Forest Resource Inventory
Knowledge Transfer and Tool Development Program
Request for Proposals

Introduction

The Forestry Futures Trust Committee (FFTC) is pleased to announce its Request for Proposals for eligible projects under Round 4 of the Forest Resource Inventory (FRI) Knowledge Transfer and Tool Development (KTTD) Program. Up to $1,500,000 will be allocated in this round for projects lasting up to two years in duration.

The Program is open to all interested applicants including, but not limited to, university and private sector researchers, federal and provincial applied researchers, private consultants, non-governmental organizations, and forest company staff who can provide expertise in the areas of:
- digital land and provincial forest satellite, aerial, and unmanned aerial vehicle data (Ontario)
- forest inventory process development and refinement within the context of Ontario's Crown forests (the Managed Forest, Far North, and Southern Ontario)
- processes to link optical and point cloud data (aerial and terrestrial) with land cover or forest inventory to meet operational or management needs at the local to provincial scales (applicable to Ontario's forests)
- creative solutions for developing and utilizing optical and point cloud data for area-based and individual tree techniques for forest inventory
- cloud computing, data dissemination, cloud storage, machine learning, and artificial intelligence integration into land cover or forest inventory processes

The KTTD program is a focused on increasing the competency of inventory techniques for the Ministry of Natural Resources and Forestry and Industry partners, mitigate implementation issues with the integration of inventory data into forest management planning, development of new inventory techniques for operational and strategic planning, and to promote the use of inventory data (image, point cloud, and attributes) for other industrial sectors and the public. Eligible labour or reimbursement costs that are directly related to the submitted proposal are listed as follows:
- salaries i.e., graduate or undergraduate students, current or future staff
- consultant/sub-contractor fees
- reasonable travel costs
- current Ontario Provincial Travel, Meal and Hospitality Expenses Directive
- equipment rental, leases or purchase cost
  - must be specialized equipment (associated with the first half of the project)
- supplies
- remote conferencing costs
  - platform licensing
  - multiple separate presentations (will record if feasible)
- report production

The goal of the KTTD Program is to develop open-source tools and research to promote further development of the Provincial Forest Resource Inventory Program. Preference will be given to project proposals with processes, methods, and indices that will be made available in an unlicensed and non-proprietary format.

That said, project proposals with proprietary research or tools *will* be considered if their deliverables include open-source tools or services, guidelines, or best practices that will assist the Provincial FRI Program in future procurement development, data collection, or modelling. The expectation is that proprietary research or software will be owned exclusively by the proponent but made available in a way that can be read and understood by interested users.

Proprietary software will be made available through a module or plug-in to perform the 'new function' and its source code and documentation provided. Proprietary research will be hosted by the proponent on Github, or another FFT-approved equivalent code-hosting site, and maintained by the proponent. The FFT/FRI will post links to those sites so that information can be shared via web URL addresses but will not be responsible for hosting, uploading dates, or any other maintenance activities.

Before any project proposal with proprietary content may be submitted, a Letter of Intent will be required to clarify the project's advantages to the FRI Program. Once reviewed, the FFTC will decide if a detailed project submission is required.

Proponents are required to identify whether their proposals have been funded directly or indirectly through past KTTD funding and how their new projects build upon earlier concepts. Previous funding does not preclude or guarantee future funding by this Program; however, the proponent must identify and assess the linkages to past projects.

Program Themes

Projects will be developed under the framework of the *Ministry of Natural Resources and Forestry (MNRF) 2017-2026 Strategic Focus for the Forest Resources Inventory Program*[1] and fall under one or more of the following six themes:

1. Continuous Forest Inventory Model
2. Advanced Remote Sensing
3. Tools and Products to Enhance Field Data Sampling, Collection, and Application
4. Tools and Products for Client and Stakeholders
5. LiDAR (single photon)
6. Advanced Computing

A list of example topics that are relevant for each theme can be found in Appendix A. Proposals, however, are not limited to these ideas. Please note that knowledge and technology transfer is a primary goal of this program and these components must be included in each project.

