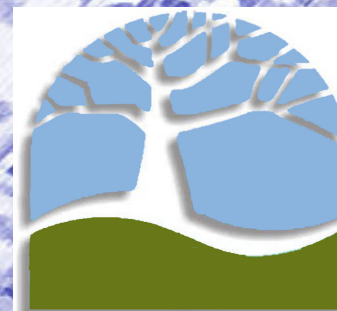


# *Reversing Rapids*

## *Lower River Passage*

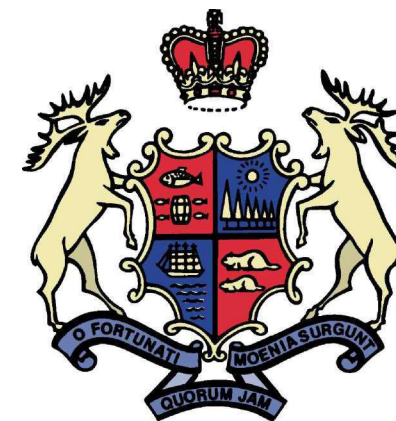


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PARK PLANNERS

## *Reversing Rapids - Lower River Passage Final Report*

February 2009

Prepared for  
The City of Saint John  
by  
Glenn Group Ltd.

in association with

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# Contents

## *Part I - Master Plan*

<i>i</i>	<i>Executive Summary</i>	<i>4</i>	2.9	Fallsview Park.....	44	<i>4</i>	<i>Programming</i>	<i>82</i>
<i>1</i>	<i>Introduction</i>	<i>8</i>	2.10	The Cove.....	47	4.1	Interpretive Themes.....	83
1.1	Background to the Study.....	9	2.11	Harbour Passage Connections.....	49	4.1.1	Why Do We Need Themes?.....	83
1.2	Understanding the Phenomenon.....	10	2.12	Wolastoq Park.....	50	4.1.2	Reversing Rapids Main Theme.....	84
1.3	Study Objectives and Methodology.....	11	<i>3</i>	<i>Visitor Experience</i>	<i>54</i>	4.1.3	Reversing Rapids Sub-Themes.....	85
1.4	City-wide Context.....	12	3.1	Arrival.....	56	4.2	Mock Programming Day.....	87
1.5	10 Essentials of Successful Travel Products.....	15	3.2	The Visitor Centre.....	57	<i>5</i>	<i>Product Positioning</i>	<i>88</i>
<i>2</i>	<i>Park Master Plan</i>	<i>16</i>	3.2.1	Arrival.....	57	5.1	Potential.....	89
2.1	Planning Principles.....	17	3.2.2	Lobby.....	58	5.2	Ten Essential Evaluation.....	90
2.2	Branding.....	18	3.2.3	Upper Gallery.....	59	5.3	Markets and Demands.....	91
2.2.1	Occupied Brands Along the Bay of Fundy.....	19	3.2.4	Pre-Show.....	60	5.4	Promotional Themes.....	92
2.2.2	How Does the Reversing Falls Stack Up?.....	20	3.2.5	Feature Show.....	62	5.4.1	Touring Vacationers.....	92
2.2.3	The New Reversing Rapids Brand Concept.....	21	3.2.6	Exhibit Galleries.....	64	5.4.2	Meetings, Conventions and Incentive Travel..	92
2.3	Geopark Concept.....	24	3.2.7	Return to Upper Levels and Site Access.....	66	5.4.3	Cruise and Group Escorted.....	93
2.4	Conceptual Models.....	25	3.3	Site Exhibits.....	67	5.5.4	Local and Visiting Friends.....	93
2.5	Image.....	26	3.3.1	Interpretive Pathways to View Areas.....	67	5.6.5	Schools and Education Market.....	93
2.5.1	Public Art.....	26	3.3.2	Bridge View Areas.....	68	<i>6</i>	<i>Implementation</i>	<i>94</i>
2.5.2	Site Furnishings.....	28	3.3.3	Train Bridge and Split Rock Lookouts.....	70	6.1	Capital Costs.....	95
2.5.3	Parking.....	29	3.3.4	Thematic Lighting.....	72	6.2	Phasing.....	95
2.5.4	Trails.....	29	3.4	Fallsview Park (and Adventure Zone).....	73	6.3	Land Ownership.....	97
2.6	Signage.....	30	3.4.1	Orientation Pavilion.....	73	6.4	Private Sector Opportunities.....	98
2.6.1	Signage Design.....	35	3.4.2	Fundy Rock and Water Zone.....	75	6.5	Funding Opportunities.....	98
2.7	Overall Plan.....	38	3.4.3	Amphitheatre and Water Show Area.....	75	6.6	Operational Considerations.....	99
2.8	Reversing Rapids.....	39	3.4.4	Adventure Zone.....	76			
2.8.1	Visitor Centre.....	42	3.4.5	Fallsview Park.....	78			
			3.5	The Cove (Lower West Side).....	80			
			3.6	Fishing Wharves.....	81			



Part II - Research and Studies

7	Public Consultation	102	9	Permits and Approvals	133		Appendices	
7.1	Public Input Meetings.....	103	9.1	Introduction.....	134	A	Cost Estimate Breakdowns.....	148
7.1.1	First Meeting - August '08.....	103	9.1.1	Understanding of Master Plan Components.....	134		- Fallsvew.....	149
7.1.2	Second Meeting - November '08.....	106	9.1.2	Site Information.....	134		- The Cove.....	154
7.2	Interviews.....	107	9.1.3	Regulatory Boundaries.....	134		- Reversing Rapids.....	156
7.3	Design Charette.....	109	9.2	Provincial Regulatory Requirements.....	135		- Overall Site Costs.....	158
7.4	Focus Group Testing.....	112	9.2.1	Environmental Impact Assessment Regulations.....	135	B	Cost Details.....	160
7.4.1	Purpose.....	112	9.2.2	Watercourse and Wetland Alteration Regulations....	136		- Visitor Information/Interpretive Centre.....	161
7.4.2	Methodology.....	112	9.2.3	Quarriable Substances Act.....	136		- VIC Pre-Show.....	162
7.4.3	Limitations.....	112	9.2.4	Crown Lands and Forests Act.....	136		- VIC Main Show.....	163
7.4.4	Key Findings.....	112	9.3	Federal Regulatory Requirements.....	137		- Signage.....	164
7.4.5	Conclusions.....	119	9.3.1	The Canadian Environmental Assessment Act.....	137	C	Highway Signage Schematics.....	168
7.5	Visitor Experience Survey.....	120	9.3.2	Harmonized Assessment.....	137			
8	Environmental Risk Assessment	121	9.3.3	Federal Permits and Authorizations.....	138			
8.1	Scope and Methodology.....	122	9.4	Requirements in Support of EIA Registration.....	138			
8.1.1	Scope of Work.....	122	9.4.1	Archaeological Potential.....	139			
8.1.2	Methodology.....	123	9.5	Strategic Approach for Phase I.....	140			
8.2	Regulatory Framework.....	124	9.6	Geotechnical Investigation.....	140			
8.3	Site Description.....	124	10	Servicing	141			
8.3.1	Physiography.....	124	10.1	Municipal Services.....	142			
8.3.2	Physical Setting.....	125	10.1.1	Fallsvew.....	142			
8.4	Previous Environmental Reports.....	126	10.1.2	Interpretive Centre - Riverside Drive.....	142			
8.5	Environmental Database/Records Review.....	127	10.2	Electrical Services.....	143			
8.5.1	Regulatory Information.....	127						
8.6	Findings.....	128						
8.6.1	Current Site Operations/Land Use.....	128						
8.6.2	Historical Land Use.....	128						
8.6.3	Phase I ESA Site Visit, Findings.....	129						
8.6.4	Sources of Possible Contamination.....	130						
8.7	Conclusions.....	132						



# Executive Summary

The Reversing Rapids Lower River Passage is a pivotal tourism opportunity for the City of Saint John. Implementation of this proposed development scheme is believed to be even more transformational than Harbour Passage in terms of generating all season tourism. The primary purpose of this project is to work with the Saint John Waterfront Development and the Harbour Passage Working Group to review the existing conceptual designs for specific undeveloped sections of the Harbour Passage and associated parklands and to provide specific recommendations on creating a World Class tourism product and brand with Reversing Rapids as the centrepiece. Proposed development in this plan follows the lead established by the Saint John Inner Harbour Land Use and Implementation Strategy (2003), along with the many successful waterfront developments in Saint John over the past few years.

Reversing Falls as a tourism product has fallen off the radar for visitors and the Province of New Brunswick has removed it from its core group of class “A” attractions. Concerns with the declining status of the site motivated the City of Saint John to undertake this master plan.

There are many occupied brand spaces in Atlantic Canada at this time, focusing on the success of the “Bay of Fundy product”. The City of Saint John and Reversing Falls in particular have not taken ownership as the central of the Bay of Fundy product. Focus group testing confirmed that there is a serious disconnect with the marketplace and current Reversing Falls offering. Visitors to the current site are often confused, or disappointed when they don’t see water moving straight upwards, defying gravity. Focus group testing was conducted in four different locations: Halifax, Ottawa, Montreal, and Boston. These sessions resulted in some very strong recommendations for a new brand concept, as well as some insight into the way New Brunswick in general, and Saint John in particular,

are perceived both outside and inside the province. Images of jet boats, zip lines and interactive interpretations resonated very favourably with this potential market. The existing ‘Reversing Falls’ product is clearly in a serious state of decline. A new brand and development focus is recommended: “Fundy’s Reversing Rapids: A Geo-Marine Wonder”.

The Master Plan provides a means for understanding the unique local geology, offers new access to the sites and dramatically enhances visitor amenities in an effort to gain status as the first world UNESCO Geopark in North America. Comprised of three linked sites: Fallsvue Park, Reversing Rapids, and The Cove. The new Reversing Rapids will immerse visitors in the physical phenomena and the fascinating cultural heritage of the site. The Saint John Geological Eco-Zone stands to be exploited as the first dynamic catch point for Bay of Fundy Tourism. The site currently lacks or just barely meets each of the Ten Essentials of Tourism Products, but it has the potential (as the proposed “Fundy’s Reversing Rapids” site) to exceed them all. There are many markets for this product, and promotional targets could include such groups as touring vacationers; meetings, conventions, and incentive travellers; cruise ship passengers and escorted groups; locals and visiting friends and relatives; and school and educational groups.

A new signage hierarchy system is required to identify Fundy’s Reversing Rapids as a Class “A” attraction at all entry points to the city. Directional signage on Saint John city streets will lead visitors and sculptural entrance/welcome signs will greet them at each of the three linked sites.

The Reversing Rapids site will include a dynamic new Visitor Information Centre with a link to an expanded Garden Falls Restaurant; a dramatic lookout plaza featuring a large light/tidal marker and sculptural elements; observation decks under the Reversing Falls Bridge will replace the aging Reversing Falls Restaurant; and a shuttle system linking the site to Fallsvue Park and The Cove. The Visitor Centre itself is designed to echo the vortex formed by the Reversing Rapids. It incorporates green roofs, and extensive use of glass and natural or “green” building elements; to follow LEED principles.

Arriving at the Visitor Centre, visitors encounter a large water clock, as well as orientation to the site, and shuttle bus information. The lobby is used for ticketing, and also features thematic banners, a retail area, café, and washrooms. There is also a boutique conference space with views to the site. The Upper Gallery has a large format scaled model of the Reversing Rapids area, serving as an introduction to the Reversing Falls story. This leads to a audio visual pre-show for visitors waiting to experience the main show, a Disney type of experience with its moving floor and three-story screen exploring the full depth of the story both above and below the water line. After the show, visitors can wander the interactive exhibit galleries, and then return to the upper levels to access the rest of the site on foot, or via shuttles. Pathways feature interpretive panels, and sculptural installations. Bridge view areas are geologically themed (“Touch Two Continents”) and also feature sculptural elements. Lookouts at Split Rock (recently completed) and under the Train Bridge will be incorporated as well. Wolastoq Park will be integrated into the Reversing Rapids site with an enhanced entry stair, improved parking, and guided tours.



Fallsview Park will feature a spiral earthwork sculpture and geologically significant rocks; a viewing gallery with access to the water, and another light/tidal marker; and an area designated for vendors. As the “Adventure Zone”, it will also include an interpretive kiosk paired with a centre for private sector initiatives such as Jet Boat rides and zip lines. The St. John River Watershed Plaza doubles as an amphitheatre and features a large fountain on which images can be projected. In addition to this, there is also a large multi-use sportsfield for Harbour View High School, walking/jogging/cycling trails, and a kayak launch site. The Adventure Zone activities will be run by private sector partners. The park will otherwise be open to the public and be used by both tourists and local residents. Interpretation here will feature the Irving Pulp and Paper Mill as well as the Reversing Rapids and Fallsview stories.

The Cove offers a picturesque and natural environment and is mainly a passive park space. It includes many trails and lookouts, as well as a large lookout cantilevered deck with an interpretive kiosk and take-out style seafood restaurant. The interpretive kiosk at The Cove will focus on marine themes. This is where the third light/tidal tower will be located. The take-out restaurant will be privately operated and will offer local delicacies and fresh seafood. The playground will also incorporate the marine motif. The fishing wharves will be a mix of waterfront heritage buildings and private residences. The Fishing Wharves along Riverview Drive should be acquired and restored or reconstructed as interpretive sites. Riverview Drive itself will be given a streetscape treatment with Harbour Passage links to Long Wharf and Blue Rock. Many other future connections via Harbour Passage are planned as well, to form a city-wide trail system

The main Reversing Rapids theme is “Fundy’s Geo-Marine Wonder”, focusing on geology and history. Sub themes include “The Collision of Continents”, “Where the River Meets the Sea”, “Community Connections”, “Industrious City”, and “Our Rapids” (Aboriginal lore and history of the Rapids). A daily schedule would follow the high and low tides, and provide many activities and events in between transforming the visit from a short stay to a day and evening long experience. Key to an evening or “after eight” exposure will be a world class light show for the Reversing Falls Bridge synchronized with the tidal clock. Illuminating the rapids at night is also critical for the success of the restaurant.

Based on projected 2009 contractor’s prices, the Class “B” preliminary budget for this project (not including cost for land acquisitions and private development) is \$36,500,000 plus HST. Some of the initiatives can be implemented right away while others will take time to organize. As the master plan stretches beyond public land, several acquisitions, easements, and leases will be required. There are many private sector opportunities, and funding strategies should be based on the Saint John Waterfront Development model for Harbour Passage. A site manager is recommended and an anticipated operations budget increase equal to 5-10% of the capital cost minus revenue.

A number of top designers from across the country took part in formulating this master plan. A two day design charrette was held with the public and members of the steering committee which resulted in preliminary plans and interpretive themes. Two public input meetings were held in August and November of 2008. The first meeting resulted in numerous suggestions of what should be included in the master plans, and the second provided information on the opinions of local residents about the current site (“Reversing Falls”) and the proposed changes and master plan. Several interviews were conducted with affected organizations, pertinent land owners, and key individuals. They provided a diverse list of comments and recommendations, which were taken into consideration (along with the public input meeting results) when creating the master plan.

An Environmental Risk Assessment was carried out, locating several remedial sites, suspected fill areas, municipal dump sites,

and suspected mine areas. It was recommended that these locations be avoided as sites for structures. A review of potential regulatory requirements for the development of the Reversing Rapids site recommended a strategic approach to development of the site, so that requirements for approvals and permits may be eliminated or reduced in scope. A review of existing servicing was conducted, showing that only minor extension of services will be required. A Geotechnical Assessment was also undertaken by sampling bore holes in areas of past land slides to determine future risks.

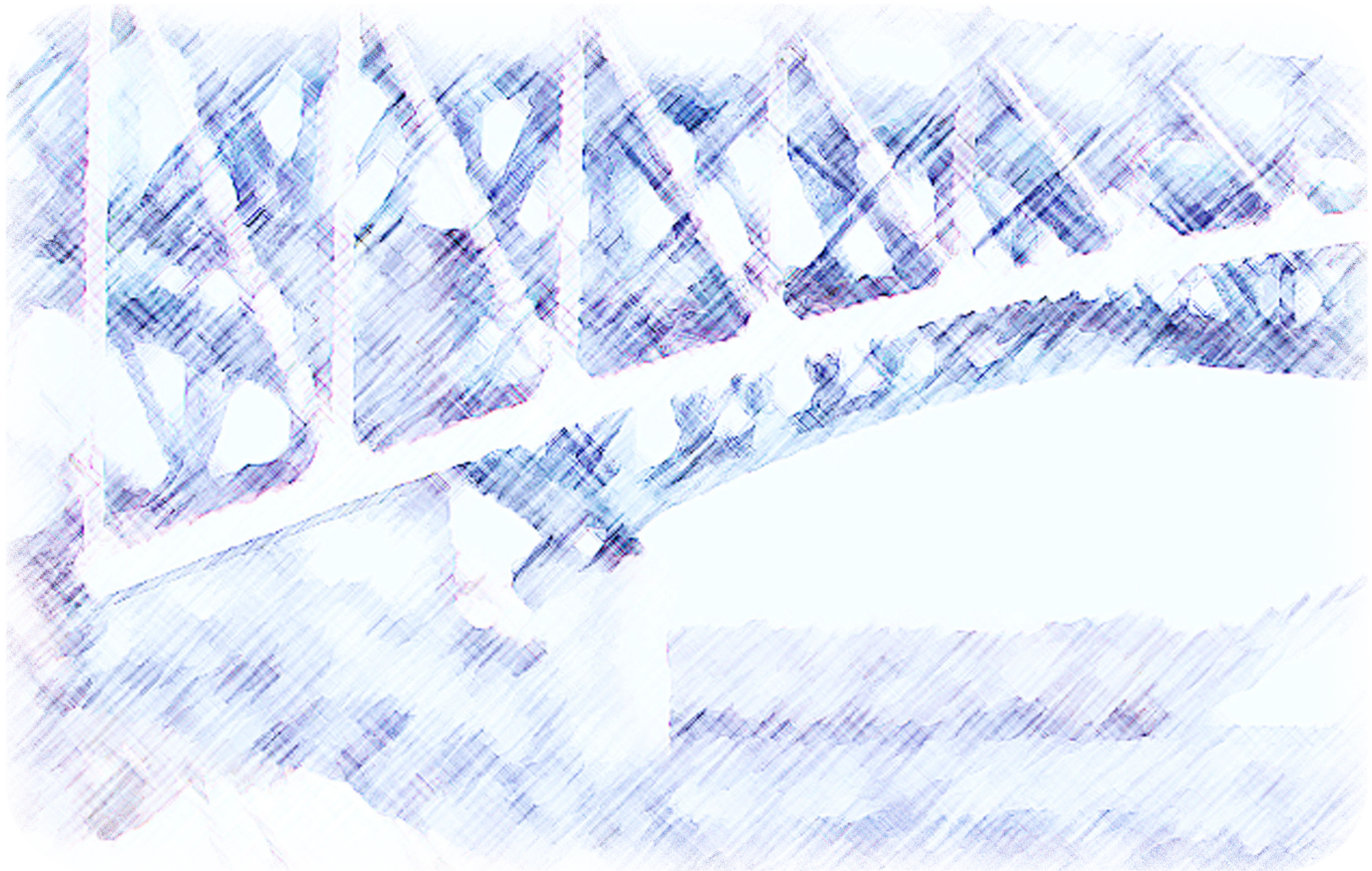
This comprehensive plan charts a course for transforming the out dated Reversing Falls into one of the most exciting tourism products the province has ever seen “Fundy’s Reversing Rapids: A Geo-Marine Wonder”. The scheme firmly takes ownership of the Bay of Fundy tourism entity. Locally the site retains public access with even more opportunities to explore or simply watch the ever changing waterway. The entire experience will become more engaging, more scientifically substantiated as an authentic world class phenomena and a lot more fun in the process.





# PART I - MASTER PLAN









# *Chapter 1*

## Introduction

In order to fully appreciate the Master Plan, an understanding of the background and objectives of this report must be acquired. The phenomenon itself must also be understood, as well as the City of Saint John's general plans and outlook, and the current state of the Reversing Falls as an attraction. As an introduction to the Master Plan, Visitor Experience, Programming, and Implementation chapters, this introduction serves to acquaint the reader with everything they need to know.

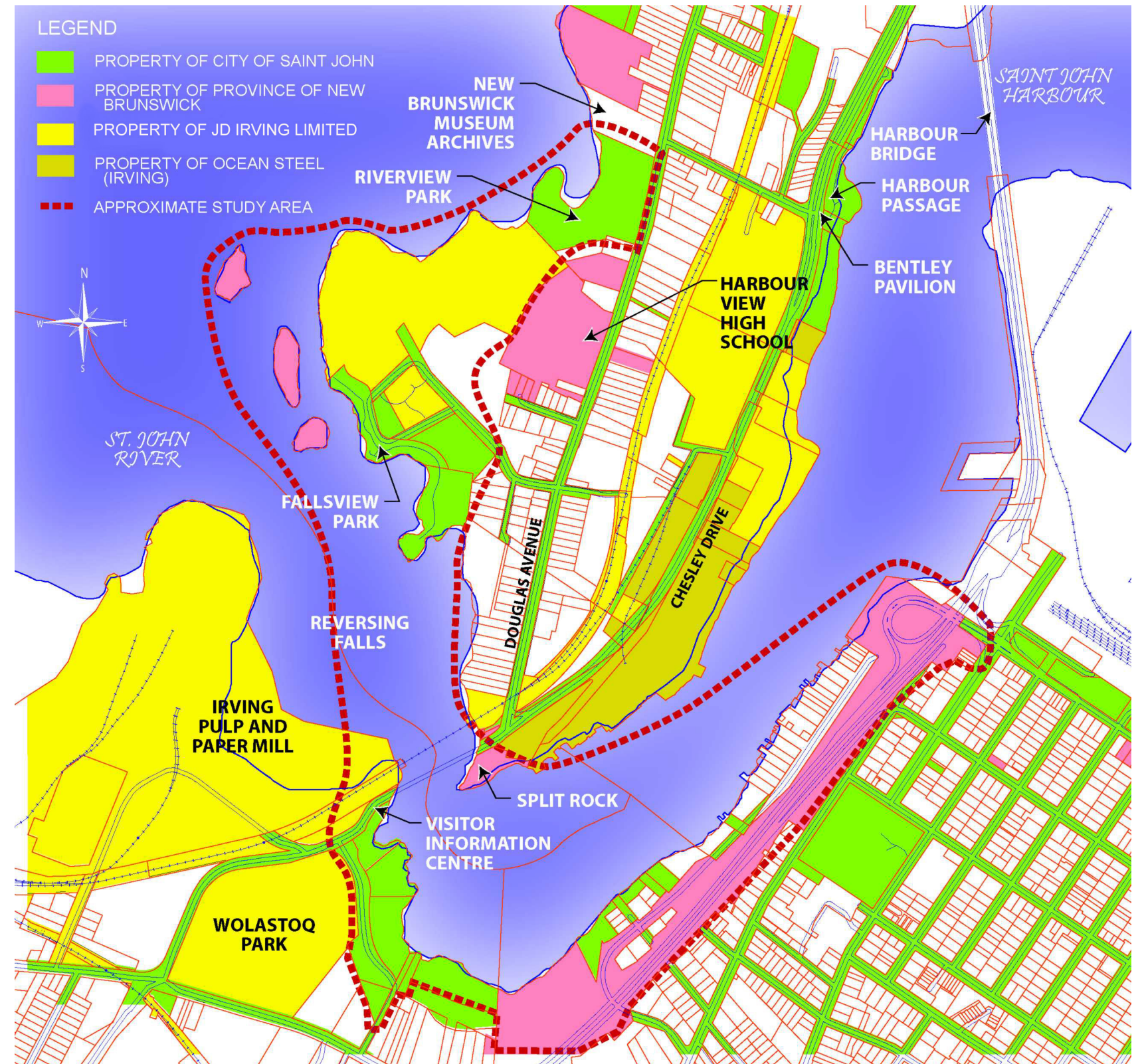


# Background to the Study 1.1

The Reversing Falls Lower River Passage is a pivotal tourism opportunity for the City of Saint John. Until now, the City has not had the benefit of a holistic master plan to fully embrace the potential of this rare natural phenomenon as a world-class attraction. Remarkably, much of the land surrounding and adjacent to the rapids remains available for development.

For the purpose of this plan, the name “Reversing Falls” will be replaced with “Reversing Rapids”, as the proposed project brand.

The existing ‘Reversing Falls’ product is in a serious state of decline and falls far short of its potential to drive visitation to the city, as well as to the province. The province has, in fact, stopped treating the site as an attraction of any importance.





## 1.2 Understanding the Phenomenon

Visitors arriving at slack tide wonder what all the hype is about, while visitors arriving during the dramatic torrent of gushing water wonder when the falls reverse and the river defies gravity. Key to appreciating the phenomenon of the Reversing Rapids is an understanding of how it works and why. Without this knowledge visitors are cheated out of the magnitude of this gravitational experience. Readers of this report would also be ill informed without this understanding. The excerpt - on the right - from the New-Brunswick.Net website does an excellent job of explaining the mechanics of the phenomenon.



*Photo and excerpt courtesy of [www.new-brunswick.net](http://www.new-brunswick.net)*

“The phenomenon of the Reversing Falls is caused by the tremendous rise and fall of the tides of the Bay of Fundy, which are the highest in the world. The natural southward-facing opening of the Bay of Fundy receives the on rushing ocean tides directly like a funnel. The tidewater is normal when it enters the bay at its widest point. But the farther up the bay it travels the more it changes. It is, in effect, squeezed by the ever-narrowing sides and the constant shallowing of the bottom forcing the water higher up the shores. The low tide running out of the bay collides with the new, incoming high tide, combining forces to make a higher wave coming in. The combination of wave forces is called resonance.

The Bay of Fundy tides are a result of the tidal action originating in the Southern Indian Ocean sweeping around the Cape of Good Hope and then northward into the Bay of Fundy. They are also affected by the distance of the moon from the earth at this longitude. Here in Saint John, the bay tides rise 28 ½ feet. When the tide is low, the St. John River, 450 miles long, empties into the bay. Between Fallsview Park and the Pulp Mill, the full flow of the river thunders through a narrow gorge. An underwater ledge, 36 feet below the surface causes the water in the river to tumble downward into a 175-200 foot deep pool. Below the mill and under the bridge. The water then boils in a series of rapids and whirlpools.

As the bay tides begin to rise, they slow the course of the river and finally stop the river’s flow completely. This short period of complete calm is called slack tide. It is only at this time that boats are able to navigate the Falls. Shortly after this slack tide the bay tides become higher than the river level and slowly, at first, the river begins to flow upstream. As the bay tides continue to rise, the reverse flow gradually increases and the rapids begin to form, reaching their peak at high tide. The effect of this reversal is felt upstream as far as Fredericton, more than 80 miles inland. At this point the tidal waters are actually 14 ½ feet higher than the river.

After high tide the bay tides begin to fall and the upstream flow of the river gradually lowers until the bay tides fall to the level of the river - once again resulting in another slack tide. The river then resumes its normal course and begins to flow back out of the bay. The bay tides continue to fall below the level of the river until at low tide the rapids are again at their peak, flowing down stream. At this point the tidal waters are 14 ½ feet lower than the river level.”



# Study Objectives and Methodology 1.3

The primary purpose of this project (as stated in the proposal) is “to work with the Saint John Waterfront Development and the Harbour Passage Working Group to review the existing conceptual designs for specific undeveloped sections of the Harbour Passage and associated parklands” and to “provide specific recommendations on creating a *World-Class* tourism product and *Brand* with Reversing Falls Rapids as the centerpiece”.

The overall objective is to prepare a staged work plan for the preparation of construction documents for a world-class attraction. It will ensure due diligence is done in terms of public input, environmental risks, permits, cost estimating and design review for a world-class attraction. At the same time, the “wow” factor is required to attract visitors and make the experience truly memorable.

The project area is defined as the area behind the NB Museum Archives, (Fallsview Park) from Marble Cove to Split Rock, across the Reversing Falls bridge to Wolastoq Park and along the St. John River next to Riverview Drive as far as the Harbour Bridge.

Figure 1.1 Examples of Tangible and Intangible Tourism Product

Tangible	Intangible
Traditional Bricks & Mortar Infrastructure	Experiential Development
Technology Infrastructure	Festivals and Events
Transportation Enhancement	Capacity Building
Scenic Drive Development	Inter-active Technology
Creating Marine Access	Training and Labor Market Development
100% Point Development	Mentoring
Lighthouse Restoration	Mystery Shopping
	Creating Value-added Propositions

Phase I of this project identifies environmental concerns requiring further study; federal, provincial and municipal approvals; and permits that may be required based on proposed development components. Phase II involves the management of the work to complete environmental assessments, permit applications, and soil testing.

The scope of work to meet this objective will include the following:

- ❖ A powerful combination of the tangible (physical) and intangible (experiential and emotional) aspects of tourism product development (See Figure 1.1);
- ❖ Interpretive and signage plans;
- ❖ Identification and reinforcement of a key visitation point;
- ❖ The creation of powerful people places;
- ❖ Identification of interpretive themes - a branding concept will be supplied;
- ❖ Design of four-season, accessible, multi-purpose recreation trail(s);
- ❖ Stakeholder interviews, public consultation;
- ❖ Public art, commercial opportunities;
- ❖ Public washrooms;
- ❖ Promotional material to help sell the design;
- ❖ Design of interpretive structures and an interpretive centre;
- ❖ Design of vehicular access and parking including bus turning;
- ❖ Landscape design, including indigenous and low maintenance landscapes;
- ❖ Site furnishings, signage and safety features;
- ❖ Environmental Risk Assessment and incorporation of results in design; and
- ❖ Preparation of an implementation plan outlining capital budget requirements, phasing options, estimated timelines for construction, and potential funders.



# 1.4 City-Wide Context

The Reversing Rapids and its environs were analyzed as a tourism product - including promotion and activities - at the three sites composing the project area: Reversing Rapids, Fallsview Park, and The Cove (Riverside Drive). Integration with Wolastoq Park was also considered in the formation of a new world-class product for the Reversing Rapids. Proposed development in this plan follows the lead established by the Saint John Inner Harbour Land Use and Implementation Strategy (2003) prepared by Urban Strategies Inc. The vision outlines a plan for the Uptown Waterfront with connections via Harbour Passage to other opportunities such as the Reversing Rapids.

## *Land Use Plan Objectives*

- ❖ Comprehensive vision
- ❖ Environment for quality investment
- ❖ Catalyst for economic growth
- ❖ Market confidence



*Inner Harbour Land Use and Implementation Strategy, Urban Strategies Inc.*



*Inner Harbour Land Use and Implementation Strategy, Urban Strategies Inc.*



There have been many successes of waterfront development in Saint John over the last five years alone, and more are being contemplated.

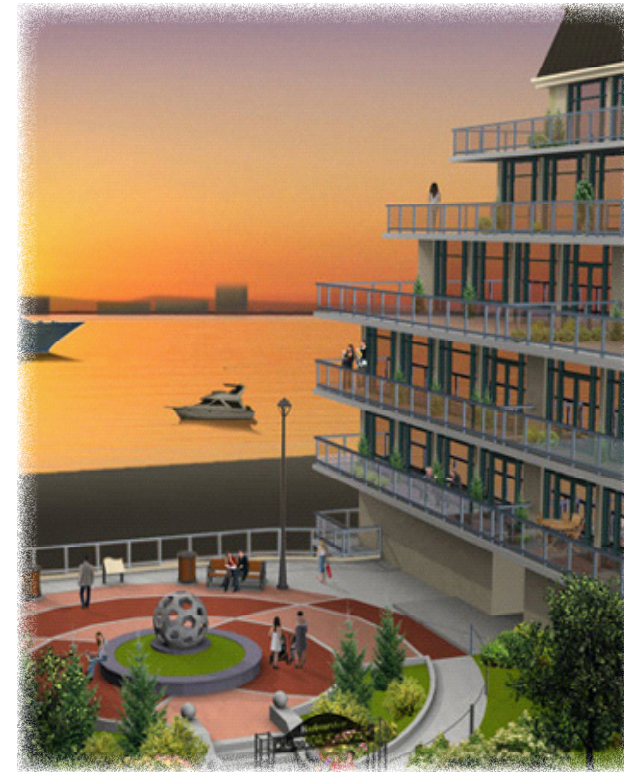
*Harbour Passage*



*Cruise Terminal*



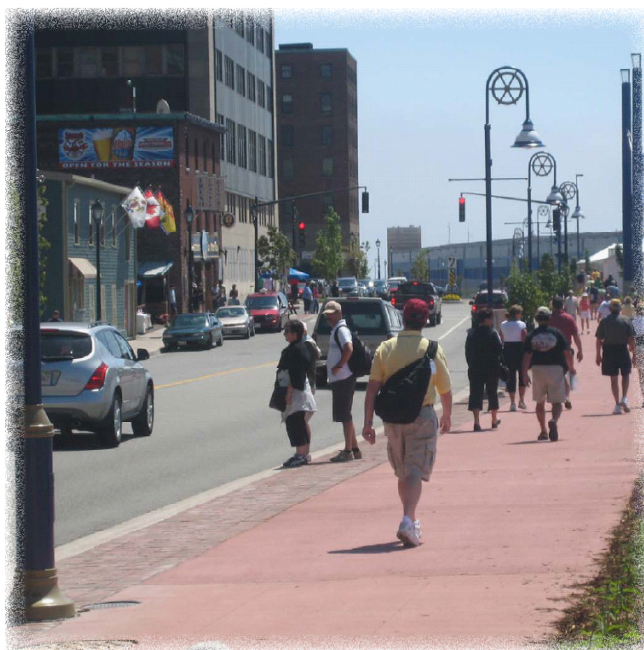
*Proposed Harbourfront  
Residences at Three Sisters*



*Proposed Coast Guard Site*



*Water Street Revitalization*



*Bentley Crossing*

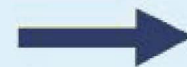


*Proposed Irving Office Complex Redevelopment at Long Wharf*





### *Redefining Image*



There are lessons to be learned from other communities who have redefined their image through waterfront development.

- ❖ Investment in high quality public places pays back
- ❖ A city's image is fundamental to its economic future
- ❖ Create strong anchors then connect them
- ❖ Early initiatives lay the foundation for the long-term

These lessons demonstrate that fundamental job-creation industries alone will not make a city vibrant. Without a balance of social and cultural assets, cities cannot truly prosper.



# The 10 Essentials of Successful Travel Products 1.5

## 1. *Well-Themed*

- ❖ Experience matches a distinguishing theme or brand

## 2. *The Emotional Trigger*

- ❖ Experience causes an emotional reaction

## 3. *Authentic*

- ❖ Real versus contrived

## 4. *Accessible*

- ❖ Ease of access to product information, purchase, site location and mobility at the site

## 5. *Enriching*

- ❖ Experience leaves the customer changed

## 6. *Educational*

- ❖ Experience provides a unique learning opportunity

## 7. *Entertaining*

- ❖ Experience evokes joy, laughter, fun

## 8. *Hands-On*

- ❖ Customer is a participant instead of a spectator

## 9. *Value-Added*

- ❖ Experience has the element of surprise

## 10. *Exceed Expectations*

- ❖ Experience blows the customer away

The Ten Essentials of Successful Tourism Products is an experiential assessment model used by Forerunner Creative and Tourism Strategies Ltd. to help promoters see the weaknesses and the potential within their product offerings. The theory behind the model is that a tourism product is not meeting its potential until it 'Exceeds' in all ten of the prescribed assessment categories. This and other site and program assessment tools were used in the overall effort to build an improved new product and experience at the Reversing Rapids. For each of the ten categories described in this assessment tool, action plans were created which, if funded and enacted, would ensure the destination 'Exceeds' in all respects.

An evaluation of the existing product can be found in Section 6.2, along with an anticipated evaluation of the proposed master plan enhancements.





An aerial photograph of a river flowing through a city. A large bridge spans the river in the middle ground. The city is densely packed with buildings and trees. The river is wide and calm. The sky is clear and blue.

# *Chapter 2*

## Master Plan

The Master Plan describes the proposed enhancements that will transform the Reversing Rapids into a world class, year round, attraction. Attractions are made up of more than just bricks and mortar - facilities need to convey a unique image and development philosophy that is consistently applied. This chapter outlines the guiding principles that ensure best practices are followed. It also establishes a new brand that more accurately depicts the natural phenomenon.



# Planning Principles 2.1

The planning principles for Reversing Rapids shall follow those already established for the Saint John Waterfront Development:

## ❖ Public Access

*Future development must incorporate significant and permanent public access to our waterfront areas.*

## ❖ Significant, Sustainable & Balanced Development

*Our waterfront must encourage mixed-use development which is economically sustainable and of superior quality.*

## ❖ Effective Public - Private Sector Partnerships

*Successful waterfront development requires effective community partnerships. The public and private sectors must cooperate in prioritizing, planning and implementing waterfront development in Saint John.*

## ❖ Sensitivity To The Historical Character of Saint John

*Development along our waterfront must both reflect and complement Saint John's rich heritage, architecture and character and support the revitalization of the Trinity Royal Heritage District.*

## ❖ Broad-Based Community Appeal

*All of our citizens, as well as visitors to the region, should feel welcome on our waterfront. Our waterfront should provide and support broad-based community activities and participation on a year-round basis.*

## ❖ Support A Strong Working Port

*To provide an active commercial port within a vibrant waterfront, co-existing with the surrounding community.*

## ❖ Encourage Economic Growth & Diversification

*Waterfront development should create new economic growth and development opportunities in this region, including continued diversification into new economy activities such as information technology and tourism.*

## ❖ Promote Arts & Cultural Activities

*The creation of public arts and cultural venues should be encouraged and the active participation of our arts community sought from the outset of waterfront planning. The concept of a waterfront "Festival Place" should be incorporated in our waterfront development plans.*

## ❖ Encourage Interpretation & Education Activities

*Our waterfront should encourage opportunities for interpretation and education, especially in reference to our community's extraordinary heritage, working waterfront and unique geographic location where the St. John River meets the Bay of Fundy.*

## ❖ Meaningful, Open & Consultative Community Participation

*Meaningful community participation is essential for successful waterfront planning and development. It should begin early in the process and be continuous throughout.*

## ❖ Long-Range Planning

*Successful waterfront development will require commitment to a long-term vision and master plan. Development will occur in progressive increments over time that truly reflects the richness of this community's character.*

## ❖ An Environmentally Sustainable Waterfront

*Water is the defining force that fundamentally shapes the character and development of the Greater Saint John region. Sustainable waterfront development must incorporate community plans to improve the quality of our physical environment, including the St. John River, Kennebecasis River, Saint John Harbour and the Bay of Fundy.*

## ❖ Enhance The Quality of Life For Residents of Greater Saint John

*Waterfront development must create a positive and permanent impact on the quality of life for residents of Greater Saint John.*





## 2.2 Branding

### *Tourism as a Retail Product*

- ❖ Tourism consists primarily of retail products. Therefore, the rules of consumer retail products apply to the Reversing Rapids and other Fundy entities just as readily as they do to food, cars, fashion or soap.

### *The Brand Promise*

- ❖ Predicated on a Unique Selling Proposition
- ❖ If you can't own it, you don't want it!
- ❖ Must be honest
- ❖ Must be tangible and truly capture an experience

### *Summary of Occupied Brand Space in Atlantic Canada*

- ❖ Geology
- ❖ Fossils
- ❖ Marine wildlife viewing
- ❖ Scenic viewing
- ❖ Viewing tidal activity

### *The Challenge*

- ❖ Define an experience that is tangible, offers a unique selling proposition (unoccupied brand space), and can be completely owned by the City of Saint John

### *The Opportunity*

- ❖ To transform the Reversing Rapids experience into a unique world class attraction





## 2.2.1 Occupied Brands along the Bay of Fundy

### New Brunswick Museum

**Stature:** Professional institution but not well understood by consumers

**Brand Promise:** Unclear

**The Experience:** Variety of touring and permanent collection exhibits and learning opportunities



### Fundy Trail Parkway

**Stature:** Rising stature as one of Fundy's pre-eminent destinations

**Brand Promise:** It's spectacular from every view

**The Experience:** Highly diverse Fundy Coast access by motorized vehicle, hiking and biking



### Brier Island

**Stature:** Not well exposed by Nova Scotia Tourism

**Brand Promise:** Billed as an 'eco-tourism destination' ("Come for the whales")

**The Experience:** Primarily marine adventures



### Blomidon Provincial Park, NS

**Stature:** Middle of the road

**Brand Promise:** Landscape, seascape, and the Fundy tides – not very direct or clear

**The Experience:** Promised as one of the best places to observe the Fundy tides



### Cape Enrage

**Stature:** Middle of the road – not a well understood product – under-exposed by New Brunswick Tourism

**Brand Promise:** The Best View in Canada – mixed with a variety of adventure experiences

**The Experience:** Diverse choice of nature experiences – powerful sense of place



### Joggins Fossil Cliffs

**Stature:** Building

**Brand Promise:** 'Discover the Secrets of Time'

**The Experience:** Exposure to the story of fossils and the actual presence of fossils





## *Old Sow*

**Stature:** Very under the radar

**Brand Promise:** Not branded but described as the largest whirlpool in the Western Hemisphere

**The Experience:** Not accessible – the whirlpool is sporadic and it moves



## *Shubenacadie River Runners*

**Stature:** Not well exposed by Nova Scotia Tourism

**Brand Promise:** Brand not well executed – promises excitement in a safe context

**The Experience:** Thrilling tidal bore rafting



## *Fundy National Park*

**Stature:** Long-standing position as a premier Fundy destination – seen by some, however, as growing tired

**Brand Promise:** Typical of national parks, the property's specific brand promise is unclear – rather the brand emphasis is on 'Parks Canada'

**The Experience:** Diverse Fundy nature, interpretation and family experiences



## *The Hopewell Rocks*

**Stature:** Relentlessly exposed icon for the Province of New Brunswick and the Bay of Fundy

**Brand Promise:** Walk on the Ocean Floor

**The Experience:** Multi-faceted interpretation, interactive



## *Fundy Geological Museum*

**Stature:** Building

**Brand Promise:** Except for the historical presence of dinosaurs, not exactly clear

**The Experience:** Exposure to ancient world dinosaurs – wide variety of programming



### *2.2.2 How Does the Reversing Falls Stack Up?*

#### *Reversing Falls and Lower River Passage*

**Stature:** Under the radar

**Brand Promise:** Unclear except for the jet boat ride

**The Experience:** Currently very dated



### 2.2.3 The New Reversing Rapids Brand Concept

#### Research Findings

##### THE FOCUS GROUPS

The focus groups in Halifax, Montreal, Ottawa, and Boston were very conclusive. They revealed that there exists the need for an unequivocal new brand opportunity for the geo-physical marine wonder at the confluence of the St. John River and the City of Saint John’s inner harbour. The participants engaged in lively discussions about their travel preferences and needs, agreeing that the status quo branding and identification for the Reversing Falls fails to generate consumer interest or demand. Their universal preference was for a new descriptive which captures the essence of the experience. They strongly supported the use of “Fundy” to provide a sense of importance and location. Marketing of the Bay of Fundy experience had clearly resonated with the target market. The use of the term “wonder” adds a sense of mystery. Even the term “geo-marine” was universally understood as a unique interaction of the land and water. The participants were equally excited about new images which could help portray The Reversing Rapids in a positive and accurate light. Status quo images of the site and the experience tested very negatively (i.e The Loyalist Man).

##### THE VISITOR SURVEYS

The visitor survey process produced less exact and less unequivocal results. In a key question, survey participants were asked how well the Reversing Falls name described what they had experienced. On a 5-point scale (5=Very Good Description), 60% of all survey participants gave a score of 4 or lower. Name fit was distinctly weaker among the core visitor group of first time visitors motivated to visit to experience the phenomenon itself, with 68% giving a score of 4 or less and one-third (34%) giving a score of 3 or less. Feedback concerning awareness of the Loyalist Man figure and knowledge of ‘his’ historical association with Saint John was decidedly more clear, with only 23% of all survey participants being aware of the figure and able to correctly identify what the figure represents. Among the 23% above, almost 40% were of the opinion that the figure was not useful at all in helping visitors to understand what they were about to experience at the Reversing Falls.

##### SUMMARY COMMENTS FROM RESIDENTS ATTENDING MEETINGS

- ❖ New Brand is required, keep word “reversing”
- ❖ Needs a major interpretive centre
- ❖ Needs more activities (year round)
- ❖ Facilities are run down, neglected
- ❖ Current experience is disappointing
- ❖ Improve public access

(See Chapter 7 for detailed comments)

#### Summary Recommendations

##### 1. The Loyalist Man

The research shows clearly and unequivocally that the ‘Loyalist Man’ figure and image clearly has no relationship to the study site. Our team recommends that this icon, important as it is to the history and heritage of Saint John settlement, should be removed from the Reversing Rapids site and alternatively, should be given prestigious recognition (e.g. a bronze statue) at a relevant site in uptown Saint John.

##### THE SUPPORTING IMAGES

The recommended images and icons to be associated with the new positioning and brand proposition should include:

- ❖ A water funnel or vortex
- ❖ A lunar icon
- ❖ Human interaction with and/or witnessing human interaction within the vortex experience (i.e zip line, kayakers, the jet boat)
- ❖ Nature in the form of the river, the bay, wildlife and flora
- ❖ The bridge





2. The Preferred Brand Proposition

Based solely on the focus group findings, we would recommend a new positioning and brand opportunity for the City of Saint John and the Saint John Waterfront Development. ‘Fundy’s Reversing Rapids’ would be competitively positioned as being the most diversified and experiential destination for witnessing, feeling and understanding the forces of the Bay of Fundy tides.

*“Fundy’s Reversing Rapids”*

Elements of the brand will appear on all signage, markers, interpretive signs, key furniture elements, and paving patterns. The brand has tremendous merchandising potential. A tag line or slogan often accompanies a brand to clarify and promote the product. “A Geo-Marine Wonder” has been selected to convey the message of a natural phenomenon associated with a geological area of world significance along a unique body of water.

*“A Geo-Marine Wonder”*

3. Icon

The graphic logo represents the dynamic mixing of fresh (dark blue) and salt (light blue) water. A graduation of colour has been used within the image itself to further impart a sense of movement, rotation, and cycles; and the mysterious ways in which these phenomenon form. The reversing action of the water flow is captured in the reverse swirl that also depicts the image of a wave. “Reversing Rapids” is wrapped over the logo to provide additional dynamics to the brand. The word “Fundy” and the phrase “A Geo-Marine Wonder” are highlighted in a blue font to give them prominence in the slogan or brag line. “Fundy’s” appears as a hat or overlay above the logo to denote its primary significance.

The brand works equally well in French. The French and English versions will appear as independent brands rather than as a combination brand.



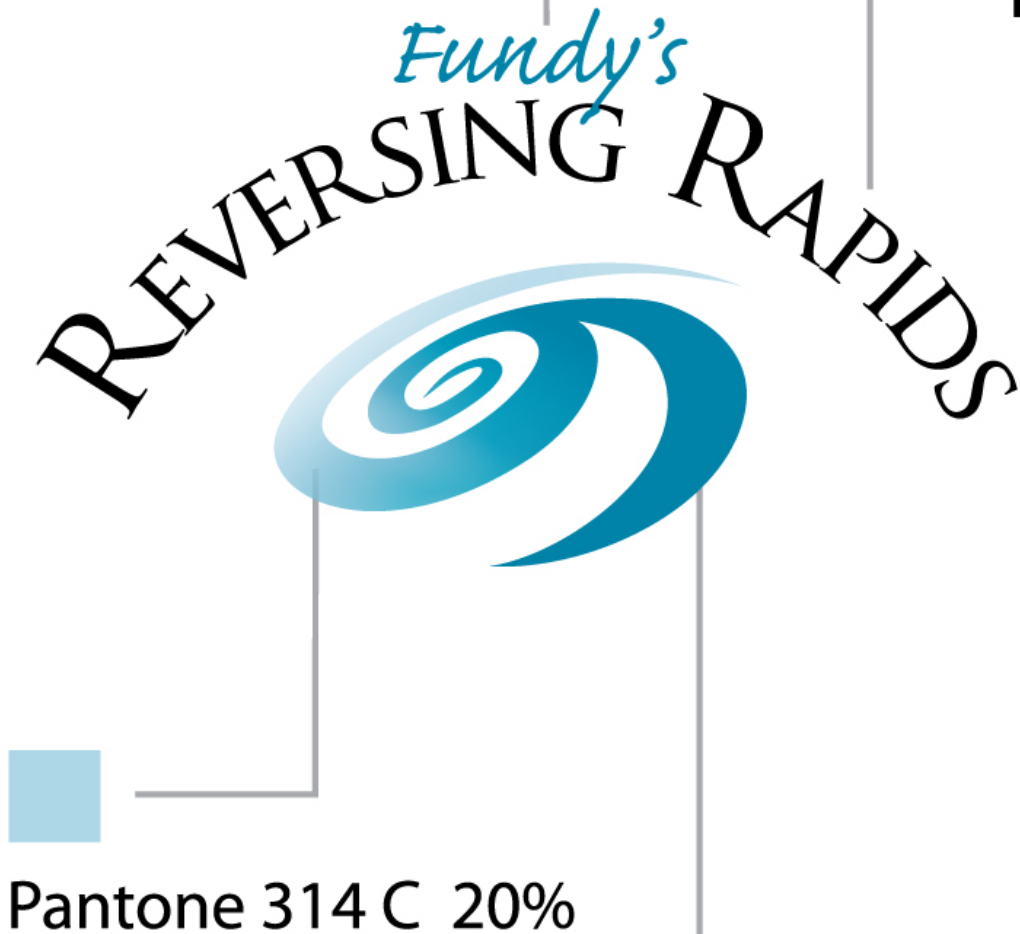


The serif font “Trajan Pro Regular” is used for the main “Reversing Rapids” portion, on a curved line. Trajan stylistically contains serifs which compliment and help to subtly reinforce the sense of movement. This font is more formal and scientific than the secondary font. Together, the two fonts maintain a balance between education and fun. The secondary font, “Caflisch Script MM Regular”, has been used because it is a friendly and approachable font which compliments the primary font. It has a hand-written sentimentality, which younger visitors are likely to respond to.



