

To: Warden and Members of County Council

From: Director of Public Works

Managed Forest Plan Update: 2021 Review and Operational Activity Forecast

RECOMMENDATION

- 1. That County Council receive Report No. PW 2022-06 entitled “Managed Forest Plan Update: 2021 Review and Operational Activity Forecast” for information.**

REPORT HIGHLIGHTS

- This report provides an update on 2021 Managed Forest Plan undertakings, including, but not limited to:
 - Commercial timber harvesting generating over \$11,000 in revenue, including harvests on 5.7 ha. across Zenda and Hall Tracts;
 - Afforestation plantings of 14,900 trees across 11.6 ha. of fallow land;
 - Reforestation plantings of 3,600 trees across 3.6 ha. of previously-harvested woodland; and
 - Invasive species management across 51.4 ha.
- Details of the proposed upcoming operational activity forecast associated with the active management of both the Agreement Forests and forested sections of other County-owned rural properties are also highlighted.

Implementation Points

Implementation of the recommended activities included within the 20 year Managed Forest Plan (MFP) began in 2018.

In previous years, a primary focus of forest management has been the salvage/harvest of ash and beech trees on affected properties. With the percentage and quality of ash declining severely, it is no longer a driver for logging.

In accordance with the MFP, secondary and tertiary thinning of conifer plantation in Agreement Forests as well as tree planting, invasive species management and wetland rehabilitation initiatives are currently the driving forces behind active management. In future years, activities will be selected based on priorities listed within the Plan, funding availability and workload.

Financial Impact

Approximately \$15,000 in harvesting revenue was forecasted under the MFP in 2021 through harvesting that was planned to be undertaken at the Embro Tract (North) and Lakeside Closed Landfill; however, these harvests were deferred to 2022 due to poor market conditions. In lieu, alternative Woodlands revenue of over \$11,000 was generated in the 2021 operating period through commercial harvesting at the Zenda Tract and Hall Tract as noted below:

- Zenda Tract generated \$3,000 from a second thinning in a white pine parcel; and
- Hall Tract generated \$8,000 from a second thinning in a red pine parcel.







The total Woodlands Conservation 2021 operating budget included expenses of \$206,000 in 2021. The 2021 operating budget included MFP activity expenses related to the management of County-owned forested properties and wetlands (approximately \$111,000) as well as activities associated with landowner engagement / enforcement of the County’s Woodlands Conservation By-law and enforcement of the County’s Weed Control By-law.

Communications

The County’s forest management work is outlined for the public in the [Managed Forest Plan](#) as posted on the County website. Closer to the 2027 update of this plan, Public Works will share progress from this 10-year period.

A copy of Report No. PW 2022-06 will be shared with Ontario Woodlot Association, Woodland Owners Association, Ducks Unlimited, Upper Thames River Conservation Authority, and the Ministry of Natural Resources and Forestry.

Strategic Plan (2020-2022)

					
WORKS WELL TOGETHER	WELL CONNECTED	SHAPES THE FUTURE	INFORMS & ENGAGES	PERFORMS & DELIVERS	POSITIVE IMPACT
1.ii.		3.ii. 3.iii.	4.i.		

DISCUSSION

Background

In August 2017, County Council adopted Report No. [CAO 2017-11](#), “County Managed Forest Properties Review.” The Report recommended the continued public ownership and active management of the forest tracts owned by the County, in accordance with good forestry practices and for staff to consider partnership opportunities to advance the forest properties’ natural environment and public value.

As per Report No. [PW 2019-26](#), staff retained forestry consulting services to develop a 20-year Managed Forest Plan (MFP) from 2018 to 2037 which concentrates resources on commercial harvesting, tree planning and invasive species management. The MFP included a detailed 10-year Operational Work Schedule for the first ten-year period (2018 to 2027) in which 14 parcels were identified as a priority for commercial harvest.

While the MFP identifies 14 parcels for management, it should be noted that harvesting activities are not strictly limited to these parcels. Several other parcels from both Agreement Forests and Source Water Protection forests are assessed on a yearly basis for ideal tree stocking, weather conditions and contractor availability.

Tree planting and invasive species management, while included in the MFP, were not associated with any specific timeline. Recognizing that a tree planting and invasive species management program would be established and gradually increased year-over-year, only general framework and parcel management recommendations were given. The work schedule for the second ten-year period (2028 to 2037) will be refined upon review and evaluation of the undertakings completed in the first ten-year period.

Comments

[Summary of 2021 Managed Forest Plan Undertakings](#)

Consistent with the MFP, a number of projects and/or programs were undertaken in 2021 in support of the active management of the County's forested properties as detailed below.

[i\) Tree Harvesting](#)

Two parcels not included in the MFP commercial harvest schedule (Hall Tract and Zenda Tract) were added to the list of 2021 undertakings.

