Corner Brook Pulp and Paper Ltd.

Greenhouse Gas Management Plan
Corner Brook Pulp and Paper Tenure
V1

Contents

1.0 Introduction

Forests play an important role in the global carbon cycle by taking carbon dioxide (CO_2) out of the atmosphere. During photosynthesis, trees convert CO_2 into glucose and a variety of other organic molecules that support growth, metabolism, and the formation of structural tissues. This process—where atmospheric CO_2 is captured and turned into biological material—is known as carbon sequestration**.** Once that carbon becomes part of the tree's trunk, branches, leaves, and roots, it is referred to as carbon storage**.**

The stored carbon remains in the tree's biomass until a disturbance occurs. It is released back to the environment when the tree dies and decomposes, suffers damage from natural events, or is harvested. The way carbon behaves after a disturbance depends on the type of event; for example, decay, fire, or wood utilization all return carbon to the atmosphere at different rates.

A forest's age-class structure**,** which develops over time as a result of its disturbance history, is the primary factor influencing how much carbon it can capture and store. Young stands generally sequester and store the least carbon because they have limited leaf area and relatively little biomass. As forests reach the middle stages of development, they experience rapid growth and accumulate biomass quickly, making them highly effective at sequestering carbon. By this stage, their carbon storage capacity is increasing significantly.

Mature forests, although essential for long-term carbon storage due to their substantial biomass, do not sequester carbon as rapidly as younger stands. Growth slows, and natural processes such as senescence begin to break up the stand, meaning that much of the carbon uptake is directed toward maintaining existing tissues rather than creating new ones.

Because different age classes contribute to carbon sequestration and storage in different ways, maintaining a diverse distribution of stand ages is the most effective strategy for supporting strong, long-term carbon benefits across a forest landscape.

2.0 Carbon Modelling and Forest Management Planning

A clear distinction between the **managed** and **unmanaged** portions of the forest landbase is essential for understanding how carbon behaves across the landscape. The **managed landbase**—which consists of the core, operational, and domestic zones—is the portion where harvesting, silviculture, and other forestry practices can actively influence forest structure and age distribution to achieve the objectives outlined in the forest management plan. In contrast, the **unmanaged landbase** includes watercourse buffers, ecologically protected areas, and non-commercial forest stands. These areas remain constant across all forest management scenarios within a given Forest Management District (FMD), since no harvesting or silvicultural activity can be scheduled there.

Within the unmanaged landbase, forest development follows natural successional patterns because these areas are neither created nor eliminated in the modelling process. Non-productive stands are assigned an age of 120 years and are excluded from the age-class distribution figures, although their contribution to aboveground carbon storage is still represented in the model's "unmanaged forest" trendline for each district.

To understand how different management strategies influence long-term carbon storage, four modelling scenarios were evaluated:

Scenario 1 (S1): No Management Activity

This scenario assumes **no harvesting or silviculture**, allowing forests to progress entirely through natural succession. It provides a reference point for understanding the natural range of carbon variability across the managed landbase. However, this scenario also reflects the highest potential for wildfire or insect outbreak because long periods without disturbance increase fuel loading.

Scenario 2 (S2): Maximized Carbon Storage

In this scenario, harvesting and silviculture remain within all wood-supply limitations, but the optimization goal is to **maximize the amount of carbon retained on the landscape**. Planting levels, harvest deferrals, and all other operational constraints remain in place. The model uses available management tools to adjust the age-class structure toward an ideal balance, resulting in the highest achievable carbon storage under realistic policy and supply restrictions.

Scenario 3 (S3): Fully Unconstrained Management

This scenario removes **all limits on harvesting and silviculture** for the entire 160-year modelling period. Because it eliminates every operational restriction, it depicts the **absolute upper bound of carbon storage potential** achievable through management. Although it is useful for understanding theoretical limits, it is not practical for real-world forest operations.

Scenario 4 (S4): Operational Harvest Scenario

This is the scenario used to produce harvest schedules that inform Managers in the development of **five-year operating areas**. It represents the management approach that will actually guide forest operations. Comparing this scenario against S1, S2, and S3 allows managers to evaluate how the proposed harvest strategy affects overall carbon stocks and how its carbon trajectory differs from both the natural baseline and the theoretical upper limits of carbon storage.

