Amenity Site Planning
with Metro Vancouver Regional Parks

August 2017

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Many thanks to the staff at the West Area office of Metro Vancouver Regional Parks for their guidance and kindness, especially Sylvia Pendl and Seann Greenwood for their mentorship.

All photographs in this report are the author's own, unless otherwise noted.

This project was made possible by the Sustainability Scholars Program at the University of British Columbia in collaboration with Metro Vancouver Regional Parks.

Contents

Introduction

Metro Vancouver Regional Parks

Metro Vancouver Regional Parks (MVRP) builds and operates the park system for the citizens of the Metro Vancouver Regional District. The district includes 22 municipalities, 1 electoral area, and 1 treaty First Nation across a geographically diverse area (see Systems Map on the following page). The diverse park system includes wilderness and natural area parks, as well as restricted access conservation areas and greenways. The regional parks are usually large, and each has a unique natural character. They provide passive recreation opportunities for residents, such as picnicking, horseback riding, hiking, trail running, and nature study. MVRP also provides nature interpretation programming within the parks. This makes regional parks unique from both municipal and provincial parks in the Lower Mainland. This year, MVRP is celebrating 50 years of service.

Mission

The organization's mission is to use park space to enhance the livability of the Metro Vancouver region by contributing to sustainable communities. Regional parks enhance quality of life of residents, contribute ecosystem services to the region, and promote responsibility for the land itself. Regional parks can also help buffer some of the effects of climate change.

Goals

The primary goals of MVRP are:

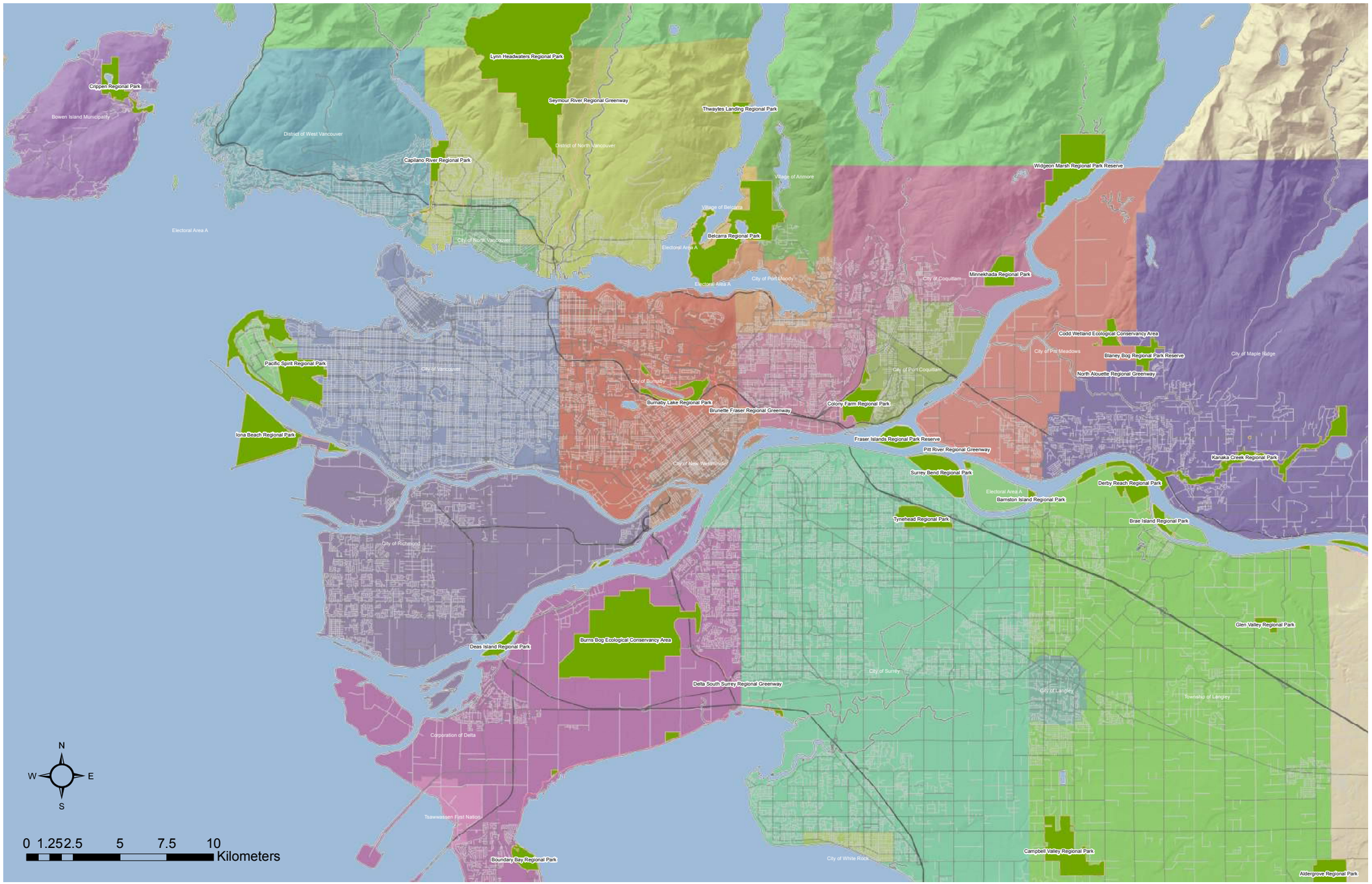
1. To protect valuable natural areas in the region
2. To provide opportunities for the regional population to experience and enjoy nature

The parks seek to protect important natural areas first, and provide recreation opportunities that respect the character of the natural areas.

Current Challenges

In recent years, regional park visitation has grown faster than the population of Metro Vancouver. As the region works to absorb a projected 1 million new residents by 2040, MVRP is tasked with meeting demand for passive recreation opportunities in its parks.[1] This must be balanced, however, with preserving the ecological health of the natural areas it protects.

Pacific Spirit Regional Park, from metrovancouver.org



System Map
Metro Vancouver
Regional Parks

West Area Amenity Site Planning

Goals

The goals of the project are as follows:

- to provide opportunities for the region's growing and diverse population to connect with, enjoy, be active within and learn about the natural environment
- to protect important natural areas in the region

These goals were outlined for Metro Vancouver Regional Parks by Metro Vancouver's 2015-2018 Board Strategic Plan, and have guided this project.

The regional parks included in the site planning project are Iona Beach Regional Park, Deas Island Regional Park, and Boundary Bay Regional Park. These parks have all experienced recent jumps in visitor counts, indicating an opportunity to purposefully revamp existing amenities that help people enjoy and connect with the natural environment, while also being sensitive to important ecosystems in each park. As well, the project seeks to ensure that these sites are fully accessible where possible to those with motor disabilities, so all people have an opportunity to enjoy nature equally.

Objectives

The objectives of the project differ slightly for each park, based on their programs, existing infrastructure, and unique needs.

At Iona Beach Regional Park, the site planning is focused on the redevelopment of its two picnic areas, one larger and one smaller in order to facilitate picnic programming. The project seeks to locate new accessible picnic tables and pads, as well as benches, at these sites and to enhance connectivity with trails.

At Deas Island Regional Park, the focus is on a popular picnic area near the entrance to the park. Again, the objective of the project is to locate accessible picnic tables and benches at this site to facilitate picnic programming. Accessibility will be enhanced using trails and site grading.

At Boundary Bay Regional Park, the focus is on the Commemorative Bench program. There is high demand for commemorative benches at this site, and some have previously been placed in inaccessible locations or in ways that do not contribute to the overall visitor experience. Here, the objective is to create a plan for future placement of these benches, and expand potential sites into the interior of the park to accommodate demand and increase user enjoyment of the park.

An existing amenity area at Iona Beach Regional Park

Site Context

Iona Beach Regional Park

Iona Beach Regional Park is located on Sea Island, Richmond, BC on the Salish Sea. The park abuts Iona Island Wastewater Treatment Plant, which treats residential wastewater from Vancouver, the UBC Endowment lands, and parts of Burnaby and Richmond. One of the primary features of the park is the 4km long trail along the Iona Jetty, which houses the pipes that expel treated wastewater into the Strait of Georgia.

While Iona Beach is physically nearby major population centres within Metro Vancouver, the indirect route necessary to reach the park conveys a feeling of being away. Iona Island was a true island, but is now linked to Sea Island by a single causeway. From the park, visitors have views across the Strait of Georgia to Vancouver Island, the Gulf Islands, the Olympic Peninsula, and the Sunshine Coast, as well as Point Grey, UBC, and Wreck Beach.

The idea for a park at Iona Beach dates back to 1959, when the importance of the recreational opportunities afforded by the beach were recognized to be of importance to the growing population of Richmond.[2] In 1982, the Fraser River Estuary Management Program designated the area as a joint recreation/conservation area.[3] The primary purpose of Iona Beach Regional Park, as outlined in its master planning document, is to maintain the beach for public use, as well as to protect and enhance the habitats on site.

