

**Sechelt Community Projects Inc.
Community Forest K3F**

OPERATIONAL PLAN GUIDELINES

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Purpose of Operational Plan Guidelines

The purpose of the Community Forest Operational Plan (CFOP) is to guide the planning operations of the Community Forest (CF) in consultation with all community stakeholders. At the same time, the CFOP is to provide the public with a comprehensive means of reviewing the planned operations of the CF in layman's terms. The CFOP consists of written guidelines and maps, providing information regarding:

- Resource values that are being managed, and their locations
- Locations of planned operations
- Types of harvesting systems, silviculture, and other forest management activities that will be carried out within the CF tenure area
- Types of products the CF will produce and provide
- Development, harvesting, and management of timber and non-timber resources

Although the CFOP is not a requirement of provincial legislation, the level of community interest in the CF's management of resources on the Sunshine Coast necessitates producing this type of plan. The CFOP was a commitment of the CF application, stating that ***“an operational plan will be developed in order to address proactive public involvement in the planning process.”***

It is important to note that the CFOP guidelines are *just* guidelines. They are intended to give the general direction for forest management planning. Site conditions and other information found by professionals—in addition to standards, legislation, and regulations—may require varying from the CFOP guidelines to meet provincial or site objectives. Other considerations, such as safety, economics, and market demands, are also factors in finalizing the plan.

Economics of the planned operations are not discussed in the CFOP guidelines. They are taken into account as part of the business decisions of the Operations Manager and Board of Directors. Economic considerations include too many detailed variables to address in a

guideline document, and these variables change very fast in today's economic climate. They may thus be speculative and specific to local customers; many are also confidential business information.

Public Input and Operational Plan Revision

Obtaining Public Input

The K3F CF Tenure was awarded on May 31, 2006, and the first draft operational plan was developed to provide the basis for public discussion and input into operational procedures for the management of the CF.

The draft CFOP described the scope of forest management activities that may be used within the CF, and the concept was to answer operational questions asked by the public. It provided a framework on which to build future policy based on values expressed in the community.

Since January 2008, the Community Forest Advisory Committee (CFAC) has spent considerable time reviewing the CFOP guidelines in detail, providing many recommendations for revisions. CFAC also spent a significant amount of time in the field looking at the values in each of the cut blocks. Three open houses were held to provide the opportunity for public comment prior to the production of the final draft. Several submissions were received from the public during the open house, and this feedback will be posted on the CF website.

Timing of Revisions

The CFOP can be revised whenever CF management staff feels that revisions are required, as a result of amendments to provincial legislation, changes in the tenure area or timber profile, economic considerations or identification of new resource values. These revisions would be discussed with CFAC and approved by the Sechelt Community Projects Inc. (SCPI) Board of Directors. All changes to the operational plan would be posted on the CF website.

The CFOP will be officially updated annually, following a public review period. If there is significant reason to amend a portion of the plan, either to remove or add blocks, CFAC will be notified and a short public review process initiated.

Advisory Committee Review

CFAC will review any proposed changes to the CFOP, with time allowed for field trips to gather further information. CFAC's recommendations regarding the proposed changes will be submitted to the CF Operations Manager for consideration and final approval.

Public Input Opportunities

In addition to the CFOP's annual update and review period, any member of the public may at any time review and comment on the plan. Such comments will be considered during the next review period.

Professional Forester Review

Changes to the CFOP will be reviewed by a Registered Professional Forester.

First Nations Protocol Agreement

SCPI has signed a Cultural Protocol Agreement with the Sechelt Indian Band (SIB). This protocol agreement describes how the CF operations will respect SIB cultural heritage management strategies. Periodic meetings are to be held with SIB representatives to discuss mutual forestry planning related issues. These meetings are part of a proactive approach to addressing joint forest management and SIB cultural issues.

Management of Resources

Water

Water resources within the CF consist of lakes, wetlands, and streams. They include and provide the following values:

- Domestic water consumption (under water licenses on streams)
- Aquatic ecosystems supporting biodiversity

- Aesthetics, scenery, and community setting
- Recreation uses, such as swimming, fishing, and boating
- Salmon and resident fish-bearing streams

SCPI values water as one of the most important resources in the CF and recognizes its importance to the community. We will comply and exceed provincial stream regulations as a minimum and, additionally—subject to wind firm, safety, and other operating requirements—

- leave small-diameter trees alongside most streams (10–20 cm);
- leave wider riparian areas, where required, to maintain stream bank integrity;
- incorporate retention areas into stream channels, providing greater protection.

The CFOP includes only indirect water management activities—that is, those designed to maintain water qualities and aquatic ecosystems through minimizing the influence of other resource uses. There are no plans to provide, or license, water-based products and values.

