25 OUTDOOR RECREATION AND TOURISM

25.1 Approach

The Peace River is used by tourists and residents for outdoor recreation activities. The Project would affect outdoor recreation and tourism through physical change to the land base. The potential Project effects on the Outdoor Recreation and Tourism valued component (VC) are assessed by considering the Project interactions with outdoor recreation and tourism features, amenities, sites, activities, visitor levels, and use levels. Outdoor recreation and tourism was chosen as a VC, as it reflects concerns that arose in public consultations about the Project, it is expected to have effects on recreation sites and tourism infrastructure, and it has the potential to affect outdoor recreation use levels and regional tourism visitor levels.

The following definitions are used in this assessment:

- Tourists – people who travel to, or stay at, a place outside their usual environment for a period of no more than a year. In this assessment, any person residing outside the Peace River Regional District who visits the region is a tourist. A tourist can travel either for business or for pleasure, but non-resident workers are not considered tourists. Tourists include day trippers as well as people making longer excursions (BC Stats 2009).
- Outdoor recreation users – residents who engage in outdoor, self-guided recreation in their usual environment. In this assessment, any person residing in the Peace River Regional District who participates in outdoor recreation in the region is an outdoor recreation user.
- Outdoor recreation refers to activities undertaken outside the confines of buildings, not involving organized competition or rules (i.e., sports), and generally requiring large areas of land or water in a predominantly natural landscape. While most outdoor recreation activity is considered to be non-reliant on built facilities, site improvements and some forms of infrastructure can exist to manage use and effects on the land base.

25.1.1 Regulatory and Policy Setting

The assessment was prepared in accordance with Section 16.7 of the Site C Clean Energy Project Environmental Impact Statement Guidelines (The Minister of Environment of Canada and the Executive Director of the BCEAO, 2012) (EIS Guidelines).

The administration and allocation of Crown land for recreation uses, resorts, and guided commercial recreation activities is managed by the B.C. Ministry of Forests, Lands and Natural Resource Operations, under the *Land Act*, the *Ministry of Lands, Parks and Housing Act*, and related regulations. The allocation of rights through the *Land Act* can include leases, licences, investigative permits, and notations.

Recreation sites may be approved and established under Section 57 of the *Forest and Range Practices Act* (FRPA). The intent of Section 57 is to allow for the construction,

rehabilitation, or maintenance of a site without a land tenure being issued. A Section 57 authorization is a precursor to legally establishing a site under Section 56 of the FRPA.

BC Hydro's proposed approach to Site C reservoir boating access would be considered by Transport Canada, with the final approach ultimately dictated by Transport Canada during Project permitting. Volume 3 Section 26 Navigation (Section 26.1.1) refers to the *Navigable Waters Protection Act* and the public right to navigation. This Act is relevant to the assessment of effects on boating as a form of recreation.

A tourism operator using Crown land for financial gain must be licensed to carry out those activities by the province under the terms of the above acts and the Land Use Operational Adventure Tourism Policy (B.C. 2011). Community recreation groups and educational institutions, where they use Crown land intensively or build structures, must also be licensed, for example by obtaining appropriate tenures. The tenure obtained by operators outlines the allowed uses of the land, which can include building improvements such as campsites or corrals.

25.1.2 Key Issues and Identification of Potential Effects

There is the potential for adverse effects on outdoor recreation and tourism due to changes in the following as a result of the Project:

- Changes in outdoor recreation and tourism infrastructure including:
  - Managed and unmanaged outdoor recreation sites, trails, parks, and the Peace River Boudreau Lake proposed protected area
  - Visitor centres, tourist accommodations, and tourist attractions
- Changes in outdoor recreation use levels and regional tourism visitor levels

Issues, concerns, and interests identified during consultation with the public, Aboriginal groups, and government agencies guided the scope of the outdoor recreation and tourism assessment (refer to Volume 1 Section 9 Information Distribution and Consultation). The key issues identified and the approaches used to address issues are outlined in Table 25.1. In all of these consultations, members of the public, regulatory agencies, and local government representatives voiced concerns regarding how access, capacity, and opportunities for outdoor recreation and tourism would be affected by the Project during construction and during operations as a result of physical works or due to demands of the temporary workforce population or in-migrants arriving in the region as a result of the Project. These concerns were considered in the development of mitigation measures, in the design of the Project, and in management plans, including the Outdoor Recreation Mitigation Plan (Volume 3 Appendix E) and the Vegetation, Clearing, and Debris Management Plan (Volume 1 Appendix A).

Table 25.1 Key Issues: Outdoor Recreation and Tourism

Key Issues	Approach to Addressing Key Issues
Outdoor Recreation and Tourism Infrastructure	
Loss and changes in access to existing recreation sites	▪ Developed an Outdoor Recreation Mitigation Plan (Volume 3 Appendix E) in coordination with local, regional and provincial governments ▪ Mitigation measures were designed to address changes in infrastructure and access (see Sections 25.4.3 and 25.4.4)
Physical loss of land and features	
Outdoor Recreation Use Levels and Regional Tourism Visitor Levels	
Changes to the recreation environment including changes that may introduce new built and natural safety hazards	▪ Assessed water and ice conditions on the Site C reservoir (Volume 2 Section 11.4 Surface Water Regime and Section 11.7 Thermal and Ice Regime) and designed measures to address potential effects consisting of: o Clearing the Site C reservoir and managing debris to support boating on the Site C reservoir (Volume 1 Appendix A Vegetation, Clearing, and Debris Management Plan) o Developing a Public Safety Management Plan that will identify public communications procedures for public safety hazards, and access restrictions and closures during construction and operation of the Site C reservoir (Volume 5 Section 35 Summary of Environmental Management Plans)
Changes in use levels due to Project-induced population change	▪ Assessed potential changes in use levels resulting the Project-induced population change (Section 25.4 Effects Assessment) ▪ BC Hydro is working with the private sector and local governments to develop new RV sites (Volume 4 Section 29 Housing) ▪ Designed mitigation measures to enhance tourism benefits by avoiding shortages in hotel, motel, and campground availability that might inconvenience leisure travelers (Volume 4 Section 29 Housing)
Use of visitor accommodations during construction by temporary workers	
Additional Concerns from Aboriginal groups	
Concerned that the Project would destroy a historical Métis community that holds significant value from a heritage perspective, as well as yet-to-be-realized tourism and outdoor recreation potential (Métis Nation BC)	▪ Heritage value was assessed in Volume 4 Section 32 Heritage Resources
Concerned about the effects of increased access and use by non-Aboriginal recreational users of the reservoir (Treaty 8 Tribal Association)	▪ Section 25.4 Effects Assessment considers changes in access for recreation and changes in recreational use levels ▪ Volume 3 Section 19 Current Use of Lands and Resources for Traditional Purposes considers effects of changes in access on Aboriginal use of lands and resources

Potential Project interactions with VCs are summarized in Volume 2 Appendix A Project Interactions Matrix, Table 2. As defined in Volume 2 Section 10 Effects Assessment Methodology, a “2” ranking is assigned where an interaction may result in an adverse effect and the nature of the effect and/or the effectiveness of mitigation measures is uncertain. These interactions were taken forward through the effects assessment.

Project interactions with a ranking of "2" are set out in Table 25.2 below.

Table 25.2 Interactions of the Project with Outdoor Recreation and Tourism

Project Components and Activities	Key Aspects	
	Changes in Outdoor Recreation and Tourism Infrastructure	Changes in Outdoor Recreation Use Levels and Regional Tourism Visitor Levels
Construction		
Dam and Generating Station Construction	✓	✓
Reservoir Preparation and Filling	✓	✓
Transmission System	✓	✓
Quarried and Excavated Material Source Development		
West Pine Quarry	✓	✓
Portage Mountain	✓	✓
Highway 29 Realignment	✓	✓
Construction Access Road Development		
Transmission Line Access Roads	✓	✓
Jackfish Lake Road Works	✓	✓
Worker Accommodation Construction and Operations	✓	✓
Operations		
Reservoir and Generating Station Operations	✓	N/A

NOTES:
Outdoor recreation and tourism infrastructure refers to managed and unmanaged outdoor recreation sites, trails and parks, visitor centres, accommodations, and tourist attractions
N/A – not applicable

The project construction components, and associated activities and physical works would require temporary occupation of the land base, resulting in either displacement or alteration of outdoor recreation and tourism infrastructure. Outdoor recreation and tourism infrastructure refers to managed and unmanaged outdoor recreation sites, trails and parks, visitor centres, accommodations, and tourist attractions.

The population change associated with direct, indirect, or induced employment opportunities during construction would increase use levels for outdoor recreation and tourism. Outdoor recreation and tourism use could also shift to areas outside of the LAA due to any restrictions to recreation sites caused by Project activities.

During Site C reservoir operations, there would be expected changes in recreation and tourism infrastructure over time, as the Site C reservoir would become a recreation destination for the region. Tourism demand would not be expected to change due to Project operations.

The Project's operational labour requirement would be approximately 25 positions, which is low relative to the receiving population. Measurable population changes in the Project area due to direct operational workforce requirements and resultant changes in use levels of outdoor recreation and tourism are not anticipated. In-migrants who take up indirect and induced jobs and who remain in the region after construction would do so

because of economic or social reasons not associated with the Project. Based on the above factors, change in use levels for outdoor recreation and tourism as a result of operations is not considered further in this assessment.

25.1.3 Standard Mitigation Measures and Effects Addressed

A “1” ranking was given where an adverse effect may result from an interaction, but standard mitigation measures to avoid or minimize the potential effects are available and well understood to be effective, and any residual effect is negligible. These interactions were not carried forward through the effects assessment.

A “1” ranking was assigned to activities associated with the construction access road development component, including: transportation of construction materials and supplies, Old Fort Road realignment and widening, paving of 240 Road and paving and extension of 269 Road, West Pine quarry access, West Pine siding construction, and Septimus rail siding construction. A Traffic Access Management Plan (including access restrictions where required) will mitigate potential effects on outdoor recreation and tourism (see Volume 5 Section 35 Summary of Environmental Management Plans).

All other project activities listed in Table 2 of Volume 2 Appendix A Project Interactions Matrix were ranked “0” because the activities do not interact with outdoor recreation and tourism.

Any overlap or conflict between existing third-party recreation tenure holders and BC Hydro’s proposed activities, or BC Hydro’s required tenure over Crown land, will be addressed through discussions, permitting and, where appropriate, agreements with the tenure holders. Further information is available in Volume 2 Section 11.3 Land Status, Tenure, and Project Requirements.

25.1.4 Selection of Key Indicators

The key indicators for assessment of Project effects on outdoor recreation and tourism are selected to include measures relevant to the outdoor recreation and tourism setting, infrastructure, and activities in the area. A list of key indicators, including a rationale for selection is provided in Table 25.3.

Table 25.3 Key Indicators for Outdoor Recreation and Tourism

Key Aspects	Key Indicators	Rationale for Selection of the Key Indicators
Changes in outdoor recreation and tourism infrastructure	▪ Outdoor recreation features and amenities, including recreation sites, trails, parks, and Peace River Boudreau Lake proposed protected area ▪ Tourism features and amenities, including visitor centres, tourist accommodations, and attractions ▪ Commercial outdoor recreation interests ▪ Recreation activities undertaken on the land base, including activities, locations, and seasonal nature of activities	Physical assets, facilities and infrastructure indicate presence of and potential for recreation and tourism use. Understanding recreational activities provides insights into use of the land base. Licensed uses indicate tourism business interest on Crown land.
Changes in outdoor recreation use levels and regional tourism visitor levels	▪ Outdoor recreation use levels ▪ Regional tourism visitor levels	Use and visitor levels are a primary determinant of recreation and tourism value

25.1.5 Spatial and Temporal Boundaries

25.1.5.1 Spatial Boundaries

The Local Assessment Area (LAA) in the EIS Guidelines for the assessment of the VC of outdoor recreation and tourism is the Project activity zone and downstream to Peace Island Park. The Regional Assessment Area (RAA) in the EIS Guidelines is the Peace River Regional District.