The main part of the park is dwarfed by the tidal flats that span the Iona Jetty and the North Arm and are also part of Iona Beach Regional Park. The tidal flats are a significant habitat area for migrating shorebirds. Migrating birds also utilize the sewage treatment lagoons; the wastewater treatment plan operates 4 lagoons, and the park also contains a habitat pond constructed instead of a 5th sewage lagoon. Iona Beach is a very popular site for birdwatching. Other popular activities at the park include strolling, bicycling, and picnicking. As the park is located close to YVR, plane traffic is common over the park.

The North Arm of Iona Island is not officially within the boundaries of the regional park, and is used for fibre recovery by the Vancouver Fraser Port Authority.

View across the Salish Sea from the beach

Orthophoto of Iona Beach Regional Park

Deas Island Regional Park

Deas Island Regional Park is located in Delta, BC, in the southern arm of the Fraser River. The park surrounds the southern approach to the George Massey Tunnel that connects Delta and Richmond. Deas Island is connected to the mainland by a causeway on its eastern tip, which created Deas Slough along the southern length of the Island. The slough is a popular site with rowers and canoers, and the park hosts the headquarters of the Delta Deas Rowing Club.

Deas Island also contains several heritage structures that were relocated to the park for preservation; these include Inverholme Schoolhouse, Burrvilla, and the Delta Agricultural Hall. The island's own heritage dates to the 1870s, when it was the site of a successful cannery owned by J.S. Deas.[4] In the 1920s it was purchased by Frank Fisher, who farmed the land.[4] Both owners of the island constructed partial dykes to stabilize the land and reduce the risk of flooding. By the 1940s the cannery had been destroyed, and the island was used as a landing point for the Delta Ferry.[4]

As a result of its agricultural past and its riverside location, Deas Island has a pastoral quality and an accessible waterfront unique to the area. Popular activities include picnicking, strolling, paddling, and the occasional wedding or large group event. Inverholme Schoolhouse, located by family picnic areas near the entrance to the park, is maintained as a bookable space. Farther into the park is Fisher's Field and its group picnic shelter, and Muskrat Meadow next door has a group campsite.

While the park is programmed for recreation, its mandate also includes preserving its riparian habitat. These include meadows, floodplain forests, tidal marshes, beaches, and clay banks. Deas Slough and the marshes along it provide valuable habitat for juvenile salmon. The sensitive habitat areas have little or no trail access, and as such much of the southwestern portion of the island is not accessible to the public.

View across the Fraser River from Deas Island

Orthophoto of Deas Island Regional Park

Boundary Bay Regional Park

Boundary Bay Regional Park is also located in Delta, BC, along the western shore of Boundary Bay near the community of Tsawwassen. At the southern end of the park is Centennial Beach, which has been a popular recreation destination for locals since the mid-20th century; sandy beaches are relatively scarce south of the Fraser River. Boundary Bay Park itself developed out of initial plans in 1977 and 1986.[5]

While the southern half of the park's shoreline that is un-dyked, the northern half has been dyked to mitigate flooding to the infrastructure and communities inland. The dyke now serves as a popular multi-use trail through the park.

Boundary Bay Regional Park is a designated Important Bird Area, as it is located along the Pacific Flyway and hosts large numbers of migratory birds each year. The birds benefit from the mild climate, and abundant food sources from the intertidal areas and nearby fields. In 1994, it was designated as a Wildlife Management Area by the province.[5] The park was expanded significantly a year later to compensate for habitat lost during construction at YVR.[5] The interior of the park contains two wildlife reserves, which restrict public access to large portions of the park.

The purpose of Boundary Bay Regional Park is to protect the valuable habitat it contains, while also providing recreation opportunities and promoting environmental awareness. Popular activities at the park include birdwatching, beachcombing, dog walking on-leash, strolling, and cycling. The park contains savanna, sand dune, wetland, as well as extensive intertidal habitat, and the park's trails allow visitors to experience each of these with minimal disturbance.

12 th Ave. Dyke Trail

Orthophoto of Boundary Bay Regional Park

Literature Review

Two books on park planning were read to prepare for the site planning exercise: Planning Parks for People, and Anatomy of a Park. Both are important texts in the field, and the main ideas of each are briefly summarized here to provide insight into thinking in park planning.

***Planning Parks for People*. Hultsman, John, Richard L. Cottrell, and Wendy L. Hultsman. 2nd ed. State College, PA: Venture Publishing, Inc., 1998.**

This book was written for large parks with significant amenity facilities in mind, such as regional, state/provincial, or national parks with extensive campgrounds, trails, interpretive centres, or picnic facilities, among others. While the regional parks amenity areas under consideration in this project are not as extensive, the principles outlined in Planning Parks for People apply across scales. They advocate strongly for simple designs that fit the needs of all people involved in the park, and enhance the programs planned for the park.

People involved in the park include more than just the visitors; the administrators, programmers, maintenance staff, contractors, and planners should also be considered. In the authors' view, the design of the park supports programming and maintenance work in order to achieve the end goal of user enjoyment. Therefore, knowing the needs of these groups is of great importance. The capabilities and practices of the park's maintenance equipment and staff should align with the design proposal. Maintenance issues should be anticipated and built out of the design at the earliest stages. For example, design elements should not be placed so close together or at awkward angles so as to frustrate the staff member who is mowing the grass between them.

Of equal importance to maintenance considerations are the considerations of the program and programming staff. According to the authors, programming should dictate the design. If the program of an area is picnicking, the design should facilitate the most enjoyable picnicking experience possible. This involves taking into consideration the needs and wants of users and staff around picnicking. It also involves zoning uses of the park so complementary uses are sited next to each other, and incompatible uses are separated. Essentially, it should be easy and fun for people to do what they want to do, and easy for staff to support that program. It's also important to consider the secondary programs of a space. With picnicking, people are not only eating, they are also playing and watching other members of their group play. Thus, a playground or open play area should be present nearby and within view of the picnic area, so adults can supervise kids.

Planning for program is very near to planning for users, the people who participate in the program. Design in parks should be at the human scale, and always consider user wants and needs. Common wants and needs in parks are knowing how to get where they want to go, feeling like they're in their own space, and being able to sit in the shade. The use of design psychology, such as using planting to design enticing trail heads or designate separate 'room's within a space, can help meet these wants and needs. As well, the appropriate design elements should also be present, such as placing benches along trails to give users a place to rest.

This also includes those with special needs. The authors recommend designing so all sites are accessible to all users, instead of having 1 or 2 accessible tables or campsites within the park. Major trails and pathways should be accessible as well. This eliminates hassles for users with special needs, and for park supervisors as well. For example, if the only accessible table in a picnic area was damaged, it would not lead to a convenient or enjoyable experience for users with mobility impairments, and might leave park staff in a bind trying to find a solution. Similarly, shorelines and key vistas in the park should not be crowded with individual use amenities that would prevent everyone from enjoying them. The focus of the design should be the enjoyment, convenience, and safety of all types of users.

It is unlikely that all of these considerations will be achievable at one site, and so designers should be crafting careful compromises between technical and maintenance needs, and people and aesthetic needs. Every decision and design element should have a solid justification. As well, park planning requires compromise between encouraging people to use the recreational facilities in the park, and preserving the natural area they exist in. Areas that will receive high levels of use should be reinforced and clearly defined, so the impact to the environment is minimized. The authors advocate for recreation and wilderness management acting in concert in a park, instead of one being valued above the other. Making informed compromises produces a legible, unified design that works the best for the greatest number of people.

***Anatomy of a Park: Essentials of Recreation Area Planning and Design*. Molnar, Donald J. 4th ed. Long Grove, IL: Waveland Press, Inc., 2015.**

This book outlines the most important considerations when designing a park, and the tools to use and questions to answer to meet them. Importantly, the author outlines that park planning is a highly contextual process, and so the final land use plan and design for the park should draw from and respond to the unique characteristics of the site. While the considerations may be universal, the same design solutions will not apply to all parks.

The major considerations are as follows:

- ensuring each design move has a purpose
- ensuring people are foremost in the design
- balancing and satisfying functional and aesthetic needs

In order to create a logical and comprehensible park design, all design moves at every scale, from zoning uses to siting minor structures, have to be appropriately related to each other. Every design decision must be justified, so the final product works well for the site, and for the users. As for the users, the design should not only put their wants and needs first, but also those of the designers, planners, administrators, and park staff. Putting people first requires balancing the technical, operational, and administrative requirements that the people involved in planning and running the park need, and the need for users to have a unique, enjoyable park experience. As well, functional needs should also be balanced with aesthetic needs. To design an equal balance, all the needs should be considered simultaneously from the outset of the design process.

Good design aesthetics results in visually interesting, stimulating, and refreshing parks. The design needs a balance of order and variety, so users understand how to use and move through the space they're in, but are not bored by the park. In this endeavor, lines, forms, textures, and colours should be used thoughtfully by the designer. The ideas of dominance and enclosure should also be utilized appropriately. The design should impress users with a clear and unique effect, so as to be enjoyable, not jumbled and confusing. Again, the planned effect and its resulting experience should be suited to the pre-existing qualities of the site.