The existence of domestic water licenses on a stream does not preclude other resource uses within watersheds, such as timber harvesting. However, activities upstream of water intakes will be conducted in a manner to minimize potential negative effects. Provincial regulations and those of other agencies set the legal requirements for these activities. The CF will consult with local governments and individuals as per the regulations, with respect to any harvesting or other forestry activities in community watersheds.

The need for, and sizes of, riparian reserve and management zones will be determined in the field as stated in the CF Forest Stewardship Plan (FSP). The intention is to avoid the methodology of the past, which often resulted in prescriptions that made no sense in the field: for example, a management zone not extending to the top of a difficult-to-define gully or not including adjacent unstable silt deposits.

As specified in Forest Planning and Practices (FPPR), Sections 47, 48, and 49 are available at www.for.gov.bc.ca/tasb/legsregs/frpa/frparegs/forplanprac/fppr.htm and include the default riparian management widths for streams, such as:

Riparian Class	Riparian Management Area (metres)	Riparian Reserve Zone (metres)	Riparian Management Zone (metres)
S1-A	100	0	100
S1-B	70	50	20
S2	50	30	20
S3	40	20	20
S4	30	0	30
S5	30	0	30
S6	20	0	20

In other cases, appropriate widths of riparian management areas (RMAs) will be determined by a qualified professional at a site-specific level; these widths will be documented in the Site Plan, along with the factors that have influenced the determination. The professional, in making such a determination, will consider the following:

- (i) the need to buffer the aquatic ecosystem of the stream, wetland, or lake from the potential introduction of materials that are deleterious to water quality or fish habitat;
- (ii) the need to conserve the riparian area for biodiversity and wildlife habitat management purposes;
- (iii) the need to protect the integrity of the reserve zone by buffering with retention in the management zone;
- (iv) the effect of trees and understory vegetation on water quality or fish habitat;
- (v) the need to maintain stream bank and stream channel integrity;
- (vi) the relative importance and sensitivity of different riparian classes of streams, wetlands, and lakes;

- (vii) the type, timing, or intensity of forest practices that are to be carried out;
- (viii) worker safety and
- (ix) other factors listed by the professional in the Site Plan.

Biodiversity

Biodiversity management occurs on all scales with some aspects, such as old growth management areas (OGMAs), addressed at the landscape unit level outside of the CF area. In addition to the landscape unit, OGMAs and wildlife tree patch (WTP) retention are already implemented within the CF. These undertakings will further maintain biodiversity within harvested areas:

- Large snags will be retained within wildlife tree patches where operationally feasible.
- Underrepresented tree species, such as Sitka Spruce, White Pine and Western Yew, will be retained within wildlife tree patches.
- Natural rhododendron patches will be preserved.
- Veteran trees will be retained wherever it is operationally feasible.
- Only native tree species will be used for reforestation of timber crops.

Areas other than OGMAs may be designated for retention to maintain high biodiversity values for specific habitats or for specific habitat representation.

Elk and Deer Management

Elk and deer populate the forest in, and surrounding, the CF. To provide habitat areas for deer, sites of high deer use for winter browse and warming cover (south aspect open forest) are being identified and mapped. Forestry will open up forest canopies to allow more browse within forest stands, and stand harvesting and rehabilitation will provide a mosaic of browse areas across the landscape.

Sensitive Ecosystem Inventory

A Sensitive Ecosystem Inventory (SEI) has been completed by the Ministry of Environment (MOE) for the lower biogeoclimatic zones of the Sunshine Coast sites considered to be rich in biodiversity. It is not a listing of recommended protected areas, but an acknowledgement that specific biodiversity values exist in these areas. The SEI identified areas using both ground surveys and air photo interpretation, so accuracy varies.

The SEI information will be used to help establish riparian and other retention areas, as well as to plan ecosystem-appropriate forest management operations. Consideration of the SEI will be documented within the Site Plan, specifically within the Forest and Range Practices Act (FRPA) Checklist.

More information regarding the SEI can be found at: www.env.gov.bc.ca/sei.

Timber

At the present time, timber harvesting is the main financial opportunity for the CF and, for the five-year probationary period, the allowable annual cut (AAC) is set at 20,000m³ per year. SCPI Board policy and direction to staff is to fulfil the terms of the tenure in order to

- maintain an economic contribution from the forest to the local and provincial economies;
- provide steady local employment;
- begin rehabilitation of unproductive, unmanaged, and diseased stands that resulted from earlier logging;
- demonstrate the ability to comply with the objectives of the Ministry of Forestry and Range (MOFR) Community Forest Program and
- to justify the granting of a permanent license after the end of the probationary period.

