

Exploring stakeholder perspectives of the Bow River Weir Project



ENSC 505

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VISION

**A river park in the heart of Calgary,
to celebrate the Bow River and its
natural abundance.**

MISSION

**To complement and connect
Calgary's communities, parks and
public facilities on the Bow River
through a redevelopment of
the existing weir:**

- To connect a constellation of invaluable public spaces and amenities in the heart of the city
- To re-naturalize the river and shoreline environments in the weir area
- To eliminate the current extreme drowning hazard
- To maintain all existing infrastructure functions and services
- To enable continuous river passage for fish, wildlife and people.

FOUNDING PARTNERS _____



OBJECTIVES

Safety & function

- Ensure that the river and constructed rapids are safe for non-motorized passage and emergency services
- Maintain all irrigation infrastructure functions
- Ensure that changes in groundwater, flooding or ice levels resulting from the project do not adversely impact the environment, local infrastructure or other public facilities or services
- Ensure the site is safe and ecologically sustainable.

Sustainability & environmental protection

- Re-establish and enhance the ecological character and functions of the river and shoreline environments in the vicinity of the weir
- Restore fish passage and protect wildlife corridors and habitat
- Maximize environmental benefits during design, construction and operation
- Ensure a high standard of environmental protection and mitigation during planning, construction and operation.

A good neighbour

- Be compatible and complimentary to current and future activities in the area
- Work closely with all neighbours and stakeholders in a transparent, accountable and constructive manner, throughout planning and construction phases
- Resolve and manage access and parking issues in conjunction with The City of Calgary, project stakeholders and area neighbours.

River & regional connectivity

- Create opportunities for continuous river passage of fish, wildlife and people through the centre of Calgary
- Integrate with current and future parks, cycling and pedestrian systems
- Incorporate appropriate land parcels into park space at the Harvie Passage site
- Complement and connect adjacent facilities, including the Calgary Zoo, Pearce Estate Park Interpretive Wetland, Bow Habitat Station at the Sam Livingston Fish Hatchery, Fort Calgary, Inglewood community, and the proposed new Science Centre.

Recreation & education

- Create a unique public open space with low maintenance requirements
- Facilitate passive environmental and educational opportunities for all
- Provide safe and appealing opportunities for river recreation, such as canoeing, kayaking, rafting and fishing
- Ensure the river park is suitable for all skill levels

(Harviepassage.ca, 2009)

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LIST OF ABBREVIATIONS

AWA- Alberta Whitewater Association

BWCC- Bow Waters Canoe Club

CIRSA- Colorado Intergovernmental Risk Sharing Agency

CPR- Canadian Pacific Railway

DUC- Ducks Unlimited Canada

HPP- Harvie Passage Project

ICA- Inglewood Community Association

PFC- Parks Foundation Calgary

PFD- Personal Floatation Device

TUC- Trout Unlimited Canada

1. INTRODUCTION

1.1 Overview of the Calgary Bow River Weir Project

Since 1905, there has been a weir structure situated in the Bow River in the heart of the city of Calgary. The Western Headworks Weir was constructed by the Prairie Farm Rehabilitation Administration in 1975 to replace the original (1905) weir structure. The “Calgary Bow River Weir” is located within the Bow River between Deerfoot Trail, to the North, and Pearce Estate Park, to the South. The Bow River Weir is owned and operated by Alberta Environment.

The main function of the Calgary Weir is to create a pool of water within the Bow River which allows diversion for use by farmers in the Western Irrigation District. The entire structure consists of a 150m fixed crest ogee weir, a three gate sluiceway, a vertical baffle wall fishway (fish ladder), and a screened headworks which serves as the entrance to the Western Headworks canal.

Currently, the Calgary Weir is the only structure in the 100km stretch between Bearspaw and Carseland dams which remains impassable to motorized and non-motorized boats. It also remains an important barrier to fish passage within the Bow River. The weir presents a significant drowning hazard for those who venture over it. Under moderate to high flow conditions, it creates an extremely dangerous “hydraulic roller” which has been referred to as the “drowning machine” by officials from the Calgary Fire Department. Despite warning signs and floating buoy warning system, there have been 10 weir-related deaths since the construction of the current weir in 1975; notably 8 deaths between 1975 and 1982, 2 in 2007, and numerous other “close-calls” requiring rescue.

The Calgary Bow River Weir Project, now known as the “Harvie Passage Project”, was initiated by Bow Waters Canoe Club in 2001 when they commissioned a report titled “Feasibility Study for Modifications to the Western Headworks Weir on the Bow River in Calgary.” This report outlined the possibility for various modifications to the weir area and the expected benefits of these modifications. The benefits noted included the following: removal of the existing safety hazard, improvement of the effectiveness of river patrol and rescue boats by allowing upstream passage, recreational opportunities such as paddling and fishing, restoration of effective fish passage,

connection of adjacent amenities and parks, naturalization of the riverine environment, and retention of the weir's original function. The preferred option for modification specified in this report was the construction of a full width (river-wide) rapid. This initial study by Bow Waters Canoe Club resulted in eight further years of study and consultation, ultimately leading to the approval of the project by the City of Calgary and regulatory agencies including Alberta Environment, Alberta Infrastructure and Transportation, and the Federal Department of Fisheries and Oceans. The Harvie Passage Project is currently under construction and a completion date of spring 2011 has been projected.

The Harvie Passage project is sponsored by Parks Foundation Calgary in association with Alberta Infrastructure and Transportation. The project is under the direction of these groups, the City of Calgary, and Alberta Environment. Since its inception, many stakeholders have become engaged in the Harvie Passage Project to ensure that their organizations are represented in developing the project's scope and direction. The main stakeholders include Trout Unlimited Canada, Bow Waters Canoe Club, City of Calgary Parks, Sam Livingston Fish Hatchery/Bow Habitat Station, Ducks Unlimited Canada, Alberta Whitewater Association, Inglewood Community Association, and the Calgary Fire Department, to begin a long list.

1.2 Research Description

The Harvie Passage Project (HPP) has served as an interesting case study for the stakeholder consultation process in a highly scientific, political, multi-faceted, and high-profile urban development. The HPP has the potential to affect a wide array of people in the City of Calgary; most notably recreationalists, community members, and environmentalists. The vision of the HPP is to create: "A river park in the heart of Calgary, to celebrate the Bow River and its natural abundance." Its mission is to "complement and connect Calgary's communities, parks and public facilities on the Bow River through redevelopment of the existing weir." The project intends to "connect a constellation of the invaluable public spaces and amenities in the heart of the city, re-naturalize the river and shoreline environments in the weir area, eliminate the current

extreme drowning hazard, maintain all infrastructure functions and services, and to enable continuous river passage for fish, wildlife, and people” (harviepassage.ca, 2009).

The HPP has invited the active involvement of many stakeholder groups with vested interest in any, or all, of the ambitious goals set by the project. In this situation, an opportunity was created to study the stakeholder engagement process for an environmentally and socially complex undertaking. To gain an appreciation for the process involved in stakeholder engagement, I conducted interviews with representatives of six of the key stakeholders engaged in the HPP. These interviews were used to gain insight on each stakeholder’s position and opinions about the HPP throughout its development. Questions used were intentionally open-ended and participants were asked to briefly summarize the significant details of their engagement in the process. I attempted to find out what input each stakeholder had in the consultation process and what the outcomes of their involvement in the project were. From this, I gained important information on the process by which stakeholder consultation unfolds.

This report will provide the relevant and necessary information to put the research into context. It will include a site overview and review of background information from technical studies that were completed. I will then discuss the design of this research, and present a summary of the descriptive findings. Lastly, I will discuss and analyze the results and present conclusions based on existing trends.

2.0 BACKGROUND

2.1 Site Description

The Bow River Weir is located between Deerfoot Trail and Blackfoot Trail in Southeast Calgary. The weir structure spans the entire width of the Bow River. The North end of the weir houses the headworks structure which draws the pooled water into the irrigation canal that runs on the northeast of Deerfoot Trail in this reach. The sluiceway structure is also located on the north, or river left (if you are traveling downstream), side of the weir. Its function is to control the level of water pooling above the weir and control the flow into the irrigation canal by opening or closing one of its three-gated water channels. The weir is North of Pearce Estate Park, and a short distance Northeast of the Bow Habitat Station/Sam Livingston Fish Hatchery (Figure 1).

Upstream of the weir, Nose Creek enters from the North. East of Nose Creek is the Calgary Zoo. Just east of Nose Creek, the Canadian Pacific Railway (CPR) line crosses the Bow River (not labeled in figure). A safety buoy floating on the surface of the river is seen just East of the CPR line. On either side of the headworks structures, there are two parks; Headworks Park North and Headworks Park South (Figure 1).

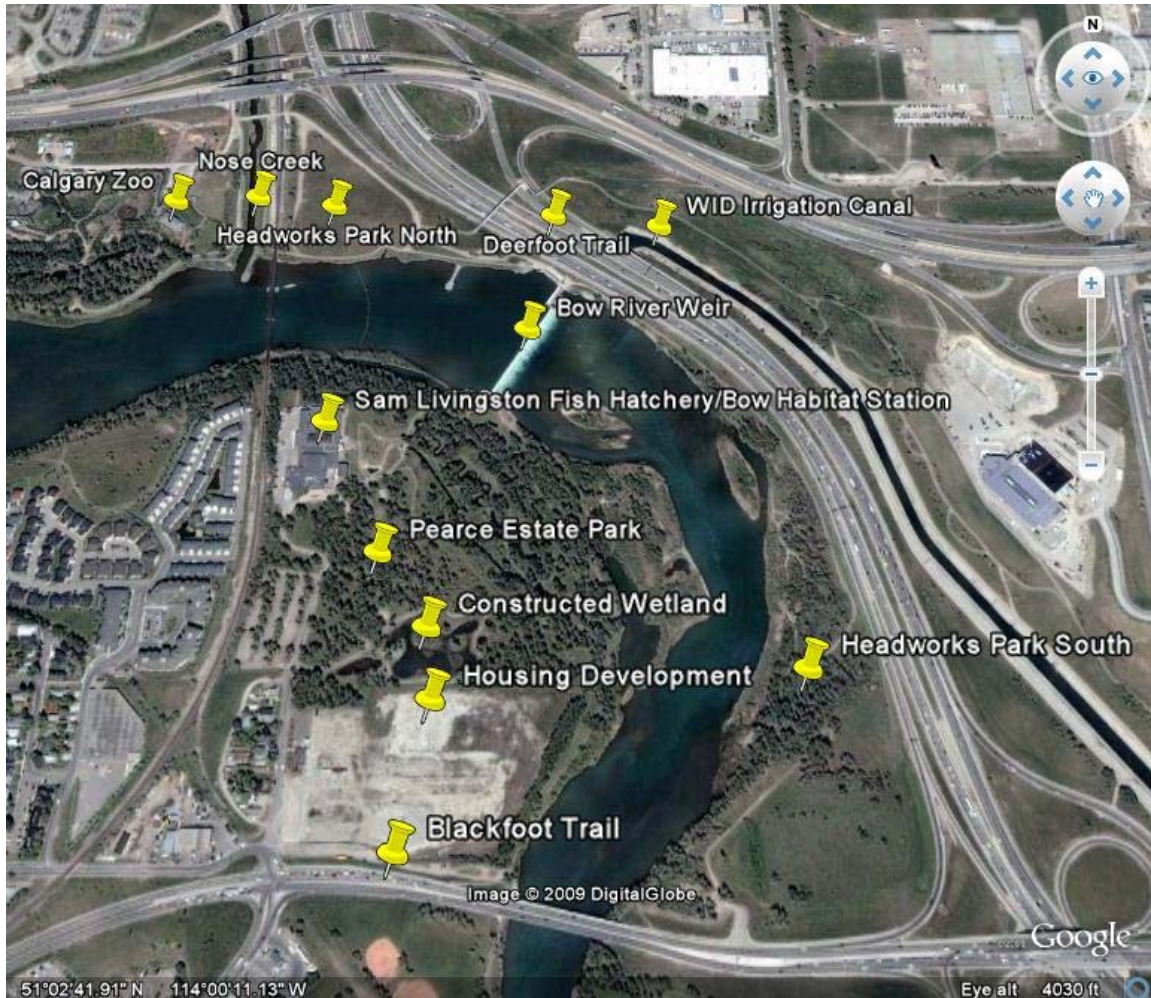


Figure 1: Bow River Weir location map (Google Earth, 2009)