Technical requirements in park design include ensuring elements are the appropriate size for their use, that they are comfortable to use, present in the park in appropriate numbers, and work with operational and maintenance needs. For example, picnic tables should not be so small that only a few people can sit at them at a time. The design of the table should be such that it is comfortable to sit and eat at, as well as easy to get in and out of. They should be easy to maintain, and placed in enough numbers for the anticipated demand for picnicking. As well, all this should be done for the lowest possible cost.

Included in the technical considerations of park design is the requirement of ease of supervision. Ease of supervision covers both the ease with which park staff can supervise the park, and the ease with which users can supervise other users, most notably parents supervising children. This requirement introduces another balancing act for the designer to consider: allowing users to have freedom while also ensuring they are safe. The design should eliminate potential dangers where appropriate, and where they can't or shouldn't be eliminated, supervisory areas should be located nearby. Design decision should be made in order to discourage crime and vandalism. Open sight lines and sturdy structures help.

While not one of the major considerations, sustainability is an important element of park design. In tandem with creating a site specific design, the designer should not plan or plant anything that the climate and conditions of the site cannot sustain. Sustainability in design is also strongly tied to maintenance. Design elements that need constant, high input maintenance, such as plants that require a lot of water or trail materials that need replacing every few years, are detrimental to the sustainability of the park. Thoughtful decisions about context, cost, and maintenance will inherently include sustainability, but it is still wise to consider it separately.

Notwithstanding the major considerations, and that all design should be contextual, the author notes that parks users and administrators identify as great parks tend to have a few basic features. The features are open space, shady areas, opportunities for strolling, and fun places for people. Water, while not required, is a major bonus. Designing a little bit of each into a park will increase user's enjoyment. Taken in tandem with functional and aesthetic considerations, as well as purposeful, contextual design, the designer has the bones of a successful park.

Methods

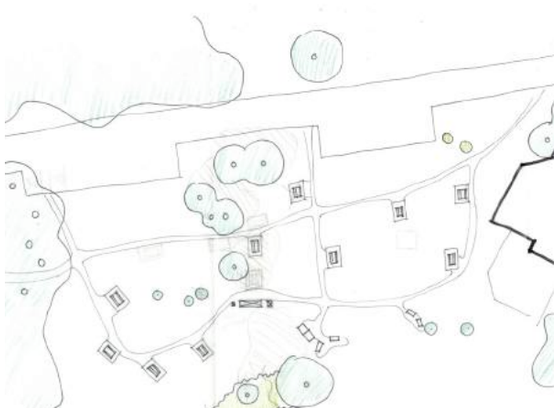
Information Gathering
Relevant information from each park's Master Plan was noted, in order to give historical and organizational context for the site planning process. Orthophotos of each park were analyzed, and used to generate base map outlines using AutoCAD. These maps served two purposes: to serve as a reference for ground-truthing information from the orthophotos, and to serve as bases for note-taking and drawing. Initial site visits to each park were made on May 5, 2017 which clarified scope and introduced the unique features of each park. Subsequent site visits were conducted on May 19, 21, and 22 to each of the three parks to gather detailed information and take photos. Later, visits were made on July 14 to Deas Island and Iona Beach to take photos, review design ideas in context, and sketch.

Inventory and Analysis
Notes and drawings from the site visits were transfered from the printed base maps back into AutoCAD. Spatial information, such as contour intervals and ecosystem inventory, were transfered from GIS into AutoCAD. These more detailed maps served as the bases for subsequent drawings for each park. From the information gathered, informal opportunity and constraints maps were made for each park. These maps identify areas with potential for new infrastructure, as well as the physical and operational constraints of each park.

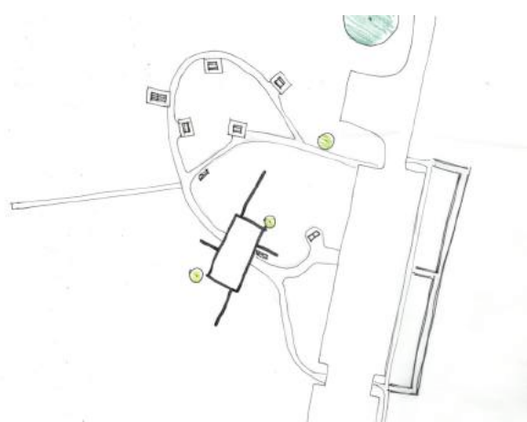
Initial Concepts and Plan Refinement
Design ideas were developed using trace paper overlays on the base maps. Many iterations of each design were generated, then analyzed to determine the best way forward. At regular intervals, designs would be transfered from trace back into AutoCAD. Regular reviews with staff at the West Area office of Metro Vancouver Regional Parks refined and improved the design concepts. At the end of the exercise, feedback was garnered from operations staff at each park, and final edits were made to the drawings.

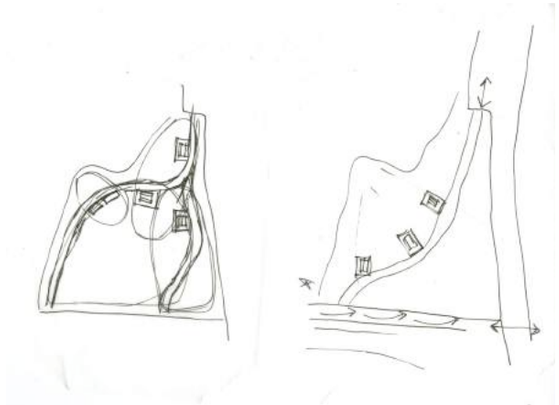
The following table provides a summary of the tools used in the site planning exercise:

Tool	Use
AutoCAD	Base map drawings; Design generation; Concept plan drawings; Site plan drawings
GIS	Viewing spatial data; Importing data into AutoCAD
Hand Drafting/ Sketching	Design generation; Opportunity and constraint drawings
Adobe Creative Suite	Refining select visual elements; Analysis drawings; Final report layout


Sketch concept for Deas Island


Sketch perspective of a Deas Island concept


Sketch concept for Iona Beach


Sketch ideas for Iona Beach

Site Analysis

Iona Beach Regional Park

Soil
The soil at Iona Beach is primarily sand west of the sewage treatment plant, the focus area of the project.

Vegetation
Several vegetation classification types exist at Iona Beach. These are described in the map and the table on this page. The significant trees that exist within the focus area are 1 horse chestnut, 1 garry oak, 1 large paper birch, and several small shore pines. The wetland and the sparsely vegetated (sand dune) vegetation units are the most sensitive.

Wildlife
The most significant wildlife at Iona Beach are the bird species, because of its location on the Pacific Flyway and the habitat provided by the park. Migratory shorebirds, primarily sandpipers, utilize the pond and the sewage lagoons as a feeding and resting area, as well as the tidal flats.[6] Sparrows and other passerines use the shrubs and grassland habitat in the interior of the park during their migration.[7] The shoreline hosts sanderling, black-bellied plovers, and gulls.[6] Offshore, diving birds can be spotted. As a result of all the rare and common birds that use the park, dogs are restricted in many areas and must be on leash.

[8]

Vegetation Classification	Description
Intertidal	Ecosystems at marine and terrestrial interface.
Sparsely Vegetated	Areas of low vascular vegetation cover, generally 5 – 10%.
Old Field	Lands formerly cultivated or grazed but later abandoned.
Mowed Grass	Maintained areas of low grasses.
Wetland	Terrestrial – freshwater transitional areas.
Riparian	Ecosystems associated with and influenced by freshwater.

