PREDESIGN REPORT

GABRIOLA WAITING ROOM

JANUARY 2019
Rev 2

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1. SITE INFORMATION

PROJECT DESCRIPTION

BC Ferries has engaged Studio 531 Architects to assist with the design of a new washroom/ waiting room building for the ferry terminal on Gabriola Island. This project will be developed along with the Terminal Development Plan (TDP) that will guide the overall redevelopment of the site including new berths, upgraded parking and drop-off areas, amenities, and upgrades to the uplands queuing lanes.

Studio 531 will provide a building design for the new washroom/waiting room facility and assist in the design of the associated parking, drop-off and amenity areas. The design drawings will be submitted to the Islands Trust as part of a Rezoning and Development application that is necessary for site.

ADDRESS

Street Address: North Road, Descanso Bay, Gabriola, BC V0R 1X2

LOCATION MAP

TEAM MEMBERS:

ROLE	COMPANY	CONTACT	EMAIL
OWNER	BC Ferries	Brian Green Manager, Terminal Services	brian.green@bcferries.com
ARCHITECT	Studio 531 Architects	Jesse Garlick, architect AIBC	jgarlick@studio531.ca
PLANNING + APPROVALS	Stantec	John Steil, architect AIBC	john.steil@stantec.com
LANDSCAPE	Stantec	Nalon Smith, MBCSLA	Nalon.Smith@stantec.com

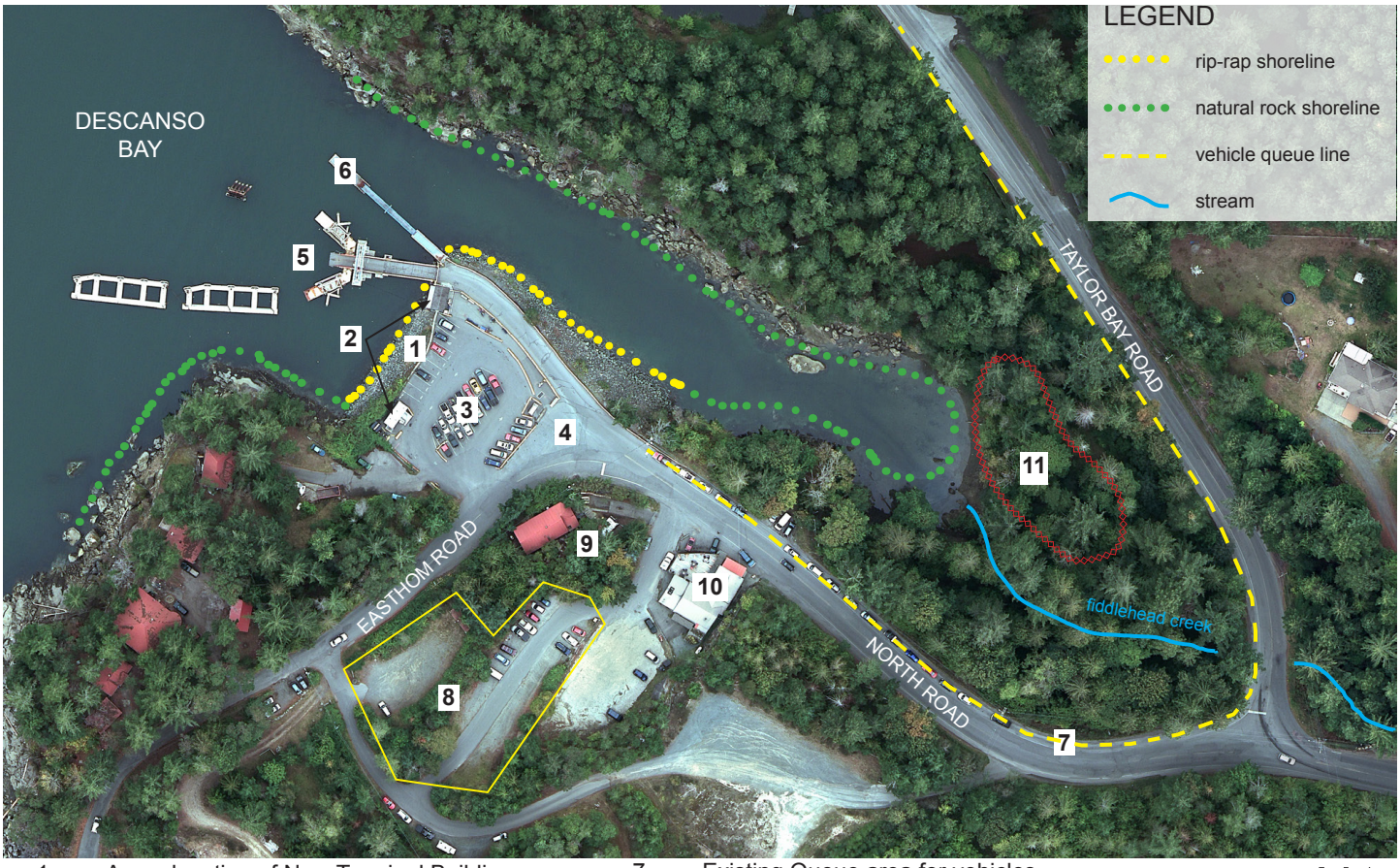
Studio 531 architects has been engaged provide architectural services for the project. In general these services are limited to the building design. The overall site planning and landscape design are undertaken directly by BC Ferries, with Stantec Consulting providing Landscape, Civil, and Geotechnical services.