2.2 Technical Studies Background

2.2.1 Feasibility Study (John Anderson Architect and McLaughlin Water Engineers, 2001).

The Bow River Weir Project was initiated by Bow Waters Canoe Club in 2001. Bow Waters Canoe Club commissioned a report titled the “Feasibility Report for Modifications to the Western Headworks Weir on the Bow River in Calgary – Pre-

Design Report.” Before this report was produced, the consultant held a public meeting to review the alternative design concepts for the project. This idea was overwhelmingly supported by a broad group of interested stakeholders. Initially, four options for alteration to the weir were suggested: a bypass on river left, a bypass on river right, an off-river channel at Pearce Estate Park, and a full width rapid. It was determined that the bypass channel on river left would interfere with the function of the weir and not provide the expected degree of public safety. An off river channel was determined to be incompatible with the development plan of Pearce Estate Park. Based on desire for the complete elimination of the danger presented by the weir, the full-width rapid option was preferred (Figure 2). This option would allow the removal of the safety hazard, as well as provide suitability for paddling, fish passage, enhancement of adjacent lands and programs administered by adjacent facilities, and seamless river passage.

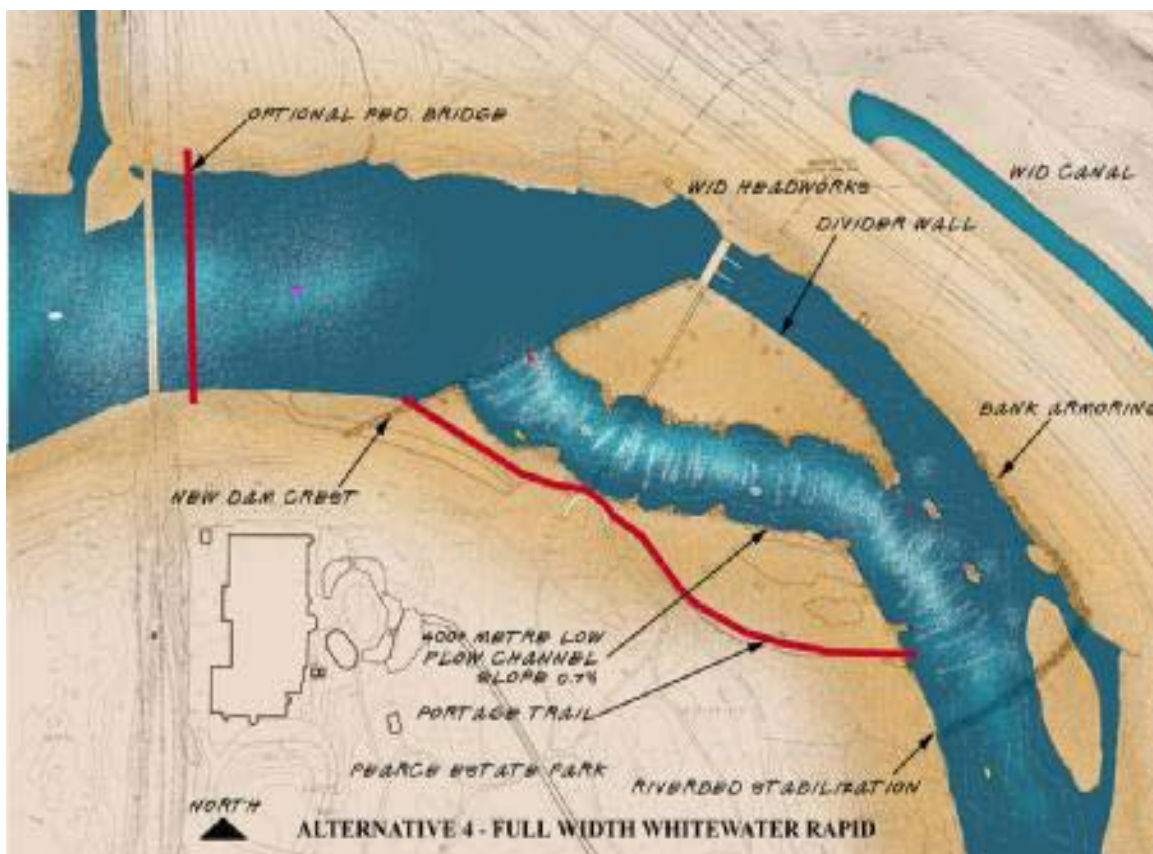


Figure 2: Sketch of preferred design alternative four: full width rapid (John Anderson Architect and McLaughlin Water Engineers, 2001)

2.2.2 Pre-Design Alternatives (Golder, 2003)

In 2003, a second report was completed by Golder Associates that examined design alternatives for modification of the weir. This report provided similar conclusions to the initial feasibility report. It was reiterated that the full width rapid was the best option to satisfy the objectives of the project. The justification for this choice was similar to the feasibility study: eliminate the drowning machine, provide an aesthetically pleasing alternative, create features for paddlers, and minimize adverse impacts to Pearce Estate Park. Different to the feasibility study, this report suggested that the river be divided into two channels (Figure 3). One channel, a low water channel, would provide a less-difficult bypass for all watercraft types at low and normal water levels. This channel would be at river right (the right side when moving downstream). A second high water channel would provide a more challenging passage for experienced boaters with “play-features” (places for paddlers to perform tricks in a wave). The study predicted a capital cost of 6.5 million dollars for the project. It also responded to concerns brought forth by a technical review group and public advisory committee. In response to these concerns, the following areas requiring further investigation were identified: effects of incremental flood levels on adjacent properties, effects of increased river levels on Sam Livingston Fish Hatchery’s water supply wells and on Pearce Estate Park’s wetland cold water intake stream, effects of increased usage on adjacent properties, lack of parking, environmental impacts and mitigation, and annual maintenance and other costs.

2.2.3 Bow River User Survey (Hargroup Management Consultants, 2004)

The concerns raised in the Golder 2003 study served as the basis for much of the technical work that was completed from 2004-2007. The next technical study was a “Summary of Bow River User Survey” and was presented in 2004. This study was to determine the number of users on the Bow River, type of watercraft being utilized, frequency of usage, and future usage of the weir area after redevelopment. The key results of this study are as follows: 16.4% of Calgarians have floated down the Bow at least once. 48.9% of river users paddle small personal crafts and 29.8% paddle a large raft accommodating six or more. 79.1% of Calgarians use the river 1-3 times, 11.6% 4-6

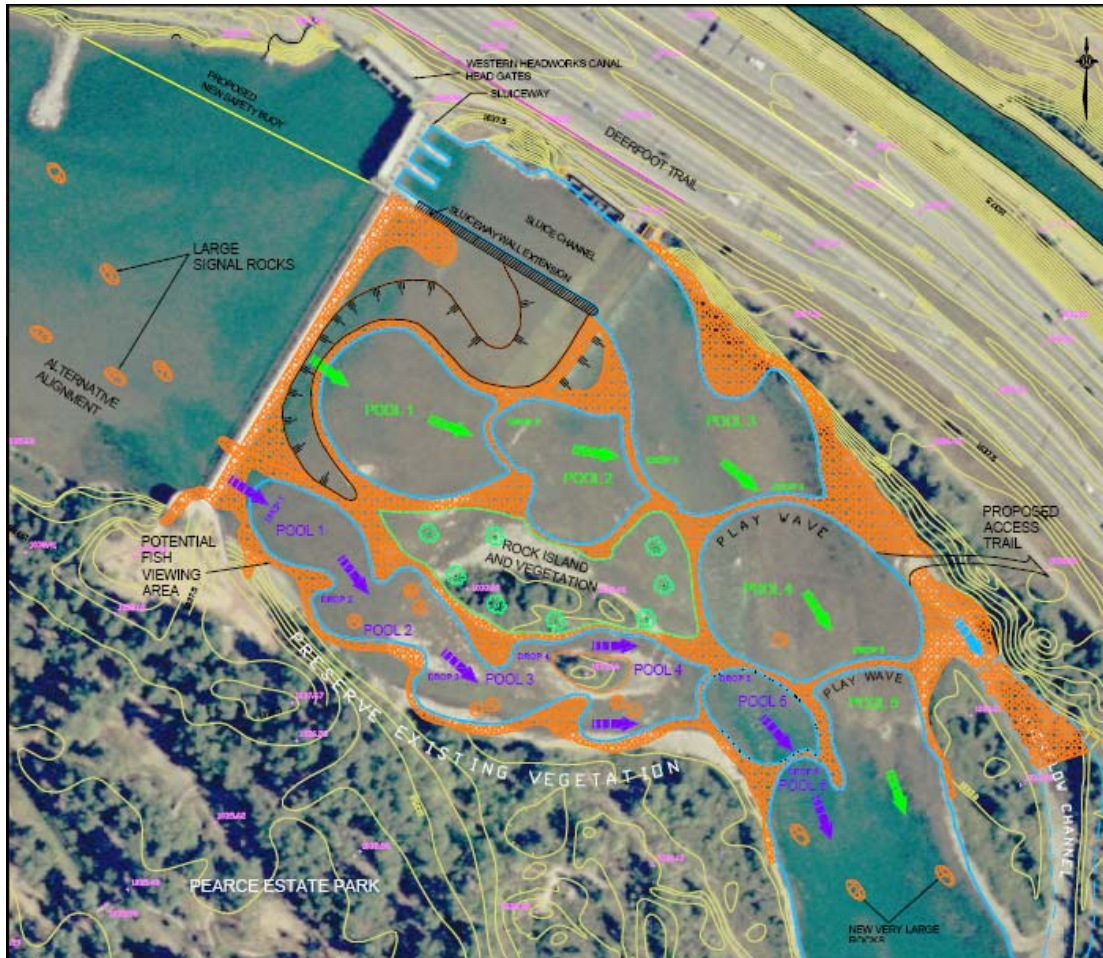


Figure 3: Harvie Passage preliminary design (Golder, 2003)

times, 3.1% 7-10 times, and 6.2% 10+ times per year. 43% of Calgarians have a group size of 1-3, 46.9% are in groups of 4-6, 5.5% in groups of 7-10, and 4.7% in groups of 10+ when using the river. 12.5% said they would definitely use the Harvie Passage, 14.8% said they probably would, 22.4% said maybe they would, and 50.3% were not interested in using Harvie Passage.