The areas used for reporting in this assessment were updated from the originally proposed spatial boundaries in the EIS Guidelines. The LAA selected for outdoor recreation and tourism is the Project activity zone, the area within the reservoir impact lines and the Peace River downstream to Peace Island Park by Taylor. Changes in recreation and tourism infrastructure and demand would be attributable to physical change on the land base in the Project activity zone. The area within the reservoir impact lines will have land use restrictions that could affect recreation and tourism infrastructure. Peace Island Park is a key recreation and boat launching area on the Peace River that could be affected by changes to river levels during Project operations.

The RAA is the Peace River Regional District (PRRD), which is an administrative area that offers recreation and tourism opportunities similar to those present in the LAA.

Spatial boundaries are shown in Figure 25.1 and summarized in Table 25.4.

Table 25.4 Spatial Assessment Areas for Outdoor Recreation and Tourism

Local Assessment Area	Regional Assessment Area
Project activity zone, the area within reservoir impact lines and downstream to Peace Island Park	Peace River Regional District

25.1.5.2 Temporal Boundaries

The temporal boundary for the assessment is the Project construction and operations phases. The timing of the construction and operations phases, including construction and operations components and specific component activities, is described in Volume 1 Section 4 Project Description. The assessment also considers seasonal variations in outdoor recreation and tourism activities.

25.2 Information Sources and Methodology

25.2.1 Literature Review

The following information was used to formulate the baseline, and assist with assessment of potential effects:

- Project description and other project-related information
- Government databases of recreation and tourism sites, infrastructure and tenures
- Report results from a local creel survey (LGL 2010)
- Government and industry studies and publications on recreation and visitor profiles, including activity preferences, use areas, use levels, spending, and economic values

Report references are listed at the end of this section.

25.2.2 Interviews

Representatives from the following recreation groups were interviewed to identify secondary data sources, validate secondary data, and gain perspectives on key access points and recreation sites and facilities that could be affected by the Project:

- Chetwynd Snowmobile Club
- Northland Trailblazers (snowmobile club)
- Peace Country River Rats Club
- Whiskey Jack Nordic Ski Club
- Moose ATV Club

Tourism operators and representatives of government ministries with an interest in tourism were interviewed to identify data and information gaps, obtain baseline information, characterize tourism in the LAA, and discuss potential Project effects.

Volume 3 Appendix C Land and Resource Use Assessment Supporting Documentation, Part 1 Land and Resource Use Assessment Interview Methodology provides details on interview methodology. Personal Communications are listed at the end of this section.

25.2.3 Field Investigations

Field surveys were completed in 2008 to 2009 (LGL 2010) to develop an understanding of outdoor recreation sites, features, and amenities, as well as use levels and activities. The survey objectives also included completion of an angler and creel survey. A field visit took place on July 14, 2011 to view formal and informal recreation sites on the Peace River near the site of the Project and along Highway 29 between Fort St. John and Hudson's Hope and to identify potential site-specific interactions.

25.2.4 Data Management, Mapping, and Modelling

A spatial analysis was undertaken to identify the overlap between the Project activity zone, including the area within the reservoir impact lines, and outdoor recreation and tourism values. Data were collected from the provincial land and resource data warehouse, government ministries, and BC Hydro.

Data were geospatially represented using Geographic Information System (GIS) analysis. The GIS results were also used for figure preparation.

25.2.5 Aboriginal Community and Traditional Knowledge

Aboriginal community and traditional knowledge related to the Outdoor Recreation and Tourism VC was gained through review of results of BC Hydro's consultation with Aboriginal groups, of First Nations Traditional Use Studies, and of Community Baseline Studies. Where First Nations concerns and information pertaining to tenured activities was available, they are included in this section. Details regarding potential effects on traditional land and resource use are addressed in Volume 3 Section 19 Current Use of Lands and Resources for Traditional Purposes and Volume 5 Section 34 Asserted or Established Aboriginal and Treaty Rights, Aboriginal Interests, and Information Requirements.

25.3 Baseline Conditions

The following sections summarize baseline conditions for outdoor recreation and tourism in the LAA. The regional context for outdoor recreation and tourism is described in Volume 3 Appendix C Land and Resource Use Assessment Supporting Documentation, Part 5 Outdoor Recreation and Tourism, and Navigation.

25.3.1 Outdoor Recreation Features and Amenities

25.3.1.1 Recreation Sites

Recreation sites include managed and unmanaged publicly accessible sites identified in Peace River Angling and Recreational Use Creel Survey (LGL 2010). Other parks, protected areas, and park facilities are described in the next section. LGL (2010) identified a total of 49 recreation sites along the Peace River and its major tributaries, 32 of which were found on the Peace River mainstem, two on the Halfway River and 15 on the Pine River between the Sukunka River and Peace River. Total annual recreational activity level was estimated to be 15,909 user days, of which 10,353 user days were on the Peace River.

All 49 sites are accessible by boat, and 20 are accessible by both boat and road. Of the sites accessible by road, the access road to two of the Peace River sites cross private land (confluence of Maurice Creek and Unmaintained Campsite E). Municipalities or private owners maintain the high-use campgrounds and boat launches, while the primitive maintained campsites (i.e., designated Forest Recreation sites) are kept up by the Peace Country River Rats boating club. The Peace Country River Rats campsites, which are used on a first-come, first-served basis, are maintained by the local boaters of the Peace River system, with facilities including an outhouse, fire pit, and picnic table. There are a number of unmaintained campsites, shoreline access sites, scenic locations, and boat launches. The unmaintained campsites are defined as an unmaintained area consisting of a clearing in the riparian zone for tents and homemade fire pits. These sites often show evidence of use over years, such as obvious bank trails to indicate their location, and are used on a first-come, first-served basis.

Table 25.5 lists the recreation sites within the LAA. Most of these sites were developed without approval under the *Forest Practices Code of BC Act* or the *Forest and Range Practices Act* (FRPA), but 10 sites are authorized with the provincial government under Section 57 of the FRPA. Although not officially recognized by government, unregistered sites support ongoing river use for outdoor recreation purposes. BC Parks signs are posted at some sites, even though a provincial park does not exist. In most cases, sites were developed by volunteers or evolved over time through continuous use. Campsites were the most abundant site type, followed by shore access points and boat launches.

Table 25.5 Number and Type of Recreation Sites in the LAA

Type of Site	River Segment			
	Peace Canyon Dam to Hudson's Hope	Hudson's Hope to Site C Dam Site	Site C Dam Site to Alberta Border	Total
Public campground & boat launch	0	1	2	3
Boat launch & unmaintained campsite	0	0	0	0
Boat launch (only)	1	3	0	4
Public campground (only)	1	0	0	1
Primitive maintained campsite	0	8	1	9
Unmaintained campsite (only)	1	7	1	9
Cabin	0	0	0	0
Shoreline access	2	4	1	7
Scenic location	0	1	0	1
Total	**5**	**24**	**5**	**34**

NOTE:
Source: LGL (2010)

Recreation sites used by the public within the Project activity zone are listed in Table 25.6, including 10 sites that are authorized under Section 57 and managed by the Peace Country River Rats Club (River Rats). The current authorizations were signed in October 2009 for five years and will be re-evaluated at the end of the five-year term. The sites are listed by location from Hudson's Hope downstream towards the Site C dam site. Two of the Peace River sites (Confluence of Maurice Creek and Unmaintained Campsite E) are accessible by roads that cross private land and by boat.

1 **Table 25.6 Managed and Unmanaged Recreation Sites in the Project Activity Zone**

Site Name [a]	Location	Status	Ownership	Facilities
Unmaintained Campsite A	Upstream of Alwin Holland Memorial Park	Unmanaged	Crown	Beach area 18x77 m to set tents, a fire pit, and an outhouse
Alwin Holland Memorial Park	Bodeker Street off of Highway 29, Hudson's Hope, B.C.	Managed	District of Hudson's Hope	12 campsites present, some with fire pits and picnic tables. Pit toilets and refuse collection
Hudson's Hope Boat Launch	D.A. Thomas Road, Hudson's Hope	Managed	District of Hudson's Hope	Boat launch and shoreline access
Lynx Creek Boat Launch	East of Lynx Creek Bridge	Managed	BC Hydro	Boat launch and shoreline access
Confluence of Maurice Creek	Confluence of Maurice Creek	Unmanaged	Crown (access to the site crosses private land)	unmaintained camping
Lynx Creek RV Park	6 km west of Hudson's Hope, immediately west of Lynx Creek	Managed	Land is owned by BC Hydro and leased to private individual The RV park is owned by a private individual	Boat access, shoreline access, campsite (22 RV; 24 campsites; plus field for tents), picnic area; playground; horseshoe pits; volleyball net
Shoreline Access A	Off Highway 29, between Lynx Creek Boat Launch and Lynx Creek RV Park	Unmanaged	Crown	unmaintained launch
The Gates Campsite	Upstream of the Gates; on the south side of the river	Managed	Crown - maintained by the River Rats (Section 57)	Primitive site with one site and two adjacent spots cleared for tents. A table, grill, and sheltered tarp area
The Gates Boat Launch	Off Highway 29, east of Hudson's Hope	Unmanaged	Unknown	Dirt road that extends into the river, roughly 9.5 m wide
Unmaintained Campsite B	Located on an island between Lynx Creek and Farrell Creek	Unmanaged	Crown	Unmaintained campsites with some cleared areas for tents and a man-made fire pit
Unmaintained Campsite C	Located on an island just downstream of Campsite B, between Lynx Creek and Farrell Creek	Unmanaged	Crown	Cleared area for tents, homemade fire pit with grill, firewood and homemade table

Site Name [a]	Location	Status	Ownership	Facilities
Unmaintained Campsite D	Located on an island just downstream of Campsite A and B, between Lynx Creek and Farrell Creek	Unmanaged	Crown	Two small cleared areas for tents and a homemade fire pit
Farrell Creek	Users park at Farrell Creek bridge and walk down to the confluence	Unmanaged	Crown	None
Hawk Island Campsite	On an island in the Peace River, downstream of Farrell Creek	Managed	Crown – maintained by the River Rats (Section 57)	Primitive maintained campsite – Main area with additional cleared spots for other tents; there is an outhouse, fire pit, picnic table, and other furniture
Unmaintained Campsite E	Off Highway 29, between Farrell Creek and the Halfway River	Unmanaged	Crown	Unmaintained campsite with picnic area main area with a few adjacent cleared areas
Shoreline Access B	Halfway River, upstream of Highway 29 bridge crossing	Unmanaged	Crown	Unmaintained launch
Halfway River Bridge Boat Launch	Off Highway 29, east of Hudson's Hope, on east side Halfway River bridge	Managed	Crown – maintained by River Rats (Section 57)	Two dirt boat launches that extend down to the water
Rotary Campsite	On an island in the Peace River	Managed	Crown - maintained by the River Rats (Section 57)	Campsite consists of a cleared area for tents, an outhouse, homemade fire pits, picnic tables and a shelter area
Beaver House Campsite	Site located on an island, downstream of the rotary campsite	Managed	Crown - maintained by the River Rats (Section 57)	Primitive maintained campsite – Main area with additional cleared spots for other tents; there is an outhouse, fire pit, and picnic tables
Waterfalls Trail	South bank of the Peace River, downstream of Cache Creek	Managed	Crown – managed by the River Rats (Section 57)	Hiking trail that leads up to the falls
Unmaintained Campsite G	Located between Cache Creek and Wilder Creek	Unmanaged	Crown	Numerous small cleared areas for tents, homemade fireplace, benches, tables, chairs
Limestone Campsite	Downstream of Wilder Creek	Managed	Crown - maintained by the River Rats (Section 57)	Numerous small cleared areas for tents, homemade fireplace, benches, tables, chairs, and an outhouse
Primitive Maintained Campsite A (Island's End)	Upstream end of Eagle's Nest campsite	Managed	Crown - maintained by the River Rats (Section 57)	Main area with fire pit and picnic tables, small areas adjacent for tents, an outhouse