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[1] Document can be found at www.forestryfutures.ca under the FRI and KTTD link within the Programs menu

Application Process and Funding Requirements

The application process differs for small-scale and large-scale projects.
   A. Small-scale projects (≤$35,000 + HST and ≤12 months) follows Application Process "A"
   B. Large-scale projects (>$35,000 + HST and ≤24 months) follows Application Process "B"

Forestry Futures Trust Committee Review Team

The Forestry Futures Trust Committee Review Team will review all proposals and be comprised of FFTC members and other knowledgeable individuals that the FFTC deems to be appropriate and necessary. Hereafter, it will be referred to as the "Review Team."

Application Process "A" – Small-Scale Projects

This application process is for projects requesting funding less than or equal to $35,000 + HST and less than 12 months in duration (may overlap into two fiscal years). It is a one-step process for projects with open-source deliverables and a two-step process for projects with proprietary deliverables.

Small-Scale Open-Source Projects - One-Step Process

All applicants are required to submit an electronic version of Application Form "A" to the FFTC as per the submission guidelines found in Appendix C. The total application should not exceed 5-7 pages (not including budget forms and Curriculum Vitae) and must include the following:

   1. Project Description
   2. Project Team
   3. Design and Methods
   4. Schedule
   5. Project Budget
   6. Knowledge and Technology Transfer
   7. References
   8. Progress and Status Reporting

Please also identify two potential independent external reviewers who are recognized for their knowledge and expertise in the project area. Additionally, if the proposed project has a component of software or hardware development, then cost of the deployment of the tool should be provided. This cost would include licensing, updates, and maintenance of the application and should include the concept of planned obsolescence and the expected period of time the tool would be useful before requiring a significant change.

1. Project Description

The applicant should provide a brief overview of the project including a description of the objective(s) and contribution that the project makes to the forest resource inventory, forest management and/or operational planning processes. The description should provide the rationale for undertaking this project, applicability of the project outcomes, scope of the work, and a good understanding of the target audience. Applicants should also list any relevant literature or companion work that supports the need for this project as well as demonstrating the information gap the project would address, as applicable.

2. Project Team

The applicant should provide the following:
- Project lead(s) and qualifications (including curriculum vitae not to exceed two pages)
- Project team and qualifications
- Roles and responsibilities of each member of the team
- Partnerships and/or collaborators, if applicable

3. Design and Methodology

The applicant should provide a summary of the design and methodology for the project that includes:

Design
- Rationale for project design
- Engagement of contractors, consultants, or other parties, if applicable
- Sequence of steps to be followed

Methodology
- Rationale for project methodology
- Data collection, statistical tests, equipment, data management and sharing (where appropriate)

4. Schedule

The applicant should provide a detailed schedule for the project that includes:
- Start and completion dates
- Measurable deliverables with target dates that represent progress towards meeting project objectives

5. Project Budget

Funding details will be provided on the Budget Forms available on the Forestry Futures website (www.forestryfutures.ca). Only projects spanning 12 months or less may be included under Application Process "A". These projects may overlap into two fiscal years (fiscal year runs from April 1 to March 31). The request for funding must include a list of contributions from partners (cash and in-kind). A list of eligible expenses for the KTTD Program can be found in Appendix B.

The project budget may include an initial disbursement of up to 30% of the project funds. Actual spending of this initial disbursement must be described in detail and accounted for in a project work report (or other means as agreed to by the FFTC on a case-by-case basis) before further disbursements will be made available. Up to six disbursements per fiscal year will be considered.

Twenty percent (20%) of the funds awarded to each project will be held in reserve and released upon receipt of the final project work report. If any project has funds remaining at the end, these surplus funds will be released back to the Trust.

6. Knowledge and Technology Transfer

The transfer of knowledge and/or technology must be included as a component of each project. Applications that propose stand-alone transfer projects to train forest management practitioners, or other relevant parties, in using the imagery, inventory, or technology already available will also be considered for funding.

The applicant should outline the knowledge and technology plan including:
- The knowledge transfer plan including a description of the methods used and the audience
- The project's potential to build capacity in the natural resources sector through the on-going sharing of results and transfer of knowledge and technology
- A discussion of the feasibility of implementation by relevant parties including potential obstacles and proposed solutions

7. References

The applicant should provide contact information for two individuals who are familiar with their work.

Small-Scale Proprietary Projects - Two-Step Process

This application process is two staged. Applicants are first required to submit a Letter of Intent to the FFTC including a brief outline of the proposed project and description of how it advances the Provincial FRI Program. The Letter of Intent will be evaluated by the Review Team and successful applicants will be invited to submit a full project proposal.