The red pine parcel at the Hall Tract was considered, on its own, too small of an acreage to be commercially viable so it had sat idle for several years; however, in May 2021, there was a dramatic increase in the value of red pine. The 50% increase in standing timber value in combination with unseasonably dry weather created ideal conditions for this small parcel to be subject to a second thinning.

The conifer plantations at the Zenda Tract were slated for a full scale harvest in the fall of 2021 but the risk of a market freeze on material used to make pressure-treated products was looming. Rather than risk a price drop or market freeze during a large-scale machine-harvest, a smaller parcel was set aside to be harvested by hand to feed the demand of independent, local sawmills.

These two properties were originally omitted from the MFP harvest schedule as the red pine in the Hall Tract was heavily harvested in 2006 and 2007, and sections with adequate stocking were small and isolated. The white pine plantation at the Zenda Tract is mostly small diameter "second thinning" material and as the previous red pine salvage left highly variable residual stocking there was no urgency to include it in the MFP harvest schedule. The parcel set aside for 2021 was only 4 acres in size but the size and quality of the timber was appropriate for the demand of local sawmills.

The two properties scheduled for 2021 harvest in the MFP, Embro Tract (North) and Lakeside Closed Landfill, were pushed to 2022 due to the aforementioned market conditions. This will also allow for buckthorn management prior to harvest. Further, the Tavistock lagoons property was planned for 2021; however, harvesting was placed on hold due to weather conditions. Frozen weather conditions, hardwood regeneration and tree stocking are all ideal to advance the Tavistock lagoons for harvesting in 2022.

In accordance with the MFP, the 2021 harvesting activities were focused on conifer plantation thinning as well as habitat improvement. Conifer plantations, while primarily intended as a nurse crop for shade tolerant deciduous hardwoods, function as a valuable habitat type and source of quality timber. Periodic thinning is required to allow the diameter and timber quality of the conifers to increase as well as increase the amount of natural regeneration and the number of trees in the future forest. Trails and access points used by logging equipment in turn allow for greater access for the public to enjoy hiking and hunting. Wildlife habitat quality increases dramatically in the years following a timber harvest as new growth establishes.

A summary of tree harvesting activities by property is shown below in Table 1.

Table 1: Tree Harvesting Projects/Programs Undertaken in 2021

Operation	Objective	Acreage	MFP Timeframe	Actual Timeframe Completed
Hall Tract (agreement forest)	Second thinning of red pine	4 ha.	No timeframe given	June 2021
Zenda Tract (agreement forest)	Second thinning of white pine plantation	1.7 ha.	No timeframe given	Fall 2021

ii) Tree Reforestation and Afforestation

Afforestation projects in 2021 included 14,900 trees across 11.6 ha. of fallow land. Reforestation plantings of 3,600 trees occurred across 3.6 ha. of previously-harvested woodland. Overall, a total of 18,500 seedlings were planted.

Afforestation, which is the planting of trees in an area not previously forested, focused on the Thames River Wetlands (Beachville Park: ‘C’ & ‘D’) as well as Thornton Wellfield - Hodge’s Pond ‘B’ and ‘P’.

- In Beachville Park: ‘C’, to improve the diversity of tree species and increase forest cover along Beachville Road, 1,550 seedlings were planted in order to improve the wildlife corridor along the bank of the Thames River.
- In Beachville Park: ‘D’, 2,000 seedlings were planted between both constructed and natural wetlands and the Thames River.

- In Thornton Wellfield, Hodges Pond – ‘B’, to further increase forest cover, 1,850 seedlings were planted between existing woodland and farm field along Curry Road.
- Also in Thornton Wellfield, Hodges Pond – ‘P’, to help advance the woodland edge along Cedar Creek, 9,500 seedlings were planted adjacent to 10 newly excavated wetland cells at the Hodge’s Pond property.

The woodland parcels subject to commercial harvest in 2020 all received some degree of reforestation in 2021, which is the planting of a parcel of woodlands after a commercial harvest, as hardwood regeneration is seldom uniform and a greater diversity of species may be needed. The Thornton Wellfield; Hodge’s Pond: ‘O’ was devoid of any hardwood regeneration. All 3,600 seedlings allocated for reforestation were planted in this parcel.

A summary of tree planting activities by property is shown below in Table 2.