Results of this study allow proponents of the project to make a rough estimation of potential future usage of Harvie Passage. It also provides insight into the types of users and watercraft that would be making use of the site.

2.2.4 Incremental Flood Levels (Golder, 2005a)

In 2005, a study was completed by Golder Associates titled “Incremental Flood Levels, Calgary Weir Improvement Project.” This study examined the impacts of weir modification for flood events up to and including a 1:100 year flood. It considered the magnitude of adverse effects, and proposed mitigative measures for adjacent and upstream properties. Major findings suggested that differences in flood levels due to the weir redevelopment would be modest and diminish to negligible a short distance upstream. Options for mitigative measures included the following: new flood protection berms at the Calgary Zoo, Pearce Estate Park, and upstream adjacent to the residential area, raising existing berms, dredging the upstream river bottom between the Canadian Pacific Rail bridge and St. Georges Island bridge, flood proofing the fish hatchery building, and operating the Western Headworks sluiceway. Acceptability ratings were all low to very low for all mitigative measures except for new berms at Pearce Estate Park, rated medium, and operating Western Headworks sluiceway, rated high. Operating the sluiceway requires only a small increase in flood monitoring and removes incremental flood increasing while benefiting all adjacent areas and keeping cost low.

2.2.5 Preliminary Groundwater Study (Golder, 2005b)

A “Report on preliminary Groundwater Study, Calgary Weir Improvement Project” was also completed by Golder Associates in 2005. This study addressed the need to investigate the effects of raising the water level in the Bow River on various adjacent facilities. The facilities include the Sam Livingston Fish Hatchery (which sources its water from eleven groundwater wells), the cold water stream which feeds the wetlands, the floating bog and fen, the Ducks Unlimited Canada interpretive marsh, and the City of Calgary washrooms. This study indicated that potential impacts on all of these facilities would be minimal. Modifications to the weir would increase the level of groundwater beneath Pearce Estate Park, but the effects would gradually diminish with increasing distance from the river. The Sam Livingston Fish Hatchery wells may experience more frequent plugging; between every year to every five years. These impacts could be mitigated by well rehabilitation, increased filtering capacity, and new well drilling.

2.2.6 Access and Parking Study (City of Calgary, 2005)

As indicated by the pre-design study, parking was a key concern of the HPP that needed to be addressed (Golder 2003). The City of Calgary undertook a “Bow River Weir Access and Parking Study” in 2005. This study identified four possible sites for parking based need for required space, river ingress and egress points, user conflicts, and other various acceptability criteria (Figure 4). The study also completed a user survey to determine desired location and requirements for river users. Location “A” had potential conflicts with current landowners, river users, pathway users, and emergency services (which currently use the site as a boat launch). As well, the access road does not meet current intersection spacing requirements and would require upgrades. This parking area would provide eight stalls and provide river access at location “1”. Location “B” does not meet proper intersection spacing from the Deerfoot Trail exit ramp and has no area for boat launch. Drivers would have to enter from the east, and exit to the west resulting in a circular travel pattern. The potential for river and pathway user conflicts exists at this site because boaters would be utilizing the pathways for portaging watercraft. Potential for river ingress is at location “2.” Location “C” is the parking lot for Pearce Estate Park and the Sam Livingston Fish Hatchery. There are 250 spaces in this lot but it was deemed inappropriate to have paddlers accessing the river through Pearce Estate Park. Locations “3A” and “3B” would be potential points of ingress from this lot. Location “D” has no current parking lot or boat launch but has the possibility for construction. There is currently a dirt road which connects this area to the Calgary Zoo. This site also creates potential user conflicts between river and pathway users. The river ingress point would be location “4.”

Major results from the City of Calgary’s user survey are as follows: “River users are on the river for extended periods of time. On average, 90% of users are on the river for more than 2 hours. 80% of users are in groups of 3 or more. Vehicle occupancy averages 2.4 persons (excluding buses). Usage is heaviest on weekends and holidays. Usage is evenly spread out through the daylight hours. Cycling through the area is an important use. The study area is currently used for every category on the survey except for tubing. 35% of users cited a concern for personal safety or safety of unattended vehicles. 75% of concerned users would visit more often if safety concerns were

addressed. The currently available launch points in the area do not match the desired launch points. Finally, usage of this area will increase upon completion of the improvements to the weir” (City of Calgary, 2005).



Figure 4: Possible sites for parking and river access (Google Earth, 2009)

The parking study ultimately determined that location “D” is the most desirable parking site due to minimal conflict with other users, no impact on neighborhoods or the Calgary Zoo, desirable location for river users, good access to roads, and sufficient land with availability for expansion. This site would require a river crossing to prevent any illegal crossing of the CPR bridge. Locations “A”, “B”, and “C”, were eliminated for a variety of factors. Inadequate size, user conflicts, unsuitable road access, unsuitable river access, and land owner issue were identified as the main limitations. These sites

compromised the usage of Pearce Estate Park, Sam Livingston Fish Hatchery and the operation of Sam Livingston Fish Hatchery. Building a parking lot of appropriate size and location would ensure that nearby residents of Inglewood are not making significant compromises for the sake of this amenity.

2.2.7 Safety Review (Walbridge, 2006)

To address the safety issues associated with the redeveloped weir site, a report titled “A Safety Review of Current Conditions and Proposed Modifications to the Western Headworks Weir in Calgary, Alberta, Canada” was presented to the project management. This report provided a detailed overview of safety issues associated with low-head dams (the weir), whitewater parks in general, as well as safety issues that are specifically associated with the Bow River weir project. In brief, low-head dams (like the weir) were responsible for 36 out of 330 whitewater fatalities in the United States from 1999-2006. In Calgary, there has been a significant effort to inform the public of the dangers of the weir through appropriate signage, education, and media-based programs (Figure 5). A multi-tiered warning system is in place that warns boaters of the danger at two upstream bridges (Figure 6), followed by a suspended buoy line and a floating buoy line (Figures 7 and 8). The suspended buoy leads boaters into a safe bypass channel which connects to the portage route. The report proceeds to explain how risks can be greatly reduced in whitewater parks by various design and education components. It is recommended that the park contains large, rounded rocks, no sharp curves, large eddies (areas of calm water between features), fill between rocks to prevent foot entrapment, structures to discourage paddlers from going near the sluiceway, and encourage personal flotation device (PFD) use. The report also outlines how the drops in the low water channel and high water channel should be designed. The low water channel should contain very little safety hazards and free flowing waves. The high water channel, designed for more skilled paddlers, should contain wave features that are retentive enough to allow for paddlers to “play” but should “flush-out” any individual who may swim through. One important issue raised in this report is the current safety conditions of eight other whitewater parks in the United States. Walbridge reports three deaths at these eight sites; some of which have been operating since the mid-eighties. Many of these



Figure 5: Sign posted at the North end of the weir (Walbridge, 2006)



Figure 6: Bridge warning signage upstream of buoys (Walbridge, 2006)



Figure 7: Suspended buoy upstream of weir (Walbridge, 2006)

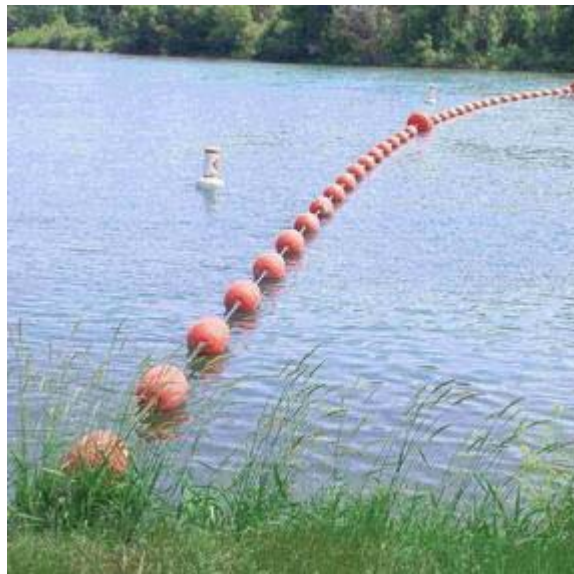


Figure 8: Floating buoy upstream of weir (Walbridge, 2006)

sites have numerous “close-calls” requiring rescue annually. These incidents are generally related to inappropriate watercraft, lack of PFD use, lack of experience, and inappropriate usage by children and teenagers. Finally, Walbridge recommends a combination of regulation, enforcement, and education plan to address safety at Calgary’s proposed whitewater park. This safety plan involves: PFD requirements, drug and alcohol education programs, warning of extreme conditions, safety information about river swimming technique, a public education/relations component, scouting options (seeing the rapids before navigating), and regular inspection for problems or unusual conditions at the park.

2.2.8 Reducing Risks (CIRSA, 2002)

Another report recommended by Walbridge to the managers of the HPP was “Reducing Risks Involved with Whitewater Parks: A Loss Control Guide for Public Entities” by the Colorado Intergovernmental Risk Sharing Agency (CIRSA). This report outlines risk management considerations when designing a whitewater park. It also reviews potential liability issues and how to best avoid them. Similar to Walbridge (2006), the CIRSA report describes various methodologies for operation and maintenance of a whitewater park. The report details how to appropriately manage employees, inspections and maintenance, signage, emergency planning, special events, waivers and release of liability, and incident investigation. These issues are all of great relevance to the City of Calgary, as well as Alberta Environment, who will eventually manage and assume ownership of the structure.

River difficulty classifications are also discussed in this report (Appendix I). Based on wave descriptions in both Golder (2003) and Walbridge (2006), features in the low water channel will be rated “class I.” These features have “fast moving water with riffles and small waves, few obstructions, all obvious and easily missed with little training, minimal risk to swimmers; self-rescue is easy” (American Whitewater, 2005). Features in the high water channel will be rated “class II to II+.” These features will have “straightforward rapids with wide, clear channels which are evident without scouting, occasional maneuvering required; rocks and medium sized waves are easily missed by trained paddlers. Swimmers are seldom injured and group assistance, while helpful, is seldom needed” (American Whitewater, 2005). Features in the high water channel will likely be similar to those seen in the Kananaskis River West of Calgary. These features are man-made waves which have been carefully designed to incorporate safety.

2.2.9 Fisheries Study (Golder, 2006)

Fisheries research for the HPP was completed in 2006 in the “Fish and Fish Habitat Assessment for the Calgary Weir Improvement Project” by Golder Associates. The purpose of this study was to address concerns about the effects of construction and operation of HPP on fish habitat and populations. The assessment focused key management species identified by regulatory agencies: mountain whitefish, rainbow

trout, and brown trout. The HPP has listed the improvement upstream passage for fish as one of its main objectives. Features of the HPP to facilitate this are the following: reduced water velocities, weir crest notches, fish passage channels cut into grouted structure, and extension of the fishway/sluiceway wall. The field surveys completed indicated the following:

- The Bow River currently provides high quality habitat for mountain whitefish, rainbow trout, and brown trout.
- Fish habitat in the Bow is dominated by riffle and run habitats; deep, slow pools are rare
- The most abundant species in the region is mountain whitefish
- Rainbow trout populations are stable, brown trout populations are rising
- This section of the river is used by all three species for spawning, nursing, rearing, and feeding.
- Rainbow trout spawning typically occurs in Bow River tributaries
- Currently there is separation of rainbow trout populations above and below the weir. There is significant interference of migration and upstream passage at the weir
- It would benefit all three species to improve upstream passage.

