SHARING SPACES ON THE WAIKANAE RIVER TRAILS

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Presented To
**The Greater Wellington
Regional Council**

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Chapter 1: Introduction

The Waikanae River runs through the Kapiti Coast of Aotearoa New Zealand, flowing through a diverse 149-square-kilometer catchment area, spanning native forests, agricultural land, and urban areas. Its tributaries originate from the Tararua Mountain Range and converge before reaching the estuarine zone where the river meets the Tasman Sea. The river and its surrounding trails offer mixed-use recreational value and serve as vital habitats for fish, plants, birds, insects, and reptiles.

To promote enjoyment and shared public access to the region, the Waikanae River Trails stretch 9.6 kilometers from State Highway 1 to the Tasman Sea. The trail system offers scenic pathways for horse riding enthusiasts, hikers, cyclists, and swimmers, and promotes a range of family activities that support community engagement with the environment. Managed by the Greater Wellington Regional Council (GWRC) and Kāpiti Coast District Council (KCDC), the Waikanae River Trails serve as a shared space that balances ecological preservation, recreation, and cultural significance. The GWRC is committed to sustainably maintaining the trails, incorporating community input to enable an inclusive and effective approach to public land use management.

The trails are well-used. On the northern riverbank, the trails join part of the extensive Te Araroa Trail, a 3,000-kilometer trek spanning both islands of New Zealand. The southern riverbank features a more established pathway often used by cyclists and equestrians. Two bridges cross the river, creating looped pathways and enhancing user access. Trails are wide and were designed to accommodate a variety of interests and sports.

As trail use has grown, the increased public access has also brought challenges and questions related to impacts from its use. Some of the environmental damage raises questions about how to minimize damage along trailside banks and native habitats. Other chronic concerns highlight crowding and conflicted opinions about how the trails should best be shared. To ensure the trails remain accessible and well-maintained, it is essential to understand the perspectives of the community and trail users.

The goal of this project is to evaluate user perceptions of the Waikanae River Trails to support the GWRC in managing and maintaining these shared spaces. To achieve this goal, we have identified the following objectives: 1. Identify trail user activities along the Waikanae River

Trails, 2. evaluate user perceptions of the trail experience, and 3. identify and utilize frameworks that address the management of shared spaces. This evaluation will encourage broad representation and ensure that the Waikanae River Trails remain a valued experience for the local community.

Chapter 2: Literature Review

This chapter presents the history of land management in the Waikanae region in greater detail. The chapter includes sections that examine river management efforts, explore trail engagement, and review similar surveys conducted on multi-use trail systems.

2.1 Policies and Transformations of the Waikanae River

The Waikanae River and its trails hold significant ecological, cultural, and historical value in Aotearoa New Zealand. For centuries, the greater Kāpiti Coast has been home to Māori iwi, who maintain a connection to the Waikanae River as a source of sustenance, recreation, and cultural heritage. The arrival of British settlers in the 1840s profoundly altered the region's social and environmental landscape, driving a new form of economic growth and expansion (Kāpiti Coast District Council, n.d.). By the 1960s, urban development had overrun much of the coastal wilderness surrounding the river's estuary (Kāpiti Coast District Council, n.d.).

The 1997 Flood Management Plan

Recognizing the importance of flood prevention and the Waikanae River's ecological value, the Greater Wellington Regional Council developed the 1997 Flood Management Plan to address challenges from increased urbanization and flooding risks. The plan provided a comprehensive blueprint for flood mitigation while preserving and enhancing the surrounding environment. The GWRC partnered with Waikanae River communities, Ati Awa ki Whakarongotai, and the KCDC to introduce both structural and non-structural measures. A significant outcome of this was the addition of stop banks near the river mouth, Old Lion Park, Jim Crow Park, and Edgewater Paralong. These embankments strategically direct river flow and increase water velocity, reducing the risk of flooding in neighboring communities (Wellington Regional Council, 1997).

WAIKANAE RIVER MOUTH :   1968 Aerial

Figure 1. A 1968 aerial view of the Waikanae Estuary prior to the implementation of the 1991 Flood Management Plan (Greater Wellington Regional Council, 2017).

WAIKANAE RIVER MOUTH :   Feb 2017 Aerial

Figure 2. A 2017 aerial view of the Waikanae Estuary after channelization (Greater Wellington Regional Council, 2017).