Pantone 314 C 100%  
Caflisch Script MM Regular

Trajan Pro Regular  
Black 100%



Caflisch Script MM Regular  
Pantone 314 C 100%

Caflisch Script MM Regular  
Black 80%

Pantone 314 C 100%



## 2.3 Geopark Concept

One way to gain international prominence is to become a UNESCO Geopark. Saint John has a diverse and fascinating geological story to tell: a billion years of history can be witnessed within its rock formations. UNESCO defines a geopark as “a territory encompassing one or more sites of scientific importance, not only for geological reasons, but also by virtue of its archaeological, ecological or cultural value.” In order to acquire the designation the site must adopt best practices with respect to Earth heritage conservation and its integration into sustainable development strategies. Geotourism is an important economic by-product of the plan. There are currently 53 registered Geoparks and none of them are in North America. Dr. Randy Miller, Curator of Geology and Paleontology at the NB Museum, is working alongside community groups, conducting research to support a geopark.

The Saint John region offers some 30-40 sites of geological interest from the fossil forest in Norton and 300 million year old Lepreau Falls to the caves in St. Martins. The Reversing Rapids site in particular, offers a rare view of billion year old Precambrian rocks north of the falls and 500 million year old terrain of thinly bedded shales south of the Reversing Falls Bridge, both of which originated in the Southern Hemisphere. The catwalk under the Reversing Falls Bridge effectively takes one through 500 million years in time. Rock formations are also visible that once formed the sea floor near Africa 500-540 million years ago. The fossils that abound in these rock formations have intrigued scientists for centuries. The first Precambrian fossil was found in Saint John, one of many discoveries that made the city a hub of geological exploration in the nineteenth century. A plan for Reversing Rapids Lower River Passage must reflect the geological significance of this location and its notable exploration history.

The Master Plan provides a means for understanding the geology, access to the sites, and visitor amenities.



*Mount Lushan Geopark, China (Image from [www.geoline.at](http://www.geoline.at))*



# Conceptual Model 2.4

There isn't any one way to experience the Reversing Rapids. Even river pilots who have spent their entire lives assisting in navigating the treacherous water claim that "no two days were ever alike". What is predictable is that twice a day the cycle will repeat itself. To fully appreciate this phenomenon, a visitor needs to spend time at the site to witness the fluctuation of the river. Interpretation of the tidal events and formation of the river physiography are also important when experiencing the marvel of the river.

Most people think of the earth as a stable place; however, it is in a constant state of fluctuation: ice caps melt and freeze; land rises with relief of ice weight; water levels rise as ice melts; continents drift; volcanoes erupt; and soil erodes. Along with climate impacts and gravitational pull, these things all contribute to a dynamic planet. The Reversing Rapids provide visual evidence of the volatility of our surroundings. A deeper understanding of the gravitational pull of the moon should be acquired. Establishing a "lunar clock" for on-site activities is a way to engage visitors and reinforce the sense of a special place on earth. To entertain visitors long enough to experience the full tidal cycle, or even two cycles, the Reversing Rapids experience needs to offer access to spectacular viewing points, engaging interpretation and event programming, and adventurous play opportunities. The experience needs to be expanded from the window view to a more holistic integration with the environment of the Reversing Rapids.

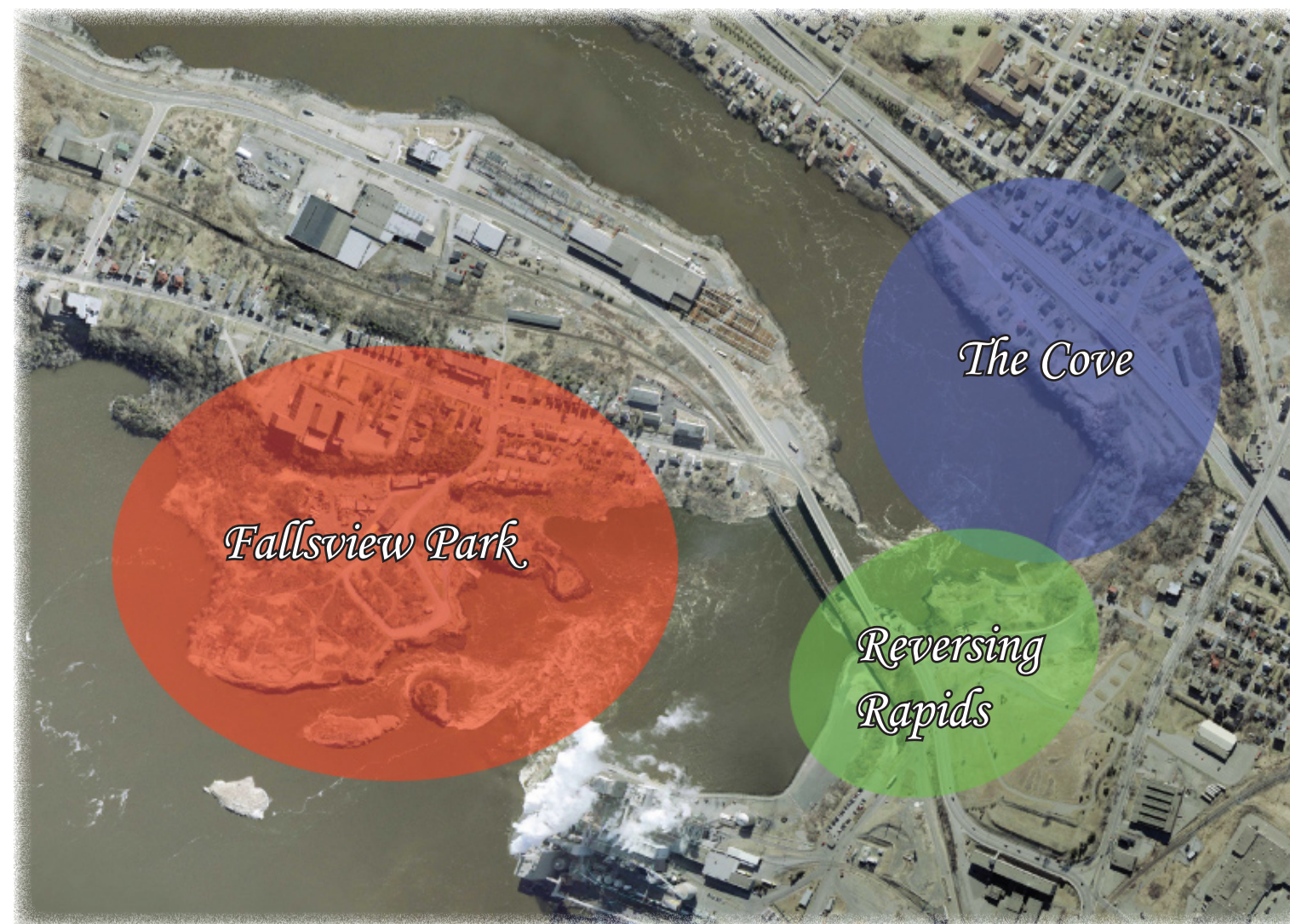
Creating a world-class experience will require a multi-faceted development approach. The anchoring model for development along the corridor where the river meets the harbour is a framework of three linked thematic nodes. The nodes will be linked physically by roads and trails and thematically by signage, consistency of materials, interpretation, programming and the UNESCO Geopark concept (outlined in Section 2.3). The nodes are briefly described here and detailed throughout the remainder of this report.

The central node at the Reversing Rapids will serve as the primary orientation area. Visitors will be directed to this location first. A major interpretation centre will provide interactive learning to ensure visitors enjoy the site in a more meaningful and rewarding manner. This simple notion of a welcoming and informative orientation experience followed by choices of linked passive and active experiences is fundamental in exceeding visitor expectations.

Fallsview Park – Adventure Zone, a place to play in the natural environment and introduce the St. John River Watershed

Reversing Rapids – Observation, a place for understanding and appreciation of the point where river, harbour, and continents collide

The Cove – Marine Connections, a place to enjoy close contact with the river in a natural setting and introduction to the Bay of Fundy





## 2.5 Image

In the marketplace, perception is often reality. Neglected sites and lower quality development – no matter how unique – translate into unsatisfying experiences. The name “Reversing Falls” set a false expectation for customers, with visions of a waterfall actually flowing from bottom to top in a gravity-defying act. Reinvigorating the Reversing Rapids site will require a multi-pronged approach. The following initiatives are recommended for a world-class image:

- ❖ Market a new brand based on the Reversing Rapids as the centre of the Bay of Fundy experience
- ❖ Adopt the UNESCO Geopark concept as the overlying theme for the site
- ❖ Market and develop products that support the science behind the phenomenon, including products which compliment the proposed NB Museum project
- ❖ Position the successful Harbour Passage as a key product within the Reversing Rapids
- ❖ Create a notion of trailhead to the Lower River Passage.
- ❖ Create an integrated signage system to direct, connect, and explain the product offering



### 2.5.1 Public Art

With the policy for committing arts money to infrastructure projects, public art in the City has become a priority. Public Art opportunities have been incorporated into the master planning with potential themes and locations being identified. Examples put forward include a “Street Chalk Art” competition, a labyrinth, a sculpture of Ugwug or Glooscap (as explained on the next page) and murals on the concrete bridge piers.

In addition to creating opportunities for public art pieces, all infrastructure and furnishings for the Reversing Rapids should be artful in their own right. Viewing platforms, signs, interpretive structures and seating should all serve as beautifully constructed and positioned creations suitable to the development theme and environment.



#### PLACES FOR PUBLIC ART:

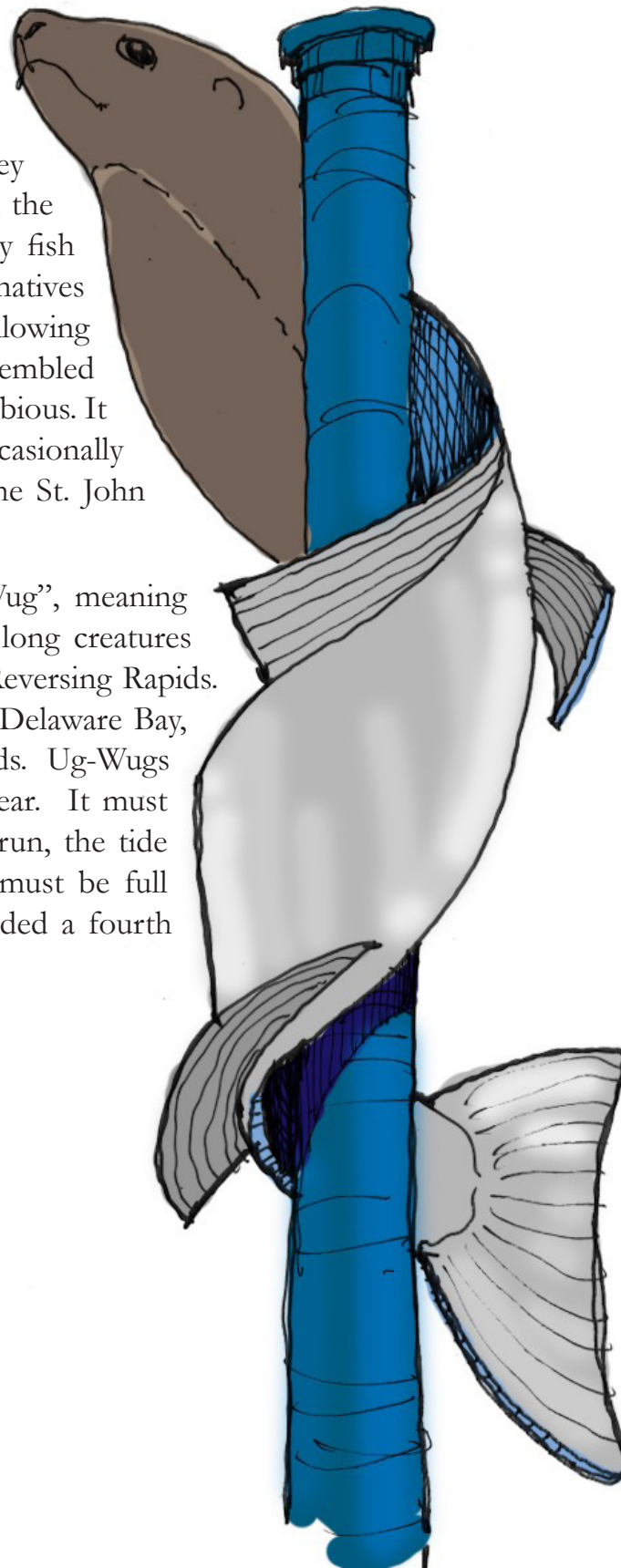
- ❖ Fallsview Park- Geopark Theme
- ❖ The Cove- Marine Theme
- ❖ Reversing Rapids- Heritage Themes  
(Natural and Human)



## Ug-Wug

Legend has it that just after the last ice age, the northern natives followed the receding icecap on its southern journey. When they reached the harbour basin which is now called the Bay of Fundy, they ceased their travels and settled here. In the spring of that first year, when the early fish run came into the harbour waters, the natives noticed a strange amphibious creature following in the wake of the fish. This creature resembled both a salmon and a seal; and was amphibious. It became quite friendly with them, and occasionally left the water to sit on the banks of the St. John River.

The natives called this creature “Ug-Wug”, meaning “the friendly animal.” These 100 foot long creatures nested in the undersea caverns of the Reversing Rapids. All of the Ug-Wugs ventured south to Delaware Bay, but one remained in the Reversing Rapids. Ug-Wugs are only seen at certain times of the year. It must be in the early spring during the shad run, the tide must be on the ebb, and the evening must be full of moonlight. Local residents have added a fourth requirement: some liquid moonshine!



## Glooscap and the Great Beaver

Aboriginals have recorded their history in the stories told for up to 15,000 years. The stories are an effective method of teaching their youth about the often dangerous world around them. Earthquakes are described as serpents that roll and hiss poisonous gases before appearing, providing a strong warning to retreat from pending eruptions. Most of these stories can be traced back to geological fact. One such story describes the formation of the Reversing Rapids.

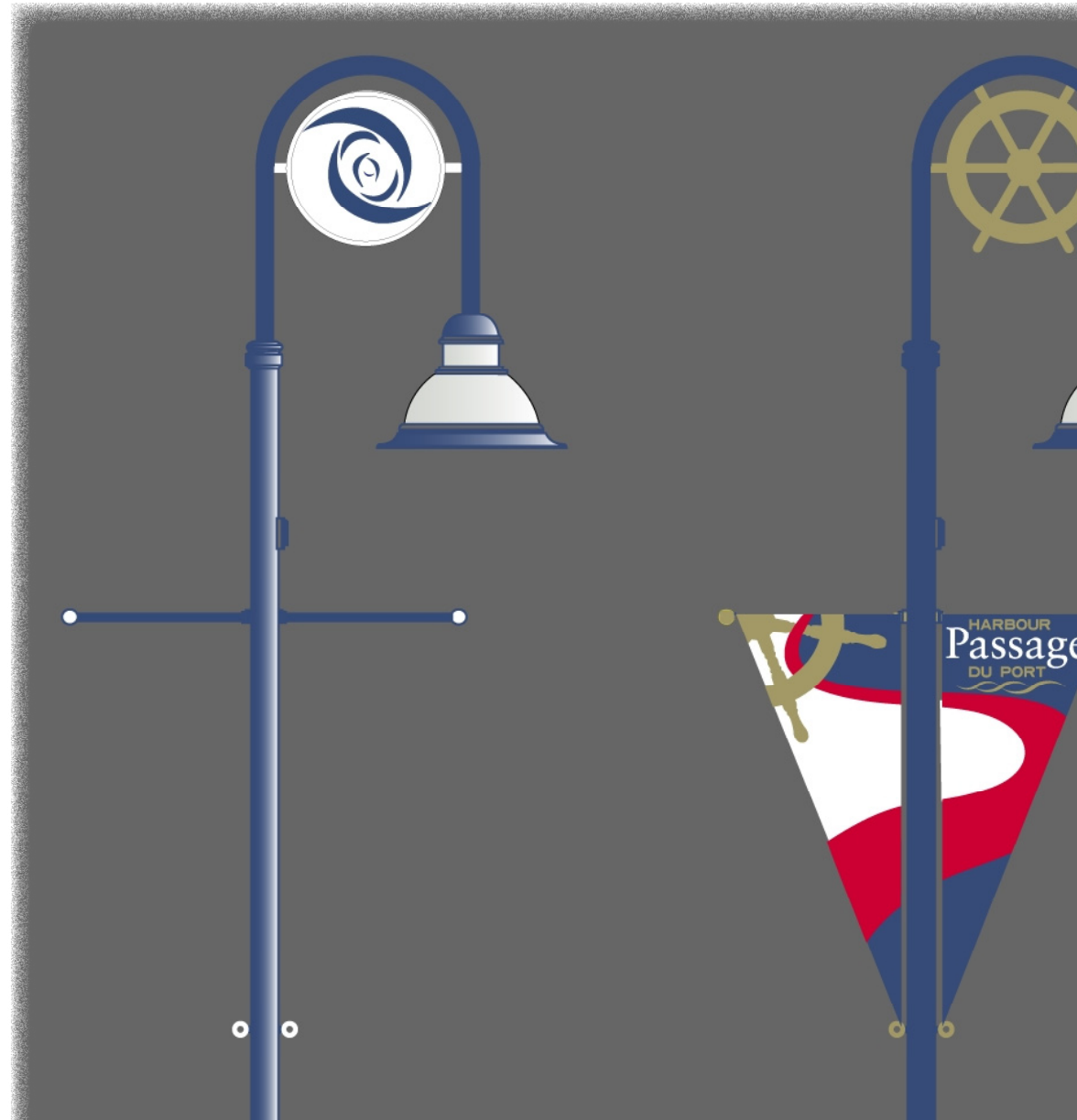
Legends claim that the Reversing Rapids were created due to the work of the Great Beaver. The Beaver built a dam at the gorge, which caused the land behind the dam to flood. The animals called their god, Glooscap, to break the dam so they would not drown. This he did. Part of his mighty war club is still seen today as Split Rock. Part of the dam floated into the harbour mouth and became “Quak’m’kagan’nik,” meaning ‘A Piece Cut Out’; this is known today as Partridge Island.





## 2.5.2 Site Furnishings

Harbour Passage has a unique collection of furnishings – from benches, trash bins, and bike racks to custom light fixtures, trail-heads, and signage. A similar palette of materials is recommended for Reversing Rapids, with minor deviations to offer consistency while retaining uniqueness. The industrial stylings will be replaced with elements more compatible with a natural environment and geopark. The colour scheme will be simplified to navy blue and white.





### 2.5.3 Parking

Even with a green transportation policy and good trail connections, a world class attraction will require substantial on-site parking to accommodate visitor demand. Parking for bicycles, cars, RV's, buses, service vehicles, and barrier-free vehicles is dispersed throughout the site for convenience and in response to the physical space available. The plan has provisions for 300-400 parking spaces. Throughout the parking lots, crosswalks should be marked with special patterns in the asphalt to give emphasis to pedestrians.



### 2.5.4 Trails

A hierarchy of pathways has been applied in the Reversing Rapids plan, and possible trails will loop to provide a circuit.

#### Trail Types

Harbour Passage - red coloured asphalt, red coloured concrete

Reversing Falls Bridge Sidewalk – red coloured concrete

Nature Trails – crusherdust

Boardwalks and viewing decks - wood





## 2.6 Signage

Directing visitors to a Class “A” attraction of world significance requires a comprehensive approach to wayfinding. A signage hierarchy system is required to deliver a consistent message with repeating iconic elements. From a sign perspective, the message should start with Class “A” Billboard signs (kayak, jet boat, and zip-line themed) on the three highway directions coming into the city, announcing Fundy’s Reversing Rapids. All of the prime sites for highway signs have been taken. Figure 2.1 identifies the next best available locations for billboard signs within the right-of-way. These spots should be reserved with the Department of Transportation immediately. Large announcement signs should also be located at the exit of the Digby Ferry and at the airport.

The process to install new highway signage varies according to the proposed location, ownership of property and type of signage. Signs installed within municipal limits have fewer restrictions than those that fall within a Level 1 or 2 hwy R.O.W or Connector Road. Any Attraction location and subsequent sign must have prior approval from Tourism and Parks (TAP). The general procedure for installation of new signage is as follows:

- 1) Select sign manufacturer to design new sign (formatted templates), specs to follow Highway Advertisement Information Kit
- 2) Submit completed application and fee to DOT Administrative office for approval
- 3) Submit sign design and specs, copy of Tourism Formatted Highway Advertisement Approval Form to TAP, in colour and electronically
- 4) DOT is responsible for approval of location of sign (within a Level 1 & 2 Hwy ROW and Connector Roads), TAP is responsible for approval of design of sign



*Sample Kayak Themed Billboard Sign*

- 5) Applications to be approved within three weeks and can be approved, rejected or returned for modifications
- 6) A building permit may be required from local Planning Commission before installation
- 7) Changes to an existing sign will require the above process



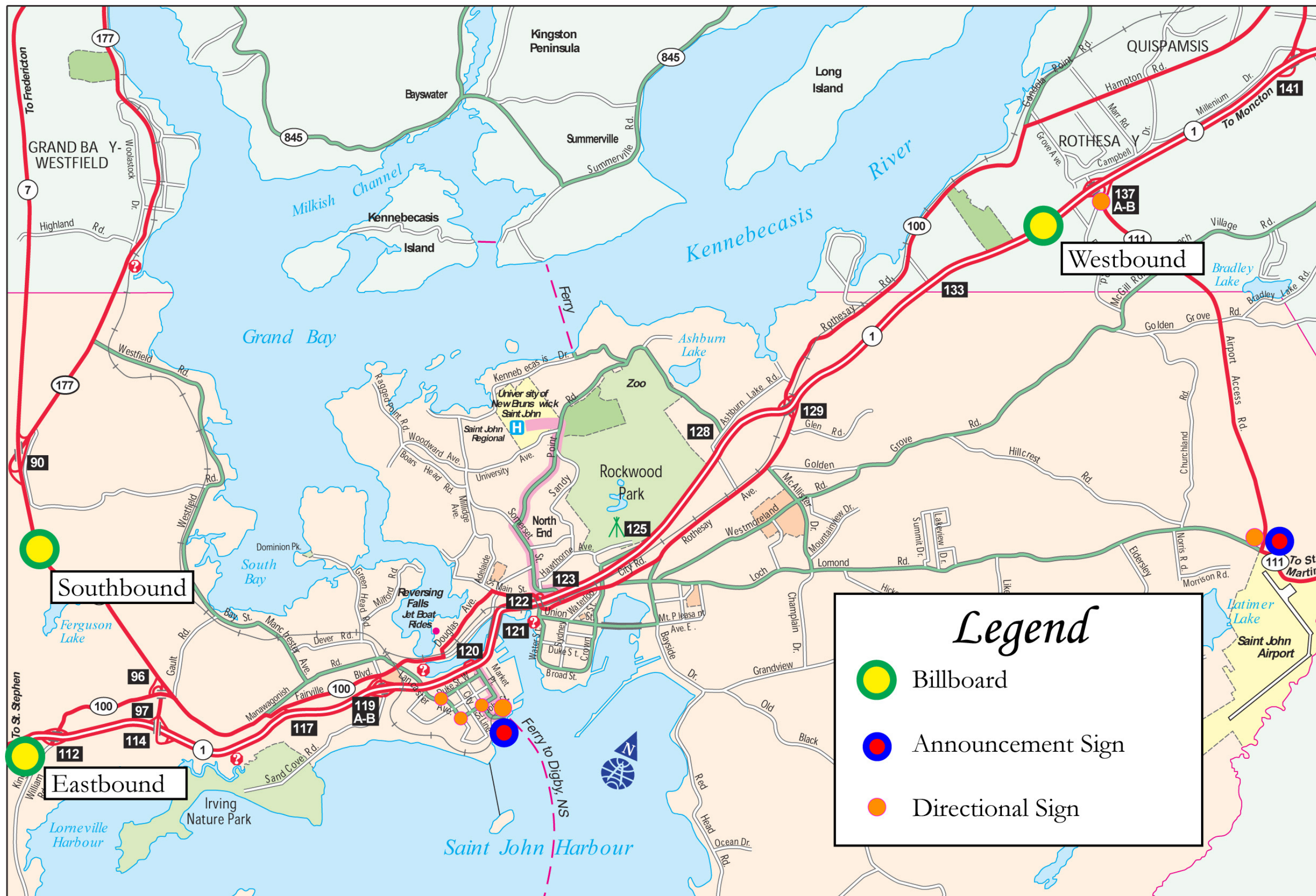
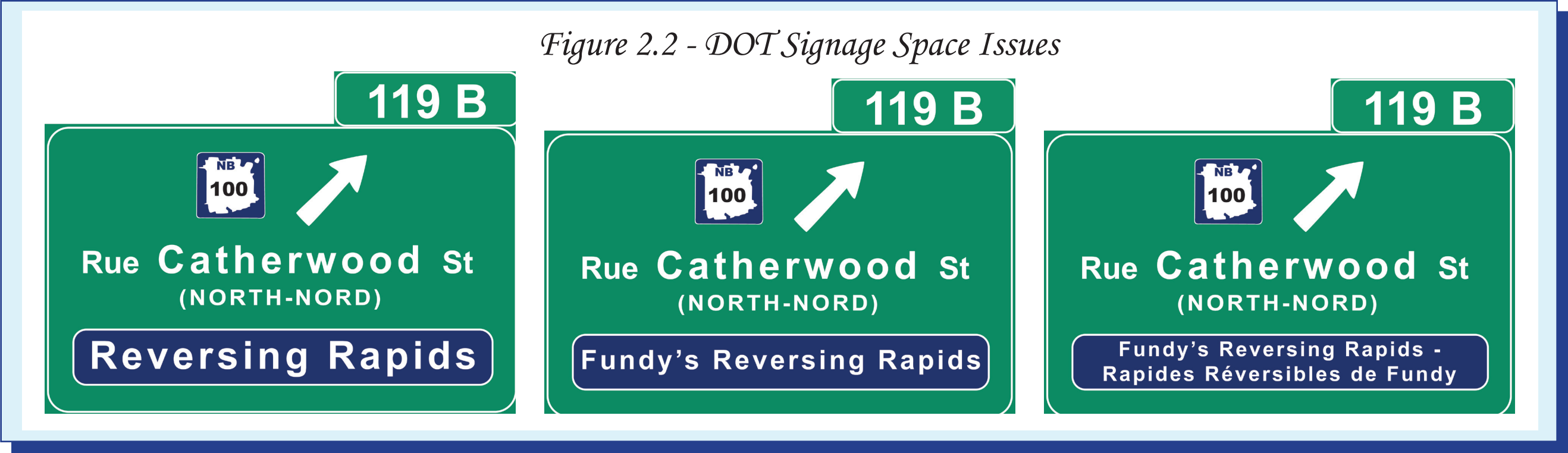


Figure 2.1 - Billboard Locations



A series of direction signs exist at the key exits along Route #1. These overhead signs will have to be updated or replaced. In some cases, the existing sign does not have sufficient space to display “Fundy’s Reversing Rapids”, let alone “Fundy’s Reversing Rapids/ Rapides Réversibles de Fundy”. Figure 2.2 demonstrates the space issues on an existing sign. Samples of existing signs schematics at highway ramps are appended.



The linear nature of the Reversing Rapids attraction will also require directional signage on city streets to direct visitors. Figures 2.3 and 2.4 illustrates the proposed signage system.



*Figure 2.3 - Example City Street Directional Signage*



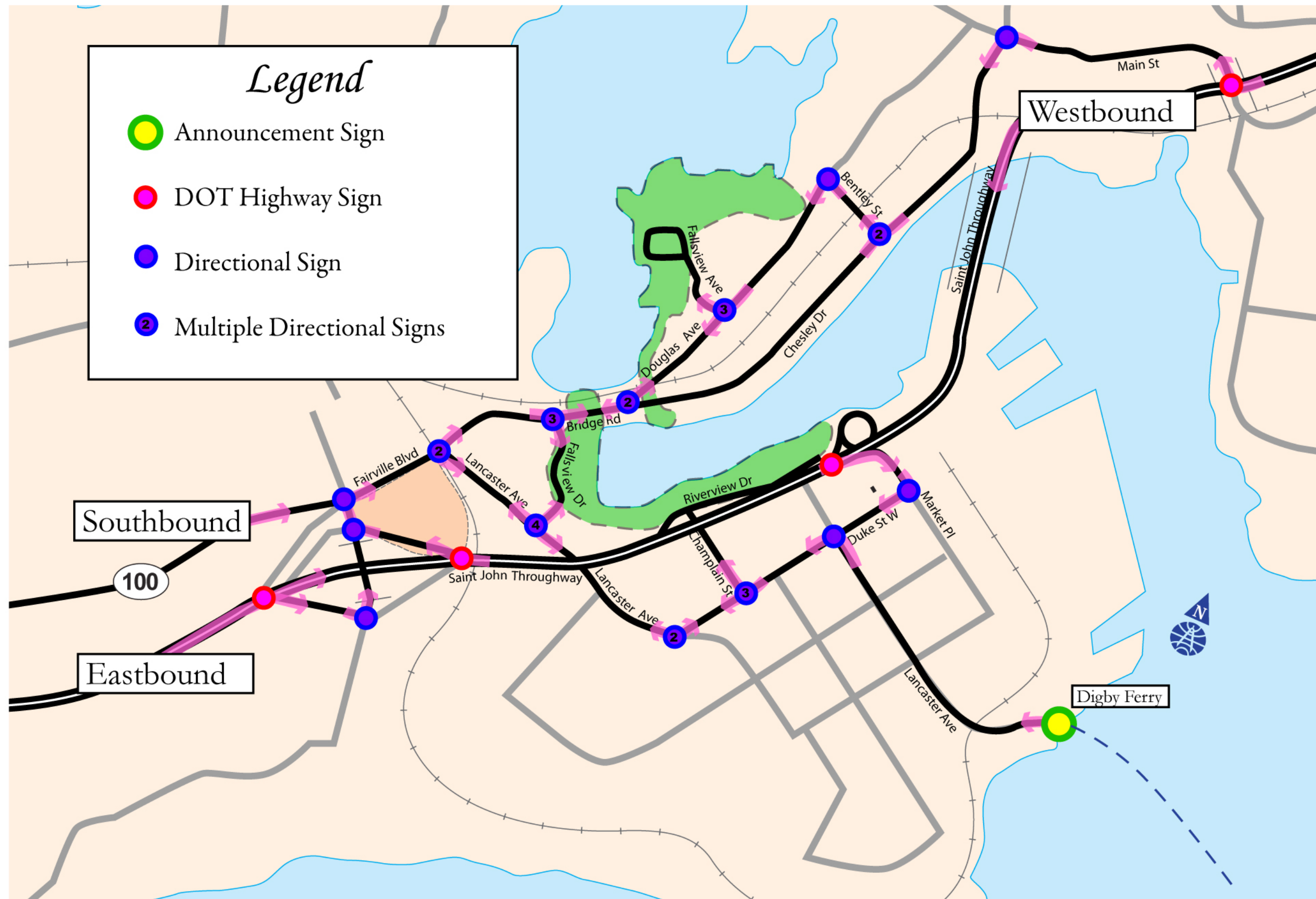


Figure 2.4 - City Signage Locations



Comprised of three character areas – Fallsview Park, Reversing Rapids, and The Cove – each area will require its own entrance sign to identify the boundaries. Figure 2.5 demonstrates how the overall image can be presented to reinforce the sense of entry while still communicating orientation for each character area.

Once on site, direction signs will orient visitors to parking locations, shuttle loading, washrooms, and major features. These signs will be pole-mounted behind street curbs. They will be pedestrian in scale and reinforce the brand.

Additional forms of signs include: stone distance markers (as used along Harbour Passage), Harbour Passage Trailheads, and map panels.



Map Panel



Harbour Passage Trailhead



Stone Distance Markers

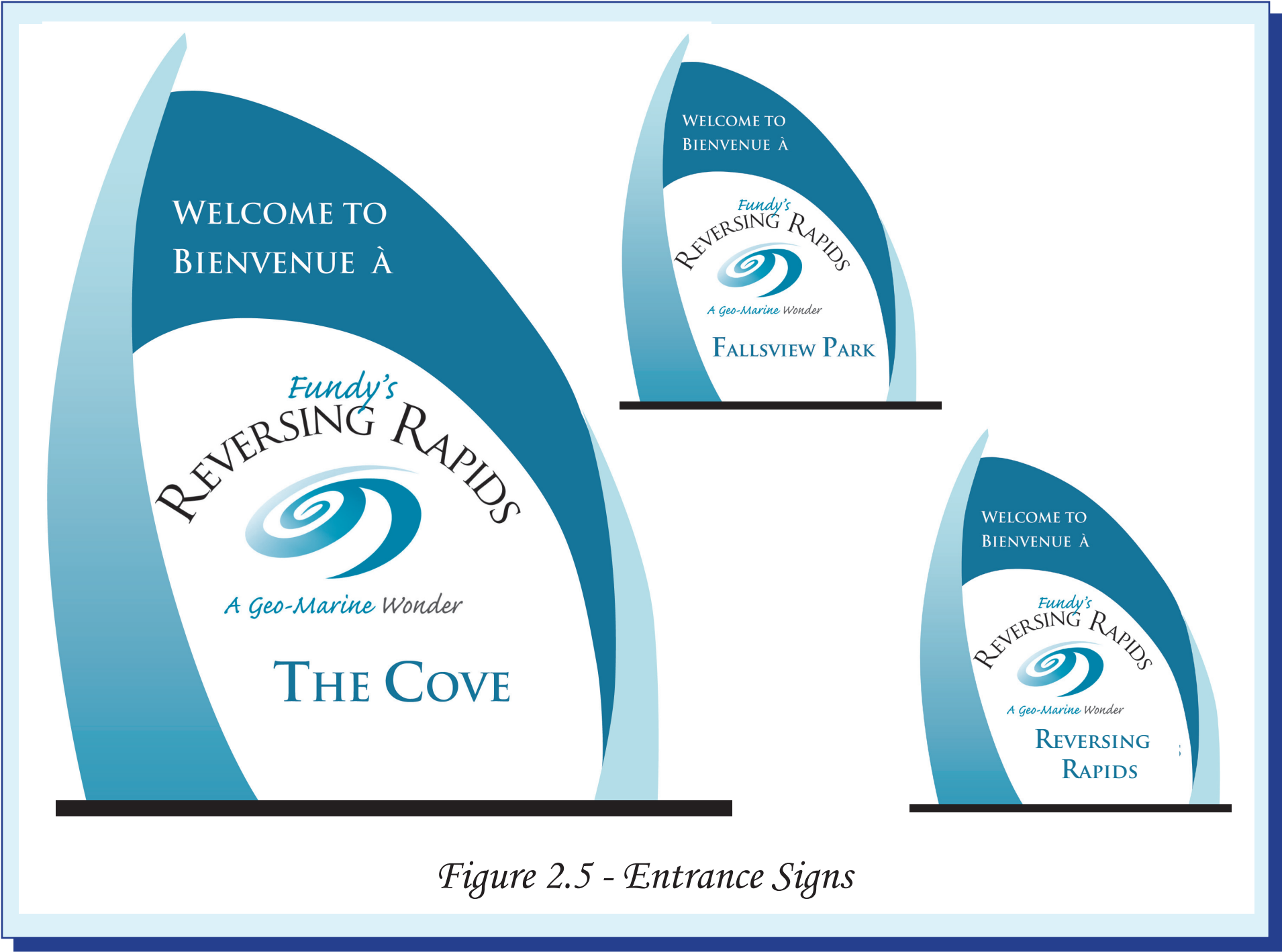


Figure 2.5 - Entrance Signs

Other forms of wayfinding on the sites include:

- ❖ Tidal Clocks
- ❖ Lighting the bridge and light cylinders
- ❖ Signs at the boat docking facilities
- ❖ Obtaining status on GPS software
- ❖ Updating provincial and city maps to highlight Fundy's Reversing Rapids



### 2.6.1 Signage Design

The underlying aesthetic of the Reversing Rapids signage system has been based upon the development's logo and tagline in combination with their colours and fonts. The City's use of these elements in the City's marketing materials, the site's light standards, and their utilization within the signage elements will foster user recognition of the brand and its physical association with the Reversing Rapids precinct. This recognition will be critical to engaging the user. To this end, the visitor's identification with the system's wayfinding elements will become intuitive – ensuring that the visitor's journey can be completed without frustration, resulting in a pleasant and memorable experience.

This recognition begins with the on-site formatting of the Reversing Rapids gateway sign elements. These units will be placed at the entrances to Fallsview and The Cove, as well as two at Reversing Rapids. Design elements such as the use of the Reversing Rapids logo, sign shape, and panel colour will subsequently be utilized throughout the entire signage system. At this conceptual level, two lighting options are proposed – backlit and foundation wash lighting. The source of this second option could be concealed within the proposed foundation landscaping. In both instances, this unit would be double sided with French text on one side, and English on the opposite.





The parking lot direction and identification panels should be placed at strategic points that will afford first time visitors succinct directions to their desired destination. Again, the design of these elements will foster user recognition with other signage elements within the Reversing Rapid areas.

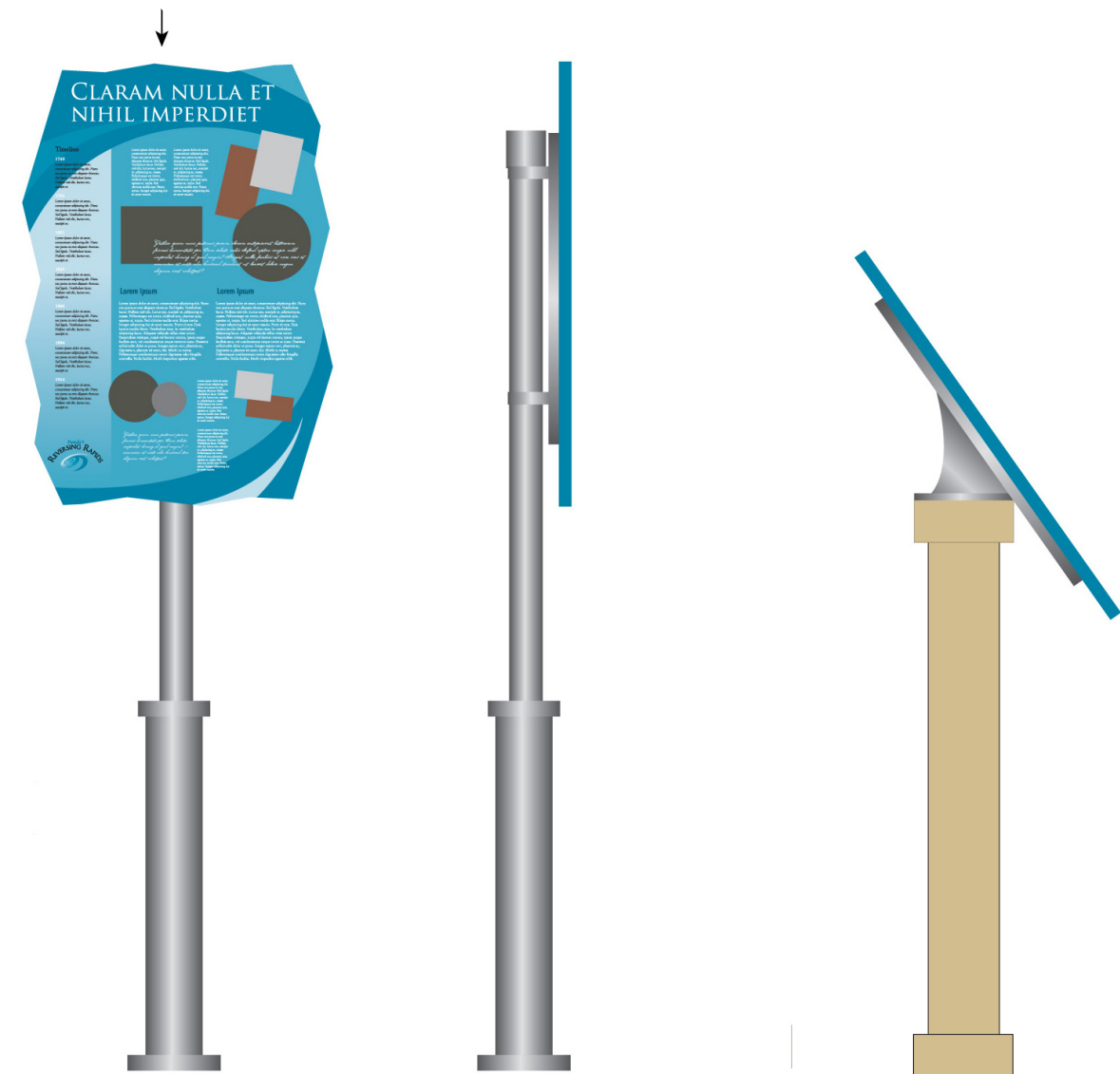
Interpretive signs along Harbour Passage have been a hit with trail users. The absence of high-quality interpretive signs at the Reversing Rapids has been pointed out as a severe shortcoming and hinders understanding of the phenomenon. The interpretive units will be set on substantial rock bases. This will create a connection with the geopark development and a tangible connection with the site itself.





The sign panel will be stylistically edged to reflect the angular rock formations. A number code can be inscribed in the rock for further information about the rock itself which can be obtained from a map or podcast. This provides an opportunity for deeper meaning on the origin, type, age, and characteristics of the rock in the Saint John area. These elements will be placed at points that require this level of interpretation as identified within the interpretive program. In some locations, such as on an observation deck, a rock base is impractical and a pole mount will be used instead.

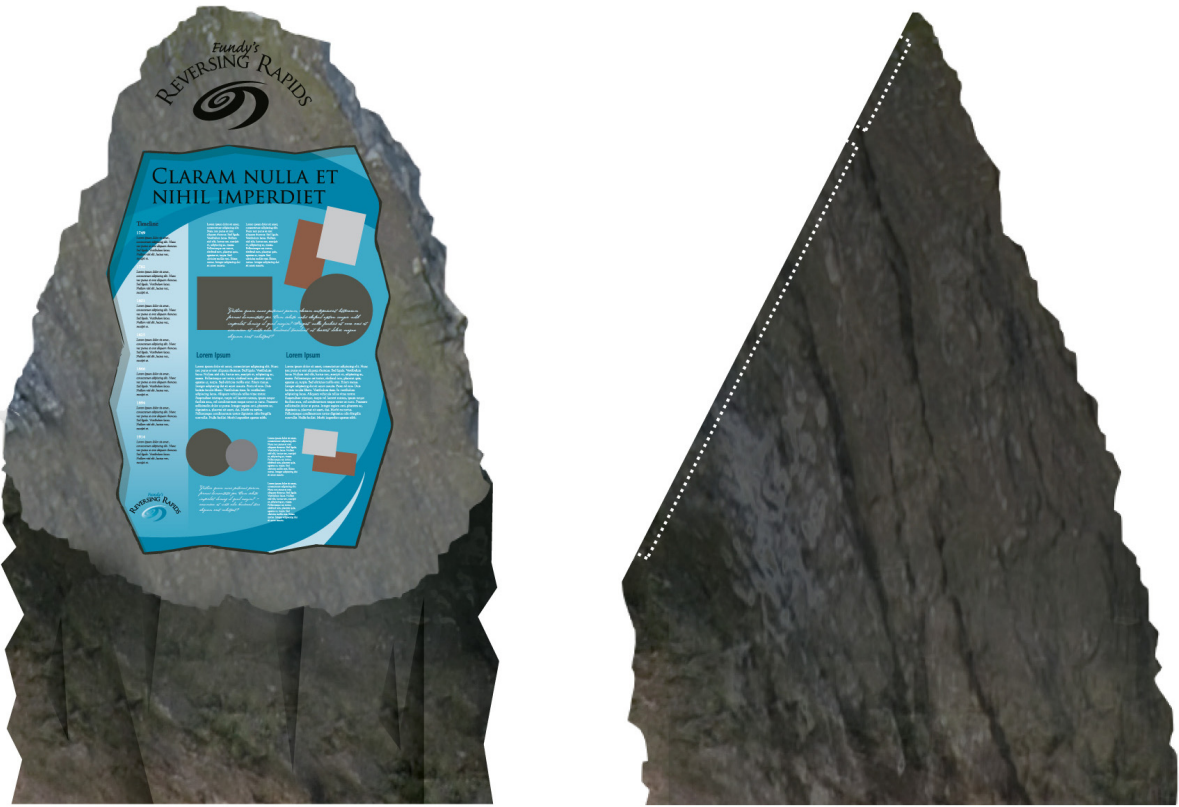
For durability and vandal resistance, all proposed wayfinding and identity sign units would be primarily aluminum construction. To accommodate the proposed panel contours, and again for durability and cohesion the interpretive panels should be made from phenolic resin high pressure laminate.



*Pole Mount Options*



*Large Format Interpretive Signs*



*Small Format Interpretive Signs*



## 2.7 Overall Plan





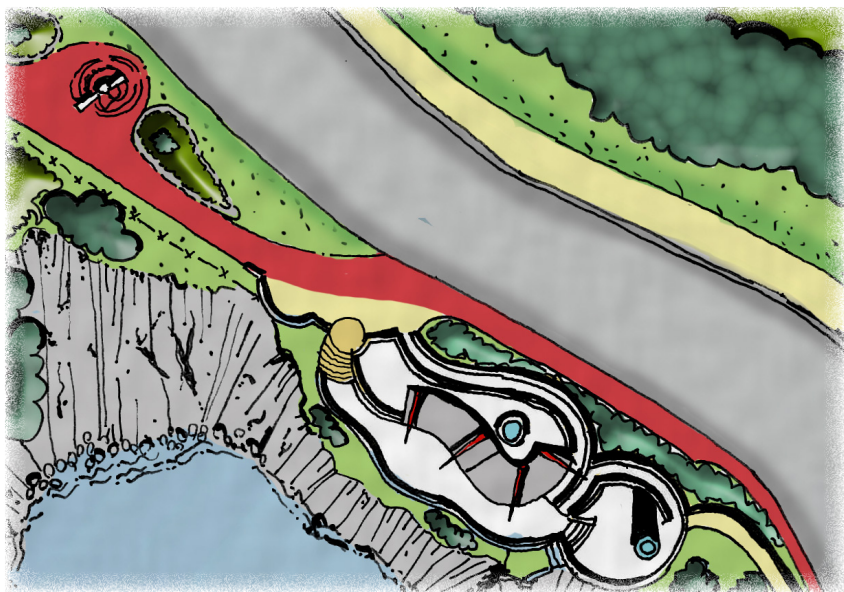
# Reversing Rapids 2.8





For over 100 years, visitors have considered the area next to the bridge the prime location for viewing the Reversing Rapids; however, the visitor centre and Reversing Falls Restaurant no longer meet visitor demands for a first class tourist facility. The building has a number of architectural issues that would require investment to maintain public access. The restaurant is too small to meet the needs of visitors, especially large groups. The close proximity to the street makes for an uncomfortable experience and affords little room for expansion. Replacing the building with a dramatic lookout plaza will open views of the river, the harbour, and the city that have not been seen since before the bridges were built. Realignment of Bridge Road from Simms Corner to the bridge will provide an opportunity for motorists and pedestrians to see across the harbour. The realignment of the mill access for truck traffic will also improve turning movement for visitors to the Reversing Rapids site.

Visitors will be able to see a light/tidal marker and street side sculpture/sign that will announce the entry to the Reversing Rapids. The sculptural elements will provide perfect spots for photos. Pathways will lead visitors from the viewing plaza to smaller observation decks under the vehicle and train bridges, with access connections via the service lane that runs beside the street or possibly from the proposed observation deck via the catwalk on the bridge pier. These viewing areas will be visible to and from the new Split Rock lookout. There is evidence at these sites that visitors are currently using these locations to better view the river – even without the development of safe access.



Viewing Plaza





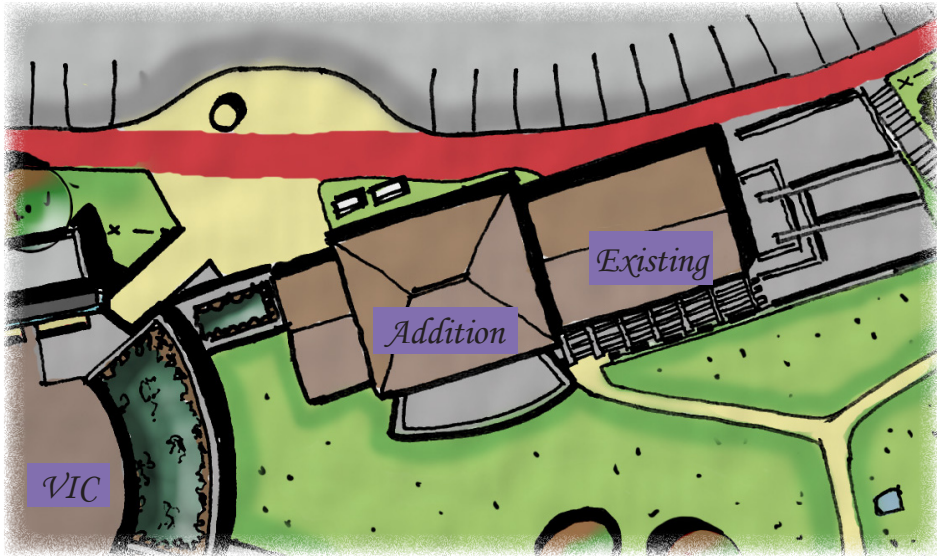
Removing the old Reversing Falls Restaurant provides an opportunity to expand the undersized Garden Falls Restaurant. A large facility would consolidate food operations and satisfy the increased demand anticipated from the revitalized tourist attraction. Expansion to the west and down the slope in the form of terraces ensures the building sits well on the site, maximizes the best views of the river, and affords access down to the riverbank. A series of terraced landscape spaces will lead to a geological sculpture garden in the middle of the slope and down to the river lookouts.