STEP 1 – LETTER OF INTENT

Applicants are required to submit a Letter of Intent (LOI) to the FFTC as per the submission guidelines found in Appendix C. The purpose of the Letter of Intent is to provide an initial screen for selecting projects of merit and to establish priorities for funding. The Letter of Intent should range from 2 to 5 pages in length (including a budget) and no smaller than 10-point font. Please note, any text beyond 5 pages will not be considered in the review of the LOI submission.

The Letter of Intent must include:

1. **Project Description**
   - Brief overview of the project including a description of the objective(s) and relevance to program themes
   - Description of the scope of the work
   - Description of rationale for undertaking this project and listing of relevant literature or companion work that supports the need for this project
   - Description of the target audience and applicability of project outcomes

2. **Project Plan**
   - Identify the Project Lead, Team Members, and their qualifications
   - Brief description of the design and proposed methodology
   - Description of the proprietary content and open-source deliverables, how they will be made available, and how they contribute to development of the FRI
   - Schedule including start and completion dates and expected deliverables
   - Brief description of the knowledge and technology transfer approaches

3. **Project Budget**
   - Complete the Letter of Intent budget form as described in the submission guidelines found in Appendix C

4. **Partnerships (if applicable)**
   - List the names and affiliation of partners involved in the project and the nature of the partnership

5. **References**
   - The applicant should provide contact information for two individuals who are familiar with their work

The FFTC will notify all applicants that successfully make it through the initial screening based on the Letter of Intent. The applicant will then be eligible to provide a full-project proposal for consideration for funding (See Step 2 below). Submission guidelines are outlined in Appendix C.

STEP 2 – FULL PROJECT PROPOSAL

Applicants that were successful in moving through the initial screening based on the Letter of Intent will follow the process for submission as described on page 3 for Application A: Small Scale Open-Source Projects.

Application Process "B" – Large-Scale Projects

This section is to be completed for both open-source and proprietary large-scale projects requesting funding greater than $35,000 + HST and 24 months or less in duration (may overlap into three fiscal years). For both types of projects, the application process is two-staged. Applicants are first required to submit a Letter of Intent to the FFTC including a brief outline of the proposed project. The Letter of Intent will be evaluated by the Review Team and successful applicants will be invited to submit a full project proposal.

STEP 1 – LETTER OF INTENT

Applicants are required to submit a Letter of Intent (LOI) to the FFTC as per the submission guidelines found in Appendix C. The purpose of the Letter of Intent is to provide an initial screen for selecting projects of merit and to establish priorities for funding. The Letter of Intent should range from 2 to 5 pages in length (including a budget) and no smaller than 10-point font. Please note, any text beyond 5 pages will not be considered in the review of the LOI submission.

The Letter of Intent must include:

6. **Project Description**
   - Brief overview of the project including a description of the objective(s) and relevance to program themes
   - Description of the scope of the work
   - Description of rationale for undertaking this project and listing of relevant literature or companion work that supports the need for this project
   - Description of the target audience and applicability of project outcomes

7. **Project Plan**
   - Identify the Project Lead and their qualifications
   - Brief description of the design and proposed methodology
   - Schedule including start and completion dates and expected deliverables
   - Brief description of the knowledge and technology transfer approaches

8. **Project Budget**
   - Complete the Letter of Intent budget form as described in the submission guidelines found in Appendix C

9. **Partnerships (if applicable)**
   - List the names and affiliation of partners involved in the project and the nature of the partnership

10. **References**
    - The applicant should provide contact information for two individuals who are familiar with their work

The FFTC will notify all applicants that successfully make it through the initial screening based on the Letter of Intent. The applicant will then be eligible to provide a full-project proposal for consideration for funding. Submission guidelines are outlined in Appendix C.

STEP 2 – FULL PROJECT PROPOSAL

The full proposal will address the following:

1. Project Description
2. Incremental Value
3. Project Team
4. Design and Methods
5. Schedule
6. Project Budget
7. Partnerships (if applicable)
8. Knowledge and Technology Transfer
9. External Reviewers
10. References

As per the submission guidelines found in Appendix C the full project proposal must not exceed 12 pages (excluding CVs and budget pages).

