Council, such as flooding from rainwater.

Based on Flanagan’s experience with the construction of the Alicetown flood protection upgrades, we identified two areas of focus for the construction of the future upgrades along Pharazyn and Marsden Streets. The first is to minimize the community’s exposure to construction work by operating machinery during the day when residents are at work or school. This would reduce the noise, vibration, and dust that the community experience, and would keep the river park spaces usable during construction. The second area of focus is to advertise to the community the complete scope of the work being done, specifically what is under the jurisdiction of the GWRC.
Interview with Jacky Cox

Cox is a Flood Protection Engineer at the GWRC, and was one of the lead engineers for the Boulcott flood protection upgrades from 2005-2011.

The key points from this interview were:

- A major challenge during the Boulcott project was determining an effective way to communicate with the community. Pictures and renditions of the flood protection upgrades were not enough to fully capture the nature of the project, and there remained a lack of understanding about what was happening.
- Many community members were not aware of the differences between the HCC and the GWRC, and during the Boulcott construction process brought up unresolved issues that were not under the jurisdiction of the GWRC.
- “People do not want to feel rushed, it is important to give the community time to fully understand what is going to happen [before construction begins],” Cox said.

Based on Cox’s experiences with the Boulcott flood protection upgrades, we identified the two areas of focus for the construction of the future flood protection upgrades along Pharazyn and Marsden Streets. The first is that in addition to publishing documents and renditions detailing the flood protection upgrades, it would be beneficial for the GWRC to have a pop-up information booth in the community where residents can come and ask any additional questions in person. The second is to clarify the role the GWRC plays in the flood protection upgrades and identify what is under the jurisdiction of the GWRC.

Interview with Alistair Allan

Allan is a Senior Project Engineer at the GWRC who was involved with the Strand Park flood protection upgrades from 2008-2009.

The key points during this interview were:

- Several residents had a long history of boundary disputes and were concerned that their properties would be affected by the construction.
- The north end of the Strand Park properties were commercial properties and the business owners were not nearly as attached to their properties as the homeowners, as there were many available properties in the area for them to relocate their business.
• Following the flood protection upgrades in Strand Park, the residents were frustrated that there were not more benches along the stopbanks for them to use.

Based on Allan’s experiences with the Strand Park flood protection upgrades, we identified several areas of focus for the construction of the future flood protection upgrades along Pharazyn and Marsden Streets. The first is to mitigate any community concerns prior to the flood protection upgrades beginning, so that resident understand what the work will encompass and how it will or will not affect their property. The second is to clearly communicate what the flood protection upgrades will encompass so that the community does not expect things that are not within the scope of the project.

Allan is also currently the Project Manager of the RiverLink project and has had this role since 2016. We also interviewed him regarding this topic.

The key points during this interview were:
• The goal of RiverLink is to deliver joint outcomes of flood protection security, transportation improvements, and improvements to the surrounding environment in the Lower Hutt through the collaboration of the GWRC, NZTA, and HCC.
  o A strength of RiverLink has been the community support as well as the ability for all three agencies to collaborate and create a project structure that works well for them all.
  o A weakness of the RiverLink project has been getting the private sector to invest in the project.
• Currently the river park spaces are mostly used by walkers and cyclists passing through.
  o “[We want to] change the use [of the river park spaces] so that it is a destination, not just a place to pass through. Not many people just go for a picnic,” Allan said.

Based on Allan’s experiences with the RiverLink project so far, we identified the following areas of focus for the RiverLink project. The first is to convey to the private sector the community’s support so that they can see the need and value of the RiverLink project. The next area is to create an urban park space once the flood protection upgrades along Pharazyn and Marsden Street have been completed.
Interview with Rebecca Polvere

Polvere is a Senior Civil Engineer at the GWRC and is currently the Project Manager for the RiverLink project. She works to collaborate and inform all partner organizations.

The key points from this interview were:

- “[The goal of RiverLink] is to provide better flood protection, transport, and urban improvements and ultimately provide the basis for the Hutt City’s urban growth strategy. I do not think the community is aware of all of these goals,” Polvere said.
- An area for improvement is to continue to engage the community with RiverLink by presenting the all of the added benefits that this project will bring to the Lower Hutt.
- A strength of RiverLink has been getting all three of the organizations, the GWRC, HCC, and NZTA to collaborate on this project, however, there can be improvements in terms of better identifying the responsibilities and accountabilities of each organization.
- A challenge of the RiverLink project is managing the expectations of both the community members and the agencies working on the project.

Based on Polvere’s work coordinating project details between the GWRC, HCC, and NZTA, we identified two areas of focus for the RiverLink project. First, clearly communicate all of the benefits of the RiverLink project to the community, and second, more clearly outline the roles and responsibilities of all of the organization involved.

Interview with Sandra Greig

Greig is a former Greater Wellington Regional Councilor and was involved in the initial development of the RiverLink project.

The key points from this interview were:

- The river and its uses have changed significantly over time. The water level was higher and it was therefore used for shipping and recreational activities such as kayaking. However, now the water level is too low for any of these uses.
- “The river itself is almost as if it does not exist to most people until it floods,” Greig said.
- The Hutt City Council is trying to revitalize the city by building up shops and apartments along the river. Many community members are unaware of all of the aspects of the RiverLink project besides flood protection and most community members only care about the flood protection component.
In addition to being involved in the creation of RiverLink, Greig wrote a book about the history of the Hutt River. Based on the insight she offered into the perspective of citizens living in Lower Hutt who may not understand or like the RiverLink project, we identified the following areas of focus for this project. This first is to revitalize the spaces around the river so that it can be used by the community again, and the second is to communicate all components of the RiverLink project to the community and the many benefits it will provide.

Interview with Paul Swain
Swain is a Greater Wellington Regional Councillor representing the Upper Hutt Constituency. He was formerly the Chair of the Boulcott Flood Protection Upgrade Subcommittee in 2010 and is currently a member of the Hutt Valley Flood Management Subcommittee Member.

The key points from this interview were:

- The residents of Boulcott had a large amount of misinformation regarding the flood protection upgrades that were to occur in their community.
- Most of the concerns related to the earthworks and truck movements in their community.
- In order to mitigate these concerns, there was a meeting in which around 150 community members attended.
  - As a result of the meeting the truck movements were rerouted so they would go through the golf course.
- “If there are honest attempts to work with the community and come up with alternative solutions, the community will feel more comfortable.”
  - In terms of the RiverLink project, the community is very supportive of it and frustrated that it is not happening sooner.

Based on Swain’s involvement in both the past flood protection upgrades that occurred in Boulcott, as well as his current involvement in the RiverLink project, we identified the following areas of focus for the RiverLink project. The first is to offer public meetings and workshops for community members to come and voice concerns so that the GWRC and community can develop solutions together. The second is to keep the community updated about the progress and timeline of RiverLink.
Interview with Prue Lamason

Lamason is a Greater Wellington Regional Councilor representing the Lower Hutt Constituency. Lamason is currently the Chair of the Hutt Valley Flood Management Subcommittee.

The key points were:

- “Walking along High Street there are more vacant lots than businesses [the RiverLink project] is a real opportunity for the Lower Hutt,” Lamason said. “RiverLink is the last chance for the Hutt City to become vibrant again, there is no point in getting businesses back in the CBD, but we can turn the city around and focus on the river.”
- A challenge that the project faces is getting all of the different pieces together in order to start the project (funding, public support, private investment, and overall project consent). Especially with all of the elections it is difficult to keep all of these processes continually moving and everyone informed of the project progression.
- Community members are starting to wonder when and if this project will happen.

Lamason has lived in Lower Hutt for her entire life. Based on her personal experiences as a community member and her involvement on the Hutt Valley Flood Management Subcommittee, we identified the following areas of focus for the RiverLink project. This first is to better utilize the river park spaces to make the Lower Hutt more of a destination. The second is to ensure that all organizations involved in the RiverLink project are communicating opening.

<table>
<thead>
<tr>
<th>First Order Themes</th>
<th>Sources of Evidence (Interviewee)</th>
<th>Second Order Themes</th>
<th>Aggregate Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>During Alicetown upgrades, community members voiced concerns about things not under the jurisdiction of the GWRC</td>
<td>James Flanagan</td>
<td>Community misunderstanding of project scope</td>
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<tr>
<td>During Boulcott upgrades, community members brought up unresolved issues from previous works not done by the</td>
<td>Jacky Cox</td>
<td>Community misunderstanding of project scope</td>
<td>Lack of community</td>
</tr>
<tr>
<td>GWRC</td>
<td>Community misinterpretation</td>
<td>Lack of awareness among community members</td>
<td>Awareness regarding the past project process, scope, and outcomes</td>
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<tr>
<td>During the Boulcott upgrades, the community did not feel very informed, despite the available flyers and renditions</td>
<td>Jacky Cox</td>
<td>Lack of awareness among community members</td>
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<tr>
<td>Following the Strand Park upgrades, community members disappointed that there were no benches along the river park</td>
<td>Alistair Allan</td>
<td>Community misunderstanding regarding what would be included in the upgrades</td>
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<tr>
<td>Community members are not aware that the RiverLink project encompasses more than just flood protection upgrades</td>
<td>Rebecca Polvere</td>
<td>Lack of understanding of the project scope</td>
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<tr>
<td>The community had many misunderstandings relating to the flood protection upgrades that occurred in Boulcott</td>
<td>Paul Swain</td>
<td>Community misunderstanding regarding the construction process</td>
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<tr>
<td>During Alicetown upgrades the community members were concerned about dust, noise, vibration, and access to river</td>
<td>James Flanagan</td>
<td>Construction concerns</td>
<td>Community concerns relating to the construction process</td>
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<tr>
<td>During Strand Park upgrades, community members feared property damage during construction</td>
<td>Alistair Allan</td>
<td>Construction concerns</td>
<td></td>
</tr>
<tr>
<td>The community was concerned about the</td>
<td>Paul Swain</td>
<td>Construction concerns</td>
<td>Community concerns relating to the construction process</td>
</tr>
</tbody>
</table>
The river park spaces are mostly used by walkers and cyclists passing through. Alistair Allan. Community members do not stay at the river park.

“The river itself is almost as if it does not exist to most people until it floods.” Sandra Greig. Community members do not utilize the river.

The Lower Hutt is not the vibrant community it used to be, RiverLink could change this. Prue Lamason. Making the river park a central hub could revitalize the city.

<table>
<thead>
<tr>
<th>Discussion of Aggregate Dimensions found in GWRC Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>During these seven interviews with GWRC employees, we learned about the successes and shortcomings of previous flood protection upgrades, and how this knowledge can now be applied to the RiverLink project. In addition, these interviews were valuable for understanding how Regional Council employees perceive and contribute to the RiverLink project. Based on the common themes that came up during all of the interviews, we identified three overall conclusions. The first was a lack of community awareness regarding the project process, scope, and outcomes. The second was community concerns relating to the construction process. The third outcome was that the river park spaces are underutilized. Given that the GWRC is primarily involved in the flood protection and overall coordination aspects of the RiverLink project, it follows that the themes derived from these interviews specifically relate to these parts of the project.</td>
</tr>
</tbody>
</table>

The first two themes relate to the project process itself. In terms of increasing community awareness of the project process, scope, and outcomes, several interviewees mentioned the confusion amongst community members during the past flood protection upgrades in Alicetown, Strand Park, and Boulcott. GWRC officials identified communication with the community about what the flood protection upgrades will consist of physically, as well as specifics regarding the...
construction process itself as an area of improvement. In order to achieve this, it would be beneficial for GWRC employees to go out into the community and talk with residents, in addition to sending out flyers and emails. In terms of addressing community concerns, a theme that was often brought up was “selling” the benefits of the project to the public. This means showing the public the many ways RiverLink can positively impact their lives in addition to just flood protection. By gaining public support of the project, this will hopefully also gain the interest of the private sector, and thereby address another concern of the GWRC, which was convincing the private sector to “buy in” and develop along the Hutt River.

The third theme is that the river park spaces are underutilized. This theme is more related to the project outcome than to the process. It was repeatedly brought up that the RiverLink project has the potential to make a significant positive impact in the Lower Hutt community by changing the river park spaces to make them a more desirable destination, as opposed to a space that people are either not aware of or just use to pass through.

4.1.2 Interviews with the Hutt City Council

This section consists of the interviews conducted with employees of the Hutt City Council. We interviewed Paki Maaka, the Hutt City Urban Planner, Margaret Cousins, a Hutt City Councilor, and Ray Wallace, the Mayor of the Lower Hutt. During the interview with Paki Maaka, we gained valuable information regarding the planning and design of the Lower Hutt revitalization project. During the interview with Margaret Cousins we learned about the political process that goes into providing consent for the project. Additionally, Ray Wallace provided insight regarding how the community has responded to the project so far. All of this information led us to develop recommendations regarding the HCC’s involvement in the RiverLink Project. Detailed notes for each of these interviews can be found in Appendix F.

Interview with Paki Maaka

Maaka is the Hutt City Urban Design Manager for the RiverLink project. Maaka also developed the Making Places project in 2009, a HCC program intended to revitalize the CBD by the year 2030.

The key points were:
• It is crucial to make the Lower Hutt a desirable place to live, so that young people are attracted to the region for both living and working.
• RiverLink does this by creating space for multi-use buildings with living quarters along the Hutt River in the CBD, such that the population within this area of the city will rise dramatically from the current 200 residents to the upwards of 5,000 residents.
• “This is a project that could change the reputation of the city,” Maaka said.
• The HCC conducted a survey in which there were 600 respondents, greater than 80% believe that the revitalization project is very important to the future of the Lower Hutt.
• There are currently a large number of concerns about the accessibility of the river and the issue of all of the vegetation blocking the view of the river.
• Transportation improvements are vital in connecting the CBD and community to the river in an efficient and safe way.
  o Current bridges lead residents to the outskirts of the Lower Hutt, by adding the pedestrian-cycle bridge and reorienting the Melling bridge, the CBD will be more accessible and resultantly more lively.