Legend

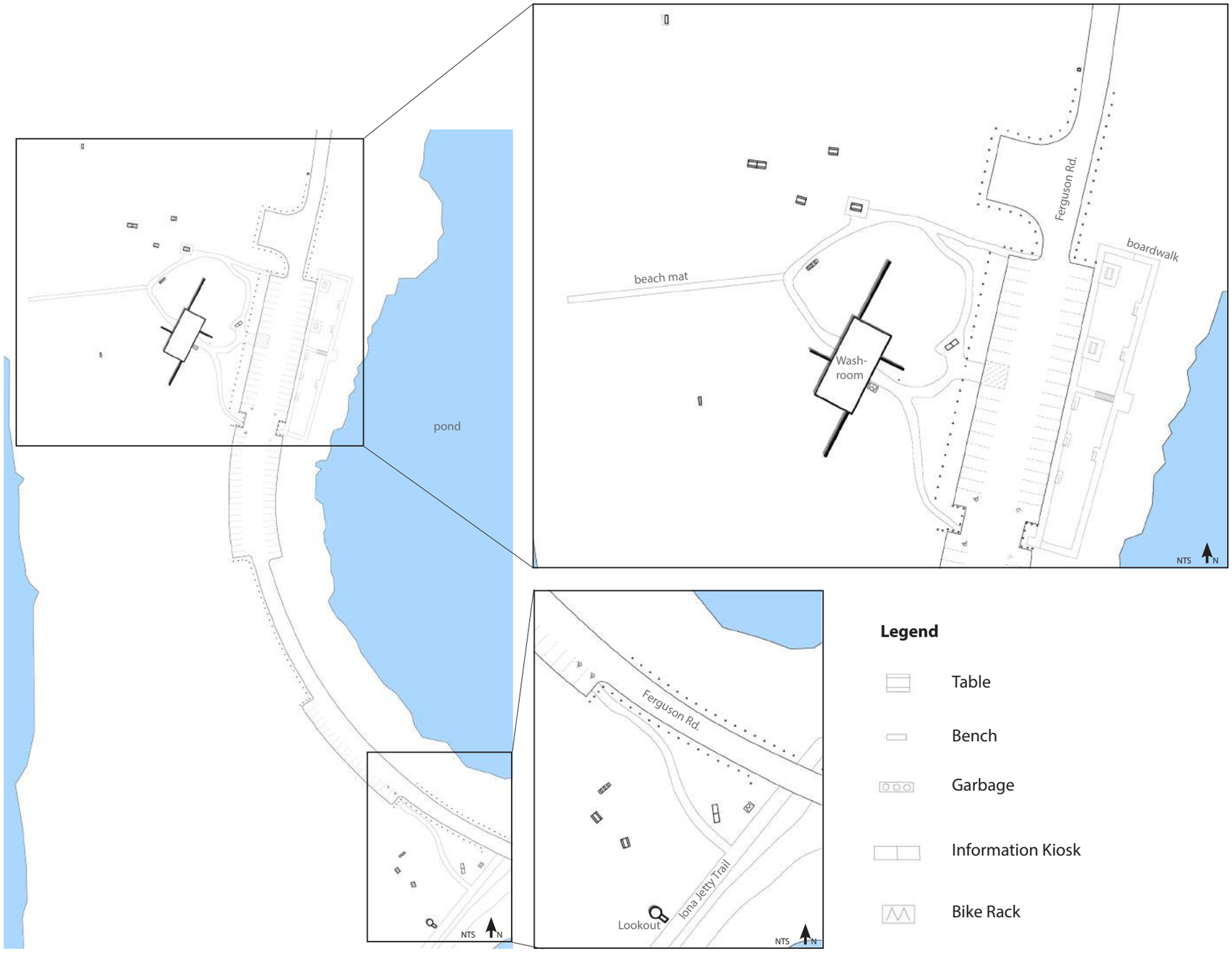
- Deciduous Tree
- Coniferous Tree
- Shrub
- Shrub Mass
- Dune Grass

Infrastructure and Park Assets

The focus area contains three significant structures: the washroom building, the boardwalk, and the lookout. The washroom building is located to the northern end of the focus area, by the main picnicking area. It has women's and men's washrooms on either side of an open corridor, as well as a water fountain and a spout for washing off. The boardwalk is located across the road from the washroom, and allows visitor to look out across the pond. It is currently being upgraded. The lookout is located at the southern end of the focus area, in the smaller picnic area. It is a simple structure with stairs up to a round platform.

Other assets in the focus area include picnic tables, of which there are 6 regular sized and 1 double length, and 2 benches. There are gravel trails and a synthetic beach access mat. The park has two informational kiosks, 1 at each picnic area, garbage receptacles, and bike racks. Near the entrance to the park, there are two works of public art atop wooden poles that depict the silhouettes of birds.

Ferguson Road runs through the study area and acts as its main axis. There are parking spaces adjacent to the road, and large portions are lined with short wooden bollards connected by a metal chain.

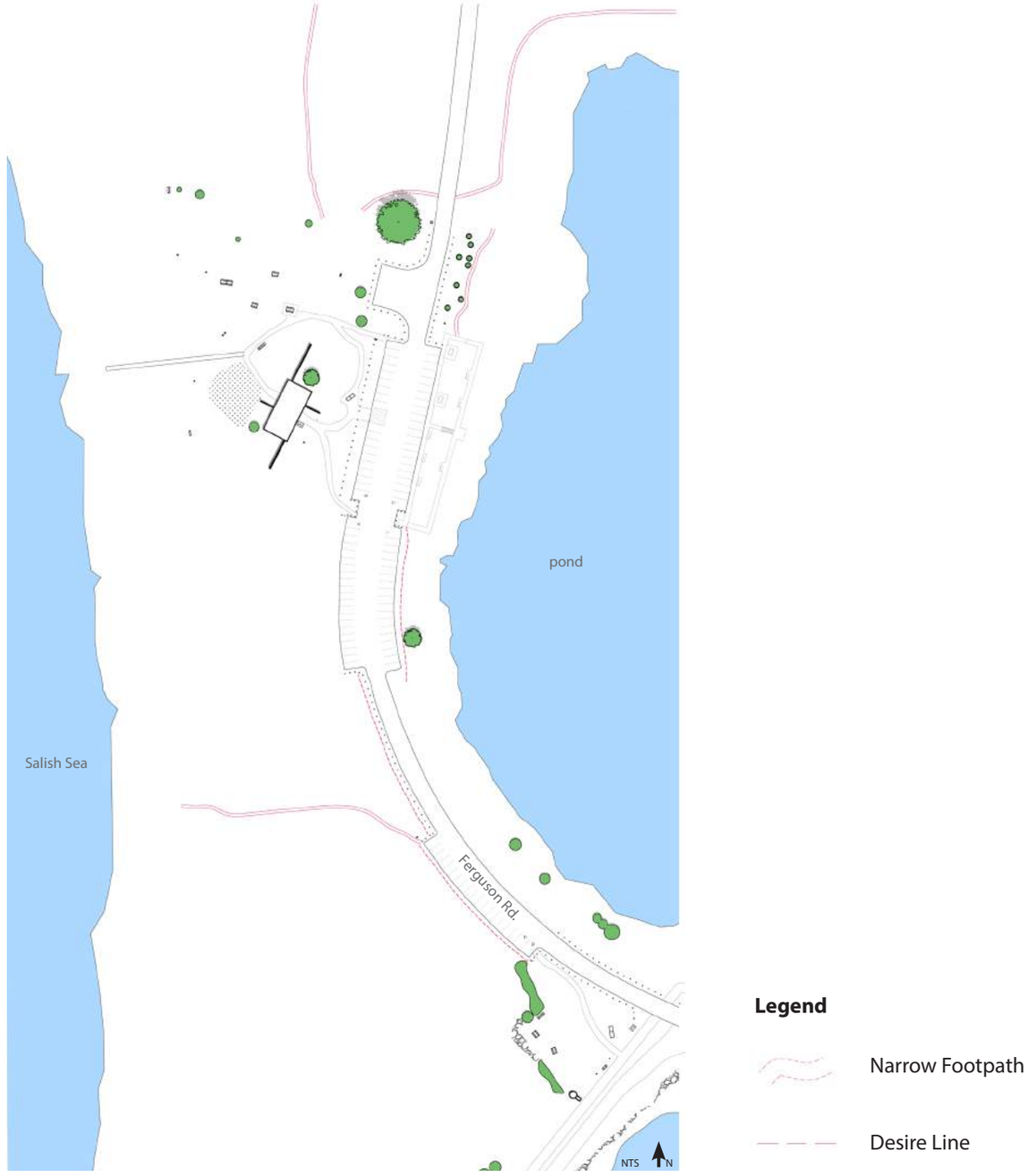


Human Use
The following observations are based on my visits to the park, as well as comments from parks staff. First, the larger, northern picnic area is the busier than the southern picnic area. Families, sometimes in large groups, choose to picnic here. The picnic tables in the smaller area are often used by couples or small groups simply to sit and look at the view. Of the two benches in the larger picnic area, the northern-most one is more popular than the southern one, which is somewhat difficult to walk to.

There are a few desire lines on the ground, indicating directions that visitors often travel. One, which may have previously been a path, runs from the northern end of the boardwalk through the shore pines. Another runs along the grass by the row of parking stalls to the south of the boardwalk. Similarly, there is a desire line in the grass by the southern-most row of parking stalls. The grass on the pond-side of the road between these two sets of parking stalls has been used as parking when all the stalls are full. Often, people walk on the road when traveling up and down the site.

Site Experience
The focus area of Iona Beach is very open, with few tall trees. As such, on sunny days, most of the site is in full sun. It is also often windy because of its location on the Salish Sea, and because there are no landforms or trees to break the wind.

