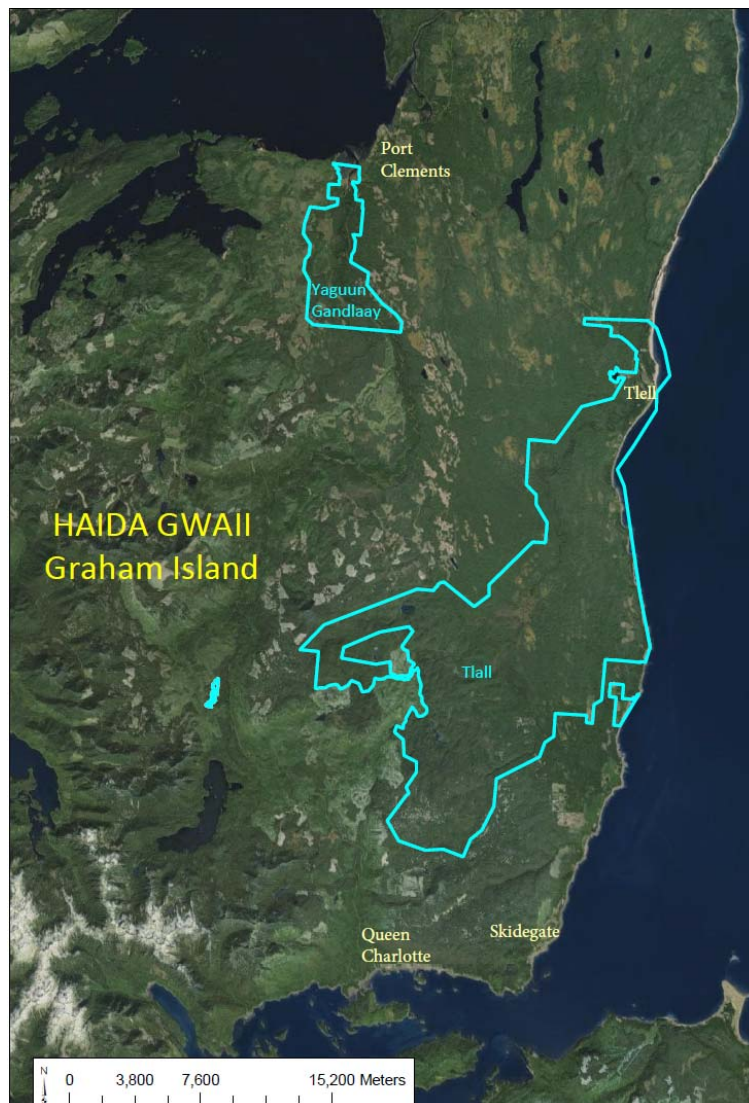


Forest Enhancement Program (FEP)
Coast Area Project Planning Submission Form

Part A – Basic Information (to be completed for all proposals)

Name of Project	FEP - Yaaguun Gandlaay and Tlall
Location	The location is shown on the map below (Yaaguun Gandlaay Conservancy and Tlall Conservancy) on Graham Island on Haida Gwaii. These are Protected Areas co-managed by the Council of the Haida Nation and BC Parks.
Affiliation	Internal – Ministry of Forests, Lands, and Natural Resource Operations – Haida Gwaii Natural Resource District
Project Lead Contact Information	Aline Lachapelle, RPF, P.Ag. Stewardship / Revenue Forester Haida Gwaii Natural Resource District 250-559-6258 (desk) 250-280-6502 (cell) Aline.Lachapelle@gov.bc.ca



Part B - 2016 Funded Projects

Complete the following submission form and included attachment material (as appropriate) if intending to deliver project within fiscal 2016 ending March 31, 2017. Proposal must be forwarded to the FLNRO Administrative Lead (see contact information below) by August 16 2016. Note: Funding decisions associated with the FEP are under the authority of the Forest Enhancement Society of BC (FESBC).