Site Name [a]	Location	Status	Ownership	Facilities
Eagle Nest Campsite	Downstream end of Primitive Maintained Campsite	Managed	Crown - maintained by the River Rats (Section 57)	Main area with fire pit and picnic tables, small areas adjacent for tents, an outhouse
Shoreline Access C	Downstream end of Eagle's Nest Campsite	Unmanaged	Crown	Fire pit
Unmaintained Campsite H	Upstream of the Moberly River confluence	Unmanaged	Crown	Unmaintained campsite with outhouse, homemade fire pit, grill, bench and table
Birch Camp Campsite	Downstream of the Moberly	Managed	Crown - maintained by the River Rats (Section 57)	Unmaintained campsite with outhouse, homemade fire pit, grill, benches, hanging pole for hunting, teepee, and table
Unmaintained Campsite F	Halfway River, upstream of Shoreline Access B	Unmanaged	Crown	No maintained campsites but hunters are known to camp in this area, remnants of old fire pits have been observed

NOTES:
[a] Listed upstream to downstream of the Project; sites identified in LGL (2010)
Source: LGL (2010)

25.3.1.2 Recreation Reserves

There are seven Use, Recreation and Enjoyment of the Public (UREP) reserves that overlap the LAA and that cover 1,692 ha within the boundaries of the Peace River Regional District (Figure 25.1). A UREP reserve is established under Sections 11 and 12 of the *Land Act* over an area of Crown land outside of Provincial Forests to guard against unwarranted disposition or unplanned use (in this case, sale or use that would compromise an area's current or potential recreation values or uses) (B.C. Ministry of Forests 1991). One is located near the Halfway and Peace rivers, one is near the Peace River, three are within the District of Hudson's Hope, and two are on Bear Flat.

25.3.1.3 Parks and Protected Areas

Within the Peace River valley there are four local campgrounds in the District of Hudson's Hope and one in the District of Taylor (Table 25.7). Collectively, the five campgrounds had 7,200 bookings in 2010. All are open from May to September. Peace Island Park and Alwin Holland Park are within the LAA.

Table 25.7 Municipal Parks and Campgrounds in the Peace River Valley

Government	Park	Location	Amenities	Activities	Cost	2010 Stays
District of Taylor	Peace Island Park	1 km south of Taylor	Boat launch, campground (223 sites), day-use area, washrooms~~, water, sani-station, boat rentals~~	Boating, fishing, swimming	$15-$20 /vehicle/ night	5,469
District of Hudson's Hope	Alwin Holland Park	3 km south of Hudson's Hope	Campground (12 sites)	Fishing, hiking	$15/ night	111
	Cameron Lake Campground	24 km south of Hudson's Hope	Campground (30 sites) day-use area	Canoeing, fishing, swimming		928
	Dinosaur Lake Campground	7 km south of Hudson's Hope	Boat launch, campground (50 sites) day-use area	Boating, fishing, swimming, hiking		486
	King Gething Park	South entrance to Hudson's Hope	Campground (15 sites), sani-station, day-use area	Sightseeing, in-town activities		243

NOTE:

Sources: District of Hudson's Hope, Director of Public Works (2011 pers. comm.); District of Taylor, Administrator (2011 pers. comm.); BC Lodging and Campgrounds Association (2012); District of Hudson's Hope (2012)

Approximately 90% of Peace Island Park campers and park users are local families who come from Taylor, Fort St. John, or elsewhere in the Peace River Regional District. The number of overnight stays at Peace Island Park has been increasing since 2005 when the District opened 43 additional lots with electricity (Figure 25.2). A Development Plan for the park indicates a need for more campsites, as the campground is often at capacity

in the summer months. Taylor is considering adding 40 camping spaces (District of Taylor 2009).

Occupancy statistics are presented in Table 25.8 for the four District of Hudson's Hope parks. Overall use has generally increased since 2005.

Table 25.8 District of Hudson's Hope Campground Occupancy, 2005 to 2010

Park	2005	2006	2007	2008	2009	2010
	No. of Parties					
Alwin Holland	1,175	1,886	95	154	2,394	111
Cameron Lake			802	1,046		928
Dinosaur Lake			595	573		486
King Gething			256	268		243
Total	**1,175**	**1,886**	**1,748**	**2,041**	**2,394**	**1,768**

NOTE:
Source: District of Hudson's Hope, Director of Public Works (2011 pers. comm.)

The Peace River Boudreau Lake proposed protected area encompasses a major portion of the south bank of the Peace River valley, the lower Moberly River valley, and the Peace River islands between Maurice Creek and downstream of the Moberly River. This area was proposed for protection in the Fort St. John and Dawson Creek Land and Resource Management Plans (B.C. Ministry of Forests, Lands and Natural Resource Operations 1997, 1999). Current recreational activities in the proposed area include public and commercial boating, canoeing, bird watching, hunting, and fishing, although current access to many parts of the proposed park is limited and use levels are relatively low (BC Parks, Planning Officer 2009 pers. comm.). A recent survey, conducted for the PRRD Parks and Trails Master Plan, indicated that respondents felt that the Peace River area is among the special areas in the PRRD that should have additional Regional Parks (Kootenay Planning Consultants 2011). Suggestions submitted by respondents for consideration by the PRRD in the Parks and Trails Master Plan included trail development and access points along the Peace River (Kootenay Planning Consultants 2011).

25.3.2 Tourism Features and Amenities

25.3.2.1 Fort St. John

There are no accommodation properties or facilities in the LAA.

Adjacent to the LAA, in the Fort St. John area, are 22 hotels, motels, and bed and breakfasts with a total of 1,400 rooms. Five campgrounds and RV facilities have a total of 270 units. Three of these facilities have pull-through sites, which are an important feature in attracting RV travellers.

Conference, meeting, and trade and consumer show facilities range from small, limited-service meeting rooms to full-service conference and meeting facilities at the larger hotels. The Pomeroy Sports Centre, owned and operated by the City of Fort St. John, is able to host conferences, conventions, and trade and consumer shows. Sport tourism is supported by the facility, as well as the North Peace Leisure Pool, the North Peace Arena, Fort St. John Curling Club, North Peace Gymnastics, a skateboard park, and several playing fields.

Arts, cultural, and heritage attractions include the North Peace Cultural Centre, Fort St. John North Peace Museum, Lido Theatre, Heritage Kiosk Walking Tour, Peace Gallery North, the Fort St. John's Arts Council, and an active performing arts community. Fort St. John is also assessing the feasibility of developing an Energy Interpretive Centre featuring the region's oil and gas heritage.

Fort St. John hosts several festivals and events throughout the year, including the High on Ice Festival, Chocolate Festival, Peace River Zone Theatre Festival, Annual Art Auction, Fort St. John International Airshow, North Peace Fall Fair, and Classic Cruisers Show and Shine.

Fort St. John has a mix of agricultural attractions, including the North Peace Horticultural Society Flower Show, Farmer's Market, July Garden Tour, and the Crushed Grapes Wine Festival.

The community has two golf courses, the Lakepoint Golf and Country Club and the Fort St. John Links Golf Course.

According to a 2010 Tourism Development Plan prepared for the City by Tourism BC, the following are the strongest regional (i.e., the city and the surrounding rural areas) tourism features (Tourism BC 2010):

- Oldest non-Aboriginal community in B.C. (1794)
- Earliest fort in B.C.
- Enerplex ice sports facility (sanctioned by Speed Skating Canada)
- Peace River transportation history (trading and cultural heritage traditions)
- Work camps positioned along the Alaska Highway during construction
- Charlie Lake Caves (dating back to 10,500 BC
- First oil well in North Peace area (discovery of high-grade oil in 1951)
- Monica Storrs (first Anglican missionary from England; arrived in Fort St. John in 1930)
- Agricultural heritage (in the 1930s, there was an influx of migrants from the Prairies and Ontario who were drawn by the area's reputation for fine agricultural land)
- High On Ice Festival (held in January each year)

25.3.2.2 Taylor

Except for Peace Island Park, all of Taylor's tourism features and amenities are outside the LAA.

The community features parks, trails, a self-guided heritage tour, and events that attract residents and visitors. The main activities are outdoor recreation, river boating, hunting, and sports tourism. Most outdoor activities are self-guided, but one operator offers guided boat tours and boat rentals. Overnight accommodation is limited to two motel properties with 26 rooms in total. Work crews are the primary market for these properties. Taylor also offers camping and RV sites at Peace Island Park, which caters to residents, tourists, and work crews.

Other visitor services include a small number of restaurants, a bar, a wine and beer store, a gas station, a laundromat, a seasonal Visitor Centre, video rentals, automotive shops, a hair salon, a framing shop, and civic amenities such as a library, a post office, and a medical clinic.

Notable tourism facilities and features in or near Taylor include (BCMTCA 2010):

- Peace Island Park
- Big Bam Ski Hill
- Lone Wolf Golf Club
- Motocross and stock car tracks
- Recreation facilities (ice centre, curling rink, swimming pool, tennis courts, baseball diamonds)
- Local trail system
- 18 annual festivals and events including the Annual World's Invitational Class "A" Gold Panning Championships (the only "world invitational")

25.3.2.3 Hudson's Hope

Two tourism facilities in Hudson's Hope are in the LAA, Alwin Holland Park, and the Lynx Creek RV Park.

Outside the LAA there is an abundance of publicly accessible lakes and rivers supporting outdoor recreation, while palaeontological resources are displayed at the Hudson's Hope Museum. Visitor centres at BC Hydro's two nearby dams, the W.A.C. Bennett Dam and the Peace Canyon Dam, interpret the surrounding natural and industrial heritage of the area and draw highway tourists. The Hudson's Hope Visitor Centre operates from May through to September. Outdoor recreation occurs year-round and, except for guide outfitting, is generally self-guided.

A total of three hotel and motel properties offer 173 rooms. The hotel, which opened with 80 rooms approximately three years ago, includes a new restaurant adjacent to the hotel. Five campgrounds have 116 units for rent. The community has other facilities and services, including meeting rooms, an arena, retail shops, and a library.

Other tourism features, facilities and activities include (Tourism BC 2011):

- Two lodges
- Hudson's Hope Museum
- River boating
- Hunting, fishing, and camping
- Several annual festivals and events

25.3.3 Commercial Outdoor Recreation Interests

A tourism operator who provides outdoor recreation services for compensation or reward from residents or non-residents on provincial Crown land must be authorized by the province and be issued an Adventure Tourism tenure (B.C. 2011). There are no such

tenures overlapping or near the Project activity zone (B.C. Ministry of Forests, Lands and Natural Resource Operations 2011).

In 2010, 143 tourism businesses were based adjacent to the LAA between Hudson's Hope and Taylor (LGL 2010). This included 12 outdoor adventure operators who offer guided services to visitors. Four of the 12 are registered guide outfitters who cater predominantly to big game hunters. The remainders specialize in backcountry adventures in the remote wilderness. The one jet boat operator who offers custom tours of the Peace River guided between 18 and 30 tourists annually between 2008 and 2011 (Hopkins 2009 and 2011, pers. comm.). This operator's guests are generally interested in sightseeing, wildlife viewing, and nature viewing.

25.3.4 Outdoor Recreation Activities

The Peace River Angler and Recreational Use Creel Survey (LGL 2010) documented recreation sites along the Peace River and its major tributaries between Peace Canyon Dam and the Alberta border. Table 25.9 shows camping and fishing to be the most widespread activities, occurring at 21 and nine recreation sites in the LAA, respectively.