The parking stalls at the site will be properly delineated with asphalt markings and buses will be separated from regular parking areas. A shuttle vehicle (tram) loading station will provide motorized access to the Cove or Fallsview Park, and (for visitors unable to walk there) to the viewing trail below the restaurant. Riverview Avenue will be reopened to better link The Cove via Lancaster and Riverview Drives. Adding another site access will reduce the traffic at the Bridge Road intersection and provide direct access to the Throughway. Reopening Riverview Avenue will also improve connections to Wolastoq Park and facilitate overflow parking.



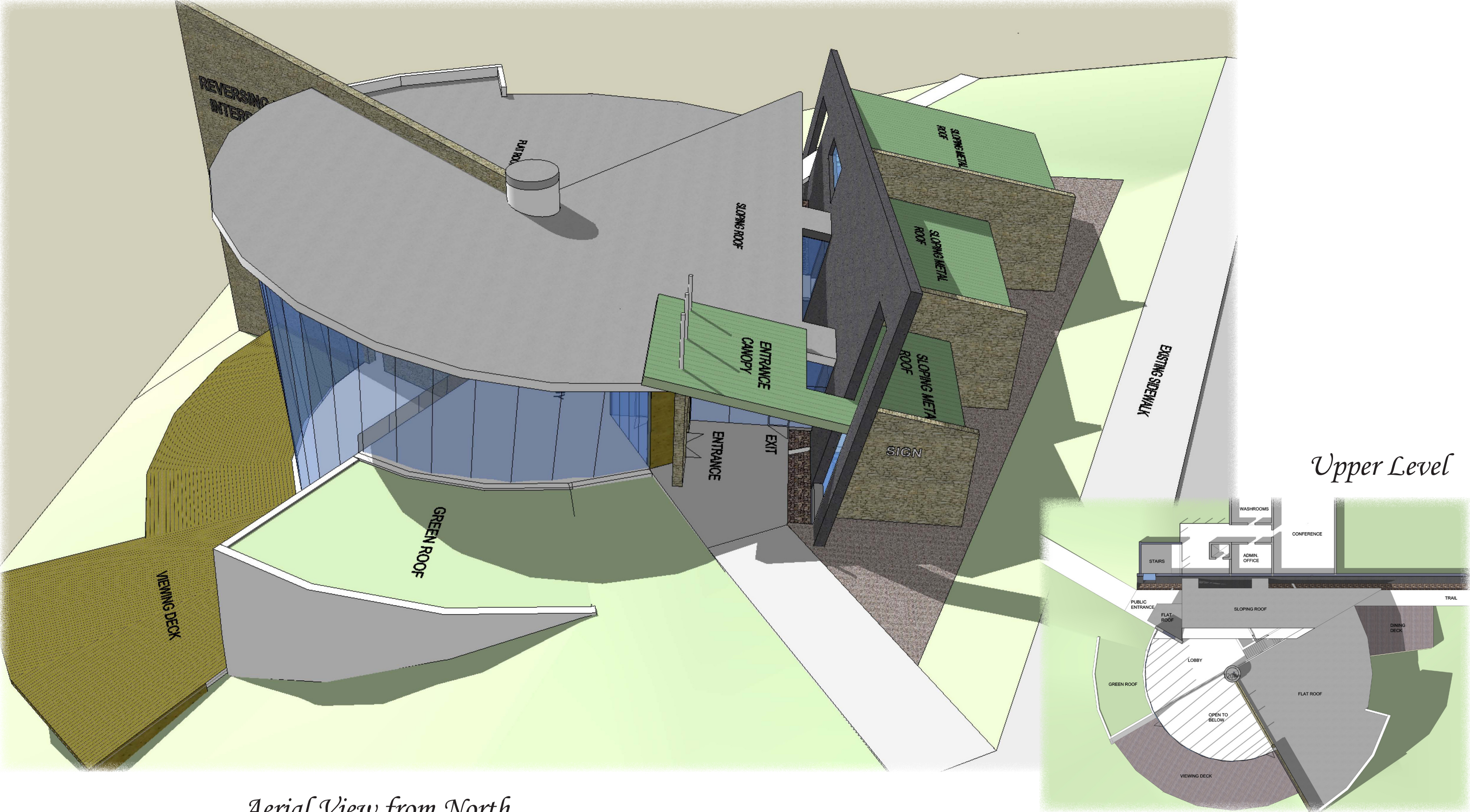
The wooden barrier fence adjacent to the existing sidewalk will be replaced with a pagewire fence set down the slope to allow unobstructed views of the river below and create a dramatic sense of danger – of being on the edge.

All buildings will have barrier-free access. The viewing areas and trails will incorporate ramps where possible to facilitate wheelchairs and strollers.



*Expanded restaurant with link to visitor centre*





Aerial View from North



A major, expanded visitor centre is proposed next to the Garden Falls Restaurant. The bulk of the building will be set below street level, and dramatically perched over the steep riverbank, far above the river.

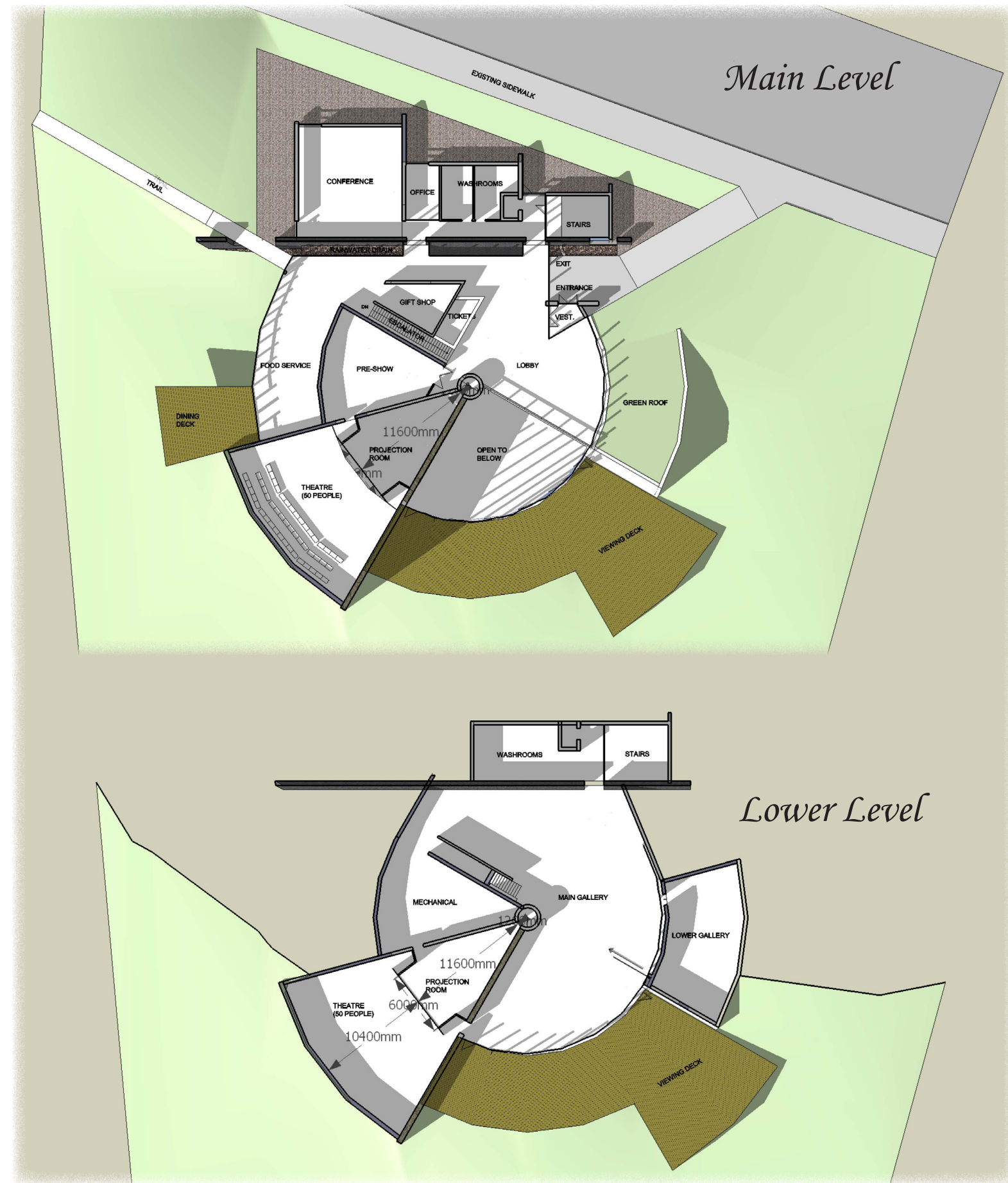
The concept for the visitor centre is a direct response to the site context and in particular, the fascinating movements of the St. John River. The river's rise and fall and resultant action of the whirlpools inspired the design of the building.

Interpreting a vortex into a built architectural form suggested a series of varying concentric circles in plan about a central core. Radiating walls break up the concentric circles asymmetrically, assigning the required rooms and spaces in a manner suiting the interpretive functions. The steep embankment gave the opportunity to further enhance this sense of reversing rapids by creating a series of interesting spatial divisions vertically, varying from the single storey entrance to the dramatic double height viewing area with glass from floor to ceiling facing river views. A moving theatre floor, dropping 7m, adds to this dynamic vertical experience.

The concentric building elements are intersected by a leaning and tapering wall that cuts through the building and divides the main public interpretive spaces from the conference and administrative functions. This wall alludes to a layer of rock that has emerged from the embankment, a reference to the continental collision, and also functions as a directional device to draw people into the building.

The material palette consists of natural elements with the use of stone, brick, exposed concrete and wood with the addition of vegetated green roofs to promote a sense of sustainability and harmony with surrounding landscape. Extensive use of glass connections inside and outside the space will open it up and engage it with the subsequent walking trail and rapids experience. The framing of the glazed cylindrical curtain wall has been given a spiral twist to again accent the vortices observed below.

Building construction and design should follow the principles of LEED (Leadership in Energy and Environmental Design).





## 2.9 Fallsview Park





Fallsview Park and surrounding private land offer a tremendous opportunity to bring fun and adventure to the Reversing Rapids experience. The park will tie the proposed new NB Museum (on Douglas Avenue) and the Riverview Memorial Park (constructed in 1901 as a memorial to the Boer War) to the Lower St. John River Trailhead and the Reversing Rapids. Harbour Passage will be extended from Bentley Street through Riverview Memorial Park down a steep slope to Fallsview Park before winding its way to the rapids viewing area and on along the top of the riverbank behind Douglas Avenue all the way to the Reversing Falls Bridge. Due to the nature of the topography, providing barrier-free access along this steep slope is difficult. An alternative along Douglas Avenue and Fallsview Drive is available.

The narrow constriction in the river is the sole outflow for a watershed of 55,000 km<sup>2</sup> within New Brunswick and Maine, and is often referred to as the “Billion Gallon Rush”. The three islands – Crow, Middle, and Goat – form a funnel for fish that ride the rising tide waters. The islands serve as nesting grounds for Double-Crested Cormorants and Great Black-backed Gulls who, along with other gull and tern species, provide a viewing spectacle as they feed from the swell of fish. Harbour seals regularly partake in the feeding frenzy in Welch’s Rapids. The islands and mainland are formed from Greenhead Limestone formation which has yielded significant fossil finds. Created from the calcium carbonate of ancient shells of marine organisms, the name Marble Cove was derived from the limestone riverbed.

The area has a storied cultural heritage. Once known as Indiantown, it was the waterfront hub of Portland, a community founded by Loyalists in the 1780’s. For centuries prior it was an important aboriginal site for fishing, hunting, trading, and portage to avoid the treacherous rapids. Over the last few centuries, the site has been used for ship building, quarrying limestone, mining graphite, saw mills, lime kilns, manufacturing, as a ferry landing to Milford, and as a landfill.



Image: NB Museum

Fallsview Park will be accessed from Douglas Avenue with a meandering, tree-lined street leading to a well screened car park. An earthwork sculpture in the form of a spiral will greet visitors and lead to a rock sculpture formation. The geopark theme will present itself through this spiral with boulders of increasing age, representing the entire geological history. A mist or fog machine will provide a cloud suspended above the group for an added sense of mystery.



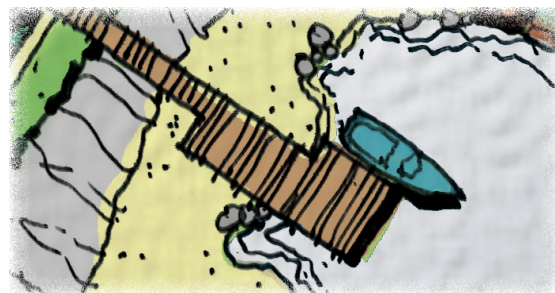
## Recreation

The park plan offers the potential for a variety of activities. An autotrail is proposed to satisfy local visitors who want to visit the site and just watch the river from the comfort of their vehicle. This is a pattern that is witnessed all over Saint John from Saint's Rest Beach to Mispec Park.

Prospect Point and the environs around Marble Cove provide numerous viewing opportunities that can be linked via a pedestrian trail network.

Improvements to the landscape will be required in order to deal with the old landfill issues and to facilitate access.

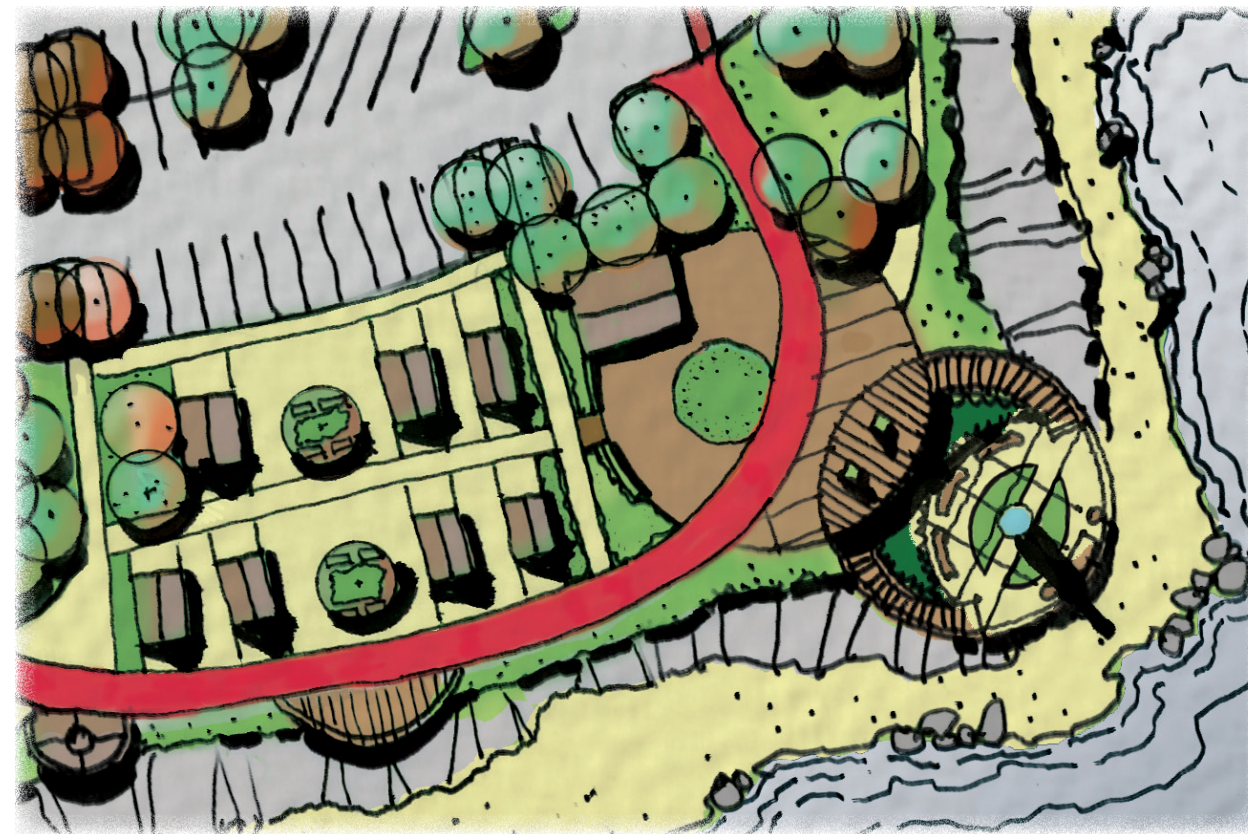
- ❖ Fishing
- ❖ Kayaking Launch Site
- ❖ Bird-Watching
- ❖ Multi-Purpose Sports Field for Harbour View High School
- ❖ Walkways
- ❖ Jogging
- ❖ Cycling
- ❖ Rollerblading



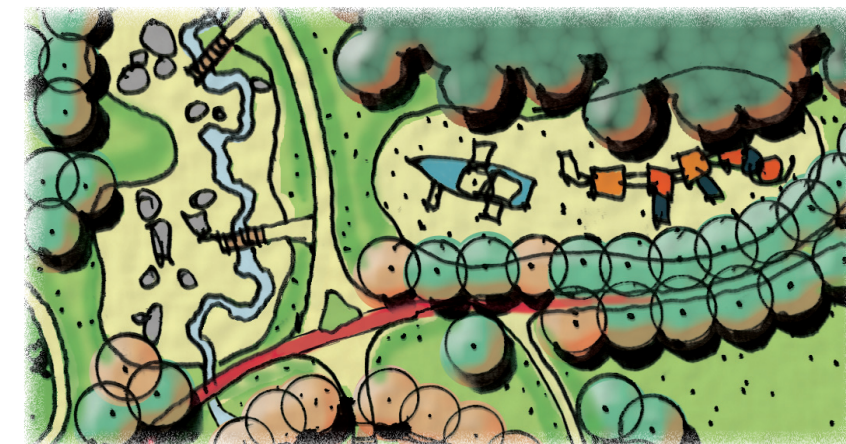
Boat Launch

## The Gallery

The popular area at the three islands will be reworked to enhance visitor experience and reduce user conflicts. The Gallery will improve access to the water, house the iconic light/tidal marker, and designate vendors to picnic shelter locations behind the car park. (Vendors have typically sold goods to cruise ship visitors from their car trunks.) The pathway will be widened and treated as a pedestrian plaza. The existing washroom building will be upgraded.



The Gallery



Playground

## Adventure Zone

Experiencing the rapids from a jetboat ride or from an overhead zipline tested extremely well with focus group participants. Clustering the adventure activities – zipline, jetboat, kayaking, tour boat and bike rentals - in one location provides a buzz of energy and synergy for packaging. These private sector initiatives can be accomplished through long term lease arrangements to facilitate private capital borrowing, developing the infrastructure. The Adventure Zone is further described in Section 3.4.4.

Other aspects of the Adventure Zone include:

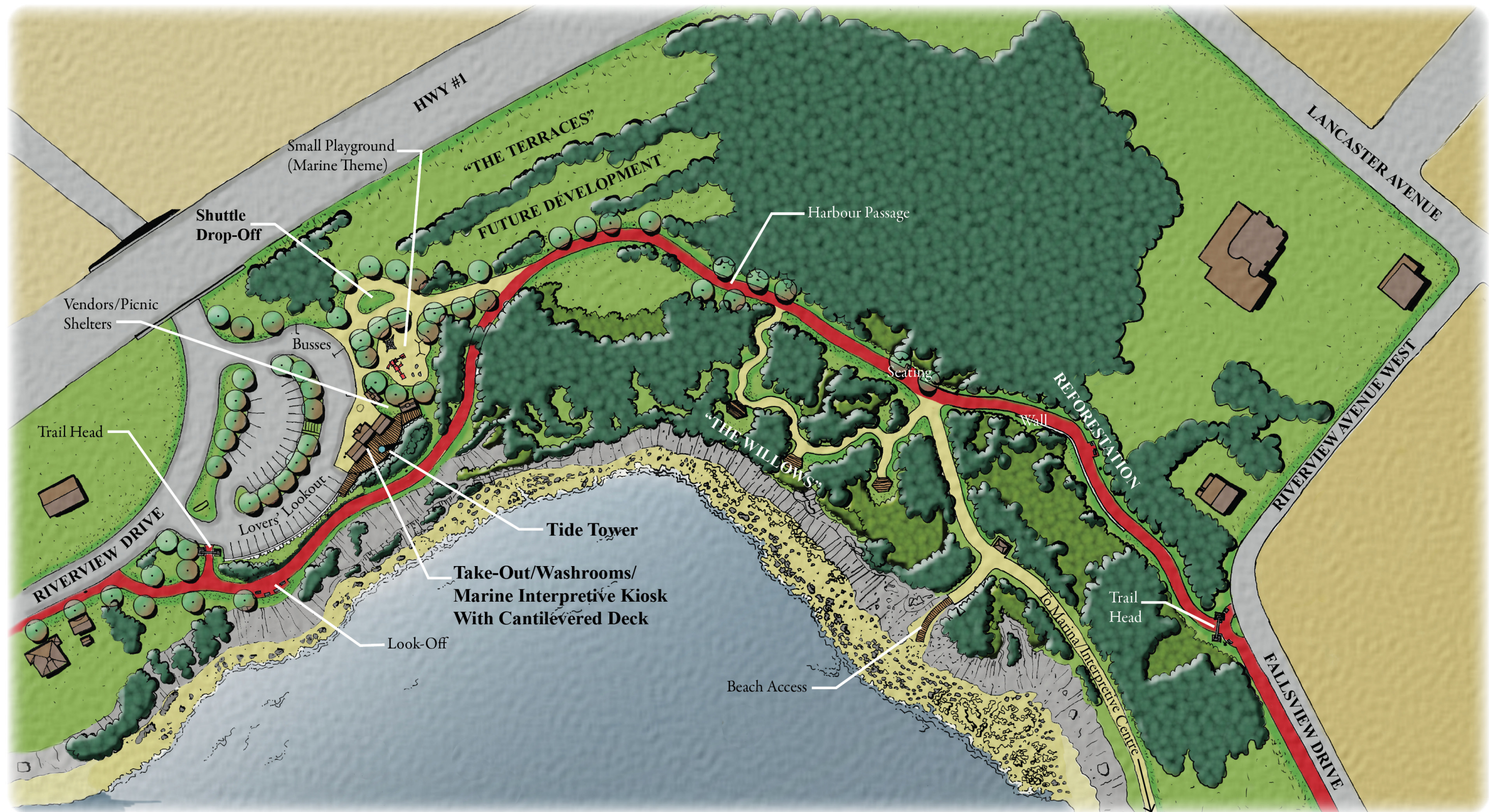
- ❖ An interpretive kiosk with emphasis on the environmental initiatives undertaken as part of the Irving Pulp & Paper Mill operation
- ❖ An interactive amphitheatre/St. John River Watershed Park
- ❖ Playground
- ❖ Picnic Area
- ❖ Viewing Deck
- ❖ Access to the water
- ❖ Small floating dock off False Island



Adventure Zone



# The Cove (Lower West Side) 2.10



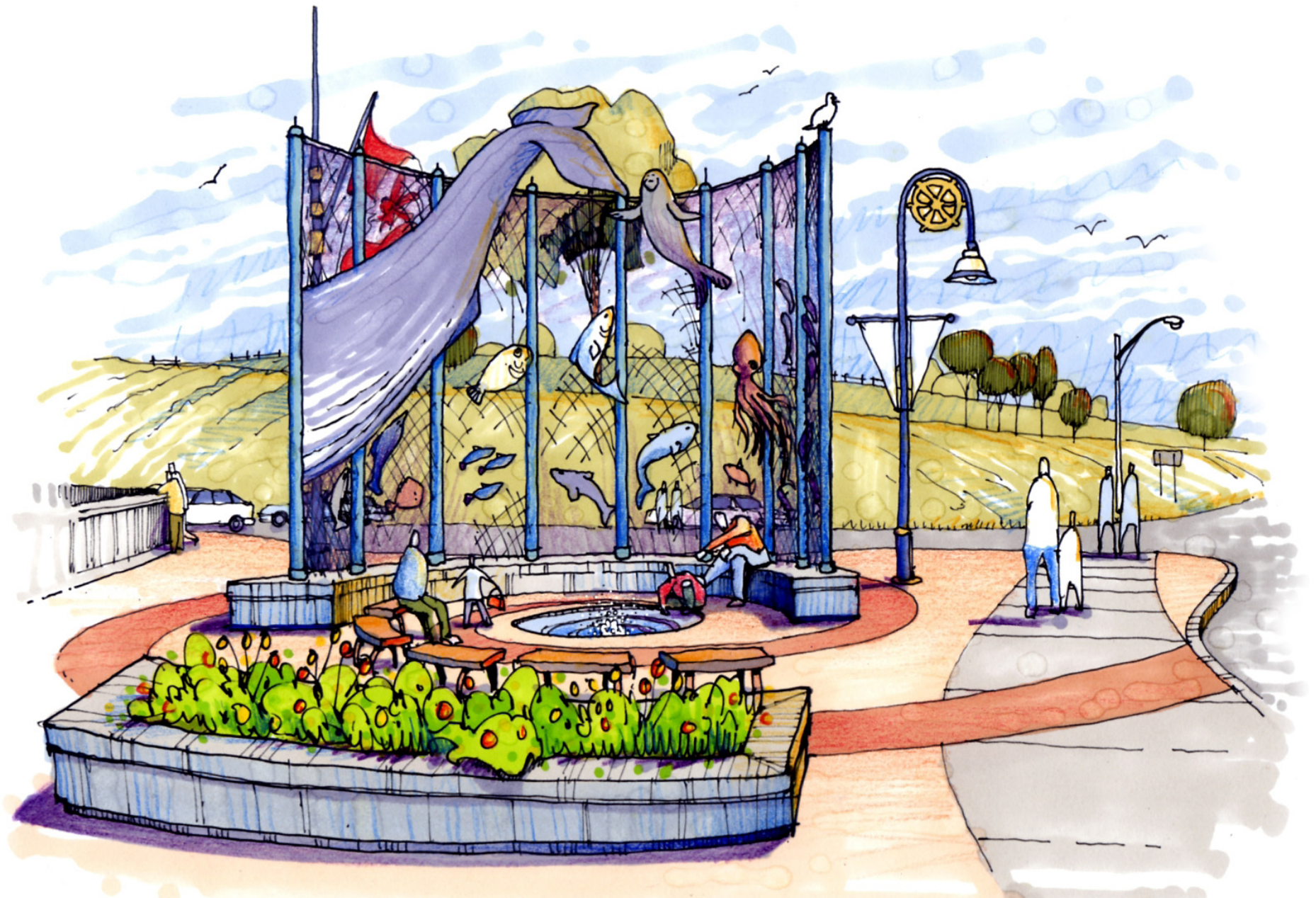


Development at Fallsview Park and the Reversing Rapids site will create two very strong anchors along the St. John River, but encouraging visitors to venture west to Riverview Drive will require a complimentary and rewarding set of experiences. The Cove offers a picturesque and natural environment along the steep river bank. It is a remarkable enclave of nature within the urban landscape.

A signature piece (icon) is required that can be seen from the Reversing Falls Bridge lookouts and the Throughway. The iconic light/tidal marker will serve as a beacon on The Cove. Set on a viewing deck perched on the hillside, the marker will reinforce the importance of The Cove in the Reversing Rapids experience. From the viewing deck, visitors have an unobstructed view of the Village, the City, the Reversing Falls Bridge, Split Rock, and the whirlpools that swirl at its base. An opportunity exists for a Marine themed sculpture in this location, such as the one of fish life in the river illustrates on this page. Direct access off Riverview Drive will facilitate convenient parking. A lookout for motorists is proposed along the edge of the parking lot to afford people with a wonderful view without leaving the comfort of their vehicles – a “lovers’ lookout”.

With space for 40 vehicles and two buses or RV’s, The Cove also serves to disperse parking visitors along the entire length of the Reversing Rapids site. Washrooms and a take-out style restaurant are proposed behind the main viewing deck. Marine interpretation at this site will be displayed in a kiosk on the deck, and in a small thematic playground. The playground will serve the local neighbourhood children and allow travelling youngsters to burn off any pent-up energy.

Harbour Passage will follow the old Fallsview Drive route and wind its way up to the visitor centre. Attempts to put a full road connection through this area have failed due to landslides. (A serious slide happened in 1947 as a result of construction activity. More recent slides have occurred from backfill operations along the top of the slope.) Instead of a road, a 3.6-4m wide trail is proposed which can also serve as a service road and shuttle route to transfer visitors along the steep terrain. At The Cove viewing deck, Harbour Passage will be situated at a lower elevation – providing a more intimate contact with the river.



*Sample of Public Art Opportunity on Marine Life*



*Landslide*

Scenic trails through the woods will lead to hidden viewing decks, cantilevered over the steep riverbank and providing dramatic views of the river and environs. A trail will lead to the beach, one of the places along the river where visitors can actually touch the water. The trail will continue on to the marina and up to the visitor centre that forms terraces down the slope from the parking lot above.

The Cove area will be left as a passive park space with naturalized landscape. Areas affected by landslides and development will be reforested. With careful intervention, the forest can recover quickly. Retaining walls and slope protection measures will be required.



## Fishing Wharves

Fishing the river's shoreline has historically been a popular past-time and occupation. Old photographs show wharf structures clinging to the riverbank with wooden piers and a variety of buildings. Few of these structures remain today. These old wharves should be acquired and restored or reconstructed as fishing wharves and interpretive sites.



## Riverview Drive

Riverview Drive is separated from the rest of Saint John West by the Throughway. The street has an intimate charm with its collection of quaint shoreline houses - echoing the heritage architecture of Saint John. Harbour Passage will follow along the street with iconic streetscape treatment. The red trail will extend over the Throughway down to Blue Rock. A Harbour Passage link to the Long Wharf over the Harbour Bridge is also possible.





# 2.11 Harbour Passage Connections

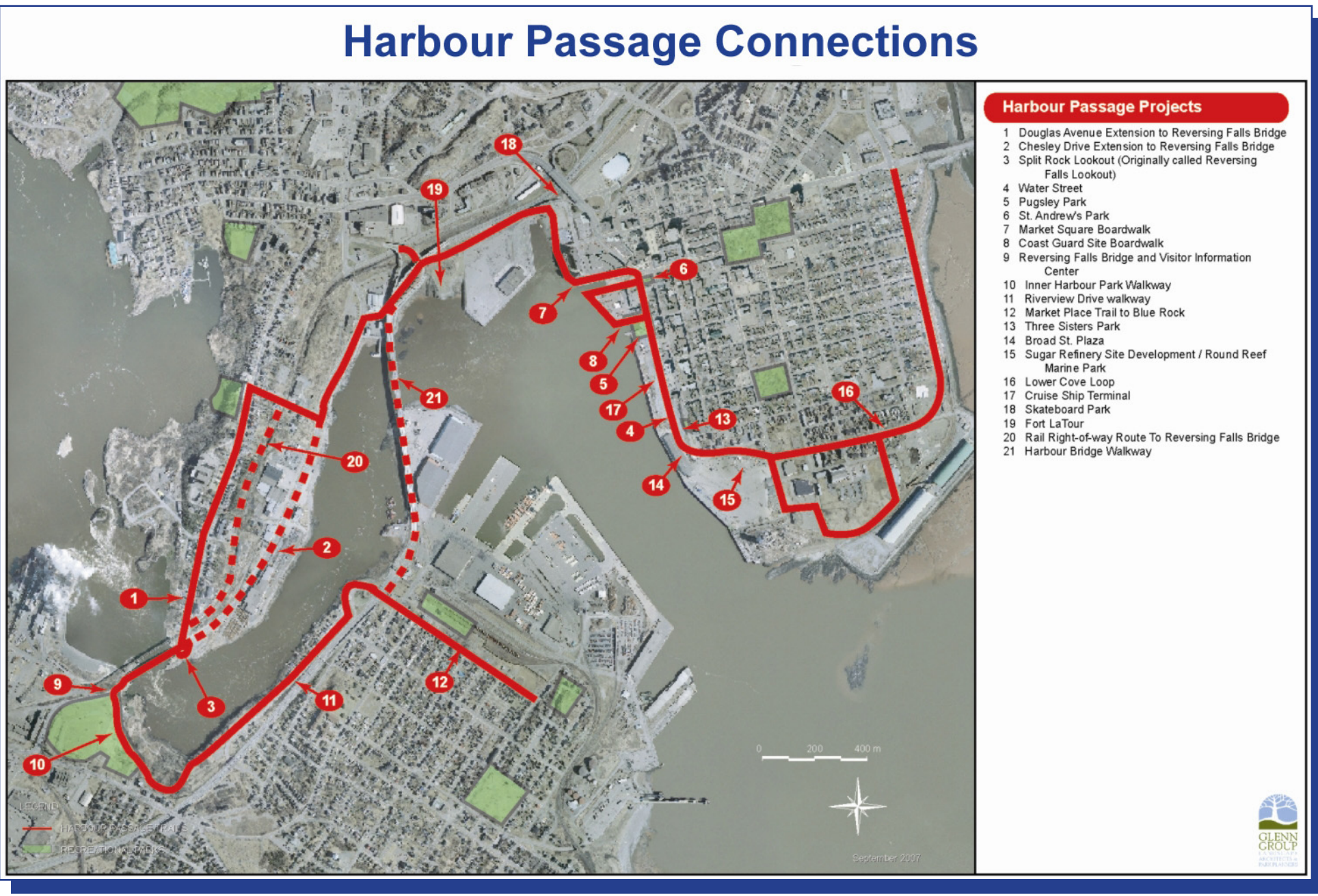


Figure 2.6

The completion of the first four phases of Harbour Passage (Boardwalk to Coast Guard, Coast Guard to Bentley Street, Bentley Street to Ocean Steel, Water Street) has generated a sense of confidence that waterfront development can help revitalize an entire city. Split Rock Lookout, on the old bridge piers beside Reversing Falls Bridge, will be completed in 2009. Future connections are shown in Figure 2.6. Reversing Rapids is the pivotal product along Harbour Passage that will link visitors to the Uptown and to a city-wide trail system. Opportunities exist for a Lower St. John River trailhead, connected to an exciting new NB Museum facility. Linkages to Shamrock and Rockwood Parks are possible. In the other direction, Harbour Passage is slated to extend to Blue Rock, a rock outcrop in Lower Saint John West, with fabulous views of the harbour. Harbour Passage, with its iconic red path will be a connecting thread through the entire Reversing Rapids, providing orientation and a reorganized standard of quality. Future trail links to the Western Beaches and Irving Nature Park would form a city-wide trail system.



# Wolastoq Park 2.12

*"This river is dangerous, if one does not observe carefully certain points and rocks on the two sides. It is narrow at its entrance, and then becomes broader. A certain point being passed, it becomes narrower, and forms a kind of fall between two large cliffs, where the water runs so rapidly that a piece of wood thrown in is drawn under and not seen again. But by waiting till high tide you can pass this fall very easily. Then it expands again to the extent of about a league in some places, where there are three islands. We did not explore it farther up. But Ralleau, secretary of Sieur de Monts, went there some time after to see a savage named Secondon, chief of this river, who reported that it was beautiful, large, and extensive, with many meadows and fine trees, as oaks, beeches, walnut-trees, and also wild grapevines."*

*-Samuel de Champlain*



*Samuel de Champlain's View of Onigoudi (Saint John Harbour) - 1604*





In 1999 JD Irving Limited transformed the old CentreCare site into a 7 ha passive park. The park offers wonderful scenic vistas of the Reversing Rapids, the mouth of the St. John River and the harbour. Large hand carved sculptures pay tribute to notable historic figures throughout the ages. The park name, Wolastoq, is derived from the Maliseet name for the river, meaning “good” or “beautiful”. When Samuel de Champlain sailed up the river in 1604, he named it the St. John River because it was the feast day of St. John the Baptist. The master plan identifies improvements to the integration of Wolastoq Park with the Reversing Rapids site:

- ❖ Entry stair - make barrier free
- ❖ Improve access with proposed Simms Corner realignment
- ❖ Develop guided tour
- ❖ Connect parking lots to handle overflow
- ❖ Develop new parking lot



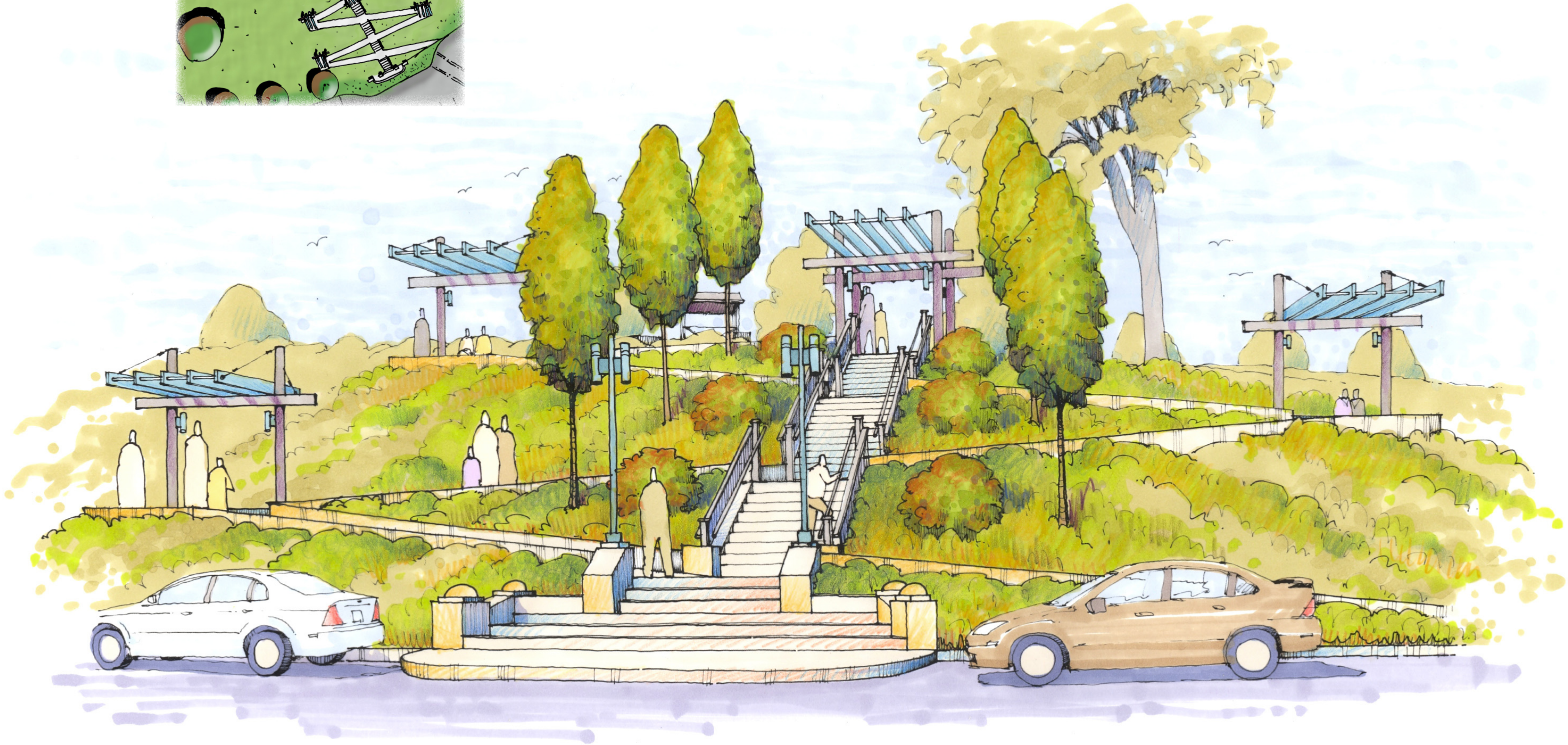
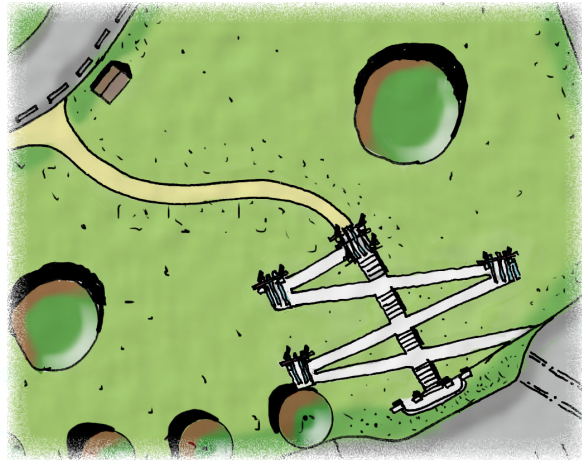
*New Parking Layout*



*Before*



After







# *Chapter 3*

## Visitor Experience

This Walk-Through serves as a guide to what will be available to visitors from point of entry onward through the various proposed project components. It provides an overview of value-added experiences and content delivery and answers questions such as: “What does the visitor centre deliver?” “What does one see along the site pathways?” and “What can I do at the Adventure Zone?” In all instances, the proposed experiences and interpretive concepts are designed to communicate the main interpretive theme and sub-themes in a varied and exciting way, resulting in a visitor experience that is both exhilarating and educational. The planned experiences are aimed at exceeding the expectation levels of a wide spectrum of visitors. This includes both tourists and local area residents, all of whom are of varying ages and possess differing interests.







## 3.1 Arrival



Most visitors will arrive to the Reversing Rapids site from one of the city's major highways. While en route, visitors view project billboards and directional signage. These visuals not only facilitate visitor arrival to the site, they also pique visitor interest and excitement. Those traveling over the Reversing Falls Bridge may have caught a glimpse of the rapids and of the immense illuminated pylon located at a viewing plaza adjacent to the bridge. Once at the visitor centre, visitors encounter a large entry sign. Wayfinding and orientation signs guide them to ample parking and the pathways that connect to the centre and site. From here, visitors are ready to explore Fundy's premier attraction!

Key elements include:

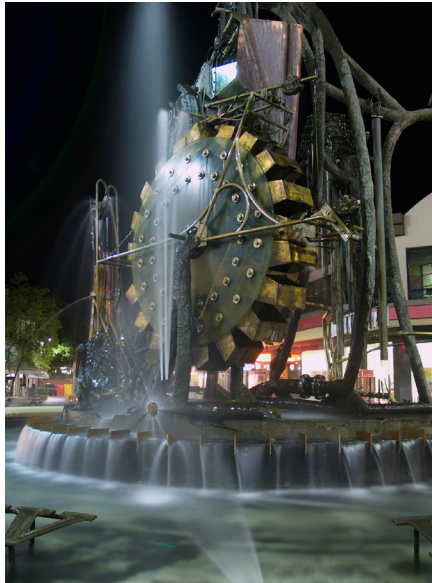
- ❖ Themed directional and way finding signage
- ❖ Billboards and other related advertisements installed at key locations along New Brunswick's major highways
- ❖ Large-format, LED illuminated pylon(s) sequenced to change colour during phases of the tidal cycle
- ❖ Arrival (project entry) signage
- ❖ Parking/way finding signage



# The Visitor Centre 3.2

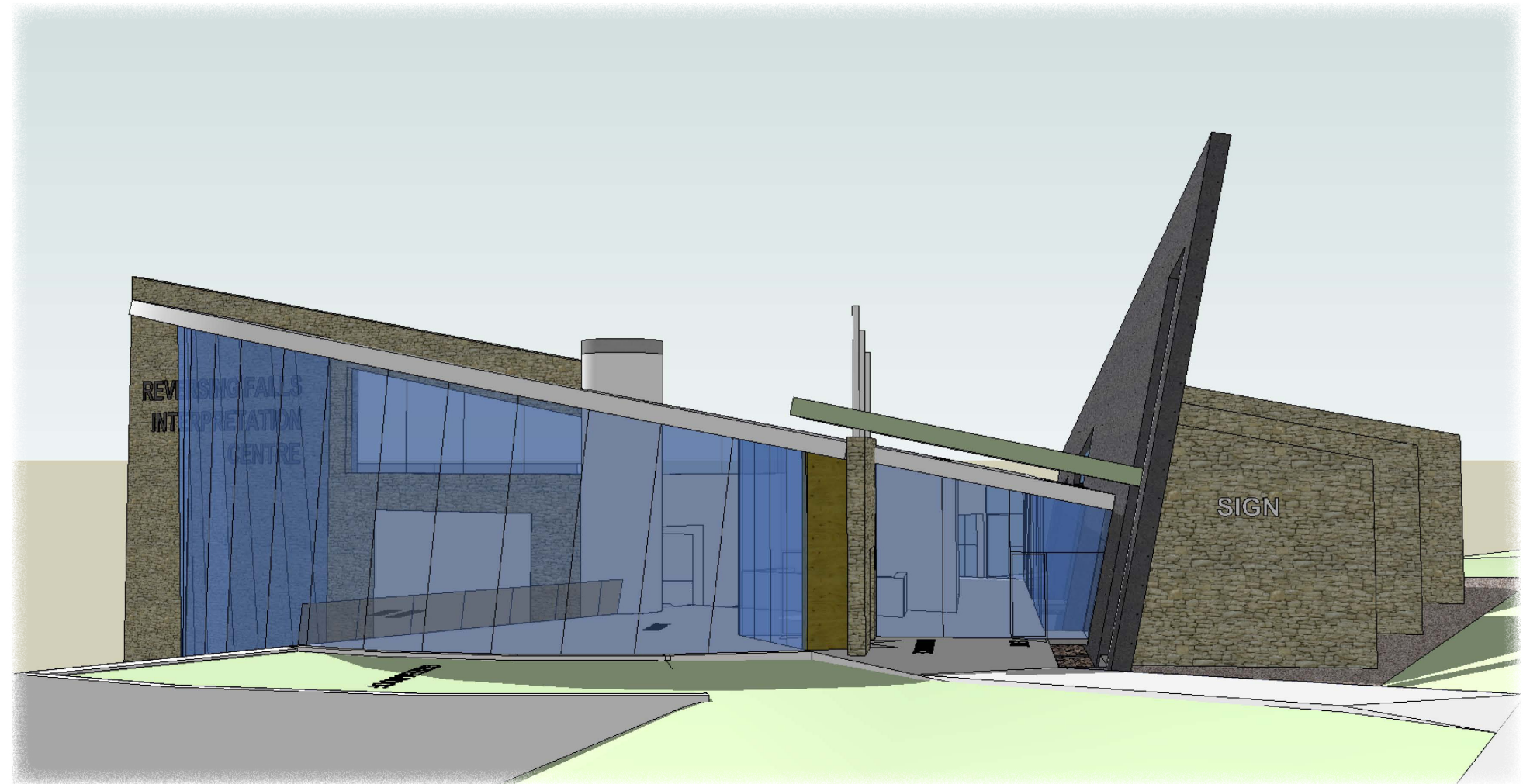
## 3.2.1 Arrival

Visitors make their way down a landscaped sidewalk along the riverbank edge that leads into the visitor centre. En route, they pass by an arrival plaza that features an enormous water clock. The clock observes the timing of the twice-daily collision of tidal and river waters. A shuttle bus stop is visible from this location. Visitors now know that they can use the bus to access various parts of the site. Most visitors choose to proceed by foot down the main path to the large entryway bridge to the Reversing Rapids Interpretive Centre. Here, visitors encounter signage pertaining to site orientation information, hours of operation, and site admission fees. They also discover various pathway features, including words, patterns, and small sculptural elements. These give people some hint of the exciting stories they will encounter inside.



Key elements include:

- ❖ Water clock in arrival plaza – possibly combined with an LED light pylon
- ❖ Orientation to site (map, rates, hours)
- ❖ Shuttle bus information and shuttle bus stop
- ❖ Thematic treatments in landscaping



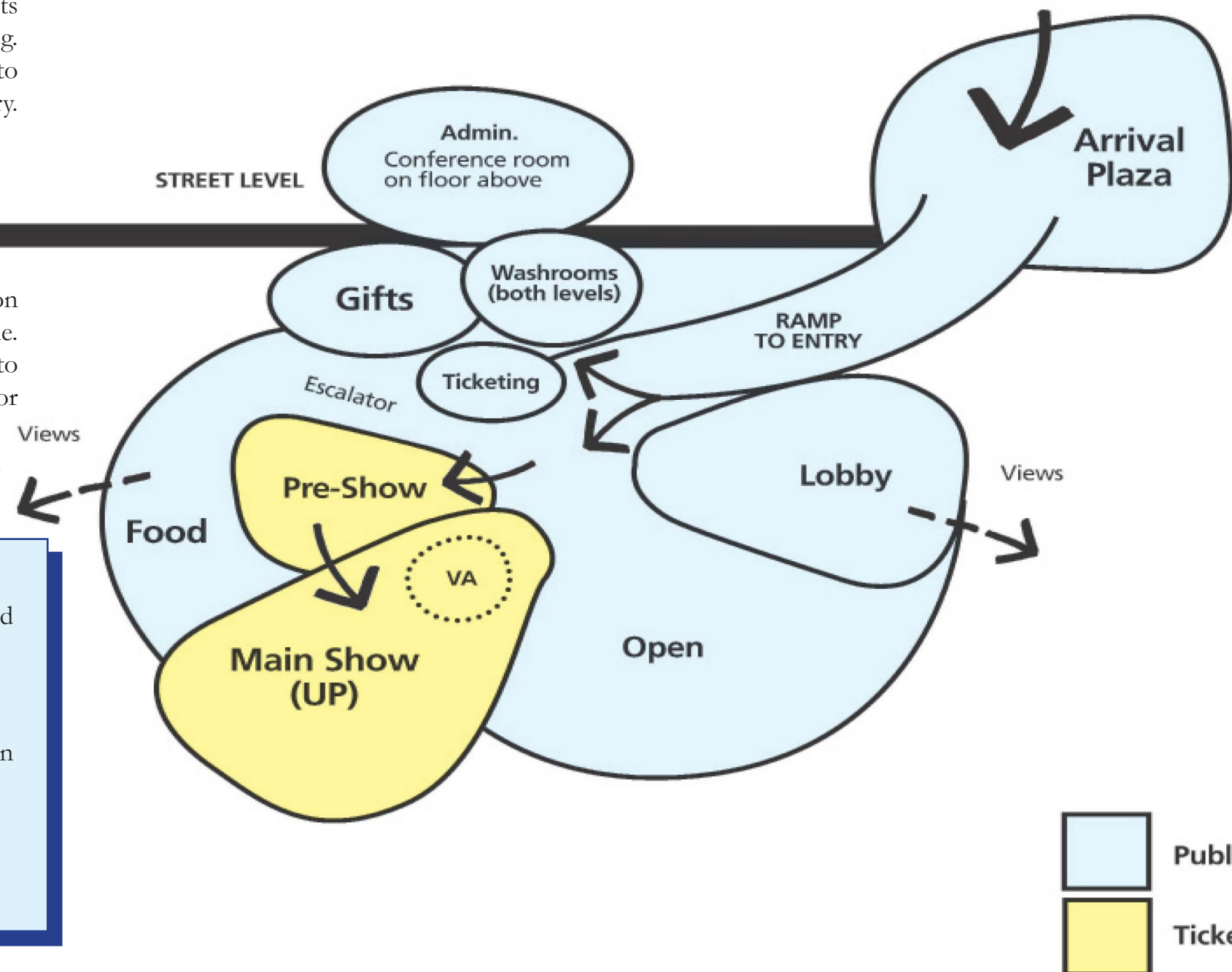


### 3.2.2 Lobby

Visitors enter a large day lit area that serves as the centre's lobby. Immediately, they are made aware of visitor amenities, including washrooms, food and retail areas. A ticket counter is prominently located and most visitors are drawn towards it. Here, people can pay admission fees and reserve tickets for the feature show, the exhibits and various excursions (e.g. jet boat guided tours). Staff members are available to talk to people about the site, its numerous features and its history. The open lobby is decorated with large-format visuals, banners, and sculptural elements that set the visitor centre's themes. Architecture and interpretation are integrated as one design element providing a dynamic building inspired by the rapids in the river below. Additional site information, as well as information concerning Saint John's other visitor attractions, is also available. Those arriving for meetings can immediately find their way to the conference facilities located above the Lobby. An elevator is also available here. In fact, all areas of the centre, including show and gallery areas are completely accessible. Visitors can access these lobby and upper gallery areas free of charge.