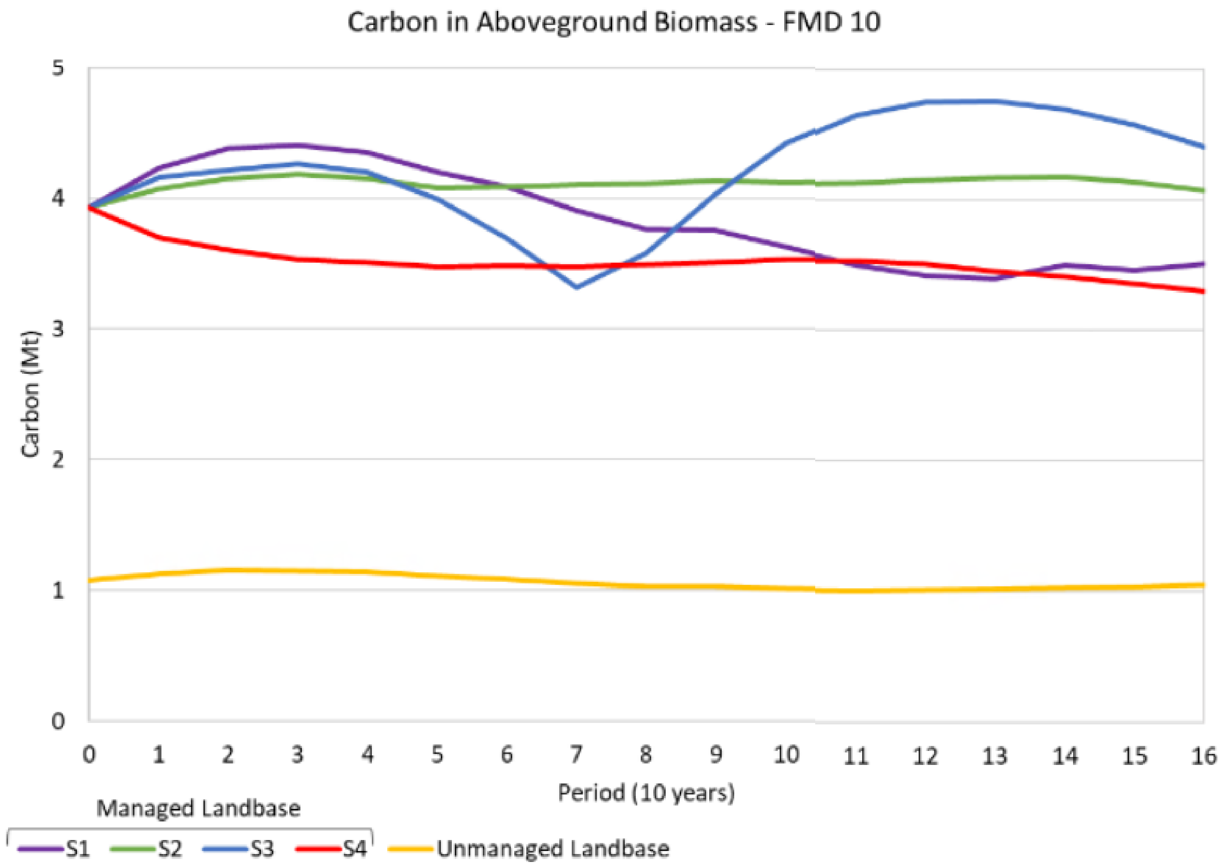
CBPPL is using **Scenario 4** because it is the only modelling option that reflects the *real* harvesting and silviculture activities planned for the district, rather than theoretical or idealized conditions. While the other scenarios help illustrate natural carbon dynamics (S1), maximum carbon storage under constrained management (S2), or the absolute upper limit of carbon accumulation under unrealistic conditions (S3), they do not represent what will actually occur on the landscape. Scenario 4 captures the operational harvest levels, spatial constraints, silviculture commitments, and wood-flow requirements that District Managers rely on when developing their five-year Commercial Operating Areas. By using Scenario 4, CBPPL can evaluate how the proposed management regime affects aboveground carbon stocks, compare its carbon performance to the reference scenarios, and ensure that carbon outcomes are assessed within the context of feasible, sustainable, and policy-compliant forest operations.

3.0 Projections on the level of greenhouse gas emissions that are anticipated to be captured and/or released over the five-year period

In collaboration with Forestry, Agriculture and Lands (FAL), CBPPL has been running its own Wood Supply Model. The resulting carbon estimates for Forest Management District (FMD) 10 were provided by the Crown as part of their most recent Zone 5 Five-Year Plan submission which includes both the Crown and CBPPL tenure limits. According to these model outputs, FMD 10 currently contains approximately 5.01 megatonnes (Mt) of carbon stored in aboveground biomass—including stem wood, bark, branches, and foliage. Of this total, roughly 3.93 Mt originate from the managed forest area (78,305 ha), while about 1.08 Mt are stored within the unmanaged forest (49,717 ha).