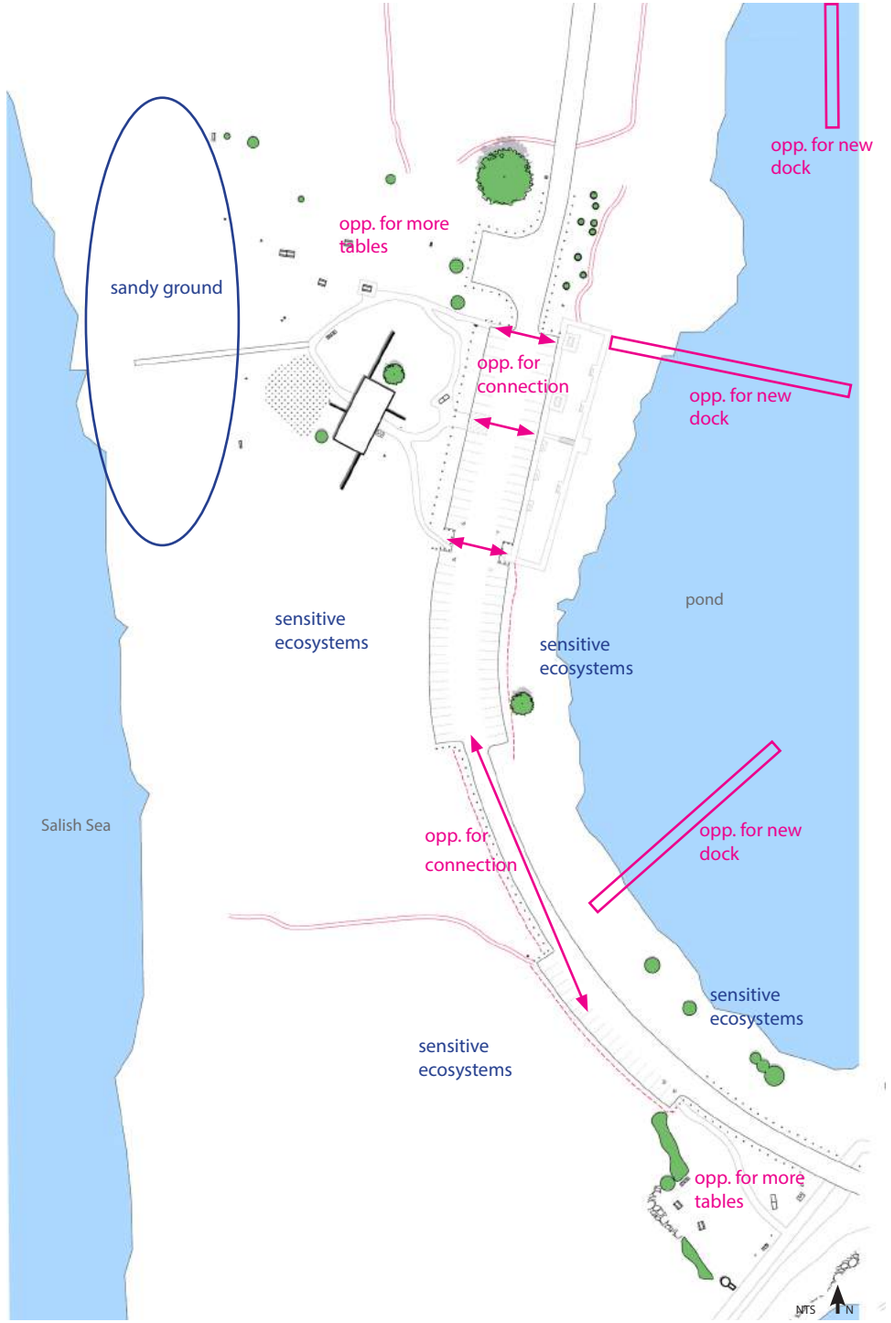
The views from the site, however, are spectacular. From most points, Point Grey, UBC, Wreck Beach, Musqueam Marsh, the North Shore mountains, Vancouver Island, and the Gulf Islands can be seen. Looking back towards Richmond, Mt. Baker can be seen in the background. The views from the northern picnic area are more expansive, whereas the southern picnic area offers a narrower window through a break in vegetation. The site also offers views of the frequent planes landing at YVR.



Opportunities and Constraints
There are many opportunities to facilitate connections between different areas of the park and enhance its overall circulation. These include potential trail connections between the northern picnic area and the new boardwalk, as well as along Ferguson Road.

A floating dock would provide more interactive nature programming, as well as opportunities for interpretive programs. There are a few possible locations along the pond for such a dock.

The major constraints at Iona Beach are the sensitive sand dune and wetland ecosystems that exist on either side of Ferguson Road. The soil in the northern picnic area becomes very sandy closer to the shoreline, which constrains the expansion of the picnic area.



Deas Island Regional Park

Soil
The soil at Deas Island is sandy, as it originated as a sand bar in the Fraser River.

Vegetation
The vegetation in the focus area consists mostly of cottonwood trees and mowed grass. There are also 2 river birches, and 4 cedar trees that were planted. The southwest corner of the focus area is a floodplain forest, and also contains a wetland area. The Fraser River shoreline in this area is reinforced with rip rap. Overall, the effect of the vegetation is quite pastoral.

Wildlife
The floodplain forests of Deas Island provide habitat for mourning doves, bald eagles, woodpeckers, hawks, and various song birds.[9] As well, they are used by mammals such as rabbits and deer.[9] The lawn and the picnic area itself have low habitat value, and aren't actively used by wildlife.

Elsewhere on Deas Island, the marshes, meadows, and shoreline provide habitat for a variety of birds and small mammals.

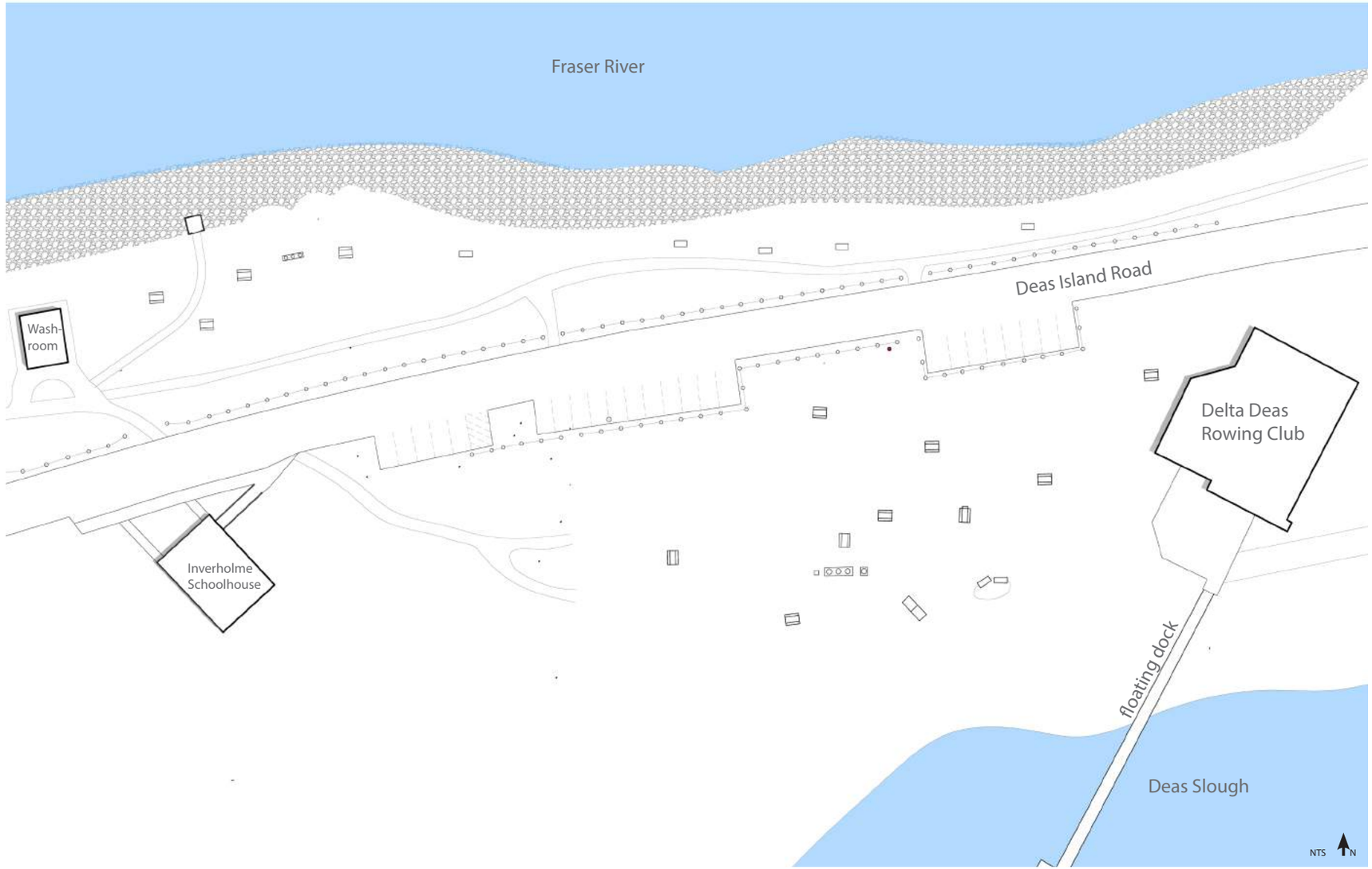
Legend

Deciduous Tree
Coniferous Tree
Shrub
Wetland
Mowed Grass
Sand

	Species
Co	Cottonwood
RB	River Birch
C	Cedar

Infrastructure and Park Assets
The focus area contains 3 significant structures: the Delta Deas Rowing Club headquarters building, the Inverholme Schoolhouse, and a washroom building. The Delta Deas Rowing Club occupies the cottage on the eastern edge of the study area, with a brick patio out front. The building is closely associated with the floating dock that extends into Deas Slough. The Inverholme Schoolhouse is a heritage building that is nestled in the woods along Deas Island Road. The Schoolhouse is a bookable events space, often used for weddings and parties. Across from Inverholme Schoolhouse is a heated washroom building.