Maaka provided extensive insight on the HCC contribution to the RiverLink project, which involves revitalizing the CBD and reconnecting the Lower Hutt with the Hutt River. Based on this information, we determined that a key area of focus is to remake the Lower Hutt and river park into a multi-use area. Figure 13 is a picture of a model that was shown to us by Maaka. Funded components of RiverLink project are in tan, existing features are in grey, and future buildings which will be privately funded are in white.
Interview with Margaret Cousins

Cousins is currently a Hutt City Councillor representing the Western Ward, comprised of Melling, the area in which flood protection upgrades will occur as part of the RiverLink project. The key points were:

- Although RiverLink will invite many visitors to spend time in the city, it needs to be carefully done such that the people who currently live there are not neglected.
- If the Melling Station is moved, all of the current walking paths will need to be done so that the community members do not lose access to the station.
- Community members living on the western side of Western Hutt Road (State Highway 2) would like easier access to the Melling Train Station and the river, such as a walking and cycling bridge.

Cousins provided insight at a much more local level, as she represents the people who live in the Melling area. Despite these concerns, Cousins spoke very highly of the project and feels that it will be a success as long as both sides of the river are carefully considered. Based on this information, we determined that a main area of focus for the RiverLink project is to increase walking and cycling access to the Melling Station and river.
Interview with Ray Wallace

Wallace is currently the Mayor of Lower Hutt, and represents the people living in the area where the RiverLink project is being carried out.

The key points were:

- The Lower Hutt community is in need of a revitalization project, the RiverLink project can help with this.
- There is a wide variety of understanding and support for RiverLink. During the door knock surveys some people will have of input and some will be aware of the project.

Wallace provided insights into the state of the Lower Hutt and the need for a revitalization project and his hope to involve the community as much as possible with the project. He also explained the common responses that we might get from residents during door knock interviews.

Based on this information, we identified the two areas of focus for the RiverLink project. The first is to redevelop the Lower Hutt into a destination and the second is to clearly inform the community about the designs for the RiverLink project and provide opportunities for their feedback and questions.
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>It is important to make the Lower Hutt a desirable place</td>
<td>Paki Maaka</td>
<td>Lower Hutt revitalization</td>
<td></td>
</tr>
<tr>
<td>There are currently concerns about accessibility because of all the vegetation blocking the river</td>
<td>Paki Maaka</td>
<td>Improve visibility of the river</td>
<td></td>
</tr>
<tr>
<td>All of the existing bridges lead to the outskirts of Lower Hutt, adding a pedestrian cycle bridge and reorienting the Melling bridge would bring more people right to the CBD</td>
<td>Paki Maaka</td>
<td>Make the CBD and river park spaces more accessible</td>
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<tr>
<td>Community members on the western side of SH2 do not have easy access to the river</td>
<td>Margaret Cousins</td>
<td>Improve accessibility to the river park</td>
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</tr>
<tr>
<td>The Lower Hutt is in need of a revitalization project</td>
<td>Ray Wallace</td>
<td>Lower Hutt revitalization</td>
<td></td>
</tr>
<tr>
<td>There is a wide variety of understanding and support for RiverLink, some people will know about RiverLink and some people will not know anything</td>
<td>Ray Wallace</td>
<td>Wide range of understanding regarding the RiverLink project within the community</td>
<td>Lack of community awareness of the project process, scope, and outcomes</td>
</tr>
</tbody>
</table>

The Lower Hutt and river park spaces are in need of revitalization

Table 5: Hutt City Council Interview Data Structure
Discussion of Aggregate Dimensions Found in HCC Interviews

During these three interviews with Hutt City Council employees and officials, we learned about the HCC’s involvement and stake in the RiverLink project as well as how they think the project is progressing. Through these interviews, we identified the following aggregate dimensions: the Lower Hutt and river park spaces are in need of revitalization, and there is a lack of community awareness of the project process, scope, and outcomes. Since the HCC is primarily involved in the revitalization of the Lower Hutt’s CBD aspect of the RiverLink project, it follows that the overall themes were related to this aspect.

In terms of revitalizing the Lower Hutt, ideas specifically related to the river park spaces were brought up, as well as ideas relating to improving transportation and accessibility in general. Although many local residents may currently see the river park as a destination, residents living farther away may not see it as a destination because it is difficult to get to. In terms of increasing awareness, it is crucial that campaigns or information about the project is accessible to everyone in the community. By increasing public knowledge about all aspects of the RiverLink project, the community will be more likely to support it.

4.1.3 Interviews with the New Zealand Transport Agency (NZTA)

This section consists of an interview with Roger Burra, the Project Manager for the NZTA’s contributions to the RiverLink Project. During this interview we gained valuable information regarding the transportation aspects of this project which will help us develop recommendations for this component of RiverLink. Detailed notes for this interview can be found in Appendix F.

Interview with Roger Burra
Burra is a Transportation Engineer at the NZTA and is currently the Project Manager of RiverLink at NZTA
The key points were:

• The community is in support of the transportation upgrades at the Melling intersection and bridge as part of RiverLink. This intersection is the site of many accidents and traffic backups.
• Although changes to this intersection are necessary, the project timeline is still uncertain and it has been difficult to incorporate it into the GWRC and HCC components of RiverLink in terms of timing and acquiring funding.

• Completing the intersection upgrades as a part of the RiverLink project would be the more cost effective and cohesive option for the NZTA, as they would have the support of the other two government agencies.

• The alternative option is to implement the project about ten years from now, which would allow for the prioritization of other projects.

• In working to achieve the transportation component of the RiverLink project and ultimately improve the quality of life in the Lower Hutt, the NZTA has four main objectives for the intersection upgrade:
  o Safety
  o Efficient and reliable travel
  o Better access to transport choices
  o Improved security and availability of the road network

Burra and his colleagues are hoping to be able to complete this Melling intersection upgrades as part of the RiverLink project. They see it as an opportunity to improve transport and safety in Melling, a major concern that the community has voiced. As a national organization, however, the NZTA branch in the Wellington region lacks some of the autonomy that the HCC and GWRC possess as local organizations, and therefore has a more intensive process for getting project approval and for developing a project timeline. In the coming year, the NZTA will be focusing on getting project approval and moving forward with the Melling upgrades as a part of the RiverLink project. Based on this information, we identified communicating to the community that the transportation upgrades are also a component of the RiverLink project, as an area of focus. The key themes that we identified from this interview were that the Melling Interchange is in need of improvement and transportation in general in the Lower Hutt can be made safer. This can also be correlated to improving the overall lifestyle in the Hutt and thereby making it more of a destination, a theme identified in the other interviews.
4.1.4 Interviews with Whaitua Committee

This section consists of an interview with Kara Dentice, a member of Te Awarua-o-Porirua Whaitua Committee. This organization consists of local iwis working to develop ways to protect water resources in the community and present these strategies to the local politicians. Dentice also works for Wellington Water, the primary utility company in the area. During this interview we gained valuable information regarding the importance of preserving the integrity of natural resources throughout the RiverLink project, which will help us develop recommendations for this component of RiverLink. Detailed notes for this interview can be found in Appendix F.

Kara Dentice
Dentice is a Senior Advisor for the Te Awarua-o-Porirua Whaitua Committee and is currently leading the effort of creating a Wellington Harbour/Hutt Valley Whaitua which will specifically be dedicated to the RiverLink project. This committee will begin meeting in June or July of 2018.

The key points were:

- “[The Hutt River] is generally considered an industrial environment. There is a definite disconnect between the [Lower Hutt] community and the river. RiverLink is all about reclaiming that space. This is crucial for the iwi because their relationship with the environment is not what it was hundreds of years ago,” Dentice said.

- The RiverLink project support the idea of Kaitiaki care for the river, Kaitiaki is stewardship and guardianship, which is different than management. There is no way you can manage the Hutt River; it is all about leaving the environment the way you found it or better.

- A major strength of the RiverLink project is that there are mayors, councillors, and Iwi sitting around the table as part of the decision making process; this carries significant amount of weight because they have the power to make and implement legislation that will truly impact the Hutt

Dentice provided insight on the importance of the RiverLink to not only the Lower Hutt community as a whole, but also the local Iwi. Based on this information, we identified incorporating the river space back into the lives of the community and conducting the RiverLink project in an environmentally ethical way in order to maintain the natural resources to be a key
areas of focus. During the meeting with Kara Dentice we learned about the importance of the Hutt River to Māori culture and lifestyle. The RiverLink project strives to improve the quality of life for all of the community and the members of the Whaitua Committees work to ensure that this is done in an ecological way. Overall, we determined that the key theme in this interview was the importance of connecting the community to the Hutt River.

<table>
<thead>
<tr>
<th>Source of Evidence (Organization)</th>
<th>Second Order Themes</th>
<th>Aggregate Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>GWRC</td>
<td>Community members do not stay at the river park</td>
<td>Overall, we determined that the key theme in this interview was the importance of connecting the community to the Hutt River.</td>
</tr>
<tr>
<td></td>
<td>Community members do not utilize the river</td>
<td>The Lower Hutt community is disconnected from the Hutt River</td>
</tr>
<tr>
<td></td>
<td>Making the river park a central hub could revitalize the city</td>
<td></td>
</tr>
<tr>
<td>HCC</td>
<td>Improve visibility of the river</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improve accessibility to the river park</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lower Hutt revitalization</td>
<td></td>
</tr>
<tr>
<td>NZTA</td>
<td>Make transportation safer in the Lower Hutt</td>
<td></td>
</tr>
<tr>
<td>Whaitua Committee</td>
<td>There is a disconnect between the community and the river</td>
<td></td>
</tr>
<tr>
<td>GWRC</td>
<td>Community misunderstanding of project scope regarding past upgrades</td>
<td>There is a lack of community awareness regarding the project process, scope, and outcomes</td>
</tr>
<tr>
<td></td>
<td>Lack of awareness among community members regarding what RiverLink consists of</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Community misunderstanding regarding what would be included in the past upgrades</td>
<td></td>
</tr>
</tbody>
</table>
Discussion of Aggregate Dimensions Expressed by Representative from all Organizations

During these 12 expert interviews, we identified the following three overarching aggregate dimensions: the Lower Hutt community is disconnected from the Hutt River, there is a lack of community awareness regarding the project process, scope, and outcomes, and community members are concerned about the construction of flood protection upgrades. Experts from all four organizations interviews: GWRC, HCC, NZTA, and Whaitua Committee in some way indicated that connecting the Lower Hutt to the river is a very important component to the RiverLink project. All agencies mentioned that the community is very disconnected from the river, and the RiverLink project can positively contribute to the community by utilizing this space to benefit the community and revive the Lower Hutt in general. Representatives from both the GWRC and the HCC mentioned the importance increasing community awareness. The GWRC said that during past flood protection upgrades there was a lack of understanding about what was happening and representatives from the HCC indicated that there is already a wide range of the level of understanding regarding the RiverLink project. Lastly, members of the GWRC, HCC, NZTA identified the importance of mitigating community concerns. During past flood protection upgrades many community members voiced concerns about the construction process itself, and members of the Melling community have already begun to voice similar concerns in terms of the RiverLink project.

Overall, the interviewees were very knowledgeable about the past flood protection projects and the RiverLink project. In general, interviews with the GWRC tended to focus on the

<table>
<thead>
<tr>
<th>Organization</th>
<th>Concerns/Understanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCC</td>
<td>Wide range of understanding regarding the RiverLink project within the community</td>
</tr>
<tr>
<td>GWRC</td>
<td>Construction concerns</td>
</tr>
<tr>
<td>HCC</td>
<td>Concerns about losing walking access to the Melling Station if it is relocated</td>
</tr>
<tr>
<td>NZTA</td>
<td>Transportation concerns relating to Melling Interchange</td>
</tr>
</tbody>
</table>

Community members are concerned about the construction of flood protection upgrades

Table 6: Data Structure for Themes Expressed by Representatives from all Organizations
flood protection works, interviews with the HCC were more focused on the community and CBD impacts of the project, the NZTA interview was heavily focused on the transportation upgrades, and the Whaitua Committee interview focus was revitalizing the river. That being said, we were able to identify three aggregate dimensions that were mentioned throughout all of the interviews. These comprehensive dimensions will be used to develop our recommendations.

**4.1.5 Naturalistic Observation of River Parks in the Lower Hutt**

In order to gain an understanding about the current usage of the river park spaces, we conducted naturalistic observation along the Alicetown, Strand Park, and Melling stopbanks. The naturalistic observation was conducted by observing the area through multiple trips at a variety of times, and documenting the general feeling of the area and how it is used. This enabled us to collect both qualitative and quantitative data. The full data for these methods can be found in Appendix G and Appendix H.

In terms of quantitative data, we recorded the different types of activities of the users and how long they were on the stopbanks. A total of 327 people were observed over five specific time periods. We found that the stopbank parks on average were used by 44.6 people per hour. The Strand Park stopbank had the highest usage of 54.5 people per hour, and the Melling stopbank had the lowest usage of 33 people per hour. Additionally, we found that 77% of those people using the stopbanks were walking or jogging and 20.5% were biking. The most striking statistic was that only 1.7% of the users stayed on the stopbank for more than half an hour. In conclusion, this data shows that the majority of stopbank users utilize the parks as a scenic place to pass through. In order to encourage more community members to use and stay on the stopbanks, key changes include: safety improvements, connecting the community to the river, and providing more infrastructure in the river park for the community to use.
The qualitative data collected focussed on three primary categories: defining features and characteristics of the area, separation between the river and the community, and safety. This data provided a general sense of the area and why people use or do not use it. Along the Strand Park stopbank by the CBD as well as the Melling stopbank near Melling Station, the river is completely concealed behind the stopbanks and most buildings did not have windows facing the stopbank. One of the primary objectives of the RiverLink project is to turn the CBD around to face the river. During naturalistic observation, along a stretch of the Strand Park stopbank, the disconnect between the community and the river was very noticeable. Walking along the Alicetown stopbank and under the Ava Rail Bridge, the sense of isolation due to the vegetation made this section of the river park feel very unsafe. Despite this, the southern part of Strand Park and the Melling stopbanks were large expanses of grass with a wide line of sight and this felt very safe and open.