The addition of the stop banks along the Waikanae River shifted the trajectory. Instead of feeding directly into the ocean, the river turns, connecting the estuary to the beach north of the river rather than to the southern beach (Greater Wellington Regional Council, 2017). Further upstream, the river flows through residential areas and beneath the Kāpiti Highway, bordered by many recreational parks.

The Waikanae River Environmental Strategy

As an outcome of the flood management strategy, the Greater Wellington Regional Council (GWRC) and the Kāpiti Coast District Council (KCDC) launched the Waikanae River Environmental Strategy in 1999 to enhance the ecological and recreational value of the area. This initiative included the establishment of the Waikanae River Trails (Greater Wellington Regional Council, 2014). The trail covers a distance of 9.6 kilometers from State Highway 1 to Otaihanga Domain. They provide community access to the natural environment and link to part of the Te Araroa Trail, a 3,000-kilometer trekking route across New Zealand (*Top Trails on the Kāpiti Coast*, n.d.).

The Waikanae River Environmental Strategy has promoted significant public amenities along the river corridor, adding trail extensions, additional footbridges, and improved signage for trail users (Greater Wellington Regional Council, 2014). Most notably, the construction of the Te Arawai Bridge in 2009 provided an additional connection between the northern and southern trails, which offered more opportunities within the area. In addition, the Otaihanga Suspension Bridge offers pedestrian crossing over the river, recording up to 1,200 crossings per day in the summer months (Greater Wellington Regional Council, 2014).
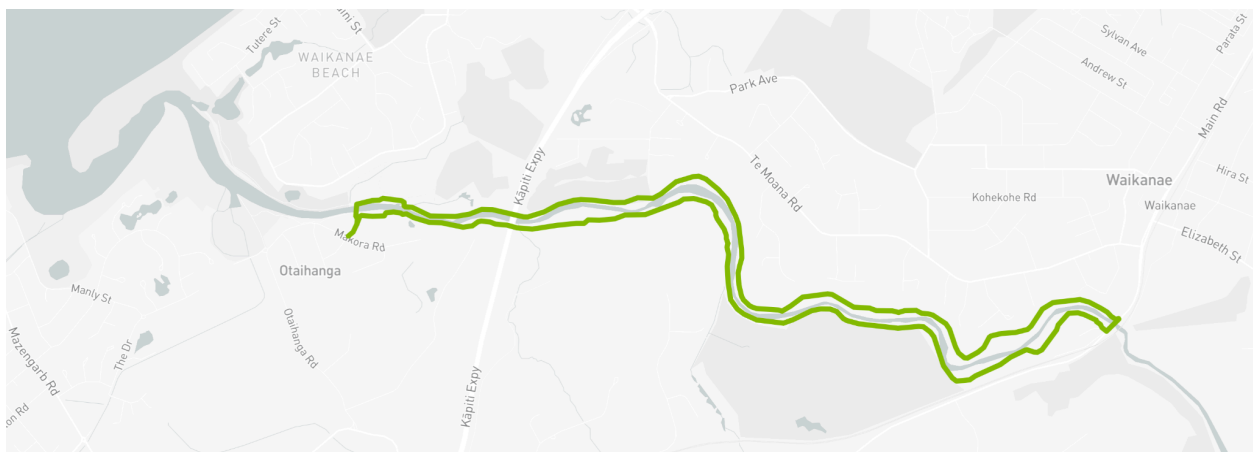

Figure 3. Map of the Waikanae River Trail (Waikanae River Trail, n.d.)

2.2 The Use and Impact of the Waikanae River Trail

The Waikanae River Trail attracts many visitors, hoping to access the natural beauty of the river corridor and the impact of their traffic has been noted. The path system winds along the river alongside established willows, native planting, and lagoons. This is a habitat for the many native bird and plant species (*Waikanae River Trail*, n.d.). Through this ecosystem, multiple trail access points link to streets on the north side of the river, while southern access is more limited. Consequently, visitors must return on the same route or commit to a full loop. They can travel the full length of the trail crossing at the Otaihanga Suspension Bridge, or through shorter loops using the Kāpiti Expressway or the Te Arawai Bridge. There are also marked fording points for horses to cross shallow areas of the river (Greater Wellington Regional Council, 2014). Likely impacts in these cases would include the creation of "social trails", bank erosion, litter, and other indicators of overuse.