SITE CHARACTERISTICS

The site is located adjacent to the existing BC ferry terminal, on Descanso Bay in Gabriola island. Vehicle and pedestrian access is via North Road and Easthom Road. The topography around the area is underlain by local bedrock, and is highly irregular, making access roads and sidewalks sometimes challenging to navigate for vehicles and pedestrians.

The site is surrounded by local bedrock and vegetation. A small tidal estuary to the north of the terminal area is also the terminus for fiddlehead creek, a small regional waterway. The waterfront edge adjacent to the site and terminal area is constructed of medium size rock and rip rap.

The area is surrounded by a variety of building types, including single family residential and a small commercial area along North Road, that also functions as a regional transit stop.



1. Appx. location of New Terminal Building
2. Existing Washroom and Waiting Room Buildings
3. Existing Parking Area for staff and visitors (24h)
4. Existing Drop-off Area
5. Existing Terminal Pier and Dock
6. Emergency Dock for small craft
7. Existing Queue area for vehicles
8. Existing long term parking area (privately owned)
9. Private Home
10. Skol Pub, Restaurant, and Transit Stop
11. Archaeological Site - Shell Midden - from RAAD

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CONTEXT

Gabriola Island is a gulf island located approximately 5 km east of Nanaimo on Vancouver Island. Ferry service to between Nanaimo and Gabriola takes about 20 minutes. The population of Gabriola is appx. 4,000 people. The island has public beaches, forests, shopping centres, restaurants, a library, and elementary school and a museum.

Because of it's relatively easy access to Nanaimo, many residents commute daily to Nanaimo. In addition school children attending Middle and High-School, also travel to Nanaimo daily.

The island has always had a seasonal population that grows in the summer with visitors staying for several days, weeks or months. Currently the summer-time population is estimated to be 6,000.

The island is home to many artists and arts organizations, and hosts arts related events and performances throughout the year.

PRE-CONTACT

Gabriola Island is part of the traditional territory of the Snunéymux First Nation. The earliest archaeological record on Gabriola is a cave burial dated to appx. 1500 B.C. Petroglyphs are also found across the island, and carved into the local sandstone.

POST-CONTACT

The first recorded European visit to Gabriola Island was in 1791 by a Spanish Schooner. Settlers began to arrive in the mid 1850's. By 1874 there were 17 settlers living on the island, notably 2/3rds of those had First Nations wives and families.