4.2 Objective 2 Results: Community Perceptions of Previous Work

In order to understand the perceptions of community members regarding previous flood protection upgrades, we conducted door knock interviews in Alicetown, Boulcott, and Strand Park, the communities in which flood protection upgrades have already been completed. In the Alicetown community, we identified a total of 57 potential houses to visit along Mudie Street, Tama Street, Montague Street, Valentine Street, and Buckley Street. In the Boulcott community,
we identified a total of 62 houses along Connolly Street, Mills Street, Ariki Street, Boulcott Street, and Hathaway Avenue. In the Strand Park community, we identified a total of 16 houses along Richmond Grove, White Lanes Way, and Albans Grove. These property locations were identified based on proximity to the stopbank upgrades in recent years between Ava Bridge and Ewen Bridge. We visited all of the identified properties at least twice, unless the resident was not interested in participating, in which case we did not return. We varied time of day that we went in order to reach an audience that was not home or available in previous visits. In total, we received 25 door knock responses in these communities, and nine online responses from residents in these communities. Figure 16 shows the areas identified for possible interviews.

![Figure 16: Map Showing the Target Areas for Alicetown, Boulcott, and Strand Park (Lower Hutt, 2018)](image)

During the door knock interviews and online surveys, there were two types of questions: open response and scaled from 1-5. Explanations for the scaling can be found in each question in the tables below. Many residents also responded with explanations about the reasons for their scores, which were also recorded. We determined the median and total count of each response
for every question. The total sample size for the door knock interviews for Alicetown, Strand Park, and Boulcott interviews was 25. The sample size for the online survey of residents from Alicetown, Strand Park, and Boulcott was nine. Both surveys included the same scaled questions so we analyzed them together, with a total sample size of 34. The sample size for individual questions is indicated as some respondents chose not to answer certain questions. A summary of this data is found in Table 7 and a sample of the full results can be found in Appendix I.

<table>
<thead>
<tr>
<th>Question Scale 1-5</th>
<th>Question 1. Overall, what is your perception of the flood protection upgrades that occurred near you? n=29</th>
<th>Question 2. Overall, how have the flood protection upgrades altered your lifestyle? n=29</th>
<th>Question 3. How do you think the flood protection upgrades have changed the way the river looks? n=28</th>
<th>Question 4. How have the flood protection upgrades had an impact on your safety? n=23</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Count of “1” Extremely Negative</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Count of “2” Somewhat Negative</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Count of “3” Neither Positive or Negative</td>
<td>7</td>
<td>21</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>Count of “4” Somewhat Positive</td>
<td>11</td>
<td>5</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Count of “5” Extremely Positive</td>
<td>7</td>
<td>0</td>
<td>2</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 7: Alicetown, Boulcott, Strand Park Scaled Question Responses

Overall, this data suggests that community members interviewed in Alicetown, Strand Park, and Boulcott felt positively towards the past upgrades. In response to Question 1, 18 out of 29 respondents said that their overall perception of the flood protection upgrades was either a “4”, “somewhat positive”, or a “5”, “extremely positive.” In response to Question 2, 21 out of 29 of residents responded “3” meaning that the flood protection upgrades did not change their
lifestyle and 5 out of 29 said “4” meaning that it had a slightly positive impact. In response to Question 3, the median of the responses was a “3”, meaning that the upgrades either did not change or had a somewhat positive impact on the way the river looks. In response to question 4, the median responses was “4”, therefore flood protection upgrades either did not change or increased their sense of safety. While the sample size is too small to conclude anything definitively, these results suggest that the community members have positive perceptions of the flood protection upgrades that occurred in Alicetown, Strand Park, and Boulcott.

The second type of question that was asked during the door knock interviews were open response. In order to analyze this data, we coded for keywords and themes and counted the total number of times each word or theme occurred in response to a given question. A summary of these result can be found in Table 8 and the full results can be found in Appendix J.

<table>
<thead>
<tr>
<th>Code</th>
<th>Informed</th>
<th>Newspaper</th>
<th>Newsletter</th>
<th>Digital Media</th>
<th>Already used</th>
<th>Safety</th>
<th>Recreation</th>
<th>Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>17</td>
<td>2</td>
<td>3</td>
<td>11</td>
<td>11</td>
<td>7</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>%</td>
<td>60.71</td>
<td>7.14</td>
<td>10.71</td>
<td>39.29</td>
<td>39.29</td>
<td>25.00</td>
<td>32.14</td>
<td>25.00</td>
</tr>
</tbody>
</table>

Table 8: Alicetown, Boulcott, Strand Park Open Ended Question Responses

Based on the responses to Question 1, 18 out of 26 of the residents of Alicetown, Boulcott, and Strand Park communities that lived in the area during the time of the upgrades felt informed about the flood protection upgrades that occurred near them. Of those residents that felt informed, 12 out of 18 received their information from digital media such as the Regional Council website and emails. The responses to Question 2 indicates that 16 out of 34 of the respondents mentioned that river park spaces are already well used. However, common suggestions to improve the usage were to improve safety by increasing lighting and slight lines, increasing opportunities for recreational usage as well as providing more infrastructure such as benches and bathrooms. Additional information from these door knock interviews are summarized by the graphs in Figure 17 and Figure 18.
In general, the community members in Alicetown, Strand Park, and Boulcott have positive feedback regarding the flood protection upgrades in their area. The majority of residents have positive perceptions related to the flood protection project process, result, and current usage of the river park spaces. 29 out of 34 of the respondents currently use the river park spaces at least 1 to 2 times per week and believe that this space is a vital feature and asset to the community. Additionally, when the community members were asked how they would improve accessibility, 11 out of 34 responded that the river parks are already accessible. The other 23 community members recommended accessibility improvements such as improving safety, offering more opportunities for recreation along the river parks, and providing more...
infrastructure such as steps or benches. However, in general, it was found that members in Alicetown, Strand Park, and Boulcott were happy with the flood protection upgrades and felt informed about the upgrade process.

4.3 Objective 3 Results: Community Perceptions of the RiverLink Project

In order to understand community perceptions of the RiverLink project, we conducted door knock interviews in the Melling community along Pharazyn Street, Marsden Street, and Williams Grove, the streets in which homes that once had neighbors across the street will have stopbanks instead once the flood protection upgrades are complete. Along these streets, we identified 50 potential houses to interview based on their proximity to the future flood protection upgrades. In total, we conducted 16 interviews. We visited all of these properties three times, unless the resident was not interested in participating, in which case we did not return. We varied the time in which we went to each house so as to reach a different audience. Of the 50 identified houses, 16 participated in the interview, 12 were not home, and 22 did not want to participate. Figure indicates the area in which properties will be purchased in order to construct the new stopbanks, as well as the area in which we identified for potential door knock interviews.

![Map Showing the Properties that will be Purchased and the Area Identified for Potential Interviews.](image)

Figure 19: Map Showing the Properties that will be Purchased and the Area Identified for Potential Interviews.
The door knock interview process for this area was similar to that of Alicetown, Boulcott, and Strand Park. There were two types of questions asked: scaled from 1-5 and open response. We determined the median and total count for every scaled question. A summary of this data is found in Table 9 and Table 11.

<table>
<thead>
<tr>
<th></th>
<th>Q1. How informed do you feel about the designs for the RiverLink project? n=16</th>
<th>Q2. How informed do you feel regarding the property purchases in the area where the stopbank will be rebuilt? n=16</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Median</strong></td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td><strong>Count of “1”</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Well at All</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td><strong>Count of “2”</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slightly Well</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Count of “3”</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderately Well</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td><strong>Count of “4”</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very Well</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td><strong>Count of “5”</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extremely Well</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 9: Melling Scaled Question Responses 1

<table>
<thead>
<tr>
<th></th>
<th>Q3. How do you expect RiverLink to alter your lifestyle short term? n=16</th>
<th>Q4. How do you expect RiverLink to alter your lifestyle long term? n=16</th>
<th>Q.5 How do you think RiverLink will change the way the river looks? n=15</th>
<th>Q6. Overall, how do you feel about RiverLink? n=16</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Median</strong></td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td><strong>Count of “1”</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extremely Negative</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Count of “2”</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat Negative</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Count of “3”</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neither Positive or Negative</td>
<td>9</td>
<td>7</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>Count of “4”</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>6</td>
<td>9</td>
<td>12</td>
</tr>
</tbody>
</table>
Based on these interview responses, Melling residents felt slightly to moderately informed about the RiverLink project and the property purchases happening in the area; however, there was a wide distribution of responses. Many residents also felt that the information was available, but that they just had also not taken the time to become informed. Although not all residents were completely informed, they did feel that it will affect them in a positive way in both the short and long term. Furthermore, 15 out of 16 of respondents said that in general they feel either “slightly positive” or “extremely positive” regarding the RiverLink project.

The second type of question that was asked during the door knock interviews were open response. In order to analyze this data, we coded for keywords and themes and counted the total number of times each word or theme occurred in response to a given question. A summary of these results can be found in Table 13 and more detailed results can be found in Appendix J.
Q1. How do you hope to see the river park used in the future after flood protection upgrades? (N = 16)

<table>
<thead>
<tr>
<th>Code</th>
<th>No Change</th>
<th>Community Events</th>
<th>Better landscaped</th>
<th>More infrastructure</th>
<th>Already accessible</th>
<th>Not sure</th>
<th>More paths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>10</td>
<td>3</td>
<td>3</td>
<td>9</td>
</tr>
</tbody>
</table>

Q2. How would you make the river park more accessible? (N = 16)

Q3. Are you aware of the pedestrian and cycle bridge on Margaret St? As part of RiverLink, this bridge will be built to connect the Melling community to the Central Business District. What will this bridge mean for you? (N = 16)

<table>
<thead>
<tr>
<th>Aware</th>
<th>No Impact</th>
<th>Positive Impact</th>
<th>Negative Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Q4. Are you aware of the proposed changes to the Melling intersection and Melling Bridge? These changes would raise the height of the bridge, so as not to be a flood hazard and improve the flow of traffic in the Melling intersection. What would this mean for you? (N = 16)

<table>
<thead>
<tr>
<th>Aware</th>
<th>No Impact</th>
<th>Positive Impact</th>
<th>Negative Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6</td>
<td>2</td>
<td>12</td>
</tr>
</tbody>
</table>

Q5. Are you aware of the proposed Riverside Promenade? This project would incorporate a shopping center and housing units along the stopbanks in the Central Business District, what would this mean for you? (N = 16)

<table>
<thead>
<tr>
<th>Aware</th>
<th>No Impact</th>
<th>Positive Impact</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>14</td>
<td>0</td>
<td>12</td>
</tr>
</tbody>
</table>

Q6. What do you think RiverLink means for the Hutt City and Hutt Valley Communities? (N = 16)

<table>
<thead>
<tr>
<th>Aware</th>
<th>No Impact</th>
<th>Improve flood protection</th>
<th>Add value to Lower Hutt</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>5</td>
<td>9</td>
</tr>
</tbody>
</table>

Q7: Do you have any concerns regarding the RiverLink Project? (N = 16)

<table>
<thead>
<tr>
<th>Aware</th>
<th>No concerns</th>
<th>Timeline Concerns</th>
<th>Construction</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 11: Melling Open Ended Question Responses

Out of the 16 respondents, a large majority are aware of all of the different components of the RiverLink project: the Margaret Street Cycle Bridge, the Melling Interchange renovations, and the Riverside Promenade. Furthermore, the overwhelming majority believed that all of these additions will have a positive impact on the community. In terms of accessibility, only 3 out of 16 of the Melling respondents stated that the river was already accessible, and 9 out of 16 suggested adding more pathways. Although most respondents are excited for the RiverLink
project, a few did voice concerns. The most common concerns brought up by the community members were: construction and when, if at all, the project will happen.

4.4 Objective 4 Results: Comparative Analysis and Outcomes

Each of the previous results sections contain information relating to specific research methods used in our project. This section merges the above data to identify emerging patterns and to synthesize new ideas. This objective’s results were divided into three parts. The first two compare and contrasts two of the previous results sections. The final part looks at all of the data as a whole to identify common themes.

4.4.1 Comparison of Expert and Community Perceptions

When comparing the perceptions of the GWRC staff, other experts, and the perceptions of community members regarding RiverLink and flood protection, four major themes were identified. The first theme was that despite community construction concerns during previous flood protection upgrades, the GWRC was able to effectively communicate with community members. Table 12 shows quotes from expert and community interviews that demonstrate this communication.

<table>
<thead>
<tr>
<th>First Order Theme</th>
<th>Source of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>“The neighbors met with the Regional Council to discuss the things we did not like about the [flood protection] upgrades.”</td>
<td>Alicetown resident</td>
</tr>
<tr>
<td>“During the Boulcott upgrades, a community meeting with around 150 attendees was held in order to mitigate concerns.”</td>
<td>Paul Swain, GWRC Regional Councilor</td>
</tr>
</tbody>
</table>

Table 12: GWRC and Community Members Identified that Community Meetings were Vital in Mitigating Concerns Relating to Flood Protection Upgrades

The second comparison was between the level of awareness of Melling residents regarding RiverLink and how well the GWRC staff felt the Melling community should be informed. Table 13 shows that experts accurately identified the mixed level of awareness residents had regarding Riverlink, despite the wealth of information available.
First Order Theme | Source of Evidence
---|---
“Not very aware, saw one sign for RiverLink near the river.” | Boulcott resident
“There is plenty of information there, council keeps us informed.” | Boulcott resident
“[The GWRC is] proactive getting people engaged with the project, but we can do better getting message out.” | Rebecca Polvere, GWRC Engineer

Table 13: GWRC and Community Identified that Despite Available Information Regarding RiverLink, Many People are still Unaware

The third was a comparison between perceptions of the GWRC employees and the community members regarding the extent of community support of the RiverLink project. In general, experts accurately identified community support for the project. Table 14 shows community responses are paired with expert responses that show a clear linkage. In general, there was overwhelming support for the RiverLink project. Out of the similarities between the expert and community members interviews, we were able to derive four different themes related to RiverLink. The first was the Māori connection to the Hutt River. The second and third themes were that the local community and greater Lower Hutt community support RiverLink. Finally, the fourth theme was that overall the community is highly anticipating this project and would like to see construction happen soon.