Key conclusions drawn from this report suggest that impacts from construction would be negative but of low magnitude. Improved passage would offset these negative residuals and overall, fish populations would benefit.

2.2.10 Physical Model Study (Northwest Hydraulic Consultants, 2007)

In 2007, a report titled “Calgary Bow River Weir Project Physical Models Study” was completed by Northwest Hydraulic Consultants to evaluate hydraulic conditions in the vicinity of the weir and to make suggestions about improvements to build on the previous design of Harvie Passage. This study was completed based on a physical scale model that was constructed to emulate conditions at the redeveloped weir (Figure 9). Changes to the design indicated were the following: “(i) reducing the size of the low water channel entrance, (ii) creating notches in the weir crest, (iii) filling in the ogee weir

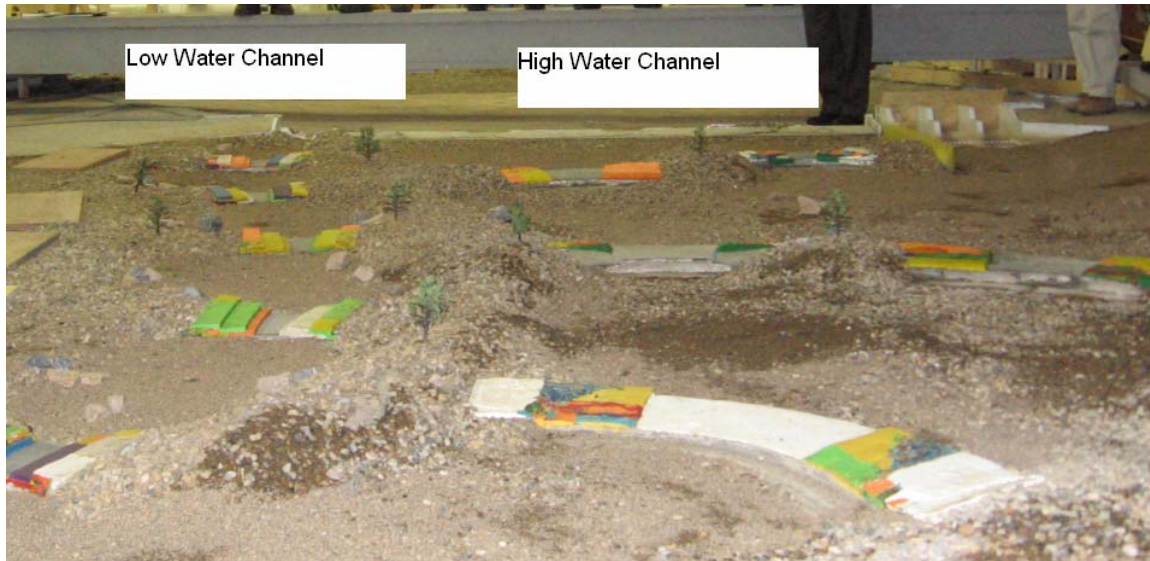


Figure 9: Upstream view of scale model. Drop structures are centered between colored plastercine (Parks Foundation Calgary, 2009).

apron, (iv) modifying the length of the sluiceway wall, (v) optimizing the shape of the divide island, (vi) modifying the low water channel and high water channel layout, (vii) refining drop structures, (viii) giving alternatives to migrating fish, (ix) reducing recirculation in resting pools, (x) and constructing a berm on the river right bank” (Northwest Hydraulic Consultants, 2007). These modifications were made in an attempt to refine the design specified in the pre-design report. The suggestions were made for many reasons including improved safety (i-vii, ix, and x), environmental conditions (viii), and flood mitigation (x).

2.2.11 Terrestrial Biophysical Impact Assessment and Site Planning (Highwood, 2007)

A terrestrial biophysical impact assessment was completed in 2007 by Highwood Consultants. This report analyzed impacts on the terrestrial and biophysical environment during construction and operation of Harvie Passage. This study also provided recommendations for future work/study needed at the site. The major construction impacts were of moderate magnitude to vegetation, wildlife, and human use. These impacts will be mainly isolated to previously disturbed areas but the project footprint will also adversely affect some areas of high sensitivity. Weed-free soil and

native vegetation will be used for reclamation of disturbed areas and disturbed riparian habitat will be compensated at a ratio of 3(reclaimed):1(disturbed) in Headworks Park North and the Nose Creek corridor. With proper reclamation, the impact on vegetation and wildlife habitat is expected to have a net positive outcome.

Operation impacts will include an estimated 900-1500 people using the low water channel, and 370 playboaters (kayakers who ‘stay and play’) in the high water channel, during a maximum use (hot summer) day. Twenty-five percent of river users are expected to use on-land facilities (toilets, picnic areas, parking), plus an addition 1000 on-land users potentially utilizing site facilities. Conflicts between different user groups are unknown but a human use monitoring program could identify and address these issues. Biophysical impacts include vegetation trampling, habitat loss and sensory disturbance of wildlife, and soil compaction. The addition of HPP to the area is expected to have a relatively small impact when compared to other factors such as: increasing pathway users, Calgary Zoo expansion, the new science center, a new 400 unit housing development, and increasing Pearce Estate Park / Sam Livingston Fish Hatchery visitors. All users are expected to benefit from improved safety, recreational opportunities, and re-naturalization of the river and shoreline.

A number of recommendations were made by this report on proper mitigation of the area. Some of the key environmental measures included mitigation with native species, habitat compensation, and removal of invasive species. With respect to human use, the following key recommendations were made: parking and formal entry at river left and river right, interpretive signs, reclamation of adjacent parks, human use and access plans, and linking adjacent facilities. A final recommendation suggested that the City of Calgary must develop a master plan for this site to provide directive for further initiatives.

2.2.12 Final Design (Klohn Crippen Berger, 2008)

The final report completed for the HPP was titled “Calgary Bow River Weir Project Final Design Report.” This report provided many of the fine details (which will not be covered here) involved with the design, safety, and construction aspects of the HPP. The following concept drawing gives a basic idea of many of the design characters

finalized for the HPP (Figure 8). The basis for the final design was from the physical scale model (Northwest Hydraulic Consultants, 2007), and drawings from a preliminary engineering report done by Golder in 2007.



Figure 10: Harvie Passage Project concept drawing (Harviepassage.ca, 2009)

2.3 Literature Review

“The idea of citizen participation is a little like eating spinach: no one is against it in principle because it is good for you” (Arnstein, 1969). It is frequently argued that community participation in decision making provides many benefits (Irvin and Stansbury, 2004). The process and effectiveness of public, citizen, and stakeholder participation in planning is a well studied issue in the social sciences. For our purposes, we will suggest that “publics”, “citizens”, “community”, and “stakeholders” discussed in

the literature be grouped together to generally reflect the interests of individuals outside of planners and managers of projects.

The classic evaluation of effectiveness of citizen participation in a public project is Arnstein's "Ladder of Citizen Participation" (1969). Arnstein classifies citizen participation into eight rungs of a ladder; 1) manipulation, 2) therapy, 3) informing, 4) consultation, 5) placation, 6) partnership, 7) delegated power, and 8) citizen control. Rungs one and two are described as "degrees of nonparticipation", rungs three to five are described as "degrees of tokenism", and rungs six to eight are described as "degrees of citizen power." Arnstein argues that "there is a critical difference between going through the empty ritual of participation and having the real power needed to affect the outcome of the process." Each of these rungs is thoroughly explained in the context of the "powerholders" versus "citizens" (or those trying to affect the project outcomes).

"In recent times, there has been an international trend toward increased involvement of the public in the affairs and decisions of policy-setting bodies; a concept that is frequently referred to as public participation" (Rowe and Frewer, 2005). Public managers are often charged with making "high-quality" decisions while remaining responsive to issues raised by participating citizens (Beierle, 1999). "Public participation must be balanced and integrated with other important aspects of the environmental decision-making process, such as scientific evaluations, the environmental conditions of the system of interest, and the regulatory context" (Beierle, 1999). Decisions regarding environmental management are often highly complex and value-oriented which may lead to an atmosphere of mistrust (Beierle, 1999). Some ideal conditions for citizen participation, however, have been identified: careful selection of stakeholders, transparency for building trust, clear authority in decision making, competent, unbiased facilitators, and regular meetings (Irvin and Stansbury, 2004). Even in the presence of these conditions, there is little evidence to support the outright effectiveness of community participation in environmental management issues (Irvin and Stansbury, 2004).

Other literature suggests that planning processes are generally strengthened by inviting broad stakeholder involvement. Broader involvement promotes both public knowledge and political effectiveness (Burby, 2003). The questions of when, how, and

why the public should become involved in project planning, remain largely unanswered (Beierle, 1999). It has been suggested that in general, greater participation in a project will lead to greater acceptance of a project by the public (Bayley and French, 2008). There has also been discussion of an important issue in public participation known as the problem of the ‘usual suspects.’ These individuals are described as those who “either clog up public participation and prevent the voices of the real community from being heard, or else are the best hope practitioners have of engaging the public in meaningful dialogue about policy issues” (May, 2006). When the public perceives a “foregone conclusion”, they are generally more reluctant to participate in project development (Diduck and Sinclair, 2002).

The success of public participation involves many important variables; notably, the inclusion of appropriate of engagement mechanisms; for example, study circles, focus groups, public meetings, workshops, panels, negotiations, etc. Even with the inclusion of an appropriate engagement mechanism, there is still no guarantee that public participation in a project will be a success (Rowe and Frewer, 2005). More importantly, it is often difficult to assess the ‘success’ of public participation. Public involvement has also been identified as a costly component of project planning. “With widespread public benefit as the goal of any public policy project, it behooves the administrator to consider the advantages and disadvantages of the decision making process when determining the most effective implementation strategy; bearing in mind that talk is not cheap- and may not be effective” (Irvin and Stansbury, 2004).

2.4 Research Question

The aim of this research is to examine how the various stakeholders involved with the HPP had their concerns addressed and how they feel about HPP now that it is under construction. Conducting interviews with representatives of important stakeholders helps me to answer some important questions:

- With such an overwhelmingly positive project vision and objectives, were all the stakeholders satisfied with the outcomes of the project?

- How did stakeholders perspectives change throughout the development of the project?
- Was their input meaningful and effective (i.e. did it affect the project outcomes)?
- Are there any outstanding issues with the way the project was developed?
- Are stakeholders in favor of the project which is now under construction?

Stakeholder consultation is an important part of many industrial and commercial projects today and it is plausible that these results can be extrapolated to make conclusions about the nature of stakeholder consultation in general. Some general questions about stakeholder consultation that may be addressed by this study include the following:

- Is it possible to include all suggestions made by all stakeholders in a project?
- How is the inclusion of concerns balanced in a diverse and complex project?
- Are there factors that determine which input is included in a meaningful way?
- What is the most appropriate way to manage stakeholder input?