The population continued to grow through the 20th century and by the mid-1950's there were approximately 400 people living on the island when Electricity arrived in 1955.

Apart from farming Gabriola has been the location for a brickyard that produced as many as 80,000 bricks per day in the early 1900's. There was also a quarry, located near the Ferry Terminal at Descanso Bay, that quarried sandstone for use as grindstones. Remnants from this operation are visible around the ferry terminal site.

* context information taken from Wikipedia entry for Gabriola Island.

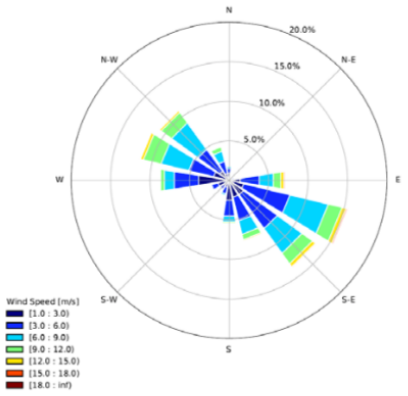
Site Photos: (top to bottom) existing terminal area; existing passenger waiting building; view into tidal estuary

CLIMATE

The climate for Gabriola Island is characterized as a cool Mediterranean climate with moderate temperatures and dry summers.

Wind patterns for the region are characterized by North-Westerlies during the summers, and South-easterly winter storm winds. The project location at Descanso Bay is protected from winter winds but somewhat exposed to the summer winds. Consider protection from summer winds.

Rainfall is most common Oct-April and rain protection should be considered because terminal usage is consistent throughout the year (not just summer).