First Order Theme | Source of Evidence
---|---
“The river link has the waterway at its heart. I believe it will bring it to the forefront of residents’ minds. … Money talks. If that’s what it takes for us to put more effort into caring for the river, bring it on.” | Māori Online Survey Respondent
“RiverLink is all about reclaiming that space, that is crucial for the iwi because that environment has been separated, their relationship is not like what it was hundreds of years ago” | Kara Dentice, Whaitua Relations Committee Member
“[RiverLink] will improve access to the Hutt River, connect and link the community to the river spaces, and create a more vibrant life.” | Alicetown resident

Māori connection to the Hutt River and RiverLink
Greater
“There was an online survey conducted throughout the Lower Hutt regarding the RiverLink project with 600 respondents. Greater than 80% wanted what was planned last year.”

Paki Maaka, HCC Urban Design Manager

community support for RiverLink

“[RiverLink] would mean safety from flooding and rejuvenate the town center.”

Melling resident

Local community support for RiverLink

“The community does want the space to improved so they can use it and be protected from flooding.”

Rebecca Polvere, GWRC RiverLink Project Coordinator

Table 14: Support for RiverLink project

Community supports RiverLink and are waiting for it to happen

“People are starting to wonder when it is going to happen, they want to see people out there doing work.”

Prue Lamason, GWRC Regional Councillor

The final comparison is in regard to safety concerns that were expressed by both the community and experts, as shown in Table 15. During the interviews, safety was not a question we asked unless in regards to flood protection. When asked what could be done to encourage more people to use the river park area, 6 out of 25 community respondents mentioned making the river parks safer.

“[RiverLink] sounds promising but there is a question of if will it actually be done.”

Boulcott resident

Community supports RiverLink and are waiting for it to happen
First Order Theme | Source of Evidence
---|---
“[It is important to] make sure [the stopbanks] are protected, if I am alone I am afraid of attacks, there should be cameras.” | Boulcott resident
“Someone was attacked and killed a couple years ago, I only walk on top of the stopbanks so I can see my surroundings.” | Strand Park Resident
“There are security issues regarding safety at night and lighting, this has changed the perception of the river a lot.” | James Flanagan, GWRC

Table 15: Safety Concerns Identified by Community Members and Experts

4.4.2 Comparison of Alicetown, Boulcott, Strand Park, and Melling Resident Perceptions

After analyzing the results for both sets of door knock interviews, we identified key questions that were asked to both communities, in order to compare the two groups’ responses. For this comparison, we analyzed the following key questions: overall perceptions relating to the RiverLink project, frequency of visits to the river park spaces, and suggestions on how to improve the accessibility of the river park spaces, as shown in Table 16. White cells indicate that there was a small difference or percent difference between the answers of the two groups, whereas red cells indicate larger differences between answers. In terms of frequency of river park usage, 4 out of the 16 Melling respondents said that they never visit the river parks, while only 1 out of the 25 of the interviewed Alicetown, Boulcott, and Strand Park residents said the same. Regarding river park accessibility, when asked what could be done to improve accessibility to the river parks, only 3 out of the 16 Melling community members said that the river park is already accessible; however, 17 out of 34 of the Alicetown, Boulcott, and Strand Park community members said that the river park is already accessible. This difference in accessibility is an indicator as to why the Melling river parks are used less. On the other hand both groups feel positively about the RiverLink project only a few who were opposed.
<table>
<thead>
<tr>
<th>Question</th>
<th>Q1. How often do you visit the river park area?</th>
<th>Q2. How would you make the river park spaces more accessible?</th>
<th>Q3. Overall, how do you feel about the RiverLink project?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
<td>Never</td>
<td>Already Accessible</td>
<td>Supportive</td>
</tr>
<tr>
<td>Melling n=16</td>
<td>4</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Alicetown, Boulcott, Strand Park n=25</td>
<td>1</td>
<td>17</td>
<td>4</td>
</tr>
<tr>
<td>Percent Difference (%)</td>
<td>72.41</td>
<td>52.38</td>
<td>55.71</td>
</tr>
</tbody>
</table>

Table 16: Comparison of Past Stopbank Residents and Future Stopbank Residents Perceptions

### 4.4.3 Identifying Findings, Deliverables, and Recommendations

Based on the aggregate dimensions and conclusions drawn from the stakeholder views of the RiverLink project, naturalistic observations, community perceptions of previous work, and community perceptions of the RiverLink project, we developed six overall findings. These findings are outlined in Table 17, along with the source of evidence.

<table>
<thead>
<tr>
<th>Sources</th>
<th>Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>GWRC Interviews</td>
<td>The river park spaces are underutilized and disconnected from the Lower Hutt community</td>
</tr>
<tr>
<td>HCC Interviews</td>
<td></td>
</tr>
<tr>
<td>Whaitua Committee Interview</td>
<td></td>
</tr>
<tr>
<td>Melling Door Knock Interviews</td>
<td></td>
</tr>
<tr>
<td>Online Survey</td>
<td></td>
</tr>
<tr>
<td>Naturalistic Observations</td>
<td></td>
</tr>
<tr>
<td>Melling Door Knock Interviews</td>
<td></td>
</tr>
<tr>
<td>GWRC Interviews</td>
<td></td>
</tr>
<tr>
<td>Interviews</td>
<td>Notes</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>HCC Interviews</td>
<td>Melling community members feel positively towards the RiverLink project and expect their lifestyle and the way the community uses the river park to improve</td>
</tr>
<tr>
<td>NZTA Interview</td>
<td></td>
</tr>
<tr>
<td>Whaitua Committee Interview</td>
<td></td>
</tr>
<tr>
<td>Melling Door Knock Interviews</td>
<td>Residents of Alicetown, Boulcott, and Strand Park currently use the river parks near them more frequently and find them more accessible than the residents of Melling find the Pharazyn and Marsden Street river parks</td>
</tr>
<tr>
<td>Alicetown, Strand Park, Boulcott Door Knock Interviews</td>
<td></td>
</tr>
<tr>
<td>GWRC Interviews</td>
<td>GWRC staff accurately identifies community perceptions of RiverLink and the mixed levels of awareness among community members</td>
</tr>
<tr>
<td>Melling Door Knock Interviews</td>
<td></td>
</tr>
<tr>
<td>Alicetown, Boulcott, Strand Park Door Knock Interviews</td>
<td>Alicetown, Boulcott, and Strand Park community members felt informed about the flood protection upgrades and satisfied with the outcome, yet voiced concerns regarding the construction process</td>
</tr>
<tr>
<td>GWRC Interviews</td>
<td></td>
</tr>
<tr>
<td>GWRC Interviews</td>
<td>Community members perceive sections of the river parks to be unsafe, and therefore avoid frequenting these areas</td>
</tr>
<tr>
<td>Alicetown, Boulcott, Strand Park Door Knock Interviews</td>
<td></td>
</tr>
<tr>
<td>Melling Door Knock Interviews</td>
<td></td>
</tr>
</tbody>
</table>

**Table 17: Findings**

In order to address the under utilization of the river park spaces and determine recommendations that would be of the most use to the GWRC and partner organizations, we designed a decision matrix. The decision matrix consisted of usage recommendations suggested by the community members, experts, and our own personal ideas. The matrix considered the following categories: estimated cost, impact on Melling community, impact on CBD and greater community, community identified recommendations, and sponsor input. A ranking from 1-10 was assigned to each of these categories based on team input and sponsor feedback, with a 1 being worst score, 10 being the best score. For example, the most expensive recommendations were rated 1 for "Cost Feasibility" and the least expensive recommendations were rated. For "Impact on Melling Community", a 1 indicates a strong negative impact, and a 10 indicates a
strong positive impact. For the "Sponsor Input" ranking, the potential recommendations were presented to Ross Jackson and Alistair Allan. The "Community Input" category was ranked differently, with a 1 given if the idea was specifically suggested by a community member and a 0 if the idea was meant to address a specific community concern but was not explicitly stated.

Each of these categories were then weighted based on its importance to the project relative to “Cost Feasibility”, which was given a weight of 1. These weightings were determined by the team based on the importance of the criteria to the project's outcome. The highest weights were given to the categories “community idea” and “impact on Melling community.” In general, these usage recommendations are intended to aid the GWRC and other RiverLink organizations in determining ways to utilize the Melling stopbanks once they are upgraded. Therefore, we sought to create ideas that would be of the most benefit to the Melling community members. The lowest weight was given to “impact on CBD and greater Lower Hutt community.” A large portion of the RiverLink project is the revitalization in the Lower Hutt CBD; therefore, the community members on that side of the river are more likely to use and benefit from the new amenities in the CBD rather than the amenities incorporated into the Melling stopbank. Each ranking was then multiplied by its weight value, and summed to a total score, with higher scores indicating a stronger recommendation. The team then selected a total of eleven recommendations within the top twelve ranked ideas. We chose not to move forward with the bike rack idea because bike racks would be better incorporated into the new Melling Station. The decision matrix is shown below in Table 18. The potential recommendations that are shaded were selected to be a usage recommendation for the GWRC.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Shade Trees</td>
<td>8</td>
<td>1</td>
<td>7</td>
<td>8</td>
<td>10</td>
<td>43.6</td>
</tr>
<tr>
<td>Park Benches</td>
<td>9</td>
<td>1</td>
<td>7</td>
<td>8</td>
<td>8</td>
<td>43.4</td>
</tr>
<tr>
<td>Trash Cans</td>
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<td>1</td>
<td>8</td>
<td>8</td>
<td>9</td>
<td>40.9</td>
</tr>
<tr>
<td>Item</td>
<td>Value1</td>
<td>Value2</td>
<td>Value3</td>
<td>Weight</td>
<td>Score</td>
<td></td>
</tr>
<tr>
<td>----------------------------------</td>
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<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td></td>
</tr>
<tr>
<td>Public Toilets</td>
<td>4</td>
<td>1</td>
<td>6</td>
<td>9</td>
<td>9</td>
<td>9</td>
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<tr>
<td>Pop Up Market Space</td>
<td>8</td>
<td>0</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>7</td>
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<tr>
<td>Tree Lighting</td>
<td>5</td>
<td>1</td>
<td>9</td>
<td>7</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Animal Waste Bag Dispensers</td>
<td>8</td>
<td>1</td>
<td>7</td>
<td>6</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Football Goals / Basketball</td>
<td>6</td>
<td>0</td>
<td>7</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Bike Racks</td>
<td>9</td>
<td>0</td>
<td>5</td>
<td>7</td>
<td>7</td>
<td>7</td>
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<tr>
<td>Car Park</td>
<td>4</td>
<td>1</td>
<td>6</td>
<td>8</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Amphitheatre</td>
<td>5</td>
<td>0</td>
<td>7</td>
<td>8</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Grills</td>
<td>7</td>
<td>1</td>
<td>6</td>
<td>8</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Play Structure</td>
<td>5</td>
<td>1</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>7</td>
</tr>
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<td>Workout Path</td>
<td>6</td>
<td>0</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Boat Launch</td>
<td>7</td>
<td>0</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Wifi Along Stopbanks</td>
<td>5</td>
<td>0</td>
<td>7</td>
<td>9</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Frisbee Golf Course</td>
<td>4</td>
<td>0</td>
<td>7</td>
<td>7</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Ice cream and Coffee Shop</td>
<td>8</td>
<td>0</td>
<td>7</td>
<td>8</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Shops Built Into Stopbank</td>
<td>8</td>
<td>1</td>
<td>6</td>
<td>8</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Stair Paths</td>
<td>7</td>
<td>1</td>
<td>7</td>
<td>5</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Gazebo</td>
<td>2</td>
<td>0</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Food Trucks</td>
<td>8</td>
<td>0</td>
<td>4</td>
<td>7</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Water Slide</td>
<td>3</td>
<td>0</td>
<td>7</td>
<td>7</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Putting Green</td>
<td>4</td>
<td>0</td>
<td>3</td>
<td>7</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 18: Decision Matrix
These recommendations are also supported by feedback collected by the GWRC in a community design workshop where images were posted from parks and public places worldwide, and residents could vote on which images they preferred. Overall, the results showed that community members tended to prefer the options that had more trees, were greener, and were more natural looking. Below in Figure, one of the top images voted for is shown on the right next to an image that received zero votes on the left (GWRC, 2016). It is clear from the contrast that the natural designs are favored over the more urban city landscapes, thus this is the mindset our recommendations reflect.

Figure 20: Images Voted On in Community Design Workshop
Chapter 5: Recommendations and Conclusions

Based on the six findings identified in Table 17 in Chapter 4, we developed three recommendations for the Greater Wellington Regional Council (GWRC) and partnering organizations. The recommendations were designed to address all of the concerns, expectations, and areas for improvement identified by community members and experts. The recommendations are as follows:

- Improve safety in the river parks
- Make the river a destination
- Engage the community with the project process

5.1 Recommendations

The following recommendations are intended to make the river park areas more usable and appealing to the community, as well as to ensure the community members feel informed and satisfied with the work regarding the RiverLink project.

5.1.1 Improve Safety in the River Parks

One theme that arose repeatedly throughout our expert and community interviews was the concept of safety. Currently, there are sections of the river parks that are isolated due to heavy shrubbery and lack of sight lines. This makes it difficult for an individual to be visible when walking in these areas. Furthermore, the lack of lighting makes the stopbanks unsafe at night. Increasing visibility during all hours would increase stopbank users’ sense of safety.

In 2008, the Hutt City Council (HCC) joined with several other organizations to create Safe Hutt Valley, a strategy to reduce crime and violence and increase road safety. In 2010, the Hutt Valley received an international accreditation from the World Health Organization to recognize this strategy (Hutt City Council, 2017). Although crime still exists in the Lower Hutt it is improving significantly and is comparable to other local cities. From 2014-2017 there were 10,550 occurrences of crime in the Lower Hutt while in Wellington there were 14,171. (New Zealand Police, 2018). Although crime rates are not extremely high in the Lower Hutt, there are still occurrences of assault along the stopbanks, most frequently targeting female joggers. These instances along the stopbanks have been a cause of concern for many community members.
Based on the feedback from the community, our team identified two recommendations for the GWRC to consider in order to increase visibility and make residents feel safer when using the river park spaces. The first recommendation is to work with the HCC to add more lighting to the river parks. The second recommendation is to increase sight lines along the stopbanks by thinning the heavy shrubbery to enable people on the stopbanks to be visible from the Central Business District (CBD) and the Melling areas.