1. Project Description
The applicant should provide a brief overview of the project including a description of the objective(s) and contribution that the project makes to Ontario's land or forest imagery interpretation, resource inventory, resource management and/or operational planning. The description should provide the rationale for undertaking this project, applicability of the project outcomes, scope of the work, and a good understanding of the target audience.

2. Incremental Value
The applicant should provide the context of the proposed work by listing any relevant literature or companion work (e.g. conducted by government agencies, industry or other) that supports or

complements the project. Specifically, provide evidence and describe how the proposed project will fill a knowledge gap or add value to previous or ongoing work in Ontario or elsewhere.

3. Project Team
The applicant should provide the following:
- Project lead(s) and qualifications (including curriculum vitae not to exceed two pages)
- Project team and qualifications (including curriculum vitae not to exceed two pages per person)
- Roles and responsibilities of each member of the team
- Partnerships and/or collaborators and their roles, if applicable
- Letters of commitment and support from each partner

4. Design and Methodology
The applicant should provide a summary of the design and methodology for the project that includes:

Design
- Rationale for project design
- Engagement of contractors, consultants, or other parties, if applicable
- Sequence of steps to be followed

Methodology
- Rationale for project methodology
- Data collection, statistical tests, equipment, data management and sharing, where appropriate

5. Schedule
The applicant should provide a detailed schedule for the project that includes:
- Start and completion dates
- Work plan including lead participant for each stage and staff allocations
- Measurable deliverables with target dates that represent progress towards meeting project objectives
- Contingency plan for any delays in achieving deliverables

6. Project Budget
Funding details will be provided on the Budget Forms available on the Forestry Futures website (www.forestryfutures.ca). Only projects spanning 24 months or less may be included under Application Process "B". These projects may overlap into three fiscal years (fiscal year runs from April 1 to March 31). A breakdown of the request for funding by year, and a list of annual contributions from partners (cash and in-kind) must be included. A list of eligible expenses can be found in Appendix B.

The project budget may include an initial disbursement of up to 30% of the project funds. Actual spending of this initial disbursement must be described in detail and accounted for in a project work report (or other means as agreed to by the FFTC on a case-by-case basis) before further disbursements will be made available. Up to six disbursements per fiscal year will be considered.

For multi-year projects, the release of funds for year two will be contingent upon submission of acceptable project work reports. Twenty percent (20%) of the funds awarded to each project will be held in reserve and released upon receipt of the final project work report. If any project has funds remaining at the end, these surplus funds will be released back to the Trust.

7. Partnerships

The KTTD Program encourages creative partnerships and collaboration which bring leveraged funding to projects. Provide the following information for all project partners and/or collaborators:

- Identify the partnerships
- Describe the roles and responsibilities
- Provide letters of commitment and support

8. Knowledge and Technology Transfer

Knowledge and/or technology transfer must be included as a component of each project. Applications that propose stand-alone transfer projects to train forest management practitioners, or other relevant parties, in using the imagery, inventory, or technology already available will also be considered for funding.

The applicant should outline the knowledge and technology plan including:

- A description of the knowledge transfer plan including a description of methods used and the audience
- The project's potential to build capacity in the natural resources sector through the on-going sharing of results and transfer of knowledge and technology.
- The feasibility of implementation by relevant parties including potential obstacles and proposed solutions
- Identification of a multiple-product approach to technology or knowledge transfer
- A description of the open-source software and/or tool development components and how they will be made available to the broader public

9. External Review

- Identify two potential independent external peer reviewers and their contact information
- Summary of applicable supporting literature, business process gap, or market analysis
- Peer reviewers should be recognized researchers or practitioners with extensive knowledge of the proposed subject area
- Identify a supporting Ministry contact to assist with the representation of the project to the broader Ministry

10. References

Provide the contact information for two individuals who are familiar with the applicant's work. Those individuals should be recognized researchers or practitioners with extensive knowledge of the proposed subject area.

Review and Assessment Procedures

Project applications will be collected and reviewed by the Review Team for completeness and eligibility under the Program. The review process for Application Process "A" (small-scale projects) and Application Process "B" (large-scale projects) differ as follows.