The focus area contains 13 picnic tables, 4 to north of the road and 9 to the south. It also has 6 benches: 2 by Deas Slough, and 4 along the Fraser River shoreline. It has several gravel trails, although none that traverse the southern picnic area. There is a line of parking stalls off Deas Island Rd, which face the southern picnic area. Again, wooden bollards connect by a metal chain line significant portions of the road. There is an information kiosk by the Deas Slough waterfront.



Legend

Table

Bench

Garbage

Information Kiosk

Human Use
The following observations are based on my visits to the park, as well as comments by park staff. First, the picnic areas in the focus area are frequently used. The tables in the shade of the cottonwood trees and those that look out to the water seem to be the most popular. Often, larger family groups will utilize several tables for a picnic gathering.

There are two observable desire lines that cross the southern picnic area. Both run from the brick courtyard in front of the rowing club across the site to connect with the path through the forest. One travels past the garbage receptacles to connect to the southern arm of the trail, and the other runs through the group of trees to connect to the northern arm of the trail. There is also a faint desire line connecting to the road where there the chain has been removed in a gap between bollards.

Often, programs requiring large amounts of space are held at this picnic area, including rowing regattas and Metro Vancouver Regional Parks nature interpretation programs.

Site Experience
Deas Island feels calm and secluded. It is not particularly windy, and the cottonwood trees provide shade. The northern picnic area is mostly in the shade. During midday, the majority of the southern picnic area is in full sun. Later in the afternoon, however, as the shadows from the trees become longer, the western half of this area is shady, while the eastern half by the rowing club is still sunny.

Since the southern picnic area is slightly sloped, it allows different views depending on where one is standing. Uphill, by the road, one can see the Fraser River and across to the North Shore mountains, as well as Deas Slough. Traveling downslope towards the Slough, the view of the Fraser disappears. In the southwestern corner of this picnic area, most views are blocked by trees. The northern picnic area provides the best views across the Fraser.

Legend

Desire Line

Opportunities and Constraints
There are opportunities to create clear connections between the 2 picnic areas to enhance circulation through the site. The existing desire lines could be turned into formal trails. More benches and picnic tables could be placed to take advantage of the views.

The major constraint on site is the hazard presented by the Cottonwoods; because of their weak wood, the branches can break and fall easily. Ideally, new amenities should not be built directly underneath the canopies.

Boundary Bay Regional Park

Soil
The soil at Boundary Bay is alternately silt or loamy sand. Loamy sand is composed mostly of sand, with some silt particles. Silt is finer grained than sand, but not as fine as clay.

Vegetation
Several vegetation classification types exist at Boundary Bay. These are described in the map and the table on this page. Along the dyke there are a few small river birches and a pacific crab apple. Along Raptor Trail there are several instances of horsehair, hard hack, and blackberry.

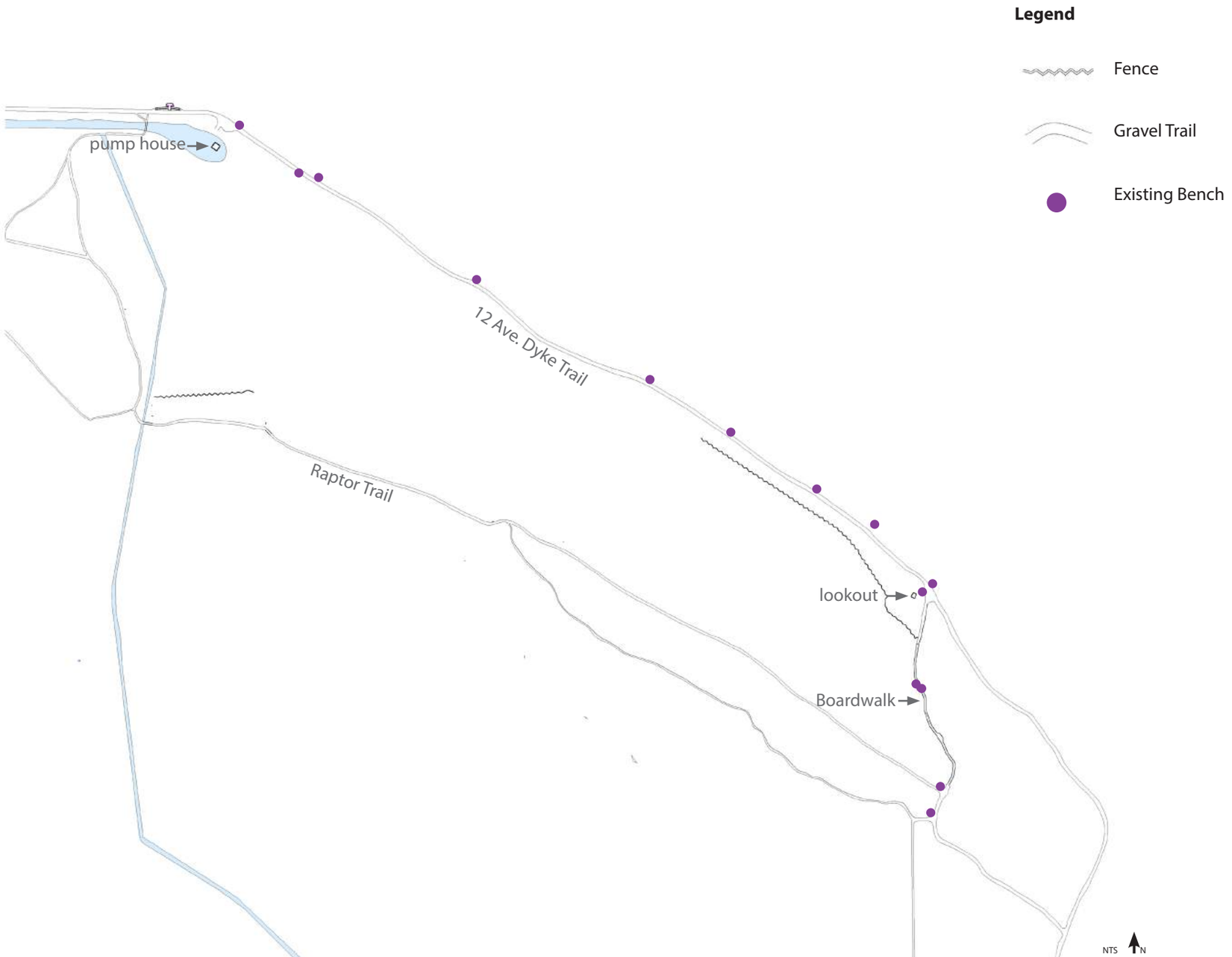
Wildlife
Boundary Bay provides habitat for a wide variety of bird and small mammal species. Over 1.5 million birds use the park annually during their migration because of its location on the Pacific Flyway, variety of ecosystems, and the abundant feeding opportunities.[10] Bald eagles, Great Blue Herons, gulls, sandpipers, waterfowl, and songbirds can be commonly seen in the park.[11] Coyotes, cottontail rabbits, muskrat also use the park, and harbour seals can often be seen in Boundary Bay.[11] Most of the interior of park is made up of inaccessible wildlife reserves so its valuable habitat can remain undisturbed.

[8]

Vegetation Classification	Description
Intertidal	Ecosystems at marine and terrestrial interface.
Sparsely Vegetated	Areas of low vascular vegetation cover, generally 5 – 10%.
Herbaceous	Non-forested ecosystems; usually shallow soils.
Old Field	Lands formerly cultivated or grazed but later abandoned.
Estuarine	Ecosystems at marine, freshwater & terrestrial interface.
Wetland	Terrestrial - freshwater transitional areas.

Infrastructure and Park Assets
The focus area of Boundary Bay Regional Park contains 2 significant structures: the pump house, and a lookout. The pump house is located in the northeastern corner of the park on 12th Ave. Dyke Trail, and is responsible for pumping excess water under the dyke into Boundary Bay. The lookout is also on 12th Ave. Dyke Trail, farther south where dyke ends and there is a fork in the trail. The lookout structure is wooden, and consists of stairs leading to a square platform.

The 12th Ave. Dyke Trail itself is a wide, multi-use gravel trail. There are several commemorative benches located along the trail; most are located on the front side of the dyke, facing the bay. There are also a few seasonal garbage cans along this trail. The focus area also contains a boardwalk structure that crosses a wetland. Raptor Trail, a gravel trail in the interior of the park, does not currently have any benches. It does have two small wooden bridges, and a seasonal garbage can. In several places, there are lengths of low wooden fences that prevent visitors from entering the wildlife reserves.



Human Use
The following observations are based on my visits to the park, as well as comments by park staff. First, 12th Ave. Dyke Trail is very popular with cyclists, dog walkers, and people simply out for a stroll. Raptor Trail, in contrast, is less frequently used. There are many branching and braided desire lines in the grassy areas alongside the official gravel trail. Presumably, these are created by birdwatchers looking for a better vantage point, although here leaving the trail is discouraged as it disturbs sensitive vegetation and wildlife.