3. RESEARCH DESIGN

The study was designed as an exploratory means to gather previously unknown information about the HPP. Interviews were conducted with the six following stakeholders: Bow Waters Canoe Club, Trout Unlimited Canada, Ducks Unlimited Canada, Parks Foundation Calgary, Alberta Whitewater Association, and Inglewood Community Association. These stakeholders were selected from a list of approximately 31 total groups involved. Out of the total 31 groups, these stakeholders were selected because of their potential to be directly affected. Also, these groups are intrinsically linked to the mission and objectives of the HPP. For example, one objective of HPP was “sustainability and environmental protection.” For this reason, Ducks Unlimited Canada and Trout Unlimited Canada (two of Canada’s important environmental NGO’s) were selected as appropriate stakeholders. Another objective of the HPP is to be a good neighbor. This led me to select the Inglewood Community Association as a critical stakeholder for the research. Bow Waters Canoe Club and Alberta Whitewater Association were selected because they were strong advocates for the passage, safety, and

recreational aspects of the HPP. Parks Foundation Calgary was selected because of their organizations mandate which essentially is the vision of the HPP; to create parks in Calgary. In this case, it was a river park.

An interview consisting of five questions was administered to each of these stakeholders (Appendix II). These interviews were semi-structured and probe questions were applied where necessary to extract more information. Interviews were completed from February 14 to March 10, 2009 at a meeting location of each participant's choice. Due to the varying depth of information received, interviews ranged in length from approximately 15 to 45 minutes. Ethics approval for the research design and interview script was granted by the Conjoint Faculties Research Ethics Board at the University of Calgary in early February.

4. FINDINGS AND DISCUSSION

4.1 Descriptive Findings

4.1.1 Bow Waters Canoe Club

As mentioned previously, Bow Waters Canoe Club (BWCC) was the initial proponent for the HPP. They enthusiastically supported the idea of a revitalized river passage and could see the positive outcomes of improved safety and a recreational area for paddlers to enjoy. BWCC recognized, however, that the project could be difficult with such a large and diverse group of stakeholders with many varying perspectives. They understood that the project could potentially affect the groundwater wells of Sam Livingston Fish Hatchery, the diversion function of the weir, the community of Inglewood, fishermen, and many others. None of these impacts were considered as fatal flaws of the project.

The key input, suggestions, and concerns raised by BWCC were to make sure that the Harvie Passage would be a safe structure. They also wanted the park to be attractive to paddlers, suitable for open canoes, and suitable for all types of river users; from kayakers to recreational floaters. BWCC also proposed that the project be used as a specialized training venue for competitive kayaking disciplines (slalom, etc) but the site was eventually deemed inappropriate for this use. BWCC felt that there was a significant response to their input and that a broad range of groups were acknowledged in the

stakeholder engagement process. It was, however, recognized that ‘acknowledgment’ does not always mean that ideas will be fully embraced and considered further. BWCC was satisfied with the stakeholder engagement process because of the inclusive nature of consultation. In this, there was always free discussion of concepts and ideas.

BWCC does not feel there are many major issues still outstanding with the HPP. They have suggested that the whitewater features may not be as attractive to elite, higher-end paddlers. They recognize that this project is for the entire community and not only paddlers. Because of this fair compromise, they were satisfied with the outcomes of their engagement. BWCC affirmed that the most attention in the project was given to safety; ensuring rapids are safe under any flow conditions for any person. They also expressed that attractiveness to paddlers, natural environment, fish passage, and fish habitat were highly recognized. BWCC felt that in this process, paddlers are the group who has significantly lowered their expectations but the project remains a healthy compromise. BWCC is very pleased to see the project under construction and is excited to see Calgarians make good use of the Harvie Passage in the future.

4.1.2 Alberta Whitewater Association

Alberta Whitewater Association (AWA) was one of the initial supporters of the HPP; they provided funding for the feasibility study, supported the idea of a whitewater park in Calgary for over 20 years, and supported Bow Waters Canoe Club when they brought the project forward. AWA saw the opportunity for a world-class whitewater park in the city that would allow paddlers to stay in Calgary, provide a safe environment, remove significant hazards, and improve fish passage. Initially, they were concerned about the possibility of a lack of political will and funding needed for the Harvie Passage Project.

AWA’s significant input and suggestions involved bringing many people with experience in developing whitewater parks (eg. Kananaskis River, Oldman River) to the HPP discussion table. AWA also has experience with community consultation. To facilitate this, they brought environmental experts to discuss the positive ecological outcomes of the HPP. AWA wanted to make the river suitable for all paddlers, including creating a training facility for competitive whitewater disciplines. AWA wanted to

incorporate ‘upstream attainment’ passages in the design. These passages would allow paddlers to travel upstream above the rapids, and proceed to travel through them again. This would significantly reduce terrestrial impacts and pathway conflicts involved with paddlers who would be hiking from the bottom to the top of the rapids. The response to AWA’s input was high initially, followed by a period of two years in which they were not consulted. During this time, they felt many decisions were made without their input. When AWA was invited back in 2004-2005, the project had progressed significantly. AWA felt that there was a lack of understanding among many of the stakeholders with regards to river dynamics, river hydrology, and river usage. Many of these stakeholders were concerned about maintaining a natural environment in what is an industrial setting to begin with. AWA brought in experts in ecology to try and convince stakeholders of the positives associated with HPP, but felt that this effort and many of their comments were not taken into consideration.

Some outstanding issues noted by AWA centered on the idea that Harvie Passage will not be a world-class facility when completed. AWA notes that we have spent 16 million dollars on a safe facility; but not a world-class one. This site had the potential for great recreational, spectator, and competitive training opportunities. AWA also noted that there are no plans for washrooms, pathway development, and parking. AWA is mostly concerned with the plan to create a safe, but unappealing boating environment. They feel that other stakeholders envisioned the area as a quiet, pleasant park that blends into the rest of the river valley. AWA would like to see people actively engaged in this area and to create a truly vibrant park area that supports recreation.

AWA claims that the most attention was given to the terrestrial environment – not the fisheries aspect. They believe that the current design will cause paddlers to have an adverse impact on the terrestrial environment. They also feel that the least attention was given to the potential for a world-class facility that includes parking, change rooms, and washrooms. AWA’s current position on HPP is the following: to let the project proceed as is, and hope to address the design flaws in 5-10 years time. They feel that Calgary is not complementing its national sports programs and that paddlers will leave Calgary because of the way this project is designed. AWA suggests a lack of critical thinking

about the value of stakeholder input (experts vs. non-experts) and feel that for 16 million dollars, we should have got more value out of this amenity.

4.1.3 Trout Unlimited Canada

Trout Unlimited Canada's (TUC) initial concerns with the HPP involved the ability of fish to move through the structure and how the project would impact fish habitat. They felt that there was the potential for improved fish diversity above the weir which is currently thought to be a barrier to fish passage. The project could allow for movement of fish to different reaches of the Bow River. A potential negative would be creating a structure that only passed some species at specific life stages. There is also the potential for habitat loss or replacement with a different type of habitat. An example of this would be replacing spawning habitat for feeding habitat. A third concern was the potential to prohibit natural river processes by concreting the riverbed.

TUC forwarded numerous concerns to the project managers in a formal letter. Some of these concerns dealt with the following: limited access points, lack of study to determine effectiveness of the current fish ladder, data suggesting significant movement of trout in the current fish ladder, fish entrainment (entrapment with water level changes), and the suitability of drop structures for changing flows. TUC was also concerned with the maintenance of other life supporting characters (weeds, bugs, plants). All of these characteristics are currently present at the weir site. TUC felt that the hydrologic reports were held back from stakeholders for too long. TUC questioned the alteration of the right bank which was breaking a commitment made to Inglewood Community Association stated in the early stages of the process by the project management. There was little discussion of preventing fish entrainment in the Western Irrigation District canal structure upstream of the weir. This is one feature that could have been incorporated into HPP. TUC's attention is also drawn to the concern of fish habitat loss with the creation of a divider island and addition of the right bank berm. They noted interest towards hydrologic issues such as sedimentation/siltation and flood modeling. TUC wanted to see more clarity with respect to plans for monitoring, maintenance, and mitigation of fish and fish habitat, as well as action to ease an apprehension at the possibility of the community having no power to prevent inappropriate activities at the site.

TUC noted that their comments were “dealt with but not fully addressed.” TUC does not have the power to force any changes on the design of the project as a regulatory agency would. They expressed that the goals of the project were certainly driven by kayakers. The project fell short of providing significant benefits to fisheries and could have been more beneficial had it been further revised with fish in mind. TUC was happy their comments were asked for, but in the end it appeared that fisheries were not the driving force behind HPP.

TUC expressed that some aspects of the design could have been more functional and that the fisheries component was not sufficiently discussed during stakeholder engagement. They also noted the outstanding issue that there is no fisheries work planned to monitor the site after completion. In their opinion, safety got the most attention but could still use further consultation. The site is designed for kayaks and canoes; not average “weekend warriors.” People will still be at risk of injury or death in the Harvie Passage. The least attention was given to the concerns of local residents, limiting ‘stay and play’ access, and suitability of the site for a ‘ski-hill’ type activity such as ‘stay and play’ kayaking. Ultimately, TUC’s current position is that they would have preferred to see the structure designed for passage of all fish life stages throughout the entire year. They would have liked to see an emphasis on avoidance of fish entrainment in the design of HPP. They are still very concerned about changes in spawning, rearing, and juvenile habitat, as well as hydrologic considerations by limiting natural movement of a river.

4.1.4 Ducks Unlimited Canada

Ducks Unlimited Canada (DUC) initially thought that Harvie Passage sounded like an interesting project but needed more information about the details involved. They saw the elimination of the ‘drowning machine’ and improved fish passage as foreseeable positives. The negative outcomes initially seen were the possible impacts on Bow Habitat Station and Pearce Estate Park. They felt the HPP might conflict with the focus of Bow Habitat Station, create user conflicts, and adversely impact the vegetation and riverside.

DUC was given the opportunity to provide project managers with advice on how the project should proceed throughout stakeholder engagement. This involved concerns about significantly more usage and the safety and liability issues that might arise from

higher usage. They expressed that there is zero risk today and this new passage will cause a higher probability of incidents. Trout Unlimited Canada noted that the United States have had many incidents related to whitewater parks. There were numerous other concerns such as where the most usage will occur, ‘stay and play’ usage, parking, vandalism, effects on education programming, impacts on Bow Habitat Station and Pearce Estate Park, a financial shortcoming for riparian/terrestrial enhancement. Responses to these concerns were “mixed in nature” but the unanimous agreement about improved safety prevailed in all stakeholder groups. DUC felt that the stakeholder engagement process was acceptable but could have been more open. Decisions were made that did not involve all stakeholders but these decisions followed the vision for the site.

DUC noted that liability was one of the key outstanding issues. If an incident was to occur, all stakeholders involved could be held liable for the damages. Other outstanding issues include lack of parking, unknown riparian impacts, and a lack of proactive planning with respect to ‘domino effects’ on adjacent facilities. What effects will users have on Bow Habitat Station and Pearce Estate Park? Contrary to Trout Unlimited Canada, DUC said that the most attention was given to the overall vision of a ‘river passage’; passage for fish, wildlife, and humans. They expressed that planning, design, and management arising from increased usage needs to be dealt with separately. The least attention was given to possible effects on adjacent facilities. DUC thinks there was a lack of planning to deal with how Bow Habitat Station and Pearce Estate Park will be impacted years down the road. DUC’s current position is fully supportive of eliminating the drowning machine, but they feel that safety and user conflicts still need to be dealt with separate of the other project goals.