Objective of the Project.	<p>The Haida Gwaii Natural Resource District and the Council of the Haida Nation have identified completing LiDAR coverage for the entire archipelago as a priority for advocating for and advancing environmental and resource stewardship of Haida Gwaii's forests. This includes informing inventory, models and management strategies that will improve the ability to identify and manage cultural heritage resources and wildlife habitat for species at risk both within the timber harvesting land base and adjacent Protected Areas. Neither wildlife nor wildfire recognize administrative boundaries, so to effectively manage both at the landscape level, it is extremely advantageous to have a consistent coverage of inventory information (including forest structure and bare earth model) that does not stop abruptly at a Protected Area boundary. By partnering with the Council of the Haida Nation, Taan Forest Ltd., and BC Timber Sales, approximately two thirds of the timber harvesting land base and several protected areas have already been flown.</p> <p>This shovel-ready project would fill in two existing data gaps, and would cost-effectively expand the seamless LiDAR coverage for a large portion of Graham Island. The data will immediately be made available to support the following projects/programs:</p> <ul style="list-style-type: none"> - Haida Gwaii Fire Management Plan (jointly prepared by the Haida Gwaii District, the Council of the Haida Nation and BC Parks.) - Timber Supply Review joint technical team evaluating the Haida Gwaii Land Use Objectives Order and its impact on timber supply (e.g., factoring in an improved inventory of ecosystem representation and wildlife habitat included in the Protected Areas) - Haida Mapping department's Cultural Features Identification Survey program within Yaaguun Gandlaay and Tlall Protected Areas - Terrestrial Ecosystem Mapping (TEM) update - Geological Survey of Canada – Climate hazards research project looking at earthquake and tsunami risks
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Deliverables	Four-band digital orthophotos at 1:20cm resolution and LiDAR point cloud data (.LAS) and derivatives (1m Digital Elevation Model (<i>Bare Earth</i>), 1m Digital Surface Model, 0.5m Intensity Image, 1m contours) for approximately 258 square kilometres (25,800 hectares) covering the Yaaguun Gandlaay and Tlall Protected Areas (Conservancies), as shown on the attached map. LiDAR data will meet Tier I quality specifications as noted in the GeoBC Specifications for LiDAR v 2.0 (2014) document, including targeting 8 pulses per square metre and establishing control points with RTK GPS units.
Project Prescription	N/A. Purchase of LiDAR data and orthophotos as noted in the deliverables, and then provided to the projects as noted in the objective.
Detailed Cost Estimate	<p>Planning – no cost. District staff time to prepare BC Bid posting (notice of intent to direct award) and administer quote, liaise with purchasing services branch, and distribute data</p> <p>Data purchase of 25,800ha cost estimate = \$45,000</p>
Project Timelines	BC Bid posting will be initiated as soon as funding is approved. If Notice of Intent is contested, a competitive process will be initiated. Otherwise, purchasing services branch will be involved as soon as BC Bid posting ends (minimum of 8 days). Funding would be released upon receipt of deliverables and assignment of copyright to the Province. Anticipate completion within 2 months of funding approval, or faster if required to meet the fiscal March 31, 2017 deadline.
If purpose is preventing and mitigating the impact of wildfires, what protection or management plans will be used to guide the project?	For areas where LiDAR has already been acquired, the 2016 Haida Gwaii Fire Management Plan references the availability of detailed LiDAR derived hillshade terrain maps. Even in areas of subtle terrain, these would be extremely valuable tools for strategizing fire response to mitigate the impact of wildfires, given that Fire Centre support beyond local initial attack is approximately 2-3 days away on Haida Gwaii due to isolation, making the quality of spatial information available to off-island fire managers even more critical. Once acquired, these hillshade terrain maps will maintain relevance over time (i.e., they will not likely become obsolete). Filling in the gaps in our current coverage over Yaaguun Gandlaay and Tlall Protected Areas [Conservancies]) would expand the improved terrain map for areas in close proximity to several interface areas.

<p>If purpose is improving damaged or low value forests, how will proposal contribute to timber supply needs or shortages?</p>	<p>The proposal will not improve damaged or low value forests, as it covers areas within two Protected Areas (Conservancies). Despite this, the project would contribute indirectly to a better understanding of the timber supply availability on Haida Gwaii. For values that are tracked at the landscape level, including ecosystem representation and suitable habitat, having an inventory within the Protected Areas that is easily compared to that with the timber harvesting landbase will allow a better understanding of what ecosystems and habitat types are “covered off” by the protected areas, and therefore better inform what level must be conserved on the harvesting landbase.</p>
<p>If purpose is improving habitat for wildlife, how does proposal support provincial priorities?</p>	<p>Acquiring this data will facilitate future projects to enhance wildlife habitat and ecosystem inventories and models, including Terrestrial Ecosystem Mapping, and cost-effectively build a comprehensive understanding of tree canopy and understorey structure at a landscape scale, in areas where it might not otherwise be feasible to do, especially where road access for ground survey is limited.</p> <p>The Tlall and Yaaguun Gandlaay Protected Areas are known to contain habitat for provincial priority species at risk such as Northern Goshawk and Northern Saw-whet Owl, and likely contain Marbled Murrelet habitat, but the extent of these habitats is still not well understood, nor is the actual utilization. Understanding the canopy metrics for nesting and foraging habitat for Northern Goshawk is of particular interest to inform ongoing habitat management plans, and seamless LiDAR point cloud data across the landscape (including both the already acquired timber harvesting landbase areas and these yet to be acquired Protected Areas) would become an excellent data inventory that would be made available to university students and researchers in hopes of addressing some of the questions that existing models have not been able to answer.</p> <p>At this time in BC, LiDAR has been underutilized for habitat assessment purposes, likely because it has predominantly been acquired by forest licensees or BC Timber Sales to inform timber development and reduce forest engineering costs, and is not always made available to outside parties. The Haida Gwaii LiDAR project aims to build a LiDAR dataset that is comprehensive enough to serve as the base to pilot LiDAR-based habitat assessment studies, and this project would help achieve that goal. The Species at Risk Biologist responsible for Haida Gwaii has reviewed and supports this proposal.</p>