Increased lightning was a common recommendation suggested in the community interviews as a way to encourage more individuals to use the river parks. Although lighting could improve safety, it is important to maintain the natural feel of the river park, as many community members fear the space becoming over-industrialized. Therefore, instead of using the classic metal lamp lighting we propose "tree lighting." Figure shows this technique used in the Wellington Botanic Gardens. This type of lighting would allow for the stopbanks and surrounding areas to be well lit at night, encouraging more residents to use the space, while maintaining a natural atmosphere. For more cost effective alternatives, there are other more standard options for lighting such as street lights, which would still make the stopbanks more visible and safe, yet just may not be as aesthetically appealing.
Our second recommendation regarding improving safety along the stopbanks is to improve sight lines. When developing streetscapes or any public areas, sight lines are an important concept in terms of making people feel safe. Not only do sight lines enable pedestrians to see their surroundings, they also enable other people to see each other, such that no one feels isolated. As urban renewal activist Jane Jacobs said, “There must be eyes upon the street, eyes belonging to those we might call the natural proprietors of the street. The buildings on a street equipped to handle strangers and to insure the safety of both residents and strangers, must be oriented to the street. They cannot turn their backs or blank sides on it and leave it blind.” (Jacobs, 1961). In this case, the stopbanks represent the street, and in order for the stopbank users to feel safe, they must be able to be seen by others. Based on naturalistic observations and input from community members, we identified two ways to increase sight lines along the river parks.

Many community members mentioned that they only walk on the top of the stopbanks because walking along the paths that pass through heavy vegetation makes them feel isolated.
Given that the vegetation is vital to the natural ecology of the area and for flood protection, and cannot be removed completely, we suggest thinning this vegetation where possible. In places where it cannot be thinned, we suggest creating paths that go around the vegetation as opposed to through it. This will create a sight line for the user enabling them to see and be seen by either the other users on the top of the stopbank or the users across the river.

Another method for increasing sight lines along the river, particularly in the Melling area, is to develop buildings and structures directly into the stopbanks, such as is proposed on the CBD side of the river. This would enable individuals walking to be in full view of the adjacent buildings. This would also connect the river better with the community and help make the river a more visible feature, making people more comfortable using these spaces.

5.1.2 Make the River Parks a Destination

Thus far, the RiverLink project heavily focuses on the urban development of the stopbanks along the CBD. As a result, there has been less planning regarding the stopbanks along Pharazyn and Marsden Streets. Our data showed that the Pharazyn and Marsden Street stopbanks are currently used the least of the stopbanks in Lower Hutt. To address this lack of usage, our team has developed several suggestions, based on community and expert input, to attract community members to these stopbanks.

Our recommendations focused on making the upgraded stopbanks inviting, functional, and aesthetically pleasing. Based on the results of the decision matrix in Chapter 4, we determined 11 usage recommendations that support developing the upgraded Pharazyn and Marsden Street stopbanks into a park-like space, retaining the natural feel of the Hutt River, and introducing more amenities to allow for better accessibility and user experience. A number of the selected recommendations are on the smaller scale, which is why we elected for eleven total proposals. Currently the area is more of just a nature space, and these additions would make it more of a usable park. Some of these smaller changes revolve around convenience, including installing trash cans and dog waste bag dispensers on the stopbanks. These were suggestions raised by residents that the team felt were valuable relatively simple additions that would make these areas more usable. Other more minor recommendations include installing park benches and shade trees in the river parks, both of which would provide places for residents to enjoy the river.
parks without being overly exposed to the elements. This would allow for residents to spend more time in the river parks comfortably.

Two of our larger and more costly recommendations include installing a car park and public toilets either on or directly adjacent to the river parks. When asked about accessibility, a number of Melling residents mentioned how a spot to drive directly up to the river in this area is in demand. Although a large expenditure, a car park would provide better access to the river and to the newly renovated river parks, which would allow more people to easily reach this "destination". This car park could be positioned on the berm or just outside of the stopbank. Additionally, we received feedback that the Saturday Markets and events held at the car park across the river in the CBD have been a huge success, with 20 out of 25 residents responding that they attend these events. By installing a car park, the opportunity to host markets, food trucks, and other community events would be possible on the Melling side of the river, thus attracting a large number of people to the area.

Regarding public toilets, as a major goal of RiverLink is to get residents to stay in the river parks for longer time periods, toilets are a necessity. As Melling is primarily a residential area, there are currently no public toilets available for use. By installing public toilets outside of the floodplain on the outside of the stopbank, people could come and stay in the area for much longer visits. Additionally, these facilities would service those who currently use the Hutt River Trail, who already have voiced concerns that along this trail in Lower Hutt, there are a minimal number of public toilets.

Our final usage recommendations focus on the entertainment and recreational aspects of our proposed Pharazyn and Marsden Street stopbanks, features that we would hope would invite people to the river and encourage them to stay for longer periods of time. Falling under this category is the proposals for the amphitheatre, the basketball hoops and football nets, and the picnic area. For the amphitheater, this would involved implementing a stage like feature in the berm of the river park. This idea is very flexible, as the stage could simply be a cleared raised grassy area, or could be as complex as a stone structure. The stage could also potentially be incorporated with the seating and steps that are already planned on the opposite side of the river for larger events or could be completely separate. A possible version of this ideas is shown in Figure , and can serve as inspiration for the GWRC during the design stages within the next few years. This proposal would allow for different plays, concerts, and community events to be held
at an outdoor public place, which would create a much stronger connection between the river and the community.

![Figure 22: Sketchup Render of a Recommended Ampitheater](image)

Regarding recreation, most of the current river parks lack the necessary amenities typical of a park. By implementing basketball hoops on the side of the car park or football/soccer nets in the berm of the stopbank, a greater attraction to the location would occur, and people would remain longer in order to perform their desired recreational activities.

Our final recommendation is for a picnic area that more focused on the population who would like to use the river parks as a leisurely destination. Within this proposed area, a number of picnic tables and park grills would be installed along with shade trees to provide cover from the sun. This area would provide amenities for people who would like to enjoy a picnic by the water, and would hopefully provide more people places to access the river and enjoy its natural scenery. A three dimensional model of this potential picnic area is shown in Figure.
5.1.3 Engage the Community in the Project Process

In terms of engaging the community with the project process we have developed several recommendations for the GWRC to consider before and during the construction of the stopbanks along Pharazyn and Marsden Street. The first recommendation regards streamlining communication with community members. Most community members recognize that the GWRC does provide an extensive amount of information regarding the project process; however, many people voiced that this information is lengthy and difficult to access. In order to make the published information easier to read and understand, we have developed several visuals to be incorporated into the existing newsletters that the GWRC publishes. These visuals in Appendix K. We also recommend developing a notification system, most likely through an email or text message alias, in order to communicate major updates with the community. These notifications would be short and informative, such as: “This week there will be construction on Saturday, be prepared for noise and dust.” An example of this communication strategy can we found in Appendix L.

Furthermore, many residents appreciated meeting directly with GWRC officials as opposed to getting information from online or in print. As such, we recommend that the GWRC
established pop-up information tables within the Melling community prior to the upgrades. This would enable community members walking or driving past to stop by and talk through any concerns with a representative from the GWRC. Another recommendation is to plan a community meeting prior to the construction work to mitigate any concerns or work collaboratively to develop an action plan to meet expectations of the community members. This could include a portion of the meeting where residents from past upgrades can share their experiences with the Melling community members. A common expectation that has already been voiced is that walking paths to Melling Station as well as to the stopbanks will be kept available during construction. Community input is important to consider as it will reduce negative publicity of the project.

5.2 Survey Report and Data Sheets

The survey report will address two of our primary objectives: assess the perceptions of residents living in areas with previous flood protection upgrades and assess the perceptions of Melling residents with respect to future stopbank upgrades. A sample selection of the data collected during the door knock interviews in found in Appendix J and a complete digital copy of the report was provided to the GWRC for their future use.

5.3 Conclusion

As the RiverLink project is approaching the implementation phase, it is vital to ensure the community understands and supports the proposed changes in order for the project to be successful. Based on our data collection methods, the responses from the community regarding past flood protection and the RiverLink project have been positive. Most residents expressed trust in the GWRC and excitement for the coming changes. Residents living near past flood protection upgrades have mostly felt unaffected in the long term, and overall had few complaints beyond minimal construction issues. Concerns have been raised, however, regarding the safety, accessibility and usage extent of the river parks, as well as regarding the consistency of the level of informedness regarding RiverLink among residents in Melling.

The recommendations proposed to the GWRC are intended to address the above concerns, and to encourage positive relationships between the community, the river, the RiverLink project, and the GWRC. By incorporating amenities and safety features into the
design of the Pharazyn and Marsden Street stopbanks, community members will be more likely to frequent these locations, and stay for longer periods of time. Continuing to engage the community with the project process and providing succinct and visual information, a greater portion of the community will be informed of the process and outcomes of RiverLink, thereby improving project outcomes and community perceptions. Our team's belief is that the collected data, the summarized findings, and the proposed recommendations accurately represent the views of both the community members and the experts in the field, and we hope these recommendations will be of assistance to the GWRC as RiverLink nears construction and the design process for the Pharazyn and Marsden stopbanks begins.
References


Appendix A: Alicetown, Boulcott, Strand Park Door Knock Interview Questions

We are university students working with the Regional Council, we would like to take 10-15 minutes of your time to ask you some questions about flood protection in your community as well as the RiverLink project.

First we will ask questions about the flood protection upgrades in your community.

1. How long have you lived in your community?
   - 0-5 years
   - 6-10 years
   - 11-15 years
   - 16+ years

2. How informed did you feel about the designs for the flood protection upgrades in your community?

3. How has your use of river park spaces changed since the stopbank upgrades?

4. How do you currently use the river park spaces (river, river banks and stopbanks)?
   - Walking
   - Swimming
   - Cycling
   - Fishing
   - Other __________________________________________

5. How often do visit the river park area?
   - Every day
   - 3-5 times per week
   - 1-2 times per week
   - 2-4 times per month
   - Once per month or less
   - Never

6. What more could be done to encourage you or other people to use the river park spaces?

7. How do you get to the river?

8. How would you make it more accessible?
9. What events have you attended along the Hutt River?

- Highlight Festival
- Pop-up Beaches
- Saturday Markets
- Other ________________________________

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<td>Overall, what is your perception of the flood protection upgrades that occurred near you?</td>
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<td>Overall, how have the flood protection upgrades altered your lifestyle?</td>
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<td>How do you think the flood protection upgrades have changed the way the river looks?</td>
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<td>How have the flood protection upgrades had an impact on your safety?</td>
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We would now like to ask you questions about RiverLink. This project encompasses plans to upgrade the stopbanks along Pharazyn and Marsden Streets, as well as proposed transportation changes and a revitalization project in the Lower Hutt CBD.

11. How informed do you feel about the designs for the RiverLink project and where do you get your information from?

12. Are you aware of the pedestrian and cycle bridge on Margaret St? As part of RiverLink, this will be built to connect the Melling community to the CBD. What will this bridge mean for you?
13. Are you aware of the proposed changes to the Melling intersection and Melling Bridge? These changes would raise the height of the bridge, so as not to be a flood hazard and improve the flow of traffic in the Melling intersection. What would this mean for you?

14. Are you aware of the proposed Riverside Promenade? This would incorporate a shopping center and housing units along the stopbanks in the CBD, what would this mean for you?

15. What do you think RiverLink means for the Hutt City and Hutt Valley Communities?

16.

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<th>Question</th>
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<td>How do you think RiverLink will affect the environment in the short term?</td>
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<td>How do you think RiverLink will affect the environment in the long term?</td>
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<td>How do you think the Riverlink will change the way the river looks?</td>
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<td>Overall, how do you feel about the RiverLink project?</td>
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We would now like to ask you some demographic questions, these are completely optional and will only be used for statistical purposes for our project, they will be kept confidential and deleted after 3 months.

17. Do you consider yourself of Māori descent?
   - Yes
   - No
Do you know your Iwi, if so what is the name?

Yes ____________________________________________________________
No

Do you know what kaitiaki means?

Yes ____________________________________________________________
No

How do you think RiverLink can support kaitiaki care for the river?

18. What are the occupations of the residents?

Address
Type of house
Distance from Current Stopbank
Other Observations
Appendix B: Flier

We are four university students from Worcester Polytechnic Institute (WPI) visiting NZ to broaden our understanding about how to involve communities in real world projects. WPI has worked with the Greater Wellington Regional Council (GWRC) to create this opportunity for us. We are carrying out a survey to understand how you and your community connect with the Hutt River. We value your feedback to understand how river parks are currently used, how you hope they will be used, and your thoughts about the river stopbanks and RiverLink. We will write up our findings into a report that will be provided to GWRC to help their RiverLink designs, and it will be used as part of our end of school year assessments.

CONTACT US
riverlink@wpi.edu
ross.jackson@gw.govt.nz

TAKE OUR SURVEY
https://tinyurl.com/RiverlinkSurvey

JOIN A FOCUS GROUP
https://tinyurl.com/RiverlinkFocusGroup
THANK YOU
FOR YOUR TIME

CONTACT US
riverlink@wpi.edu
ross.jackson@gw.govt.nz

TAKE OUR SURVEY
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JOIN A FOCUS GROUP
https://tinyurl.com/RiverlinkFocusGroup
SORRY WE
MISSSED YOU

CONTACT US TO SCHEDULE A PHONE
INTERVIEW

CONTACT US
riverlink@wpi.edu
ross.jackson@gw.govt.nz

TAKE OUR SURVEY
https://tinyurl.com/RiverlinkSurvey

JOIN A FOCUS GROUP
https://tinyurl.com/RiverlinkFocusGroup
Appendix C: Social Media Postings on the GWRC Pages

Greater Wellington Regional Council
Monday at 10:00 AM · 🌟

Don't forget to fill out the survey all about the Hutt River parks! We’ve collaborated with students from Worcester Polytechnic Institute, and they are very interested to learn about how you and your community use these spaces!

This survey closes Wednesday 21st February, so make sure you fill it out to get your thoughts and feelings around the Hutt River parks and the RiverLink projects!