Key elements include:

- ❖ Ticketing: site passes / vendor counter for the show and for Adventure Zone rides etc.
- ❖ Thematic banners and other artistic treatments
- ❖ Additional orientation to the site and to the Saint John area
- ❖ Access to retail area, café, and washrooms
- ❖ Conference space with views to site





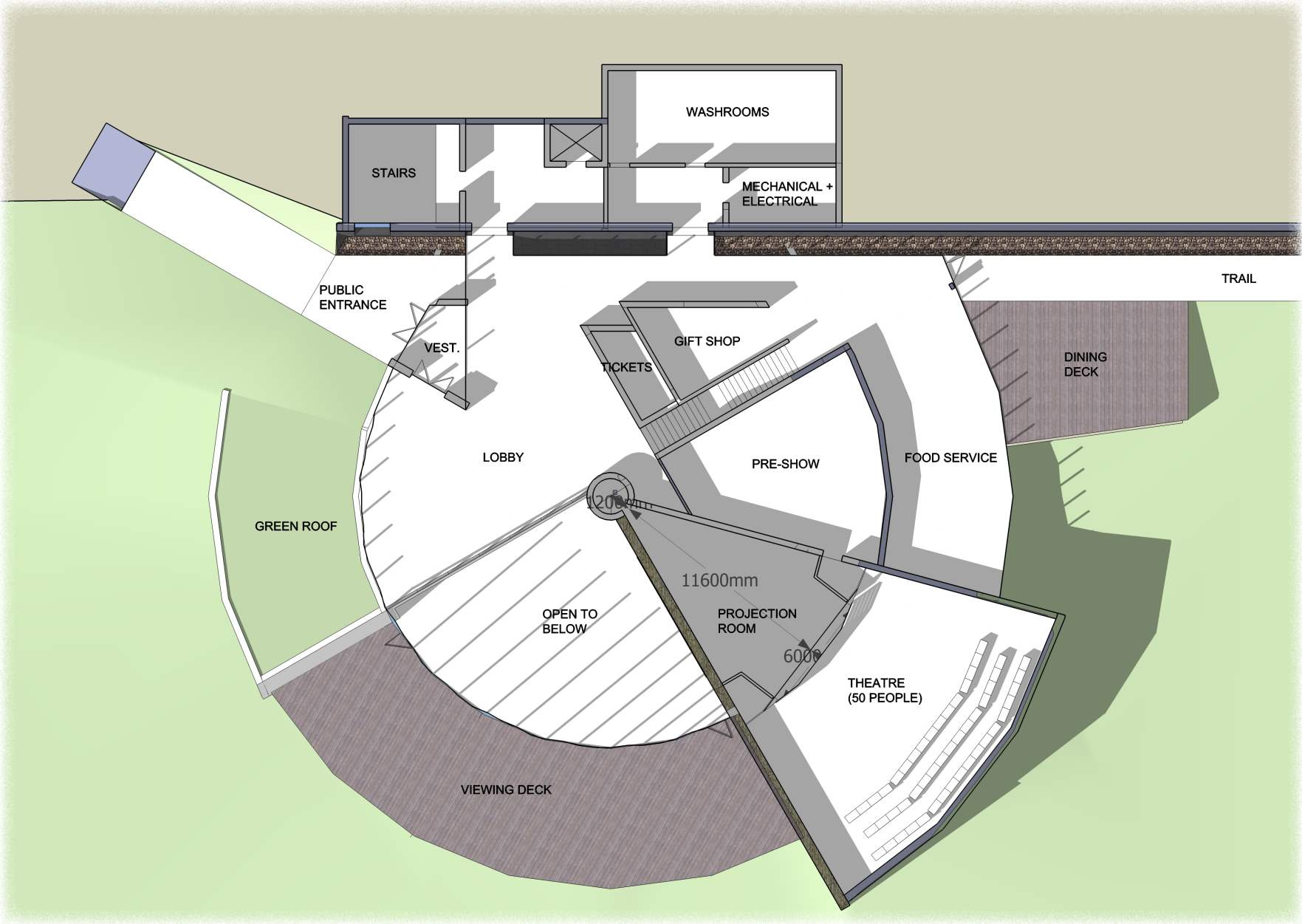
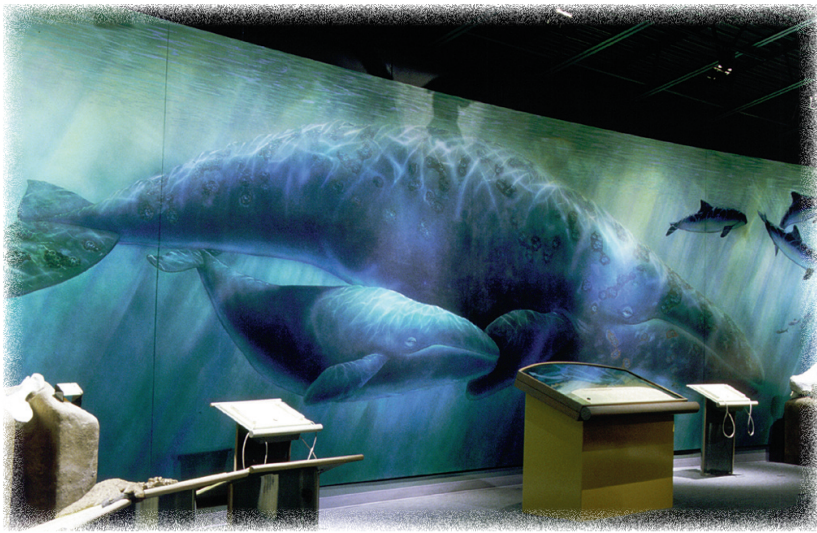
### 3.2.3 Upper Gallery

Visitors purchasing tickets for the show can congregate in the upper gallery area. This venue provides opportunities for visitors to become familiar with the Reversing Rapids story prior to their in-depth immersion into the interpretive features.

Show times are clearly visible on a clock(s) located near the entrance to the pre-show area. (This notice may appear in several places.) A large-scale topographic model that interprets the Reversing Rapids area as it is today dominates the gallery space. The primary purpose of this introduction model is to set context and provide orientation. It's important for all visitors to realize the experience of the Reversing Rapids expands to Fallsview Park and The Cove. On it, local landmarks and natural features are highlighted. Around the model area is a large, open space where visitors can gather while they wait for the feature show to begin. Graphic panels interpret the Reversing Rapids and other elements of the vista one sees from the gallery windows. Views from this vantage point are truly impressive.

Key elements include:

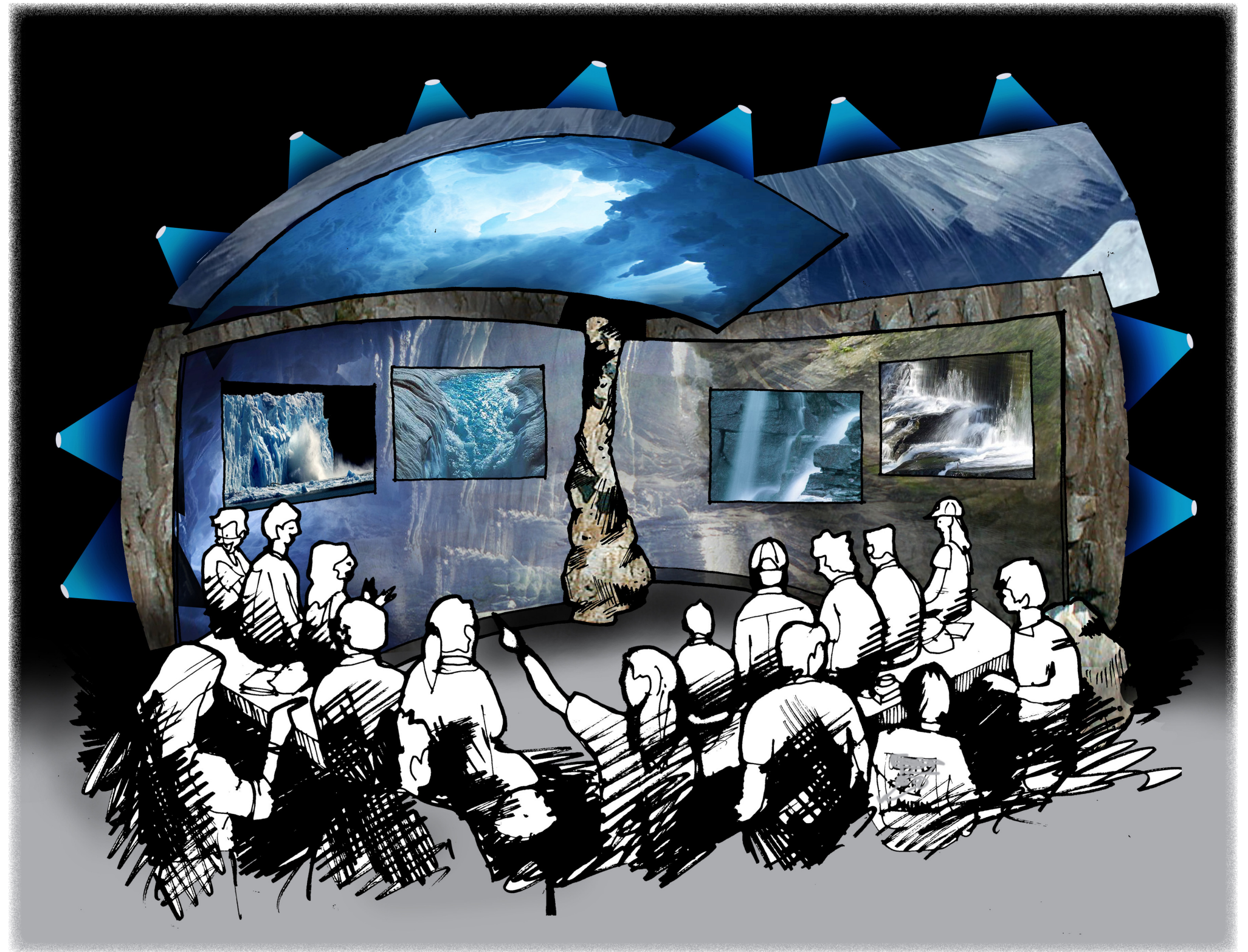
- ❖ Large - format scaled model of Reversing Rapids area
- ❖ Introduction to the Reversing Falls story as well as historic photographs etc. that are keyed to views





### 3.2.4 Pre-Show

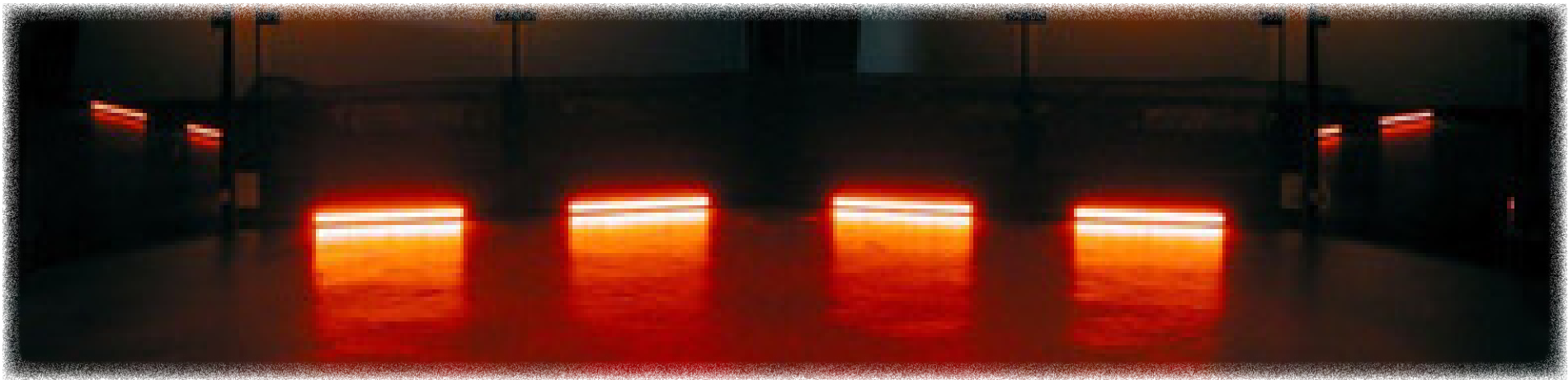
Visitors with tickets enter into the initial show area – a circular room featuring central seating. Screens are visible around the room and abound with vibrant images and sounds of nature and wildlife - fish, birds, flowing water and plants - imagery that brings to mind the watershed above the falls. The room darkens and the 5 -6 minute story begins.





A narrator introduces the story of the formation of the river and rapids. The saga of the shaping of the earth (plate tectonics, glaciers, volcanoes, etc.) and the early channeling of the river itself is told via voice-overs, imagery and animation. As the story unfolds, innovative lighting and textural effects alter the room's colour from hues of green, to fiery reds to pale blues. Local aboriginal creation myths, accompanied by music, are also explored and inject a mystical and invigorating element into the Reversing Rapids story. The area's rich natural history, as well as the cultural and industrial growth of Saint John – its historic mills, mines and other industries – is presented in a way which underscores our appreciation of the rapids area and its enduring impact and legacy.

This pre-show approach is borrowed from the Disney experience, where lineups for short but dramatic shows are cleverly disguised as rides or shows themselves





### 3.2.5 Feature Show

Visitors move from the pre-show space into the main show area. Space for the main attraction spans two floors. It features a 10m high screen in front of which the floor passes.

Visitor anticipation is now heightened. People sense that the story and experience will become more dramatic!

The feature show begins with an exploration of the Rapids area today as it appears to its visitors. They see activity taking place around them: birds feeding, people viewing the tidal action, jet boats zipping through white waters. As though situated at water's edge, visitors are able to see, hear and feel the tremendous power of the tidal waters. Through the use of stop motion filming and digital effects, the story of the tidal cycle unfolds before one's eyes. Visitors see the cycle of change that occurs on a daily basis - water always in flux and never the same.

At key intervals throughout this part of the show, lighting techniques allow staged objects and "scenes" to emerge out of the darkness as though they are in the room itself: a group of kayakers barreling down the rapids, the wheelhouse of a tugboat whose captain must navigate through the ebb tide, a roaring jet boat delicately nosing above a water-filled chasm. Geologically-significant rock formations are clearly visible, as are the footings of the two bridges spanning the river high above the water's surface. Of course, the question now must be – what does this all look like below the surface?

Suddenly and dramatically, the floor begins to descend, and visitors see and feel themselves being dropped below the main water level – down under the whirlpools and far below surface activity. Here, approximately 3m below the surface, visitors immediately see and almost feel the churning water and the life it sustains. As the room is infused with deep blue light and water patterns, salmon and other aquatic species appear before the visitors' eyes. Diving birds zip down from above, plunging into the dark waters to feed. At this initial level, visitors begin to recognize some of the rock formations and features located underneath the falls. They then begin to see the shadow of the chasm that lurks below.





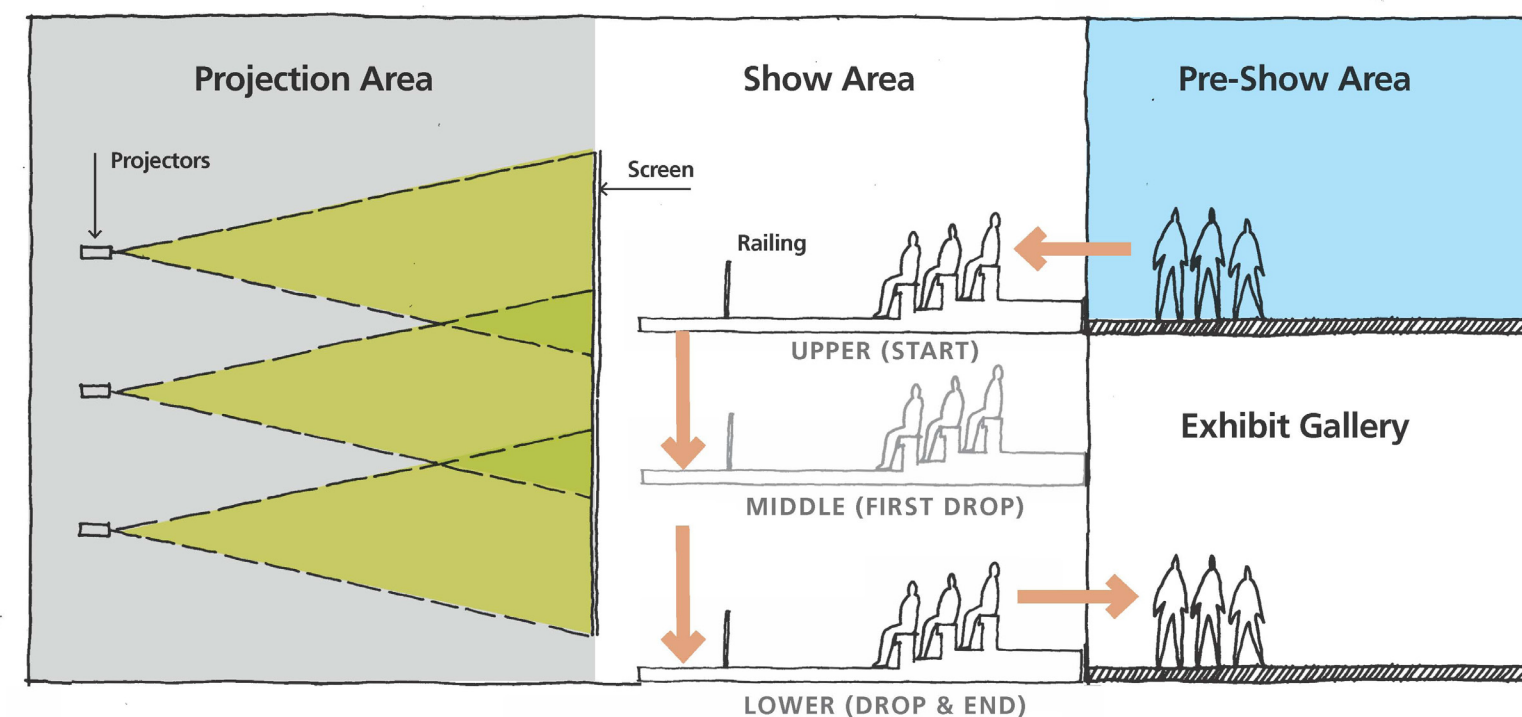
The floor begins to drop again. This time, visitors journey further down, down into the deeper river waters where the original falls once descended. The simulation has now taken them 60m below the surface of the tide. While the drop is symbolic and will only be in the magnitude of 3-5m, it will feel as if visitors have dropped far below the river level to a place no one has seen in eons. It is dark here, but this darkness lasts for only a moment because the water – surprisingly – begins to drain away!

As the water level lowers, visitors see emerging in front of them the rock formations and river channel which existed prior to when Fundy's tides advanced and suppressed the falls. The immense face of rock and sediment loom above the audience – empty of water. Where is the water? Suddenly, the visitors hear - from far above – a rumble, a roar. It is the river, high above, surging towards them once again. As they look up, they see water beginning to cascade out above them. It rushes down the face of the falls, pummeling towards them. Mist and spray are everywhere and the roar is thunderous. As visitors look again, they see the falls as it once appeared, falling dramatically over the rock from the river above, tumbling towards the Bay of Fundy. With this special glimpse of the hidden falls that are long absent, the show concludes. Visitors exit the theatre at the lower exhibit level and enter into the exhibit galleries.



The shows (pre-show and feature show) highlight many unique aspects of the entire Reversing Rapids area. Key elements include:

- ❖ Geology and hydrology
- ❖ Continental drift
- ❖ Tectonics
- ❖ Glaciers
- ❖ Formation of the Reversing Rapids
- ❖ Characteristics of the Reversing Rapids
- ❖ Ecology of the Rapids area
- ❖ The Underwater falls
- ❖ Cultural elements: peoples of the area
- ❖ Overview of the city's diverse history
- ❖ Overview of the many attractions around the falls
- ❖ Site activities and attractions





### 3.2.6 Exhibit Galleries

The lower level contains the main portion of the visitor centre’s “exhibit-style” interpretation. Visitor access to the exhibit galleries area is restricted to those paying admission fees.

As visitors exit the show, they are drawn to a central area surrounding a large-scale model of the Reversing Rapids site. The model depicts the surface and underwater morphology of the rapids and it allows visitors to appreciate the enormity of the depth below. Details of the model include bridges, boats, and landmarks as well as the most prominent viewing areas. Some elements of the model may be lit, or keyed out for interaction.

Around the model are five multimedia kiosks linked to the key sub-themes:

- 1) Collision of Continents;
- 2) Where The River Meets The Sea;
- 3) Industrious City;
- 4) Community Connections; and
- 5) Our Rapids.

Each station offers a similar menu of activities. Visitors explore these interactive kiosks in order to obtain a wealth of information relating to the Reversing Rapids site and to the waterways located above and below the rapids. In doing so, visitors can immediately see that their interactive selections are also being projected onto large, elevated screens.

Key model elements include:

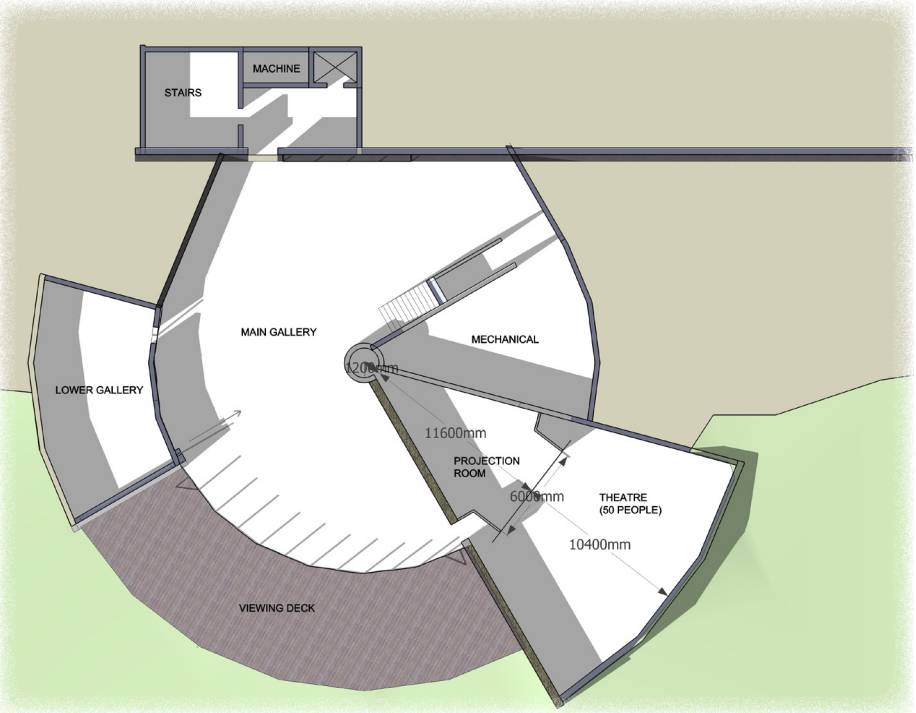
- ❖ A large-scale representation of the rapids from above and below water level. Features include the riverbed, bridges, buildings, and boats
- ❖ Illuminated components that might feature old portages, historic landmarks or mining sites
- ❖ Interpretive kiosks (relating to sub-themes) that are linked to elevated screens

Surrounding the model area are five themed exhibits that extend outward. To the visitor’s eye, these five areas form a backdrop to the gallery. Each area reinforces one of the sub-themes by means of a number of key features:

- ❖ Sub-theme specific facades (bridges, industries, rock walls, etc.)
- ❖ Historic quotes
- ❖ Audio-visual or textual statements/anecdotes that explore people’s relationship with the Reversing Rapids – First Nations people, explorers, a harbour pilot or simply a lover of the falls
- ❖ Scaled models
- ❖ Sculptures and cutout figures
- ❖ Interpretive graphics
- ❖ Featured objects and artifacts
- ❖ Audio and video kiosks, including a multi-media kiosk that allows visitors to record their own thoughts and comments concerning the Reversing Rapids experience. These personal recordings can be e-mailed to others, retained for future playback in the visitor centre or be available for off-site, online viewing.
- ❖ Web-cam postings to facilitate off-site exploration of rapids-related topics
- ❖ Mini-show area

The exhibit area also features textual and graphic elements designed to reinforce messaging concerning the “how and why” of the Reversing Rapids phenomenon. Their purpose is to complement and augment the messaging provided in the show and in other site installations.

Prior to exiting the galleries, people can explore all these features at their leisure. The varied offering of stories and media provides a wealth of authentic experiences for visitors of all ages. The exhibits are specifically designed to mesh with educational programming opportunities and will, as far as possible, enhance aspects of the provincial school curriculum. Many visitors will want to return, especially families with children.









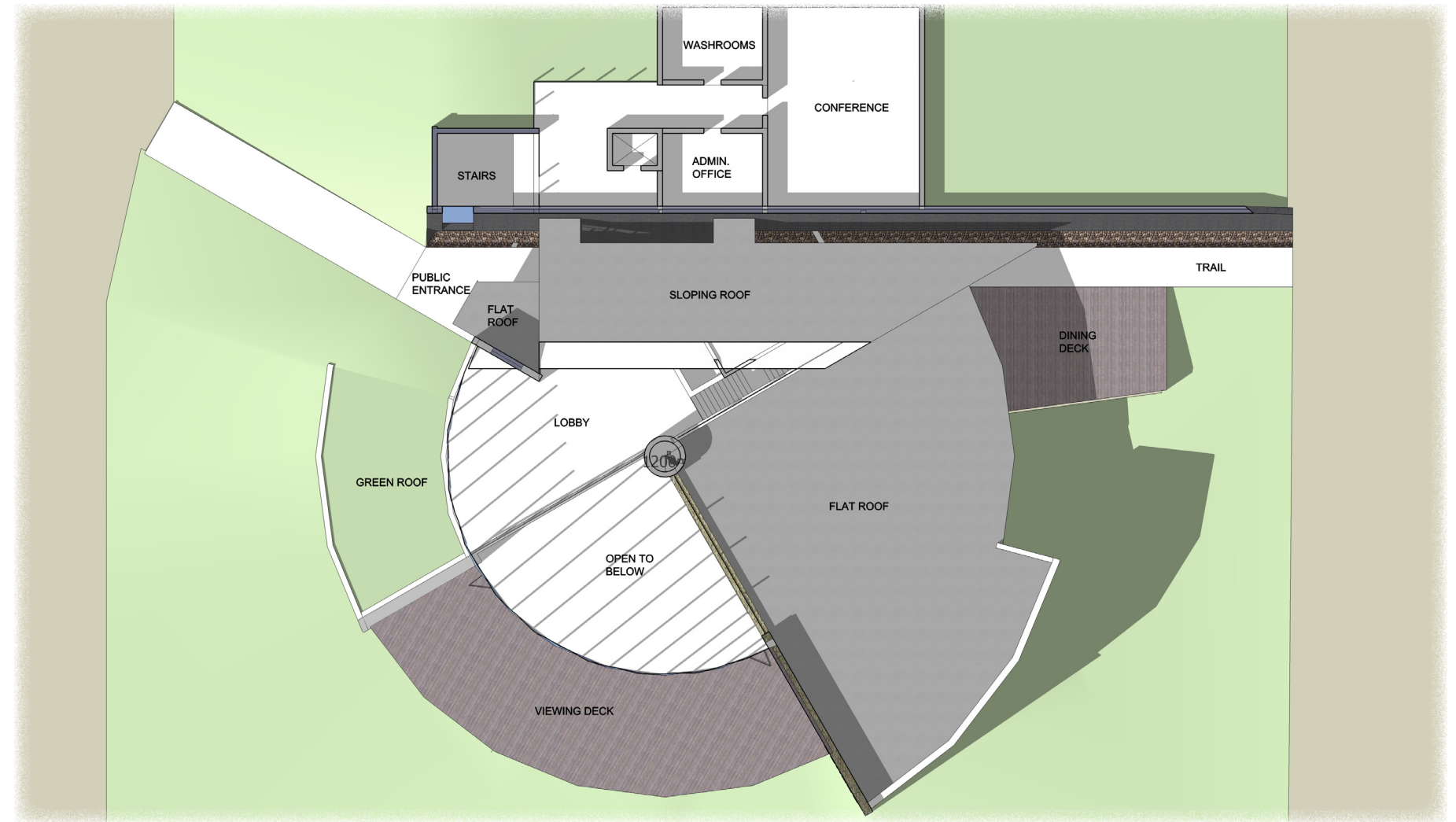
### 3.2.7 Return to Upper Levels and Site Access

From the lower level of the visitor centre, people can choose to exit to the site pathways or to return to the upper level and purchase souvenirs and refreshments. Alternatively, visitors can board a shuttle bus heading for another part of the site. Those who choose to return upstairs will use an escalator (or the elevator) that ascends to the main level.

Wall space along the escalator area can be used to augment the story of the rapids' differing water levels. Installed along these walls are murals, graphics, and models. They serve to reinforce the concept that various tidal levels and unique conditions must prevail in order for the Reversing Rapids phenomenon to occur.

Visitors who choose to proceed outdoors from the lower level may do so through clearly marked exit ways. Here, signage steers visitors toward areas of interest, and also provides tidal information. At this point, additional options include a guided tour, either a walking tour or one conducted aboard a small, electric-powered passenger cart. The cart transports visitors down to the Reversing Rapids view areas, to The Cove, and back again.

The shuttle bus service (from the upper level) follows a longer route, encompassing the overall site and beyond. This route extends from the Lower West Side village to the visitor centre area and then on to the Fallsview Park area and Harbour Passage.



Key topics for treatment here could include:

- ❖ Hydrology
- ❖ Tides
- ❖ Natural history
- ❖ Factoids concerning the Reversing Rapids
- ❖ Statistics (e.g. samples of tide tables)
- ❖ Anecdotes



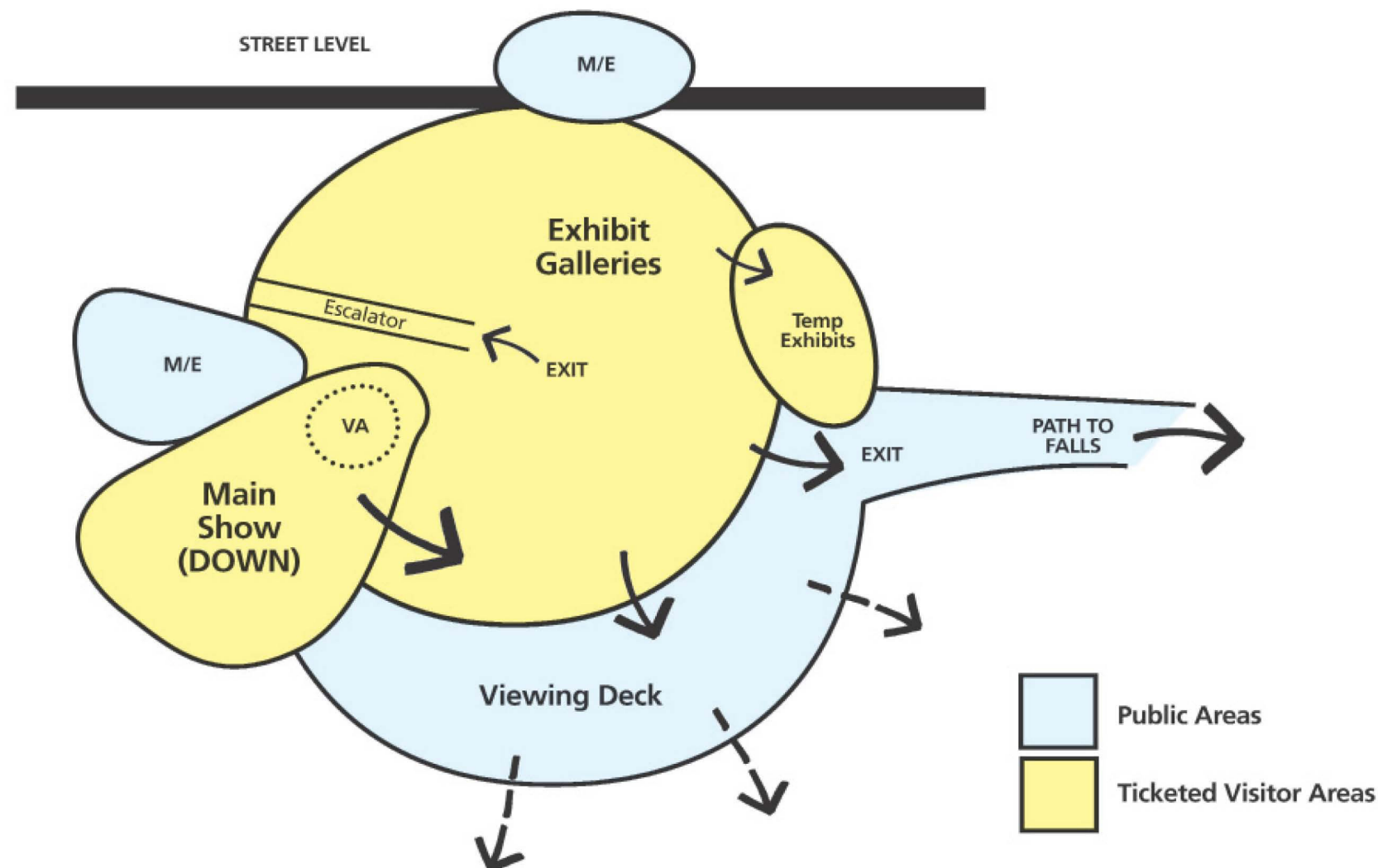


## Site Exhibits 3.3

### 3.3.1 Interpretive Pathways to View Areas

Visitors proceed along the lower level pathways on a route which follows the river shoreline down to the view areas located near the base of the bridge. The pathways lead towards two public view areas located near the rapids. The same route also leads in the opposite direction towards the Lower West Side village, located downstream of the visitor centre.

Along the pathways to the view areas, visitors follow a well-dispersed trail of interpretive elements and view panels. The media provide general, view-specific versions of the key site messages. At this point, visitor anticipation of seeing and learning about the “real thing” runs high. The paths pass through treed areas, as well as along the shoreline and offer visitors a glimpse of the waters nearby.



Key elements of the interpretive pathways include:

- ❖ Interpretive panels keyed to significant views, features, and landmarks along the river's edge
- ❖ Sculptural installations (tied to a variety of theme-related subjects) that might include the rapids, mining, first nations, geology, etc.
- ❖ Discovery elements and landscape features relating to geology and to the proposed geopark
- ❖ Historic quotes, images, and other elements reinforcing the sub-themes
- ❖ An overview of the marine environment beyond the immediate Reversing Rapids site (e.g. the Bay of Fundy and its tides)



### 3.3.2 Bridge View Areas

Many visitors will pass the Bridge View Area on their way to the visitor centre. Some visitors may stop here first. During the day, the Bridge View Area is highly visible from the roadway. It is even more visible at night because of the presence of the 15m, illuminated LED light sabre/tidal marker that dominates the site.

Visitors arriving at the Bridge View Area are met with banners that reinforce the branding of the Reversing Rapids area. An upper deck opens up to wonderful vistas of the rapids and the city beyond. Viewers are provided for visitors to get a close-up look at the river activity below. Visitors on this level can explore a large 3D or textural orientation map, similar to that found in the lobby of the Visitor Centre. Large interpretive panels located nearby highlight the story of the rapids, and explain its significance. Visitors may then descend to a lower deck area in order to gain a different perspective of the area. As they descend the stairs and ramps, people view writing inscribed on the various steps. The content includes quotes and interesting facts relating to the rapids.

At the lower deck level, more interpretive panels are visible along the rail. Many visitors are drawn to a large vertical installation that runs along the rear of the lower view deck. This sculptural bas-relief depicts a timeline for the rapids. It begins with geological time and moves forward through more recent city history. This casting stands as a timeless and thought-provoking representation of the rich history of the rapids area and of the surrounding communities.

Visitors may decide to descend further to a lower viewing area. They can access this area via a nearby stairway that descends downward to a promontory above the water. From this vantage point, visitors have an excellent view of the bridges and river activity below.

Key elements include:

- ❖ Orientation model/map depicting the area
- ❖ Interpretive graphics related to major stories, and keyed to selected view planes
- ❖ Geopark introduction, with continental collision featured as part of the site hardscaping
- ❖ Bas-relief sculptural timeline history of Reversing Rapids and Saint John
- ❖ Viewscopes, dramatic vistas and photo-opportunities

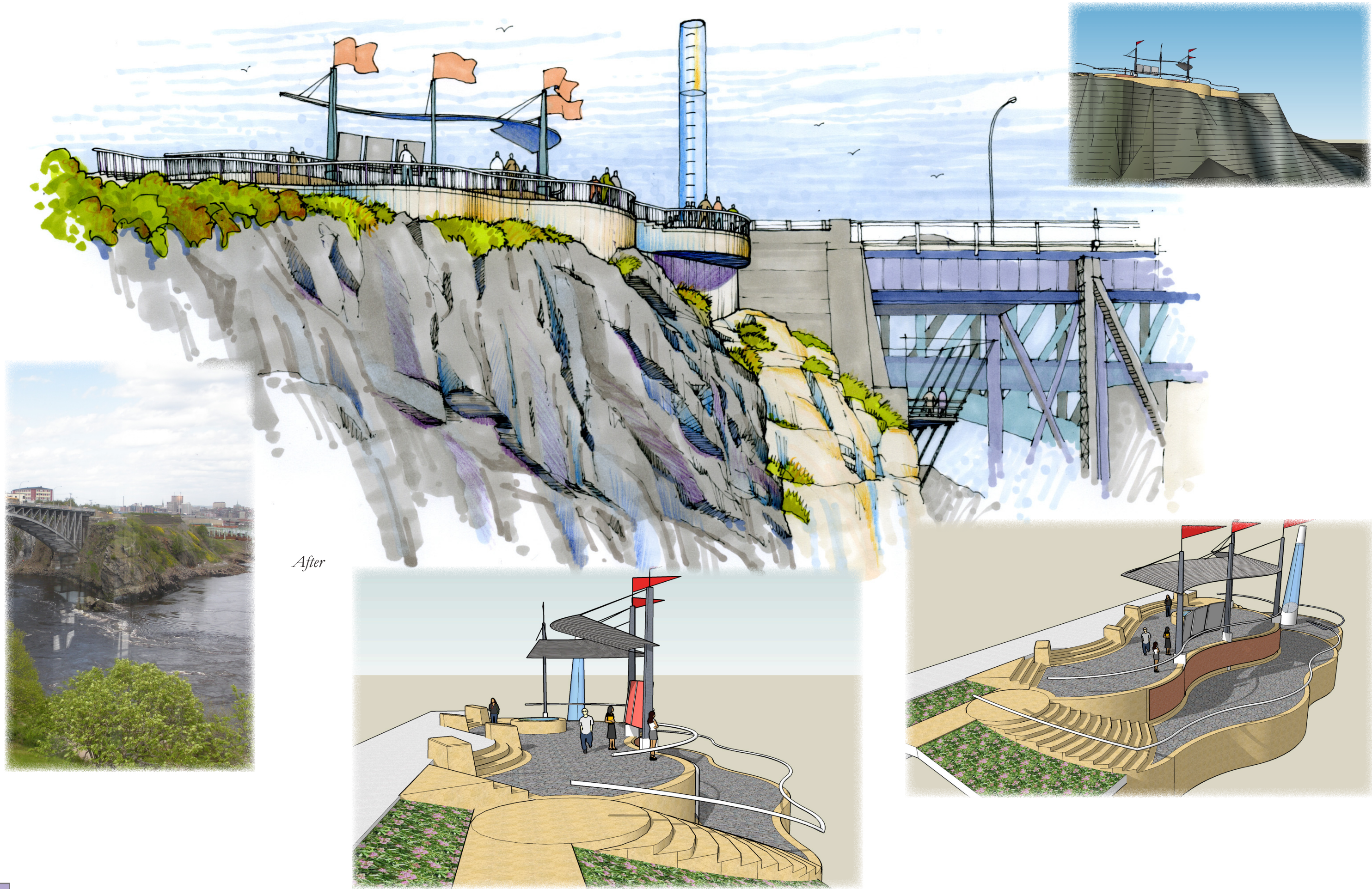


*Before*



*Possible trails for the adventurous*





*After*



### 3.3.3 Train Bridge and Split Rock Lookouts

Access under the Reversing Falls Bridge and between the Reversing Falls Bridge and the Train Bridge will lead to a number of viewing areas. Visitors can observe the two bridges, take in the activity on and over the water, or simply enjoy an abundance of spectacular scenery.



View of The Cove



View of Fallsview



Before



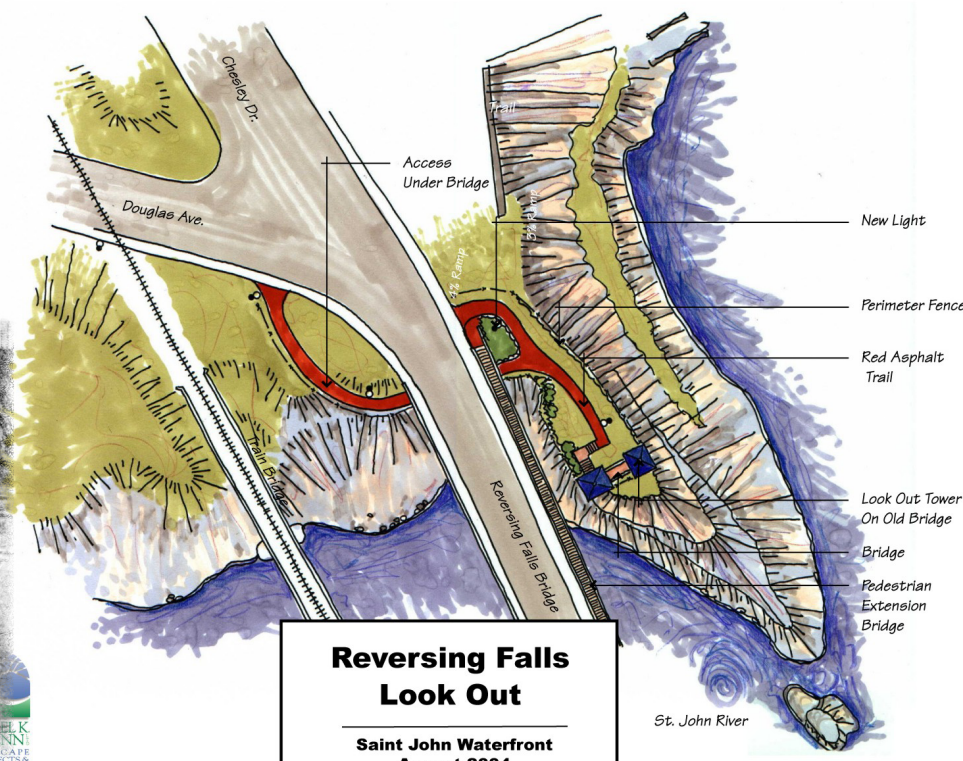
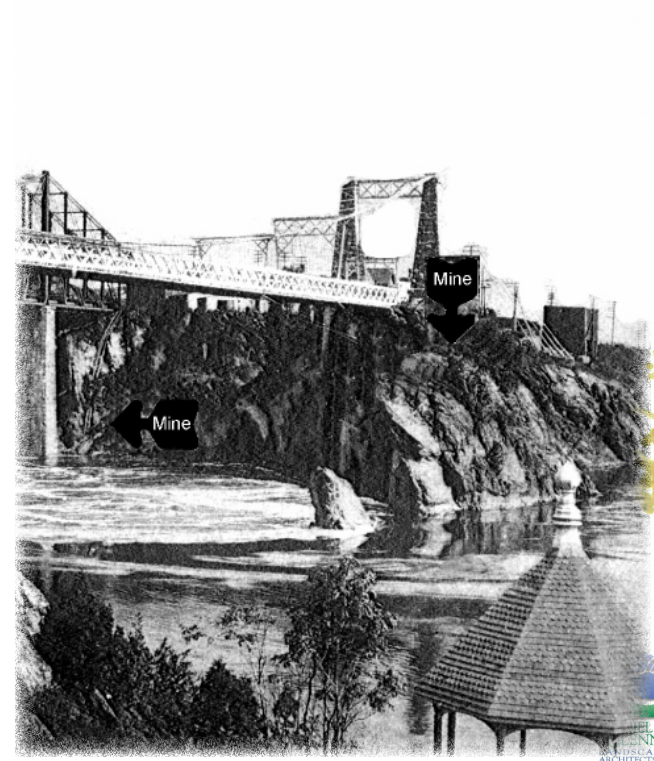


After

Across the river, on a promontory above Split Rock, another view area is accessible via public pathways. The interpretive panels here reflect the overall project themes while also zeroing in on views from the opposite shore.



Before



**Reversing Falls Look Out**  
Saint John Waterfront  
August 2004



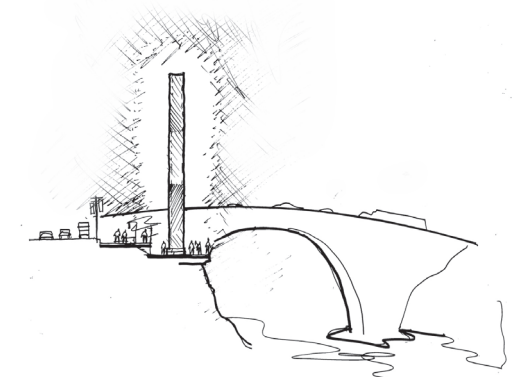


### 3.3.4 Thematic Lighting

Carefully designed and strategically located thematic lighting will emphasize and accentuate the entire rapids area. It will also serve to deliver key interpretive information through dramatically illuminated icons and site features.

Looming above the rapids site will be a single pylon depicting the tidal activity below. Situated on the Bridge View Area's upper deck, this sculptural icon provides visitors with an indication that the tide is changing. At night, the programmable LED lighting systems allow the pylon to glow. Blues, greens, and yellows flux in sync with the tides. This icon is visible from the roadway, the bridge, and the opposite shore. In the daytime, additional information is also visible, either as large numerals or words visible on the face of the pylon, or as an inset video installed at the base of the pylon. While visitors are exploring, they immediately see that several other lit pylons are situated at key locations in the area – at Fallsview Park, at The Cove and at the Village on the Lower West Side. Together with the central bridge pylon, these illuminated icons provide a unique means of defining the Reversing Rapids area. Similarly, the use of programmable lighting on the bridge and waters below is highly visible from several nearby vantage points.

Together, these programmable elements work to convey an array of information about the tides. Alternatively, they can become part of a dramatic nighttime light show that is visible from several vantage points. In concert, they comprise a spectacular landmark that will become very much a part of the site's identity. Lighting the Reversing Rapids themselves with bright clear metal halide fixtures is key to the night view for patrons of the restaurant.





# Fallsview Park (and Adventure Zone) 3.4

## 3.4.1 Orientation Pavilion & Gallery (Welch's Rapids)

Visitors departing the visitor centre or the view areas can proceed by shuttle across the river and on to Fallsview Park (the shuttle stops regularly within the Bridge View Area). Shuttle passengers disembark outside the Orientation Pavilion; those visitors who arrive by car access parking in the nearby lot.

The pavilion is the main information venue for this part of the Fallsview site. It is located adjacent to a series of small gift and food vendors. The pavilion acts as an access point for visitors who initially arrive here and are interested in seeing other areas, including the Visitor Centre and various other locales.