If purpose is supporting the use of fibre from damaged and low value forests, how much volume will be created for local/regional markets?	Not applicable (therefore, no softwood trade risk)
If purpose is treating forests to improve the management of greenhouse gases, is the project eligible to attain carbon benefits?	While not applicable at this time, if desired in the future (either for research purposes or to attain carbon benefits), the canopy cloud LiDAR data would assist in quantifying the contribution of the protected areas on Haida Gwaii to the management of greenhouse gases.
If purpose is not captured above, explain how the proposal advances and/or advocates for the environmental and resource stewardship of BC forests.	<p>There are several gaps in the Haida Gwaii LiDAR coverage to date, including these two Protected Areas for which LiDAR was flown but the funding from other sources to acquire the data fell through. The data is available for immediate purchase, which is likely the most cost-effective way of filling these gaps.</p> <p>To advance and advocate for the environmental and resource stewardship of Haida Gwaii's forests, LiDAR coverage can improve the accuracy of existing inventories to ensure the best available information is being used to make decisions on the land base. This includes, but is not limited to, the following:</p> <ul style="list-style-type: none"> • Establishing a baseline for change detection – Bare earth (e.g. erosion, slides, active fluvial units) and vegetation (windthrow, growth rates, canopy structure). • Tsunami inundation modeling and earthquake hazard planning • Improving the accuracy of forest cover, streams, roads, watershed boundaries and visual landscapes • Better informing the implementation of the Haida Gwaii Land Use Objectives Order, the Timber Supply Review process, and the Protected Area Management Plans using these improved inventories • Combining with existing knowledge to enhance wildlife habitat and ecosystem inventories, models and understanding of tree canopy and understorey structure at a landscape scale • Verifying extent of known features including cultural and archaeological sites • Improving archaeological potential mapping

Partnership Opportunities	<p>The overall goal of obtaining a seamless LiDAR coverage for the entire archipelago is supported by the Council of the Haida Nation, the Haida Gwaii Natural Resource District, BC Parks, BC Timber Sales, Gwaii Haanas, and Taan Forest Ltd. The Haida Gwaii LiDAR Working Group will be developing its Terms of Reference for data sharing with external parties in September, 2016.</p> <p>LiDAR completed to date: Taan Forest Ltd. and the Haida Gwaii Natural Resource District have an MOU through which 3020km² was flown in 2014/2015 (partially funded by LBIS). BC Parks has not been able to fund any areas but is interested in maximizing use of any data collected. BC Timber Sales has committed to flying at least 500km² of the timber harvesting landbase, and Gwaii Haanas has flown 200km² and will be completing their coverage over the next two years. The Council of the Haida Nation is proposing to fund flights of the remaining (more remote) protected areas (2516km²) while the remaining ~1/3 of the timber harvesting landbase (1600km²) has not yet had funding committed, though it is a priority.</p> <p>The Geological Survey of Canada has entered into data sharing agreements to analyze bare earth LiDAR from several suspected fault lines on Haida Gwaii to study earthquake and tsunami hazards. The Forest Analysis and Inventory Branch (FAIB) also has a data sharing agreement with Taan Forest and the District to complete an enhanced forest inventory using the VRI and LiDAR, which will in turn help inform the Haida Gwaii Management Council during the Timber Supply Review Process.</p> <p>The UBC Integrated Remote Sensing Studio, led by Dr. Nicholas Coops (Canada Research Chair in remote sensing), has expressed interest in collaborating with the Haida Gwaii LiDAR Working Group members on LiDAR-related projects.</p> <p>FPIinnovations is also working with Taan Forest Ltd. on LiDAR-related projects.</p>
Community/FN Support	<p>The Council of the Haida Nation's Heritage and Natural Resource Department representatives have expressed support for this project, and the overall goal of obtaining a seamless LiDAR coverage for the entire archipelago. Additionally, the largest forest licensee on Haida Gwaii, Taan Forest Ltd. (Haida owned) also supports this overall goal, and has flown their entire operating area and has a data sharing arrangement with the Haida Gwaii</p>

	Natural Resource District.
Value for money	The value for money is expected to be excellent (should be the same per hectare cost that the licensee paid for the adjacent project area). This is because costs per hectare for LiDAR and orthophoto acquisition are greatly reduced when project areas are larger in size, and the areas proposed for purchase were acquired along with the adjacent timber harvesting landbase funded by licensee Taan Forest Ltd. Given the goal of obtaining a seamless coverage of LiDAR for the entire archipelago, it is likely much more cost-effective to purchase existing data than to re-fly the area, and will result in access to the best available information in the shortest timeframe.
Project Planning Status	This project is “shovel-ready” (see Project Timelines, above)
Assurance of 2016 start-up	If funding is approved, this project is assured start-up in 2016 and would be completed prior to March 31, 2017. The risk of not being able to complete is extremely low.

FLNRO Administrative Lead

Forward completed forms (and attachments as appropriate) as follows;

- 1) For 2016 FEP funding application (due August 16th) and 2017 FEP stage 1 application (due August 19th) forward to

Kevin Telfer, West Coast Region Ecosystem Biologist, FLNRO.

Contact

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