Fill it out here, https://tinyurl.com/RiverlinkSurvey

And don’t forget to check out our focus group to keep the conversation going about RiverLink and the Hutt River parks! https://tinyurl.com/RiverlinkFocusGroup
Hi everyone! We’re a group of students from Worcester Polytechnic Institute, visiting New Zealand to work with GWRC to understand how you and your community connect with the Hutt River parks currently and how you hope to use them in the future, as well as your thoughts on the river stopbanks and RiverLink. (You may have seen us around your neighbourhood recently!)

Please check out our survey to help us out https://tinyurl.com/RiverlinkSurvey

And join our focus group to get the conversation going about the RiverLink projects around the Hutt River parks! https://tinyurl.com/RiverlinkFocusGroup
Greater Wellington Regional ...  ·  Feb 19

Don’t forget to fill out the survey that ourselves and the students from Worcechester Polytechnic Institute have worked on, to get your feedback on how you and your community connect with the Hutt River parks!

Fill it out here, tinyurl.com/RiverlinkSurvey
Hi there! We’re students from Worchester Polytechnic Institute, working with GWRC to understand how you and you’re your community connect with the Hutt River parks.

Please fill out our survey to help us out!
tinyurl.com/RiverlinkSurvey
Appendix F: Online Survey
- Pop-up beaches
- Other

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Overall, how do you expect RiverLink to alter your lifestyle in the short term?

Overall, how do you expect RiverLink to alter your lifestyle in the long term?

---

What does the Riverside Promenade mean for you? (This project would incorporate a shopping center and housing units along the stopbanks in the Central Business District)

What would a new pedestrian and cycle bridge across to Margaret St mean for you? (As part of RiverLink, this bridge will be built to connect the community to the Central Business District on Margaret St)

What would a new Melling intersection and Melling Bridge mean for you? (These changes would raise the height of the bridge and redesign the intersection to improve the flow of traffic)
What do you think RiverLink means for the Hutt City and Hutt Valley Communities?

[Blank field for answer]

How do you think RiverLink will affect the environment in the short term?
- Extremely negative
- Somewhat negative
- Neither positive nor negative
- Somewhat positive
- Extremely positive

How do you think RiverLink will affect the environment in the long term?

How do you think the Riverlink will change the way the river looks?

Do you consider yourself of Maori descent?
- Yes
- No
Overall, how do you feel about RiverLink?

- Extremely negative
- Somewhat negative
- Neither positive nor negative
- Somewhat positive
- Extremely positive

Do you have any other feedback?

Demographics Questions:
Responses to all of the following questions are entirely optional, will be kept confidential, and will be deleted after 9 months

What are the age ranges of the residents and how many people live there?

- 0-10
- 11-20
- 21-30
- 31-40
- 41-50
- 51-60
- 61-70
- 71+

What are the occupations of the residents?

How long have you lived in your community?

- 0-5 years
- 6-10 years
- 11-15 years
- 16+ years

What is your email address? This will only be used if we would like to further discuss your answers.
Overall, how do you feel about RiverLink?
- Extremely negative
- Somewhat negative
- Neither positive nor negative
- Somewhat positive
- Extremely positive

Do you have any other feedback?

Demographics Questions:
Responses to all of the following questions are entirely optional, will be kept confidential, and will be deleted after 9 months

What are the age ranges of the residents and how many people live there?
- 0-10
- 11-20
- 21-30
- 31-40
- 41-50
- 51-60
- 61-70
- 71+

What are the occupations of the residents?

How long have you lived in your community?
- 0-5 years
- 6-10 years
- 11-15 years
- 16+ years

What is your email address? This will only be used if we would like to further discuss your answers.

Back
Next

97
Appendix E: Melling Door Knock

We are university students working with the Regional Council, we would like to take 10-15 minutes of your time to ask you some questions about flood protection in your community as well as the RiverLink project.

1. How do you currently use the river park spaces (river, river banks and stopbanks)?
   - Walking
   - Swimming
   - Cycling
   - Fishing
   - Other ________________________________

2. How do you hope to see the river park used in the future after the stopbank upgrades

3. How often do you currently visit the river park area?
   - Every day
   - 3-5 times per week
   - 1-2 times per week
   - 2-4 times per month
   - Once per month or less
   - Never

4. How would you make the river park more accessible?

5. How long have you lived in your community?
   - 0-5 years
   - 6-10 years
   - 11-15 years
   - 16+ years

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<td>How informed do you feel about the designs for the RiverLink project?</td>
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<td>How informed do you feel regarding the property purchases in the area where the stopbank will be rebuilt?</td>
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7. What would new and higher stopbanks mean for you?

8. Are you aware of the pedestrian and cycle bridge on Margaret St? As part of RiverLink, this bridge will be built to connect the Melling community to the Central Business District. What will this bridge mean for you?

9. Are you aware of the proposed changes to the Melling intersection and Melling Bridge? These changes would raise the height of the bridge, so as not to be a flood hazard and improve the flow of traffic in the Melling intersection. What would this mean for you?

10. Are you aware of the proposed Riverside Promenade? This project would incorporate a shopping center and housing units along the stopbanks in the Central Business District, what would this mean for you?

11. What do you think RiverLink means for the Hutt City and Hutt Valley Communities?

12. | How do you think RiverLink will affect property values in the Lower Hutt? |
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<td>Not at All</td>
<td>Minor Increase</td>
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13. | Overall, how do you expect RiverLink to alter your lifestyle in the short term? |
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</table>
Overall, how do you expect RiverLink to alter your lifestyle in the long term?

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<th>Probably not</th>
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<th>Probably yes</th>
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14.

Do you feel safe from flooding from the Hutt River?

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<th>Somewhat positive</th>
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15.

Will the RiverLink project make you feel safer from flooding?

How do you think RiverLink will affect the environment in the short term?

How do you think RiverLink will affect the environment in the long term?

How do you think the Riverlink will change the way the river looks?

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Overall, how do you feel about RiverLink?
We would now like to ask you some demographic questions, these are completely optional and will only be used for statistical purposes for our project, they will be kept confidential and deleted after 3 months.

17. Do you consider yourself of Māori descent?

- Yes
- No

Do you know your Iwi, if so what is the name?

- Yes ________________________________
- No ________________________________

Do you know what kaitiaki means?

- Yes ________________________________
- No ________________________________

How do you think RiverLink can support kaitiaki care for the river

18. What are the occupations of the residents?

Address
Type of House
Distance from Current Stopbank
Other Observations
Appendix F: Expert Interviews

In total, 12 expert interviews were conducted. The questions generally regarded the individual’s involvement in either past flood protection upgrades or the RiverLink projects. However, the questions for each interviewee were distinct as each person has made a unique contribution to these projects. The questions asked by us are italicized and the responses of the interviewee are summarized below each question. Anything that was directly said by the interviewee are in quotations. The interviews are sorted chronologically by the date in which they were conducted.

Interviewee: James Flanagan, GWRC
Date: 1/17/18
Location: Greater Wellington Regional Council Office
Interviewers: Heather Bourassa, Peter Luro, Toby Macaluso, Alana Sher

What is your role with flood protection?
Engineer involved in supervising construction work relating to flood protection along the Hutt River. Mostly worked on the Alicetown Stopbank from 2009-2010 with English immigrants threatening to sue due to vibration incidents from machinery from. Alicetown is mostly composed of people who are not wealthy enough to live in Petoney, many people live in flats (smaller apartments), a mixture of private and renting, mixture of incomes, however, the value of houses in the area has increased. There is also a mix of people: Asian, polynesian. The Hutt Valley is not that bad, the opposite side of the river is very low income (poverty), yet immediately adjacent is one of the most expensive suburbs.

What other flood protection methods aside from stopbanks have been implemented in Alicetown?
Concrete walls were not a significant part of these upgrades because of the rigid membranes their ability to flex with earthquakes is limited, therefore failure is likely to focus in this area. Also pumping was not an option for this area. In Alicetown there was enough width in the river, so the project was more of an exercise of where the best location to place the stopbanks would be. It is best to keep things simple and primitive, remove complexity from the system. People can easily understand the concept of stopbanks (“moving things back, building things up”). Originally the stopbanks were too close to the river, so the river was realigned and rock was placed to move the channel and then the stopbanks were implemented. Another issue with this project was that a boundary fence had to be built to negotiate with land owners. The GWRC paid for the fence. The main problem with this was that the contractor was from a different part of the country, the builder did not build the fence according to how it is done in Wellington. Other major problems were with stormwater, pump pressurizer and adjustments to local infrastructures.

What were the biggest concerns that community members identified?
“The community did not like that there was construction in process: noise, dust, vibration. Most of the concerns were about the construction itself rather than what was actually being constructed. Interfering with their normal recreational use of the area.” People were generally in support of the stopbank implementation. Without the stopbanks, people would feel exposed. People also voiced concerns about water coming off the hills that causes flooding, this is not related to river, and therefore something managed by the HCC.

**What can be learned from Alicetown implementations?**

“It will be important in the future to set up a system where if we have a complaint we can go inside people's houses and take a picture so that we can directly attribute things to the project. We have earthquakes and the houses are notoriously badly built so there could be some false claims by the British immigrants. No culture of complaining in New Zealand, if there were problems caused by the works people would just deal with it, Maintaining recreational access during the construction process.”

“People have a value attached to their property and the river space and there are things that are done to change this. If you have to block access to the river and they are attached to it, it causes heightened tension and bad publicity. A lot of people would get dust on their car, noise can be controlled by work hours, vibrations and be controlled by location of work.”

“There are security issues regarding safety at night and lighting, this has changed the perception of the river a lot.”

“Alicetown flood protection is contingent on the current work being done in the city center. After RiverLink is complete, they will have increased level of protection. We work in different sections based on whatever the opportunity is rail line on the Alicetown side, separation barrier from Petua, Cross bridge and use Ewin road, Cant cross rail line or walk under bridge, Previously, the area was just grass, we did window planning to landscape and increase esthetic, instead of walking along the top walking down through the berm is more user friendly now.”

**What has helped the community be more connected to the river?**

“Landscaping makes people more likely to spend time there.”

“RiverLink will enhance the river environment, people will take more pride and become more attached to the river, it is important to make public access easier, provide more facility for the people (picnic areas, ect.).”

**Interviewee: Paki Maaka, HCC**

**Date: 1/24/18**

**Location: Hutt City Council Office**

**Interviewers: Heather Bourassa, Peter Luro, Toby Macaluso, Alana Sher**

*How have you been involved in urban planning aspects specifically related to the Hutt River?*

For the past 12 years, has led a special planning exercise, helped council involve regional council and transport agency. In 2009 Making Places was approved, 3 years to put project together,
strategy to revitalize the city and integrate it with flood protection. Traditionally engineers do not want interference with the stopbanks, therefore regional council was resistant to new buildings. Not much in the current building there, waiting for redevelopment. Capacity for 5-10,000 people, then areas becomes more attractive and will drive the economy, mixed use, businesses will want to be there. Not just a flood protection project, but an urban design project. Wellington city has created its waterfront, 20 years ago it was roped off. Wellington, Auckland, and New Plymouth have all been revived for urban use.

*What is done to increase the usability of the stopbanks?*
Along Pharazyn and Marsden Street the land will be raised. The NZTA wants time project because they will be using the fill from this project, saves cost and dumping costs. There will be enough leftover land to add housing with a waterfront address, however, here is a zone that can not be developed due to a fault line (a road can be there).

*Tell us about the Riverside Promenade project and the ways in which it will connect the community with the river.*
“Some things will occur exactly how it is drawn, flood protection, apartment living. We do not know how long it will take.”

*How do you get community input for projects?*
There was an online survey conducted, 600 respondents greater 80% wanted what was planned last year thought it was very important. Throughout the respondents there was a varying level of support. The survey is sent out to a citizens panel of 100,000 people who have volunteered to do surveys when they come out (“the enthusiastic type”). There is also a display in the mall for the project. The public recognizes the downtown has lost its way. The project has most recently received $50 million in support.

*In what ways has this feedback been incorporated into the design?*
“There are lots of concerns about accessibility to the river and not being able to view the river. This is a project that could change the reputation of the city.”
Timeline going forward: to date preliminary design is complete, currently looking for options for funding and identifying the total costs. The next phase is design. In about 2 months there is a major milestone, expecting approval from politicians, idea of the time frame. Some want a five year program (“I do not think it will be that short”), more likely expecting build will go to 2027. Biggest uncertainty: when the project will begin/how long it will take, Unsure about staging project, 2018-2020 consent Resource Management Act - EIA. The next phases will be detail design, town planning changes/zoning changes, 2020-2025 (or longer). Landscape architect team working on this project with six different engineers: river, geotechnical, civil (structural, transportation, stormwater).
Interviewee: Sandra Greig, Former Regional Councilor
Date: 1/24/18
Location: Lower Hutt
Interviewers: Heather Bourassa, Peter Luro, Toby Macaluso, Alana Sher

What role has the city council played and will continue to play in the RiverLink Project?
“People are not overly happy with Paki’s idea for the promenade. Many of Paki’s ideas are
grandiose, people are not so excited about the flashy aspects. Paki’s idea is to build the town
around the river.”

What are your personal feelings towards the RiverLink project?
“High street is dead now and the river itself is almost as if it does not exist to most people until it
floods.”

What, if any, feedback regarding the RiverLink Project has the council received from the
community through personal interactions, votes, and meetings?
“People get upset when you ask surveys when people have already been asked, the Regional
Council has access to all of these surveys they have done.”

Based on your interactions with the community, how would you recommend using the new
spaces created by the stopbank implementations?
“People wanted the stopbanks to have a metal gate in it so you could have access to the river, the
hotel is not being built because of the fault line”
“Managers and renters in the area do not really know what is going on because the regional
council only communicates with the owners.”

We know you wrote a book about the history of the melling community, how has the community
use of the river changed over time?
“The river has completely changed, there used to be an island. The river used to be used for
shipping and now it’s down to a trickle. Earthquakes have brought the land up, the rivers so
sideways and trickle out.”