Table 25.9 Outdoor Recreation Activities Supported at Recreation Sites in the LAA

Recreational Activity	Number of Sites Supporting Activity
Camping	21
Fishing	9
Boating (jet and other)	8
Shoreline leisure	3
Picnicking	3
Hunting	3

Recreational Activity	Number of Sites Supporting Activity
Hiking	2
Snowshoeing	2
Birding	1
Cross-country skiing	1
Dog sledding	1

NOTE:
Source: LGL (2010)

Camping was the most popular activity from May through September, and jet boating was the most popular in April, October, and November (LGL 2010). Fishing was a popular activity until October, and hunting was popular in the fall. In the summer months, swimming, camping, picnicking, and shoreline leisure were popular activities. Fishing and jet boating were the predominant activities on the Peace River upstream of the Site C dam site location, whereas camping and jet boating were most popular downstream of the Site C dam site and in the Pine River. In terms of river access, Peace Island Park was used more than any other site.

The Moose all-terrain vehicle (ATV) Club promotes use of nine different trails systems within the RAA, three of which occur southeast of the Site C dam site (Septimus-Mud, Stewart, and Johnson) but not within the LAA (Figure 25.1). The club is looking to expand its trail system to avoid competing with off-road trucks and dirt bikes for existing trails. The club estimates 5,000 to 6,000 ATV users in Fort St. John (Hergott 2008, pers. comm.).

Within the RAA, the Whiskey Jack Nordic Ski Club sets trails at the Fort St. John Links Golf Course, Peace Island Park (Taylor), the Fish Creek Community Forest, and in Beatton Provincial Park (Charlie Lake). The Peace Island Park trail is the only

designated cross-country ski trail within the LAA. Current plans include the purchase of new grooming equipment, trail widening, and a warming hut. Approximately 300 cross-country skiers actively use the Peace valley, with most activity occurring on designated trails. Skiing along the Peace River (within the LAA) does occur, including along Old Hope Road as far as private cultivated lands near Wilder Creek and occasionally along Farrell Creek. Crown land is not managed for recreational access, which limits opportunities in the region (Stanford 2008, 2011 pers. comm.).

The Northland Trailblazers Snowmobile Club estimates 5,000 snowmobiles and between 3,000 and 4,000 active snowmobilers in the RAA. Popular use areas within the RAA and near the LAA include the upper Pine River, the Monias area (when the Pine is frozen), the Septimus-Mud and Stewart Lake trails (with some cut lines leading down to the Peace River within the LAA), around Dinosaur and Charlie lakes, and on lower Cache Creek adjacent to Bear Flat (within the LAA). The Cache Creek trails are not official (i.e., registered with the province) but they are marked (the club has discussed recognition with the provincial government). The Stewart Lake trail has been registered with the province and as a result, oil and gas companies are required to contact the club before working in the area. Within the LAA, snowmobilers use Old Hope Road as far as Bear Flat on a regular basis. Other informal trails include pipeline rights-of-way, seismic lines, and hydro lines (Dancey 2008, pers. comm.; Northland Trailblazers, group interview 2011, pers. comm.). Outer areas of Peace Island Park further west along “Big Bam Road” are used to provide access to trails for motorized activities such as snowmobiling, quad touring, and motocross (District of Taylor, Administrator 2009, pers. comm.).

Most of all-terrain vehicle use, cross-country skiing and snowmobiling occurs on designated and informal trails outside the LAA. Use areas within the LAA include Peace Island Park, snowmobile trails on lower Cache Creek adjacent to Bear Flat, and Old Hope Road.

The Peace Country River Rats (River Rats) is an organized group of river boaters with a membership of over 300 boats and 600–1,500 persons (two to five per boat) from Fort St. John and the surrounding area. The club represents mainly jet boaters; this activity is increasing in popularity due to the prevalence of rivers versus lakes in the region and the improving technology. Organized activities such as poker runs and stewardship initiatives, including riverside cleanup, are regularly held. Based on interviews with users, at any given time up to 100 jet boats, or an average of 50 to 60 jet boats on weekends (and a small number of canoeists and aluminum boats), are on the local rivers. The boating season lasts as long as the rivers are not frozen. Approximately 60% of local river use is on the Pine River, 35% on the Peace River upstream of the Pine River confluence (the majority destined for the Halfway River), and 5% on the Peace River downstream of Pine River. There is a small amount of jet boat use on the West Moberly River. The Pine River is preferred due to its close proximity to Peace Island Park, favourable sites, and relatively warm water. Club members who are using the Peace River and tributaries sites are usually camping, fishing, and hunting (Dorey 2008, pers. comm.; Ebert 2009, 2011a, 2011b, pers. comm.). Club sites and use are described in LGL (2010).

The River Rats built and maintain many of the sites documented in the LGL (2010) survey and listed in Section 25.3.1. The club estimates that it spent $2,500 per site on 11 sites within the Peace, Pine, and Moberly rivers between 2003 and 2008. These sites are designated Forest Recreation Sites with short-term Section 57 authorizations issued

to the River Rats. In cooperation with BC Hydro, the River Rats invested $14,000 in 2010 to upgrade the Halfway River boat Launch.

In April and May 2011, BC Hydro surveyed people who own or lease land within the Project area on the type of recreational uses they allow on their privately owned or leased land. Survey results are summarized in Table 25.10. In general, property owners or lessees permit recreational access by friends and family. Most of the owners and lessees reported use of their property by people without permission.

Table 25.10 Recreational Use of Private Property

General Location	Public Recreational Use on the Property
Lynx Creek	No ATVs or snowmobiles are allowed; hunting is allowed occasionally; occasional riding. People enter the property without permission – dog walkers, and hikers. Trapper has the line, but does not trap anymore. ATVs and snowmobiles not much of a problem due to fencing. No recreational horse riding. No fishing.
Farrell Creek	There is no public recreational use on the farm. They will allow family-only skiing, snowmobiling, and quad access. May allow friends to hunt on the property.
Lynx and Farrell Creek areas	Allow friends and family to ride on property, fish, ride ATVs, and hunt deer and elk. Have call out for limited entry elk hunting. Allow river access.
Halfway River	Recreational use (including hunting) is allowed by invitation only. There is no public recreational use.
Halfway River and Farrell Creek areas	An outfitter brings hunting guests to the ranch. Family and friends also hunt on the ranch, and some ATV and snowmobile use is allowed with permission
Halfway River and Wilder Creek areas	Occasional access for fishing and hunting is allowed; no snowmobiles or ATVs are allowed.
Cache Creek	There is no public recreational use on the farm. Invited guests and family occasionally ride and hunt on the ranch. ATVs, snowmobiles, riding, hunting; generally do not allow non-family members access for recreational use. Hunting is allowed for family and friends; no shooting within ¼ mile of highway. There have been problems with others during the hunting season and occasionally unauthorized access has been a problem. Groups (Scouts, etc.) camped at “gravel pit” site. Allow friends and family to ride on property. Have call out for limited entry elk hunting (15 to 20 people per year). Allows access to river for fishing and boating. Occasional trespass and vandalism issues.
Cache Creek and Wilder Creek areas	Allow hunting (primarily to control elk populations), horseback riding and hiking, with permission. Try to control access to walking or by horseback. 4x4s and ATVs are not allowed.
Wilder Creek	Have allowed acquaintances to hunt, horseback ride, hike, and use ATVs and snowmobiles on the property; people are supposed to ask for access, but there is a lot of unauthorized access. There is significant recreational use allowed including hunting, fishing, horse riding, ATVs, snowmobiling; trapping is not allowed.
Fort St. John (near Site C dam site)	Allows occasional access for fishing, riding, ATVs, snowmobiling occurs but is not authorized. Hunting occurs with and without permission.

NOTE:
ATV – all-terrain vehicle

25.3.5 Outdoor Recreation Use Levels

Table 25.11 summarizes recreation participation levels by month and activity for 2008 to 2009. The most common activities on the Peace River between Hudson's Hope and the Alberta border were camping, jet boating, and fishing.

Table 25.11 Number of Participants, by Month and by Activity, 2008 to 2009

Activity	All	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Camping	**2,591**	0	0	0	12	213	630	751	647	328	10	0	0
Jet boating	**2,104**	0	0	0	101	121	277	751	575	206	60	13	0
Fishing	**926**	3	3	2	45	121	189	240	201	104	18	0	0
Shoreline leisure	**620**	0	0	0	0	39	113	320	129	19	0	0	0
Picnicking	**485**	0	0	0	23	82	113	112	101	39	15	0	0
Other	**243**	5	0	0	14	29	113	48	14	19	0	0	1
Swimming	**194**	0	0	0	0	0	13	48	101	32	0	0	0
Hunting	**131**	0	0	0	0	5	0	0	0	84	42	0	0
Boating	**129**	0	0	0	0	5	76	32	14	0	2	0	0
Hiking	**75**	2	0	0	2	10	25	16	14	6	0	0	0
Canoeing	**50**	0	0	0	0	5	25	0	14	6	0	0	0
Wildlife viewing	**35**	0	0	0	0	29	0	0	0	6	0	0	0
Birding	**15**	0	0	0	0	15	0	0	0	0	0	0	0
Kayaking	**11**	0	0	0	0	5	0	0	0	6	0	0	0
Rock/fossil hunting	**10**	0	0	0	0	10	0	0	0	0	0	0	0
Total	**7,619**	**10**	**3**	**2**	**197**	**689**	**1,574**	**2,318**	**1,810**	**855**	**147**	**13**	**1**
People interviewed	**5,722**	10	3	2	178	485	1,259	1,598	1,438	644	91	13	1

NOTE:
Source: LGL (2010)

Table 25.12 indicates that the most frequently used launch for accessing the Peace River was at the Peace Island Park. Access occurred in early spring to late fall, with a peak in activity in July and August. Of the participants who accessed the river from Peace Island Park, 10% travelled passed the Site C dam site location by moving into Hudson's Hope to the proposed Site C dam site river strata, or Peace Canyon Dam to Hudson's Hope river strata. Another 30% travelled into the Pine River (LGL 2010).

Table 25.12 Number of Participants, by Month and by River Access Site, 2008 to 2009

Activity	All	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Peace Island Park	3,263	3	0	0	85	136	705	959	935	386	40	13	1
Clayhurst	524	0	0	0	20	78	126	144	101	45	10	0	0
Alwin Holland Park	428	0	0	0	11	68	76	64	158	45	6	0	0
Lynx Creek RV Park	410	0	0	0	0	107	88	96	72	39	8	0	0
Lynx Creek Launch	352	2	3	0	21	29	88	112	43	52	2	0	0
Hudson's Hope Launch	171	0	0	2	32	39	13	64	14	6	1	0	0
Halfway River Bridge	147	5	0	0	0	15	13	32	58	6	18	0	0
Twidwell Bend	145	0	0	0	5	5	0	80	29	26	0	0	0
Sukunka Road	127	0	0	0	0	5	113	0	0	6	3	0	0
East Pine	90	0	0	0	0	5	13	32	14	26	0	0	0
Highway 29 bridge	85	0	0	0	4	24	38	16	0	0	3	0	0
Farrell Creek Mouth	6	0	1	0	0	5	0	0	0	0	0	0	0
Total	**5,748**	**10**	**4**	**2**	**178**	**516**	**1,273**	**1,599**	**1,424**	**637**	**91**	**13**	**1**
People interviewed	5,722	10	3	2	178	485	1,259	1,598	1,438	644	91	13	1

NOTE:
Source: LGL (2010)

25.3.6 Regional Tourism Visitor Levels

The latest study of visitors to Northeast B.C. was conducted by the Northern Rockies Alaska Highway Tourism Association (NRAHTA) in 2005. It indicated that approximately 50% of overnight travellers to Northeast B.C. were from B.C., while the remainder were from Alberta and the U.S. The majority of travellers were over 55 years of age and less than 15% travelled with children. Close to 50% were travelling to or from Alaska, while 15% were destined for Northeast B.C. Travelers destined for Northeast B.C. were more likely to be visiting friends and relatives or on business rather than for leisure purposes (NRAHTA 2005).