4.1.5 Inglewood Community Association

Inglewood Community Association (ICA) was initially supportive of HPP for the sake of fish and safety. They saw the benefits of a safe river passage without the need for boaters to portage. ICA was concerned about the impacts of new users on wildlife and habitat. They did not want HPP to close off an important wildlife corridor and they felt that there may be a hidden agenda by paddlers to suit only their needs.

The ICA had many concerns about the project that were expressed during stakeholder consultation. They were concerned about a push to start a ‘stay and play’ area, loss of birds and other animals in the region, concreting the river bed, no legislation to control river users, and the use of the high water channel by inexperienced paddlers. They were also concerned about a lack of transparency on the part of the management committee. They felt that response by the project managers was inadequate and that there were never specific details given on how concerns were to be dealt with. ICA expressed that suggestions were not ignored but were not taken seriously enough. ICA was fundamentally unsatisfied with the stakeholder engagement process. Commitments about no alteration to the right bank, and no stopping in the area, were made by project managers, but were not ratified in the final design of HPP. There was generally little concern for the environment throughout the entire process.

ICA noted that river ingress points were an outstanding issue. They are concerned about the construction access road which was cut through old growth trees and that the width of the road was larger than specified in the plans. ICA felt that the paddling play area component of HPP was given the most attention and that, in fact, the whole project was driven by the paddling component. ICA was concerned that someday this project would be the site of a competitive venue on the scale of the Olympics. The least attention was given to the wildlife corridor/habitat near Pearce Estate Park. ICA was concerned that the BIA was not sufficient in their analysis of bird and animal habitat that would be affected by construction. Currently, the president of ICA has shown support for the HPP but it was specified that this is in opposition to the consensus reached by the community. ICA noted a distinct lack of communication and transparency between the management and stakeholder committees.

4.1.6 Parks Foundation Calgary

Parks Foundation Calgary (PFC) showed great initial enthusiasm for the HPP because of its high-profile status. They saw the opportunity to create a valued public space and to remove a deadly structure while doing so. Initially, they were concerned about the lack of technical work completed thus far and the possibility that it may affect the ability of the project to move forward.

PFC essentially managed the stakeholder engagement process. In this, they brought stakeholders to the table for discussion but did not necessarily make significant suggestions about details on how the project should proceed. They also raised the money needed for the vast amount of required technical study. Throughout the process, PFC managed conflicting viewpoints in the interest of creating an asset for the city. Specifically, they expressed that they were mainly managing interests between recreational and environmental groups. They were satisfied with the stakeholder engagement process because of the way input was managed. Stakeholders were asked to generate vision statements and objectives for the HPP and PFC combined these objectives to produce a list of common goals that all groups agreed upon.

A major outstanding issue recognized by PFC was that it remains to be seen exactly how much this site will be used and how much risk will be associated with that usage. There is a distinct trade off when high risk, low use hazard is removed and replaced by low risk, high use hazard. Because of this, “one side effect will be replaced by another.” This is inherently tied to other issues such as accidents and liability. The most attention in HPP was given to paddling features because it was one of the objectives that had extensive costs and efforts needed to satisfy the projects recreational objective. The least attention was given to environmental and mitigation because the area is naturally beautiful and remediation is an issue that will be dealt with after construction. PFC is excited to see the project move forward.

4.2 Data Analyses

4.2.1 Safety

One objective of HPP supported by all stakeholders was the removal of the deadly weir structure to improve safety conditions for users of the Bow River. This was noted as a positive effect, or an issue that received attention, by all six interview participants. The conflict involved with increasing safety brought up the question of how to develop the new site to facilitate a safe environment. Water-based recreation has inherent dangers and numerous deaths and close calls have been witnessed at whitewater parks similar to HPP in the United States (Walbridge, 2006). Trout Unlimited Canada, Parks Foundation Calgary, Ducks Unlimited Canada, and Inglewood Community Association all noted that

the whitewater park will pose a new risk to human safety and that this raises major outstanding concerns about how to deal with this risk, and how to address liability. Two stakeholders who did not comment that safety was an outstanding issue were the paddling groups; Bow Waters Canoe Club and Alberta Whitewater Association. These groups are very aware of the risks associated with whitewater sports yet maintain the notion that providing a recreational amenity is a necessary objective of HPP. It is also interesting to note that both Inglewood Community Association and Trout Unlimited Canada felt that HPP was driven by the paddling component. Alberta Whitewater Association and Bow Waters Canoe Club both noted that paddlers were going to lower their expectations with regards to the features that were being created.

Many of the outstanding safety concerns are addressed in Walbridge (2006) and it is apparent that recreational value is a key objective of HPP. Many ways to reduce risk and liability are addressed in the CIRSA (2002) report. This raises an important question alluded to by the mentioned stakeholders. Is it appropriate to remove one hazard and replace it with another? We know that there have been two recent deaths at the weir but the enduring question is how many deaths/accidents will happen at Harvie Passage? A significant effort has been made by management to reduce and minimize the possible risks through design but there will always be some degree of risk. Because of the way HPP has been designed (with a high water channel for more skilled paddlers), it is clear that new risks associated with water-based recreational are considered by the project managers as a fair compromise for the removal of the “drowning machine.” Currently, there is no published plan developed to deal with the outstanding safety/liability concerns but I expect that safety/liability plans will be largely based on suggestions made by Walbridge (2006) and CIRSA (2002).

4.2.2 Fish Passage

Trout Unlimited Canada, Ducks Unlimited Canada, Alberta Whitewater Association, Inglewood Community Association, and Bow Waters Canoe Club all noted that improved fish passage was a positive associated with the HPP. However, Trout Unlimited Canada noted that there are still many outstanding issues with regards to the current design and fish passage. Trout Unlimited Canada felt that it became clear

throughout the project that improving the aquatic ecosystem was not a driving force. Trout Unlimited Canada never specifically acknowledged that there would be a net positive effect on fisheries, as suggested by Golder (2006), but felt that alterations to the design or use of an alternate site for the recreation component would allow for the construction of a more beneficial structure for fish.

4.2.3 Response to Stakeholder Input

Trout Unlimited Canada, Ducks Unlimited Canada, Inglewood Community Association, Bow Waters Canoe Club, and Alberta Whitewater Association all expressed that their input into HPP was considered and encouraged but the outcomes of that input did not always affect the progression of the project. Input was constantly gathered by the project management but no assurances were given that it would have an effect on the outcomes. In other words, ideas were discussed but not always fully embraced. These results suggest that in the HPP, there were often too many conflicting and opposing views to incorporate all ideas. It is safe to suggest that the far-reaching goals of this project, which drew a wide variety and large number of stakeholder groups, were the cause of the exclusion of so much input. One can imagine that there will be tremendous differences in objectives among 31 groups all advocating for different causes. Stakeholder input is not always meaningful or effective, and does not always affect the projects outcome.

Parks Foundation Calgary, Bow Waters Canoe Club, and Ducks Unlimited Canada all expressed satisfaction with the process by which stakeholder input was incorporated. These groups also noted, as discussed above, that decisions were made which did not, and can not, involve all stakeholder input. Trout Unlimited Canada, Alberta Whitewater Association, and Inglewood Community Association mentioned that, for various reasons, they were somewhat dissatisfied with the process by which their input was incorporated. It is interesting to note that the groups who showed dissatisfaction with the process of incorporation were also the groups who indicated that the project was specifically driven by one of the other objectives. Trout Unlimited Canada and Inglewood Community Association both felt that the HPP was driven largely by the paddling component. Alberta Whitewater Association noted that HPP was driven by the environmental component of the project. This connection might suggest that

dissatisfaction was based on perceived incorporation of other stakeholders input, not their own.

4.2.4 Communication and Transparency

Transparency is outlined in the objectives of HPP. Two stakeholders, Inglewood Community Association and Ducks Unlimited Canada, both indicated that the process of stakeholder engagement could have been more open. Inglewood Community Association went as far as to say that the process was “opaque” and that a hidden agenda was apparent. One problem indicated by Inglewood Community Association was a lack of communication between stakeholder and management groups. Inglewood Community Association was also the group whose interview suggested the most opposition to the process of stakeholder engagement and the final design of the Harvie Passage. It is possible that a clearer, more well-defined dialogue between stakeholders and managers would have lead to greater acceptance of the project by stakeholders; even if the outcomes were not in their favor. This begs the question: what is the most appropriate way to manage stakeholder input? The results suggest that input is best managed in a completely transparent manner that establishes a clear dialogue about progression of a project between stakeholders and managers, regardless of the outcomes not being in a stakeholder’s best interest.

4.2.5 Evolution of Perspective

It is difficult to confidently evaluate changes in stakeholder perspectives throughout the development of HPP. This is largely because information was consistently being gathered through technical studies and decisions about the final design were changing as more questions, and more information to answer those questions were generated. I can, however, analyze what each stakeholder initially thought about the project and what their current perspective is. This will help indicate if the work completed to satisfy questions raised through the project was adequate.

Trout Unlimited Canada’s opinion on positive and negative outcomes, combined with their current perspective, suggests that they felt studies completed on fisheries were not adequate. Trout Unlimited Canada hasn’t specified that they are for or against HPP,

but they have indicated that there are design flaws with regard to fish passage/habitat that they do not support. They would have liked to have seen more studies about the current function of the fish ladder as well as plans to conduct fisheries monitoring after completion of the project.

Alberta Whitewater Association saw the opportunity for a world-class whitewater park in Calgary. Currently, they feel that the project does not adequately satisfy the needs of paddlers and that they will have to make improvements to the Harvie Passage in the years to come. This suggests that the work completed, and work to be completed, has and will not meet the needs of paddlers.

Inglewood Community Association realized many of the overwhelming positive aspects of HPP initially, but has expressed discontent with the broken commitments and lack of communication on behalf of project managers. Inglewood Community Association did not feel that the studies completed to satisfy their concerns were sufficient. The current president of Inglewood Community Association has officially supported the HPP but the representative for my interview felt that that this decision was against the consensus of the community.

Ducks Unlimited Canada initially needed a fuller understanding of the project and their current position supports the elimination of the drowning machine. Ducks Unlimited Canada feels that there are still issues that need to be dealt with such as safety, user conflicts, and effects on adjacent facilities. This suggests that Ducks Unlimited Canada believes that there needs to be more study completed to address these issues to their satisfaction.

Bow Waters Canoe Club has enthusiastically supported the project through its entirety and was one of two stakeholders to indicate that they are fully in favor of the project in its current form with no amendments. Parks Foundation Calgary also expressed they are fully in favor of HPP but they will be excluded from this analysis because of their role as a manager, not a stakeholder.