*View of Welch's Rapids*





Those arriving at the Orientation Pavilion (a public facility) can:

- ❖ Visit the vendor counter for adventure ride tickets (jet boats, tour boats, zip line, etc.), amphitheatre tickets or possibly visitor centre tickets
- ❖ Obtain maps, guides, and other tourist information
- ❖ Purchase souvenirs and refreshments
- ❖ View free exhibits (graphics) that provide an overview of the Reversing Rapids story, Fallsview site and Pulp and Paper Mill
- ❖ View an orientation model of the area (matched to the Bridge View model)





### 3.4.2 Fundy Rock and Water Zone

One of the major features of the Fallsview area is the Fundy Rock and Water Zone, a large hardscape map installation that will span approximately 750 to 1,000 square metres. The map is a dynamic “terrain” of geographical and topographical features of the Bay of Fundy and its river systems. The features are presented along with interpretive media and various embedments. The size of the map is such that it can be walked and climbed over by people of all ages. Because it includes water features such as sprayers, jets, and bubblers (features that are situated strategically at key “landmarks”), the map will be very popular with younger visitors and will serve as a neighborhood attraction for local family groups. Another element of the map area is a geological timeline. It consists of a sequence of boulders, each of which is representative of a specific geological time period. These are interwoven into the water play areas, as well as into the amphitheatre seating below. The map area’s educational potential is also quite significant and lends itself to programming opportunities targeted to area schools and local residents.



### 3.4.3 Amphitheatre and Water Show Area

As the central feature of this part of the Reversing Rapids site (looking out over the river and beyond), the map also serves as a stage for performance events and programming. The design is such that performances are projected towards amphitheatre seating that rises up and around a portion of the map. Water and rockwork treatments extending down from the play areas above are designed to be integrated into the seating areas below, creating a whimsical, semi-natural setting for visitors who come to see a roster of changing shows and events. At the center of the “stage” area, a wall of fine mist serves as a screen for projecting movies, images, and text messages.

Shows may be related to the visitor centre storyline, or to other thematic events such as lightshows. Other public events (music/theatre) and community performances will also take place.



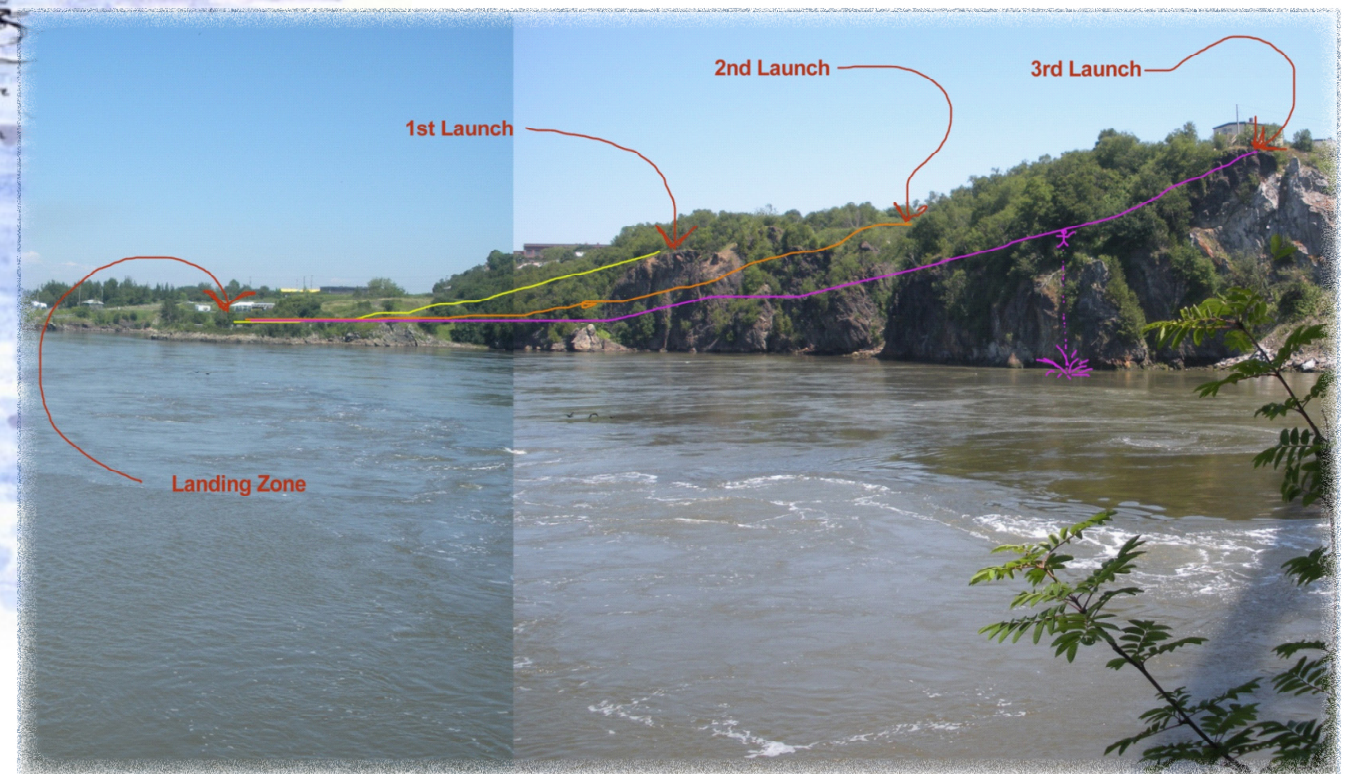




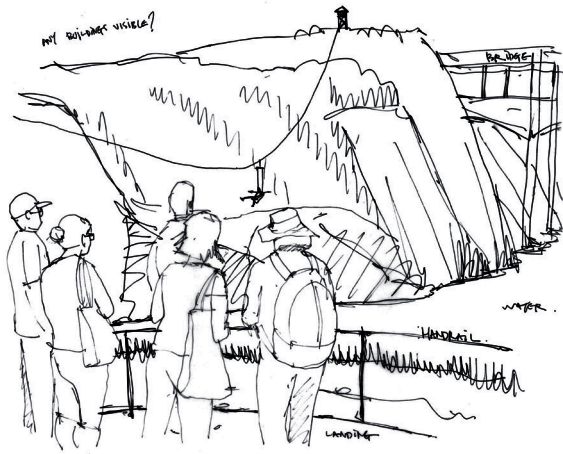
### 3.4.4 Adventure Zone

The Adventure Zone area offers a number of themed outdoor experiences. It couples family-oriented adventure activities alongside opportunities for enjoying the rapids and river area from a new vantage point. The zone, which encompasses a portion of Fallsview Park, provides an ideal venue for people to spend a few active and fun-filled hours, either before or after they experience the Reversing Rapids tidal event.

Private sector opportunities such as Jet boats, kayaks, zip lines, and other adrenalin-inducing experiences allow visitors to interact with the rapids in ways they will never forget. Less adventurous visitors may choose to rent bicycles and explore the nearby park or adjacent city trails.









### 3.4.5 Fallsview Park





The Fallsview Park area is an attraction to both tourists and local area residents. It features numerous walking trails, vantage points, scenic outlooks and picnic areas. Visitors can proceed beyond the Adventure Zone area and walk along the park's shoreline to take advantage of various interpreted views of:

- ❖ Irving's pulp and paper mill operations;
- ❖ other local, historic industries;
- ❖ Goat Island, Middle Island, and Crow Island (flora & fauna);
- ❖ other aspects of the river (the story of tides, ecology etc.).

Remaining park areas are suitable for recreational pursuits such as fishing, picnicing, hiking and bird watching. Other facilities might include:

- ❖ Sports field (lighted and irrigated)
- ❖ Auto Route Trail
- ❖ Walking and hiking trails
- ❖ Floating Dock





## 3.5 The Cove (Lower West Side)

Exiting the Visitor Centre, visitors may choose to walk or take a shuttle from Fallsview Drive and continue along Harbour Passage to The Cove. The meandering trail will lead to a dramatic viewing area (Cove Lookout) near Riverview Drive. Along the way they can visit the beach and marina, or the viewing platforms perched among the willow trees. The Cove Lookout offers a beautiful vista of the Reversing Falls Bridge. An interpretive kiosk will focus on marine themes. A privately operated take-out restaurant will offer patrons authentic Bay of Fundy delicacies, including signature seafood. Public washrooms and a small playground with a marine motif will complete the park. The shuttle service will return back to the visitor centre parking lot.

Key elements include:

- ❖ Shuttle stop and washroom facilities
- ❖ Refreshment vending (coffee, snacks)
- ❖ Public exhibits (the river, aboriginal use of river resources, the fishery etc.)
- ❖ Visitor fishing areas (rod rentals etc.)
- ❖ Keyed view panels of the city



*Trail Shown in Red*





# Fishing Wharves 3.6



Visitors at the visitor centre may decide to walk downstream to visit this historic area, located to the northwest of the falls-gorge area and Split Rock. It features an interesting mix of waterfront heritage buildings (sheds, fishing stages, and wharves) as well as private residences. An authentically restored fishing shed and stage is open to the public and features displays relating to early fishing.



*Before*







# *Chapter 4*

## Programming

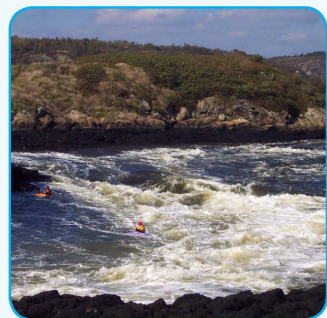
Science-based learning experiences are key to a geopark concept. Equally important for visitor satisfaction is a well balanced thematic program that is delivered in a fun and entertaining way. This chapter outlines the main theme that will tie the entire the Reversing Rapids together, as well as several sub-themes to be interpreted throughout the site. A mock programming day is also given, to show how these themes could be applied.



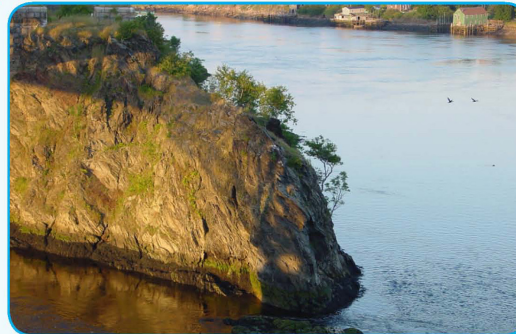
# Interpretive Themes 4.1

## 4.2.1 Why Do We Need Themes?

Themes are the main ideas or messages that a visitor centre or site communicates to its audience. They are a means of organizing and streamlining all of the content information that is available. Without themes, it is difficult to determine what material and objects should (and should not) be included in the interpretive treatments. Sub-themes are more specific ideas. They serve as a means of fine-tuning a site's story or narrative. The specific content identified under each sub-theme will be distributed amongst indoor and outdoor exhibits located within the various project areas.



**WHERE THE RIVER MEETS THE SEA**



**THE COLLISION OF CONTINENTS**



**OUR RAPIDS**

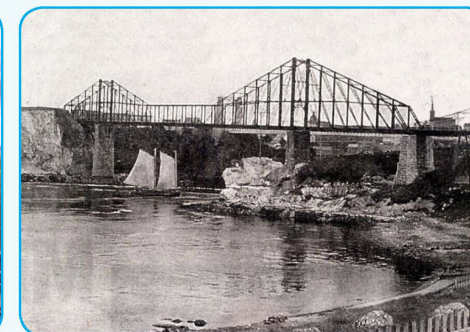
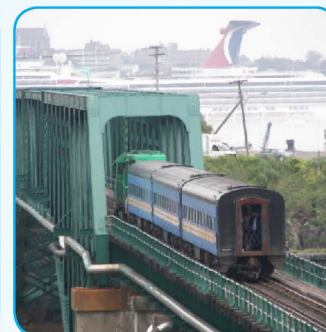
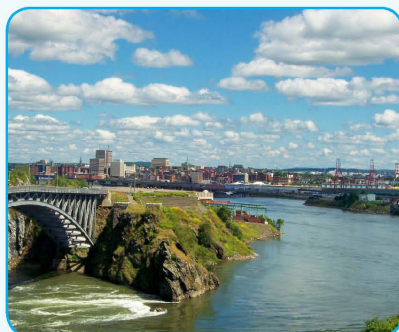
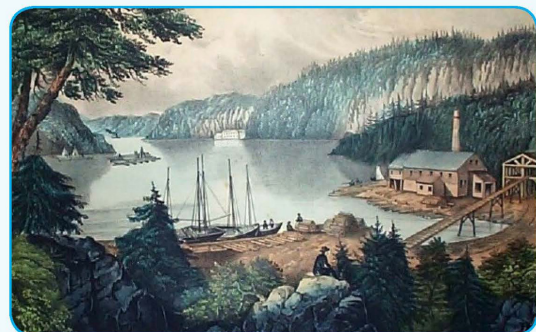
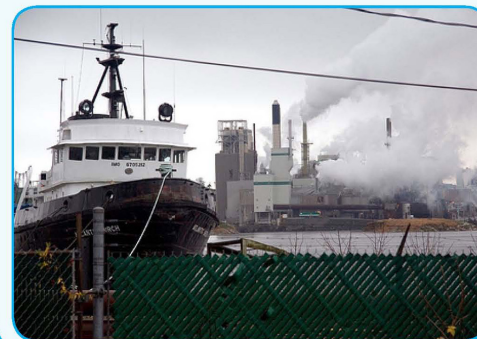


The Reversing Rapids is a dramatic natural area which is shaped by a continuing interaction between geological, hydrological, ecological, industrial, and cultural forces

**COMMUNITY CONNECTIONS**



**INDUSTRIOUS CITY**





## 4.2.2 Reversing Rapids Main Theme ("The Big Picture")

The anchoring theme of "Fundy's Geo-Marine Wonder" is repeated throughout the site and interpretive exhibits. Programming and visitor experiences are intended to reinforce the uniqueness of this special place. Learning experiences are combined with adventurous fun for the enjoyment of visitors and locals alike.



Podcast



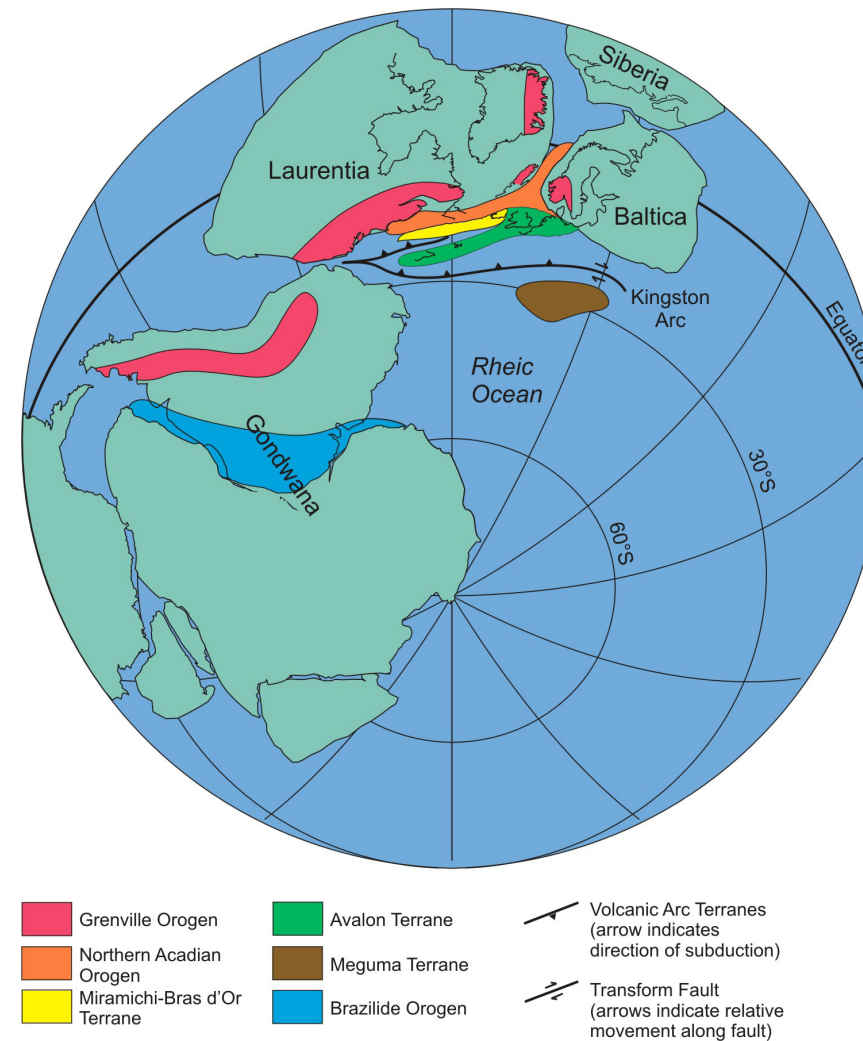
*The Reversing Rapids is a dramatic, unique natural area that is shaped by a continuing interaction between geological, hydrological, ecological, industrial, and cultural forces.*



### 4.2.3 Reversing Rapids Sub-Themes ("Message Categories")

#### *The Collision of Continents*

- ❖ Presence of exposed rock represents the fusion of slices of distinct continents. This geological event took place between 500 million and one billion years ago.
- ❖ The oldest rocks in New Brunswick are found at Reversing Rapids
- ❖ Glacial shaping of the Reversing Rapids gorge, including its geology and topography
- ❖ The overall geological diversity of Saint John and its outskirts has culminated in the nomination of the area as a UNESCO Geopark
- ❖ Local geological features as basis of mining activity
- ❖ Overview of the history of local geological exploration



#### *Where the River Meets the Sea*

- ❖ The Reversing Rapids phenomenon – “The Billion Gallon Rush”
- ❖ The Bay of Fundy and Saint John’s two rivers provided resources and transportation/ trade routes for both aboriginals and Europeans
- ❖ Aboriginal prehistory, history and archaeological evidence
- ❖ Traditional aboriginal portages (to circumnavigate Reversing Rapids)
- ❖ Waterways as impetus for settlement
- ❖ Biodiversity of the Reversing Rapids area and nearby islands
- ❖ A city and culture defined by the Bay of Fundy and its rivers





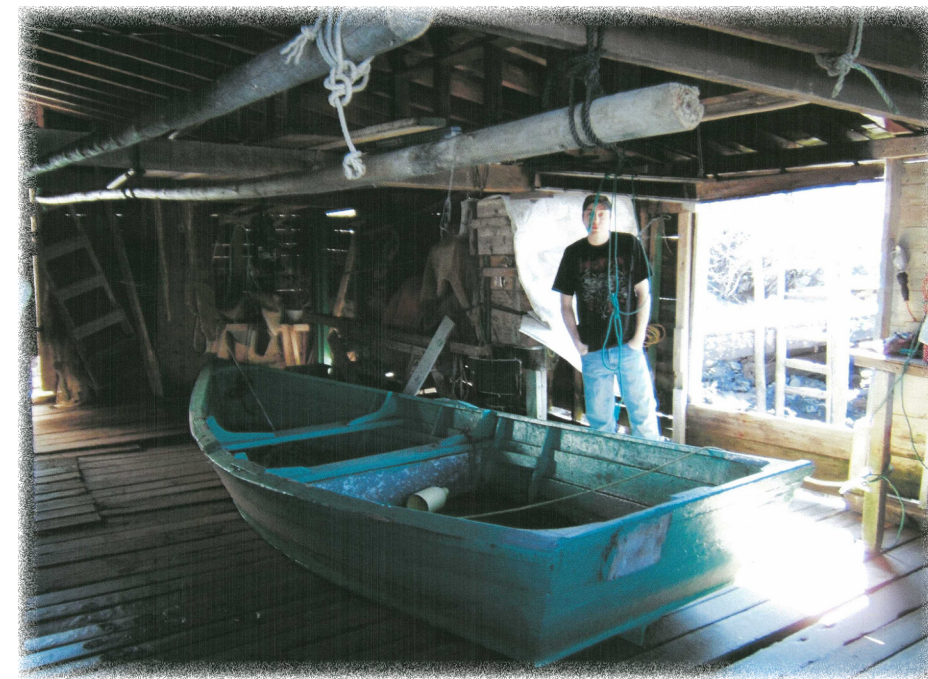
## Community Connections

- ❖ Amalgamation of Portland and Lancaster with Saint John
- ❖ Indian Town and its waterfront significance
- ❖ Marble Cove (hub of shipbuilding)
- ❖ Transportation and linkages
- ❖ Bridging the St. John River (Reversing Falls Bridge & train bridge)
- ❖ Saint John Harbour Bridge
- ❖ Ferry service
- ❖ Street cars



## Industrious City

- ❖ Emergence of local industries and their reliance on natural resources and marine-based “infrastructure”
- ❖ Commercial salmon fishery in the village
- ❖ Logging and sawmills, lumberyards
- ❖ Shipbuilding
- ❖ Mining and quarrying (limestone and graphite)
- ❖ Pulp and paper industry (historic and contemporary)
- ❖ Secondary manufacturing (historic)



## Our Rapids

- ❖ Aboriginal lore surrounding the Reversing Rapids
- ❖ Historic accounts and anecdotes concerning Reversing Rapids
- ❖ History of tourism and recreation at Reversing Rapids
- ❖ Uniqueness of Reversing Rapids is part of what defines Saint John





# Mock Programming Day 4.2

## Ongoing

The following elements would always be available during operational hours (external interpretive elements would be available all day, every day):

- ❖ Static internal and external interpretation
- ❖ A Rapids interactive fountain
- ❖ A Force-of-Fundy water exhibit
- ❖ Audio visual interpretation
- ❖ Visitor counseling
- ❖ Themed food and beverage services
- ❖ Themed retail services featuring signature Reversing Rapids products
- ❖ Zip-line experience
- ❖ Podcasts and website

## Periodic Programming

- ❖ New Brunswick Youth Orchestra Outdoor Concert
- ❖ Modern dance demonstrations
- ❖ Fireworks
- ❖ Wine tastings
- ❖ Craft demonstrations
- ❖ Rock Climbing

## Daily Schedule

High and low tides would dictate the exact time of each scheduled program rotation. Depending on tide times, some program days would begin as if ‘in progress’ – even though the program would always follow the same rotation, no two days will ever be the same at Reversing Rapids. With this concept in mind, there would be two program rotations, in whole or in part, during each operational day.

## Essential Services

- ❖ Convenient parking
- ❖ Accessibility considerations (sight/sound/mobility)
- ❖ Spacious, clean washrooms
- ❖ Visitor pay shower stalls and towels
- ❖ Visitor internet service
- ❖ ATM service
- ❖ Visitor seated pay telephone stations



- ❖ 7 a.m. daily – seasonal Sunrise at the Rapids (boutique coffee house operation)
- ❖ 9 a.m. – program component one – guided themed morning hike – The Nature of the Rapids
- ❖ 9:45 a.m. – program component two – Continental Collision – a guided interpretive program
- ❖ 10:30 – program component three – Serpents and Sea Lions – a guided explanation concerning river and Fundy marine life and the inner harbour fishery (inter-active hand-held fog horns, fish barrel stenciling)
- ❖ 11:15 a.m. – program component four – A Taste of Fundy – a guided demonstration of things that come from the bay including touching and tasting
- ❖ 1 p.m. – program component five – guided walks of Harbour Passage and The Reversing Rapids properties
- ❖ Program component six – announced and narrated Jet Boat rides during the rapids event
- ❖ Program component seven – announced and narrated staff-programmed rapids kayaking demonstrations
- ❖ Evening dusk-dark program component eight – The Rapids Laser Show
- ❖ Musical sign-off





# *Chapter 5*

## Product Positioning

Currently, the Reversing Falls and Fallsview Park are in decline as tourism facilities. The Product Life Cycle (Figure 5.1) illustrates this. Operational with its current service and experiential offering now for many years, the site is dramatically beyond its Introduction Phase, its Growth Phase, its Shakeout Phase (when competing attractions began to steal away customers) and the Maturity Phase. Reversing Falls is unquestionably in the Decline Phase of the Product Life Cycle. The challenge, therefore, is to reinvent the product and the experience.



Tourism New Brunswick has vigorously promoted the Bay of Fundy as one of its primary product icons for more than fifteen years, using a variety of product themes and brag lines in an effort to convey the uniqueness of the Bay as one of the marine wonders of the world. “Walk on the Ocean Floor”; “More Whales More Often Than Anyplace Else” and “One Hundred Billion Tons of Sea Water Twice Each Day” became bywords of the province’s tourism advertising campaigns and remain so today. Behind these campaigns have also been vigorous efforts to identify, enhance and promote destination areas and attractions which stand out as must-see, must-visit Bay of Fundy experiences. One avenue of product grouping undertaken by the province has been the identification of three distinct eco-zones within the Bay – The Fundy Aquarium Eco-Zone (including, for example, St. Andrew-by-the-Sea and the Fundy Isles), The Tidal Experience Eco-Zone (including, for example, the Hopewell Rocks and Fundy National Park) and The Saint John Geological Eco-Zone. Of these three, it can be argued, the least amount of product development and promotion has occurred within The Saint John Geological Eco-Zone. It can also be argued that - with the exception of the Fundy Trail Parkway - new product development along the Bay of Fundy has been lacking. The Hopewell Rocks and Fundy National Park, as two examples of the Tidal Experience Eco-Zone, have not received significant upgrades or product enhancements in years. The same can be said for destinations such as St. Andrews-by-the-Sea and the Fundy Isles in the Fundy Aquarium Eco-Zone.

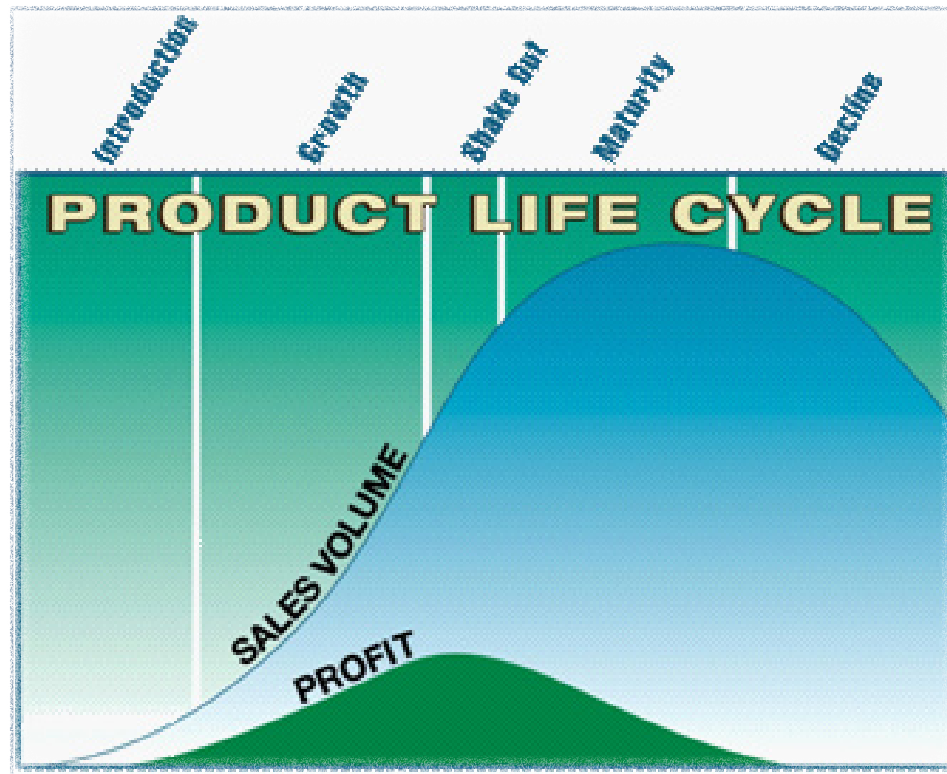


Figure 5.1

A UNESCO Geopark is a logical match with the Eco-zone concept.

The City of Saint John is, of course, one of the most accessible destinations along the vast Fundy touring experience which winds its way through coastal New Brunswick and Nova Scotia. The Saint John Geological Eco-Zone stands to be exploited as one of the first opportunities of the customers’ arrival; the city is the first dynamic Bay of Fundy catchment point for visitors from the U.S., as well as parts of Central Canada. Saint John’s Reversing Rapids site, therefore, is clearly a candidate to fill this void. Within this Eco-Zone, the Reversing Rapids properties stand to serve as a nucleus for catchment, interpretation and the creation of a new classic Bay of Fundy experience.

There are several reasons why the Reversing Rapids properties serve as a strong candidate for this competitive positioning:

- ❖ No other Bay of Fundy destination (and only two others in Canada) offers an experience quite like that found at the Reversing Rapids properties. There only two other noteworthy vortex-type phenomenon in Canada, situated at Wager Bay, Ford Lake and Barrier Inlet, Hudson Strait, are both located in the Northwest Territories and are therefore extremely inaccessible to the touring market.
- ❖ Saint John is the only city destination situated directly on the Bay of Fundy
- ❖ Saint John is ‘early on’ and is highly accessible in the Fundy touring experience for visitors from Central Canada and the United States (and all the more so since the severe decline in U.S. ferry service and traffic into Yarmouth, N.S.)
- ❖ Saint John’s Harbour Passage infrastructure paves the way for a multi-faceted, inter-active Bay of Fundy experience
- ❖ The New Brunswick Museum already has considerable scientific and cultural stores as well as human resources which can contribute greatly to transforming the Reversing Rapids properties into a world class destination experience.

*The Reversing Rapids properties can be competitively positioned as the Bay of Fundy’s most important destination and as the must-see, must-visit site within the City of Saint John and The Saint John Geological Eco-Zone.*



## 5.2 Ten Essentials Evaluation

<i>Essential</i>	<i>Meets</i>	<i>Exceeds</i>	<i>Lacking</i>
<i>Well-themed</i> Experience matches a distinguishing theme or brand		Theming expressing the site's stature and significance would enhance its value as a travel destination anchor property	The site does not clearly differentiate itself from other Bay of Fundy product offerings or other natural phenomenon in Canada
<i>Authenticity</i> Real versus contrived	The authenticity values of the site exist, but they are not well understood by travel consumers	Conveying the geological, heritage, cultural, marine and nature stories of the site will convince travel consumers of its significance and stature	
<i>Emotional Trigger</i> Experience causes an emotional reaction		Conveying the geological, heritage, cultural, marine and nature stories of the site will connect emotionally with travel consumers	The venue does not sufficiently connect emotionally with most visitors to the site
<i>Accessibility</i> Ease of access to product information, purchase, site location and mobility at the site	The site is accessible	Accessibility will need to be enhanced to accommodate pedestrians, automobiles, motorcoach and RV's	
<i>Educational</i> Experience provides a unique learning opportunity		Professionally curated and presented stories and interpretation will provide lifelong learning opportunities for travel consumers	Stories, interpretation and the site's relationship to the Bay of Fundy and St. John River are lacking
<i>Enriching</i> Experience leaves the customer changed		New adventures, professional interpretation, inter-activity, quality foodservice and upscale merchandising will enrich the Reversing Rapids experience	A visit to the site is not a life-changing experience
<i>Entertaining</i> Experience evokes joy, laughter, fun		Live interpretation, state-of-the-art technology and day adventure experiences will create a total sensory experience	Except for the Jet Boat Day Adventure, the site is too static and one dimensional to be considered entertaining
<i>Hands-on</i> Customer is a participant versus a spectator		Visitors of all ages must be engaged in new inter-active programming as per today's state-of-the-art inter-active museums	Except for the Jet Boat Day Adventure, there are virtually no other hands-on, interactive aspects to the site
<i>Value-Added</i> Experience has the element of surprise		The experience must begin to include elements of surprise which create the lasting impression of a value-added experience	There is currently no identifiable value-added proposition
<i>Exceed Expectations</i> Experience 'blows' the customer away		Every visitor should leave in a high state of satisfaction, guaranteeing excellent word of mouth regarding their experience	The site does not compete with Atlantic Canada's or Canada's leading attractions

 Current Product Status

 Potential Product Status



# Markets and Demands 5.3

All well-conceived travel products and experiences are derived from understanding market demand and customer preferences. Given the right product and experiential build-up and the right customer considerations, there are several market segments which can be served by the site:



- ❖ The Touring Market – constituting approximately 80-85 per cent of the Maritime travel consumer – including customers who desire being by the ocean, experiencing fresh seafood, strolling through safe cities, towns and villages, learning about heritage and culture and shopping for authentic local crafts
- ❖ The Group Escorted Market – a market that is contracting but which nevertheless is still relevant to tourism in Atlantic Canada – a customer requiring special consideration for access to a site such as Reversing Rapids
- ❖ The Cruise Market – a growing market for Saint John (82 vessels carrying 180,000 passengers were expected in 2008), the product is already themed as the Bay of Fundy cruise experience by the City of Saint John and the sales team at the port authority – accessible via experiential ground excursions offered dockside on the Saint John waterfront
- ❖ The Meetings and Conventions Market – a segment starving for new thematic experiences, constituting a higher-than-average yield and having high potential for off-season tourism – the Reversing Rapids site should have the capacity to offer off-site experiences for all forms of conferences and conventions, as well as actual meeting facilities for small-medium sized corporate and association meetings (approximately 50-100 delegates)
- ❖ Schools and the Academic Market – whether through existing academic structures or through select travel trade companies specializing in specially developed Learning Enrichment Travel experiences, the product and the experience must be heightened so as not to talk down to consumers who are already well-traveled, well educated and sophisticated.

It is already known, according to market demand, that the primary product elements of a reinvigorated Reversing Rapids, Fallsview Park, and The Cove site should include:

- ❖ safe access and environs
- ❖ adequate and accessible parking for cars, buses and RV's
- ❖ visitor information services including ATM, telephone and internet services
- ❖ the creation of an all-sensory experience involving visual, touch, taste, smell and sound
- ❖ world-class, interactive interpretation focused on the cultural, heritage, geological, marine and other scientific stories emanating from the site, the Bay of Fundy and the Lower St. John River
- ❖ the creation of more inter-active day adventure type experiences focusing on the site's birding, marine and geological phenomena, in addition to the existing Jet Boat Day Adventure experience
- ❖ outstanding scenic vistas
- ❖ the ability to actually touch the Bay of Fundy and Lower St. John River
- ❖ outstanding licensed food service operations which deliver a powerful sense of place and breathtaking views of the site
- ❖ outstanding themed retail featuring one-of-a-kind art, crafts and upscale souvenirs reflecting the theme of the site, Saint John, the Bay of Fundy and the Lower St. John River
- ❖ technologically superior, upscale, state-of-the-art meeting facilities accommodating small-medium corporate and association meetings (50-100 delegates) and offering a powerful sense of place and breathtaking views of the site



## 5.4 Promotional Themes

A number of promotional themes and segments emerge from the variety of products and experiences now recommended for the Reversing Rapids site. At the heart of all promotional themed activity should be a strong focus on product and experiential renewal based on science and history.

### 5.3.1 Touring Vacationers

- ❖ The property should enhance its relationship as a recommended experience within the Bay of Fundy Tourism Partnership, thereby ensuring its place on the widely promoted two-province (NS/NB) itinerary of the Bay of Fundy.
- ❖ The NB Department of Tourism and Parks should be thoroughly re-familiarized with the site in an effort to raise its profile within provincial literature, the official tourism web site, as well as for promotions and familiarization tours (both travel and media).
- ❖ The site's programming should be aligned with new experiential product themes being introduced by the NB Department of Tourism and Parks. The new experiential approach will essentially replace the Day Adventures and Getaways themes of the past and will be designed to attract consumers through activities which engage the mind, body and spirit through a series of five sub-themes – Challenge, Comfort, Cuisine, Contemplation and Child's Play. The program's theme of "Places Within You That You've Never Been" should be fully exploited.
- ❖ The property should ensure it has a strong presence within the province's strategic point-of-sale (intercept) initiatives.



### 5.3.2 Meetings, Conventions, and Incentive Travel

- ❖ The site's proposed meetings facility should be targeted at small-medium corporate and association gatherings seeking themed off-site meetings. Themed meetings are one of the fastest-growing segments within the Meetings, Conventions, and Incentive Travel segment.
- ❖ Both the nature and placement of facilities, as well as programming and meetings facilities management, should be used as instruments to encourage the resident hotelier community to use The Reversing Rapids as the premiere off-site destination in Saint John. State-of-the-art facilities (including technology), meetings customer service, catering and programming must combine to create a one-of-a-kind meetings venue.





### 6.3.3 Cruise and Group Escorted

- ❖ The Reversing Rapids should take on a heightened profile within the Saint John 'Fundy City' cruise sell effort.
- ❖ The product should be re-launched to the long-established escorted motorcoach segment focusing on fresh facilities and programming and proclaiming whatever status the property realizes within the province's attractions rating program.
- ❖ The site's enhanced group receptive and handling facilities should be promoted in order to attract more cruise visitors to the site.
- ❖ The one-site guided experience should be tailored to this segment.
- ❖ Accessibility should be a primary selling feature to a segment that is often rich with consumers for whom access (sight/sound/mobility) is an important travel issue.



### 6.3.4 Local and Visiting Friends

- ❖ Inventive and ever-changing programming at the site is one of the keys to attracting repeat business through both local and the related Visiting Friends and Relatives markets.
- ❖ The second key to repeat visitation for local and Visiting Friends and Relatives markets is high quality food service.



### 6.3.5 Schools and Education Market

- ❖ The science and phenomena associated with the site should be shaped into a new curriculum and accompanying teacher's aids for use and enjoyment by schools and youth groups.



A scenic landscape featuring a wooden fence in the foreground, a dense line of green trees in the middle ground, and a bright, hazy sky in the background. The scene is captured in a soft, painterly style.

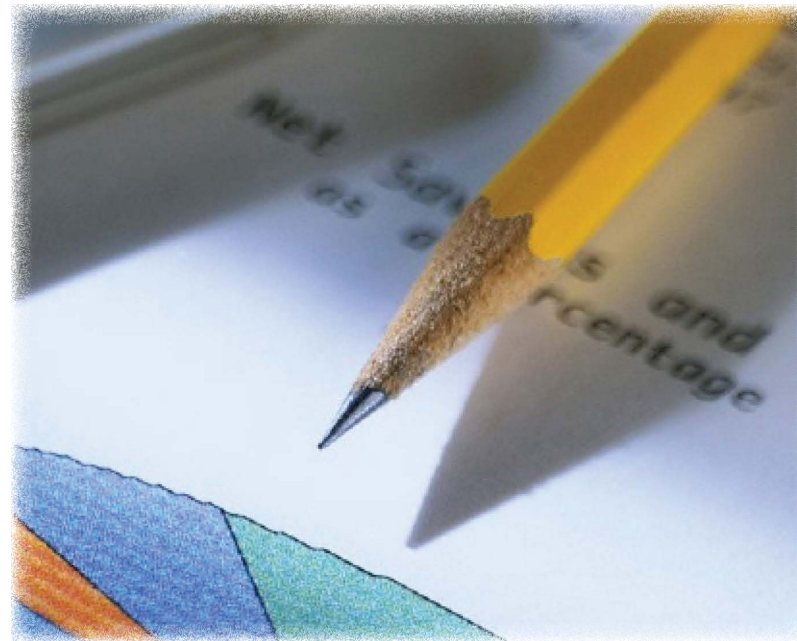
# *Chapter 6*

## Implementation



# Capital Costs 6.1

Revitalizing the Reversing Rapids into a world-class attraction will require significant investment from both the public and private sector. A commitment to public infrastructure investment will lead to a renewed interest in private development. The following cost estimate (Figure 6.1) is based on 2009 contractor's prices and includes all materials, equipment, labour, taxes and design fees. A 20% mark-up has been applied to cover design fees, expenses, and a 10% contingency. A contingency is required in the budgeting process to account for variables and omissions, discrepancies in base information, and changes to the design. The cost for land acquisition has not been included in the calculations. All quantities and conceptual designs are based on available mapping and not from actual survey data. Cost projections should be viewed as preliminary "Class B" for budgeting purposes. More detailed cost breakdowns can be found in Appendix A.



## Phasing 6.2

A project of this magnitude will take several years to bring to fruition. Actual time frames will be contingent on a number of factors. A phasing strategy is shown (Figure 6.1) as a means of setting priority; however, the order is subject to change dependant on availability of funding and partnership agreements. Factors to consider in setting priorities for construction include:

- ❖ Availability of land
- ❖ Partnership and sponsor funds
- ❖ Realistic fiscal budget targets
- ❖ Logical construction sequences
- ❖ Other infrastructure construction projects which may impact this project
- ❖ Lessee contracts and negotiations

Figure 6.1 identifies which projects are most "Construction-Ready". Projects with the fewest obstacles to overcome such as; land is already available, fewer permits required and not complicated by other known future city infrastructure projects. A rank of 1 or 2 means these projects could be done immediately.

At a public meeting participants thought that extending Harbour Passage should be done first followed by a new brand (see section 7.1.2).

Tourists interviewed on site commented on the complete lack of interpretive information to explain the phenomena they were viewing. The result was that people had no way of learning about the rapids. Implementation of interpretation should be given high priority in early phases of this project.

### Phase I

The first project should address the lack of understanding of what the visitor is actually witnessing at the Reversing Rapids. This can be partially accomplished through interpretive signage within existing

facilities and along the trail. Presenting the new brand "Fundy's Reversing Rapids" through site signage and marketing is also key to clarifying the product to the marketplace. Working with private sector partners is also critical to promoting the new brand and an enhanced activity program from guided tours to ziplines. The first infrastructure investment should focus on linking the sites with an extension of Harbour Passage into Fallsview Park. Local citizens were clear on their support for extending the popular waterfront trail.

- ❖ Interpretive Signage
- ❖ New brand directional signage
- ❖ Programming walks and activities
- ❖ Extend Harbour Passage into Fallsview Park including The Gallery and Vendor's Market



Figure 6.1 - Table of Costs and Scheduling Implications

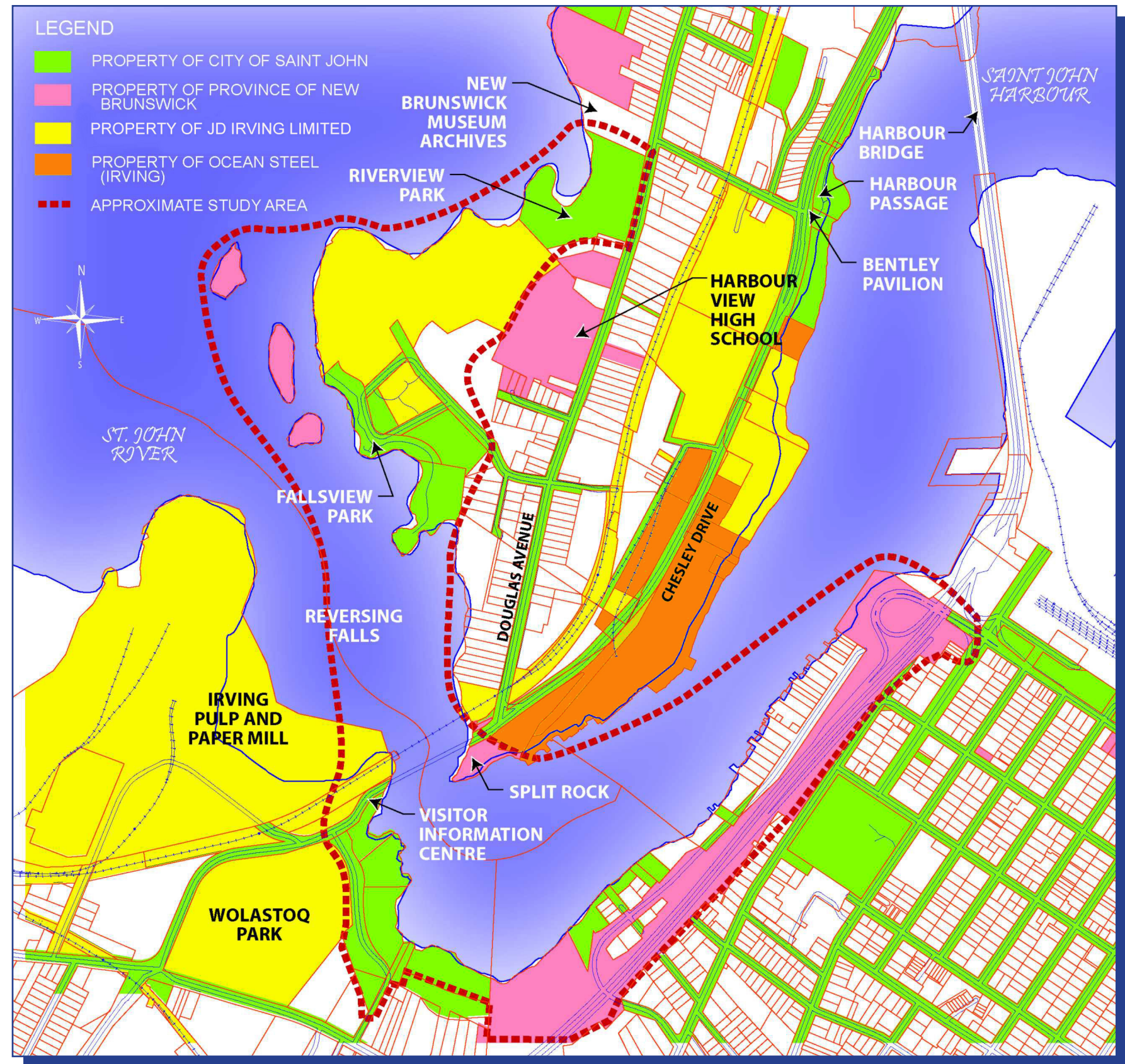
<i>Project</i>	<i>Location</i>	<i>Budget</i>	<i>Implications</i>	<i>Construction-Ready Rank</i>
Lower Viewing Area	<i>Reversing Rapids</i>	\$ 2,413,320	Coordinate with Restaurant Operator, Construct After Visitor Centre Completed	1
Parking Lots and Road Upgrades		\$1,041,300	Coordinate with JDI for access agreement and Municipal Operations for future booster station impact and Simms Corner Realignment	2
Reversing Falls Bridge		\$ 260,000	Coordinate with NBDOT	3
Visitor Centre		\$ 12,233,312	Connections to restaurant, City lease to Restaurant Operator	4
Bridge View Plaza		\$ 910,000	Closure of existing restaurant, VIC replacement	5
Harbour Passage		\$ 347,100	Coordinate with Interpretive Centre Construction	7
Wolastoq Park Stairs		\$ 174,850	Coordinate with JDI and Municipal Operations for Simms Corner Realignment	8
Marina		\$ 455,000	Navigational study and depth soundings required	9
Adventure Zone Concessions	<i>Fallsview Park</i>	\$ 595,660	Private Sector RFP	1
Gallery		\$ 707,850	JDI land and City owned land	2
Parking Lot and Road Upgrades		\$ 1,277,900	JDI land, Private land	3
Geological Sculpture and Playground		\$ 369,070	City land	4
Amphitheatre/Watershed Plaza		\$ 3,250,000	City land, coordinate with Adventure Zone Developer	5
Harbour Passage		\$1,254,500	JDI land	6
Day Use Areas/Sportsfield		\$ 3,775,720	JDI land, Private land	7
Auto Trail		\$1,133,795	JDI land	8
Connection to Split Rock		\$ 299,000	Private land holdings	9
Harbour Passage	<i>The Cove</i>	\$ 641,550	Provincial land	1
Washroom and Services		\$ 195,000	Provincial land	2
Interpretive Kiosk, Observation Deck, Playground		\$ 928,980	Provincial land	3
Parking		\$ 517,530	Provincial land	4
Take-Out		\$ 396,500	Private Sector RFP	5
“The Willows” Lookout		\$ 258,700	Provincial land	6
Riverview Drive Streetscape		\$ 592,800	Coordinate with plans for Municipal Services Upgrading	7
Beach Access		\$ 41,080	Construct after Marina construction	8
Fishing Wharf		\$ 1,462,500	Private land - acquire lease, or recreate similar structure elsewhere	9
Highway, City, and Site Signage	<i>Overall</i>	\$ 501,475	Lengthy approval process from NBDOT	1
Shuttles		\$ 91,000	Concession or Municipality operating storage	2
Artwork/Programming/Costumes		\$ 292,500		9

*Total: \$36,500,000.00 Approximately*



# Land Ownership 6.3

The master plan for Reversing Rapids stretches beyond public land. To fully implement the opportunities, several land acquisitions, easements, and leases will be required. Some of the affected land owners and lessees have already indicated a willingness to participate in the transformation of the phenomenon into a world-class attraction. Obtaining rights to land is an important step early in the implementation process as funding and financing is often predicated on land entitlements. Equally important is the ability of private sector investors to obtain long term leases to enable adequate financing.





# 6.4 Private Sector Opportunities

- |                               |                    |                               |                      |
|-------------------------------|--------------------|-------------------------------|----------------------|
| ❖ Reversing Rapids Restaurant | Adventure/Activity | Interpretation/Transportation | Entertainment        |
| ❖ Visitor Centre Café         | ❖ Zip-line         | ❖ Guided Tours                | ❖ Amphitheatre Shows |
| ❖ The Cove Take-Out           | ❖ Jet Boat         | ❖ Shuttle Service             |                      |
| ❖ Adventure Centre Take-Out   | ❖ Kayak Rentals    |                               | Retail/Sales         |
| ❖ Vendor Stalls               | ❖ Bicycle Rentals  |                               | ❖ Vendor Stalls      |
| ❖ Catering Conferences        | ❖ Boat Docking     |                               | ❖ Gift Shop          |

# 6.5 Funding Opportunities

A flexible approach will be required to source out funds and champion the project. The Saint John Waterfront Development model funding Harbour Passage should be applied.





# Operational Considerations 6.6

Building a sustainable World Class attraction will require special attention to operation issues. The facilities must be maintained to the highest of standards. A site manager position is recommended as a way to monitor and organize operations. Typically, a budget increase equal to 5-10% of the capital cost for improvements should be anticipated. Major facilities will be operated by the private sector following a strict protocol for timely maintenance. Any lease contract for concession opportunities, including small vendors, should contain detailed requirements for maintenance and operational consistency.





The background of the slide is a stylized, textured image of a bridge, likely the Bixby Creek Bridge. The image is rendered in a painterly or etched style with a color palette dominated by purples, blues, and whites. The bridge's arch and lattice structure are visible, spanning across the upper half of the frame. A semi-transparent purple rectangular box is centered over the lower half of the image, containing the text.