The AAC will be harvested using a range of retention harvesting methods that are suited to the area's ecosystems. Timber harvesting will be planned and conducted with specific forest products that are key to local value-added customers. Marketing of timber products will begin prior to block harvesting to ensure the highest value and best use of the timber.

Timber products that support local forest-products-manufacturing industry will be given a first priority at market prices.

Considerations will vary with the specific customer and product but may include harvesting of logs that

- are of specific species, size, and grade;
- require sensitive harvesting techniques to preserve their appearance;
- are in manageable volumes for customers; and
- suit the manufacturing schedule of local industry.

Requests from our local customers for specific forest products will be given priority, which might include special harvesting plans to accommodate particular requirements. Salvage opportunities will be managed on an individual basis, and salvage proposals will be accepted.

Soils

Maintaining soil integrity is vital to managing forest resources for the future. All harvesting and other forestry activities will keep soil disturbance to a minimum.

Measures to maintain soil integrity include:

- Deactivation and reforestation of non-permanent roads
- Grass-seeding of exposed mineral soil
- Minimizing road construction by incorporating old roads into the block designs
- Surveying soil compaction following any ground-based harvesting
- Avoiding broadcast burning of slash, leaving organic debris on site for decomposition

Forest Recreation, Trails, and Sites

The CF area includes a wide spectrum of outdoor recreational activities. Forest-based recreation is greatly valued by local residents and is a tourist attraction for visitors to the Sunshine Coast. The extensive network of trails in the Sechelt area is a particularly valuable resource for hiking, biking, horseback riding, use of motorcycles and quads, cross-country skiing, and access to non-timber resources. The existence or location of trails does not preclude using other resources—for example, harvesting timber or vegetation. Harvesting of timber in the vicinity of trails may occur, and the management of the trail may include:

- moving the trail or the block, retention of buffer zones,
- working with the local trail user groups,
- trail restoration,
- fall-away/yard-away practices or
- varying post-harvest retention density.

Rather than applying one policy to all situations, trail management will be on a site-specific basis.

The appropriate management of recreational resources is a goal of the CF. This does not mean, however, that the CF must provide recreational services, develop sites, or create recreational business opportunities. At the same time, a recreational resource may be a landscape feature with recreation *potential* that forest management planning must recognize and may accommodate subject to its uniqueness.

The CF will continue to develop an inventory of recreation values over time. This is a listing of natural and other features of potential recreational use within the CF. This inventory will ensure that areas of high recreation value are recognized and managed appropriately. To date, the CF has mapped some known trails in and around the tenure area, including some GPS-mapping by CFAC members. This trail inventory will record relative levels of use, specific recreational or ecological values, and other information needed for appropriate trail management. Identified trails within cut blocks will be rehabilitated after harvesting.

The Sechelt Coast Heritage Interpretive Forest Site is the only official recreation area within the CF. Objectives set for the Sechelt Coast Heritage Interpretive Forest Site by the District Manager, Ministry of Forests, Sunshine Coast Forest District, recreation project 16660-6206—locally known as the Sechelt Heritage Forest—are as follows:

The objectives are to manage the Sechelt Coast Heritage Interpretive Forest Site, for a road-accessible, non-motorized recreation experience. Opportunities for forest education, interpretive walking, and exploring activities will be available. Natural and social history of the Sandy Hook area shall be provided through the educational and interpretive component of the management of the site.

The Sechelt Heritage Forest is also designated as an Old Growth Management Area (OGMA) and is excluded from timber harvesting as described in the Chapman Landscape Unit Plan. The Sunshine Coast Forest District has a Co-Operative Management Agreement with the District of Sechelt for maintaining the Sechelt Heritage Forest Recreation site. The CF is not involved in the management of the Sechelt Heritage Forest.

Non-Timber Forest Products

The CF contains valuable vegetation that may potentially be commercially harvested for products such as:

- Decorative foliage
- Natural oils
- Medicinal supplements
- Food
- Branch furniture components

The harvesting of non-timber forest products (NTFPs), such as those listed above, is unregulated within the province at this time. It has been difficult to license and monitor, and there are no provincial policies in place. There are no CF operational or management plans for these resources at the present time, except to identify and map any exceptional resource areas.

Personal Harvest of Food and Craft Supplies

As with commercial vegetation harvesting, personal gathering and use of food and craft supplies is not managed at this time, and there are no current operational plans to do so.

Aesthetics

The forest surrounding Sechelt provides a beautiful setting for the community as a scenic backdrop and when experienced at the stand level. Timber harvesting has a temporary potential to influence the aesthetics of the CF.