5. CONCLUSIONS

The design of this project has specific limitations and I will acknowledge these here. Some stakeholder representatives interviewed may not perfectly represent the vast

array of perspectives that exist in an organization. I also acknowledge that interviews can present a high-pressure environment in which participants may deviate from key points, present mixed ideas, and give incomplete answers. To alleviate these effects, representatives were given the opportunity to review their results and make any changes necessary. Interviewing multiple delegates from each group would have presented a fuller perspective on existing issues but would have exceeded time constraints on this study. Another more complete way to conduct these interviews would be to design a longitudinal study in which interviews are conducted over the development of the HPP to get specific insight into the change in views and perspective. Also, this study only examined perspectives of 6 of 31 total stakeholders. This is an obvious shortcoming but care was taken to select knowledgeable, informed, and involved representatives from groups that were directly and significantly affected.

Given these limitations, I will discuss the key conclusions here. First, the safety component of the project was a priority for all stakeholder groups. The major points of contention involved what to replace the weir with. Currently, there are no plans published that will address outstanding safety concerns raised by the creation of a whitewater park. The recreational component of HPP has been an instigator in many of the residual safety concerns brought up by various stakeholders.

An interesting scenario would be to remove the paddling/recreation component of HPP and see how that would affect some of the other outstanding issues. Presumably, a river wide rapid could be designed similar to the structure of the low water channel with a “rock garden” type design; an easily navigated channel suitable for all watercraft similar to the rest of the Bow River. In this scenario, the outstanding liability issue would be virtually removed. As suggested by the Trout Unlimited Canada memo to the management committee, this would also be the most advantageous for fish populations. This design could potentially pass all life stages of all fish species and would avoid the possibility of fish entrainment. This design would also eliminate many of the issues raised by Inglewood Community Association, Trout Unlimited Canada, and Ducks Unlimited Canada; there would be no ‘stay and play’, reduced stopping in the area, fewer user conflicts, no need for parking, washrooms, and river access points, no “domino effects” on adjacent facilities, fewer terrestrial impacts by users, and removing the

necessity to concrete the river bed. On the other hand, this scenario would limit the ability of the Harvie Passage to create a vibrant river park and support water-based recreation in the City of Calgary. This scenario would not align with the vision and mission of the Harvie Passage; 1) to create a river park, and 2) to complement and connect adjacent communities and facilities such as Sam Livingston Fish Hatchery, Calgary Zoo, Bow Habitat Station, and Pearce Estate Park. In this scenario, limits to the educational opportunities that would be made available at the site and adjacent facilities would be apparent, that is to say there would be less people frequenting the area. The mission to create an area for water-based recreation has been one of the most attended to, complex, highly debated (as Parks Foundation Calgary and Inglewood Community Association attested to) issues involved with HPP but it prevailed ultimately because it is the vision for the site. So, how is the inclusion of stakeholder concerns balanced in a project? The results suggest that concerns are balanced based on their relevance to the project vision and objectives. Another primary research question was “Are there factors that determine which input is included in a meaningful way?” It is important that the input aligns with the vision and objectives.

Managing stakeholder input has presented significant challenges for the managers of HPP. A project with such a large scope and large group of stakeholders created great difficulty incorporating all input given by all stakeholders. Many of the differing perspectives are linked to a project vision which incorporated objectives that require very careful planning to ensure they are not in opposition of another. There is also a possible link between groups who were dissatisfied with the stakeholder engagement process and groups who perceived that the project was driven by a different project component. The data suggest that had the managers maintained a more continual and concise dialogue with stakeholders about project progression, regardless of the decisions made, that stakeholders may have been more accepting of those very decisions. This is not to say that the project’s information was completely or intentionally withheld, but that it may have benefited from a clearer pattern communication. The data ultimately suggest that stakeholder input is not always meaningful and effective, and does not always affect the outcomes of a project.

Stakeholder support of the HPP is fairly weak. Two of the stakeholders interviewed were fully supportive and the remainder had various issues with aspects of the project that they felt were not sufficiently addressed. What could have been done to change the level of support for the Harvie Passage Project? The results suggest that the vast scope and objectives of the project made it difficult to satisfy all stakeholders. Would stakeholders have been more satisfied if the decisions by management were communicated in a clear and concise way? It is possible that stakeholders would have been more satisfied were this the case. Were the objectives of the Harvie Passage Project in opposition to each other from the beginning or is there just more technical work needed to satisfy stakeholders concerns? The results show that some stakeholders felt that their concerns could be dealt with by more study, planning, mitigation measures, etc., but it is difficult given the data to determine if project objectives are in opposition to one another, and therefore incompatible.

Arnsteins's (1969) ladder presents a useful way to evaluate the outcomes of stakeholder participation for the HPP. Trout Unlimited Canada, Ducks Unlimited Canada, Inglewood Community Association, Bow Waters Canoe Club, and Alberta Whitewater Association all expressed that their input into HPP was considered and encouraged but the outcomes of that input did not always affect the progression of the project. Input was constantly gathered by the project management but no assurances were given that it would have an effect on the outcomes. This sentiment falls into the category of 'tokenism' on Arnstein's ladder. In this category, 'have nots' (with reference to power, ie – stakeholders) hear and have a voice but stakeholders lack the power to "ensure their views will be heeded by the powerful" (Arnstein, 1969). When participation is restricted to these levels, there is no "follow through, no 'muscle,' hence no assurance of changing the project" (Arnstein, 1969). "Placation", the fifth rung of Arnstein's ladder specifies that stakeholders can advise but have power holders retain their right to advise on project progression. This is another degree of tokenism that applies to the results of this study.

The need for a clearer, more well-defined dialogue between stakeholder and management groups may have lead to an atmosphere of mistrust in the consultation process (Beierle, 1999). Inglewood Community Association expressed that there was a hidden agenda in the HPP. This alludes to the suggestion that when stakeholders perceive

“foregone conclusion”, they will be less inclined to actively participate in the consultation process. This may have contributed to Inglewood Community Association’s lack of support for HPP.

A number of issues identified by stakeholders could be noted as ways that managers of HPP did not create ideal conditions for the citizen participation process (Irvin and Stansbury, 2004). HPP lacked “careful selection of key stakeholders.” There was no stakeholder selection process apparent in HPP; virtually anyone with an interest in the project was invited to join the consultation. This may have contributed Alberta Whitewater Association’s notion that there was little consideration given to the value of stakeholder input. This also touches on the problem of the ‘usual suspects.’ It is possible that if these individuals existed, as Alberta Whitewater Association noted, that they prevented expression of legitimate concerns and “clogged” the consultation process (May, 2006). Issues of transparency were also identified by two of the stakeholders. The process also lacked a clear authority for decision making. It was expressed that decisions in the HPP were made without the knowledge of stakeholders behind closed doors. Finally, the last condition that was not created in the HPP consultation process was regular meetings that involved all stakeholders. It was expressed by Inglewood Community Association that meetings were held at inconvenient times when few stakeholders could arrange to be present.

Whether the broad group of stakeholders enhanced public knowledge, political effectiveness, and strengthened the project (Burby, 2003) remains a subjective matter. It is safe to assume that the project has progressed differently than it would have without the broad group of stakeholders involved. It is also difficult to evaluate whether the “engagement mechanism” (Rowe and Frewer, 2005) used was appropriate. What is clear is that the effectiveness of public participation is extremely variable. Whether the public participation was effective is also subjective matter. Based on evaluation of response to stakeholder input, we can suggest that three stakeholders, Bow Waters Canoe Club, Parks Foundation Calgary, and Ducks Unlimited Canada, agree that the public participation for HPP was effective. We can suggest that the other three stakeholders would agree that the public participation involved with HPP was ineffective.

There is an opportunity for a myriad of future research (social and environmental) regarding the HPP. After completion of the Harvie Passage Project there will be a chance to study virtually every aspect of the project. One could study the fisheries aspect; whether there is significant movement through the structure and if there are any issues, such as entrainment, which are still apparent. The effects of HPP on the community of Inglewood could also be measured. Is the project having positive or negative effects on the community? Are issues such as parking and user conflicts adversely affecting the area? One could also study the effects on adjacent facilities. Are these facilities seeing any benefits or connectivity as the project objectives have specified? Is there valuable education component which has been incorporated as a result of the Harvie Passage Project? The safety aspects of the project could be studied as well. Are we seeing recreational incidents associated with the Harvie Passage Project? If so, how could these incidences be reduced or eliminated? These and many other questions are possible grounds for further study.

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APPENDIX 1

The six difficulty classes:

Class I Rapids:

Fast moving water with riffles and small waves. Few obstructions, all obvious and easily missed with little training. Risk to swimmers is slight; self-rescue is easy.

Class II Rapids: Novice

Straightforward rapids with wide, clear channels which are evident without scouting. Occasional maneuvering may be required, but rocks and medium-sized waves are easily missed by trained paddlers. Swimmers are seldom injured and group assistance, while helpful, is seldom needed. Rapids that are at the upper end of this difficulty range are designated "Class II+".

Class III: Intermediate

Rapids with moderate, irregular waves which may be difficult to avoid and which can swamp an open canoe. Complex maneuvers in fast current and good boat control in tight passages or around ledges are often required; large waves or strainers may be present but are easily avoided. Strong eddies and powerful current effects can be found, particularly on large-volume rivers. Scouting is advisable for inexperienced parties. Injuries while swimming are rare; self-rescue is usually easy but group assistance may be required to avoid long swims. Rapids that are at the lower or upper end of this difficulty range are designated "Class III-" or "Class III+" respectively.

Class IV: Advanced

Intense, powerful but predictable rapids requiring precise boat handling in turbulent water. Depending on the character of the river, it may feature large, unavoidable waves and holes or constricted passages demanding fast maneuvers under pressure. A fast, reliable eddy turn may be needed to initiate maneuvers, scout rapids, or rest. Rapids may require "must" moves above dangerous hazards. Scouting may be necessary the first time down. Risk of injury to swimmers is moderate to high, and water conditions may make self-rescue difficult. Group assistance for rescue is often essential but requires practiced skills. A strong Eskimo roll is highly recommended. Rapids that are at the lower or upper end of this difficulty range are designated "Class IV-" or "Class IV+" respectively.

Class 5: Expert

Extremely long, obstructed, or very violent rapids which expose a paddler to added risk. Drops may contain** large, unavoidable waves and holes or steep, congested chutes with complex, demanding routes. Rapids may continue for long distances between pools, demanding a high level of fitness. What eddies exist may be small, turbulent, or difficult to reach. At the high end of the scale, several of these factors may be combined. Scouting is recommended but may be difficult. Swims are dangerous, and rescue is often difficult

even for experts. A very reliable Eskimo roll, proper equipment, extensive experience, and practiced rescue skills are essential. Because of the large range of difficulty that exists beyond Class IV, Class 5 is an open-ended, multiple-level scale designated by class 5.0, 5.1, 5.2, etc... each of these levels is an order of magnitude more difficult than the last. Example: increasing difficulty from Class 5.0 to Class 5.1 is a similar order of magnitude as increasing from Class IV to Class 5.0.

Class VI: Extreme and Exploratory Rapids

These runs have almost never been attempted and often exemplify the extremes of difficulty, unpredictability and danger. The consequences of errors are very severe and rescue may be impossible. For teams of experts only, at favorable water levels, after close personal inspection and taking all precautions. After a Class VI rapid has been run many times, its rating may be changed to an appropriate Class 5.x rating.