# PART II - RESEARCH AND STUDIES







A group of people in a meeting, with a woman in the foreground looking down at a document.

# *Chapter 7*

## Public Consultation

The importance of the public input can not be understated. Harbour Passage initiatives have benefited greatly from positive public opinion not only because of the built product but because the public themselves were engaged in the design process. The current appetite for transparency in municipal planning is significant in Saint John, and so the Reversing Rapids project looked to gain support and advice through of public involvements, stakeholder consultation, and focus group testing. Also important is the fact that these public meetings are mandatory for some of the EIA process and permitting.



# Public Input Meetings 7.1

## 7.1.1 First Meeting - August '08

The public was invited to an introductory session that started with a bus tour to Reversing Rapids and Fallsview. Participants were guided around the properties by members of the consultant team. Returning to the NB Museum, an introductory presentation outlined the study process, planning context, and positioning opportunities within the Bay of Fundy product mix.

A questionnaire was given out for participants to write down their opinions. Most participants responded 'yes' when asked if the Reversing Rapids should become the discovery centre for the entire Bay of Fundy Area. The Rest of the suggestions are as follows:

### *How could the experience of visiting the Reversing Falls be improved?*

- ❖ Aquarium with underwater glassed in area to see wild seals
- ❖ Interactive Geological Learning
- ❖ Tidal Tube
- ❖ Improve the Movie



- ❖ Lookouts/Observation Decks with Birding information
- ❖ Sports
  - ♦ Kayaking
  - ♦ Bicycles
  - ♦ In-Line Skates
- ❖ Tours:
  - ♦ Self-Guided (Print Literature)
  - ♦ Guided tours in the peak season
  - ♦ Tour guides should get onto tour buses to explain Falls
  - ♦ Tours of Industrial Saint John (Irving Mill, Simms, etc)
  - ♦ Tide times – best time to see the reversal (countdown billboard)
  - ♦ Boat tours to other municipalities (Kennebecasis, Fredericton)
- ❖ Have a Water Taxi from Market Slip to Falls View Park (with a stop at Fort LaTour)
- ❖ Have a harbour ferry from Princess to Market Square
- ❖ Better small craft landing nearby
- ❖ Build a Pedestrian Bridge
  - ♦ Connecting the three islands
  - ♦ Connecting Partidge Island to the mainland
  - ♦ Across the river as a vantage point to view the Falls
  - ♦ Between the Train and Vehicle bridges on existing pilings
  - ♦ As a lower lever on the train bridge
- ❖ Promote it to locals
- ❖ Create an educational packet (field trips) for teachers
- ❖ Change the name to Reversing Rapids
- ❖ Focus on having a long visit, along with other SJ attractions
- ❖ Have its own page on the SJ tourism website, webcam
- ❖ Radio broadcast to explain the Falls
- ❖ Paint or light the Reversing Falls Bridge
- ❖ Light the Falls for night time viewing
- ❖ Build a giant trellis to cover the Irving mill and grow ivy on it
- ❖ Angle things so that the Irving mill is not in view
- ❖ Murals on Irving Mill, Ocean Steel
- ❖ Connect it with Harbour Passage
  - ♦ Matching pavement in the park beside the Museum
  - ♦ Extending the trail to the bridge & restaurant, and along Douglas & Main, connect them
  - ♦ Fence along the trail with a mural
  - ♦ Trail in “natural” settings not concrete, otherwise matching HP
  - ♦ Interpretive panels along the trail



## *What Types of Stories should be told or experienced at the site?*

### ❖ Ecological

- ♦ Rock formations, The River, Two Continents, Tides, Glaciers, Ice Age
- ♦ ‘Whirlpools that Don’t Follow the Rules’
- ♦ How the Falls were formed, how they work, Aliant building can fit in the Falls
- ♦ Environmental cleanup, hydrology
- ♦ Biology. birds, fish
- ♦ Microclimate
- ♦ Bay of Fundy
- ♦ Future hydro projects – energy

### ❖ Industry

- ♦ Logging, Mining
- ♦ Railway
- ♦ Fishing, River Commerce, Shipbuilding, Portage
- ♦ Biographical stories of workers, residents
- ♦ Irving dominance of area
- ♦ Planning and development and prehistory

### ❖ History

- ♦ Disasters
- ♦ Gathering communities (before bridges), Flooding on upper river
- ♦ Loyalists, Discovery by Champlain & DeMonts
- ♦ Native history (Gloosecap)
- ♦ Bridges
- ♦ Going over the Falls in a barrel
- ♦ Paris Crew (rowing)
- ♦ Aboriginal/European meetings
- ♦ Acadian?
- ♦ Evolution of the City
- ♦ Creation myths



## *Name three words that best describe what the Reversing Falls could be.*

- ❖ historical/educational/interactive
- ❖ powerful/spectacular
- ❖ raw/thrill/excitement
- ❖ green/unique/eco-friendly/natural/wildlife
- ❖ ‘Where Worlds Collide’/‘Where Waters Collide’
- ❖ destination/unforgettable/World Class
- ❖ gateway
- ❖ leisure/recreation/active living/adventure
- ❖ futuristic/mysterious/fascinating/deceiving
- ❖ sociological tourism
- ❖ authentic
- ❖ renown
- ❖ fun
- ❖ peaceful/panoramic/beauty
- ❖ ‘Kayakers Heaven on Earth’
- ❖ accessible
- ❖ dramatic



### 7.1.2 Second Meeting - November '08

The public was given a second presentation, re-explaining the study process, and presenting draft concept plans and themes. A second questionnaire was given out, and the results were as follows.

*Please rank the following in order of what you think should be done first:*

- 1 Harbour Passage Trail through the site
- 2 Change the Reversing Falls Brand
- 3 Adventure Centre in Fallsview Park
- 4 Interpretive Centre
- 5 Light the Reversing Falls and Bridge
- 6 Become a UNESCO GeoPark
- 7 Gallery Plaza in Fallsview Park
- 8 New Restaurant and Interpretive Pavilion
- 9 Multi-Purpose Sports Field

*Is the Reversing Falls currently a world class tourism attraction?*

Yes – 4

- ❖ but there are always need for improvements
- ❖ in itself as natural phenomena
- ❖ cruise ship tourists seem to like it

No – 21

- ❖ the area is very bland and neglected
- ❖ run down and unattractive
- ❖ poorly interpreted
- ❖ not even on the provincial list of tourism attractions
- ❖ few people outside of NB have heard of it
- ❖ name is misleading
- ❖ 15 minute stopover
- ❖ inadequate marketing

*Will the Suggested Upgrades transform the site into a world class attraction?*

Yes – 23

- ❖ just what it needs
- ❖ will transform into an amazing tourist attraction
- ❖ should have already been done
- ❖ As the young boy said at the meeting “when can we get this done?”
- ❖ it will make people stay longer

No – 1

- ❖ it would be ok for a while then deteriorate





## *Do you support changing the Reversing Falls brand?*

Yes – 25

- ❖ Reversing Falls has been misleading for years
- ❖ Vortex makes it sound like an amusement park/exhibition rather than an information park site seeing attraction
- ❖ keep the word “reversing” in the brand
- ❖ to use the word rapids is more accurate than falls
- ❖ if you have to explain it – it should not be used
- ❖ the first four priorities (Harbour Passage Trail through site, Interpretative Centre, New Restaurant and interpretative pavilion and Adventure Centre) need to be completed first before the brand can be changed
- ❖ “Reversing Rapids” or “Reversing River” no to “Fundy Vortex”
- ❖ people are disappointed when they come to see “falls” and see rapids
- ❖ if studies support it ... use something we can market

## *What would you do differently?*

- ❖ improving the accessibility of the falls from the uptown area
- ❖ develop Fallsview Park where the rapids are
- ❖ change the fishing location at Fallsview
- ❖ relocating the dock from False Island to the other side
- ❖ a first class wharf for visitors to dock their boat
- ❖ build reputation as a world class stripped bass fishing area
- ❖ involve some native aspects in the planning
- ❖ a huge “chess game” could be an attraction
- ❖ sailboat rides though the falls during slack tides
- ❖ sleigh rides in the winter/carriage rides in the summer
- ❖ skating rink, ice sculpture contests
- ❖ in the summer, use the market place area to teach crafts as they once did in Fundy Park
- ❖ move vendors back from view
- ❖ more observations areas with trail to water level
- ❖ heavy traffic has to be taken off the Reversing Falls Bridge and Simms Corner. Simms Corner could be a traffic circle – properly marked and landscaped
- ❖ focus on first nations Mikmaq and Maliseet use of river along Marble Cove
- ❖ steamships along the SJ River (log booms)
- ❖ connect interpretation of SJ River to other regions in the Province
- ❖ make sure bridge viewing area has sound barriers to stop noise of traffic
- ❖ create an exit or entry point (like on Bentley Street) from Riverview Drive
- ❖ don’t like the idea of the aerial movement and wires everywhere
- ❖ stupid idea with fog maker
- ❖ don’t need water screens
- ❖ definitely no lighting column, lighting on bridge; lighting falls minimally is ok





# Interviews 7.2

Interviews were conducted with several organizations, pertinent land owners, and key individuals. The interviews provided a diverse list of comments and recommendations, which are listed below.

- ❖ Museum could help with info for stories, models, specimens
- ❖ Certain audience for UNESCO sites would come to see the rock formations
- ❖ 3000-5000 ft<sup>2</sup> interpretive centre recommended
- ❖ Be careful not to make it too small, the museum's 3000 ft<sup>2</sup> galleries are too small at times
- ❖ Will need staff to man exhibits
- ❖ 5 boats – 2 products + new one (bike rentals)
- ❖ Open June 7th – October 28th
- ❖ June is quiet, July and August busy, Cruise ships in Fall
- ❖ 1996 started Day Adventure program
- ❖ Serve almost all the cruise ships
- ❖ Student groups arrive in summer also, good product teenagers with “Thrill” ride
- ❖ No lease – no long term commitment – just a license
- ❖ Need interpretation perhaps a working model
- ❖ People love to watch the seals
- ❖ People want to park at a hub and explore
- ❖ Could use the fog if you think outside the box
- ❖ Bus parking chaos – puts them behind schedule
- ❖ Create vendor area away from the Falls – organize them

- ❖ Need a kids park, move parking back from the water's edge
- ❖ Had idea of establishing fishing museum, garage for boathouse needed
- ❖ Marketing to get them there
- ❖ Need gift shop, would help with sustainability of the site
- ❖ Need restaurant
- ❖ Public washrooms
- ❖ Year round staffing is important
- ❖ On site interpretation necessary to take you on an exploratory journey
- ❖ Need indoor facilities for learning experiences so that you don't miss out during inclement weather
- ❖ Hub of activities for people to have something to do
- ❖ Need a way to simplify the information barrier
- ❖ Feels Reversing Falls – has a lot of First Nations underlay – mother earth colours,
- ❖ It is First Class, International Stage, need better level of engagement – powerful story of national interest
- ❖ VIC is tired, eyesore needs to be replaced
- ❖ Embarrassing to take clients and expect them to recommend a visit
- ❖ 250-300 buses, 1000 coaches in the past
- ❖ Visitors need to get closer to the water – option for those with mobility issues – many visitors are elderly
- ❖ Legends of Gluscap
- ❖ WOW factor – knowing the volume of water would be interesting

- ❖ City inherited the VIC from Province, patch job ever since
- ❖ Used to have a boat race event that sparked interest
- ❖ Need to be there at tide change or you miss the show
- ❖ Tower to show height of the waters' tide 28' at Reversing Falls – there is a tower at the museum, but it doesn't have the WOW factor
- ❖ 5 staff at the VIC
- ❖ Most of the coaches come in late in the day, light show might be an opportunity
- ❖ At one time a boat museum was at the beach area
- ❖ Tour boat problems – mix ups with the tickets, poorly run
- ❖ Should have an interactive centre – touch tank – tide interpretation in general
- ❖ Sculptures of the sea-life could be spread along a walk
- ❖ Image needs to be sold as a park not just a building
- ❖ Would like to walk closer to the rocks
- ❖ Oldest rocks in province – see from viewing deck
- ❖ Reversing Falls could be centre of the Geopark
- ❖ Ice age story: 14,000 years ago under 1km of ice – changed direction of the river, lake and waterfall
  - ◆ 10,000 years ago, sea cover was higher, was a fresh water lake and falls to Fredericton but no marine water until 3000 years ago – backing up over the sill ledges in the river
- ❖ Hard rock geology – contact of two different rock types (white, light or grey under the Reversing Falls building) known as Green head
  - ◆ 700 billion years old - one fossil type only

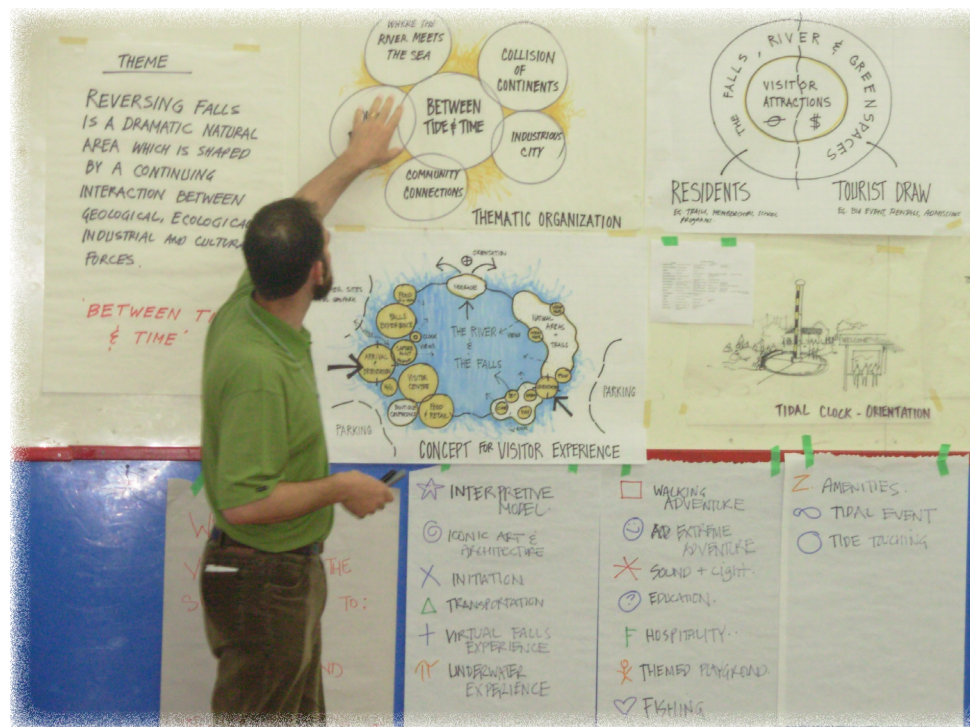


- ❖ Low grade marble – next to it is a black limestone (under road).
- ❖ Bridge rests on an angled sedimentary rock
- ❖ Many fossils, 500 million years old
- ❖ Grey (white) rocks formed near south pole, black rocks (Avalon terrain) formed near Africa – but migrated across ocean and stuck to North America
- ❖ Extremely complex rock types because of the coming together, long span of geological time can be seen in one spot
- ❖ Very accessible – yet not accessible to disturbance
- ❖ Also a good story under the water in terms of geology
- ❖ “Walk Two Continents” marketing story
- ❖ Perfect time for investment, guided tour, possibility of audio tours
- ❖ Saki’s has good video explaining the geological history, shows stepped water falls (sills)
- ❖ Need more diverse stories, trick is telling the story in a fun and entertaining way for all ages
- ❖ Good business opportunities once UNESCO site designation is achieved
- ❖ “A km of Ice Above Us” – amazing realization
- ❖ Sandra Bar at Acadia has done a lot of the geological mapping
- ❖ 1970’s there was a geology brochure; however, nothing since
- ❖ King Square Formation – folded bowl of Cambrian rocks
- ❖ Slapping together of these continents formed the Appalachian Mountains., they wore down to form some of the layers or “terrains”
- ❖ Terrain slices glued to North America
- ❖ 1852 sketch of geologist sketching the falls – one of first – at museum
- ❖ Thin layers of graphite in the Cambrian layer which used to be mined. 3 or 4 of them around the Fallsview site
- ❖ Nice view from Wolosog park of the rock formations
- ❖ Could get blocks of the rock types to touch and see close up
- ❖ Somerset Street Site: challenge of talking on busy sidewalk, lots of garbage blows into the ditch
- ❖ Section through Cambrian rock – major Saint John rock
- ❖ Hardly any fossils
- ❖ Fort Howe made of Green head rock (light gray)
- ❖ Walk across the fault line between the continental sections – again walking across continents
- ❖ What activities could you do? Measure out geological columns. ie have rocks go from green to red etc – very distinctive
- ❖ Block House view – gorge or valley is the fault line that runs all the way to Moncton, not active
- ❖ Avalon terrain – fault volcanoes 560 million years ago. Diorite go from green to red
- ❖ All rocks have Saint John names ie Colbrook group
- ❖ Red rock: is layer under the volcanic grey rocks
- ❖ Sedimentary, volcanic ash 530 million years ago
- ❖ Radcliffe Brook Formation – old ocean bottom
- ❖ Precambrian to Cambrian time frame
- ❖ “A Rock Through Time” marketing slogan idea
- ❖ Could stand at the 515 million era – explosion of life time
- ❖ UNESCO – doesn’t dictate protection
- ❖ Green Falls formation
- ❖ Lighter colour sandstone – old beach
- ❖ Hanford Brook
- ❖ Grey rock
- ❖ Hanford brook section, around corner, has good fossils
- ❖ dated at 511 million
- ❖ Asking for \$550k, looking for 2010 designation geopark partnership, can still be first in North America
- ❖ Seaside Park: Pennsylvanian time 300 million - “Fern Ledges”
- ❖ Thin layer of plant material – erosion from mountains
- ❖ Layer of sandstone and shale
- ❖ Access issues
- ❖ Railway track bisects the site
- ❖ Trail runs by
- ❖ One of most historically important sites, shellfish fossil site, first described in 1860 by Fred Hart – also found insects mentioned in Darwin’s book
- ❖ Same story as Joggins in Nova Scotia which is about to be a UNESCO site
- ❖ Marie Stokes – 1913 report to determine age
- ❖ also wrote book on planned parenthood



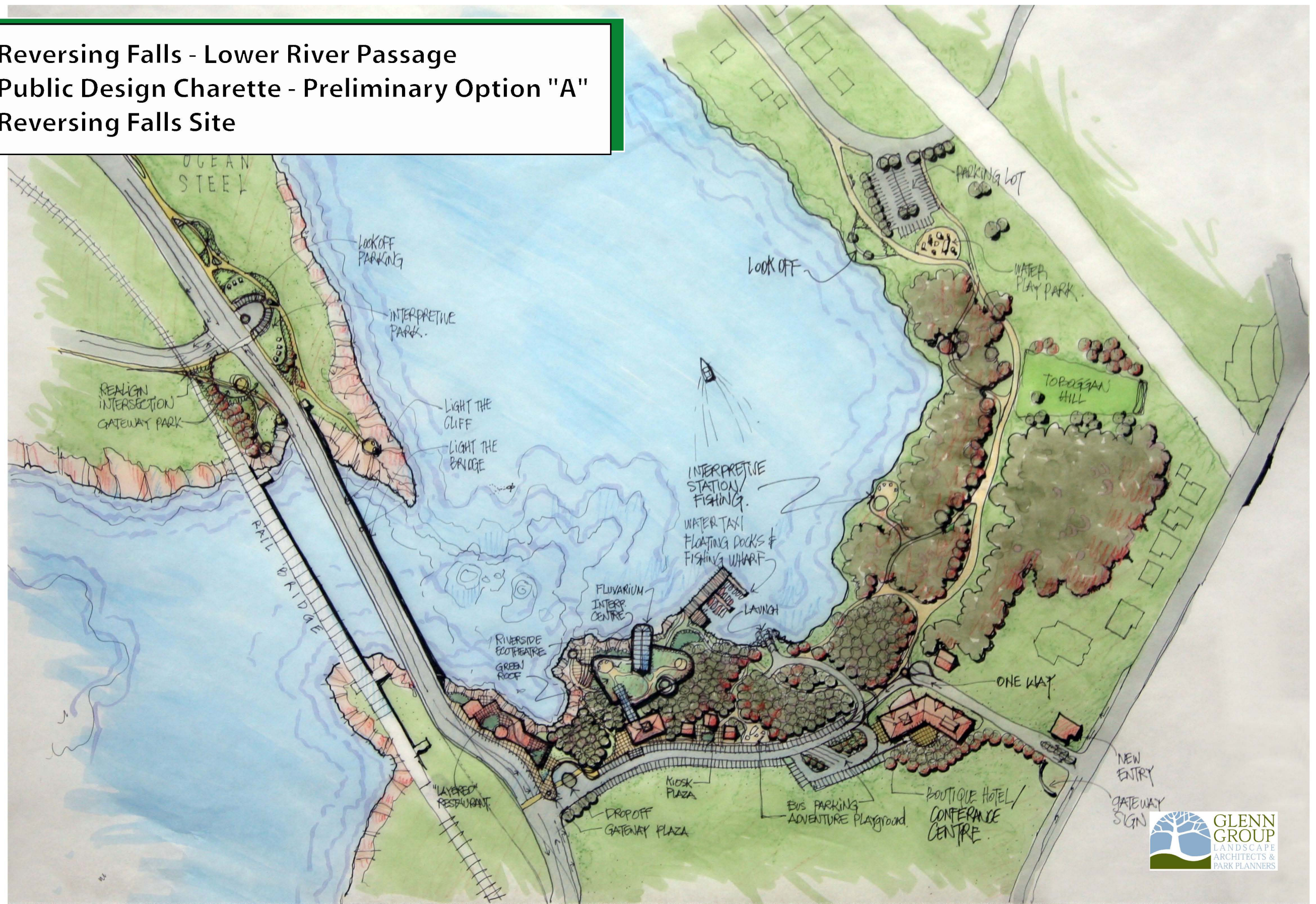
# Design Charette 7.3

A two day design charette (workshop) was held with the public and members of the steering committee. The purpose of the charette was to work with participants in the development of preliminary options and illustrate these concepts for presentation of the results. Four groups worked together to generate three different plans and one group devised interpretive themes.



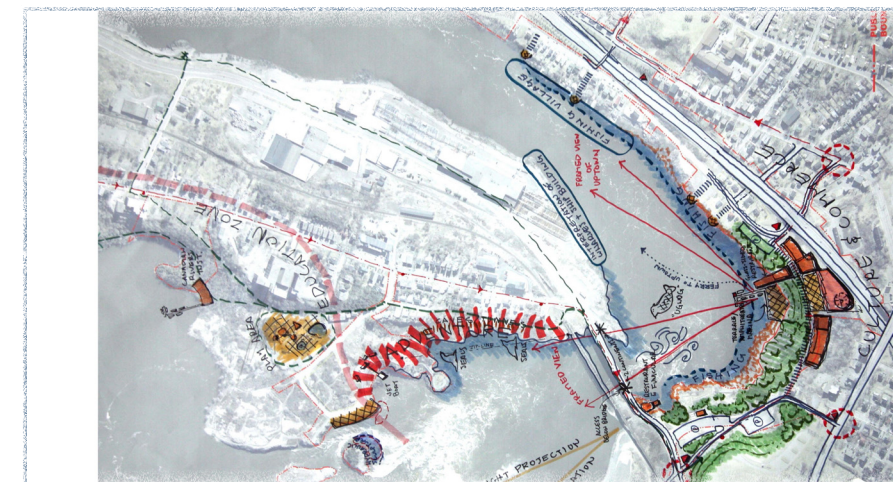


# Reversing Falls - Lower River Passage Public Design Charette - Preliminary Option "A" Reversing Falls Site

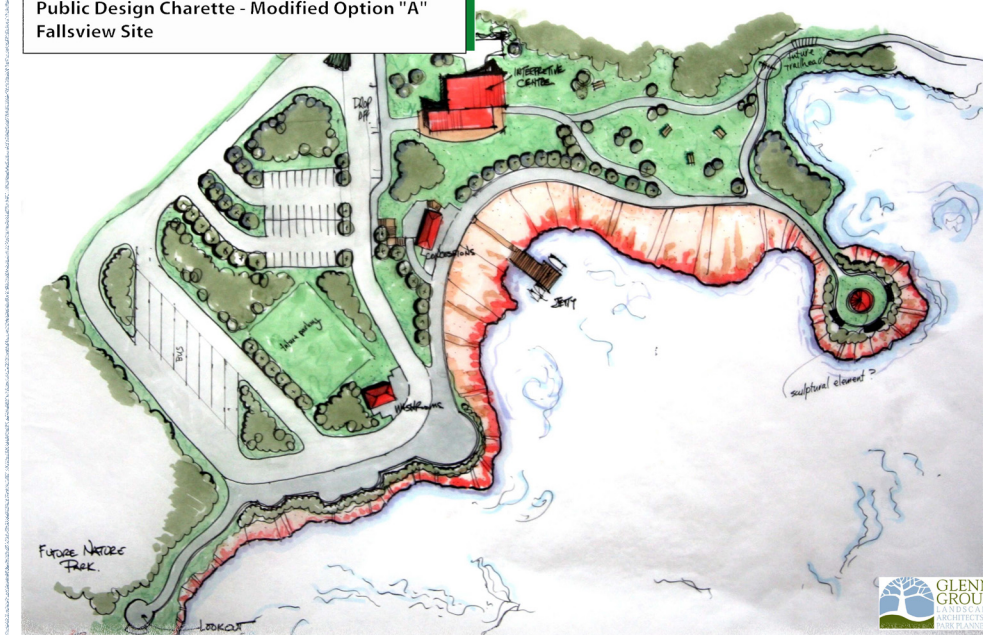




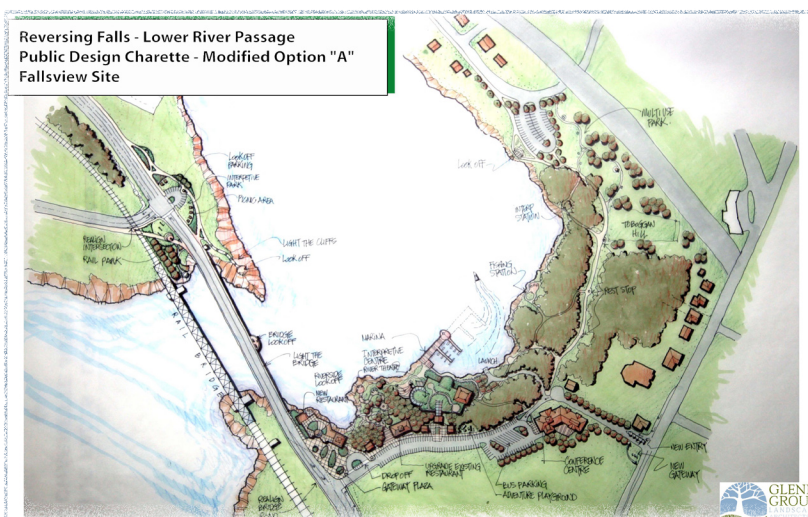
Reversing Falls - Lower River Passage  
Public Design Charette - Modified Option "B"  
Reversing Falls Site



Reversing Falls - Lower River Passage  
Public Design Charette - Modified Option "A"  
Fallsview Site



Reversing Falls - Lower River Passage  
Public Design Charette - Modified Option "A"  
Fallsview Site



Reversing Falls - Lower River Passage  
Public Design Charette - Preliminary Option "B"  
Reversing Falls and Fallsview



Reversing Falls - Lower River Passage  
Public Design Charette - Option "C"  
Fallsview Site





# 7.4 Focus Group Testing

## 7.4.1 Purpose

The purpose of the study was four-fold:

- ❖ To fully understand the unique characteristics, values, wants and needs of two particular target populations (cultural-heritage and nature-related tourists); and what would drive these travelers to seek out an attraction like the Reversing Rapids;
- ❖ To explore perceptions, awareness and knowledge of New Brunswick as a travel destination in general, and the Bay of Fundy Region in particular;
- ❖ To gauge reaction to the new attraction concept (Reversing

Rapids) as the focal point of the Fundy Bay Region experience, including motivators and barriers, and emotive hooks;

- ❖ To test brand imagery and concepts (key words and phrases) with regard to message appeal and language, including:
  - ◆ Assessment of comprehensibility, or the extent to which each concept's main idea has been communicated to the audience for which it was intended – what is actually being communicated;
  - ◆ Assess attention, or how effectively the concept grabs the attention of the audience;
  - ◆ Determine personal relevance or answer the question – is the concept believable, acceptable and meaningful?

- ◆ Assess recall or what is remembered about the concept, and its relevance;
- ◆ Gauge cultural appropriateness;
- ◆ Identify strong and weak points of each concept;
- ◆ Identify sensitive or controversial elements;
- ◆ Assess motivation or how the concept may influence behaviour, persuade or alter attitudes of the target audience; did it tell them something they already did not know; did it increase awareness; did it cause the audience to seek out additional information, etc.
- ◆ Measure the extent to which the communications objectives have been achieved.

## 7.4.2 Methodology

The approach to this research was exploratory in nature and took the form of 8, 2-hour focus groups in four locations (Halifax, Ottawa, Montreal and Boston) with a total of 55 individuals defined as either cultural-historical or nature-related tourists.

- ❖ Data was collected using a semi-structured and flexible discussion guide which allowed participants to speak freely and the moderator to probe, in a non-directive manner, on issues relevant to the research purpose.
- ❖ The same discussion guide was used in all eight sessions. Note that discussions sometimes deviated from the guide, when necessary, to allow for flexibility in probing unexpected situations or avenues.
- ❖ In Montreal, the discussion was conducted entirely in French

## 7.4.3 Limitations

Note that qualitative research by nature is exploratory and cannot or should not be extrapolated to any type of population or audience, without further validation. At best, qualitative research explores the range of views, and provides understanding why such views exist.

- ❖ The insights obtained from travelers who willingly participated in our study added tremendous value and enhanced significantly our understanding of their motivations, barriers and expectations; in-depth understanding not possible with a quantitative survey.
- ❖ The reader is also advised that any non-factual statement constitutes only current opinion, which is subject to change. Statements factual in nature only apply to those who participated in the study and cannot be extrapolated to a broader audience or universe.
- ❖ Consequently, findings should be interpreted judiciously, as consultative feedback rather than conclusive results.

## 7.4.4 Key Findings

This following pages present the findings from all 55 participants together, incorporating views from all types of participants. Distinctions between participants from different geographical locations or according to traveler type, are highlighted throughout. And, while the groups were segmented according to whether or not participants fell predominantly into one category or the other, there was only a slight tangible difference between results from Cultural-Heritage or Nature-Related tourists. The reader is also advised that any non-factual statement constitutes only current opinion, which is subject to change. Statements factual in nature only apply to those who participated in the study and cannot be extrapolated to a broader audience or universe.



## Attitudes and Perceptions of New Brunswick

New Brunswick was perceived primarily as a summer (seasonal) vacation destination, based on characteristics perceived as primary strengths:

- ❖ Seacoast (including Bay of Fundy) allows visitors to engage in many aquatic-related activities, including a trip to the beach, culinary exploration (seafood and fish), observation of marine fauna, etc.
- ❖ Beautiful and picturesque landscapes and nature – open spaces, fresh air, rural towns and villages, and farming communities.
- ❖ Warm, friendly, welcoming people, with a rich historical past.

Most participants perceived New Brunswick as a destination where one goes to relax and pursue leisure activities, recharge and rejuvenate. However, participants also perceived that New Brunswick had some weaknesses to overcome if it were to market itself as a “go to” destination:

- ❖ A “drive-through” province; a gateway to other Atlantic Canada provinces;
- ❖ Lacking in a wide variety of tourist activities (i.e., sports, cultural activities, etc.);
- ❖ A poorly defined and articulated brand when placed up against other Atlantic Canadian provinces;
- ❖ Too slow, peaceful, a feeling of emptiness (long distances between cities and communities);
- ❖ Offers nothing unique to attract visitors and/or to encourage them to explore what the province has to offer; and,
- ❖ “Material poverty.”



## Perceived Strengths and Weaknesses

Participants identified strengths and weaknesses of New Brunswick as a tourist destination. As the results were very similar among both travel segments, the results have been combined for easier reading and understanding.

At a high level, the primary strengths were identified as:

- ❖ Relative closeness and accessibility (all locations);
- ❖ Unparalleled and diverse natural beauty, scenery and landscape including beaches, water, rivers, forests, preserved wilderness, farmland, seashore and seaside and the province’s close connection to its physical geography;
- ❖ Its diverse history and culture (Acadians) and its bilingualism;
- ❖ Abundance of nature related activities, including viewing wildlife undisturbed in their natural habitat;
- ❖ Its warm and welcoming, down-to-earth, unpretentious simple people who contribute to the province’s “relaxed” and “laid-back” persona, a “serene and soulful” place to visit – a “quiet/slow paced” getaway;
- ❖ Good variety of foods with local culinary influences, including fresh seafood; and,
- ❖ Its untouched, unexplored, unspoiled nature.

Conversely, the primary weaknesses were identified as:

- ❖ Not well known, not well advertised, lacking visibility and a focal point to attract tourists; not perceived as a destination;
- ❖ Climate – typical coastal weather with fog, rain, humidity, cool temperatures; short warm season (summer);
- ❖ Lacks market differentiation when compared to the other Atlantic Canadian provinces;
- ❖ Inconsistent road conditions; poor roads; perceived lack of adequate number of services along highway (e.g., gas stations, rest stops, restaurants, etc.)
- ❖ History and culture not well promoted, nor well known to outsiders;
- ❖ Long distances between cities and attractions; attractions not well labeled or publicized enough; perceived lack of things to do because of lack of information on what is available;
- ❖ Bland, boring, slow-paced and dull – a place for “quiet” adventure with little variety in terms of activities and a limited number of attractions
- ❖ Traveling distance (except Halifax) and length of time tourists feel required to stay to make the trip worthwhile;
- ❖ Perceived as unsophisticated and uncultured – materially poor – “the poor cousin of the Maritimes;”
- ❖ Urban smallness; and,
- ❖ Empty, with not a great deal happening.



*New Brunswick’s Brand Personaility*

In an increasingly competitive tourism marketplace, New Brunswick faces the challenge of attracting tourists through destination branding and destination personality building practices. As places within Atlantic Canada become more and more substitutable, destination personality, defined as the set of human characteristics associated with a destination is seen as a viable metaphor for crafting a destination’s unique identity. At the conceptual level, the importance of destination personality has been widely acknowledged.

A distinctive brand personality will help to create a set of unique and favourable associations in the consumers’ memory and thus build and enhance brand equity. A well established brand personality influences consumer preferences and patronage, develops stronger emotional ties, trust and loyalty with the brand. Similarly, a distinctive and emotionally attractive destination personality can leverage the perceived image of a place and influence tourist behaviour.

Through our research, certain personality traits associated with New Brunswick were unearthed, and included:

*New Brunswick Personality Traits*

Rugged/outdoorsy/adventurous

Friendly/welcoming/warm

Undiscovered/unspoiled/untouched

Peaceful/relaxed/quiet/placid/serene/soulful

Down-to-earth/unpretentious/modest/humble

Natural/pure/clean/pristine

Wholesome/healthy

Two distinct traveler types emerged, each motivated by very different needs:

- ❖ The Nature Seeker – This traveler is a conservative explorer that seeks oneness or a spiritual connection with nature. They are quiet, placid, peaceful and serene, in harmony with their surroundings. They are cautious, prudent and judicious when it comes to travel (risk-averse) and tend to be strongly attracted to soft adventure type activities.
- ❖ The Learning-Based Traveler – this traveler is well-read and organized and tends to research the history, culture and attributes of their destination fully before visiting. Their motivation for travel is all about learning, learning through doing and experiencing.

	<i>Ideal Type of Vacation</i>	<i>Ideal Level of Involvement</i>	<i>Emotive Hook</i>
<i>The Nature Seeker</i>	One with focus on nature and serenity	Quiet, low-risk, low-intensity soft adventure type activities	To reconnect, escape, relax, cleanse oneself; vacation is viewed as a period of recreation; to feel one with nature
<i>The Learning-Based Traveller</i>	One with focus on immersive learning and experiences	Cultural integration (to be one with the people) and activities that involve learning and knowledge attainment; low risk	To learn, experience, grow through exposure and knowledge; to feel informed, smart and knowledgeable; to feel engaged with other cultures



The common thread that weaves itself through these two distinct traveler segments is both groups believe it is important to learn from other cultures. For all, the motivation to engage in travel to a place like New Brunswick, is to feel stimulated and inspired through learning and experiencing.

The primary tourist market for New Brunswick are older (35-50), more affluent, highly educated travelers who define their vacations as “nature-related” vacations, or “experiential” vacations, rather than hard adventure vacations. Soft adventure activities such as hiking, walking, flora and fauna viewing, mountain biking, kayaking, fishing, to name a few, will dominate their preferred activities. Cultural and historical interpretation will also be their focus and interpreters may also be required to service this market.



# Attitudes and Perceptions of the Bay of Fundy

Based upon the visualization exercise, a vacation in the Bay of Fundy Area was perceived as an exciting destination in which the fresh salt air evoked the following feelings – relaxation, restfulness, freedom and well being.

The primary motivation to take a trip to the Bay of Fundy was to:

- ❖ Discover a new part of the country, the Atlantic Provinces, Southern NB, an unknown destination with wide open spaces, and experience the beauty of the Bay of Fundy, including Hopewell Rocks.
- ❖ Break from the daily routine and urban busyness;
- ❖ Engage in a peaceful, restful vacation, at one with the natural and historical elements – ocean, history, culture, walking along beaches.

## Bay of Fundy Region Personality Traits

Restful/calm/'serene

Liberating/open/free

Unspoiled/untouched/pristine/fresh/clean/pure/natural

Exhilarating/exciting

Intriguing/fascinating/mesmerizing/compelling

Hospitable/friendly

Unique/one-of-a kind

Travelers appeared to share many common perceptions of the Bay of Fundy region. It was described through this exercise as:

- ❖ A restful, calm and relaxed place;
- ❖ An exciting unexpected place where the intensity of nature provides a restful backdrop and feeds one's sense of curiosity and discovery; instills total freedom and freshness; relaxation and calm; pleasure, fun and good times
- ❖ Boasting friendly, welcoming and accommodating people;
- ❖ With a coastal climate (damp, misty, heavy, rainy, foggy, etc.)
- ❖ A setting that is largely undisturbed and unspoiled (vast open secluded spaces); a geography that takes its cues from nature (ocean, rivers, sandstone cliffs, rocks, abundant greenery, forests and fields); undulating roads and scenic vistas;
- ❖ Rugged, outdoorsy, coarse and rough (like burlap) was the texture described;
- ❖ A place where visitors “expect the unexpected” and often “discover the unknown;”
- ❖ A place that moves to its own rhythm – slow and steady – where time seems to stand still;
- ❖ Fresh salty sea air; the squawking of seagulls, fish markets, the sound of fiddlers moving bows over their instruments, and oceans crashing against the shore; diesel from fishing boats; smell of seaweed; and, French accents were some of the common smells and sounds associated with this region. In both Halifax groups, the smell of industry (pulp and paper mill and oil refinery) was also mentioned.
- ❖ Colours most often associated with the Bay of Fundy Region were blue (blue skies/ocean/water), grey (foggy, overcast/rocks/ocean), green (lush farmland and forests) and red/ochre/browns (colour of Hopewell Rocks/sunsets and sunrises/shoreline).

- ❖ A place where there is an abundance of soft adventure activities and opportunities for exploring, including hiking and nature walks, swimming, camping, fishing, golfing, kayaking, biking, tidal bore rafting, and clamming.
- ❖ Other pursuits visitors saw themselves participating in included learning about the history and culture (visiting historical sites and taking in cultural events), geology and science, and architecture; culinary pursuits (e.g. learning different ways to prepare fish) and photography.
- ❖ Art galleries and live musical entertainment also figured large.
- ❖ Specific sightseeing attractions – Bay of Fundy, National Parks, City of Saint John, Reversing Falls, Reggie's Diner, Algonquin Hotel in St. Andrews-by-the-Sea, whale watching were also mentioned.

Most travelers envisioned their vacation lasting between 1-3 days (Halifax) and 4 or more days (Ottawa, Montreal, Boston).





## *The New Attraction Concept*

Overall, participants reacted very positively to the new attraction concept, with the Reversing Rapids as the focal point. No one had ever seen this type of phenomena. Participants believed several things made this attraction interesting and worthy of seeing:

- ❖ A natural phenomena, grandiose, exceptional and impressive;
- ❖ Ability to watch marine fauna;
- ❖ Excitement caused by water funnel or vortex;
- ❖ Good theme;
- ❖ Educational value (scientific, historical, geological, etc.);
- ❖ Located in the Bay of Fundy area – an area known for the highest tides in the world;
- ❖ Unique world-wide attraction – one-of-a-kind; and,
- ❖ Great hook to attract tourists to the Fundy Bay area.



## *Brand Imagery*

The Reversing Rapids as an attraction concept was not easily articulated by the images exposed to participants – this suggests that the attraction concept was not easy to visually convey and consequently, imagine.

Nevertheless, it appears that the Bay of Fundy has some notoriety and imagery associated with the Bay of Fundy area. Most often, the Bay of Fundy was uniquely known for having the highest tides in the world. Many participants gravitated toward the image of the “flower pots” at Hopewell Rocks, indicating that this image was unique and exclusive to this area.

Also, the brand imagery preferences depicted classical representations of the Bay of Fundy landscape, including the effect of the tides eroding rocks and specifically, the red colour of the rocks and shoreline.

It suggests that it would be advantageous to market the Rapids in association with the Bay of Fundy area images most prevalent in potential visitors’ minds. This will ensure a greater degree of recognition and memory of the area in which the destination is located.

The picture showing the Reversing Rapids and the Bridge was viewed as a nice shot, but did not clearly illustrate the Reversing Falls phenomena.



These pictures were seen as very symbolic of the Bay of Fundy based on those who had previously visited or had been exposed to advertising. They were described as very distinctive, easily recognizable, believable, attractive to everyone, and illustrative of the natural phenomena (high tides).





Image Reactions

Description	Positive	Negative
2 Girls Zipline	25	2
1 Girl Zipline	29	3
Reversing Falls Close-Up of Water Swirling	5	14
Reversing Falls Bridge	7	11
Seal	33	4
Kayaker and Rocky Outcrop in Background	33	1
Reversing Falls Bridge in Sun	13	5
Reversing Falls Bridge in Fog	27	1
Lake and Tip of Blue Kayak	8	2
Kayakers on Bay of Fundy With Kayaker (Yellow Kayak) in Forefront	32	1
Loyalist Man	6	16
Light Show	24	4
White Water Kayaking in Falls (Green Kayak)	30	4
White Water Kayaking in Falls (Orange Kayak)	21	6
Time Clock	7	13
Harbour Passageway and 2 Woman Looking at Interpretive Signage/Harbour in Background	13	2
Harbour Passageway Showing Trail and City in Background	10	2
Man Fishing Salmon on Lake	26	--
Waves Crashing Against Rocks	31	1
Boatful of People Whale Watching/Whale Fin	41	--
Whale Fin and Sailboat	33	--
Backward Flipping Whale	38	--
Waterfall in Forest	30	--
Man and Woman Viewing Scenic Vista of Coastline with Binoculars from Ridge	13	--
Man and Woman Cycling	20	--
Yellow Bird on Branch with Red Berries	18	--
Reversing Falls Bridge/ Sailboat/Green Water	11	2
Jet Boat Ride in Falls	27	5
Caves at St Martins (Low Tide)	42	--
Elderly Man and Woman Bird Watching in Fall Forest	10	--
Caves High Tide	38	--





The Reversing Falls Brand Slogans

In the Cultural-Heritage segment, and ranked in order from highest to lowest, the words and phrases that resonated most strongly were:

- 1. The Fundy Vortex (17)
- 2. The Force of Fundy (12)
- 3. Between Tide and Time (11)

In the Nature-Related segment, and ranked in order from highest to lowest, the words and phrases that resonated most strongly were:

- 1. The Fundy Vortex (22)
- 2. The Undersea Falls (13)
- 3. The Force of Fundy (12)

And, finally by location, and ranked according to highest to lowest number of “very positive” responses:

Halifax:

- 1. The Fundy Vortex
- 2. Reversing River Rapids
- 3. Reversing Falls Rapids / Canada’s Underwater Falls / The Force of Fundy

Montreal:

- 1. The Fundy Vortex
- 2. Undersea Falls
- 3. Reversing Falls / Pure Aquatic Power

Boston:

- 1. The Fundy Vortex
- 2. Between Tide and Time
- 3. The Force of Fundy / What Lies Beneath

Ottawa:

- 1. The Fundy Vortex
- 2. Reversing Falls Rapids
- 3. The Force of Fundy

Slogan	Cultural-Heritage Participants	Nature-Related Participants
Reversing Falls - Chutes Reversibles	8	11
Reversing Falls Rapids - Chutes Reversibles	10	11
Reversing River Rapids - Rapides des Chutes Reversibles	8	8
The Fundy Vortex - Le Tourbillon de Fundy	17	22
Canada’s Underwater Falls - Chutes Sous-Marines du Canada	6	10
The Undersea Falls - Les Chutes Sous La Mer	5	13
The Surging Tides - Les Marees Deferlantes	6	5
The Canadian Vortex - Le Tourbillon Canadien	3	4
An Aquatic Phenomenon - Un Phenomene Aquatique	2	3
Pure Aquatic Power - Le Pur Pouvoir de L’Eau	3	6
The Force of Fundy - La Force de Fundy	12	12
The Billion Gallon Rush - Un Afflux Colossal D’Eau	2	4
Between Tide and Time - Entre Temps et Marees	11	8
A Lunar Phenomenon - Un Phenomene Lunaire	3	3
Weird and Wonderful - Etrange et Merveilleux	2	2
What Lies Beneath - Nature du Phenomene	7	7
The Explosive Tide - La Maree Explosive	4	5
Canada’s Underwater Canyon - La Gorge Sous-Marine du Canada	4	10
The Tidal Rush - La Poussee Maremotrice	5	7



## The Reversing Falls Brand Slogans

Of 19 key words and phrases tested, “The Fundy Vortex” held the greatest appeal across all four geographical locations. This slogan was viewed as captivating and intriguing and inspiring.

This slogan is a simple, but compelling message that will leverage the Reversing Falls’ future marketing initiatives. It reflects the two key target markets’ inherent impulse to explore, to learn, to discover and positions the Region as a place worth exploring. The slogan bridges the gap between travelers’ conventional perceptions of New Brunswick as simple a place of beautiful geography to one that undiscovered and uncharted, a place of cultural and historical hidden treasures. This slogan was the most emotive, one which reinforced travelers’ beliefs about New Brunswick, in general and the Bay of Fundy, in particular.

The name “The Fundy Vortex / Le tourbillon de Fundy” was felt to be a good choice because it combined the new attraction concept with the Fundy area. The word “vortex” was felt to clearly articulate and express both literally and figuratively what one would expect to find – a quick movement, a circular movement, a whirlwind. In Montreal, “tourbillon” was seen as better than “vortex” because vortex was perceived as a more scientific word and less evocative in the French language.

Other words preferred that described the phenomena were “The Force of Fundy / La Force de Fundy” and a variation on the existing name “Reversing Falls Rapids / “Rapides des Chutes Reversibles.” However, these descriptions were not unanimously accepted and were seen as lacking the explicitness (in terms of description) conveyed by the name “The Fundy Vortex.”

On a final note, participants indicated that any naming of the attraction should avoid use of the words “Canadian” or “Canada” in the description because adding these words provided no value at all and was felt to dilute the strength of the name because it did not depict where the attraction is located.

Key Words and Phrases	Very Positive
Reversing Falls Chutes Reversibles	19
Reversing Falls Rapids Rapides des Chutes Reversibles	21
Reversing River Rapids Rapides des Chutes Reversibles	16
The Fundy Vortex Le Tourbillon de Fundy	39
Canada’s Underwater Falls Chutes Sous-Marines du Canada	16
The Undersea Falls Les Chutes Sous La Mer	18
The Surging Tides Les Marees Deferlantes	11
The Canadian Vortex Le Tourbillon Canadien	7
An Aquatic Phenomenon Un Phenomene Aquatique	5
Pure Aquatic Power Le Pur Pouvoir de L’Eau	9
The Force of Fundy La Force de Fundy	24
The Billion Gallon Rush Un Afflux Colossal D’Eau	6
Between Tide and Time Entre Temps et Marees	19
A Lunar Phenomenon Un Phenomene Lunaire	6
What Lies Beneath Nature du Phenomene	14
The Explosive Tide La Maree Explosive	9
Canada’s Underwater Canyon La Gorge Sous-Marine du Canada	14
The Tidal Rush La Poussee Maremotrice	12

## 7.4.5 Conclusions

An opportunity exists for the residents of the City of Saint John to create unique ways of integrating their history and culture into the tourism experience. And, while, many travelers are primarily interested in visiting the Bay of Fundy region to pursue activities associated with wildlife and ecology, many are also intrigued by the unique culture and history of the area.





# 7.5 Visitor Experience Survey

Between August 22 and September, 2008/374 visitor parties to Reversing Falls were interviewed on site. The primary purpose of this statistically meaningful sample was to obtain:

- ❖ Visitor opinions of their experience at the Reversing Falls;
- ❖ Visitor perceptions of the Reversing Falls name and Loyalist Man entrance signage as branding icons for the attraction; and
- ❖ Visitor opinions on possible new features that could potentially enhance the visitation experience.

The Key Conclusions were:

- ❖ Pre-visit knowledge of the Reversing Falls was low;
- ❖ Over 60% of visitors did not believe the name “Reversing Falls” described the experience very well;
- ❖ Visitors did not feel the Loyalist Man Figure was useful in helping to understand the experience and less that 23% knew what the figure represents;
- ❖ Meaningful opportunities exist to improve customer satisfaction including; interpretation, signage, public seating areas, access, maintenance, take-out food, tours, evening entertainment, and overall quality.