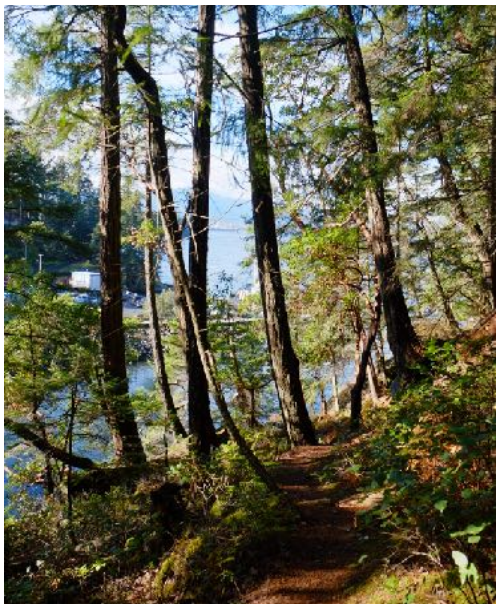


Entrance Island

Climate data for Gabriola Island [hide]													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	14.5 (58.1)	15.0 (59.0)	20.5 (68.9)	25.0 (77.0)	31.0 (87.8)	30.0 (86.0)	32.0 (89.6)	31.0 (87.8)	30.0 (86.0)	24.0 (75.2)	18.0 (64.4)	13.5 (56.3)	32.0 (89.6)
Average high °C (°F)	6.6 (43.9)	7.7 (45.9)	10.0 (50.0)	13.0 (55.4)	16.6 (61.9)	19.3 (66.7)	22.2 (72.0)	22.3 (72.1)	19.2 (66.6)	13.4 (56.1)	8.8 (47.8)	6.0 (42.8)	13.8 (56.8)
Daily mean °C (°F)	3.7 (38.7)	4.3 (39.7)	6.1 (43.0)	8.5 (47.3)	11.7 (53.1)	14.4 (57.9)	16.9 (62.4)	16.8 (62.2)	13.8 (56.8)	9.3 (48.7)	5.6 (42.1)	3.3 (37.9)	9.5 (49.1)
Average low °C (°F)	0.8 (33.4)	0.8 (33.4)	2.2 (36.0)	4.0 (39.2)	6.6 (43.9)	9.6 (49.3)	11.4 (52.5)	11.2 (52.2)	8.4 (47.1)	5.1 (41.2)	2.4 (36.3)	0.6 (33.1)	5.3 (41.5)
Record low °C (°F)	−16.0 (3.2)	−12.0 (10.4)	−6.0 (21.2)	−4.0 (24.8)	−2.0 (28.4)	2.0 (35.6)	4.0 (39.2)	4.5 (40.1)	0.0 (32.0)	−4.5 (23.9)	−14.0 (6.8)	−15.0 (5.0)	−16.0 (3.2)
Average precipitation mm (inches)	129.8 (5.11)	105.9 (4.17)	86.9 (3.42)	57.0 (2.24)	44.9 (1.77)	40.9 (1.61)	26.0 (1.02)	28.2 (1.11)	38.5 (1.52)	81.3 (3.20)	146.9 (5.78)	137.8 (5.43)	924.0 (36.38)
Average rainfall mm (inches)	116.1 (4.57)	96.8 (3.81)	85.1 (3.35)	57.0 (2.24)	44.9 (1.77)	40.9 (1.61)	26.0 (1.02)	28.2 (1.11)	38.5 (1.52)	80.9 (3.19)	143.0 (5.63)	126.9 (5.00)	884.3 (34.81)
Average snowfall cm (inches)	13.7 (5.4)	9.1 (3.6)	1.8 (0.7)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0.3 (0.1)	3.9 (1.5)	10.9 (4.3)	39.7 (15.6)
Average precipitation days (≥ 0.2 mm)	16.5	14.1	14.4	12.5	10.7	9.2	5.9	5.7	7.3	12.2	17.2	16.4	142.0
Average rainy days (≥ 0.2 mm)	15.0	13.3	14.3	12.5	10.7	9.2	5.9	5.7	7.3	12.1	16.7	15.2	137.9
Average snowy days (≥ 0.2 cm)	2.3	1.3	0.37	0	0	0	0	0	0	0.07	0.70	1.9	6.7
Source: Environment Canada[23]													

VEGETATION

The site is surrounded by a coastal ecosystem that includes native trees and shrubs. The area is characterized by Douglas fir and Arbuus trees and large outcrops of sandstone. The understory of native shrubs including ferns, salal and Oregon grape are typical.



2. TECHNICAL REQUIREMENTS

PLANNING AND BYLAW SUMMARY

This project requires a land use amendments in order to upgrade terminal area as proposed. The current land use designations within the zoning bylaw and Official Community Plan to not support a ferry terminal with associated buildings and uses.

Municipality: Gabriola Island - Islands Trust, Northern Office

Current Zoning: WC3 Water Commercial 3 - allows ferry terminal but prohibits buildings
Zoning Bylaw: Land Use Bylaw #177

Official Community Plan Zones: The existing site occupies 3 separate zones in the OCP:
1) M-Marine - for the water portion
2) R -Resource
3) Small Rural Residential

OCP Document: Gabriola Island Official Community Plan, Bylaw No. 166, 1997;

Consultation is underway with the Islands Trust in order to rezone the property and make amendments to the Official Community Plan and Development Bylaw so that the project can proceed as designed.

BC Ferries is working with Stantec on this process. The above is a general summary.

BUILDING CODE SUMMARY:

Building Code: Building Code of British Columbia 2018 Edition

The preliminary analysis below is based on the concept program areas. See Section 3

Building Area:	< 400m2 facing one street
Building Height:	One Storey
Code Standard:	Building Code of British Columbia, 2018 - Part 3 3.2.2.28, Group A, Division 2, One Storey
Major Occupancy	Group A2 - waiting room Group D - office (anciliary)
Construction Type:	Combustible or Non-Combustible
Fire Protection:	Sprinkling not required - Fire Alarm not required
Assembly Requirements	No FRR requirements

ENERGY PERFORMANCE

The energy efficiency requirements for the project are outlined in Part 10 of the BCBC and based on the project's location.