Visual Quality Objectives (VQOs) have been set by the MOFR for the CF area. These VQOs are general, however, and more detailed assessments of the visual effects of harvesting may be required on a block-by-block basis.

Operations will be planned to minimize their visual impact, not to make harvesting invisible, but by utilizing landscape design techniques to blend the harvesting pattern with the natural forest landscape mosaic. This will be accomplished by variable and single tree retention, following irregular-shaped natural features for harvest boundaries, and minimizing the size of road right-of-ways. Blocks planned in highly visible areas will have visual impact assessment images produced to assist in their landscape design. Slash and debris in harvesting sites will be managed according to the regulations to reduce fire risk and to keep roadsides and ditches clear. We will reduce the amount of wood to be burnt by stacking of small logs for public firewood cutting, which reduces the number of slash piles.

Timber Management

Silvicultural Systems

Silvicultural systems are methodical treatments of a particular forest site undertaken to grow particular species and forest products, and to create specific forest attributes. A silvicultural system is not only a type of harvesting system; it must include the subsequent strategy to grow the next stand of trees through to rotation, or to meet stand

attribute objectives. As legally required, the CF will be reforesting harvested sites with species suitable to the area's biogeoclimatic subzone and site series. Suitable silvicultural systems will be applied for the natural disturbance type of site in order to regenerate a forest with a higher degree of natural attributes.

The lower areas of the CF are within the Coastal Western Hemlock very dry maritime (CWHxm1) and the Coastal Western Hemlock dry maritime (CWHdm) biogeoclimatic units. These areas are well suited for the growth of Douglas fir, cedar, alder, and big leaf maple. In order to fully utilize the productive capacity of such sites, growing the species listed above, using even-aged management is the favoured approach. This does not mean widespread clear-cutting, but rather employing even-aged management systems that follow natural disturbance patterns. The main strategy is to provide nearly full-light exposure to the new crop when it is established.

Not all harvesting is intended to regenerate a new, even-aged crop; some partial harvesting may leave trees to continue growing to produce specialty products. Some stands within the CF are fully stocked and their added increment between now and a future harvest would be minimal. This provides an opportunity to utilize the growing potential of these fully stocked stands that are far past maximum increment. They can be partially harvested now and will grow back some of the harvested volume in time for a final harvest. The volume removed on the partial cuts will grow back in volume on the remaining trees, in higher value, until final harvest.

Variable Retention

Variable retention is a general term used to describe harvesting that retains a variable amount of the previous stand across the harvested area or areas. The CF will be applying variable retention in all blocks and it will be different on all sites, depending on the characteristics of the stand, biological features, safety, economics, and terrain. Harvested areas within variable retention areas will regenerate even-aged stands. Where even-aged management is to be used, each harvested area will retain trees from the original stand for biodiversity, as well as for visual and silvicultural values.

Boundaries and retention densities will be irregular, matching the pattern that wildfire and other natural disturbances might produce.

Selective Logging

Selective logging is a general term used to describe any harvesting that selects some trees and retains others. Variable and single tree retention is a form of selective logging. Selective logging will not be used to describe CF activities because it is not specific enough.

Salvage

Salvage of blowdown or other dead and down timber will be managed on a site-specific basis. Persons wishing to salvage specific pieces of timber may apply to the CF for a salvage permit or make a business proposal. Salvage activities on harvested blocks may occur following normal harvesting operations but must be approved and coordinated with the Operations Manager.

Standing snags are not to be cut down in salvage operations unless there is a specific safety hazard, and only on the approval of the Operations Manager.

Single-Tree Selection

Single-tree selection is a partial, selective harvest of specific individual trees within a stand and removes them while leaving the majority of the stand intact. This system may be used in certain types of stands of varying age classes within the CF. It may not be appropriate for all stands and species. To meet obligations and requirements under provincial legislation, ecosystem dynamics over the long term must be fully considered whenever using any silvicultural system.

Extended Rotation Management

In order to produce high-value products that will have the most potential to support local, value-added industry, trees must be grown in a manner that will provide the appropriate materials for these opportunities. Short rotation forestry, producing a maximum amount of fibre per hectare, produces lower-value sawlogs, suitable for highly mechanized mills

producing commodity products, engineered panel fibre, and pulp. Short rotation may not be supportive of specialty and value-added products.

To support the local production of specialty forest products and value-added opportunities on the Sunshine Coast, some stands could be grown under an extended rotation management regime, to produce large, higher-quality logs for higher-value products. These include:

- Cedar and fir house logs
- Large construction timber/frame timbers
- Free of heart centre (FOHC) timber-framing beams
- Clear lumber from pruned trees
- Poles and pilings
- High-grade veneer peeling logs
- Large sawlogs for specialty-cut sawmills
- Hardwood sawlogs removed at intermediate harvest

Along with these products comes a smaller proportion of lower-value pulpwood and waste. The CF is an area-based tenure that may allow the economics of extended rotation forestry to work.