Responses to “which of the 10 possible new features might have made your visit to the Reversing Falls more enjoyable” are listed in the following table:

Visitor Recommendations	
Feature	Percent of Maximum Score
Interactive interpretive centre	91
Interactive trails	88
Virtual underwater experience	87
Tour guides	81
Evening entertainment	73
Boat tours	69
Shuttle tours	67
Zip lines or rock climbing	48
Shops and boutiques	44
Thematic playground	26

Visitor comments collected by UNBSJ students in 2006 and 2007 were also reviewed. The comments obtained reflect previous conclusions that improvements are required to the signage and the need for multi-lingual interpretation. Low customer satisfaction was also identified in terms of facilities and programmed experiences.





# *Chapter 8*

## Environmental Risk Assessment

Jacques Whitford provided an experienced geotechnical engineer to carry out a walk through of the site to identify any specific areas where soil and/or foundation investigations such as slope stability analysis and assessment of bedrock were required prior to design and development. A review was also conducted by Senior Archaeologist Dr. Grant Aylesworth to identify potential issues.



# 8.1 Scope and Methodology

## 8.1.1 Scope of Work

The Phase I ESA is based on the requirements of the Canadian Standards Association (CSA) Phase I Environmental Site Assessment Standard (Z768- 01) and consists of the following:

- ❖ Records review including, but not limited to, publicly available city directories, aerial photographs, fire insurance plans, geological and topographic maps;
- ❖ Request to the New Brunswick Department of Environment (NBENV) for records on the site and adjoining properties;
- ❖ Review of available environmental databases and records;
- ❖ Review of previous environmental reports, if made available;
- ❖ Interviews with persons associated with the site;
- ❖ A site visit; and,
- ❖ Evaluation of information and preparation of the report provided herein.

The Phase I ESA does not include sampling or testing of air, soil, groundwater, surface water or building materials. For this Phase I ESA, no enhancements to the CSA standard were made.

It should be noted that the Phase I ESA does not include a review or audit of operational environmental compliance issues or of any environmental management systems (EMS) which may exist for the property.

The assessment of the site for the potential presence of hazardous building materials was based on the age of the buildings and their components, and a non-intrusive visual review of the site. No sampling of materials was conducted. The Phase I ESA does not constitute a hazardous materials survey or a Designated Substances Survey. No buildings were accessed during this assessment.





8.1.2 Methodology

Records Review

The applicable search distance for the records review included the site, properties immediately adjoining the site and other neighbouring properties where activities considered to be potential sources of environmental contamination were apparent. Information sources obtained and reviewed as part of the records review are listed in Table 8.1.

Previous environmental reports provided for review are discussed in Section 8.5. Available environmental databases and records were searched to determine if the project site, adjacent or neighbouring properties are listed. The databases and search results are presented in Section 8.6.



Site Visit

The site visit was conducted on July 8, 2008. The readily visible and publicly accessible portions of adjoining and neighbouring properties were also observed for the presence of potential sources of environmental contamination.

Interviews

- Interviews were conducted with the following persons:
- ❖ Client Contact - Mr. Daniel Glenn, Glenn Group Ltd.
  - ❖ Government Official - Ms. Valerie McQuinn, Remediation Branch, NBENV
  - ❖ Government Official - Mr. Brian Irving, Real Estate Services, City of Saint John

Table 8.1

Source	Information/Contact
Aerial Photographs	1944-45, 1953, 1962, 1976, 1984, 1994, 2004
City Directories	1933, 1949, 1959, 1964, 1969, 1974, 1980, 1985, 1991 and 2000
Fire Insurance Plans	1880, 1911, 1949, 1953, 1957 and 1967
Insurance Inspection Reports	None requested
Topographic Maps	New Brunswick Topo Map, 21G-08 Saint John, 1990.
	New Brunswick Ortho Topo Map, Sheet 21G/08, Saint John South Bay, 1970
Geological and Soil Maps	Quaternary Geology of New Brunswick, Geological Survey of Canada, 1984.
	Bedrock Geology of New Brunswick, Department of Natural Resources and
	Energy, New Brunswick, 1994.
Existing Title Searches	None provided
Company Records	None Provided
Other Records	City of Saint John Map 1865 / 1875
	Fallsview Park History, Harold E. Wright, Heritage Resources (July 2008)



## 8.2 Regulatory Framework

In New Brunswick, the roles and powers of the NBENV when dealing with contaminated sites are outlined primarily in the Guideline for the Management of Contaminated Sites (NBENV, 2003). The NBENV has a mandate to deal with situations where there is the presence or discharge of a contaminant into the environment. The Guideline for the Management of Contaminated Sites (September 2003) provides advice and information to property owners and consultants to use when assessing the environmental condition of a property, when determining whether or not restoration is required, and in determining the kind of restoration needed to allow continued use or reuse of the site. The Phase I ESA is an initial step in the site assessment process, which may lead to the requirement for restoration work if actual or potential sources of environmental contamination are identified.

During the Phase I ESA, samples were not collected, however if there were previous soil or groundwater samples available the results were compared to applicable federal and provincial regulations and guidelines.

The Phase I ESA also involved a review of the site buildings, if present, for the potential presence of hazardous materials related to building components and materials. Specific federal or provincial regulations, guidelines or codes of practice exist for these individual hazardous materials. Where required, this documentation was utilized to determine appropriate conclusions and formulate appropriate recommendations.

## 8.3 Site Description

### 8.3.1 Physiography

The Reversing Rapids-Lower River Passage Development (the “project site”) will be situated over several properties along the shoreline of the St. John River in the vicinity of the Reversing Falls Bridge and will include several waterfront development projects including the construction of new wharves, buildings, walkways, marina, recreational facilities and infrastructure, a funicular, etc. The study area is located in a mixed commercial, residential, recreational and industrial area of Saint John, New Brunswick. The site includes or traverses forty-nine properties and has a total area of approximately 84 acres. One property

(PID No. 55054746) located within the proposed development area was not assessed during this Phase I ESA. This property was assessed for the City of Saint John by Fundy Engineering in the summer of 2006.



### 8.3.2 Physical Setting

#### *Regional Geology*

The texture of overburden in the Saint John area can vary from clay to gravel, possibly due to frequent and diverse changes in sediment depositional environments. Till deposits, glacial outwash, marine deposits and tidal deposits have been reported. According to New Brunswick surficial geology maps, overburden in the area of the subject property generally consists of a veneer of morainal sediments (typically 0.5 to 3.0m thick) consisting primarily of a stony till, deposited directly by ice or with minor reworking by water. A site-specific determination of subsurface soils would be required to obtain more detailed soil permeability information for the site.

Bedrock geology mapping indicates that the site areas on the south side of the Reversing Falls Bridge are underlain by sedimentary rock types including quartzose feldspathic sandstone, siltstone, shale, micaceous sandstone, quartzite, minor limestone and conglomerate of early Ordovician to early Cambrian age, locally referred to as the Saint John Group. The site areas to the north of the Reversing Falls Bridge are underlain by various rock types including marble, pelite, schist and quartzite of Helikian age, locally referred to as the Ashburn formation of the Green Head Group. Rock outcropping and rock faces are visible along the portions of the St. John River shoreline within the study area.

#### *Topography and Regional Drainage*

Based on topographic maps and observed site topography, regional surface drainage (apparent groundwater flow direction) appears to be towards the St. John River, which runs through the centre of the site. According to Service New Brunswick maps, the site is not located in a protected watershed area. It should be noted that the direction of the shallow groundwater flow in limited areas can also be influenced by the presence of underground utility corridors and is not necessarily a reflection of regional or local groundwater flow or a replica of the site or area topography.

The site is covered by a wide variety of vegetation, including low lying grassy areas, light shrubbery and mature trees. The shoreline rolls gently down towards the river throughout the site except in the vicinity of the Reversing Falls Bridge and near the south end of Riverview Drive where the shoreline tends to be steep rock faces.

#### *Surface Water Drainage*

Surface drainage follows the general slope of the properties, which is generally downward from each site property towards the St. John River. Some surface water was observed flowing overland near Prospect Point and on the southern side of the site, to the west of Falls View Drive. There was evidence of some stressed vegetation observed in the vicinity of suspected fill areas near Prospect Point and to the east of Fallsview Drive.

No evidence of pits or lagoons was observed on the site property.





## 8.4 Previous Environmental Reports

No previous environmental reports were received with respect to the project site. However, a Phase I ESA report completed by Fundy Engineering (Project No. 06-4755, dated June 2006) was provided by the City of Saint John. The Phase I ESA was completed on the property located at 57 Falls View Avenue (PID No. 55054746) that is located within the proposed development area, adjoining the properties assessed during this Phase I ESA. The Phase I ESA identified the following concerns:

- ❖ Spill and Stain Areas: Suspected hydrocarbon staining on the gravel covered surfaces in the vicinity of the maintenance garage.
- ❖ Underground/Above ground Fuels: Petroleum storage identified at multiple areas.
- ❖ Lead: Lead based paints may be present on the site buildings.

Based on the above noted concerns, a Phase II ESA was completed by Fundy Engineering (Project No. 06-4827). Several test pits were completed on this adjoining property and soil samples were collected and submitted for analysis of petroleum hydrocarbon and Polycyclic Aromatic Hydrocarbons (PAHs). The reports indicated that the laboratory soil results were below applicable guidelines.

Also, one sample of interior paint was collected from the interior of a residential building and submitted for lead analysis. The sample was found to have lead paint concentrations below the applicable guideline.





# Environmental Database/Records Review 8.5

## 8.5.1 Regulatory Information

An information request was submitted to the NBENV with regards to the subject property. NBENV records date back to 1987.

A summary of information obtained from NBENV is provided below:

- ❖ **Minister's Orders:** The NBENV reported that no Minister's Orders are in effect for the site property or the adjacent properties searched.
- ❖ **Petroleum Storage:** The NBENV reported that there is existing and historic petroleum storage tanks related to three site properties (See below).
- ❖ **Remediation Records:** According to the NBENV Remediation Site Management System, remedial activity has occurred on the site and adjacent properties (See below).
- ❖ **PCB Storage:** The NBENV reported that there are no PCB storage sites registered for the site or adjacent properties.
- ❖ **Waste Disposal Site:** The NBENV reported that there are no waste disposal sites registered for the site or adjacent properties.

The NBENV reported that seven underground petroleum storage tanks (USTs) were removed from the former Centracare property (PID No. 55146302) located on the southern side of the St. John River, along Fallsview Drive. The tanks ranged in capacity from 2,270 L to 68,190 L and were removed between 1989 and 1999. According to NBENV, contaminated soil has been removed from this site at the time of some of these tank removals; however, the contamination status of this adjacent property had not been confirmed. Further information has been requested with respect to remedial activity on this adjoining property, however, the information had not been received

at the time this report was prepared. The suspected former location of some of these USTs (assuming they were located near the former boiler house on this adjoining site) is near the northwestern portion of this adjoining property, up gradient of the project site and to the south of Fallsview Drive.

The NBENV reported numerous active and historic above ground petroleum storage tanks (ASTs) and two former USTs on the Irving Pulp & Paper property (PID No. 55162416). There are six remedial files associated with property, two of which have been closed under the 1999 Guidelines and four of which the contamination status has not been confirmed. However, based on our understanding of the project study area (i.e. the mill cove area which was reclaimed in the 1990s), historic and active petroleum storage on this adjacent industrial property is not likely to represent a potential environmental concern to the site since the suspected location of these remediation sites were over 150m away from the project site.

The NBENV reported that five USTs were removed from the former Reversing Falls Gas Bar property (PID No. 00369611) located on the northern side of the St. John River, on Chesley Drive. The tanks (2 x 27,252 L, 2 x 45461 L and 18,184 L) were removed between 1996 and 1998. The NBENV reported no concerns with respect to these tank removals. However, based on a documented explosion that occurred on this gas bar property in the early 1970s, it is suspected there were other underground petroleum storage tanks not registered in the NBENV database. The proposed project site includes the majority of this former gas bar property.

The NBENV reported that remedial activity has occurred on two adjoining properties (PID Nos. 55046635 and 55110357) located adjacent to the Southern NB Railway Line near the intersection of Douglas Ave. and Chesley Drive. According to NBENV, contaminated soil has been removed from this site;

however, the contamination status of this adjacent property had not been confirmed. Further information has been requested with respect to remedial activity on this adjoining property, however, the information had not been received at the time this report was prepared. These two properties, owned by the City of Saint John and NB Southern Railway, are located within the proposed project site area.

The NBENV reported that the NB Southern Railway property (PID No. 00369595) is registered as a third party property in association with the release of a contaminant on an adjoining property (PID No. 00369876). However, based on a review of the record of site condition documents provided by NBENV, the impacts to this NB Southern Railway property were located near the Merritt Street portion of this property, over 150m down gradient from the proposed project site area. Therefore, contamination on this portion of the property is not likely to represent a significant environmental concern to the project site.

Also, according to fire insurance plans from 1953, underground petroleum storage tanks were formerly present on two former service station properties (PID Nos. 00385351 and 00385344) located on Lancaster Avenue. The fire insurance plans also indicate the presence of an UST associated with a former service station located on Douglas Avenue (PID No. 00369611). The former USTs located on Lancaster Ave. (PID No. 00385351) may represent an environmental concern to the project site should the development extend near this former service station property. It is unlikely that historic petroleum storage on the other nearby properties would represent an environmental concern to the project site.



## 8.6 Findings

### 8.6.1 Current Site Operations/Land Use

The project site is located in an area of mixed commercial, industrial, residential and recreational land uses. The project site consists of several properties or portions of properties that stretch on the north and west side of the St. John River, from Marble Cove (St. John River) located to the north of Harbour View High School to Split Rock located to the southeast of the Reversing Falls Bridge Abutment (at Chesley Drive). On the south and east side of the St. John River, the project site stretches from a portion of the reclaimed land in Mill Cove on the Irving Pulp & Paper site to the Market Place exit of the Saint John Thruway near the Harbour Bridge. Buildings and structures observed on the project site are noted in Section 8.3, however, no buildings were accessed as part of this Phase I ESA.

Current activities on the project site include a small park adjacent to the NB Museum property on Douglas Avenue, the Fallsvue Park, the Reversing Falls Jet Boat Rides, the Reversing Falls Restaurant and The Gardens (restaurant), pathways, roadways and access ways.

### 8.6.2 Historical Land Use

Historical land use for the project site was determined through historical records listed. A summary of the historical information is presented on the right.

Based on information gathered during the historical review, several areas of the project site were developed prior to the 1900s. Areas of potential environmental concern identified during the historical review have been labelled as shown in Figure 8.1

### *Summary of Historical Information*

#### *Late 1760s*

- ❖ Limestone quarrying and an associated lime kiln in the vicinity of the Reversing Falls Bridge

#### *Mid 1800s to early 1900s*

- ❖ First suspension bridge built across the Reversing Falls.
- ❖ Mining of plumbago (“black lead” or graphite) began at Split Rock and spread to three other locations in the Fallsvue Park area.
- ❖ Rapid development of port and a variety of wharves and slips along the St. John River along Riverview Drive.
- ❖ Wood saw milling activity at former Murray & Gregory located on Fallsvue Drive and the current Irving Pulp & Paper site commences.
- ❖ Centracare Hospital constructed in the late 1800s to early 1900s.

#### *Early 1900s to 1970s*

- ❖ Murray & Gregory Millworks occupies adjoining property however, warehouses, pump house, storage areas, etc. are present on the project site property near Prospect Point and mill tenements housing was located near Fallsvue Park.
- ❖ Development of Fallsvue Park area as a tourist attraction commences in the early 1930s. Ash originating from the Murray & Gregory mill reportedly used as fill material to extend walkway to False Island.
- ❖ Municipality uses Fallsvue Park area as a municipal dump from early 1940s until the early 1950s.
- ❖ Reversing Falls Restaurant and Lookout constructed in the 1950s or early 1960s.
- ❖ Colsen Cove Bunker “C” pipeline constructed in the early 1970s (Corridor includes Reversing Falls railway bridge)
- ❖ Bunker “C” pipeline constructed from Saint John Port (West side of harbour) to Irving Pulp & Paper

#### *Early 1970s to present*

- ❖ Natural gas pipeline constructed in the early 1970s (Corridor includes Reversing Falls railway bridge)
- ❖ The Gardens restaurant and floating dock constructed in mid 2000s



### 8.6.3 Phase I ESA Site Visit, Findings, and Discussion

A reconnaissance of the proposed Reversing Rapids—Lower River Passage Development was carried out by Mr. Paul Paulin, P. Eng., of Jacques Whitford, on July 8, 2008. The reconnaissance began at Fallsview Park and continued along existing paths, access ways, and roadways to Marble cove to the north and then across the Reversing Falls bridge towards the northern end of Riverview Drive near the Saint John Thruway exit to Market Place.

On-site buildings and structures included a one storey washroom facility located at the Fallsview Park land (PID No. 55053441); the Reversing Falls Restaurant located near west end of the Reversing Falls Bridge (PID No. 55155485); the Gardens (restaurant) located on Fallsview Drive (PID No. 5515493); a

one storey portable trailer located along the St. John River near the Fallsview Park Land (PID No. 00428664). This portable trailer is used by the Reversing Falls Jetboat Rides operator and has a wooden floating dock located on the shoreline near the trailer. A floating dock is also present on the southern shoreline of the St. John River below the Garden Restaurant.

Concrete remnants (i.e. foundation walls, concrete blocks, etc.), possibly related to the pump house of the former Murray & Gregory Mill operations, were observed on the western portion of PID No. 55141089, near the shoreline. Also, a rectangular concrete slip was observed during the site visit on the vacant property (PID No. 0033084) near Fallsview Drive. The slip was reportedly used to store two ships in the 1980s when a ship museum was planned for this location. The two ships are visible on the shoreline in the 1984 aerial photograph.

The project site is connected by the Reversing Falls Bridge which spans the St. John River. A Railway bridge, also spanning the river, is present adjacent to the Reversing Falls Bridge.

Ground surface staining (rust colored) was observed near Prospect Point, near the shoreline of the cove in the vicinity of the concrete slip noted above and near suspect fill areas above the cove and towards Riverview Drive. The staining may be related to the presence of fill placement in these areas or in areas of possible dumping of debris or waste.

Active sewer outfalls were observed along the shoreline near the floating dock below The Gardens restaurant and below Riverview Drive. Also, discarded household waste, construction debris, concrete ruins and metal debris were observed on or near the Prospect Point area and along the shoreline of the cove below The Gardens restaurant. No hazardous wastes were observed on the project site; however, there were some non-hazardous wastes and debris noted along the shoreline near Prospect Point during the site visit.

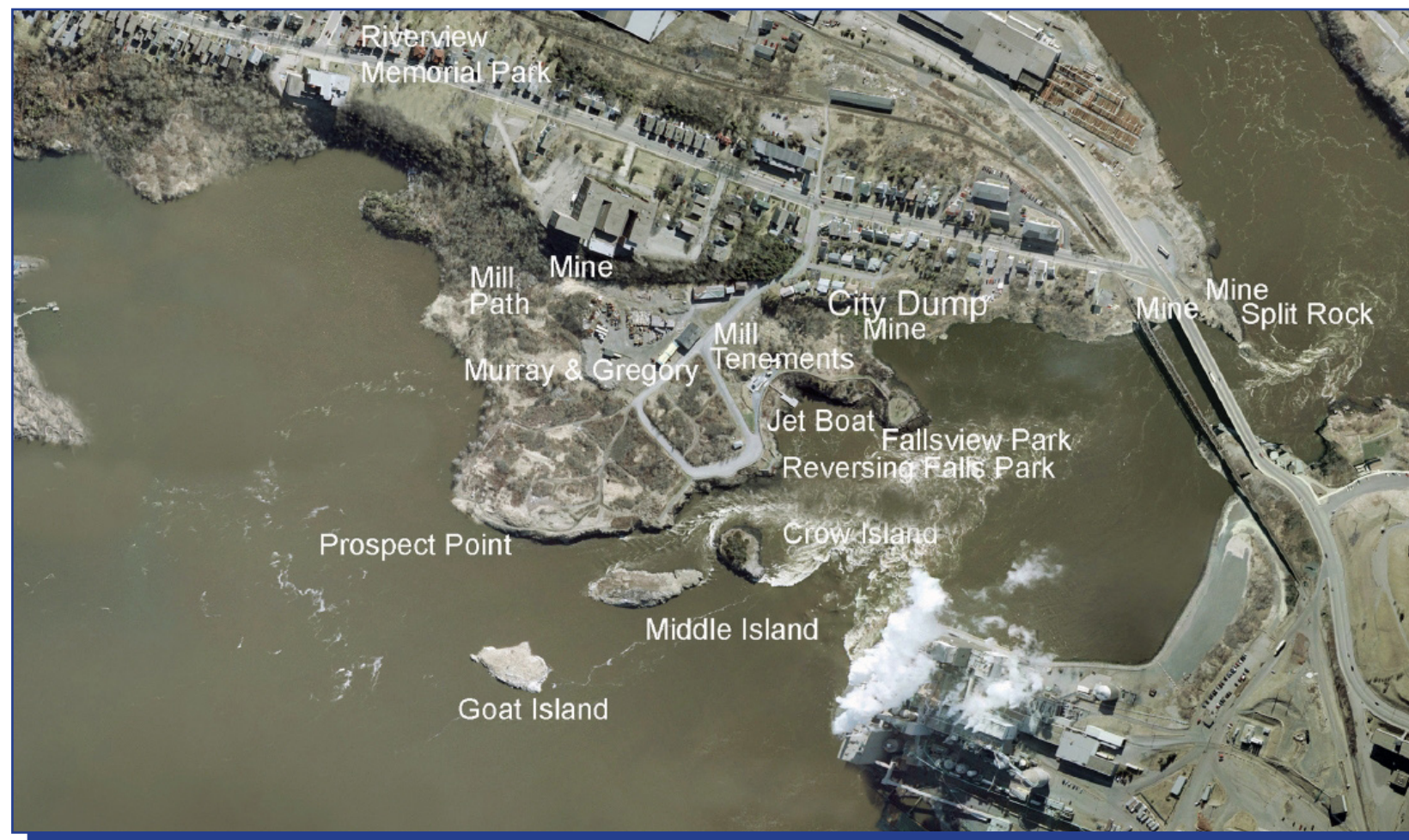
Evidence of the placement of imported fill materials was noted on the project site during the site visit. These areas included near Prospect Point and to the east of Prospect Point, to the south of Fallsview Avenue near Fallsview Park and to the south of Riverview Drive.

There were no major sources of electromagnetic fields identified on the site or adjoining properties during the site visit. Sources of noise and vibration included trains using the railway bridge and the operation of the Irving Pulp & Paper Mill.

No suspected asbestos, urea formaldehyde foam insulation (UFFI), ozone depleting substances (ODSs) were observed during the site visit. Also, no sources of air emissions that were suspected to result in residual contamination to the subject property were observed during the site visit.

No abandoned or existing wells (water, oil, gas or environmental sampling) were identified on the site.

Figure 8.1





### 8.6.4 Sources of Possible Contamination

Information relating to historic and current activities in the local area of the project site are shown on Fig 8.2. For ease of reference, information on activities (i.e. suspected mining activity) or conditions on specific properties are graphically illustrated using a series of symbols. The properties or areas of interest which are shown include:

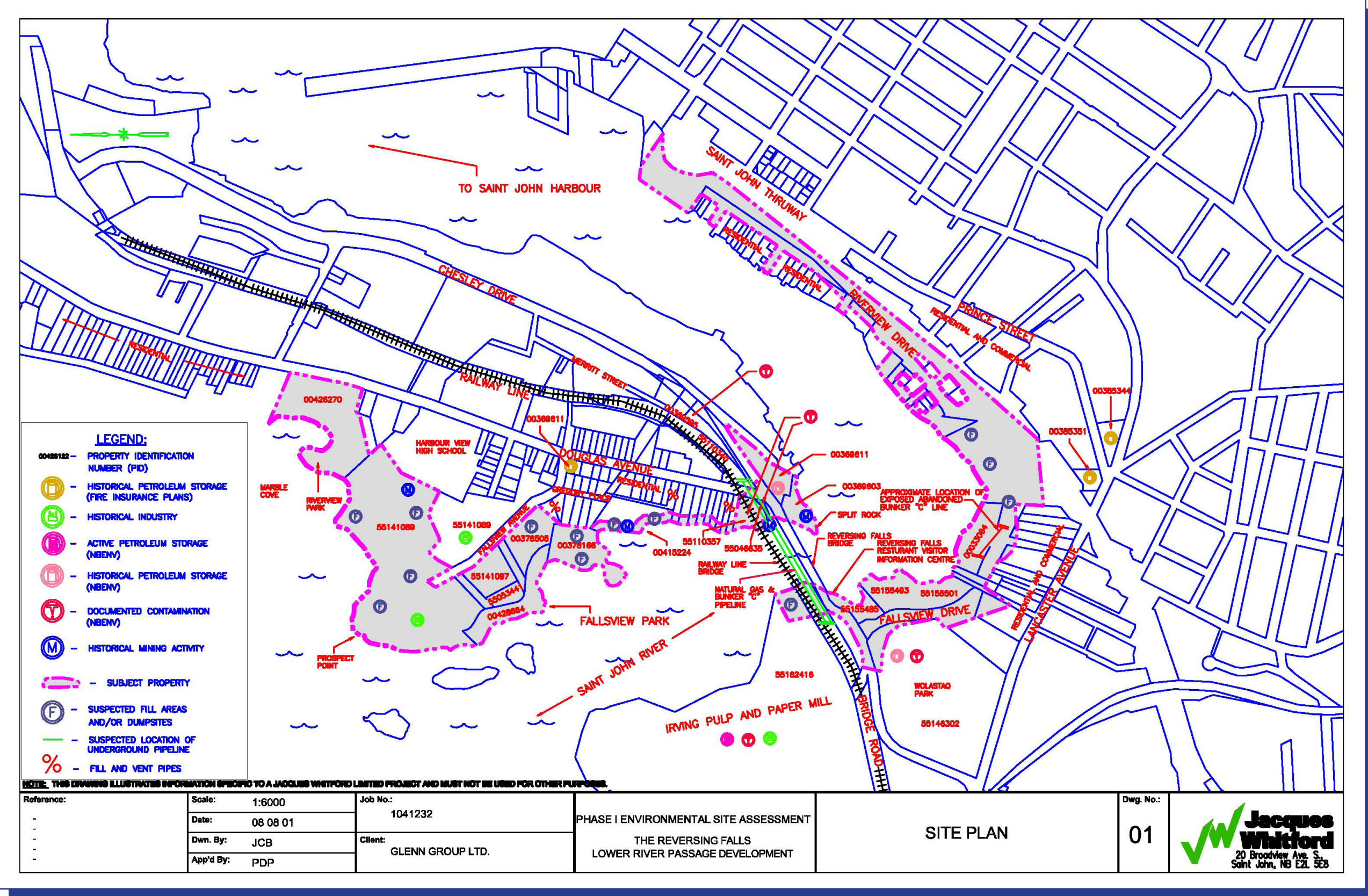
- ❖ Properties identified from various sources (NBENV records and fire insurance plans) as being petroleum storage sites, either existing or former;
- ❖ Properties identified from various sources (aerial photographs, fire insurance plans and field reconnaissance) as being occupied by industry, either existing or former;
- ❖ Properties identified from NBENV sources as having records of contamination, remedial work or ongoing assessment;
- ❖ Areas of historical mining activity;
- ❖ Areas identified as suspected imported fill areas or municipal dumping areas; and
- ❖ The location of the active NB Southern Railway line.

Past and present land use on the project site and adjacent properties that may have impacted the subject property include:

- ❖ Reported placement of coal ash on the Fallsvue Park area near False Island: possible impacts of PAHs and metals.
- ❖ Reported Remedial Activity by NBENV (south end of Douglas Avenue, former Centracare property): possible impacts of petroleum hydrocarbons.
- ❖ Former City of Saint John Municipal Dump (located in the Fallsvue Park Area): possible impacts of petroleum hydrocarbons, PAHs and metals.
- ❖ Placement of imported fill materials (located near Prospect Point, Fallsvue Park and to the South of Riverview Drive): possible impacts of petroleum hydrocarbons, PAHs and metals.
- ❖ Former and present above ground and underground petroleum storage tanks (various locations, including service station storage on Lancaster Avenue and former Centracare property): possible impacts of petroleum hydrocarbons.
- ❖ Present Coleson Cove bunker “C” pipeline (traverses subject site at Railway Bridge): potential source of petroleum hydrocarbon contamination. Documented Remedial Site in vicinity of buried bunker “C” pipeline near end of Douglas Avenue.
- ❖ Abandoned Bunker “C” pipeline from Saint John Port Authority to Irving Pulp and Paper Mill.



Figure 8.2





## 8.7 Conclusions

Based on the information gathered and on observations made during this investigation, the Phase I ESA has revealed evidence of potential and/or actual environmental affects associated with the subject property.

- ❖ From the historical and regulatory investigation of land uses in the area of the subject site, there is potential for contamination from a variety of sources including historic petroleum storage, mining activity, imported fill and former and existing industries and commercial properties on nearby or adjacent properties. Possible contaminants associated with these sources typically include petroleum hydrocarbons, PAHs, polychlorinated biphenyls (PCBs) and metals.

Recommendations made regarding the subject property are as follows:

- ❖ While finalizing the development plan, avoid locating buildings or structures on documented remedial sites, suspected fill areas, municipal dump sites or suspected mine areas. Once the development plan is finalized, intrusive investigations, consisting of soil and groundwater sampling for the above noted parameters, should be completed where possible contamination is present in the vicinity of proposed structures or where existing overburden materials are likely to be removed or used elsewhere on the site.







# *Chapter 9*

## Permits and Approvals

As part of the Glenn Group team, Jacques Whitford has undergone a review of potential components of the preliminary master plan to determine the regulatory requirements (i.e., permits, approvals, licences, and authorizations) that may be required prior to development. While the plan would be executed in phases all of the components identified in the task initiation meeting of July 2, 2008 have been considered.

The scope of work is outlined in Task 5.3 (Permit Identification) in the original proposal to the City of Saint John.



# 9.1 Introduction

## 9.1.1 Understanding of Master Plan Components

While the preliminary master plan was unavailable for this scope of work, at the task initiation meeting a number of key components of the plan were identified on a site map showing the limits of the project, and the ownership of land. Given the information provided, the understanding of the key proposed project components is outlined below:

- ❖ approximate area of development is 34ha, separated by the Reversing Falls Bridge;
- ❖ development at Fallsvue Park area similar to what was proposed in 2006, to include some waterfront development (wharves and docks);
- ❖ a permanent building (PID 00378505) to replace jet boat operator trailers;

- ❖ zip lines (one short, one long) between PID 00415224 and False Island, and between the backs of Douglas Avenue properties and False Island;
- ❖ look-off and associated parking at Split Rock;
- ❖ access/walkway under the west side of the Reversing Falls Bridge to the Irving Pulp and Paper Mill property;
- ❖ Funicular to access Reversing Falls lookout;
- ❖ relocation/modification of Reversing Falls Garden Restaurant; and
- ❖ a marina and associated building at the western extent of the NBDOT property near Route 1 and Riverview Drive.

It is understood that the project also includes interconnecting trails similar to the Harbour Passage trail system. The Jet Boat boat launch/wharf is assumed to remain at its current location and to be unchanged.

Given the understanding of the project components, some project development would involve considerable earthworks including infilling and excavations. Underground services including water, sewer, electric power, communications, and possibly natural gas would be required, and it is assumed these would be hooked up to existing municipal services.

In stream (intertidal) work will be required for the installation of any docks and the proposed marina. It is assumed that any fishing wharves will also require in stream work.

## 9.1.2 Site Information

The Fallsvue Park area has been used for industrial purposes for over 200 years. Much of the site is currently owned by the City of Saint John (Fallsvue Park) and JD Irving (vacant land). The property at 57 Fallsvue Drive was historically Murray & Gregory Limited, a sawmill, sash and door factory, and art glass works. A fire insurance plan from 1953 shows an old pump house near the river, and a number of other buildings related to the former Murray & Gregory operation. A large amount of debris, including abandoned trucks, abandoned above ground storage tanks, and piles of creosote timbers, have been observed on the site in the recent past.

The Fallsvue Park area includes a washroom, as well as trailers and a wharf used by a jet boat operator.

We assume at this time that other than the St. John River, there are no watercourses or wetlands within the project development area, however this will have to be confirmed with available data and field surveys. During a site reconnaissance on July 8, 2008, there was evidence of spring flooding at the Irving-owned land at Prospect Point (PID 55141089), and there is some potential for this area to be considered floodplain wetland. A small drainage or seepage was observed downstream of the Reversing Falls Garden Restaurant along a step grade, and a waterfall (or possibly an outfall) near Riverview Place was visible from the Reversing Falls Bridge.

Future field surveys should be supported by relevant data such as NBNDR wetlands and watercourses, contours, and depth-to-watertable (an indicator of potential streams and wetlands). The surrounding residents and businesses are serviced by municipal water; therefore it is assumed there are no active wells within 500m of the site.

## 9.1.3 Regulatory Boundaries

Some relevant regulatory boundaries that influence which project components are triggered for particular regulations are included below.

- ❖ Schedule A of the Watercourse and Wetland Alteration (WAWA) Regulation identifies a point on each of the left and right banks of major rivers, include the St. John River, which determines the point at which projects located on the seaward/downstream side are exempt from a WAWA permit.
- ❖ The Saint John Port Authority (SJPA) water lots extend into the inner harbour, and overlap the waters adjacent the south-eastern arm of the project development area along Riverview Drive, up to approximately Riverview Place, however the Saint John Harbour regulatory limits extend upstream past the Reversing Falls to Green Head.



# Provincial Regulatory Requirements 9.2

## 9.2.1 Environmental Impact Assessment Regulations

The overall master plan components are likely to be considered to be within the following undertaking category, from Schedule A (Undertakings) of the Environmental Impact Assessment (EIA) Regulations under the Clean Environment Act:

*(p) all major recreational or tourism developments, including developments which consist of changing the use of land so that it is used for recreational or tourism purposes.*

For type (p) undertakings, the EIA Branch of the NBENV has taken a case-by-case-approach when determining whether a proposed project that may fit this description (i.e., definition of major) needs to be assessed, generally requiring registration for about 40% of such projects. Although part of the proposed project is an enhancement of the existing Fallsview Park and redevelopment of the Reversing Falls site, given the past land use of the Fallsview Park area, the potential for contaminated soils and materials on the site, and the proximity of an ecological receptor (the St. John River), the project would likely have to be registered for Approval by NBENV. Added issues could include the high potential for public interest in the project.

In addition, the marina, in part because of being located within the regulatory limits of the Saint John Harbour, may fall under another Undertaking:

*(q) all ports, harbours, railroads or airports;*

This is less likely, and the applicability of this trigger can also be determined in consultation with NBENV.

It is recommended that a conceptual project description and plan be submitted to the Director of Project Assessment and Approvals Branch of NBENV at the earliest opportunity to make this determination. This could be in the form of the latest conceptual design including a brief outline, and a plan view and 3D rendering as available. The Director would provide guidance on the scope of the registration, should a decision be made that the project requires

registration if the project meets the definition of one of the two undertakings listed.

If registration is required, some degree of public consultation would be warranted, in the form of a public information session. Public information sessions have already occurred and others, if planned, should be adequate for the requirements of an EIA registration, as long as there is some mention during the consultations that an environmental assessment of the process could occur, and participants are encouraged to provide their comments and concerns regarding the project. These comments should be documented and made available for the environmental assessment if registration is required.

Given the scope and scale of the project, a Comprehensive Review is highly unlikely. The time span from registration to approval varies, however the department strives for most to take no more than 120 days.

Conditions of EIA Approval, that always accompany a Certificate of Determination by the Minister, also vary from project to project. These typically include, but are not limited to, the following items.

- ❖ Commencement of the undertaking must occur within three years of the date of the Determination.
- ❖ The proponent shall submit a summary table detailing the status of each Condition listed in the Determination to the Director of the Project Assessment Branch every 6 months from the date of the Determination until such a time as the project is complete and the NBENV is satisfied that all the conditions have been addressed.
- ❖ A New Brunswick Watercourse and Wetlands Alteration Permit is required from the NBENV prior to the commencement of construction within thirty metres of any watercourse or wetland (upstream from the points mentioned above; the marine and associated infrastructure would not require a

WAWA permit).

- ❖ A site-specific Environmental Management Plan (EMP) must be submitted to the Director, Project Assessment Branch, NBENV for review/approval prior to the commencement of construction. The EMP must include: an Environmental Protection Plan (EPP), linking mitigation to locations, a monitoring plan (compliance and environmental effects monitoring), and contingency plans.
- ❖ If it is suspected that remains of archaeological significance are discovered during construction, all activity shall be stopped near the find and the Resource Manager of the Archaeological Services Unit, Heritage Branch of the Culture and Sport Secretariat, shall be contacted at 506-453-2756 for further direction.
- ❖ Refuelling and maintenance of equipment must take place in designated areas, on level terrain, a minimum of 30m from any surface water, on a prepared impermeable surface with a collection system to contain oil, gasoline and hydraulic fluids. Appropriate spill response equipment must be maintained in a readily accessible location during project construction and operation. All spills and releases shall be promptly contained, cleaned up and reported to the 24-hour emergency response line (1-800-565-1633).
- ❖ The proponent shall ensure that all contractors and operators associated with the construction and operation of this facility comply with the above requirements.

Other conditions are likely to be included, specific to this type of project, and related to the potential site contamination issues. The condition of an EMP has become standard for projects approved under the EIA Regulation. The EMP would address conditions 5 and 6.



### 9.2.2 Watercourse and Wetland Alteration Regulations – Clean Water Act

The WAWA Regulations are applicable to portions of the proposed project within 30m of the St. John River located upstream of a line joining N. B. Survey Monument No. 3987 near Spit Rock and monument No. 4088 located near Lancaster Ave. between Earl Avenue and Lewin Park, as indicated in Schedule A of the WAWA Regulations. This would include work upstream of the Reversing Falls Highway Bridge, and work upstream of PID 0033084, including work associated with the Reversing Falls Garden Restaurant. If an

EIA registration is required, the added level of effort for a WAWA permit would not likely be substantive, especially if an EMP is prepared for the project. WAWA permits can easily take upwards of four months to obtain, depending on the scope. Consultation with the WAWA Section of NBENV is recommended early to confirm that a permit can be obtained for the types of projects proposed.

### 9.2.3 Quarriable Substances Act

The NBDNR's Minerals Division must issue a Quarry Permit authorizing any excavation of rock materials 300m above or 300m below the ordinary high water mark, regardless of the amount of material, and even if it is a consequence of constructing piers. Obtaining this permit should not be a significant hurdle.

### 9.2.4 Crown Lands and Forests Act

Submerged land in the vicinity of the project development area with potential in stream work is considered provincial Crown Land. Should it be determined that a portion of the submerged area is required for the project, then a Licence of Occupation and Coastal Land Use permit will be required for construction activities, and a Crown Land Lease would be required for structures remaining on submerged Crown Land. The type of lease to apply for would likely be a Municipal Services Lease. Costs to complete the application will depend on whether information required in the application is already developed for other aspects of the project, such as a survey plan and project description. There is a \$150 (plus HST) application fee. Additional costs associated with the lease include an annual fee of \$40 per hectare, however there apparently is a \$250 minimum.

Legal assistance may also be required.

See <http://www.gnb.ca/0263/pdf/aplease-e.pdf>

and <http://www.gnb.ca/0263/pdf/coastalform-e.pdf>

for more information on the Crown Land Lease application process. reviews of Crown Land Lease applications typically take from 1 to 6 months.





# Federal Regulatory Requirements 9.3

## 9.3.1 *The Canadian Environmental Assessment Act and Potential Triggers*

The proposed development would be a “project” as defined under the Canadian Environmental Assessment Act (CEAA). However, an environmental assessment for a project is only required under CEAA if there is also a “trigger” under Section 5(1) of CEAA as a result of the project. The Section 5(1) triggers of CEAA are summarized as follows:

- ❖ The proponent of a project is a federal government department or agency of the Government of Canada (does not apply to the proposed project);
- ❖ The Government of Canada provides funding or other forms of financial assistance to enable a project to be carried out (may apply to the proposed project);
- ❖ A project is to be conducted on federal lands, or the sale, lease or transfer of federal lands is required to enable a project to be carried out (does not apply to the proposed project, as long as project infrastructure does not overlap with the SJPA water lot); or
- ❖ The Government of Canada must issue a specific license, permit, or authorization to enable a project to be carried out, as defined in the Law List Regulations under CEAA (likely to apply to the project).

Based on current knowledge, the only probable trigger for a CEAA assessment would be the requirement for a federal authorization(s) under the Law List Regulations. The likely Law List Regulations triggers for the project are as follows.

- ❖ Harmful alteration, disruption or destruction of fish habitat (HADD) from the construction of any pier/wharf structures in the St. John River, which requires an authorization(s) from the Department of Fisheries and Oceans (DFO) under Section 35(2) of the Fisheries Act.
- ❖ Requirement for authorization(s) from Transport Canada under Section 5(1)(a) of the Navigable Waters Protection Act (NWPA) for the construction of project components that have the potential to affect navigability of the St. John River. This would include modifications to the Reversing Falls Bridge.
- ❖ Possible requirement for a permit from Environment Canada for ocean dredging and disposal under Section 127(1) of the Canadian Environmental Protection Act (CEPA), if side-casting, dredging or disposal at sea is envisioned below the ordinary high water mark. It is assumed this would be an issue only for the marina.

As it appears that at least some of the Law List Regulations triggers will apply to the project, and therefore an environmental assessment under CEAA will be required. Responsible authorities (RAs) could include DFO, Transport Canada, any federal department or agency providing federal funding, and possibly Environment Canada. In addition, since the in stream components are within the regulatory limits of the Saint John Harbour, an area overseen by the SJPA, a federal authority (FA) under the Canada Marine Act, the Port Authority could also be an RA, or at the very least a FA possessing expert or specialist information.

The federal coordination regulation process determines if an environmental assessment is required, which federal agencies are RAs, and which federal agencies are FAs with specialist knowledge (e.g., Environment Canada in respect of migratory birds). The process is initiated by the proponent filing a project description with a potential RA or the CEAA. FAs are obliged under the Regulations Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements (“federal coordination regulations”) to determine if an environmental assessment is required, and if they are an RA or an FA with specialist information, when they receive a project description from the RA.

## 9.3.2 *Harmonized Assessment*

Although there is no formal harmonized agreement between the CEAA and the Province, in practice, where both the provincial and federal environmental assessment processes are triggered, both levels of government cooperate willingly to conduct the environmental assessment in a “harmonized” fashion to avoid duplication and ensure a one-window approach. It is typical for the Province, through NBENV, to act as the lead coordinating agency in these cases. The EIA Registration developed to initiate the provincial EIA

review process can serve as the project description to initiate federal coordination, and this approach is recommended. Developing the draft scope determination for the federal screening, and offering it to the RAs for adoption early in the federal coordination process is also recommended.



### 9.3.3 Federal Permits and Authorizations

#### Canadian Environmental Protection Act

Environment Canada must review and approve any activity involving the disposal of any materials below the ordinary high water mark under the Ocean Disposal Permit Regulation of the CEPA. After screening the project under CEAA, an Ocean Disposal Permit may be issued. Detailed plans would be required in order to obtain this permit.

#### Navigable Waters Protection Act

A NWPA application containing plans for project components such as any docks, wharves the marina, the zip lines, and potentially a walkway under the Reversing Falls Bridge will have to be reviewed by the Navigable Waters Protection Branch of Transport Canada to have the works authorized, either by being deemed not to interfere with navigation, or approved through the permitting process, which would trigger CEAA, and therefore the requirement for an environmental assessment. The plans need to be more than just conceptual for authorization to make a determination either way.

It is our understanding from past research that the Reversing Falls Bridge is in fact not an “approved work” under the NWPA, and consequently, any work considered a modification would require that the bridge be assessed, in consideration of the environmental effects of the original construction and operation of the bridge. The adjacent rail bridge was approved by an Order in Council, and therefore modifications do not require assessment of the original bridge.

#### Fisheries Act

A HADD Authorization under the Fisheries Act may be required, assuming the installation of potential docks and the marina would require in stream work. If an environmental assessment is required under CEAA because of another trigger, DFO will review the CEAA report and provide a determination whether an authorization is required. If there are no other triggers, then a request should be made to DFO to make this determination. Should a HADD authorization be required, part of the application involves fish habitat compensation for the loss of fish habitat, often at a ratio exceeding 1:1. Some level of design detail for project structures would be necessary (i.e., location and footprint), in order to make the initial request for a HADD determination by DFO.

CMA- Canada Marine Act- Certain permitting requirements will have to be followed.

## 9.4 Requirements in Support of EIA Registration

The need for archaeological reconnaissance work will be decided in consultation with the Culture and Sport Secretariat – Archaeological Services Unit branch of the New Brunswick Department of Wellness, Culture and Sport. If an archaeological investigation is required, it must occur prior to snow cover and heavy frost. This issue would be addressed as part of an EIA Registration.

Although the project is located in an urban setting, in areas requiring removal of native vegetation such as forest cover, there may be a requirement to conduct vegetation surveys prior to ground disturbance if enough is not known about these areas, and depending on the potential to harbour rare species. If required, this survey should be conducted prior to frost conditions, to at least estimate the rare species potential. Other terrestrial information

that may need to be collected as part of an EIA Registration or CEAA Screening is on breeding birds, which should normally be collected in June. However, given the urban nature and location of the development area, and the nature of the development, there would likely be sufficient local knowledge of the area to satisfy this requirement. Some bird information was noted during a site reconnaissance on July 8, 2008. The only species of note was a Peregrine Falcon (observed chasing a Double-crested Cormorant, near Middle Island). Peregrine Falcon, an endangered species under the Species at Risk Act and New Brunswick Endangered Species Act, has historically nested on the Harbour Bridge. The project is not expected to have an adverse environmental effect on Peregrine Falcon.

Land use issues would be addressed in part through public consultation. Traffic studies may be required if the project has

new vehicle access or a substantive increase in vehicle traffic is anticipated, resulting in a potential change in Level of Service. An example of the latter is the access for the potential marina, by Riverview Drive.

For marine components of the project, an investigation of marine habitat may be required, and can be confirmed during regulatory consultation.

Given the proximity of some of the project components to the St. John River, which contains steep, vertical cliffs in places, and the introduction of unfamiliar technology to the region (e.g., the funicular) a consideration of Health and Safety, both worker and the public, would likely be required as part of any EIA Registration/CEAA Screening.



### 9.4.1 Archaeological Potential

The St. John River has been used as a main transportation route by people living in the river drainage area since humans have been occupying the river valley, over 11,000 years ago. The Saint John River was also one of the first areas of New Brunswick to be the site of permanent occupation by European traders and settlers as early as the 16th and 17th centuries. As the area of Reversing Rapids is a dangerous location for vessel navigation and as there are no alternative routes up the river, the lands around the Reversing Rapids area have seen use and occupation for thousands of years. Thus all shoreline and approach areas for the lands in proximity to the Rapids have very high potential to contain archaeological resources from all time periods of New Brunswick past.

Although there have been a previous archaeological surveys along portions of the lands around Reversing Rapids, these surveys have not been comprehensive and many locations within this area have not been subject to a detailed archaeological survey. There are currently nine registered archaeological sites in the Rapids area some of which may be impacted by project related activities. The site locations are shown in Table 9.1.

These sites are from a wide range of time periods, including the Archaic Period, (5000 years Before Present BP), through to early historic period (1630), and to the recent past. While there is the potential for underwater archaeological resources within the river, it is not anticipated that project activities will affect the river itself.

In terms of project risk, regarding archaeological resources that could be encountered by project activities, any ground breaking activities anywhere on the lands around the Reversing Rapids, have an elevated potential to encounter such resources, some of which may be significant to the Province, local First Nations and the local community, and which could prevent construction activities in the immediate area of the “find”. At this time it is not known if there will be any regulatory triggers that would stipulate that an archaeological survey be undertaken. However given the public awareness of this project, the precedent set by the Harbour Passage project to protect such resources while working in the area of Fort Latour, and the potential to encounter archaeological resources during construction, it would be prudent to include the potential for such resources in project planning and develop appropriate mitigation measures for such encounters in advance of construction.

In order to reduce this risk, it would be recommended to meet with the provincial regulatory agency for archaeological resources, Archaeological Services Unit of the Department of Wellness, Culture, and Sport. Such a meeting could discuss the need for a pre-construction archaeological survey in areas to affected by construction activities, or having a licensed archaeologist on site during ground breaking activities, among other forms of protection measures.

There are no municipal regulations in the City of Saint John regarding archaeological resources that would be triggered by project activities, however if the project has either EIA or CEAA triggers then consideration of potential project effects to archaeological and heritage resources would be required.

Depending on the scope of the assessment, a Heritage Resource Impact Assessment (HRIA) could typically includes documentary and desktop research, predictive modeling for the presence of archaeological sites, and visual survey for the identification of potential archaeological or heritage resources would likely be required. This would typically involve the issuance of an archaeology license by the Minister of Wellness, Culture, and Sport to a professional archaeologist, which requires a report to be filed upon completion of the assessment.

The results of a field survey, if warranted, would be included and/or part of the planning of the project, in order to avoid where possible such resources, and mitigate against schedule delays or unanticipated project costs.