Site Experience
Boundary Bay is often very windy because of its location on the water. Raptor Trail is less windy than the 12th Ave. Dyke Trail, because it is sheltered by vegetation. The two trails are both very sunny, as there are few tall trees along them to provide shade.

The views from 12th Ave. Dyke Trail are very expansive. One can look out across the Bay to Surrey and White Rock on the other side. Mt Baker can be seen in the distance, as well as other mountains in the Cascade Range in Washington. There are a few spots along Raptor Trail where the 12th Ave. Dyke Trail and the water can be seen through breaks in the vegetation.

Opportunities and Constraints
Since the dyke is sloped steeply on either side, there are limited places where it is wide enough to accommodate a bench next to the 12th Ave. Trail. These opportunity areas are highlighted in pink on the drawing.

Raptor Trail is quite flat and there are few constraints to bench placement. The braiding indicates potential areas of interest to users, which may also be of interest for bench placement.

Planning and Design

Framework

The framework used to guide the design and planning decisions for each park are outlined here. The framework was informed by Metro Vancouver Regional Parks standards and practices, as well as the site planning texts outlined in the Literature Review (pg. 7-8).

Goals

The following are the overarching goals of the site planning projects:

- to create a more pleasurable visitor experience
- to accommodate increasing numbers of visitors
- to make amenity areas accessible to all users where possible
- to preserve valuable and sensitive habitats

Objectives

The following are the specific planning and design objectives for each park, based on each park's unique infrastructure and needs:

- *Deas Island*: create a site plan for a popular picnic area
- *Iona Beach:* create a site plan both its two picnic areas
- *Boundary Bay*: identify future sites for commemorative benches

The general objectives for each site plan are:

- maintain or increase the number of exisitng picnic tables and benches
- utilize current park standards for accessible picnic tables and benches
- enhance site circulation with trails and crossings where necessary
- provide shady places to sit where possible

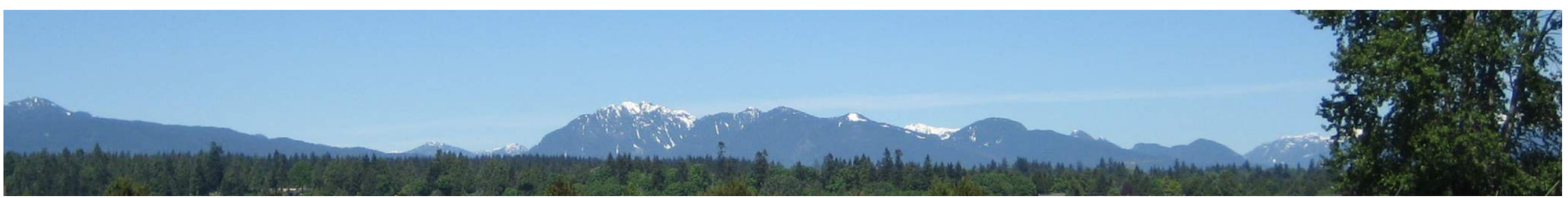
Principles

The following principles guided the site planning at each park:

- *Contextual design*: the site plans should be guided by the unique character of each site, and relate logically to existing site elements
- *Simplicity*: simple, elegant solutions are best for reasons of constructibility, affordability, and design legibility
- *Habitat preservation*: the proposed changes for each park should disturb as little vegetation as possible, and seek to leave valuable habitats untouched
- *Accessibility*: all elements of the design should be accessible to all users where possible, while maintaining a feeling of being in nature

The following programs informed the planning and design decisions at each site:

- *Deas Island*: picnicking; sitting; strolling; reading; nature interpretive programs; rowing regattas; other large group events
- *Iona Beach*: picnicking; sitting; strolling; birdwatching; nature interpretive programs; dog walking on-leash
- *Boundary Bay*: sitting; strolling; dog walking on-leash; cycling; birdwatching



Iona Beach Regional Park

Explanation

More picnic tables and new trails were added to each picnic area. The picnic tables are all placed on large concrete pads and directly connected to a gravel trail for accessibility. The geometric layout of the northern picnic area was developed in relation to the strong lines of the washroom building, and guides users towards the beach. The narrow path to the North Arm was connected to this loop to improve overall circulation. As well, clear connections were made between to the new boardwalk. One shrub would need to be removed in this scheme, but another would be planted in compensation.

A trail running along the eastern side of Ferguson Road is proposed, giving users an option other than walking on the road. It was planned for this side of the road as its placement does not disturb any sensitive ecosystems. As well, 3 locations along the pond shoreline were proposed for the dock; the approximate length of the dock at each location is shown.

The new trail in the southern picnic area creates a more logical connection to the Iona Jetty trails. The placement of the tables takes advantage of the view through the vegetation.

Deas Island Regional Park

Explanation

A linear trail is proposed to improve the accessibility of the main picnic area and reinforce existing circulation patterns. Placing the picnic tables along the trail allows them to be accessible to all users and opens up large areas for event programming. Siting the tables nearer the top of the slope also affords picnickers the best views. A narrow footpath is proposed to lead users to the park kiosk and an expanded seating area by the water. One tree, already in very poor condition, would need to be removed. As well, the plan proposes thinning out or removing some of the trees by the water, in order to allow picnickers better views of the slough.

Improved crossings with painted crosswalks would enhance walkability between the picnic areas and between the buildings on site. While the table placement in the northern picnic area remains the same due to the constraints posed by the cottonwoods, the tables would be upgraded to the accessible standard. A new gravel trail is proposed that connects the 4 picnic tables and a bench, before angling down to feed into a crosswalk.

Legend

Table
Garbage
Narrow Footpath
Remove Vegetation
Bench
Information Kiosk
Gravel Trail