Clear-cutting and volume maximization provides the best return on investment on log sales. The inclusion of the community values, goals, local economy spin-off effects, niche marketing, and community use of profits, however, limits the justification for undertaking this approach.

Extended rotation management can be applied at the lower level CWHxm1 and CWHdm biogeoclimatic subzones. The generally lower productivity of higher-elevation sites, along with the lower relative values of higher-elevation species, does not offer the same opportunities.

Current Age-Class Distribution Challenges for Extended Rotation

The present age-class distribution of the CF timber profile may make the wide-scale implementation of extended rotation difficult for the first two decades. The new timber inventory, described below, will provide information needed to analyze and plan for extended rotation most effectively, yet still striving to achieve CF objectives.

Extended Rotation Management Harvesting Strategies

There are a number of harvesting strategies used to manage a stand within an extended rotation regime. Although each stand will be assessed and managed based on its own attributes, the following is a description of the main strategies that may be applied within the CF to plan for extended rotation forestry:

1) **Harvest of a previously unmanaged stand**

Remove the majority of the stand volume, leaving veteran and good form-retention fir and cedar at a variable density, following natural disturbance patterns. Consider salvage of blowdown and harvesting requirements to access retained trees: retain trees close to roads where possible and leave lower density in middle areas. Re-plant fir and cedar.

2) **Preliminary harvest of an unmanaged stand that will be left until final scheduled cut**

Remove all species not desired for the final crop (grand fir, hemlock) and all trees of poor form (crooks, indicators of defect, small crown/height ratio, scars). Then remove subdominant cedar house logs that are large enough to meet high-quality grade specifications. Look for and harvest unusual feature logs (arches, posts). Remove subdominants and co-dominants to meet desired final density (which is based on site productivity and time until final cut). Plan the final crop products now to set harvest dates, considering required dimensions, grades, and other attributes.

On an average site for the CF, leaving a nearly full crown of dominants (75%+) will produce roughly 10m³/ha/year (much better on some sites), so if a stand starting with 1000m³/ha is to be left for a further 30 years, remove approximately 300m³/ha in this cut. Actual removal of trees will be based on the current mean annual increment (MAI), desired products, time to next harvest, forest health concerns, reforestation strategy, economics and other site-specific constraints.

3) **Second harvest following a harvest as in # 1 above**

Remove some of the large dominants left from #1 harvest and leave veterans and veteran recruits to a density appropriate for natural disturbance. The timing of this harvest will depend on the productivity of the site and the products to be obtained from the stand. These dominants will be growing within an immature, managed stand that will need to be protected. Helicopter lifting is a good option for cedar poles. Roads will be available as landings; stems will be uniform for heli-lift optimizing. With higher grades, the elimination of falling breakage can completely offset the cost of single-stem harvesting. This is especially true for cedar poles.

4) **Final harvest following a #2 harvest**

Remove all volume leaving veterans and vet recruits. Re-plant fir and cedar.

5) **Preliminary cut of planted, managed stands**

Depending on the stand, volume, size of trees, potential products, productivity, and other attributes, it may be 40–60 years before preliminary cutting can begin. These cuts should be designed to remove merchantable volume as well as prepare the stand to add more high-grade volume to stems of good form, considering potential products at final harvest. There may be cedar house logs and poles at this entry. Alder should be removed at this harvest. There will be a high percentage of pulp, which may make this entry economically marginal. If this is the case, consider either leaving the stand for longer until a partial harvest is more economical, or if this is not likely due to density, remove more volume initially.

6) **Final harvest of managed stands**

Same as harvest #4, above.

Blowdown Management

When utilizing partial harvesting systems, it is inevitable that some retained trees will blow down. This must be considered during the planning of harvesting and stand management prescriptions. Trees that are to be retained may be required as veterans or veteran recruits, while those of good form and of higher value may be left for additional growth. Blowdown is expected, and it should be utilized whenever possible. This can be facilitated by locating the majority of retained trees close to roads and on easily accessed terrain, leaving the lower-density retention areas further into the block and on difficult terrain.

Retention prescriptions should expect blowdown and leave additional trees to ensure that the retention target is maintained. In the case where additional trees are left and some are lost to wind, a small-scale harvest opportunity may exist.