The natural environment is an important travel motivator for visitors to the Northeast, and Sixty per cent stated that key motivators were the desire to see wild places and to have new experiences. Popular activities while in the Northeast were visiting a park, walking, hiking or cycling, and going shopping (NRAHTA 2005).

Fort St. John hosted 176,300 visitors in 2007, while another 47,000 visited other communities or rural areas in the North Peace, including Hudson's Hope and Taylor (Bass 2009). Eighty-one per cent of visitors stayed in commercial accommodations, and the remainder stayed with friends and relatives. More than 40% of all visitors in 2007 had business as a primary trip purpose, 17.9% were visiting friends and relatives, and the remaining 40% were leisure visitors. Total visitor spending was estimated at $64 million in Fort St. John and $9.2 million in the remainder of the North Peace, for a cumulative total of $73.2 million. The North Peace is defined as the municipalities of Fort St. John, Hudson's Hope and Taylor, as well as areas B and C of the Peace River Regional District. Business visitors accounted for 72.6% of this spending (Bass 2009). Fort St. John, Taylor, and Hudson's Hope each operate a Tourism BC-approved visitor centre providing visitor counselling, travel information and literature, community information, itinerary planning and, in some cases, accommodation reservations. Total attendance at these visitor centres was 22,546 in 2010. Attendance increased 8% in the previous 10 years. Attendance declines in Hudson's Hope were offset by increased attendance at Taylor and Fort St. John. Visitor centre attendance in the South Peace visitor centres (Dawson Creek, Pouce Coupe, Chetwynd, and Tumbler Ridge) has declined over the last 10 years. Over 90% of visitors in the South Peace used the centres in the May to September period (Tourism BC 2011).

25.4 Effects Assessment

25.4.1 Effects Assessment – Construction – Changes in Outdoor Recreation and Tourism Infrastructure

This section assesses construction effects of the Project on outdoor recreation infrastructure and on tourism infrastructure.

25.4.1.1 Outdoor Recreation Infrastructure

The potential of the Project to adversely affect outdoor recreation infrastructure during construction is assessed by taking into account the potential for the Project to result in changes to the following key aspect:

- Managed and unmanaged outdoor recreation sites, trails, parks, and the Peace River Boudreau Lake proposed protected area using spatial analysis

Changes to the following indicators are used to describe potential effects on this key aspect:

- Outdoor recreation features and amenities
- Recreation activities undertaken on the land base

These key indicators are discussed below.

The following managed recreation sites would be affected and rendered unusable as a result of Site C reservoir inundation:

- Hudson's Hope boat launch
- Lynx Creek boat launch
- Lynx Creek RV park

- The Gates Campsite
- Hawk Island Campsite
- Halfway River Bridge boat launch
- Rotary Campsite
- Beaver House Campsite
- Waterfalls Trail
- Limestone Campsite
- Island's End Campsite
- Eagle Nest Campsite
- Birch Camp Campsite

The shoreline of Alwin Holland Park would also be inundated. In total, 14 managed and 14 unmanaged (informal) recreation sites would be affected by the Project. All except Alwin Holland Park would be rendered unusable by the Site C reservoir clearing and flooding. A campground on private property west of Cache Creek would be affected by the Highway 29 realignment. The Project would not affect registered recreation trails. Table 25.13 shows the area of Use, Recreation, and Enjoyment of the Public (UREP) reserves that would be affected due to Project activities. The Site C dam site, transmission line, and quarried and excavated materials sites would not affect UREP reserves. Access road development during construction would affect 3 ha of UREP reserves. The clearing and filling of the Site C reservoir would affect 111 ha (or 29%) of the area of UREP reserves in the Project activity zone.

Table 25.13 UREP Reserves in Project Activity Zone and Within the Reservoir Impact Lines.

Crown Lands File Number	Location	Tenure Area in PRRD	Five-Year Beach Line [a]	Site C Dam Site Area [b]	Transmission Line [c]	Construction Access Roads [d]	Quarried & Excavated Materials [e]	Five-Year Beach Line to Outermost Impact Line [f]	Total	% of Tenure Area in PRRD
		ha								
118450	Halfway-Peace	17.1	16.4	0.0	0.0	0.0	0.0	0.0	16.4	95.9
194508	Peace River	3.4	3.3	0.0	0.0	0.0	0.0	0.0	3.3	97.1
263815	Hudson's Hope	219.7	1.0	0.0	0.0	0.0	0.0	7.1	8.1	3.7
308767	Hudson's Hope	48.5	15.1	0.0	0.0	2.8	0.0	0.7	18.6	38.1
8000190	Bear Flat	49.0	31.8	0.0	0.0	<0.1	0.0	8.7	40.5	82.6
8001879	Bear Flat	43.1	43.1	0.0	0.0	0.0	0.0	0.0	43.1	100%
Total		**380.8**	**110.7**	**0.0**	**0.0**	**2.8**	**0.0**	**16.5**	**130.0**	**34.1**

NOTES:

[a] Five-Year Beach Line is the predicted extent of shoreline retreat at the maximum normal reservoir level five years after impoundment of the proposed reservoir as defined in Volume 2 Appendix B Geology, Terrain Stability, and Soil Reports, Part 2 Preliminary Reservoir Impact Lines

[b] Site C dam site and substation construction areas and restricted access zones as described in Volume 1 Section 4 Project Description

[c] Transmission line corridor and one-time clearing areas as described in Volume 1 Section 4 Project Description

[d] Permanent and temporary roads, Highway 29 realignment as described in Volume 1 Section 4 Project Description

[e] Off-site construction material sources as described in Volume 1 Section 4 Project Description

[f] Five-Year Beach Line to outermost impact line including the stability impact line, landslide-generated wave impact line, or flood impact line as defined in Volume 2 Appendix B Geology, Terrain Stability, and Soil Reports, Part 2 Preliminary Reservoir Impact Lines

< – less than

PRRD – Peace River Regional District

UREP – Use, Recreation, and Enjoyment of the Public

Totals may not add up due to rounding

Source: Hillcrest Geographics (2012)

The Project would decrease the land base and increase both the water area and public access to the water within the Peace River Boudreau Lake proposed protected area. The Site C reservoir would be available for recreational opportunities in line with protected area objectives.

Table 25.14 shows that 6,646.8 ha (28%) of the Peace River Boudreau Lake proposed protected area would be affected by construction activities. Almost 15% of the proposed protected area would be within the defined by Five-Year Beach Line to outermost impact line (3,522.7 ha), but outdoor recreation activities within this area will continue to be permitted during construction and operations of the Project.

Table 25.14 Peace River Boudreau Lakes Proposed Protected Area in Project Activity Zone and Within the Reservoir Impact Lines

PRB Area	Five-Year Beach Line[a]	Site C Dam Site Area[b]	Transmission Line[c]	Construction Access Roads[d]	Quarried & Excavated Materials[e]	Five-Year Beach Line to Outermost Impact Line[f]	Total	% of PRB Area
	ha							
23,789.6	6,408.9	215.7	0.0	22.2	0.0	3,522.7	10,169.5	42.7

NOTES:

[a] Five-Year Beach Line is the predicted extent of shoreline retreat at the maximum normal reservoir level five years after impoundment of the proposed reservoir as defined in Volume 2 Appendix B Geology, Terrain Stability, and Soil Reports, Part 2 Preliminary Reservoir Impact Lines

[b] Site C dam site and substation construction areas and restricted access zones as described in Volume 1 Section 4 Project Description

[c] Transmission line corridor and one-time clearing areas as described in Volume 1 Section 4 Project Description

[d] Permanent and temporary roads, Highway 29 realignment as described in Volume 1 Section 4 Project Description

[e] Off-site construction material sources as described in Volume 1 Section 4 Project Description

[f] Five-Year Beach Line to outermost impact line including the stability impact line, landslide-generated wave impact line, or flood impact line as defined in Volume 2 Appendix B Geology, Terrain Stability, and Soil Reports, Part 2 Preliminary Reservoir Impact Lines.

PRB – Peace River Boudreau Lake proposed protected area

PRRD – Peace River Regional District

Source: Modified from Hillcrest Geographics (2012)

The following public access restrictions would be in place on the Peace River during construction:

- Boat passage would be permanently restricted at the Site C dam site beginning in Year 1 of construction. Restrictions would occur on either side of the Site C dam site construction zone, including approximately 3 km upstream and downstream of the Site C dam site.
- Due to a debris collection boom, estimated placement two years after the construction activities begin, boat access on the Peace River would be restricted approximately 12 km from the Site C dam site in the vicinity of Wilder Creek.
- Boat access to the Peace River upstream of Wilder Creek would be permitted through the final six years of construction. However, temporary restrictions would occur throughout the Site C reservoir during periods when specific project activities

(e.g., vegetation clearing and Hudson's Hope Shoreline Protection construction) would take place.

- It is expected that both the Lynx Creek and Halfway River boat launches would remain open during construction with only temporary closures; however, debris hazards would be expected, based on progress with clearing activities.

The loss of boat launch sites and loss or restricted access in the Site C reservoir would result in users taking one or more of the following actions:

- Seek out alternative or substitute recreation areas for the same activity that is affected
- Engage in different outdoor recreation activities that are not affected by the Project
- Reduce or eliminate participation in the recreational activity that is affected

For example, during construction, Peace Island Park could experience an increase in visitor numbers as access restrictions are placed on other access points and campsites along the river upstream of the park and the Site C dam site. The activities that would be affected to a lesser extent by the Project are those where the Peace River is not a primary use area and where there is available capacity in the LAA to maintain opportunities for participation at a similar cost and without any substantive diminishment in carrying capacity. This would include almost all of the activities identified in the LGL study (2010), except for jet boating and camping.

Discussions with ATV and snowmobile groups suggest that the effects on their activities would be minimal. Similarly, users such as cross-country skiers, motor bikers, and mountain bikers who are seeking a trail experience would conduct the majority of their use outside the LAA, as there are no designated trails within the LAA. Spatial analysis results indicate that there are no registered recreation trails in the LAA.

During Project construction it is expected that there would be adverse effects on outdoor recreation activities on the Peace River. Participation in river-based recreation activities may be reduced, or may be displaced to alternative areas such as the Pine River, or the Peace River downstream during periods of restricted use during construction activities.

25.4.1.2 Tourism Infrastructure

The potential of the Project to adversely affect tourism infrastructure during construction is assessed by taking into account the potential for the construction of the Project to result in changes to the following key aspect:

- Visitor centres, tourist accommodations, and tourist attractions

Changes to the following indicators are used to describe potential effects:

- Tourism features and amenities
- Commercial outdoor recreation interests

25.4.1.2.1 Tourism Features and Amenities

Physical changes to the landscape that would occur during construction would alter the tourism setting, and would change access and use on the Crown land base and on the Peace River and its tributaries. These changes could affect tourism businesses that use

sites or infrastructure within the Project activity zone and the area within the reservoir impact lines, as well as tourists who would use areas within or nearby the Project activity zone on a self-guided basis. The GIS analysis indicated that were no tourism features or amenities on Crown land in permanently occupied areas of the Project activity zone (Hillcrest 2012). Table 25.15 indicates there are no existing tourism features or amenities on Crown land that would be temporarily occupied by Project construction, and one feature and one facility within the area between the Five-Year Beach Line and the outermost impact line, where tourism activity could continue.

As there are no permanent loss of tourism features and amenities, adverse effects on visitor centres, tourist accommodations, tourist attractions, or regional visitor levels in the LAA are not anticipated.