Project Location: Gabriola Island
Closest Location on table C-2 of BCBC: Nanaimo BC
Heating Degree Days in Nanaimo: 3000 HDD 18°C
Climate Zone ASHRAE: 4C, Mixed Marine (per Table B-4, ASHRAE 90.1, 2010)
Climate Zone NECB: Zone 5, (3000-3999)

Note that exact climate data for the site isn't available in the code and the climate zone can be established in dialogue with the authority having jurisdiction.

3 compliance paths/standards are referenced as acceptable solutions in the code:
1) ASHRAE 90.1, **2016** Edition. "Energy Standard for Buildings Except Low-Rise Residential Buildings"
2) National Energy Code For Buildings (NECB) **2015** Edition
3) BC Energy Step Code, as outlined in section 10.2.3.

Option 1 or 2 are acceptable compliance paths, and will be determined in consultation with a mechanical engineer. Option 3 is not available because the major occupancy for the project is Assembly use, and this use cannot apply to Option 3, as per 10.2.3.

PASSENGER LOAD

Passenger load is based on data from from 2017 sailings provided by BC ferries. The graph below includes provides a graphic analysis. Passenger counts are based on trips from Nanaimo to Gabriola, as this is where the fares are collected and counted.

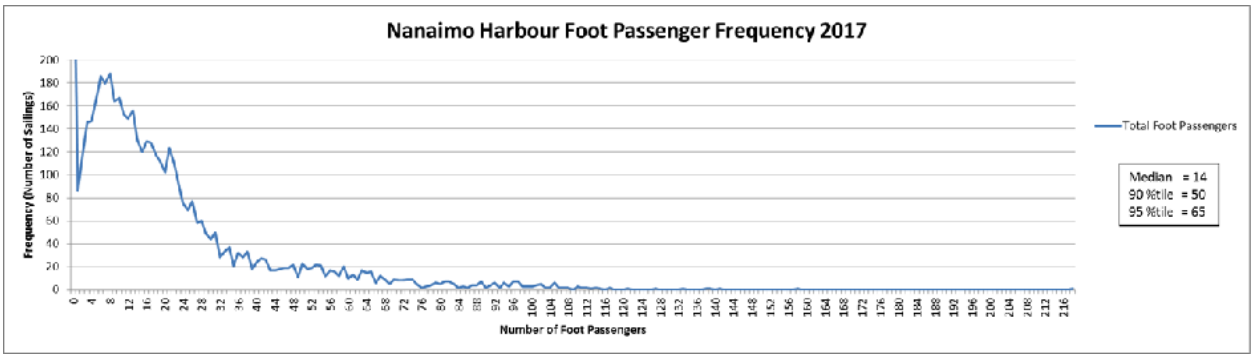
After reviewing the data and usage, we believe that a facility design load of **50 people** is appropriate. This is based upon the following rationale:

- 90% of all sailings will have a foot passenger load of 50 or less.
- Passenger load, including vehicle passengers averages 38.
- With more frequent sailings expected with the 2 vessel solution, we expect that the passenger load on the terminal will decrease when this is implemented.

Passenger Frequency from 2017 actual sailings

Median: 14 foot passengers

90%: 50 foot passengers



AREA AND OCCUPANT LOAD

The occupant load below is calculated using the Functional Program areas. See Section 3.

Room	Occupancy Area m2	Area per Person m2*	Occupant Load	Functional Load**	Occupancy Classification (BCBC 2018)*
Waiting Room	26	.75	34.7	30	Group A - space with non-fixed seats
Staff Room	16	9.3	1.7	4	Group D - office
Washrooms	11	0	0	0	
Storage Rooms	8	0	0	0	
Elec Rooms	6	0	0	0	
Total Area	**8**		**36.4**	**30**	

* Table 3.1.17.1 of BCBC 2018
** The number of fixed seats in the waiting area TBD

WASHROOM COUNT:

For an occupant load of up to 50 people, 1 water closets are required.