APPLICATION PROCESS "A" – Small-Scale Projects

Small-Scale Open-Source Projects

Small-scale projects submitted under Application Process "A" will be reviewed by the Review Team and may be reviewed by two external reviewers that are recognized researchers and/or practitioners with extensive knowledge of the proposed subject area. These external reviewers (as required) will present the results of their review to the Review Team. Final decisions on funding will be made by the FFTC and notification will be provided to the applicant.

Projects will be reviewed and scored based on Application Form "A" components and their respective assigned percentages, described below. During the initial review, if the project application is deemed to be incomplete, or if the Project Description is deemed to not be eligible under the KTTD Program the application may not be subject to a full review at the discretion of the Review Team. The FFTC reserves the right to make all final funding decisions.

Small-Scale Proprietary Projects

Small-scale proprietary projects submitted under Application Process "A" will be reviewed in two stages: 1) an initial review of the Letter of Intent by the Review Team (drawing on expert opinion where needed), and 2), if deemed necessary, a review and assessment of the full project proposal that may be conducted by two qualified external reviewers followed by an FFTC meeting for final project funding decisions.

Letter of Intent

The Letter of Intent will be reviewed by the Review Team and may be critiqued by up to two external reviewers that are recognized researchers or practitioners with extensive knowledge of the proposed subject area. These external reviewers (as required) will present the results of their assessments to the Review Team. Final decisions on acceptance of the Letter of Intent will be made by the FFTC based on the completeness and merit of the proposal. Notification of acceptance of the Letter of Intent and feedback (if applicable) will be provided to the applicant.

Full Project Proposal

Full-project proposals submitted under Application Process "A" (after acceptance of the Letter of Intent) will be reviewed and scored based on Application Form "A" components and their respective assigned percentages, described below. During the initial review, the project application is deemed to be incomplete, or if the Project Description is deemed to not be eligible under the KTTD Program the application may not be subject to a full review at the discretion of the Review Team. The FFTC reserves the right to make all final funding decisions.

Scoring Matrix

The applications will be evaluated based on the information provided in each section as per Table 1.

Table 1. Scoring Matrix for Projects submitted through Application Process "A".

Section	Value
Project Description and Incremental Value	15%
Project Team	20%
Design and Methodology	25%
Schedule	10%
Funding	10%
Knowledge and Technology Transfer	15%
Open-Source Deliverables Content	5%

APPLICATION PROCESS "B" – Large-Scale Projects

Large-scale projects submitted under Application Process "B" will be reviewed in two stages: 1) an initial review of the Letter of Intent by the Review Team (drawing on expert opinion where needed), and 2) if deemed necessary, a review and assessment of the full project proposal by at least two qualified external reviewers followed by an FFTC meeting for final project funding decisions.

Letter of Intent

The Letter of Intent will be reviewed by the Review Team and may be critiqued by up to two external reviewers that are recognized researchers or practitioners with extensive knowledge of the proposed subject area. These external reviewers (as required) will present the results of their assessments to the Review Team. Final decisions on acceptance of the Letter of Intent will be made by the FFTC based on the completeness and merit of the proposal. Notification of acceptance of the Letter of Intent and feedback (if applicable) will be provided to the applicant.

Full Project Proposal

Full project proposals submitted under Application Process "B" (after acceptance of the Letter of Intent) will be reviewed for completeness by the Review Team. Review of the full project proposal may be conducted by an External Review Team. This External Review Team may be comprised of individuals from the following groups: MNRF FRI staff, other MNRF business groups (if relevant), Provincial Forest Inventory Advisory Committee industry member(s), and other specialists including, but not limited to, research scientists, technologists, practitioners and educators. Each application may be distributed to a minimum of two members of the External Review Team. The external reviewers for chosen projects will be selected based on their knowledge and expertise in the project area. All members of the External Review Team must disclose any potential or perceived conflicts of interest and will not be eligible to review applications where a conflict is identified.

Projects will be reviewed and scored based on the project proposal components (as described in Application Process and Funding Requirements) and their respective assigned percentages, described below. During the initial review, if the project application is deemed to be incomplete, or if the Project Description is deemed to not be eligible under the KTTD Program the application may not be subject to a

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full review at the discretion of the Review Team. The FFTC reserves the right to make all final funding decisions.

