

FOREST CARBON INFORMATION NOTES

MODULE 4: ROAD REHABILITATION

KEY TAKE-AWAYS

- Road rehabilitation provides an opportunity to sequester carbon when the road surface is planted with trees
- The carbon benefit of road rehabilitation is negated when projects involve woody vegetation removal or slash burning
- Road rehabilitation forest carbon projects provide co-benefits for timber and wildlife

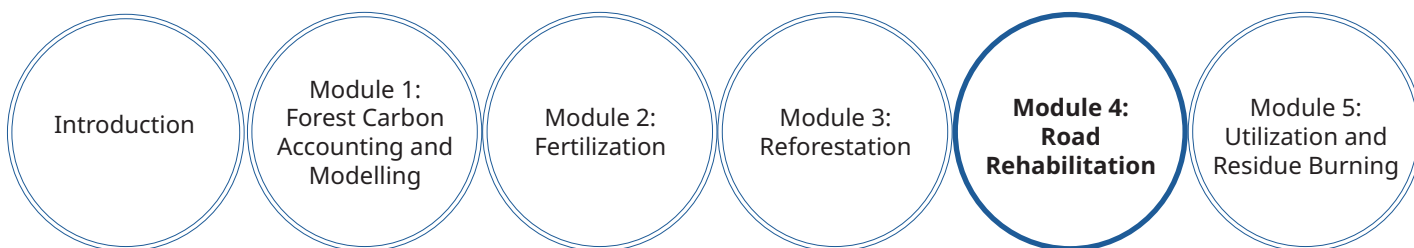
Natural resource roads in British Columbia are built on provincial land in association with timber harvesting and other industrial activities. While natural resource road infrastructure provides access for many activities such as recreation, hunting, fishing, range and managing silviculture obligations, many roads have become unnecessary or un-managed over time. In many cases, when roads are not maintained, the density of roads in a landscape is inappropriate for the management of wildlife, water or public safety. Rehabilitating roads through decompaction, site preparation and planting can improve the timber supply and restore wildlife habitat. When there is no woody vegetation to be removed from the road, these projects can contribute to the province's carbon sequestration goals.

HOW IS THE GHG BENEFIT ESTIMATED?

The net GHG benefit of road rehabilitation activities varies according to the baseline condition and project parameters. However, the FCI program is targeting roads with minimal (<5% ground cover) existing woody vegetation to maximize the GHG benefit. Road rehabilitation projects that require the removal of existing woody vegetation are less likely to have a carbon benefit because the removal of existing vegetation causes an emission.

The **Baseline Scenario** is to do-nothing. It simulates what would likely happen without FCI intervention. In this example, a road was built in 2006 and was used extensively for 10 years before being deactivated in 2016 with portions being seeded to grass for erosion control. The road was heavily compacted during its use so the natural regeneration of tree and shrub species is less than 5% ground cover (e.g. 50 m or less along a 1 km road segment). After 50 years it is expected that there would be approximately 100 stems per hectare or less of natural regeneration.

The **Road Rehabilitation Scenario**, as with the baseline example, starts in 2006 when a road was constructed. In 2016, the road is deactivated, and natural drainage patterns are restored with portions of the road being seeded to grass for erosion control. As the heavily compacted road has woody vegetation covering less than 5% of the road surface, the project is eligible for FCI funding. Conditional approval of the project is given subject to the outcome of consultation with Indigenous Nations, other stakeholders and user groups. The project moves forward after consultation and the project receives full FCI funding in 2019. These funds are used to develop a rehabilitation prescription which includes the use of heavy equipment to decompact the road; coarse woody debris and organic matter is redistributed (if present) on the road surface to create favourable planting microsites. In 2020, pine is planted at a density of 2,000 stems per hectare and it is assumed those trees would grow following a yield curve with a site index of 16 (See Figure 1).