Do you have any recommendations regarding how to best reach the community?
There is a website called “neighborly.org” in which notices can be posted to the Lower Hutt
Community. Previous surveys have been set up at pop up tents on the river, in the mall, and in
the library. Also Pharazyn and Marsden Streets have kindergartens where most families live in
the area, these would be good people to give brochures. Also, people wo not read the Hutt News
it is considered junk mail.
“At Saturday Markets, we set up for people to have a stall for “save the Hutt River,” this is a
good place to get to a large group of people, although many people probably do not speak
English but these are the local people that need to know.”

Interviewee: Paki Maaka, HCC
Date: 1/29/18
Location: Hutt City Council Office
Interviewers: Heather Bourassa, Alana Sher
Although Maake had been previously interviewed, he invited us back and showed us the three dimensional model the revitalization between Ewen Bridge and Melling Bridge, gave a 30 minute overview presentation regarding the HCC’s involvement in the RiverLink project, and introduced us to lead landscape architect on the project, Rong Qian.

**Can you explain the HCC’s role in the RiverLink project?**

In 2009, the three organizations met to discuss a project which combined their interests in the Lower Hutt. GWRC- flood protection. Responsible for buying the properties that need to be replaced for stopbank upgrades. Their part is already fully funded. NZTA- handles transport between city and will be in charge of the Melling Bridge and the Melling Interchange. HCC- part of Making Places project. Interested in revitalizing the CBD and raising the growth rate of the city. Currently 200 people live in CBD, this project could allow for 5,000 people to live there. The HCC is responsible for the pedestrian bridge (10 million dollars). The NZTA is already doing lots of cycling paths between cities and HCC is also already doing lots of cycling paths in the city. This pedestrian bridge will connect the above projects and will make a much shorter commute from train station to the CBD and from house's to the CBD, and from train stations to bus stations. The HCC will also buy some properties in the CBD and sell to ideal contractors to introduce good developments. The idea is to create a promenade where the bottom floors are restaurants and cafes that open to the river. Underground floors are car parks that open to the lower floor. Top floors are housing. Public is supportive of revitalizing the city and is all for this idea.

“The idea is once the first few developments are created and privately funded the market will be set and development will continue on its own.”

Total HCC investment is 50 million dollars, economist expects to be paid off within 20 years.

**Can you explain the HCC’s role in the RiverLink project?**

“The Key to the revitalizing the CBD and this whole project is transportation. Melling Bridge currently too far away from the CBD and is a huge flood risk. We want to redirect it to be close to the CBD and raise it.”

Melling interchange is currently a mess, inconvenience, and danger according to most residents.

“We would like to raise and make a second level to the second intersection. This will help make traffic better. In general, the project timeline will be voted on in March, anywhere from 5 year to 20 year construction plan.”

**Interviewee: Jacky Cox, GWRC**
**Date: 1/29/18**
**Location: Greater Wellington Regional Council Office**
**Interviewers: Peter Luro, Toby Macaluso**
What were the biggest challenges, controversies, and discussions in the planning and implementation of the Boulcott stopbank?
Public expectation for construction was a big concern as well as the overall understanding of the outcome of the project, pictures are not enough for people to know what it looks like. There was a general lack of understanding regarding how flood protection works (some community members are not even aware of stopbanks).

To what extent was community input considered?
Concern for privacy, most input was on access and fences, some input on location. GWRC staff split into groups and met with property owners, there was also a dispute regarding residents vs golf club.

What were any challenges that arose during construction?
Angst for lead up to construction but once the actual construction began concerns were mitigated.

What were the biggest strengths and weaknesses of this project?
All community members understand the need for flood protection, yet they want it to be done somewhere else or wanted the stopbank closer to the river. The community also understood gravel extraction well, but did not understand the scale of the work or the construction.

What are some of the other flood protection methods aside from stopbanks implemented along Boulcott?
Floodwalls, retaining walls, stopbanks, realigned a road, new stormwater drains, gravel extraction, there was a reluctance to build concrete structures because of the lifespan.

What was the timeline for the Boulcott flood protection upgrades?
2005-201, Originally 2-3 years, “RiverLink seems a little bit optimistic.”

What can be learned from Boulcott implementations?
“People do not want to be rushed. They need time” not being driven by a deadline especially during the design phase. “It is important to think about the community things like walkways and how it’s finished because that’s what people care about just as important as stopbank design.” Unresolved issues that were unrelated were often brought up that were not the job for the Regional Council. Boulcott was not joint project and RiverLink is. Many not aware of difference between regional council and HCC.

Interviewee: Alistair Allan, GWRC
Date: 1/30/18
Location: Greater Wellington Regional Council Office
Interviewers: Heather Bourassa, Peter Luro, Toby Macaluso, Alana Sher

RiverLink Questions
What do you feel is the goal of the RiverLink project?
“For the regional council: improved flood protection, alongside that, creating a better river park experience along the CBD. In general, the two main goals are: flood protection security and environmental.”

What roles has the GWRC played in the RiverLink project?
Created RiverLink to bring three projects together. The HCC is trying to bring CBD back to life, stimulate economic growth, bring people to live there. The NZTA is trying to fix the problem around Melling intersection. The GWRC got three groups together and created the project structure to deliver joint outcomes, and make it possible for all agencies to achieve goals.

What role have you played with regards to the RiverLink project?
Project manager for RiverLink in 2016

What have been notable strengths and weaknesses of RiverLink?
Strength: three agencies working together, amount of money allocated, community support
Weakness: not having funding and timing commitment from NZTA, densification of urban development, land value increases as a result of better flood protection, private sector needs to buy in

What have been the biggest challenges, controversies, and discussions in the planning and implementation of the RiverLink project along the Hutt River?
Getting three agencies working together has been hard, past experiences that were not great, each party wanted to pay for as little as possible. Bridge ownership, melling bridge replacement, the jurisdiction of this was a conflict, bridge is owned by HCC but it has not reached the end of its service life, nobody has put any money towards it yet, similar situation with the station movement. Private land ownership investment, not so much residential, but in the city section to due the high rises requires private investment (they have a frustrating relationship with HCC, do not believe anything is going to happen, so they do not want to commit to anything yet) therefore HCC wants to purchase the land to get things going.

Do you expect people to have more positive or negative feelings towards the proposed changes?
Mostly positive, some with strong negatives, our experience has shown mostly positive.

How much do changes in the the funding and designs of the HCC and NZTA proposals affect what the GWRC is doing?
No effects no GWRC work, but less connected to CBD

What do you foresee being possible uses for the newly generated river park spaces?
GWRC owns river park spaces, many of the opportunities for an urban park, Environmental experience, escape from urban space, Some spaces are more urban, car park, HCC does have
influence over how it is used, “Change use so that it is a destination not just a place to pass through”, “Not many people go for a picnic” (they just run or bike through), Alistair: you can go swimming most days, RiverLink will not substantially change the level or flow of river

In what ways has the GWRC, HCC, and NZTA attempted to “sell” RiverLink to the community? Newsletter, info booth by river moved to different points of interest (melling station), currently doing one about biodiversity and the environment, information day session, community workshops - all in current phase. Prior we were confirming the program to use, consultation.

Strand Park
What role did you play regarding the Strand Park stopbank upgrades?
Site engineer, assistant engineer’s representative

What was the timeline of the strand Park stopbank
Ava to Ewen works: 2008/2009, consisted of three projects: Alicetown, moving river/pump station, Strand Park

What were any noteworthy challenges faced with this specific implementation?
Engineering wise problems with areas where an old stream went under a stopbank, putting in pipes so it could get through. Not too many residents, some had a long history with boundary issues moving trees, no plan to replant these trees, one lady had a concern about the trees not being replanted. Issues with contractors not doing work properly with concrete. Retaining wall behind pump station, visual impact of this were concerning for one community member. Top end was all businesses, not very emotionally charged. Issues with shoplifting and gang violence in the project area.

Beyond stopbank upgrades, what, if any, other flood protections methods were implemented at Strand Park?
Channel widening, river straightening, additional bridge span, flood wall to get height needed, erosion protection with rocks, native planting, gravel track at river’s edge, no benches, people still complain about this, can put a memorial bench in $3000 .

How many properties were purchased as part of the RiverLink project?
Around 118, about a ¼ have been purchased, the rest are in negotiations, we told everyone, if you want to sell now come talk to us now, requiring properties by 2021 (that’s when we would start the process of going to people to acquire their property) we have bought a couple properties but the business can lease it and still operate in the space.

What is the project timeline for RiverLink?
Construction will be finished by 2028: 2021 mill street stopbank, 2023 section of melling bridge to ewen bridge, 2025 marsden st, 2026 pharazyn (melling intersection will be replaced at this same time), in June all of the money will be allocated for this project

Interviewee: Rebecca Polvere, GWRC
Date: 1/31/18
Location: Greater Wellington Regional Council Office
Interviewers: Peter Luro, Alana Sher

What do you feel is the goal of RiverLink?
“Flood protection, transport, urban improvements and ultimately provide basis for Hutt City’s urban growth strategy, I do not think the community is aware of all of these goals.” The GWRC has hosted “Open days,” open for community members to come and give input/ask questions about RiverLink. There have not been a huge number of people in attendance (about 300 over the course of 3 days). Many people found out about it by just walking past even though it was on the radio and newspaper. There is also the “Engagement Container” by the river.

What role have you played with regards to RiverLink?
Project manager for GWRC, covers the Hutt City as well

What have been strengths and weaknesses of RiverLink?
Done well: proactive getting people engaged with the project, can do better getting message out Improve: “selling” these are all of the benefits the community will get from RiverLink, and getting community buy in, make the link between the benefit and what we are physically constructing, “winning hearts and minds.” The timeline can also be improved, average keeping to time frame, not uncommon for large infrastructure projects
Done Well: three agencies working really well together, good engagement across all levels, better structure so people understand their responsibilities and accountabilities (but this is not hindering project success).

What have been the biggest challenges, controversies, and discussions in the planning and implementation of RiverLink?
Trying to manage expectations and keeping things realistic, could have an amazing park, but there is only so much money, so what can we achieve, making sure people are not expecting something that can not happen. Controversy will always be around property purchase, no properties have been flooded since announcement.

What do you believe is the most important aspect of the RiverLink project?
“The community. If the community is happy to have their properties flooded and bought out what are we even doing. The community does want the space to improve so they can use it and be protected from flooding.”
“Also important to put life back into the Hutt, and have a space to move to. A mom said that her teenagers did not want to stay in the Hutt.”

Do you expect people to have more positive or negative feelings towards the proposed changes?
“As long as we continue to engage with the community, everyone at the end will be happy.”

What are some typical complaints of the project you have heard?
Money, cost-rate implications, element of gentrification, minor details (where the footpath goes, can not please everyone). High street is dying, whether or not RiverLink will actually help to stimulate the Hutt.

How would you say the partnership between the three organizations has gone thus far?
In what ways has the GWRC, HCC, and NZTA attempted to “sell” RiverLink to the community?

“This is a really exciting project because there are three different organization working together. It is a very community driven project, quite a large impact on the community and the region. I do not think the public fully understand the implications of climate change and the ramifications.”

Interviewee: Prue Lamason, GWRC
Date: 2/1/18
Location: The Dowse Art Museum
Interviewers: Heather Bourassa, Peter Luro, Toby Macaluso, Alana Sher

What is the Hutt Valley Flood Management Subcommittee and how is it involved in the Riverlink project?
“No one can say I do not understand because I have lived here my whole life. The Hutt is always trying to compete with Wellington and we should stop that because we have things that Wellington does not have. We are what we are.”

“Walking along high street there are more vacant lots that businesses, this is a real opportunity for the Hutt.”

The GWRC is only responsible for flood work component of RiverLink. Making Places is the Hutt City plan, GWRC have no financial input into that. It also makes sense to work with NZTA. The project will be able to withstand a 1/440 year flood – currently 1-165. Originally RiverLink was not on the list of NZTAs projects.

“Alistair does all the work, we see if the people like it. Any decisions go from subcommittee to environment committee to council.”

In terms of RiverLink, the first big decision was what option to go with, there was lots of consultation, public wanted to do it once and do it right, and therefore chose option A out of the options that were given to them. The chair of the environment committee comes to meetings, three from Upper Hutt, three from Lower Hutt.
How do you see the river playing a role in the future of Hutt City?
“Major. The Hutt used to be incredibly vibrant, the cause for that mostly is the mall (built in 80s), it took away from High Street. This really is the last chance for the Hutt City, no point to get businesses back in the CBD, but turn the city around to focus on the river.”

There is also an aging population in the Hutt, it's really just been a river up until now to bring people to the community.

How would you like to see the river park spaces used in the future?
A lot of this is discussed in the Environmental Strategy. One idea is to have a big dog park, and create a “backyard” for families that do not have much land.

What have been the biggest challenges, controversies, and discussions in the planning and implementation of the stopbanks along the Hutt River?
Cost, publicity, instigating public works act (taking land), hopefully this will not have to be done residentially, but commercially this might have to happen. Luckily for flood works it can be varied when properties are demolished.

**Ross Jackson: “Hutt City has had Making Places for quite a long time, flood protection has been upgraded a lot to keep meeting standards, it would have been easier for flood protection to just focus on flood protection but it is really crucial to integrate the community into the river, there's also the whole traffic thing, all of the offices have had to work together to ensure that the 3 agencies could work together.”

Another issue is that many people have their own agendas, it is hard to have a lot of turnovers in the elections cycles, it is hard to get people caught up. Prue having lived here has a really good understanding of the locals.

“There can be some resentment between council towards regional councils.”
The project began with Hutt City and Making Places, then NZTA and the bridges, however, flood protection aspect of the project is not contingent on any of this.

“People are starting to wonder when it is going to happen, they want to see people out there doing work. I want to see this happening at the end of 2019. We need to consent for the whole project at once so this is not a jigsaw puzzle.”

What have been noticeable strengths and weaknesses of RiverLink so far?
Strengths: staff we have at GWRC, incredibly focus, Ross has organized most of the community engagement, flood people are amazing, Alistair is a great project manager.
Weakness: some politicians make it difficult, there’s always money involved, bridge is total responsibility of Hutt City once replaced it will become a joint responsibility (GWRC has nothing to do with roads).
Interviewee: Margaret Cousins, HCC  
Date: 2/1/18  
Location: Hutt City Council Office  
Interviewers: Heather Bourassa, Peter Luro, Toby Macaluso, Alana Sher

*What have been the biggest challenges, controversies, and discussions in the planning and implementation of the stopbanks along the Hutt River?*

“If the bridge and train station move a lot of the current links will not be applicable anymore, this might be quite an issue for the people who use them regularly.”