APPENDIX II

ENSC 505 – Winter 2009 – Todd Brunner

Bow River Weir Project Interview Questions

Each Stakeholder representative will be asked the following general questions and probes (if necessary) for clarification and elaboration.

1.0 What was the initial reaction of your organization when the Bow River Weir Project was proposed?

1.1 What positive outcomes, if any, did you foresee?

1.2 What negative outcomes, if any, did you foresee?

2.0 What input – suggestions and or concerns - , if any, were made by your organization into the Bow River Weir Project?

2.1 Was there any response to your suggestions or concerns?

2.2 Were you satisfied with the process by which your suggestions and concerns were included?

2.2a) If so, why? If not, why not?

3.0 Now that construction of the project has begun, are there any issues which you feel were not sufficiently addressed?

3.0a) If so, why do you feel these issues were not addressed?

4.0 Overall, in assessing the various aspects of the Bow River Weir Project, which aspects of the project do you feel were given the most attention?

4.0a) Why?

4.1 Which aspects of the Bow River Weir Project, if any, do you feel were given the least attention?

4.1a) Why?

5.0 Finally, what is your organization's current position on the Bow River Weir Project (now known as the Harvie Passage Project)?

5.0a) Could you please elaborate?

APPENDIX IV – Interview Summary Tables

Table 1: Trout Unlimited Canada Interview Summary

Initial	positives	negatives	Input, suggestions, concerns	response	satisfied with process	outstanding issues	most attention	least attention	current position
concerned about ability of fish to move through structure	improve fish diversity above the weir	whether the design would allow for passage of all species and all life stages	concerns were put forth in a letter	comments dealt with but not fully addressed	project fell short in providing significant benefits to fisheries	design could have been better	safety, but still needed more attention	concerns of local residents	preferred to see structure designed to pass all life stages of all species
how structure would impact fish habitat	currently thought to be a barrier	this is critical	limited access points	TUC does not have power to force changes	may have benefited river more had it been developed differently	could have been more functional	designed for kayaks and canoes	limiting stay and play access	would rather see structure for fish passage throughout the year
	improve fish movement to different reaches of river	habitat loss mitigated by different habitat	current fish ladder providing significant movement of trout	goals of project were driven by paddlers/kayakers	was happy comments were asked for	no fisheries work planned after completion	not designed for "weekend warriors"	now we have a ski hill type activity	also design to avoid entrainment issues
		i.e.) spawning habitat for something else	lack of study to determine effectiveness of current fish ladder	hydrologic reports were held back for quite a while	appeared fisheries was not driving force	cost got very high	people will still get injured or killed	uncertainty to whether this is the right area for that activity	change in hydrology
		effects of concreting river	fish entrainment	construction of river right channel required altering right	still very little fisheries work done prior	fisheries components not entertained			change in important spawning, rearing, juvenile habitat

				bank			
		prohibits natural river processes	suitability of drop structure for fish passage	promised to community that this wouldn't happen	one instance - river surfers joined later and their ideas were facilitated		removing ability of river to naturally function
		limiting natural river changes	no discussion of prevent irrigation canal entrainment				
		changing flows	loss of habitat				
		maintenance of other supporting life characters	i.e.) Creation of divider island, extension of sluiceway, addition of berm				
		i.e.) concrete inhibits growth of weeds, bugs, plants, fish	many hydrologic issues rock size, flood modeling, siltation/sedimentation issues				
		all of the above currently occur on site	needed more clarity with respect to monitoring, maintenance, and mitigation plans				
			angler/recreational conflicts				
			lack of comprehensive baseline data - no gauge for eventual impacts				
			community groups have no power to stop activities deemed inappropriate				
			i.e.) training, lessons, etc				

Table 2: Inglewood Community Association Interview Summary

Initial	positives	negatives	Input, suggestions, concerns	response	satisfied with process	outstanding issues	most attention	least attention	current position
supportive for sake of fish and safety	enhanced fish passage	pressure on wildlife along river	push to start a play area	yes, but not adequate	no	construction ingress from 17th avenue	paddling/play area component	the wildlife corridor/habitat	president of ICA has shown approval
	passage for river users	impacts by people on habitat	lack of transparency	never told specifics of how issues would be dealt with	commitments were made:	road put through 30 year growth trees	whole project driven by paddling component	wildlife in that habitat	this is in opposition to community consensus
	no portaging	close off wildlife corridor	stakeholder concerns were gone around	suggestions not ignored but worked around	no alteration to right bank	width of road	Possibility of becoming a competitive venue someday?	BIA was not sufficient in that regard	community asked for no damage to right bank and no stopping
	safety	hidden agenda by paddlers	lack of communication between stakeholders and management		no stopping in the area			important bird and animal habitat highly affected by construction	lack of transparency throughout
		loss of birds and other animals				because there was little concern for the environment			stakeholders did not know what happened in management committee
			removal of important areas indicated in BIA						opaque
			concreting river bed						no assurances of action on concerns
			many safety concerns still apparent						hidden agenda moved project

							ahead
			no legislation to control users				even in meetings with few stakeholders, important decisions were made
			anyone can use advanced rapids				
			more deaths than previous				
			large task for fire dept.				

Table 3: Ducks Unlimited Canada Interview Summary

Initial	positives	negatives	Input, suggestions, concerns	response	satisfied with process	outstanding issues	most attention	least attention	current position
interesting project	eliminate drowning machine	possible impacts on Bow Habitat Station and Pearce Estate Park	provided advice on how project should proceed forward	responses were made	acceptable	liability	Creating a river passage	attention to possible "domino effects"	fully support elimination of drowning machine
needed a fuller understanding	improve fish passage	impact:	concerned about significantly more usage	mixed in nature	process could have been more open	if incident occurs, all involved could be held liable	a passage for fish, wildlife, and humans	how will BHS be impacted years down the road	safety and user conflicts with adjacent facilities still need to be dealt with
		focus of BHS	Calgary is a large growing city	some of key issues are still present	useful decisions made that did not involve all stakeholders	DUC is at risk by participating	This was the overarching vision	planning should deal with these issues	Officially: DU supports elimination of the drowning machine
		user conflicts	need for water based recreation		unanimous agreement about improving safety	the vision for the site dictates that these issues will be outstanding		i.e. - user, parking, riparian impacts	Planning, design, and management arising from usage needs to be dealt with separately.
		vegetation and riverside	safety and risk a huge concern - linked to higher usage		How to do this?	it is a recreational amenity with risk		proactive planning with regards to "domino effects"	DU needs to take advantage of positives i.e.) using as an

							educational tool		
		project details very important	zero risk today	large group of stakeholders - difficult to come to agreement	some groups not concerned with risk				
			higher probability of incidents with higher usage		other groups very concerned about safety and risk				
			United States has had lots of incidences in whitewater parks		depends on perspective				
			need to be aware of these facts						
			concerns:						
			where activity occurs						
			park and play						
			parking						
			vandalism						
			educational programming						
			securement of 2 million for riparian enhancement						
			usage and its impacts on PEP and BHS						

Table 4: Parks Foundation Calgary Interview Summary

Initial	positives	negatives	Input, suggestions, concerns	response	satisfied with process	outstanding issues	most attention	least attention	current position
-enthusiasm	-high profile public space	-no technical work	-found/raised money for necessary studies	-managed conflicting interests	-yes	-raised by everyone: how much usage and associated risk	-paddling features	-environmental and mitigation	-excited to see project go ahead
-high profile project	-remove deadly structure	-risk project might not be possible	-brought stakeholders to the table	-create asset for city	-stakeholders generated vision statements	-risk to human safety	-it was the main part of project	-lower priority	
			-no significant suggestions	-manage conflict between recreational and environmental groups	-generated objectives	-studies are projections but facts remain unknown	-extensive costs	-likely because remediation has to take place post-construction	
			-managed process		-gathered common goals where all groups agreed	-replacing one side effect with another	-effort to satisfy recreational group	-naturally a beautiful area	
						-accidents, liability issues			

Table 5: Alberta Whitewater Association Interview Summary

Initial	positives	negatives	Input, suggestions, concerns	response	satisfied with process	outstanding issues	most attention	least attention	current position
one of original supporters	opportunity for a world class whitewater park	possibility of lack of funds, lack of political will	experience developing whitewater parks	high initial response	invited back 2004/2005	we will NOT have a world class facility	environmental	potential to build world class facility	let the project proceed and address flaws in 5-10 years
provided funding	allow paddlers to stay in Calgary		kananaskis	then, not consulted for 2 years after seed money was provided for initial study	project progressed significantly without their input	16 million spent for a safe facility- not world class	went overboard with environmental issues	parking	not getting slalom or training to complement national sports schools
supported whitewater park in Calgary for over 20 years	safe environment		Oldman weir, boulder run	no knowledge of development during this time	once stakeholder consultation began, many concerns and issues raised	potential for competition, spectators, training site	Mainly terrestrial environment, not fisheries	change rooms	paddlers will leave Calgary because they cannot train in Calgary
when BWCC brought project forward, very supportive	remove hazards		experience with community consultation		lack of understanding among stakeholders about:	no washrooms	because of the way it's designed, paddlers will impact terrestrial environment	washrooms	lack of critical thinking on value of stakeholder input

	improved fish passage	how to make river suitable for all types of paddlers	river dynamics	no pathway development		for 16 million, we should get some value out of this amenity
		brought many experienced, key people to the table	hydrology	no parking		
		create a training facility for various paddling disciplines	river users	losing high potential of 10 feet of drop		
		upstream attainment to minimize terrestrial impacts	only concerned about maintaining natural environment in an industrial setting	may be a safe boating environment, but also a dead boating environment		
			AWA brought in ecology experts who suggested many positives of this project	PFC and RVC look at this area as a park		
			these, and our other comments were tossed aside	want quiet, aesthetic area		
			did NOT have significant input	management does not want an area with activity and engagement		
			people involved did not look at relevant sites such as the Kananaskis and Oldman R.	management wants to blend in with the rest of the river valley		
			many issues misunderstood			

Table 6: Bow Waters Canoe Club Interview Summary

Initial	positives	negatives	Input, suggestions, concerns	response	satisfied with process	outstanding issues	most attention	least attention	current position
BWCC initial proponent	safety	large group of various stakeholders	ensure safety	yes	yes, we were satisfied	No	safety	paddlers lowered their expectations	very pleased it is underway
enthusiastically supported it	paddling	many varying perspectives	attractive to paddlers	broad range of groups were acknowledged	inclusive nature of consultation	possibly some whitewater features not as attractive as they could be	rapids are safe under any flow for ANY person	especially high end paddlers	excited to see Calgarians make good use of it
		affect groundwater wells of Bow Habitat Station	suitable for open canoes	not always fully embraced but discussion always encouraged	large stakeholder group	recognize that the project is for the community, not only paddlers	attractiveness to paddlers	healthy compromise	
		must preserve diversion function	suitable for all river users - kayakers, rafters, recreational floaters		free discussion concept	satisfied with outcomes	natural environment		
		impacts of amenity on Inglewood area	suggested specialized training for various paddling disciplines				fish passage		
		effects on fishing	conceptualized competitive venue but site was deemed inappropriate				fish habitat		
		many other various possible impacts	would have liked to see competitive venue				second most discussed topic was creating improved natural environment		
		none of the negatives were fatal flaws							