Riparian areas and wetter soils are particularly susceptible to blowdown. Retention of canopy in riparian areas is often a requirement or part of a biodiversity management strategy. The critical situation to avoid is blowdown causing large upturned root systems and freshly exposed soils within the stream channel. This leads to siltation and channel erosion, degrading the aquatic ecosystem. Riparian reserve and management zones will be designed to minimize blowdown; however, it is likely that some may occur. Where possible, retention areas can be incorporated into riparian zones for increased protection. When blowdown in riparian areas occurs, the fallen trees will be considered for their value as coarse woody debris in the riparian area for both aquatic and terrestrial habitat for species such as amphibians. In some cases, salvaging may occur.

Canopy pruning treatments help to avoid blowdown in susceptible areas and may be undertaken where feasible and effective.

Small trees, such as cedars, are frequently left throughout blocks to grow into future crop trees.

Timber Inventory

One of the greatest long-term challenges for the CF is to develop an accurate timber inventory system for the CF. This is required to develop the AAC for the CF following the five-year probationary period, as well as to facilitate planning a stand merchandising management regime. This type of inventory will record the resources and values within the tenure area, the management values of the community, and potential CF products.

The inventory must be based on very specific potential forest products within each stand. The inventory information must include the following:

- A stand-based tally estimating the volume of individual products that will be available and the expected harvest year
- A schedule of required silviculture treatments to produce the desired products from each stand
- Access requirements similar to those in a total chance plan
- The harvesting system required for the products being grown
- Site productivity estimates
- Non-timber values to be managed at the site level

It is important to ensure that past silviculture investments are properly mapped and tracked, and that treated stands are managed appropriately.

Age-Class Distribution

Currently, the age-class distribution within the CF tenure area is very uneven, with a large proportion of early mature stands—between 25 and 50 years of age. There is significant younger forest—under 15 years old—and a large amount of old growth, mostly high-elevation, low-productivity forest.

Over time, the distribution of age classes will even out because much of the existing old growth will remain as such. Additionally, much of the older harvested stands is on sensitive sites and will not be harvested again and will eventually become old growth. Rotation ages will, on average, increase over time as extended rotations are continually implemented, and harvesting rates will be sustainable for the tenure area.

In the long term, the amount of old growth will increase significantly from what it is now and the remaining forest will be a balance of age classes between young and mature with old growth/veteran remnants distributed throughout.

Access Management

The existing CF road network is a permanent asset, reducing long-term costs and environmental impact. Roads built within the CF for timber harvesting will provide access for timber and non-timber resource usage. Each proposed road development must consider the influences it may have on the other values in the development area.

Access management will be an ongoing consideration and protection of water quality and access structures is a requirement under FRPA. Planning this protection will take into account the following:

- Main haul roads will generally be left open after harvesting use, although they may be in a deactivated state.
- Cross ditches will be passable to high-clearance 4x4 traffic.
- Pipe culverts may be removed and replaced by rock fill (“Squamish”) culverts.
- Roads may be gated during operations for the security of equipment.
- Roads may be closed if dumping of garbage or vandalism become problems.
- Temporary roads may be rehabilitated and planted.
- Temporary roads may be rehabilitated and planted, retaining trail status.
- Road use for non-timber resources is to be considered in the long term.
- Roads may be used for fire suppression access.
- Recreational access in high-use areas is a possibility.

Currently, forest roads are publicly owned and managed by the MOFR. Some are still the responsibility of the previous licensees and some are private. Road use agreements must be signed with the road owner prior to the CF using the roads for timber hauling.

While the responsibility of a road may lie with another company or the Ministry, the CF and the public are free to provide information regarding required maintenance for safety and environmental protection at any time. Such information can be directed to the MOFR through the CF.

Forestry Road Right-of-Ways

The right-of-ways for logging roads will be as narrow as they can safely and practically be built for our operations. Clearing and road widths will depend on the following factors:

- Worker safety
- The type of operation being undertaken
- Location of pits, landings, turnouts, and quarries
- Equipment being used
- Soil conditions and materials available
- Slope
- Visual sensitivity
- Tree lengths being handled
- Visibility for traffic

Silvicultural Treatments

Silvicultural treatments are intensive stand-tending activities aimed at directing the growth of a stand to develop the desired attributes for a final product or value. The following silvicultural treatments or practices may be undertaken within the CF area.

Spacing

Spacing is the reduction of the number of trees growing on a site to provide final crop trees with adequate space to grow as desired. Very often more trees regenerate on a site than the site can support to maturity. If left unmanaged, the trees compete for light, nutrients, and water, making all of the trees smaller and less vigorous. Spacing accelerates the hydrological recovery of stands and leaves individual trees with adequate resources for healthy growth.