*To what extent was community input considered?*

People who walk from Harbor View, Pumari, Belmont Hill currently have a walking bridge that brings them close to melling station, if these renovations occur, informal links will no longer work and lots of people will lose access to the trains station from a walking standpoint. These walking tracks were added to help improve traffic by giving people a safe walking way.

*What have been noticeable strengths and weaknesses of RiverLink?*

Strengths: “less stuff being done and undone since there are three agencies working together”

*What are your personal feelings towards the RiverLink project?*

The stopbank going on faultline this might be a problem, people are worried a rupture might cause a split in the stopbank.

*Based on your interactions with the community, how would you recommend using the new spaces created by the stopbank implementations?*

“Possibly a carpark building and additional parking lot for Melling Station, I would also like to see medium density housing in this area.”

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Interviewee: Kara Dentice, Whaitua Committee  
Date: 2/8/18  
Location: Greater Wellington Regional Council Office  
Interviewers: Peter Luro, Alana Sher

*Can you tell us about the role of a Whaitua committee and what your involvement is?*

Project member on committee, work on that role with Wellington Water (Wellington’s utility committee - drinking and stormwater within wellington - 500,000 customers). Storm and wastewater contribute pollutants this poses a big problem in terms of addressing water quality issues. Wellington Water takes water out of the Hutt Aquifer. “We have responsibility to ensure that water we do take out is in a responsible way and we build infrastructure that has the capacity to take waste and stormwater.”
Mixing storm and wastewater leads to overflow and it goes into stream - untreated wastewater entering freshwater bodies this is bad. The Whaitua Committee is made of Iwi and councilors and ensures that region meets quality and quantity requirements, the committee is about setting limits that will become a part of the regional plan. Wellington Water works in collaboration with the Regional Council.

What are some of the projects you have been involved in related to the Hutt River?
Helping create the environmental strategy and action plan.

How have you been involved with work at the Regional Council, specifically RiverLink?
Not involved, process is starting this year, a specific Whaitua Committee will be established by June/July.

How do you think the local iwi feel about the RiverLink project?
Not too much engaged in it, the Hutt River is the Hutt River, it is used to swim in that’s about it, other than the fact that it is used to paddle traditional canoes. Once RiverLink happens we can start to use it to connect to the community.
“The Hutt River is generally considered an industrial environment there is definitely a disconnect, RiverLink is all about reclaiming that space, that is crucial for the iwi because that environmental has been separated, their relationship is not like what it was hundreds of years ago.”

What do you think are the strengths and weaknesses of the RiverLink project?
Strength: mayors and council sitting about the table, Iwi, Mayors actually sitting there as part of the decision making process, “it sits at a high level”
Weaknesses: “organizationally driven by councils so it needs to be handed over to the community a bit, council does all the work, if you are really trying to build the connection you have to hand parts over to the community.”
Generating project funds is also an issue, and facilitating initiatives to restore the relationship and council is more of an enabler than leader.

What more could be done from your perspective relating to the RiverLink project to respect and promote kaitiaki care for the river?
The river has a ranger, kaitiaki is about redefining that role and calling that person not a ranger but kaitiaki.
“Kaitiaki is stewardship which is different that management, there is no way you can manage the Hutt River and create that high level of guardianship and leave the environment the way you found it or better.”
“Management is the idea of fixing something - you can not fix mother nature.”

Interviewee: Roger Burra, NZTA
Date: 2/8/18  
Location: Majestic Center, Wellington  
Interviewers: Heather Bourassa, Toby Macaluso

What is your position at the NZTA?
Roger Burra- Project manager  
Sharon Oaxley-community engagement  
Eddie- owns the project

What would you say is the overall community feel regarding transportation in Melling?
Community members think it is no good, there is lots of traffic, and accidents and it feels unsafe, there is lots of community support for the interchange fixes.

How does the NZTA feel about upgrading the Melling Interchange and relocating the Melling Station? What would be the pros and cons to this?
In terms of moving rail station, HCC and RC thought no brainer to put the station across the bridge. The pros of this move include: opens more space for the intersection and reduce walking time to CBD and the rest of the city attractions, and the new station would have additional car park. The cons include: residents may have to walk further to the station, but minimal in the grand scale, and worries that this station would be good enough where they would shut down the other station.

What challenges does the NZTA face in this project?
It is early for the transport agency to be doing this, NZTA is unsure how this will fit into the greater region and the wider strategy, it is also challenging to integrate with the two other projects, challenge with construction while keep traffic flowing well. Pharazyn Street is mainly used by people leaving alicetown heading towards SH2.

Presentation Notes
- State highway 2 corridor-funding to improve this route not approved for another 10 years
- Working at how their upgrades would fit into other 2 projects
- Determining how the budget would work
- Lower Hutt  
  - 2nd largest population and employment center in the region
  - Looking for 1.76 Million NZD for the Melling upgrades
- Transport agency objectives for melling intersection  
  - Safety: last 5 years half a dozen major crashes, lots of minor crashes
  - More Efficient and Reliable Travel: currently long waits at this intersection
  - Better access to transport choices: currently people in the hills who have to cross highway to get to city (UNSAFE)
● Improved security and availability of the road network: every time there's a crash a lane closes and the road is shut down and messed up for a while "Resilience"

● NZTA Planning Process
  ○ 12 options for fixing intersection, narrowed down to 4 options
  ○ Common themes
    ■ Local road will go over the top of the highway with N and S facing ramps
    ■ New river bridge: one right next to, one over to the left more one idea was to raise the highway and keep the existing bridge
      CON-ugly could see across the valley
      CON-people coming down from the hills go down and then up
      Rail station needs to move
      Everyone in agreement should move across from the pedestrian and cycling bridge

● Why they want to work with the 3 agencies
  ○ To do the project after, would need to possibly move or disturb stopbanks would cost more money
  ○ RC is already is already buying the properties by P and M streets easier for NZ transport agency to buy from another a government agency if wait too long the land may switch back to private use and will be more $$

● Aquifer and faultline also make more planning more difficult

● Overall timeline: Preferred option selected by July, Detailed design starts in July and done by August and September, Write a paper to national board and get approved by the them, They will advise with the final options and final timeline Board will choose weather to accelerate timeline, New intersection would be easier for pedestrians cross if walking down from the hills

Interviewee: Paul Swain, GWRC
Date: 2/20/18
Location: Phone Interviews
Interviewers: Alana Sher

Can you tell us about your role in any past flood protection upgrades?
First got involved before becoming a regional councilor, chair a meeting relating to concerned residents in Boulcott - 2010. There was a lot of misinformation and concern about the impact on residents particularly with the earthworks and truck movements. Reached a point where it was agitated and alot of public comment. Community meeting was held with well over 100/150 community members. Big meetings when people are agitated. Everyone understood the general idea but they were getting caught up in the personal impact and they lost sight on the big picture. Meeting outcomes: deeper and better understanding of the project and its importance, without the project there was a severe risk for flooding:
- People accepted the importance of the project proceeding
- Major issue was truck movements and impact of constant heavy vehicles, impact on properties, foundations, etc, concern about safety for children
- NIMBY
- Major Outcome: redesign of truck route agreement with the golf course to redirect the route, this helped people's perceptions, Golf Course needed to be compensated

Was also on Regional Council part of committee that oversaw the building of the Boulcott and also currently overseeing RiverLink

As a result of the Boulcott upgrades, protected all the way down to Melling bridge (but not through CBD) and then again past Ewen bridge, overtopping if the CBD is not fixed

“If there are honest attempts to work with the community and come up with alternative solutions and if so the community feels more comfortable”

*What was the community feedback following the flood protection upgrades in Boulcott?*

No formal data to answer this question.

“The number of concerns and complaints have completely disappeared, take that as a level of acceptance and support, people are pleased with the level of protection.”

Mrs. Mcone still complains, people at the margin are usually the ones that are the most vocal.

In general, what is the community attitude towards RiverLink?

“Community is very supportive and frustrated it is not happening sooner.”

The channel has to be shifted over to make room for CBD plan this involves taking more houses from Melling to accommodate the Making Places plan. GWRC was genuinely surprised that the community voted for this plan when less houses could have been purchased, people knew it was only a matter: “Do it once and do it right”

*What do you think are the community concerns related to RiverLink?*

The time it is going to take, the full cost, house purchase situation, the process has been explained

*Is there anything else you would like to add?*

“With Boulcott and RiverLink, extraordinary good work in terms of proper communication plan, quality of their project planning is as good as you will see anywhere and this has certainly helped get project buy in. Officers were genuinely trying to get feedback from the community.”
# Appendix G: Naturalistic Observation Data Sheet

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### Appendix H: Qualitative Naturalistic Observation

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<td>1/11/2018</td>
<td>1:30 PM</td>
<td>Daly Street next to Strand Park</td>
<td>&quot;You can't see the river, even though this road runs right next to it&quot;</td>
</tr>
<tr>
<td>Heather</td>
<td>1/12/2018</td>
<td>11:00 AM</td>
<td>Mangora Hill Scenic Reserve</td>
<td>&quot;There is a ton of water from the river...This river is really critical to the Wellington region for water.&quot;</td>
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<tr>
<td>Peter</td>
<td>1/12/2018</td>
<td>1:00 PM</td>
<td>Kaitoke National Park</td>
<td>&quot;The wildlife here is completely different from what it looks like down the river&quot;</td>
</tr>
<tr>
<td>Peter</td>
<td>1/12/2018</td>
<td>2:00 PM</td>
<td>Boulcott Golf Course</td>
<td>&quot;They use the stopbank in the golf course to help separate holes and keep the ball on the fairway&quot;</td>
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<tr>
<td>Toby</td>
<td>1/12/2018</td>
<td>2:30 PM</td>
<td>Melling Stopbank on Marsden Street</td>
<td>&quot;This stopbank is really steep to climb up&quot;</td>
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<tr>
<td>Heather</td>
<td>1/23/2018</td>
<td>1:00 PM</td>
<td>Queens Drive</td>
<td>&quot;Downtown is really dead..No one is here and why would they want to be?&quot;</td>
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<td>Toby</td>
<td>1/23/2018</td>
<td>3:00 PM</td>
<td>Melling</td>
<td>&quot;There is a ton of income diversity here, at least in terms of the way the houses look&quot;</td>
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<tr>
<td>Peter</td>
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<td>Hutt City Council</td>
<td>&quot;I guess it does rain here&quot;</td>
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<td>Boulcott along the Stopbank</td>
<td>&quot;This is a nice area, but I wouldn't even know there was a river unless someone told me&quot;</td>
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<td>Toby</td>
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<td>Melling</td>
<td>&quot;People here are very excited about the Riverlink project&quot;</td>
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<td>Alana</td>
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<td>Alicetown</td>
<td>&quot;Walking under the Ava Rail bridge I felt unsafe, all of the vegetation blocked my view&quot;</td>
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Appendix I: Sample Alicetown, Boulcott, and Strand Park Survey Report and Data Sheet

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<th>Q3: Encouraging others to use river park spaces</th>
<th>Overall perception of past upgrades</th>
<th>To what extent did the upgrades alter your lifestyle?</th>
<th>How did the upgrades make the river park feel safer from flooding?</th>
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| Total       | 16 2 3 11 | 10 6 9 6 |
Appendix J: Sample Melling Survey Report and Data Sheets

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<th>Walk</th>
<th>Cycle</th>
<th>Fish</th>
<th>Other Rec</th>
<th>No Change</th>
<th>Community Events</th>
<th>Better landscaped</th>
<th>More infrastructure</th>
<th>G2: How would you like to see the river parks used in the future</th>
<th>G20: Overall RiverLink Opinion</th>
<th>G5: Extent Informed about RiverLink</th>
<th>Q11: What do you believe RiverLink means for Lower Hull?</th>
<th>Q21: What are your concerns regarding RiverLink?</th>
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Appendix K: Infographics and Sample Newsletters

Past Flood Protection By the Numbers

We interviewed 25 households living adjacent to past stopbank upgrades in Alicetown, Strand Park, and Boulcott about how the upgrades impacted their lives.

Overall Perceptions About Past Upgrades?

- 68% Positive
- 12% Neutral
- 12% Negative

73% of Households Felt Well Informed About the Flood Upgrades Near Them

92% of Households Were in Support of the Project, Even After Experiencing Their Own Upgrades

When asked how their thoughts on Riverlink
The Hutt City Council will vote on whether to move forward with the designs for RiverLink in May 2018. Additionally at this time, they will determine the project timeline. The following date is subject to change.

**Resource Consents and Detailed Designs**

The Hutt River Flood Subcommittee will vote on whether to move forward with the designs in May 2018. This will finalize the project timeline. All dates below are subject to change.

**Flood Protection Construction Begins**

2021 Construction will begin north of the Melling Bridge.

**Riverside Promenade Construction begins**

2023 The proposed promenade will be incorporated into the Daly Street Stopbank. This design includes a pedestrian and cycle bridge from Margaret Street across to the proposed location of the new train station.

**Daly Street Upgrades**

2023

**Marsden Street Upgrades**

2025

**Pharazyn Street Upgrades**

2026 These upgrades will include moving the Melling railway station south.

**Melling Intersection Construction Begins**

2026

**RiverLink Finished**

(Estimated Date) 2030

The NZTA will select which design will be implemented for the new Melling intersection. A detailed design will then be created and submitted. The board will then finalize the details and timeline of the project.
Below are two examples of how the graphics could be incorporated into a Riverlink Newsletter.
Appendix L: Sample Message Alerts

Greater Wellington Regional Council

iMessage
Tuesday 8:01 PM

We will be at our pop-up container in Melling today! Come talk with a GWRC representative about RiverLink!

Construction Update: We will be working this Saturday, March 10. Expect higher noise and dust levels than normal.

Today 11:42 AM

Construction Update: Southbound Pharazyn Street will be closed March 20-March 23 for construction.