Scoring Matrix

The Review Team will evaluate the application based on the information provided in each section as per Table 2.

Table 2. Scoring Matrix for Projects submitted through Application Process "B".

Section	Value
Project Description and Incremental Value	15%
Project Team and Partnerships	20%
Design and Methodology	25%
Schedule	10%
Funding	10%
Knowledge and Technology Transfer	15%
Open-Source Deliverables Content	5%

Appendix A – Examples of Topics[2]

Theme 1: Continuous Forest Inventory Model
- a. Proposed business process
    - i. Development of baseline and change updates for growth and disturbance
    - ii. Update tempo
    - iii. Integration of historical data
    - iv. Data access through web and mobile applications
- b. CFI must meet input requirements of forest management planning process in Ontario
- c. Data Modelling
    - i. Supporting Inventory Process
    - ii. Supporting Forest Management Planning

Theme 2: Advanced Remote Sensing
- a. Disturbance monitoring (abiotic, biotic, and fire for disturbances types and pests in Ontario) - Proposed business process for each disturbance type and pest (combine where applicable)
    - i. Required data resolution
    - ii. Update schedule
    - iii. Integration of historical data
    - iv. New information requirements (field or sensor)
    - v. Integration of Application Programming Interfaces (API)
        1. Focus on fast return survey methods
        2. Readily available data
        3. High resolutions and high temporal frequency of data collection
        4. May include 4 channel imaging (Blue, Green, Red, and Near IR), Thermal and other IR bands
    - vi. Image processing must include rectification to provincial data

Theme 3: Tools and Products to Enhance Field Data Sampling, Collection and Application
- a. Automation of FRI attributes
    - i. Sampling design to support Living Inventory
    - ii. Individual Tree Crown classification techniques
    - iii. Additional customized ABA attributes and processes
- b. Mobile field applications and data collection
    - i. Terrestrial LiDAR
        1. Field Procedures
        2. Data Model for Decision Support
    - ii. Integration and compilation of collected field data
    - iii. Data collection designs
    - iv. Update of existing applications (e.g., Height Curve Maker, TCM/PAM, eVSN, etc.)
- c. Integration and refinement of photo interpreted attributes and LiDAR
    - i. Object-based Image Assessment techniques and LiDAR and species identification

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[2] This is a list of topics that are relevant to the five themes and are provided as examples of potential projects. Proposals, however, are *not* limited to these ideas and others will be considered.

      ii.   Age assignments
      iii. Identification of species and condition in stand establishment stages
  d. New information collection standards for using RPAS Remotely Piloted Aircraft system

Theme 4: Tools and Products for Client and Stakeholders
  a. Changing climate considerations
      iii. Biomass curves
      iv. Field calibration and assessment procedures
      v. Growth and yield considerations
      vi. Analysis tools
  b. Wood product opportunities
      i. Field measurement techniques
      ii. Analyses opportunities with existing data
      iii. Decay, waste, and breakage factor development
      iv. Scaling opportunities with point clouds and ancillary data
  c. Dendrochronology
      i. Analyses of existing and new data
  d. Wetland, water polygons and water vectors
      i. Capture, identification, and classification
      ii. Watershed analyses
      iii. Water crossing
      iv. Flood mapping
  e. Wildlife and Species at Risk
      i. Habitat identification, critical and suitable
      ii. Landscape, Stand and Site and silviculture guides
  f. Public
      i. Communications
      ii. Access to FRI source data
      iii. Access to FRI products
  g. Forest Management Planning Support
  h. Updates to existing Growth and Yield tools
      i. Modelling Inventory Support Tool
      ii. Stand level yield models
      iii. Succession models
      iv. Cull factors
      v. Completion of Ontario variant of density management models (Forest Vegetation Simulator, CropPlanner, etc.)
  i. Development of new Growth and Yield tools
      i. Individual tree volumes
      ii. Stand level models
      iii. Successional models
      iv. Refinement of cull factors
  j. Development and refinement of forest characterizations
      i. Revision and consolidation with existing policy framework of forest units
      ii. Old-growth conditions
      iii. Fire fuel load and risk
      iv. Habitat identification, critical and suitable
  k. Automated reporting (supporting Annual Report development and approvals)
      i. Automated approval process
  l. Values data refinement

m. Roads and operations infrastructure classification tools
   i. Automation opportunities
      1. Identification of abandoned roads or road segments
      2. Reporting associated with policy requirements (road and landing areas, water crossings, aggregates)
   ii. Road location optimization tools