During spacing, trees are manually cut down with a chainsaw and left on site to decompose. Thick spacing slash may be cleared off trails if required. Trees are chosen as crop trees according to a stand-tending prescription that lists the priority of species for crop trees. Trees of smaller size, close spacing, and poor physical form are thinned out. Thinning reduces inter-tree competition for light, nutrients, and moisture, and concentrates the productivity of the site on the growth of a smaller number of trees, producing larger, higher-quality timber.

Fertilization

Fertilizers may be applied to increase the productivity of a site when the lack of nutrients is the limiting factor in the growth of a stand. Nitrogen, in the form of aerially applied urea prills (round pellets resembling tapioca) is the most common forestry fertilization used on the BC coast. Fertilization can be effectively used to increase the rate of growth on a site to reduce the time that a stand may take to be ready for harvesting.

Brushing

Brushing is the removal of non-crop tree vegetation that is hindering the growth of the crop trees on a site. Brushing is usually undertaken using a chainsaw, circular brush saw, or Sandvik (similar to a machete). Herbicides will not be used for brushing within the CF unless a serious forest health incident compels that use.

Stand Rehabilitation

Stand rehabilitation is the treatment of a stand that has not developed sufficiently to produce the desired values that the site is capable of yielding. Many such stands exist within the CF as a result of past harvesting that left mistletoe-infected hemlock and small damaged cedars on sites with no planting or stand management. Many of these stands are now stagnated due to disease, are of poor form and very low commercial value, and are not contributing to the productivity of the tenure.

Stand rehabilitation involves removing trees that are diseased, of undesired species, or of poor form. This can be done individually or by clearing the site entirely and replanting it. Rehabilitation may produce some products of commercial value, although not enough to offset the costs of the treatment. Such sites can be handled as independent projects or treated concurrently with the economically viable harvesting of adjacent stands.

Commercial Thinning

Commercial thinning is the selective harvesting of trees within a stand to provide better growing conditions for the remaining trees to develop desired attributes. Typically, providing optimum spacing for retained trees entails removing stems of smaller dimensions, poor form, undesired species, and close spacing. Thinning also extends to trees that have grown to the size of such products as cedar house logs and utility poles.

Pesticide Use

Pesticides may not be used for silvicultural purposes within the CF and will only be considered as an option for treatment of major forest health issues (insects or disease).

Site Preparation

Site preparation is used to prepare an area for planting that may have soil compaction from machines or deep accumulations of slash that cannot be planted. Most site preparation will be undertaken with an excavator, piling brush and scooping up soil to loosen it. This is most often completed as the final phase of harvesting.

Slash Burning

Broadcast burning of harvested areas will not be undertaken. Plantable spots for regeneration will be produced by hand or machine at the time of planting.

Slash piles will be burnt for fire hazard reduction purposes. Some piles may be dealt with by chipping and redistribution as coarse woody debris in the block; or they will left as they are for small animal habitat.

Deer and Elk Browse Protection

The CF hosts a large population of deer and elk, both of which find coniferous seedlings to be delicious. In order to prevent browsing, two popular methods are used locally: protective plastic panel-board cone or mesh-tubing covers, or the application of “Plantskydd”-type repellents. The plastic covers are effective but expensive and unsightly; they also produce large amounts of plastic waste. Plantskydd repellent is a pork-blood-derived product that is sprayed onto the conifer foliage. It smells of blood, theoretically signalling to deer and elk that predators may be dining in the area, thus keeping them away from the plantation. It may be used on all seedlings or it may be effective if used only on the periphery of a plantation where browsing is concentrated.

Firewood Availability

Firewood is an important resource for many coast residents, and piling firewood as part of the harvesting process will provide access to local residents within the CF area.

Firewood cutting opportunities will arise following harvesting and some silvicultural treatments.

Making firewood available helps to prevent illegal firewood cutting. Many trees are illegally cut down each year for firewood, often reducing a tree that is worth \$1000.00 to our local economy to \$150.00 worth of firewood for one individual. Firewood-suitable pieces of wood will be separated from other slash piled at the side of a landing to allow people easy access to it.

Long-Range Planning

Many aspects of the operational plan will address long-term management strategies. The CFOP not only takes in timber harvesting land base (THLB) areas but also areas where harvesting may or may *not* take place. As non-timber resource information gets developed, it will be added to the operational plan. Following the completion of the timber inventory, the THLB will be further refined and long-term road requirements will also be mapped.

Adaptive Management

Adaptive management is essential to ensure that the CF is managed in a manner consistent with the community's values. It will be undertaken by:

- Conducting pre- and post-harvesting field tours of sites to assess how the harvesting plan met the intentions of the planners, CFAC, and public input. Developing an understanding of how pre-harvesting plans affect operations and actual post-harvesting site conditions and appearances allows more accurate planning for the future.
- Assessing effectiveness of windthrow management techniques. Whenever trees are retained within a block, they are susceptible to windthrow. Sites where retained trees have blown over will be studied to improve retention strategies in the future.
- Keeping in touch with changing values. All values, social as well as economic, change over time. Constant public involvement and solicitation of public input is essential to ensure that forest resource management meets current and expected future needs.