Table 25.15 Tourism Indicators on Crown Land in the Project Activity Zone and Within Reservoir Impact Lines

Indicator	5-Year Beach Line[a]	Site C Dam Site Area[b]	Transmission Line[c]	Construction Access Roads[d]	Quarried & Excavated Materials[e]	5-Year Beach Line to Outermost Impact Line[f]	Total
	ha						
Existing Tourism Facilities (count)	0.0	0.0	0.0	0.0	0.0	1.0	1.0
Tourism Features (count)	0.0	0.0	0.0	0.0	0.0	1.0	1.0
Commercial Recreation Tenures (ha)							
Lease	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Licence	0.0	0.9	0.0	0.0	0.0	0.0	0.9
Reserve/Notation	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total *Land Act* Tenures (ha)	0.0	0.9	0.0	0.0	0.0	0.0	0.9
Commercial Recreation Tenure Applications (ha)	3524.5	65.9	0.8	0.0	0.0	5.9	3,597.1

NOTES:

[a] Five-Year Beach Line is the predicted extent of shoreline retreat at the maximum normal reservoir level five years after impoundment of the proposed reservoir as defined in Volume 2 Appendix B Geology, Terrain Stability, and Soil Reports, Part 2 Preliminary Reservoir Impact Lines

[b] Site C dam site and substation construction areas and restricted access zones as described in Volume 1 Section 4 Project Description

[c] Transmission line corridor and one-time clearing areas as described in Volume 1 Section 4 Project Description

[d] Permanent and temporary roads, Highway 29 realignment as described in Volume 1 Section 4 Project Description

[e] Off-site construction material sources as described in Volume 1 Section 4 Project Description

[f] Five-Year Beach Line to outermost impact line including the stability impact line, landslide-generated wave impact line, or flood impact line as defined in Volume 2 Appendix B Geology, Terrain Stability, and Soil Reports, Part 2 Preliminary Reservoir Impact Lines

Totals may not add up due to rounding

Source: Modified from Hillcrest Geographics (2012)

25.4.1.2.2 Commercial Outdoor Recreation Interests

There is one commercial recreation *Land Act* tenure for a hunting camp (area of 0.9 ha) in the Site C dam site area, as seen in Table 25.15. This operator would not be able to carry on business at this location. There is an application for a commercial recreation tenure in the Site C reservoir area. The Site C reservoir portion represents approximately 22% of the applicants requested tenure area.

As noted in Section 25.3.3, there is a commercial recreation operator situated in Fort St. John who uses the Peace River, but does not have tenure of any kind. This operator could operate in the early years of construction but would eventually be unable to conduct tours in the same way as in the past.

There are two other tourism facilities operating on private land that would also be affected by the Project.

- A campground is located near Bear Flat above the Site C maximum normal reservoir level but within the reservoir impact lines. A portion of the property would be directly affected by the highway realignment at Cache Creek. During the property acquisition phase of the project, BC Hydro will enter into an agreement with the owner for the land or rights required and the disturbance damages and costs related to the acquisition (see Volume 2 Section 11.3 Land Status, Tenure, and Project Requirements). The Bear Flat campground is reported as being an important gathering site for a variety of Treaty 8 First Nations gatherings, including Elders camps, Youth and Elders camps, and Treaty 8 meetings (T8FNs Community Assessment Team and The Firelight Group Research Cooperative 2012). The Nenan Dane-zaa Deh Zona Child and Family Services Society (NENAN), a social services organization for Aboriginal people in the Peace River Regional District, holds an annual Youth and Elders gathering at the campground. According to NENAN, this area was chosen due to its “profound significance as Treaty 8 people have gathered, camped, hunted, and practiced ceremony here since time immemorial” (T8FNs Community Assessment Team and The Firelight Group Research Cooperative 2012). Potential effects on Aboriginal traditional use of lands are discussed in Volume 3 Section 19 Current Use of Lands and Resources for Traditional Purposes.
- Lynx Creek RV Park is located on BC Hydro-owned land at Lynx Creek. The current operator is leasing this land.

The above changes to commercial outdoor recreation interests would have localized effects on individual operators. As noted in Section 25.3.6, the majority of existing travellers are either on business trips, passing through to other destinations or visiting friends and relatives. The travel motivations of these groups would not change with the Project.

The Project is not expected to have an adverse effect on visitor centres, tourist accommodations, tourist attractions, or regional visitor levels in the LAA.

25.4.2 Effects Assessment – Operations – Changes in Outdoor Recreation and Tourism Infrastructure

25.4.2.1 Outdoor Recreation Infrastructure

The potential to adversely affect outdoor recreation infrastructure during operations is assessed by taking into account the potential for the operation of the Project to result in changes to the following key aspect:

- Managed and unmanaged outdoor recreation sites, trails and parks, using spatial analysis

Changes to two key indicators are used to describe potential changes in recreation and tourism infrastructure during operations:

- Outdoor recreation features and amenities
- Recreation undertaken on the land base

During operations of the Site C reservoir it would be expected that new recreation infrastructure would be built over time, in addition to those provided by BC Hydro, as the Site C reservoir would become a recreation destination. Based on the current experience in the region, it would be expected that future new recreation amenities or services would be provided by a mix of community, private, and local or provincial government groups. Coordinated planning for the reservoir can help to develop a vision and plan for recreation on and near the reservoir. The land ownership surrounding the reservoir is a mix of municipal, private and crown land.

During the early years of operations, public access restrictions would be in place for safety reasons, which would limit the recreation activities that take place on the Site C reservoir and water shoreline while debris and slope stability management and monitoring are undertaken.

The following public access approach applies to the Site C reservoir:

- Shoreline use along the reservoir is expected to be available near Hudson's Hope shortly after reservoir filling, with additional areas opened for use based on monitoring of slope conditions
- Boat access restricted permanently at the Site C dam site for safety reasons
- A recommended one-year navigation use restriction after the Site C reservoir filling by prohibiting BC Hydro boat launch access and posting signage advising of public safety hazards
- Construction of reservoir boat launches and recreation areas would begin after the first year, pending evaluation of public safety hazards
- Areas would be opened based on monitoring of reservoir conditions related to slope stability and debris management
- A Site C reservoir debris boom would be installed at Wilder Creek and may be in place for several years during the freshet in June through July or August, depending on the amount of debris accumulation and the speed at which the Site C reservoir is cleared of debris after inundation.

BC Hydro's would seek input from Transport Canada and local authorities on the proposed approach to managing Site C reservoir boating access during these early years.

As access restrictions are lifted, the operation of the reservoir would result in a beneficial change to outdoor recreation activities, as it would support a wider variety of summer boating than on the river today, such as house boating and sailing as well as enabling snowmobiling and ice fishing during the winter. It is expected that the proposed normal Site C reservoir operating regime of between 460 m to 461.8 m would be conducive to recreation use and boating, based on experience in other BC Hydro reservoirs.

Reservoir shoreline areas would be opened based on monitoring of slope conditions. Recreation sites downstream of the Site C dam site, notably Peace Island Park, would see increased use due to displaced demand until the Site C reservoir is fully available.

Activities that would increase in use are camping, hiking, lake boating (with a wider range of craft than is the case with the river), canoeing, and kayaking, as well as wind-dependent sports like windsurfing. Local users and groups could create informal

recreation sites along the Site C reservoir, as they do today along the river shorelines. Feedback obtained in Stage 2 public consultation showed that 58% of respondents were at least somewhat likely to use the Site C reservoir for recreation if there was access, and that the most likely uses were day use, camping, hiking and fishing (Kirk & Co. Consulting Ltd. and Synovate Ltd. 2009). Participation in nature observation could increase if access to the Site C reservoir was better than it is now to the river, but many outdoor recreation participants have stated a preference for a natural river setting over a reservoir setting by indicating a lower value for the latter.

After the early reservoir years and over the long-term operation of the Site C reservoir is expected to have a beneficial effect, resulting from an expected increase in formal and managed outdoor recreation infrastructure that would support a variety of recreation activities on the Site C reservoir.

25.4.2.2 Tourism Infrastructure

The potential of the Project to adversely affect tourism infrastructure during operation is assessed by taking into account the potential for the construction of the Project to result in changes to the following key aspect:

- Visitor centres, tourist accommodations, tourist attractions, and regional visitor levels

Changes to the following indicators are used to describe potential effects:

- Tourism features and amenities
- Commercial outdoor recreation interests

25.4.2.2.1 Tourism Features and Amenities

As with outdoor recreation, tourism would be affected by access restrictions to the Site C reservoir during the early years of operations due to debris and slope stability. However, over time, new tourism activities would emerge at the Site C reservoir and the Site C dam site. The International Commission on Large Dams has stated that tourism is often one of the major benefits of large dams due to the attractiveness of reservoirs (ICOLD 1999). Visitors who would normally have used the river area would be able to have a similar experience on the Site C reservoir in terms of hiking, camping, wildlife viewing, and nature observation. The following would contribute to new tourism features and amenities:

- The improved infrastructure as outlined in the Outdoor Recreation Mitigation Plan (Volume 3 Appendix E Outdoor Recreation Mitigation Plan)
- Easier access to the south bank of the Peace River as compared to the baseline
- As noted in the Navigation assessment (Volume 3 Section 26 Navigation), by limiting normal Site C reservoir operating ranges (maximum of 1.8 m), instituting debris management, and implementing infrastructure and access improvements, the navigability and tourism use of the Site C reservoir would be enhanced
- Improved road conditions along the realigned Highway 29 would reduce travel times, and improve road safety conditions for visitors due to expanded passing lanes and reduced highway slopes

- The potential for new products such as houseboat trips, canoeing, camping, and hiking due to enhanced navigability and new infrastructure
- Opportunities for Fort St. John to market the Site C reservoir in the same way that the District of Hudson's Hope markets the recreation opportunities on both Williston and Dinosaur reservoirs

Visitors who would have come to the region in the absence of the Project would continue to do so in the presence of the Project. The activities they elect to pursue and their overall experience would be different, as tourism features and amenities would have changed.

The Project is not anticipated to have an adverse effect on visitor centres, tourist accommodations, tourist attractions, and regional visitor levels.

25.4.2.2.2 Commercial Outdoor Recreation Interests

Project operations would not generate incremental effects on commercial outdoor recreation interests. Prospective operators would continue to have access to Crown land for outdoor recreation tenures and would be able to develop new products on the Site C reservoir, in accordance with the regulations.

Adverse effects on visitor centres, tourist accommodations, tourist attractions, and regional visitor levels are not anticipated.

25.4.3 Mitigation Measures – Changes in Outdoor Recreation and Tourism Infrastructure

25.4.3.1 Outdoor Recreation

BC Hydro has developed an Outdoor Recreation Mitigation Plan for the Project (Volume 3 Appendix E Outdoor Recreation Mitigation Plan). The plan specifies opportunities for recreation infrastructure on the Site C reservoir, and provides direct support to other recreation providers in the region. The following mitigation measures will be implemented by BC Hydro to address effects and to enhance benefits to outdoor recreation and tourism infrastructure during Project construction and operations:

- Developing a Public Safety Management Plan that will identify public communications procedures for public safety hazards, and access restrictions and closures during construction and operation of the Site C reservoir (Volume 5 Section 35 Summary of Environmental Management Plans)
- Establishing and operating three new permanent Site C reservoir launches and day use sites (Cache Creek and Lynx Creek trailer launches and a small craft launch at the Hudson's Hope Shoreline Protection) to replace flooded boat launch areas
- Providing funds to the District of Hudson's Hope for the enhancement of Alwin Holland Park or other community shoreline recreation areas
- Providing a Community Recreation Site Fund to support development of new shoreline recreation within the Peace River and tributaries through to the Alberta border, as well as the Site C reservoir

- Providing technical support to outdoor recreation providers that require access to the Site C reservoir to assist with their development along, or adaptation to, new shoreline conditions
- Funding the development of a B.C. Peace River/Site C Reservoir Navigation and Recreation Opportunities Plan

These mitigation measures will partially mitigate effects on outdoor recreation and tourism infrastructure, but do not mitigate the effects of the loss of 28 managed and unmanaged sites (and associated access closures and restrictions) that occur over the construction period and the early years of operation.