Table 9.1

<i>Archaeological Site (Borden Number)</i>	<i>UTM Coordinates</i>	<i>Latitude</i>	<i>Longitude</i>
BhDI-1	19 T 728795 5016903	45.26837815	-66.08341075
BhDI-2	19 T 729173 5017120	45.27020817	-66.07850189
BhDI-3	19 T 728508 5015781	45.25837988	-66.08758436
BhDI-4	19 T 728318 5016553	45.26538673	-66.08965209
BhDI-5	19 T 728365 5016735	45.26700368	-66.08896284
BhDI-6	19 T 727719 5016900	45.26870152	-66.09711860
BhDI-7	19 T 729548 5017332	45.27198513	-66.07363553
BhDI-9	19 T 729537 5016867	45.26780801	-66.07398011
BhDI-10	19 T 729366 5017295	45.27171565	-66.07597140



## 9.5 Strategic Approach for Phase I

Notwithstanding the intent to eventually construct all components of the master plan, as the timeline for construction of some of the components is unknown, and there appears to be little if any interdependency between Phase I (i.e., on City-owned land) and future phases, it should be possible and valid to present Phase I of the project only for regulatory consideration at this time. This has been the approach for the Harbour Passage. If this is the case, based on the components identified, the scope of the project is relatively small, and the requirements for all of the approvals and permits may be eliminated or reduced in scope. If there are no plans for structures below the ordinary high water mark, then conceivably, only a WAWA permit will be required, and at most, an EIA Registration.

The marina and associated building, and the Reversing Falls Bridge walkway are on NBDOT land, and the zip lines would involve private property. Therefore it is assumed these will not be part of any Phase I components of the master plan.

An updated report has been prepared under separate cover. This report reviews the Environmental Planning and Permitting against the final master plan and establishes budgets and timelines for future permit applications.



## 9.6 Geotechnical Investigation

An investigation for the proposed trail connection (from Fallsview Drive to the Cove area) was conducted to determine the stability of this slope. Fifteen boreholes were drilled to depths ranging from 4.9 to 12.8 metres. Soil samples were analyzed for moisture content, grain size, and soil plasticity. This area experienced a major landslide south of the proposed trail location in January 1949. Although “dormant” since 1949 with no additional slope instabilities, the slope can be affected by many factors that could potentially trigger more instability. Extreme caution must be exercised near the toe of this slope during construction to avoid triggering a failure. Visual monitoring of the slope should be conducted throughout the construction stages.

A report was generated under separate cover, to aid in implementation design.





An aerial sketch of a park area. In the top left, there is a building with a flat roof and several windows. Below it is a playground with various equipment. A river or stream flows through the center and right side of the image. The background shows a wooded area with trees.

# *Chapter 10*

## Servicing

The three development sites - Fallsvue Park, Reversing Rapids, and The Cove - have adequate service connections nearby.

Only minor extension of services will be required to meet the proposed infrastructure demand. Planned upgrades to the water service along Fallsvue Drive will have to be coordinated with improvements in this area. This chapter provides a summary of the existing servicing.



# 10.1 Municipal Services

## 10.1.1 Fallsview

Fallsview Park has existing washrooms in a new masonry building constructed in 2003 close to the lookout area. The washrooms are used by tourists visiting the park. City staff reports that the fire hydrant on the park access roadway, which connects to Fallsview Avenue, has a static water pressure of 80 psi. The washrooms are lower than the fire hydrant and will have water pressures slightly above 80 psi as will any new facilities at a similar elevation.

A wastewater pumping station is located immediately behind, (on the Fallsview Avenue side), of the washrooms. The station has capacity to provide sanitary service to new facilities for the park.

The parking area does not have storm sewers or catch basins. Rainfall runoff sheet flows across the parking lot and over the adjacent river bank. Storm water should be collected prior to reaching the pedestrian plaza and vendor market.

## 10.1.2 Cove Lookout - Riverside Drive

The proposed Marine Centre/Cove Lookout site is approximately 100m southwest of Riverview Drive. Municipal services consisting of catch basins, a 200mm diameter sanitary sewer and a 100mm diameter water main are located on Riverview Drive at the projection of Carleton Place, a distance of approximately 200m from the proposed washroom/canteen site.

Water service can be extended to the site from Riverview Drive providing an expected static pressure of approximately 75 psi. If sprinklers are to be installed in the building, extension of the water service with a 150mm diameter water main is estimated to provide a flow of 600 US gpm with a 20 psi residual and cost \$45,000 to construct including 200m of water main, main line gate valve, fittings, water service line and fittings and allowances for contingencies and engineering. If higher flow capacity is required for fire protection, water service could be extended from the 500mm diameter water main on Prince Street however the construction cost would be higher.

Gravity sanitary service should be achieved for the centre by extension of the Riverside Drive sewer to the site by a 150mm diameter service sewer. Estimated construction cost for the sanitary sewer is \$40,000 which includes 200m of sewer pipe, a sanitary manhole, restoration and allowances for contingencies and engineering.





# Electrical Services 10.2

With respect to the SJ Energy power supplies to both site:

- ❖ See Figures 10.1 and 10.2 for approximate location of power lines on adjacent streets.

Utility Services on west side of St. John River:

- ❖ 140 - 1-phase service (Riverview Dr.) on river side of Route 1 (see under pass)
- ❖ 141 - 1-phase service (Riverview Dr.)
- ❖ 142 - 1-phase service (Riverview Dr.)
- ❖ 143 - 1-phase service (Riverview Dr.) viewed from parking at Reversing Falls restaurants
- ❖ 144 - 3-phase services (Riverview Ave, W) to Reversing Falls restaurants
- ❖ 145 - 3-phase service (Riverview Ave. W)

Utility Services for Fallsview Park area:

- ❖ 146 - 1-phase service to existing public washrooms
- ❖ 141 - 1-phase service to existing commercial building and 3-phase service along Fallsview Ave behind the site.

These sites were not reviewed with Saint John Energy.

Both sites have Saint John Energy services relatively close.





Figure 10.1

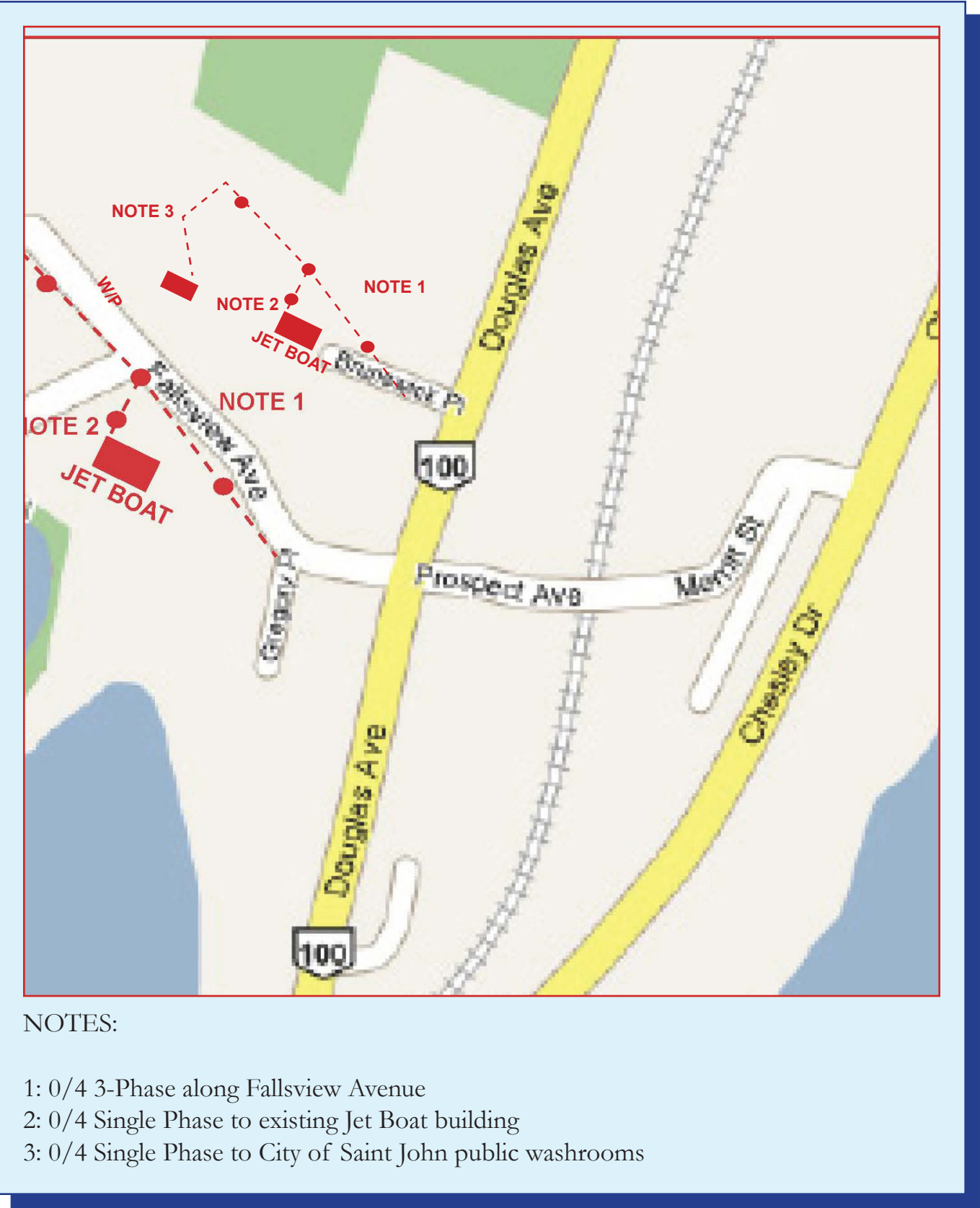
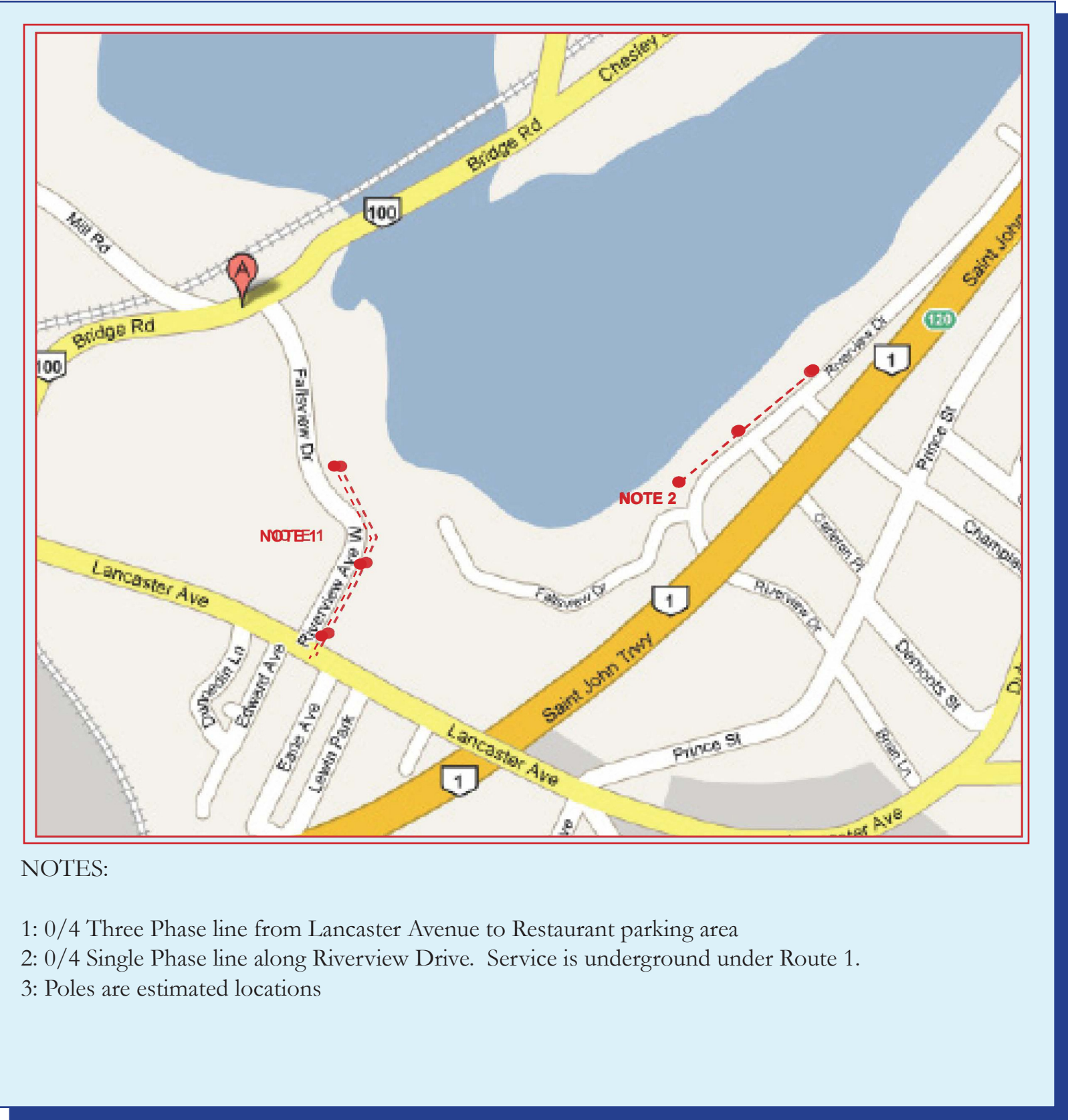


Figure 10.2









The background of the slide is a stylized, textured image of a bridge, likely the Bixby Creek Bridge. The image is rendered in a purple and blue color scheme with a heavy, cross-hatched texture. A semi-transparent purple rectangle is centered over the image, containing the word "Appendices" in a white, serif font.

# Appendices







The background image is a photograph of a large concrete dam with multiple spillways. In the foreground, a river flows, and a small boat with a person is visible on the left. The image has a soft, painterly texture. The text 'Appendix A' is written in a large, elegant, dark blue script font, positioned on the left side of the image.

# *Appendix A*

Cost Breakdown



# Fallsview Park

Item		Unit	Unit Cost	Quantity	Cost	Group Total
Auto Trail	Demolition	lump sum	\$5,000	1	\$ 5,000.00	\$ 767,150.00
	Clearing & Grubbing	m2	\$2	5,000	\$ 10,000.00	
	Misc. Site Grading	m2	\$8	9000	\$ 72,000.00	
	Granular Sub Base	m3	\$25	2750	\$ 68,750.00	
	Granular Base	m3	\$30	825	\$ 24,750.00	
	Fill	m3	\$20	2500	\$ 50,000.00	
	Excavation	m3	\$10	1000	\$ 10,000.00	
	Rock Excavation	m3	\$50	1000	\$ 50,000.00	
	Filter Fabric	m2	\$3.50	1500	\$ 5,250.00	
	Retaining Wall / Planter	m2	\$300	50	\$ 15,000.00	
	Catch Basin	each	\$2,000	4	\$ 8,000.00	
	Storm Manhole	each	\$3,000	2	\$ 6,000.00	
	Storm Sewer & Culverts	m	\$200	100	\$ 20,000.00	
	Asphalt Paving	m2	\$35	5500	\$ 192,500.00	
	Tire Stops	each	\$200	16	\$ 3,200.00	
	Lights	each	\$3,500	12	\$ 42,000.00	
	Misc. Electrical	lump sum	\$7,500	1	\$ 7,500.00	
	Interpretive Panels	each	\$5,000	3	\$ 15,000.00	
	Signage	lump sum	\$10,000	1	\$ 10,000.00	
	Benches with Backs	each	\$1,600	2	\$ 3,200.00	
	Trash Can	each	\$1,750	2	\$ 3,500.00	
	Topsoil	m3	\$20	750	\$ 15,000.00	
	Seeding	m2	\$2	5000	\$ 10,000.00	
	Misc./Surveying/Traffic/Bonds/Flagmen	lump sum	\$50,000	1	\$ 50,000.00	



Item		Unit	Unit Cost	Quantity	Cost	Group Total
Day Use Areas	Roadway Drop off & Curbing	lump sum	\$25,000	1	\$ 25,000.00	\$ 995,150.00
	Crusherdust Trails	m2	\$25	5000	\$ 125,000.00	
	Retaining Walls & Stairs	lump sum	\$20,000	1	\$ 20,000.00	
	Water Line & Sanitary Sewer	lump sum	\$20,000	1	\$ 20,000.00	
	Clearing & Grubbing	lump sum	\$15,000	1	\$ 15,000.00	
	Storm Pipe & Catch Basins	lump sum	\$20,000	1	\$ 20,000.00	
	Lighting	lump sum	\$20,000	1	\$ 20,000.00	
	Misc. Electrical	lump sum	\$7,500	1	\$ 7,500.00	
	Interpretive Panels	each	\$5,000	3	\$ 15,000.00	
	Playgrounds & Safety Surfacing	lump sum	\$175,000	1	\$ 175,000.00	
	Cooking Shelter	lump sum	\$40,000	1	\$ 40,000.00	
	Washroom	lump sum	\$75,000	1	\$ 75,000.00	
	Picnic Shelters	each	\$6,000	5	\$ 30,000.00	
	Picnic Tables	each	\$600	12	\$ 7,200.00	
	BBQ's	each	\$500	8	\$ 4,000.00	
	Deck	lump sum	\$10,000	1	\$ 10,000.00	
	Benches with Backs	each	\$1,600	12	\$ 19,200.00	
	Fence	lump sum	\$5,000	1	\$ 5,000.00	
	Trash Can	each	\$1,750	8	\$ 14,000.00	
	Signage	lump sum	\$3,000	1	\$ 3,000.00	
	Earth Work	lump sum	\$150,000	1	\$ 150,000.00	
	Topsoil	m3	\$17	1500	\$ 25,500.00	
	Planting Soil (for beds)	m3	\$25	100	\$ 2,500.00	
	Mulch	m3	\$15	150	\$ 2,250.00	
	Trees	lump sum	\$30,000	1	\$ 30,000.00	
	Shrubs	lump sum	\$25,000	1	\$ 25,000.00	
	Perennials	lump sum	\$15,000	1	\$ 15,000.00	
	Seeding	m2	\$2	10,000	\$ 20,000.00	
	Misc./Surveying/Traffic/Bonds/Flagmen	lump sum	\$75,000	1	\$ 75,000.00	
Floating Docks		lump sum	\$25,000	1	\$ 25,000.00	\$ 25,000.00
Access to Water		lump sum	\$20,000	1	\$ 20,000.00	\$ 20,000.00
Trees		each	\$350	300	\$ 105,000.00	\$ 105,000.00
Miscellaneous Landscaping and Trails		lump sum	\$200,000	1	\$ 200,000.00	\$ 200,000.00



	Item	Unit	Unit Cost	Quantity	Cost	Group Total
Multi-Purpose Field	Strip Drain	lin.m	\$15	1,000	\$ 15,000.00	\$1,034,250.00
	Drain Tile	lin.m	\$17	250	\$ 4,250.00	
	French Drain	lin.m	\$30	170	\$ 5,100.00	
	Site Remediation & Environmental Clean Up	lump sum	\$250,000	1	\$ 250,000.00	
	Excavation	m3	\$7	5,450	\$ 38,150.00	
	Rock Removal (assume .6m depth)	m3	\$30	1,600	\$ 48,000.00	
	Site Grading	m2	\$2.50	21,000	\$ 52,500.00	
	Type 1 Fill	m3	\$20	50	\$ 1,000.00	
	Type 2 Fill	m3	\$12	100	\$ 1,200.00	
	Type 3 Fill (Imported Borrow)	m3	\$15	1000	\$ 15,000.00	
	Type 4 Fill (drainage stone)	m3	\$35	250	\$ 8,750.00	
	Type 5 Fill (drainage layer)	m3	\$25	1,715	\$ 42,875.00	
	Manufactured Topsoil	m3	\$20	2,300	\$ 46,000.00	
	Existing Topsoil (reuse)	m3	\$16	1,950	\$ 31,200.00	
	Seeding	sq. m	\$1.50	21,000	\$ 31,500.00	
	300 mm dia. Storm Sewer Pipe	lin. m	\$175	150	\$ 26,250.00	
	Water Line	lin. m	\$200	100	\$ 20,000.00	
	Irrigation	per field	\$20,000	1	\$ 20,000.00	
	Irrigation Distribution	lump sum	\$10,000	1	\$ 10,000.00	
	Chain Link Fence (1.2 m ht)	lin. m	\$45	475	\$ 21,375.00	
	Chain Link Fence (1.8 m ht)	lin. m	\$65	40	\$ 2,600.00	
	Double Vehicle Gate	each	\$900	1	\$ 900.00	
	Person Gate	each	\$450	2	\$ 900.00	
	Bleachers	each	\$3,300	2	\$ 6,600.00	
	Scoreboards	each	\$15,000	1	\$ 15,000.00	
	Goals	per field	\$8,000	1	\$ 8,000.00	
	Geotextile Fabric	m2	\$3.50	1,500	\$ 5,250.00	
	Service Building	each	\$20,000	1	\$ 20,000.00	
	Lighting	lump sum	\$180,000	1	\$ 180,000.00	
	Electrical Service	lump sum	\$30,000	1	\$ 30,000.00	
	Catch Basins	each	\$2,500	4	\$ 10,000.00	
	Clearing & Grubbing	lump sum	\$4,000	1	\$ 4,000.00	
	Viewing Terrace	lump sum	\$15,000	1	\$ 15,000.00	
	Players Benches	each	\$1,500	4	\$ 6,000.00	
	Stairs	lump sum	\$60,000	1	\$ 60,000.00	
	Service Shed	lump sum	\$20,000	1	\$ 20,000.00	



<i>Item</i>		<i>Unit</i>	<i>Unit Cost</i>	<i>Quantity</i>	<i>Cost</i>	<i>Group Total</i>
<i>Parking Lot and Road Upgrades</i>	Clearing and Grubbing	m2	\$5	6000	\$ 30,000.00	\$ 983,000.00
	Demolition and Excavation	lump sum	\$60,000	1	\$ 60,000.00	
	Site Grading and Fill	m2	\$7.50	10000	\$ 75,000.00	
	Asphalt	tonne	\$130	3,000	\$ 390,000.00	
	Crosswalks	each	\$2,000	4	\$ 8,000.00	
	Aggregates	lump sum	\$120,000	1	\$ 120,000.00	
	Drainage Structures	lump sum	\$70,000	1	\$ 70,000.00	
	Roadway Realignment	lump sum	\$200,000	1	\$ 200,000.00	
	Line Painting and Signs	lump sum	\$30,000	1	\$ 30,000.00	
<i>Geological Sculpture and Playground</i>	Signature Period Rocks	lump sum	\$10,000	1	\$ 10,000.00	\$ 208,900.00
	Fog Machine and Related Services	lump sum	\$25,000	1	\$ 25,000.00	
	Grading	m2	\$5	2,500	\$ 12,500.00	
	Concrete Walk	l.m	\$120	120	\$ 14,400.00	
	Soft Surface	m2	\$11	2,000	\$ 22,000.00	
	Miscellaneous Landscaping	lump sum	\$25,000	1	\$ 25,000.00	
	Interpretive Signs	each	\$5,000	20	\$ 100,000.00	
<i>Gallery</i>	Stairs	lump sum	\$20,000	1	\$ 20,000.00	\$ 444,500.00
	Ramps	lump sum	\$20,000	1	\$ 20,000.00	
	Railings	lump sum	\$50,000	1	\$ 50,000.00	
	Plaza	lump sum	\$100,000	1	\$ 100,000.00	
	Washroom Upgrade	lump sum	\$50,000	1	\$ 50,000.00	
	Interpretive Signs	each	\$5,000	2	\$ 10,000.00	
	Interpretive Structure	lump sum	\$75,000	1	\$ 75,000.00	
	Sitework and Landscaping	lump sum	\$50,000	1	\$ 50,000.00	
	Flagpole	each	\$4,500	1	\$ 4,500.00	
	Furnishings	lump sum	\$25,000	1	\$ 25,000.00	
	Lookouts	lump sum	\$40,000	1	\$ 40,000.00	
	<i>Tide Tower</i>	lump sum	\$100,000	1	\$ 100,000.00	\$ 100,000.00



Item		Unit	Unit Cost	Quantity	Cost	Group Total
Sports Field Perimeter	Softsurface Areas	m2	\$11	15,000	\$ 165,000.00	\$ 830,000.00
	Excavation	m3	\$25	9,000	\$ 225,000.00	
	Topsoil and Seeding	lump sum	\$90,000	1	\$ 90,000.00	
	Aggregates	lump sum	\$250,000	1	\$ 250,000.00	
	Drainage	lump sum	\$100,000	1	\$ 100,000.00	
Vendor Market	Buildings	each	\$20,000	7	\$ 140,000.00	\$ 335,000.00
	Hard and Sofsurface Landscaping	lump sum	\$120,000	1	\$ 120,000.00	
	Services	lump sum	\$75,000	1	\$ 75,000.00	
Connection to Split Rock	Trail Connector (240m)	lump sum	\$110,000	1	\$ 110,000.00	\$ 230,000.00
	Buildings (private)	N/A	\$0	1	\$ 0.00	
	Behind Douglas Avenue	lump sum	\$120,000	1	\$ 120,000.00	
Adventure Zone Concessions	Services	lump sum	\$25,000	1	\$ 25,000.00	\$ 90,000.00
	Interpretive Structure	lump sum	\$20,000	1	\$ 20,000.00	
	Deck	lump sum	\$45,000	1	\$ 45,000.00	
Harbour Passage Trail - Bentley Street to Playground		lump sum	\$750,000	1	\$ 750,000.00	\$ 750,000.00
Harbour Passage Trail Heads		each	\$7,500	2	\$ 15,000.00	\$ 15,000.00
Amphitheatre/ Watershed Plaza		lump sum	\$2,500,000	1	\$ 2,500,000.00	\$ 2,500,000.00
Welcome/Entry Sign		each	\$33,200	1	\$ 33,200.00	\$ 33,200.00
Public Art		lump sum	\$75,000	1	\$ 75,000.00	\$ 75,000.00
Subtotal						\$ 9,741,150.00
10% Contingency						\$ 974,115.00
8% Contractor's Mark-Up						\$ 779,292.00
12% Consulting Fees and Expenses						\$ 1,168,938.00
Fallsvie						Total: \$12,663,495.00



# The Cove

<i>Item</i>	<i>Unit</i>	<i>Unit Cost</i>	<i>Quantity</i>	<i>Cost</i>	<i>Group Total</i>
<i>Harbour Passage</i>	Harbour Passage Trail	m2	800	\$ 400,000.00	\$ 493,500.00
	Retaining Wall	m2	100	\$ 30,000.00	
	Soil Stabilization	lump sum	1	\$ 4,000.00	
	Railing	lump sum	1	\$ 25,000.00	
	Fill	lump sum	1	\$ 4,500.00	
	Re-Vegetation	lump sum	1	\$ 15,000.00	
	Trail Heads	each	2	\$ 15,000.00	
<i>Interpretive Kiosk, Observation Deck and Playground</i>	Interpretive Kiosk	lump sum	1	\$ 40,000.00	\$ 606,400.00
	Interpretive Signs	each	2	\$ 10,000.00	
	Observation Deck	lump sum	1	\$ 150,000.00	
	Playground Safety Surface	lump sum	1	\$ 50,000.00	
	Playground Equipment	lump sum	1	\$ 100,000.00	
	Benches	each	12	\$ 30,000.00	
	Trash Cans	each	8	\$ 14,400.00	
	Bike Racks	each	4	\$ 8,000.00	
	Picnic Tables	each	8	\$ 4,000.00	
	Miscellaneous Site Work	lump sum	1	\$ 50,000.00	
	Washrooms	lump sum	1	\$ 75,000.00	
	Services	lump sum	1	\$ 75,000.00	
<i>Takeout</i>	Building	lump sum	1	\$ 150,000.00	\$ 305,000.00
	Concrete Walks	lump sum	1	\$ 100,000.00	
	Lighting	lump sum	1	\$ 25,000.00	
	Miscellaneous Sitework	lump sum	1	\$ 30,000.00	
<i>Tide Tower</i>		lump sum	1	\$ 100,000.00	\$ 100,000.00
<i>Public Art</i>		lump sum	1	\$ 75,000.00	\$ 75,000.00
<i>Erosion Control</i>		lump sum	1	\$ 50,000.00	\$ 50,000.00
<i>Trees</i>		each	60	\$ 21,000.00	\$ 21,000.00



Item		Unit	Unit Cost	Quantity	Cost	Group Total
Parking	Excavation	m3	\$25	2500	\$ 62,500.00	\$ 398,100.00
	Grading	m2	\$3	3000	\$ 9,000.00	
	Asphalt	tonne	\$130	1100	\$ 143,000.00	
	Sidewalk	m2	\$120	50	\$ 6,000.00	
	Aggregates	m3	\$33	2450	\$ 80,850.00	
	Drainage	lump sum	\$65,000	1	\$ 65,000.00	
	Line Painting	lump sum	\$1,000	1	\$ 1,000.00	
	Signage	lump sum	\$2,500	1	\$ 2,500.00	
	Curbs	l.m	\$75	350	\$ 26,250.00	
	Crosswalks	each	\$2,000	1	\$ 2,000.00	
The Willows Lookout	Clearing	lump sum	\$10,000	1	\$ 10,000.00	\$ 128,000.00
	Trails (Crusher dust)	m2	\$20	400	\$ 8,000.00	
	Lookouts	each	\$25,000	3	\$ 75,000.00	
	Interpretive Signs	each	\$5,000	3	\$ 15,000.00	
	Miscellaneous Sitework	lump sum	\$20,000	1	\$ 20,000.00	
Beach Access	Trail	m2	\$20	80	\$ 1,600.00	\$ 31,600.00
	Boardwalk	m2	\$250	40	\$ 10,000.00	
	Kiosk	lump sum	\$10,000	1	\$ 10,000.00	
	Interpretive Sign	each	\$5,000	1	\$ 5,000.00	
	Landscaping	lump sum	\$5,000	1	\$ 5,000.00	
Fishing Wharves	Floating Docks	lump sum	\$125,000	1	\$ 125,000.00	\$ 1,125,000.00
	Wharf Building & Site, Other (TBD)	lump sum	\$1,000,000	1	\$ 1,000,000.00	
Riverview Drive Streetscaping		lin.m	\$600	760	\$ 456,000.00	\$ 456,000.00
Miscellaneous Landscaping		lump sum	\$50,000	1	\$ 50,000.00	\$ 50,000.00
Welcome/Entrance Sign		each	\$33,200	1	\$ 33,200.00	\$ 33,200.00
Subtotal						\$ 3,872,800.00
10% Contingency						\$ 387,280.00
8% Contractor's Mark-Up						\$ 309,824.00
12% Consulting Fees and Expenses						\$ 464,736.00
The Cove Total:						\$5,034,640.00



# Reversing Rapids

Item		Unit	Unit Cost	Quantity	Cost	Group Total
Visitor Information & Interpretation Centre	Building	each	\$3,780,000	1	\$ 3,780,000.00	\$ 9,410,240.00
	Lobby	lump sum	\$500,000	1	\$ 500,000.00	
	Exhibits	m2	\$5,000	200	\$ 1,000,000.00	
	Pre-Show	lump sum	\$675,500	1	\$ 675,000.00	
	Main Show	lump sum	\$2,025,240	1	\$ 2,125,240.00	
	Elevator Lift	lump sum	\$830,000	1	\$ 830,000.00	
	Deep Foundations and Fill	lump sum	\$200,000	1	\$ 200,000.00	
	Connection to Expanded Restaurant	lump sum	\$75,000	1	\$ 75,000.00	
	Landscaping & Plaza	lump sum	\$75,000	1	\$ 75,000.00	
	Sculpture & Flags	lump sum	\$75,000	1	\$ 75,000.00	
	Services	lump sum	\$50,000	1	\$ 50,000.00	
	Miscellaneous Construction Costs	lump sum	\$25,000	1	\$ 25,000.00	
Bridge Viewing Plaza	Hard Surface Areas	lump sum	\$100,000	1	\$ 100,000.00	\$ 700,000.00
	Stairs and Ramps	lump sum	\$75,000	1	\$ 75,000.00	
	Interpretive Signs	each	\$5,000	2	\$ 10,000.00	
	Furnishings	lump sum	\$25,000	1	\$ 25,000.00	
	Railings	lump sum	\$40,000	1	\$ 40,000.00	
	Interpretive Structure and Exhibit	lump sum	\$200,000	1	\$ 200,000.00	
	Demolition of Existing Restaurant	lump sum	\$50,000	1	\$ 50,000.00	
	Lower Viewing Area Under Bridge	lump sum	\$100,000	1	\$ 100,000.00	
	Misc. Landscaping and Sitework	lump sum	\$100,000	1	\$ 100,000.00	
Harbour Passage Trail	Harbour Passage Trail	m2	\$200	850	\$ 170,000.00	\$ 267,000.00
	Fill	lump sum	\$4,500	1	\$ 4,500.00	
	New Sunken Fence and Landscaping	lump sum	\$60,000	1	\$ 60,000.00	
	Trail Head	each	\$7,500	1	\$ 7,500.00	
	Misc. Landscaping and Revegetation	lump sum	\$25,000	1	\$ 25,000.00	
	Tide Tower	lump sum	\$100,000	1	\$ 100,000.00	\$ 100,000.00
	Public Art	lump sum	\$100,000	1	\$ 100,000.00	\$ 100,000.00



Item		Unit	Unit Cost	Quantity	Cost	Group Total
Woolastoq Park Stairs	Stair Adjustment	l.m.	\$2,000	20	\$ 40,000.00	\$ 134,500.00
	Ramp	m2	\$200	280	\$ 56,000.00	
	Railings and Trellis Work	lump sum	\$25,000	1	\$ 25,000.00	
	Aggregates	m3	\$30	150	\$ 4,500.00	
	Common Fill	m3	\$20	200	\$ 4,000.00	
	Misc. Landscaping	lump sum	\$5,000	1	\$ 5,000.00	
Parking Lots and Road Upgrades	Asphalt	tonne	\$130	1,400	\$ 182,000.00	\$ 801,000.00
	Aggregates	m3	\$25	540	\$ 13,500.00	
	Clearing	m2	\$5	1,200	\$ 6,000.00	
	Common Fill	m3	\$20	1,100	\$ 22,000.00	
	Line Painting	lump sum	\$2,000	1	\$ 2,000.00	
	Drainage	lump sum	\$50,000	1	\$ 50,000.00	
	Repair Disturbed Areas	lump sum	\$25,000	1	\$ 25,000.00	
Reversing Falls Bridge	Lighting	lump sum	\$100,000	1	\$ 100,000.00	\$ 200,000.00
	Coloured Concrete	lump sum	\$100,000	1	\$ 100,000.00	
Marina	Wharf	lump sum	\$300,000	1	\$ 300,000.00	\$ 350,000.00
	Rip Rap	m3	\$50	1000	\$ 50,000.00	
Lighting The Rapids		lump sum	\$1,000,000	1	\$ 1,000,000.00	\$ 1,000,000.00
Catwalk Lookout Under Bridge		lump sum	\$100,000	1	\$ 100,000.00	\$ 100,000.00
Welcome/Entry Signs		each	\$33,200	2	\$ 66,400.00	\$ 64,400.00
Overall Site Grading		m2	\$3	30,000	\$ 90,000.00	\$ 90,000.00
Soft Surfaces		m2	\$12	30,000	\$ 360,000.00	\$ 360,000.00
Trees		each	\$350	120	\$ 42,000.00	\$ 42,000.00
Subtotal						\$ 13,719,140.00
10% Contingency						\$ 1,371,914.00
8% Contractor's Mark-Up						\$ 1,097,531.00
12% Consulting Fees and Expenses						\$ 1,646,297.00

Reversing Rapids Total: \$17,834,882.00



# Overall Site Costs

	Item	Unit	Unit Cost	Quantity	Cost	Group Total
Signage	Highway Billboards	each	\$30,000	3	\$ 90,000.00	\$ 385,750.00
	Attraction Signs (at Ferry and Airport)	each	\$20,000	2	\$ 40,000.00	
	DOT Highway Signs	each	\$10,000	13	\$ 130,000.00	
	Directional Street Signs	each	\$2,000	28	\$ 56,000.00	
	Location Welcome Signs (Included in Each Site)	N/A	\$0	0	\$ 0.00	
	Site Wayfinding and Directional Signs	each	\$2,325	30	\$ 69,750.00	
	Programming/Costumes	lump sum	\$75,000	1	\$ 75,000.00	\$ 75,000.00
	Artwork Banners	lump sum	\$150,000	1	\$ 150,000.00	\$ 150,000.00
	Shuttles	lump sum	\$70,000	1	\$ 70,000.00	\$ 70,000.00
	Subtotal					\$ 680,750.00
	10% Contingency					\$ 68,075.00
	8% Contractor's Mark-Up					\$ 54,460.00
	12% Consulting Fees and Expenses					\$ 81,690.00

Overall Site Costs: \$884,975.00







The background image is a photograph of a construction site, likely for a dam or large-scale infrastructure project. It features a massive concrete structure with multiple levels and a complex network of scaffolding and support beams. A large crane is visible on the left side, and the overall scene is filled with industrial elements and earthwork. The image has a slightly desaturated, blue-tinted appearance.

# *Appendix B*

## Cost Details



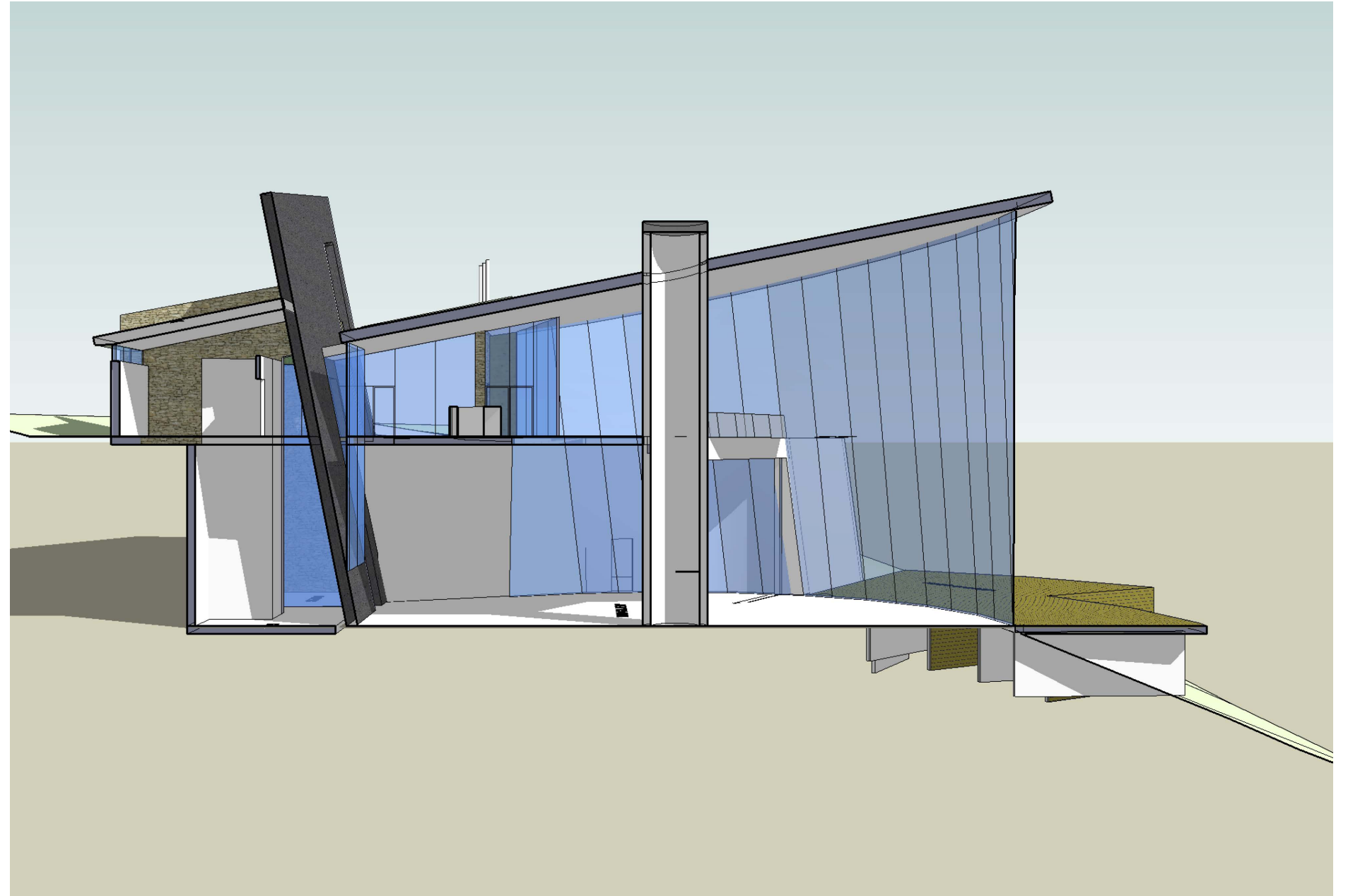
# Visitor Information Centre - Details

The estimated cost of the Visitor Information/Interpretation Centre has been based on construction including the following:

- ❖ All Division 2 work items (earthwork, site services, asphalt patching, concrete walks and curbs, fencing, landscaping, etc)
- ❖ Building constructed of poured-in-place structural concrete
- ❖ Structural steel framing to deal with wind loading on high curtain-wall systems
- ❖ Mechanically fastened 2-Ply Mod. Bit Roof System complete with minimum R-20 tapered insulation
- ❖ Lobby finishes and washroom vanities (architectural casework)
- ❖ Porcelain tile and carpet floor finishes at public/staff are rooms
- ❖ 3-stop hydraulic hole-less elevator
- ❖ Plumbing for fourteen fixtures, roof drains, and under slab plumbing
- ❖ Fire protection system
- ❖ Water source heat pump system
- ❖ Air conditioning system
- ❖ Electrical work for building lights, Pad-mount transformer, electrical distribution, and electrical feeds
- ❖ Final clean-up of work area

The estimate is based on an eight month construction schedule (not including winter condition costs).

Not including in the estimate are rock removal, contaminated soil removals, and relocation of existing underground services.





# Visitor Information Centre - Pre-Show Details

	<i>Item</i>	<i>Unit</i>	<i>Cost</i>	<i>Quantity</i>	<i>Total</i>
<i>Video Hardware</i>	Panasonic TH Series 50" Display 1080p	each	\$2,900	10	\$ 29,000.00
	Computer Playback Device	each	\$850	15	\$ 12,750.00
	Panasonic PT-D5700U Projectors	each	\$11,500	5	\$ 57,500.00
	Cables and Connectors Alotment	each	\$5,000	1	\$ 5,000.00
					<i>Total: \$ 104,250.00</i>
<i>Audio Hardware</i>	Bryston 14B SST	each	\$8,500	2	\$ 17,000.00
	Background Speakers	each	\$300	10	\$ 3,000.00
	Cables and Connectors Alotment	each	\$2,000	1	\$ 2,000.00
					<i>Total: \$ 22,000.00</i>
<i>Lighting Hardware</i>	Smart Mac Moving Luminaires	each	\$4,500	10	\$ 45,000.00
	Philips Color Blast 12 PowerCore LED Fixtures	each	\$950	25	\$ 23,750.00
	Cueserver playback units	each	\$1,750	2	\$ 3,500.00
	Cables and Connectors Alotment	each	\$2,000	1	\$ 2,000.00
					<i>Total: \$ 74,250.00</i>
<i>Software</i> <i>3 screens</i>	Stock Footage	lump sum	\$50,000	1	\$ 50,000.00
	Pre Production	lump sum	\$60,000	1	\$ 60,000.00
	Production	lump sum	\$150,000	1	\$ 150,000.00
	Post Production	lump sum	\$190,000	1	\$ 190,000.00
					<i>Total: \$ 450,000.00</i>
<i>Creston Control System</i>		lump sum	\$25,000	1	\$ 25,000.00



# Visitor Information Centre - Main Show Details

	<i>Item</i>	<i>Unit</i>	<i>Cost</i>	<i>Quantity</i>	<i>Total</i>
<i>Video Hardware</i>	Projector - Christie HD8K	each	\$92,000	3	\$ 276,000.00
	Screen - 25' x 39' rear projection	each	\$42,000	1	\$ 42,000.00
	HD Player - MediaSonic FrNB MS9500GL	each	\$4,000	3	\$ 12,000.00
	Image Processor - ImageStar HD ES5555	each	\$9,000	1	\$ 9,000.00
	Black Burst Generator	each	\$1,500	1	\$ 1,500.00
<i>Total: \$ 345,500.00</i>					
<i>Audio Hardware</i>	Meyer USW-1P Subwoofer	each	\$4,690	2	\$ 9,380.00
	Meyer UPA-1P Speaker	each	5,880	6	\$ 35,280.00
	Meyer UPM-1P Surround Speaker	each	\$2,520	4	\$ 10,080.00
	Meyer Matrix 3 Audio Processor	each	\$75,000	1	\$ 75,000.00
<i>Total: \$ 129,740.00</i>					
<i>Control System</i>	Crestron System	lump sum	\$25,000	1	\$ 25,000.00
	Digital FrEND MS9024	each	\$2,500	1	\$ 2,500.00
<i>Total: \$ 27,500.00</i>					
<i>Lighting</i>	Smart Mac Moving Luminaires	each	\$4,500	6	\$ 27,000.00
	Philips Color Blast 12 PowerCore LED Fixtures	each	\$950	40	\$ 38,000.00
	Source Four Theatrical Luminaires	each	\$650	35	\$ 22,750.00
	Cueserver playback units	each	\$1,750	1	\$ 1,750.00
	Dimmer Rack	each	\$25,000	1	\$ 25,000.00
<i>Total: \$ 244,240.00</i>					
<i>Software</i> (3 screens blended - one vertical screen)	CGI Visuals	lump sum	\$600,000	1	\$ 600,000.00
	Pre Production	lump sum	\$150,000	1	\$ 150,000.00
	Production	lump sum	\$400,000	1	\$ 400,000.00
	Post Production	lump sum	\$250,000	1	\$ 250,000.00
<i>Total: \$ 1,400,000.00</i>					
<i>Cables and Connectors</i>		lump sum	\$13,000	1	\$ 13,000.00
<i>Extra Lighting, Props</i>		lump sum	\$100,000	1	\$ 100,000.00



# Signage Details



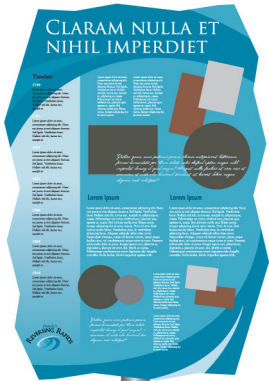
14' x 11' Double-Sided Sign		Cost
Option 1	All aluminium sign structure with internal fabricated structural support. 10" depth with single plan 1/8" sheet stock aluminium faces. Pain finish with paint/vinyl/digital graphics.	\$ 7,100.00
	Exterior flood lighting.	\$ 1,400.00
	Installation. Electrical feed by others.	\$ 1,600.00
	<i>Total Per Sign: \$ 10,100.00</i>	
Option 2	All aluminium sign structure with internal fabricated structural support. 16" depth with internal lighting. "WELCOME TO" lettering is illuminated translucent acrylic pushed through 1/8" sheet stock aluminum face. White inner section is custom shaped light cabinet with translucent polycarbonate face. All faces are on single plane. Paint finish with paint/vinyl/digital graphics.	\$ 14,500.00
	Installation. Electrical feed by others.	\$ 2,700.00
	<i>Total Per Sign: \$ 17,200.00</i>	
Option 3	All aluminium sign structure with internal fabricated structural support and frame. All 1/8" aluminium sheet stock cladding. Depth varies from 36" to 6". "WELCOME TO" lettering is illuminated translucent acrylic pushed through 1/8" sheet stock aluminum face. White inner section is opaque aluminum panel. LED lighting is concealed on inside edge of curved sculptural shapes and washes over inner face. Either bright white lighting or RGB colour cycling. All faces are on different planes and angles presenting as 3 sculptural sections and inner white face. Paint finish with paint/vinyl/digital graphics.	\$ 29,500.00
	Installation. Electrical feed by others.	\$ 3,700.00
	<i>Total Per Sign: \$ 33,200.00</i>	





72" x 40" Double-Sided Sign		Cost
Option 1	High quality custom sewn banner with digital printing.	\$ 625.00
	Aluminium mounting bracket top and bottom. Paint finish.	\$ 725.00
	Installation. Steel post prepared by others	\$ 350.00
	Total Per Sign: \$ 1,700.00	
Option 2	Fabricated aluminium frame (welded 1" square tube) with 0.9" sheet stock faces. Painted with digital and vinyl graphics.	\$ 1,250.00
	Aluminium mounting bracket top and bottom. Paint finish.	\$ 725.00
	Installation. Steel post prepared by others	\$ 350.00
	Total Per Sign: \$ 2,325.00	

36" x 24" Interpretive Panel A		Cost
3/4" thick phenolic resin high pressure laminate panel.		\$ 720.00
Aluminium mounting plate with welded standoffs. No paint.		\$ 350.00
Installation. Rock face prepared by others		\$ 350.00
Total Per Sign:		\$ 1,420.00



36" x 24" Interpretive Panel B		Cost
3/4" thick phenolic resin high pressure laminate panel.		\$ 720.00
Aluminium mounting plate and pole. Paint finish.		\$ 875.00
Installation. Concrete base prepared by others		\$ 275.00
Total Per Sign:		\$ 1,870.00



48" x 32" Interpretive Panel		Cost
3/4" thick phenolic resin high pressure laminate panel.		\$ 1,320.00
Aluminium mounting plate with welded standoffs. No paint.		\$ 575.00
Installation. Rock face prepared by others		\$ 425.00
Total Per Sign:		\$ 2,320.00



18" Pole-Mounted Sign		Cost
3/16" aluminium panel. Paint finish with digital graphics.		\$ 110.00
Mounting bracket.		\$ 45.00
Installation on existing post.		\$ 75.00
Total Per Sign:		\$ 230.00

*Note: Pricing for this sign is based on a minimum order of 10 units.*









An aerial photograph of a highway interchange. A large, multi-level concrete overpass structure dominates the left side of the frame, with several ramps leading up and down. The surrounding landscape is a mix of green trees and grassy areas. The overall image has a slightly grainy, high-contrast appearance.

# *Appendix C*

## Highway Signage