Trail management and maintenance is primarily overseen by the Greater Wellington Regional Council in collaboration with the local government agency, the Kāpiti Coast District Council (KCDC). Together they oversee the social, economic, environmental, and cultural well-being of the river and its trails through democratic local decision-making (Kāpiti Coast District Council, n.d.). Additionally, volunteer groups like the Friends of the Waikanae River play a critical role, contributing to native planting projects and ecological maintenance of the riverbank (Bell, 2020). It can be challenging to monitor activity on recreation trail systems. Cooperation requires engagement with all users and the goals of the environmental management plan.

2.3 Exploring Perceptions of Trail Usage in the Hutt River

Our project will largely follow the initiative established last year in the Hutt Region, titled *Shared Spaces: Understanding Perceptions of the Te Awa Kairangi Hutt River Corridor*. This group of WPI students conducted public surveys with users of the Hutt River Corridor to better understand visitor perceptions. Similar to the Waikanae River Trails, the Hutt River Corridor is a multi-use trail system that faces challenges with user dynamics and experiences high traffic flow in some areas (Peddie et al, 2024). To better understand trail conditions, user perceptions, and future direction, the team conducted a site analysis, user surveys, and expert interviews. These efforts informed the future direction of management of the river corridor. Their site analysis involved walking, biking, and driving tours of the area, during which they

documented path width, traffic indicators, tire tracks, and litter. Through both photographic documentation and participant observation, they established a clear understanding of the area and identified key concerns (Peddie et al, 2024).

They primarily focused on face-to-face surveying, as it provided more informative responses and opinions from users. The team identified high-traffic times to conduct user experience surveys and gathered 276 responses over 11 days on the trail. The students adapted previous surveys conducted in 2016 to provide a status update and identify clear trends over the 7-year period (Peddie et al, 2024). Using the framework established in Clark and Stankley's *Recreational Opportunity Spectrum*, they derived thematic concepts from survey responses. The overarching themes included human-human, human-nature, and human-infrastructure interactions. With these frameworks, they were able to map and interpret patterns in the responses. They also identified limitations in their approach, as they restricted their survey participants to only those willing to stop (Peddie et al, 2024). Implementing additional survey techniques could address this limitation and allow a broader reach of users.

2.4 Enhancing the Visitor Experience Along the Sibiu Country Trails

Another WPI project team conducted a similar trail study in 2021 that looked to improve the trails in Sibiu, Romania. The main concern driving this project was the lack of awareness and popularity of the Sibiu trails. This research team worked with the Sibiu Country Tourism Association and the Mioritics Association to find ways to better promote the trails while also looking to improve the users' experiences. The group first surveyed trail users and interviewed trail guides, trail managers, and business owners to get their perspectives on maintaining the trails and perceived user experiences. Due to the bias of the surveys toward domestic trail users, they also evaluated online resources to document the perspectives of foreign users as well (Chen et al., 2021).

After analyzing the data from both the surveys and the interviews, the group turned to local businesses to see how they could assist in addressing the needs of the trail users. Their output was to develop an infographic that businesses could use to help better promote the trails and improve the experience of the trail users. In addition, the group developed a reporting system that allowed trail users to inform trail managers of issues. This came in the form of an online reporting form along with the use of European hiking apps to get reviews from the users. Finally, the group proposed a counting system to track the number of people who use the Sibiu trails each

day (Chen et al., 2021). While the team was able to develop many useful methods, they faced a huge limitation in being unable to travel to Romania due to the COVID-19 pandemic, which prevented the group from effectively implementing those methods. They also had limitations in the number of people that they were able to survey, which did not give a clear enough picture of the overall experience on the trails and what needed to be improved upon (Chen et al., 2021). By effectively utilizing both surveying and interviewing among the trail users in the Waikanae River, we anticipate a clear grasp of the perspectives that can improve the trail experience for future users.

Chapter 3: Methodology

This chapter reviews the goals and objectives of our project and details the methods to achieve them. The goal of this project is to evaluate user perceptions of the Waikanae River Trails to support the GWRC in managing and maintaining these shared spaces. We have identified the following three objectives to achieve this goal:

1. Identify trail user activities along the Waikanae River Trails
2. Evaluate user perceptions of the trail experience
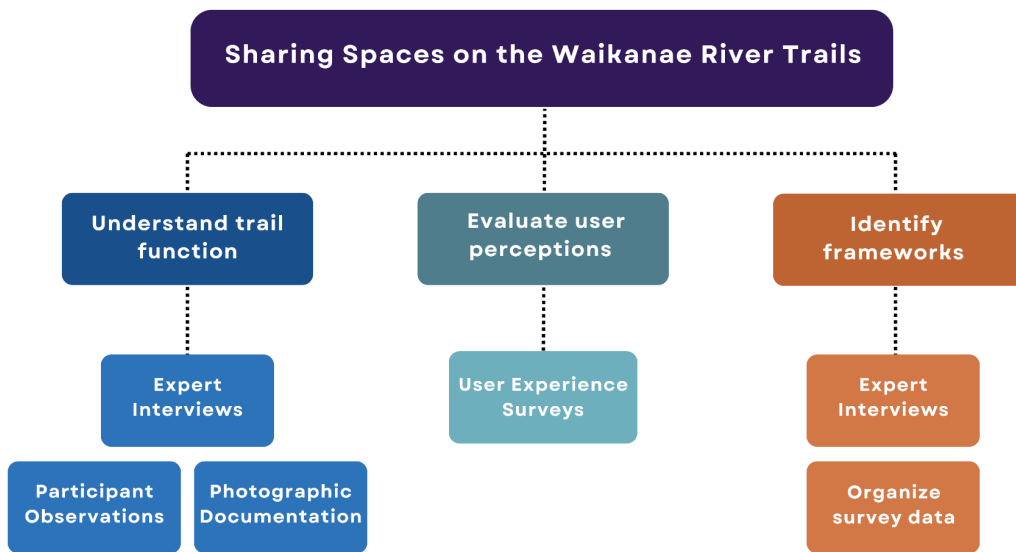3. Identify and utilize frameworks that address the management of shared spaces

Figure 4. A flowchart depicting each objective and the corresponding methods.

3.1: Objective 1: Identify trail user activities along the Waikanae River Trails

To assess the current state of the Waikanae River Trails and the community interactions, we will begin with a site visit. This preliminary assessment will focus on participant observations and photographic documentation of the area. Semi-structured interviews with trail management leaders and knowledgeable members of the GWRC will provide deeper insights into the state of the trails and current concerns in the area. This approach provides a flexible framework of questions while encouraging interviewees to speak freely and share personal insights (Ward, 2014). Snowball sampling will help us identify key informants, along with utilizing our GWRC partners to connect with individuals knowledgeable about various aspects of the trails.

3.2: Objective 2: Evaluate user perceptions of the trail experience

Our second objective is to understand user perceptions of the Waikanae River Trails. To reach a large audience, we will conduct on-site surveys with trail users. This will enable us to interact one-on-one with a variety of user groups to assess their use, opinions, and goals for the trail. A previous study that conducted user experience surveys along the Hutt River Corridor will serve as a model for these surveys (Peddie et al, 2024). Surveys will also be available via QR codes attached to trail signage to ensure that trail users can access these surveys outside of our on-site availability. Sample survey questions adapted from the last study are provided in Appendices A and B, with a consent form located in Appendix C.

3.3: Objective 3: Identify and utilize frameworks that address the management of shared spaces

To identify methods for exploring the management of shared spaces, we will meet with land management leaders at the GWRC and explore expert opinions in navigating the management of a multi use area. Using this insight our team will note trends in user perceptions based on the survey responses. We will map user opinions based on their demographics and activity types to determine overarching goals and concerns for the trail system (Berg & Lune, 2014). Once our team has processed and interpreted the data, we will formulate a detailed report with our recommendations for the future management and expansion of the trails.

Chapter 4: Conclusion

The Waikanae River Trails play a vital role in the ecological, cultural, and recreational engagement of the community. Understanding the different perceptions of the trail users and those who maintain them is essential to enhancing the overall experience and maintaining the shared space. This project aims to determine the user experience and perceptions of the trails, focusing on understanding the diverse priorities of the community. By identifying key activities and evaluating the trail environment, we aim to develop actionable strategies that will enhance user satisfaction on the trails.

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Appendix A - Waikanae River Trail User Survey

Question 1. Have you been surveyed about the Waikanae River trails recently?

☐ Yes   ☐ No

Question 2. What is your age?

_____

Question 3. What is your gender?

_____

Question 4. Where are you from?

_____

Question 5. What activities do you usually use the Waikanae River Trail for?

☐ Cycling   ☐ Dog Walking

☐ Walking/Leisure   ☐ Running/Jogging

☐House Riding   ☐ Other: _____

Question 6. How many times a week do you use the Waikanae River Trail?

☐ 1-2   ☐ 3-4

☐ 5-6   ☐ 7+

Question 7. For how many years have you used the Waikanae River Trail?