The district's slightly left-skewed age-class structure helps explain how carbon stocks change under the four modeled scenarios. Under the natural succession scenario (S1), where no harvesting or silviculture is permitted, carbon levels initially rise but later decline as the forest ages and begins transitioning toward older, lower-productivity classes. In contrast, the maximum carbon scenario (S2) maintains carbon stocks within the natural range of variation while slowly increasing them over time; this is achieved through a combination of planting and restricted harvesting designed to keep the age structure close to an ideal balance for long-term carbon storage.

The unconstrained scenario (S3) produces carbon levels well above the natural range of variation, driven by intensive harvesting early in the planning horizon followed by substantial planting and thinning treatments to rebuild stand structure later on. While informative, this scenario does not reflect operational reality. The harvest scenario (S4)—which CBPPL is using operationally—mirrors the overall trend of S2 because both scenarios are subject to the same management constraints. They differ only in their optimization goals: S2 prioritizes maximizing carbon storage, while S4 focuses on producing harvest levels needed to guide the development of Operating Areas. Lastly, the unmanaged portion of the forest remains relatively stable throughout the planning horizon due to its more balanced age-class distribution and the absence of scheduled management interventions.



It is the goal to have all districts modeled for above ground carbon for each scenario to present in an overall GHG Management Plan as required by the EA release conditions. Currently FAL is working on Zone 3 and Zone 7 as they are due for plan renewal by the end of 2026.

4.0 How carbon modelling informs forest management (Mitigation and Adaptation)

1. Regeneration Strategy

   Inputs into the wood supply modelling showing full stocking through natural regeneration + planting/gap planting accelerates carbon recovery after harvest.

   CBPPL will report on the inputs into the model runs for each district in the final version of this plan. Details on regeneration surveys and restocking performance will be included.

2. Product Stream Optimization

   Because sawlogs produce longer-lived harvested wood product (HWP) pools, ensuring 30-40% sawlog proportion increases long-term carbon storage.

CBPPL will report on the % sawlog sales from its operations going to the three main sawmills in the province (Burtons Cove Logging and Lumber, Cottles Island Lumber and Sextons). Targets will be set and can be reported on annually.

3. Operational Fuel Reduction

A pilot project launched in 2022 between Corner Brook Pulp and Paper Ltd. (CBPPL) and Department of Government Services NL, in consultation with Transportation and Infrastructure (TI), evaluated the use of increased allowable truck weights for hauling raw forest products under CBPPL's safety program. The results demonstrated clear benefits: greenhouse gas (GHG) emissions were reduced by 4%, and the number of log truck trips required to move the same volume of wood decreased by 6%. This improvement corresponds to a reduction of approximately 22 tonnes of GHG emissions per year, which is equivalent to removing 135 passenger vehicles from the road.

To build on the success of this initiative, CBPPL is proposing further productivity and emissions improvements by transitioning from 7-axle tandem-drive quad configurations to 8-axle tri-drive quad configurations**.** This upgrade is projected to eliminate an additional 19 tonnes of GHG emissions annually. Beyond emissions reductions, the 8-axle tri-drive configuration offers significantly enhanced traction and braking performance, resulting in notable safety benefits for both on-highway and off-highway operations.

CBPPL will report on the progress of this plan as it further develops.

4. Disturbance-Aware Scheduling

The Early Intervention Strategy (EIS) for spruce budworm in Newfoundland and Labrador is a proactive, science-based program aimed at preventing outbreaks before they become widespread. The approach focuses on intensive monitoring of budworm populations to detect early increases, followed by targeted aerial treatments of small, high-risk hotspots using Btk, a biological control agent approved by Health Canada. By treating these localized "leading-edge" populations early, the program helps protect large areas of forest from severe defoliation, growth loss, and potential tree mortality.

The spray program is not expected to continue into 2026 and efforts are now being concentrated into harvesting severely defoliated or severely defoliated with mortality stands. This effort will serve two purposes, 1. to recover the volume before it begins to deteriorate eventually adding to the carbon source and 2. To reduce the fuel load that could contribute to future wildfire risk.

CBPPL will report on the number of hectares of salvage harvest completed and planned target levels based on defoliation layers provided by FAL in the next version of this plan.