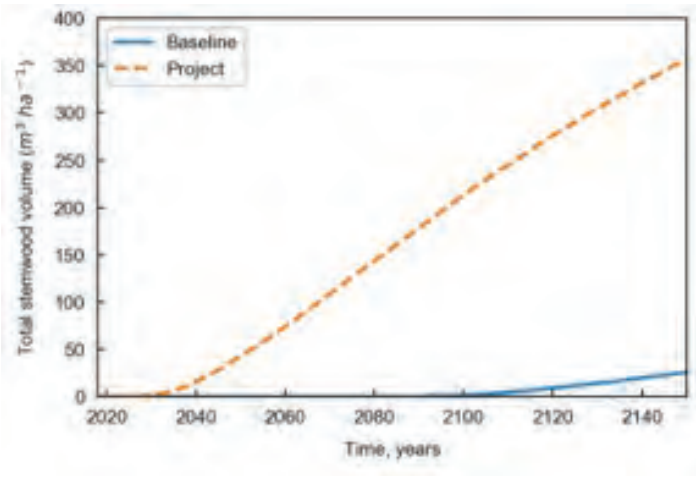


Figure 1 – Total stemwood volume over time in the baseline and project scenarios

In the baseline scenario, the amount of carbon stored on site would be minimal as the woody vegetation ground cover is less than 5%. However, in the preferred

CO-BENEFITS

Potential conflicts with historical, existing and proposed land use activities need to be identified by engaging with all stakeholders and Indigenous communities. Informed decision making and engagement with land users is critical to build trust and successfully execute operational plans. Road rehabilitation and associated tree planting contributes to long-term timber supply and creates jobs, while simultaneously building relationships with Indigenous Nations who are often involved with the planning and implementation of the work.

Reforestation helps to manage wildlife values by limiting vehicles and hunting access to important wildlife habitat. Adding coarse woody debris to a disturbed surface, along with planting helps reduce predator/prey interactions and may relieve hunting pressures. Rehabilitated roads that stop or limit

FOR MORE INFORMATION

For detailed information on road eligibility criteria and best management practices, please see:

Appendix 1 – Criteria for Road Rehabilitation Projects and

Appendix 2 – Engineering Standards for Road Rehabilitation Projects.

This information note was prepared for Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD) staff, the Forest Enhancement Society of British Columbia, contractors, Indigenous Nations and stakeholders to communicate the potential benefits and opportunities in mitigating climate change through such activities, and to offer robust, evidence-based advice on best practices.

FCI project scenario, the planted trees would begin to sequester carbon slowly after planting and then the cumulative net benefit of carbon stocks would increase rapidly from 2030 to 2050 (see Figure 2).

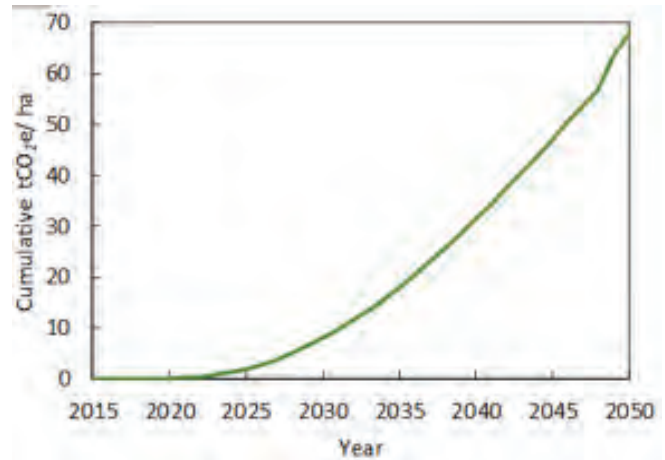


Figure 2 – Project scenario cumulative net benefit of carbon stocks over time

access from low to high elevations enable animals to use their core habitats throughout the year. Protecting our water resources during road rehabilitation activities by restoring natural drainage patterns and planting road surfaces is critical for the management of downstream aquatic ecosystems and fisheries. Also, the potential for soil erosion and mass wasting (landslides) should be addressed during the prescription, implementation and monitoring phases for all road rehabilitation projects.

Working collaboratively with other agencies such as the Forest Enhancement Society of British Columbia (FESBC), the Habitat Conservation Trust Foundation (HCTF), or Forests for Tomorrow (FFT) can create efficiencies and other co-benefits including the leveraging of funds and resources to maximize the impact of each dollar being spent.

CONTACT

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Ministry of
Forests, Lands, Natural
Resource Operations
and Rural Development