Once operational, the Site C reservoir would create new recreation opportunities and a changed navigation environment. To support long-term planning for the new environment, BC Hydro will fund the development of Navigation and Recreation Opportunities Plan. The planning process will enable user groups, Aboriginal groups, local and regional government, as well as provincial and federal (Transport Canada) government agencies ~~interest groups like the Peace Country River Rats and local communities, including Hudson's Hope, Fort St. John, and Taylor~~ to understand, plan for, and optimize new recreation opportunities created as a result of the Project. ~~The involvement of Aboriginal groups is also supported.~~ Plan objectives are described in Volume 3 Section 26 Navigation.

25.4.3.2 Tourism

Mitigation applied to address Project effects on outdoor recreation infrastructure is also relevant to address effects on tourism infrastructure. Other mitigation measures to address project effects on tourism include the following:

- BC Hydro will enter into agreements with the owners of the campground at Cache Creek and the hunting camp near the Site C dam site. Where it is both physically and economically feasible, the costs to relocate facilities will be included in the agreements.
- A north bank Site C dam site public viewpoint will be provided during the construction and operational phases at a site to be determined during the final design phase
- In addition to the above-noted outdoor recreation mitigation, the Outdoor Recreation Mitigation Plan for the Project (Volume 3 Appendix E Outdoor Recreation Mitigation Plan) will provide technical support to outdoor recreation providers that require access to the Site C reservoir (such as RV parks, campgrounds, and marinas operated by the private sector, and local, regional, or provincial governments) to assist with their development along, or adaptation to, new shoreline conditions.
- Tourism will also benefit from mitigation outlined in Volume 4 Section 32 Heritage Resources, which includes funding to support local museums for interpretive programs or facilities, and a renewed interpretive program at the G.M. Shrum Generating Station

25.4.4 Effects Assessment – Construction – Changes in Outdoor Recreation Use Levels and Regional Tourism Visitor Levels

25.4.4.1 Outdoor Recreation Use Levels

The potential for construction to adversely affect demand for outdoor recreation was assessed by taking into account the potential for the construction of the Project to result in changes to outdoor recreation use and outdoor recreation use levels.

Up to 2,000 direct workers would be required at the peak of construction in Year 5. The majority would reside in an on-site work camp and the remainder would reside in nearby communities (Volume 4 Section 28 Population and Demographics). People who take up residency in nearby communities for construction employment opportunities would be expected to remain in the region for the duration of the construction phase (in-migrants who remain in the region after construction would do so because of economic or social reasons not associated with the Project).

Table 25.16 shows the estimated range in use levels for outdoor recreation attributable to the direct construction workforce, as well as in-migrants taking up indirect and induced employment opportunities. The assumptions used to estimate demand are based on a study of mobile workers, and a survey of residents in the Peace River Regional District (PRRD) and questions regarding their likelihood of recreating on the Site C reservoir (Nichols Applied Management 2007; Kirk & Co. Consulting Ltd. and Synovate Ltd. 2009). It is assumed that change in use levels would be comparable to what other large development projects have generated in the region. Camp workers could engage in the recreation activities supported in the region, including fishing, hunting, all-terrain vehicle use, snowmobiling, hiking, and camping. Participation levels in these activities would be low relative to the local population, due to limited free time as a result of working extended shifts, access to recreation facilities at the camp, and limited options for storing or transporting large or specialized outdoor recreation equipment.

Based on estimates of population change as a result of direct construction jobs as well as indirect and induced employment opportunities, the number of outdoor recreationists would increase through the first two years of construction, remain stable in Year 3, and increase again in Years 4 and 5 of construction. The number of outdoor recreationists would stabilize for the in-migrant population and decline among the camp worker population after Year 6, as construction workers would be expected to return to their home communities, resulting in a decrease in use levels. No incremental increase in outdoor recreation use would be expected after Year 5 of construction, when the size of the workforce would start to decline.

The in-migrant population would increase recreation use in nearby municipalities and elsewhere in the PRRD. The average annual change in the range of new recreationists would be 110 to 197 (not including when the number of recreationists would decrease in Years 6, 7 and 8). This increase in the number of recreationists would be 6 to 10% of the people interviewed in LGL (2010) who were participating in activities between Peace Canyon Dam and Site C (1,983) and 0.2 to 0.3% of the 2011 population of the PRRD (64,280).

Overall the Project is expected to result in a moderate increase in outdoor recreation use levels and is not anticipated to place undue strain on existing recreation infrastructure in the PRRD.

Table 25.16 Potential Change in Outdoor Recreation Users in the PRRD

Workforce and Population Assumptions	Year of Construction								
	0	1	2	3	4	5	6	7	8
	Ranges of Incremental Changes in Recreation Users in the PRRD								
8–20% of camp workers would engage in outdoor recreation activities	12 – 29	29 – 71	15 – 37	(-2) – 0	11 – 26	47 – 116	(-29) – (-12)	(-100) – (-37)	(-107) – (-44)
34–56% of in-migrants would engage in outdoor recreation activities	102 – 168	166 – 273	77 – 126	11 – 17	93 – 153	101 – 166	(-59) – (-36)	(-177) – (-107)	(-380) – (-231)
Total	114 – 197	195 – 344	92 – 163	9 – 17	104 – 179	148 – 282	(-88) – (-48)	(-277) – (-144)	(-487) – (-275)
Average Range (selected years)	134 – 235			9 – 17	126 – 231		(-284) – (-155)		
Average range	(-21) – 79								
Average range for years with increasing population	110 – 197								

NOTES:

The participation rates for in-migrants are considered conservative because surveys asking participants about their recreation intentions will always be higher than actual participation rates

PRRD – Peace River Regional District

Sources: Changes in demand are based on assumptions modified from Nichols Applied Management (2007) and Kirk & Co. Consulting and Synovate Ltd. (2009). Population changes are based on population and demographics modelling (Volume 4 Section 28 Population and Demographics).

25.4.4.2 Tourism Visitor Levels

This section assesses the potential of Project construction to adversely affect tourism as a result of changes to regional tourism visitor levels.

The Project workforce would induce a population effects during construction, which would in turn stimulate tourism. The increased population attributable to the Project would draw in more visitors because, as noted in the baseline, approximately 18% of all visitors to the region are visiting friends and relatives. Business travel would also increase. The effects on regional tourism visitor levels would be positive throughout construction. Accommodation and food services, transportation, retail trade, and other services would experience increased demand. Industry's response would be to accommodate this demand by increasing the utilization of existing capacity, improved productivity, and possibly through price increases. Once the peak worker demand is reached in Year 6, all effects would begin to reverse.

Overall, an increase in population would increase visitor numbers and tourism activity, resulting in a beneficial project effect.

25.4.5 Mitigation Measures – Changes in Outdoor Recreation Use Levels and Regional Tourism Visitor Levels

Project effects on outdoor recreation use levels are expected to be beneficial and not require mitigation. However, mitigation proposed for changes in recreation and tourism infrastructure (Section 25.4.3) will enhance outdoor recreation benefits by replacing and improving outdoor recreation infrastructure that is lost due to the Project. BC Hydro will also work with the private sector and local governments to develop new RV sites (per mitigation described in Volume 4 Section 29 Housing).

Project effects on tourism are expected to be beneficial and not require mitigation. However, mitigation proposed in the housing assessment (Volume 4 Section 29 Housing) will enhance tourism benefits by avoiding shortages in hotel, motel, and campground availability that might inconvenience leisure travellers .

25.5 Summary of Effects Assessment and Mitigation Measures

A summary of potential effects and mitigation measures are shown for outdoor recreation and tourism in Table 25.17.

Table 25.17 Project Effects and Mitigation Measures on Outdoor Recreation and Tourism

Project Phase	Potential Effects	Mitigation Measures	Mitigation Effectiveness	Responsibility
Construction	Changes in outdoor recreation and tourism infrastructure	• Establish and operate three new permanent Site C reservoir launches and day use sites (Cache Creek and Lynx Creek trailer launches and Hudson's Hope Shoreline Protection small craft launch) to replace flooded boat launch areas • Develop a Public Safety Management Plan that will identify public communications procedures for public safety hazards, and access restrictions and closures during construction of the Site C dam • Provide funds to the District of Hudson's Hope for enhancement of Alwin Holland Park or other community shoreline recreation areas • Provide a Community	These mitigation measures are expected to be effective, as they are common approaches in response to large hydroelectric dam construction on navigable water bodies. A residual adverse effect is expected due to temporary losses of recreation and tourism access and infrastructure during construction.	BC Hydro and those provided funds from BC Hydro to groups and municipalities to permit and build new infrastructure or to provide interpretive programs Tourism operators that are provided technical support from BC Hydro.

Project Phase	Potential Effects	Mitigation Measures	Mitigation Effectiveness	Responsibility
		Recreation Site Fund to support development of new shoreline recreation sites on the Site C reservoir and on the Peace River and tributaries between Site C and the Alberta border • Provide technical support to outdoor recreation providers that require access to the Site C reservoir to assist with their development along, or adaptation to, new shoreline conditions • Establish a permanent north bank Site C dam site public viewpoint		
Operations	Changes in outdoor recreation and tourism infrastructure	• Develop a Public Safety Management Plan that will identify public communications procedures for public safety hazards, and access restrictions and closures during operation of the Site C dam • Fund the development of a B.C. Peace River/Site C Reservoir Navigation and Recreation Opportunities Plan	A Public Safety Management Plan is considered a common approach to addressing effects of public safety hazards, access restrictions and closures. While BC Hydro will be providing funds to for the development of a Navigation and Recreation Opportunities Plan, BC Hydro will not be responsible for implementation or monitoring the effectiveness of this plan. The residual effect of Project operations on recreation and tourism infrastructure is expected to be beneficial.	BC Hydro and those groups(s) including government, community, or First Nations provided funds by BC Hydro to support development of the Navigation and Recreation Opportunities Plan.
Construction	Change in outdoor recreation and tourism use levels	• Work with the private sector and local government to develop new RV sites (Volume 4 Section 29 Housing) • Implement on-site workforce housing (Volume 4 Section 29 Housing)	Project effects on recreation and tourism are expected to be beneficial and not require mitigation. The mitigation proposed is expected to be an effective way to enhance tourism benefits by avoiding shortages in hotel, motel and campground (e.g., RV sites) availability that might inconvenience leisure travellers.	BC Hydro, local government and private business owners

In summary, with mitigation, there would be a residual adverse effect on outdoor recreation and tourism infrastructure during construction. Construction activities, specifically, Site C reservoir preparation and filling during latter part of construction, would result in 14 managed and 14 unmanaged recreation sites being permanently unusable. One campground on private property west of Cache Creek would be directly impacted by the Highway 29 realignment. The current shoreline of Alwin Holland Park would also be unusable for a short time during Site C reservoir filling; however, funds will be provided to the District of Hudson's Hope for improvements to shoreline access. The Project would also directly affect one tourism facility on private property and one hunting camp at the Site C dam site. Use levels in Peace Island Park would be expected to increase during construction, as access to other recreation sites on the Peace River would be restricted where major construction activities are taking place. Mitigation will eventually replace and enhance outdoor recreation infrastructure in the LAA; however, access restrictions on the Site C reservoir during construction would represent a residual adverse effect on outdoor recreation.