☐ 1-3   ☐ 3-6

☐ 6-9   ☐ 9-12

☐ 12-15   ☐ 15+

Question 8. Has the Waikanae River Trail changed since your first visit, if so, how?

_____

_____

Question 9. Describe the best aspects of the Waikanae River Trail.

_____

_____

Question 10. Describe any aspects of the Waikanae River Trail that you think can be improved.

_____

_____

Question 11. Describe any positive, negative, or neutral experiences you've had with other users of the Waikanae River Trail.

User Group	Experience	Circle one based on answer
		+ Neut –
		+ Neut –
		+ Neut –

Question 12. What improvements, if any, could be made to the Waikanae River Trail?

_____

_____

_____

Question 13. Do you have any additional comments about the Waikanae River Trail, the facilities provided, its use and/or management?

_____

Thank you for filling out this survey.

Appendix B - Waikanae River Trail Interview Questions

Question 1. Have you been surveyed about the Waikanae River trails recently?

☐ Yes   ☐ No

Question 2. What is your age?

_____

Question 3. What is your gender?

_____

Question 4. Where are you from?

_____

Question 5a. What activities do you usually use the Waikanae River Trail for?

☐ Cycling   ☐ Dog Walking

☐ Walking/Leisure   ☐ Running/Jogging

☐ House Riding   ☐ Other: _____

Question 5b. What are you using the trail for today?

☐ Cycling   ☐ Dog Walking

☐ Walking/Leisure   ☐ Running/Jogging

☐ House Riding   ☐ Other: _____

Question 6. How many times a week do you use the Waikanae River Trail?

☐ 1-2   ☐ 3-4

☐ 5-6   ☐ 7+

Question 7a. For how many years have you used the Waikanae River Trail?

☐ 1-2   ☐ 3-4

☐ 5-6   ☐ 7+

Question 7b. How many years have you used the Waikanae River Trail for your specific activity today?

☐ 1-2   ☐ 3-4

☐ 5-6   ☐ 7+

Question 8. Has the Waikanae River Trail changed since your first visit, if so, how?

_____

_____

Question 9a. Describe the best aspects of the Waikanae River Trail.

_____

_____

Question 9b. Describe the best aspects of the Waikanae River Trail for your specific activity today.

_____

_____

Question 10a. Describe any aspects of the Waikanae River Trail that you think can be improved.

_____

_____

Question 10b. Describe any aspects of the Waikanae River Trail that you think can be improved for your specific activity today.

_____

_____

Question 12. Describe any positive, negative, or neutral experiences you've had with other users of the Waikanae River Trail.

User Group	Experience	Circle one based on answer
		+ Neut –
		+ Neut –
		+ Neut –

Question 12. What improvements, if any, could be made to the Waikanae River Trail?

_____

_____

_____

Question 13. Do you have any additional comments about the Waikanae River Trail, the facilities provided, its use and/or management?

_____

_____

Thank you for your time (give contact if they have further questions)

Appendix C - Informed Consent Agreement for Participation in a Research Study "Sharing Spaces on the Waikanae River Trails"

Investigators and contact information:

Bethany Brown, Lorenzo Cassano, Chauncey Michael, Zach Zoladz, reachable at gr-Waikanae@wpi.edu

Purpose:

The purpose of this study is to understand user perceptions of the Waikanae River Trails

Procedures to be followed:

This survey will ask you to reflect on your experience on the Waikanae River Trials. We may ask for additional information including opinions and demographics.

Record keeping and confidentiality:

By clicking "next", you are consenting to helping us learn about this experience and the impact of this shared space. You should feel free to answer to any level to which you wish to disclose. Your responses will come to us as anonymous entries. We may have a sense about who completed it, but cannot tie the data back to particular participants. We will also be sharing this information with our advisors for evaluation purposes anonymously. This survey is not mandatory and your consent is given freely of your own choice. Any publication or presentation of the data will not identify you, unless you agree to be identified.

For more information about this research, contact the investigators (email addresses are at the top of this document. You can see the final project by emailing a request to our contact information or by using keywords in the search at https://digitalcommons.wpi.edu/iqp/

Your participation in this research is voluntary.

The project investigators retain the right to cancel or postpone the experimental procedures at any time they see fit. By clicking "next" below, you acknowledge that you have been informed about the study and wish to consent to participate. You will be asked again after completing the survey for your consent as a matter of respect for your right to change your mind.