Occupants	Male WC	Male Lav	Female WC	Female Lav	Note
50 or less	1	1	1	1	* see narrative

* Table 3.7.2.2.-A of BCBC 2018

There are several designs that could achieve an acceptable solution above. See also Accessibility.

ACCESSIBILITY

As a public building it must be designed to meet the provisions in 3.8 of the BCBC. Key components include:
- 50% of the principal entrances shall be lead from an accessible path of travel
- Provide an accessible pathway from the building to the street
- Service rooms are not required to be accessible
- Power operators on the main entry doors are not required because the building area is less than 500m2
- If a urinal is provided, one must be accessible
- Provide signage that meets section 3.8.2.10
- Universal washrooms shall be designed to as per 3.8.3.12

SUSTAINABILITY:

Sustainability has been identified as an important priority for the project. In addition to the minimum energy performance criteria outlined above, we believe that the following strategies are appropriate considerations for this facility:

Stormwater management:
- Site design that incorporates stormwater retention and treatment
- Green roof may be appropriate choice
- Use landscape elements and shoreline upgrades as opportunity to enhance local habitat, not just minimize disturbance.

Greenhouse Gas Reduction Strategies:
- Wood construction to capture GHG
- Encourage pedestrian and bicycle usage with upgraded facilities to reduce auto use.
- Select building materials with low embodied energy in manufacturing and transport

Energy Use:
- High performance building envelope and mechanical systems
- Consider photovoltaic panels to offset electricity usage

Life Cycle:
- Utilize durable materials that require little maintenance and replacement
- Select materials with low-embodied energy

Health and Wellness:
- Create healthy interior environment with lots of natural light and good indoor air quality
- Provide access to clean drinking water and healthy food
- Encourage pedestrian and bicycle use

3. FUNCTIONAL PROGRAM

PROJECT INTENT:

The project intent is to create a facility that meets the functional objectives outlined below and generally includes:

- Building for foot-passenger use that includes waiting room and washroom facilities
- Storage area for BC Ferries equipment and supplies
- Staff area for BC Ferries employees
- Outdoor uses including drop-off, bike parking, and covered areas

AREA SUMMARY:

	Room	**Width (m)**	**Depth (m)**	**Area**	**Notes**
	PUBLIC AREAS				
2.0	Universal Washroom	2	2.5	5 m2	Exterior access
	Washroom	1.2	2	2.4 m2	Exterior access
	Washroom	1.2	2	2.4 m2	Exterior access
3.0	Waiting Room	6	5	30 m2	Variety of seating types
	SERVICE AREAS				
4.0	Janitor Closet	1	3	3 m2	
5.0	Staff Storage	4	3	12 m2	Place for bikes and lockers
6.0	Terminal Storage	4	2	8 m2	Good shelving, salt storage
7.0	Electrical	2	3	6 m2	Confirm requirements
	Subtotal Net Area			68.8 m2	
	Walls (10%)			6.9 m2	
	TOTAL GROSS AREA:			**75.7 m2**	Note area doesn't include covered outdoor space

PROGRAM REQUIREMENTS:

1. SITE
    - 1.1. Bicycle Parking (consider some covered)
    - 1.2. Covered Area
    - 1.3. Drop-Off Area
    - 1.4. Way-finding information
    - 1.5. Art - locations for exhibits
    - 1.6. Dog relief station - to be located in uplands area, away from terminal.
    - 1.7. Outdoor seating
    - 1.8. Picnic Bench and Table
    - 1.9. Hose Bib
    - 1.10. Garbage + Recycling station
    - 1.11. Salt storage area
    - 1.12. Free Standing Flat-Screen information panel visible from exterior
    - 1.13. Vendor area (for coffee stand, etc)