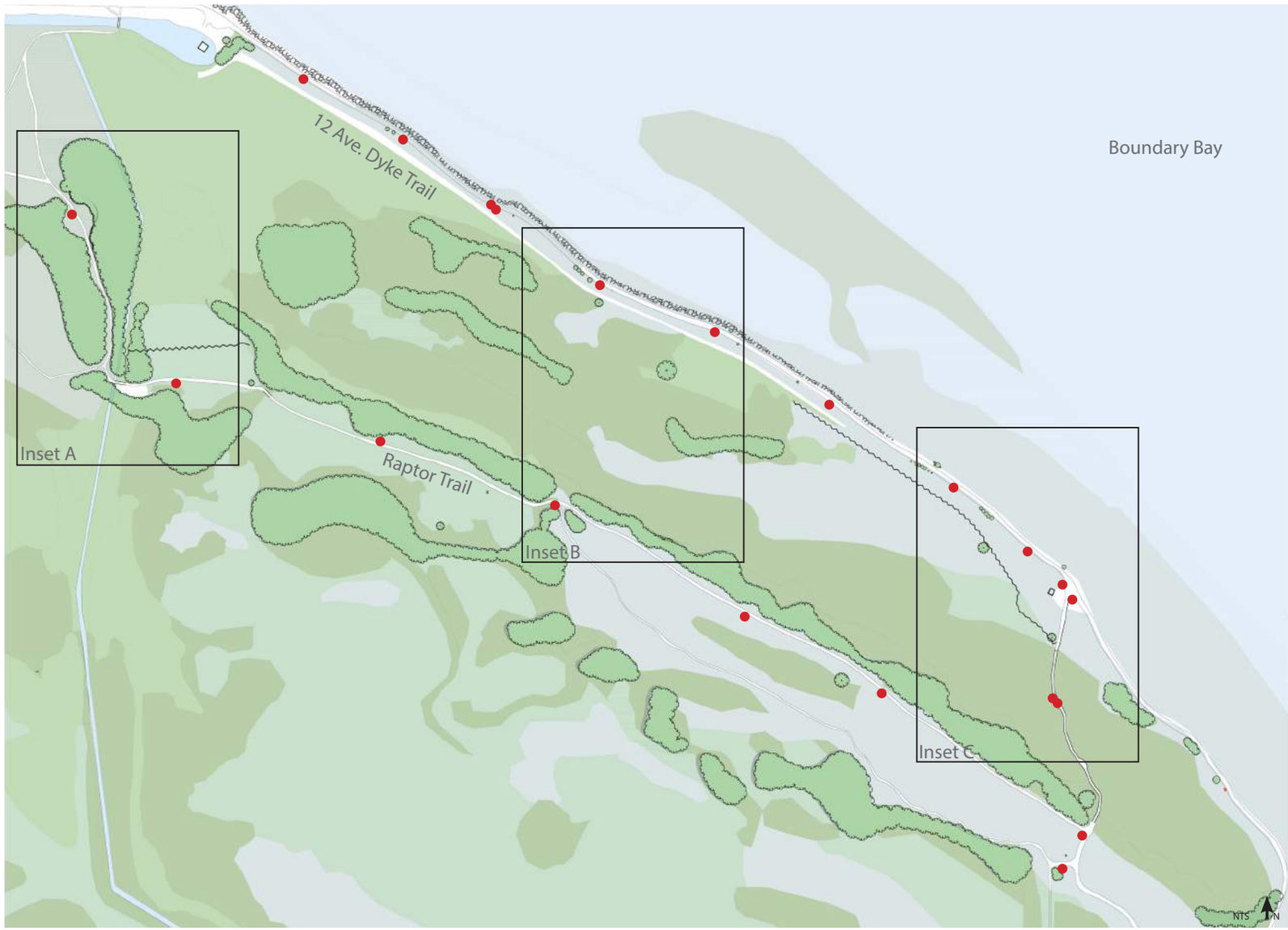
Boundary Bay Regional Park

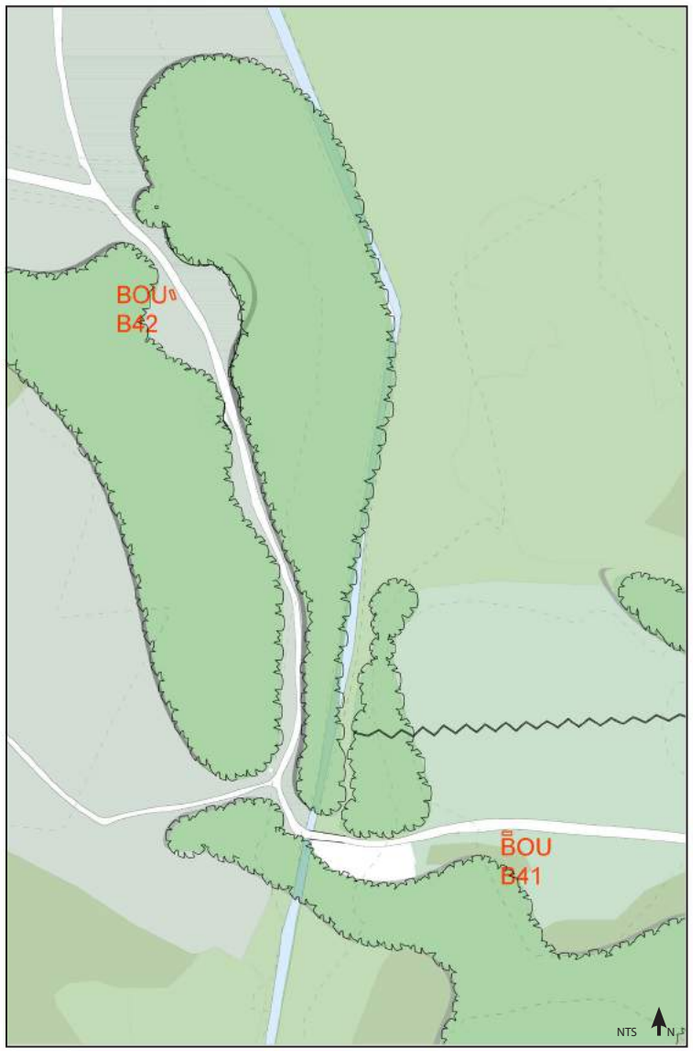
Explanation

Along 12th Ave. Dyke Trail, future locations for commemorative benches were sited based on the limited spatial opportunities. All benches from the current design standard are retained in their existing locations. The benches are spaced as evenly as possible along the trail, giving users the maximum number of opportunities to stop and rest when they want to. All of the benches are located on the land side of the dyke to avoid the erosion that is occurring on the bay side. In one location, two bench sites are proposed side by side in order to increase the number of potential bench sites, but also to give families the option to have two commemorative benches next to each other.

Since water views are very popular at Boundary Bay, the bench placement along Raptor Trail takes advantage of peek-a-boo views through the trees to the bay. Fewer bench sites are proposed along Raptor Trail, as it would suit the calmer, secluded nature of the park interior. Overall, the number of commemorative benches at Boundary Bay in the focus area is increased from 14 to a potential of 22.

Detailed insets of the plan are shown on the following page, with MVRP ID numbers.





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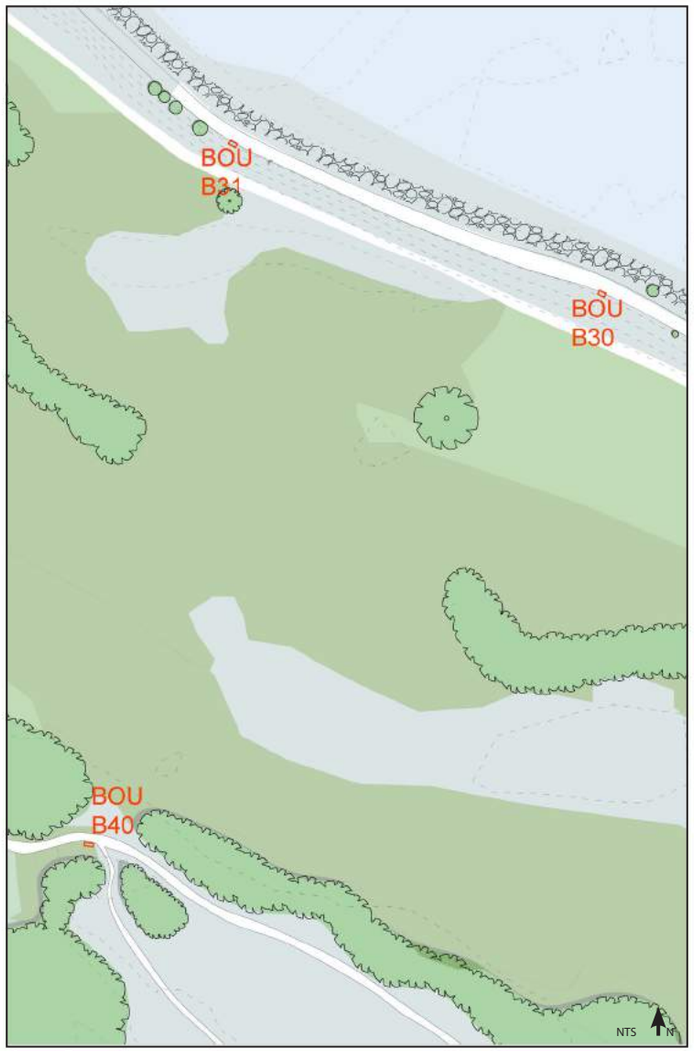

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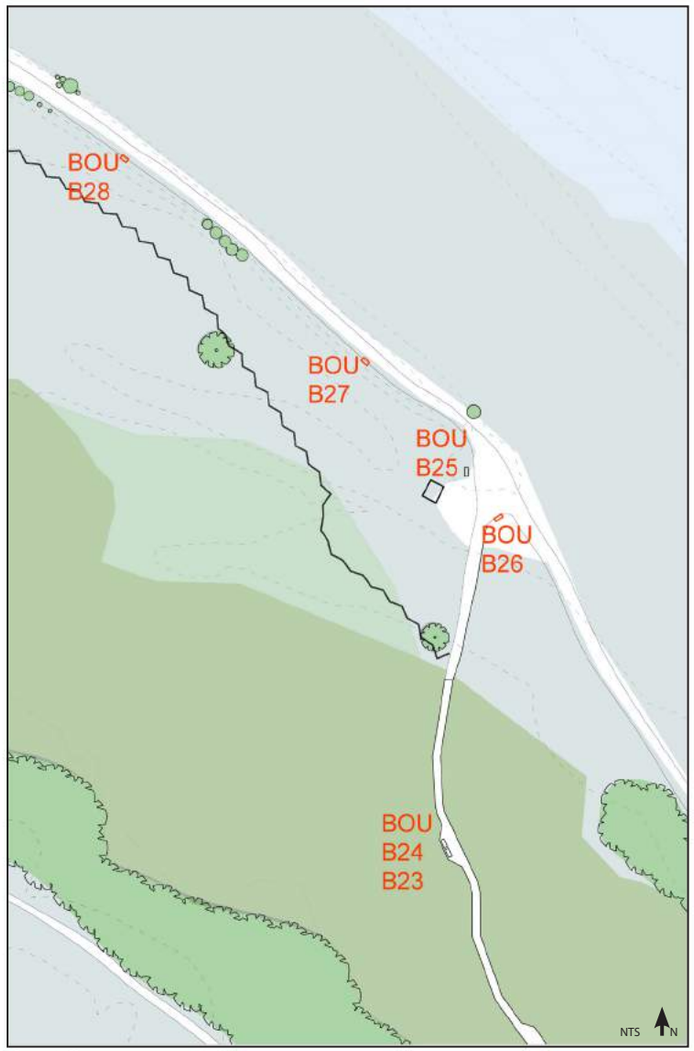

Inset C

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2. *Iona Beach Regional Park: A Long Range Recreation and Conservation Master Plan*, April 1989, 3.

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4. *Deas Island Regional Park Master Plan,* 1987, 12.

5. *Boundary Bay Regional Park Plan*, 1996, 3.

6. *Iona Beach Regional Park: A Long Range Recreation and Conservation Master Plan,* Appendix C:1.

7. *Iona Beach Regional Park: A Long Range Recreation and Conservation Master Plan,* Appendix C:2.

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