The visitor and recreation user experience along the Peace River between Hudson's Hope and Bear Flat would be altered, as construction would transform the setting from a river to a Site C reservoir. The use of the Peace River would be restricted, the viewscapes would be altered from the agricultural-natural setting that now exists, and some outdoor activities would no longer be undertaken.

No commercial recreation tenures issued through government's Adventure Tourism policy would be affected. After discussions with the private property owners and the one commercial recreation business with Crown tenure, where appropriate, BC Hydro will enter into agreements as outlined in Volume 2 Section 11.3 Land Status, Tenure, and Project Requirements, and no residual effects on tourism businesses are anticipated.

In the initial years of operation, access to some parts of the Site C reservoir would be restricted for safety reasons; however, access to other sections of the Site C reservoir, such as the west end of the Site C reservoir, would be available for recreation and visitor use soon after reservoir filing. Proposed mitigation provides for enhanced water-based recreation potential. While use would be restricted on some parts of the Site C reservoir during the initial years of operation, usage levels of Peace Island Park would likely increase as users seek nearby recreational opportunities. Overall, effects on recreation and tourism infrastructure during operations would be positive, as new infrastructure would be in place after the initial period of debris clearing and slope stability monitoring. Water-based recreation opportunities are expected to increase on the Site C reservoir compared to the base case, as a result of greater potential for access by a variety of boats.

During construction, there would be a beneficial effect on outdoor recreation use levels and regional tourism visitor levels, as new demand and spending on outdoor recreation and tourism infrastructure services is generated by the Project. Business travel would increase, as would the volume of visitors coming to the area to stay with friends and relatives.

25.5.1 Other Mitigation Options Considered

There were no other mitigation measures considered by BC Hydro for effects on Outdoor Recreation and Tourism.

25.6 Residual Effects

25.6.1 Characterization of Residual Effects

The potential for residual effects on Outdoor Recreation and Tourism is evaluated based on the consideration of attributes presented in Table 25.18.

Table 25.18 Characterization Criteria for Residual Outdoor Recreation and Tourism Effects

Criterion	Description	Quantitative Measure or Definition of Qualitative Categories
Direction	The ultimate long-term trend of the effect	**Increase:** key indicators of the VC are increasing in comparison to baseline conditions and trends
		Decrease: key indicators of the VC are decreasing in comparison to baseline conditions and trends
		Neutral: indicators of the VC are unchanged in comparison to baseline conditions and trends
Magnitude	The amount of change in a key indicator or variable relative to baseline case	**Low:** effect cannot be distinguished from baseline case conditions
		Moderate: effect would result in demonstrable change, but remain within historical norms
		High: effect results in changes that are beyond historical norms
Geographical Extent	The geographic area in which an effect of a defined magnitude occurs	**Local:** the expected measurable changes are within the LAA
		Regional: the expected measurable changes are within the RAA
Frequency	The number of times during a project or a specific project phase that an effect may occur	**Once:** the effect occurs once
		Sporadic: the effect occurs rarely and at irregular intervals
		Continuous: the effect occurs on a regular basis and at regular intervals
Duration	The period of time required until the VC returns to its baseline condition, or the effect can no longer be measured or otherwise perceived	**Short term:** effect is limited to <1 year
		Medium term: effect occurs >1 year, but not beyond the construction of the Project
		Long term: effect lasts beyond the construction phase and up to 10 years of the operations phase
		Far future: effect extends >10 years or for the life of the Project
Reversibility	The likelihood that a key indicator will recover from an effect	Effect **reversible** with reclamation and/or over time
		Effect **irreversible** and cannot be reversed with reclamation and/or over time
Context	This refers to the extent to which the area within which an effect may occur has already been adversely affected by human activities; and is ecologically fragile, and has little resilience and resistance to imposed stresses	**Resilient:** the area is resilient to change because new infrastructure and opportunities can replace the existing ones
		Not resilient: the area has little resilience to change as new infrastructure and opportunities could not overcome changes to the baseline

Criterion	Description	Quantitative Measure or Definition of Qualitative Categories
Level of Confidence	Certainty in quantifying or estimating the effect; the quality and/or quantity of data; the understanding of the effect mechanisms; and the effectiveness of mitigation	**Low:** assessment is based on professional judgment and experience but hampered by incomplete understanding of cause-effect relationships or lack of data
		Moderate: assessment is based on professional judgment and experience including a reasonable understanding of cause-effect relationships and ample data
		High: assessment is based on professional judgment and experience, including a good understanding of cause-effect relationships and ample data
Probability	The likelihood that an adverse effect will occur	**Low:** <50% probability that the effect will occur
		High: >50% probability that the effect will occur
		Unknown: the probability of the effect is unknown due to incomplete understanding of the cause-effect relationship or lack of data

During construction, the adverse effect on outdoor recreation and tourism infrastructure would be low in magnitude, as tourists and recreation users would either continue using the river during construction or recreate elsewhere in the region. Effects would be long term (i.e., until after the first year of operation) and continuous, but reversible. The context is one of resilience because the Peace River Regional District (PRRD) can accommodate the construction of new infrastructure to replace the lost infrastructure, and the loss of some unmanaged recreational opportunities would be replaced by others outside the LAA. The probability of an effect and the level of confidence are both high, as the location of recreation infrastructure that would be affected by the Project is well known.

The characterization of the residual effects is summarized in Table 25.19.

Table 25.19 Characterization Criteria for Residual Outdoor Recreation and Tourism Effects

Effect	Phase	Residual Environmental Effect							
		Direction	Magnitude	Geographic Extent	Duration and Frequency	Reversibility	Social Context	Level of Confidence	Probability
Changes in recreation and tourism infrastructure	Construction	Decrease (adverse)	Low	local	Long-term and continuous	Reversible	Resilient	High	High

25.6.2 Standards of Thresholds for Determining Significance

A residual adverse effect is anticipated for outdoor recreation and tourism infrastructure as a result of construction activities. All of the residual effects criteria were taken into consideration in the determination of significance, as described above in Section 25.6.1. Particular consideration was given to magnitude, duration, geographic extent and context. Outdoor recreation and tourism use is widespread across the region due to opportunities created through the placement of transportation, parks and activity infrastructure. Outdoor recreation and tourism infrastructure should consider the availability of outdoor recreation and tourism infrastructure in this context. Therefore, a significant effect would be expected if the Project alters access to recreation and tourism infrastructure in a way that reduces recreation use below baseline case conditions (magnitude) in the PRRD (geographic extent) over the long term (duration) and proposed mitigation would not offset changes to baseline case conditions (context).

25.6.3 Determination of Significance of Residual Effects

BC Hydro will provide replacement boat launches and day use areas in the Site C reservoir, and will implement a number of measures to support other community groups and the District of Hudson's Hope in developing new reservoir recreation infrastructure and sites. The adverse effect on recreation infrastructure will be low in magnitude, and will affect site-specific areas within the local assessment area. For short periods during construction, or while new infrastructure is being developed, some recreation opportunities will be reduced; however, over the long term, the outdoor recreation experiences and opportunities available to residents and visitors would not be less than the baseline, but in fact would be increased, as the reservoir would provide new recreation opportunities. Recreation users are expected to make use of other recreation areas in the PRRD during construction and will have access to new opportunities with the reservoir in place. The residual effect on recreation and tourism during construction is therefore not significant (Table 25.20).

Table 25.20 Summary of Assessment of Potential Significant Residual Adverse Effects

Valued Component	Project Phase	Potential Adverse Effect	Key Mitigation Measures	Significance Analysis of Residual Effects
Outdoor Recreation and Tourism	Construction	Changes in outdoor recreation and tourism infrastructure	• Establish and operate three new permanent Site C reservoir launches and day use sites (Cache Creek and Lynx Creek trailer launches and Hudson's Hope Shoreline Protection small craft launch) to replace flooded boat launch areas • Develop a Public Safety Management Plan that will identify public communications procedures for public safety hazards, and access restrictions and closures during construction and operation of the Site C reservoir • Provide funds to the District of Hudson's Hope for enhancement of Alwin Holland Park or other community shoreline recreation areas • Provide a Community Recreation Site Fund to support development of new shoreline recreation sites on the Site C reservoir and on the Peace River and tributaries between Site C and the Alberta border • Provide technical support to outdoor recreation providers that require access to the Site C reservoir to assist with their development along, or adaptation to, new shoreline conditions • Fund the development of a B.C. Peace River/Site C Reservoir Navigation and Recreation Opportunities Plan • Establish a north bank Site C dam site public viewpoint	Not significant

25.7 Cumulative Effects Assessment

25.7.1 Screening of Cumulative Effects

A screening of the Project's potential contribution to the cumulative effects of past, current, and announced future projects was done per the procedures described in

Volume 2 Section 10 Effects Assessment Methodology. The screening process establishes two conditions to warrant further assessment. These conditions are:

- The Project results in a residual effect
- The effect is likely to act in a cumulative fashion with those of other projects and activities (i.e., spatial and temporal overlap)

Other projects that are expected to interact with outdoor recreation and tourism residual effects are listed in Table 25.21. A full project inclusion list is included in Volume 2 Section 10 Effects Assessment Methodology.

Table 25.21 Projects that could Interact with Outdoor Recreation and Tourism Residual Effects

Site C Clean Energy Project Residual Effect	Other Project (name Project)	Description of Project	Potential Overlap with Site C	Potential Cumulative Effect Interaction with Outdoor Recreation and Tourism
Long-term (i.e., during the construction period and first year of operation) decrease in outdoor recreation and tourism infrastructure	Montney Gas Play	Shale rock deposits containing large quantities of natural gas	Potential for oil and gas development to continue near the Site C dam site and within impact lines	No: may result in increased access in the LAA; not expected to result in adverse residual cumulative effects on outdoor recreation infrastructure
	All other reasonably foreseeable projects in the RAA	Underground and surface mines; pipelines; waste management projects; wind projects	Temporal overlap is unknown; none of the projects are within the LAA	No: not expected to contribute to residual adverse effects on outdoor recreation infrastructure in the LAA (no spatial overlap)
	Land tenure [a]	Applications for oil, gas, water, range and other land tenures; forest harvest plans	Temporal overlap is unknown; some overlap with Project activity zone	No: land tenure applications represent a continuation of existing multiple use patterns and levels

NOTES:
[a] Further information is available in Volume 2 Section 11.3 Land Status, Tenure, and Project Requirements

The only registered active project that would overlap spatially with the Project in the LAA is the Montney Gas play. The Montney Gas play is expected to have a positive effect on road and trail access in the LAA over time. Therefore, no residual adverse cumulative effects are expected on recreation and tourism infrastructure in the LAA.

Applications for *Land Act* tenures, new oil and gas facilities, and forestry harvest plans and tenures would overlap spatially with the Project activity zone and reservoir impact lines, but these would represent a continuation of existing baseline conditions. Oil and gas facilities as approved by the Oil and Gas Commission are already included in the consideration of the Montney Gas play. Range tenures issued by B.C. Ministry of Forests, Lands and Natural Resource Operations represent a continuation of grazing activity for the region's livestock sector. Similarly, harvesting plans are typical licences to

cut regularly issued under the terms of a licensee's forest tenure. Outdoor recreation and tourism already interacts with these activities and therefore, no residual effect is anticipated in the LAA.

Population changes in the RAA due to the workforce requirements of reasonably foreseeable projects could increase demand for recreation in the LAA during the construction and operations phases of the Project. However, population projections for the region that were used in the assessment on demand for recreation consider the population effects of reasonably foreseeable projects. Therefore, the assessment of residual project effects considered the cumulative population effects of reasonably foreseeable projects during the construction and operations phases of the Project. Based on this, further assessment of cumulative effects of changes in recreation use levels and tourism visitor levels was not carried out.

25.8 Monitoring and Follow-Up

As the level of confidence in residual effects predicted for outdoor recreation and tourism is high there are no monitoring or follow-up programs proposed for this VC.

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