2. WASHROOMS
    - 2.1. Create washrooms to meet accessibility requirements
    - 2.2. Finishes:
        - 2.2.1. Durable finishes for walls and floors - suggest tile
        - 2.2.2. Durable counters - suggest stainless steel or solid surface
    - 2.3. Accessories:
        - 2.3.1. Mirror
        - 2.3.2. Towel dispenser
        - 2.3.3. Needle dispenser
        - 2.3.4. Sanitary Napkin dispenser (in HC and women's washroom)
    - 2.4. Mech requirements:
        - 2.4.1. Floor Drain
        - 2.4.2. Automatic flush toilets
        - 2.4.3. Hands-free faucets
        - 2.4.4. Provide ventilation
3. WAITING ROOM
    - 3.1. Seating to accommodate projected usage
    - 3.2. Include BC ferries information/notices including:
        - 3.2.1.
        - 3.2.2. Brochure rack
        - 3.2.3. Bulletin Board
    - 3.3. Vending Machine
        - 3.3.1. 72"h x 36"w x 35"d + wall backing for fall restraint
    - 3.4. Power outlets for customer device charging

3.5. Clock
3.6. First Aid Kit + Defribulator
3.7. Hand Sanitizer
3.8. Gallery area for Art
3.8.1. Coordinate with local project stakeholder group
3.9. Garbage and recycling area

4. STAFF ROOM
4.1. Bicycle Storage Racks
4.2. Locker Area
4.3. Flexible design to support future terminal needs

5. STORAGE
5.1. Salt Storage
5.2. Toxic area? (paints, sealants etc)
5.3. Confirm requirements.

PARKING

The goals for the parking on the project is to improve vehicular access within the available site area. The site area for parking is very limited, and unable to be expanded significantly. As such the goal is primarily to improve vehicular flow through the site, and improve pedestrian safety. Strategies include:

EXISTING PARKING

Staff Parking Reqd.	14 Stalls
Visitor Parking	12 Stalls
Total Existing Parking	**26 Stalls**

- Provide transit drop-off for "Gurty" bus
- Expanded drop-off/pick up area for 4-6 vehicles.
- Provide 2-3 Accessible parking spaces
- Consider parking for scooters and motorcycles
- Provide a minimum of 14 staff parking stalls to meet union requirements.
- Pedestrian design that provides barrier free access, and traffic calming surfaces, with good visibility and lighting.

COMMUTER FERRY CONSIDERATIONS

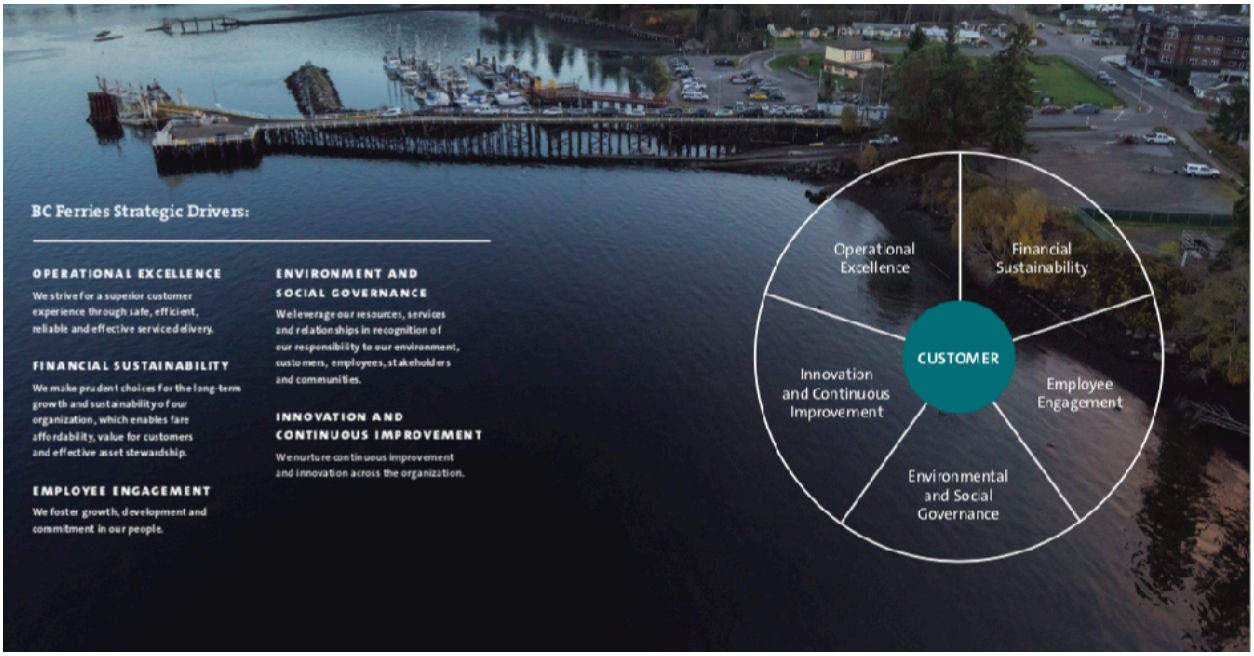
An important consideration for the design of the Gabriola waiting room is the proximity to Nanaimo. In particular the following considerations:

- Daily Drop-Off and Pick-up of middle and high-school students
- Expanded bike parking with charging capability
- Ferry usage is less seasonal. Rain protection is important.
- Ferry status is important to commuters. A screen providing live updates would be beneficial.
- Many commuters will arrive <15 min prior to departure meaning that time spent in the passenger waiting area will be short.
- Commuters may want areas to use and charge devices. Provide for device charging
- Good flow of passengers through the terminal area will create a perception of efficiency - important for commuters.
- Regular users mean that travellers will be familiar and often friends. Create places that support casual conversations and relationships.

4. TERMINAL REQUIREMENTS

The Descanso Bay terminal on Gabriola Island is classified as a **Minor/Intermediate Unstaffed Terminal** according to the BC ferries Terminal Network Master Plan Document (page 25).

Strategic Drivers for BC ferries, place the customer at the centre.
(from Terminal Master Plan document, graphic from page 12/13)



Select Strategic Policies relevant to the terminal design - from the Terminal Master Plan document:

POLICY	DESCRIPTION
Safety, Health & Environment	All terminal developments will appropriately prioritize the safety and health of customers, employees and the environment.
Customer Focused	Terminal design will support BC Ferries' commitment to coastal communities and improving customer experience. Terminal design will include the implementation of improved customer-facing systems to enhance the customer experience and eliminate barriers for accessibility. Customers will be consulted to ensure design changes consider their needs.
Simplicity	Terminals will be simple and intuitive for customers to navigate. Systems and components shall promote efficiency. Redundancy will be justified by a risk based approach.

Commonality	Terminals will have the highest practicable degree of commonality in terms of layout, design, equipment, operating characteristics, documentation and maintenance. Commonality refers to the degree to which assets are the same. Commonality is a spectrum from identical to completely dissimilar; it is not a single state or condition. The look and feel must be common at all BC Ferries' terminals within the same terminal classification.
Scalability and Flexibility	Asset planning must incorporate scalability and flexibility in design to accommodate increases and decreases in traffic as well as changes in how customers travel.
Employee and Community Engagement	Employees, customers, local communities, Indigenous communities, partners and other key stakeholders will be engaged in terminal development planning in accordance with BC Ferries' Stakeholder and Community Engagement Framework.

CUSTOMER FOCUS

For the building and site design, we see several design opportunities that can translate the BC ferries terminal objectives into the design of the building.

These include:

- Pedestrian friendly design
- Good way finding
- Cafe-like seating
- Device Charging
- Fresh Water
- Fully Accessible
- Bicycle Parking
- Family Friendly

SENSE OF PLACE

The building design should also be responsive to the local site and context. The building can be a unique point of departure and arrival for passengers. Design features could include:

- Arrival features that highlight Gabriola Island i.e. signage
- Places for local artists to display their work
- A Form and character that is unique for Gabriola Island
- Ecological design features that support the local environment and ecosystems
- Local partnerships
- Features that highlight the local history and context of Gabriola