Theme 5: LiDAR (single photon)
   a. Roads
      i. Flow and process development to support spatial planning
   b. Automation
      i. Descriptive attributes
      ii. Tactical and operational planning
      iii. Wood supply modelling
      iv. Forest health monitoring and mapping
      v. Fire disturbance monitoring and mapping
      vi. Water crossing inventory

Theme 6: Advanced Computing
   a. Artificial Intelligence
      i. Development of tools and information required for forest management planning
      ii. Machine Learning
   b. Attribute development and/or refinement of predictions
      i. Development of tools and information required for forest management planning
   c. Cloud Computing
      i. Proposed business process
         1. Batch processing
         2. Data visualization
         3. Data Reporting
         4. Dissemination and accessibility

Appendix B – Eligible Expenses

- Salaries directly related to project, e.g., graduate and undergraduate students, forest technicians, photo interpreters, etc.
- Consultant/sub-contractor fees directly related to the project
- Reasonable travel costs for work directly related to the project
    - Mileage and per diem meal expenses may not exceed current provincial reimbursement rates
    - Economy accommodation and airfare (if applicable)
- Fixed capital costs including:
    - Related equipment lease/purchase costs (must be specialized equipment directly related to project outcomes and must be purchased/leased/acquired during the first half of the project)
    - Supplies directly related to the project
- Teleconferencing costs
- Report production
- Overhead or administrative costs (up to a maximum of 10 percent)

Please note the following items are ineligible as in-kind expenses or for reimbursement under this Program:
- Preparation of application for funding
- Fixed capital costs that are not specialized equipment, excluding those as defined above
- Costs incurred prior to approved project date

Appendix C – Submission Guidelines

Program Schedule

Issuing of Request for Proposal	June 2, 2023
Application A: Small-Scale Open-Source Projects	
Deadline for receipt of proposals	November 17, 2023 - midnight
Decision on successful proposal	December 8, 2023
Notification to successful project applicants	December 15, 2023
Application A: Small-Scale Proprietary Projects	
Deadline for receipt of Letters of Intent (LOI)	September 15, 2023 - midnight
Decision on LOI	October 6, 2023
Notification to LOI applicants of acceptance to proceed	October 13, 2023
Deadline for receipt of full proposals	November 17, 2023 - midnight
Decision on successful proposals	December 8, 2023
Notification to successful Project applicants	December 15, 2023
Application B: Large-Scale Projects (Open-Source and Proprietary)	
Deadline for receipt of LOI	September 15, 2023 - midnight
Decision on LOI	October 6, 2023
Notification to LOI applicants of acceptance to proceed	October 13, 2023
Deadline for receipt of full proposals	November 17, 2023 - midnight
Decision on successful proposals	December 8, 2023
Notification to successful Project applicants	December 15, 2023

Submission

Letters of Intent must be submitted electronically by midnight of September 15, 2023 and full proposals by November 17, 2023 to admin@forestryfutures.com. Acknowledgement of receipt will be provided within 48 hours. Only those submissions received by the deadlines will be considered.

All documents must be submitted as per the forms available on the Forestry Futures website (www.forestryfutures.ca). This includes the Small-Scale Application ("A"), Letters of Intent, Large-Scale Application ("B"), and Budget Forms. Proposals not submitted on the provided forms, or incomplete proposals will be deemed ineligible. The FFTC, at their discretion, may contact applicants to make the required corrections and be considered eligible for funding.

Document Control

In the interest of efficiency, the following document length restrictions apply to all submissions:
Note: All submissions must be 10-point font or larger on letter size paper.

Application Process "A"
- *Application* should be 5-7 pages (not including budget forms and Curriculum Vitae)
- *Letter of Intent* (for projects with proprietary content) should range from 2 to 5 pages (including a broad budget)

Application Process "B"

- *Letter of Intent* should range from 2 to 5 pages (including a broad budget)
- *Full Project Proposal* must not exceed twelve pages (excluding CVs and budget forms)
- *Curriculum Vitae* for each team member should not exceed two pages
- *Literature Cited* should not exceed two pages