Appendix

The following is a compendium of land use and resource planning works that have been undertaken within the Chapman and Sechelt landscape units in the past 20 years. *For abbreviations not spelled out in this appendix, see **Glossary of Terms and Abbreviations**.*

- Landscape unit planning—setting of WTP area % rates and delineation of old growth management areas (OGMA). About 1998.
- Chapman landscape unit Marbled Murrelet nesting habitat survey. 2006.
- Sensitive Ecosystem Inventory (SEI) conducted by the MOE's Conservation Data Centre (CDC), a survey of the CDFmm, CWHxm1, and CWHdm. This survey identified sites that are potentially higher in biodiversity with the objective of making these sites known for future land and resource use planning processes. The designations do not infer any levels of protection or specific management. The inventory used air photo interpretation and included some ground samples but many known sensitive sites within the CF chart area were not identified.
- Chapman Gray Integrated Watershed Management Plan—not ratified. Many harvesting restrictions and management guidelines were developed, including the development of four resource use zones, but not implemented.
- Trail mapping—MOFR and locals mapped many of the recreation trails from Langdale to Secret Cove using GPS. Mid-1990s.
- Chapman and Gray creeks terrain stability mapping. Early 1990s. Very detailed site-level mapping with extensive ground surveys.
- TEM and VRI mapping. 2007.
- Community Watershed list review—completed for the SCFD; watersheds not meeting new criteria dropped from list.
- VQO assignment—MOE recreation branch, early 1990s, assigned VQOs across SCFD.
- TSR2 and SCFD socio-economic analysis. 1995.

- Tetrahedron LRUP—ended approx 1993, with the creation of the Tetrahedron Provincial Park.
- Mt. Elphinstone LRUP—ended approx 1996; did not develop recommendations.
- SCRD foreshore inventory study, mid-1990s.
- Forest Revitalization, 20% take back program and chart rationalization. 2003?
- Current ILMB/First Nations land use “SLURPY” process.
- Numerous water course surveys for fish and tailed frog.
- Cultural heritage surveys, on a site-by-site basis.
- Identified Wildlife Management Strategy (IWMS) provisions implemented in SCFD—tailed frog reserves around some Mt. Elphinstone creeks.
- Sunshine Coast Habitat Atlas.

Glossary of Terms and Abbreviations

AAC	allowable annual cut
CDFmm	Coastal Douglas Fir moist maritime
CF	Community Forest
CFAC	Community Forest Advisory Committee
CFOP	Community Forest Operational Plan
co-dominants	trees whose crowns form the main canopy of a forest
CWHdm	Coastal Western Hemlock dry maritime
CWHxm 1	Coastal Western Hemlock very dry maritime
FOHC	free of heart centre; see also <i>heart centre</i>
FPPR	Forest Planning and Practices
FRPA	Forest and Range Practices Act
FSP	Forest Stewardship Plan
heart centre	pith—the most unstable part of the tree
ILMB	Integrated Land Management Bureau
IWMS	Identified Wildlife Management Strategy
K3F	referent designating CF tenure area
landscape units	long-term planning areas, ranging in size from 5,000–100,000 hectares; used to integrate resource development and conservation activities by enabling understanding of ecological processes, landscape management visioning, and implementation of biodiversity strategies
LRUP	Local Resource Use Plan
m³	cubic metre
MAI	mean annual increment
MOE	Ministry of Environment
MOFR	Ministry of Forestry and Range
NTFPs	non-timber forest products
OGMAs	old growth management areas

resource values	a term designating the perceived recreational, aesthetic, cultural, and spiritual worth of tangible resources, such as trees, water, and minerals
riparian	located on the bank of a natural water resource
RMA	riparian management area
SCFD	Sunshine Coast Forest District
SCPI	Sechelt Community Projects Inc.
SCRD	Sunshine Coast Regional District
SEI	Sensitive Ecosystem Inventory
SIB	Sechelt Indian Band
subdominants	intermediate trees whose crowns reach into the main canopy of a forest
TEM	Terrestrial Ecosystem Mapping
THLB	timber harvesting land base
total chance plan	a comprehensive best-practices strategy for managing forest resource values with a view to responsibly accommodating all stakeholders
TSR	Timber Supply Review
VQOs	Visual Quality Objectives
VRI	Vegetation Resources Inventory
WTP	wildlife tree patch