Table 2: Tree Afforestation and Reforestation Undertaken in 2021

Operation	Objective	Acreage	MFP Timeframe	Actual Timeframe Completed
Thames River Wetlands (Beachville Park: ‘C’): afforestation (seedlings)	Hand plant: 550 hybrid poplar; 500 silver maple; 500 red oak	1 ha. Planted in continuous block adjacent to wetland cells and river bank	No given timeframe	May 2021
Thames River Wetlands (Beachville Park: ‘D’): afforestation (seedlings)	Hand plant: 750 silver maple; 1,000 white pine; 250 white oak.	1.3 ha. Planted in continuous block between Beachville Rd and woodland edge	No given timeframe	May 2021
Thornton Wellfield, Hodges Pond – ‘B’: afforestation (seedlings)	Hand plant: 500 Norway spruce; 500 tamarack; 500 white pine; 350 grey dogwood	1.2 ha. Planted in continuous block between woodland edge and farmland	No given timeframe	May 2021
Thornton Wellfield, Hodges Pond – ‘P’: afforestation (seedlings)	Hand plant: 9,000 white cedar; 500 tamarack;	8.1 ha. Planted in clumps adjacent to trail and wetland cells	No given timeframe	May 2021
Thornton Wellfield, Hodges Pond – ‘O’: reforestation (seedlings)	Hand plant: 3,000 red oak; 600 white oak.	3.6 ha. Scatter-planted	Post-harvest	May 2021

iii) Invasive Species Management

Management of invasive species in County woodlands is often guided by commercial logging activity. The rationale being that heavy equipment activity and the change of canopy density have the greatest influence on the spread of seed and the growth rate of established plants. Invasive species management is not strictly limited to non-native plants. Within woodlands, European buckthorn (invasive shrub) and American beech root clones (native plant displaying qualities of an invasive species) are of greatest concern. In woodland edges and open ground, Japanese knotweed and Phragmites Australis (phragmites) are of greatest concern.

Much of the phragmites present on rural County properties has been, or is in the process of being, eradicated. Therefore, the focus has started to move toward other non-native grasses that form monocultures. Reed canary grass presents many of the same concerns as phragmites as they both form dense monocultures that prevent the establishment of native species.

The vast majority of the non-wooded areas along cedar creek in the Hodge's Pond property were, not long ago, completely taken over by phragmites and, while much of it has been controlled, sections still persist along with reed canary grass. In an attempt to eradicate the residual phragmites and any reed canary grass in the 8 ha. section at the Thornton Wellfield, Hodge's Pond: 'P' parcel adjacent to the 10 newly excavated wetland cells, a foliar herbicide application was carried out in April with a follow-up spot-spray in August.

While no harvest activity was planned, 24.2 ha. of woodland in the Thornton Wellfield, Hodge's Pond: 'P' were also treated for invasive shrubs.

European buckthorn, tatarian honeysuckle, beech root clones and several less common understory species are actively being targeted for eradication within County woodlands. As heavy equipment use is a common vector for the spread of invasive species, approximately 19.2 ha. across three properties were treated with a basal spray of Garlon RTU in order to control the population of invasive shrubs prior to harvest activity. This will allow native hardwood species to establish in the understory and a commercial harvest may be considered in future years.

A summary of invasive species management activities by property is shown below in Table 3.

Table 3: Invasive Species Management Activities Undertaken in 2021

Operation	Objective	Acreage	MFP Timeframe	Actual Timeframe Completed
Thornton Wellfield, Hodge's Pond: P: invasive spp.	Arsenal Powerline foliar application on Phragmites and reed canary grass	8 ha.	No given timeframe	August 2021
Thornton Wellfield, Hodge's Pond: P: invasive spp. management	Garlon RTU application on European buckthorn & Tatarian honeysuckle	24.2 ha.	No given timeframe	July 2021
Chesney Tract (agreement forest): invasive spp. Management	Garlon RTU application on beech root clones	5.2 ha.	No given timeframe	December 2021
Tavistock Lagoons (woodland): invasive spp. Management	Garlon RTU application on beech root clones	6 ha.	No given timeframe	December 2021
Zenda Tract (agreement forest): invasive spp. Management	Garlon RTU application on European buckthorn	8 ha.	No given timeframe	July 2021

Planned 2022 Managed Forest Plan Undertakings

Consistent with the MFP, the projects and/or programs planned to be initiated in 2022 are detailed below in Table 4. The entire lowland hardwood section of the Hall Tract is scheduled in the MFP to be harvested in 2025, but frozen weather conditions, hardwood regeneration and tree stocking are all ideal to advance harvesting to 2022 for a 4.6 ha. section of this Tract. The same conditions apply to the Tavistock lagoons property which can be advanced for harvesting in 2022. As previously noted, both the Embro Tract and Lakeside closed landfill were scheduled in the MFP for 2021 but market conditions justified pushing them to 2022. Both parcels are well-stocked conifer plantations ready for the second of three periodic thinnings. As mentioned earlier in the report the remaining conifer plantation at the Zenda tract will be subject to a second thinning as well.

Overall, as per the 2022 budget, approximately 16.4 ha of woodland parcels are planned for commercial harvesting in 2022, along with the planting of 15,000 trees and invasive species management across 28.0 ha. In addition, 16.6 ha. of woodlands carried over from 2021 will be added.

Table 4: Planned 2022 Undertakings

Operation	Objective	Acreage	MFP Timeframe	Anticipated Timeframe
Tree Harvesting				
Hall Tract (agreement forest)	Ash salvage; single tree selection of soft maple and white pine; crown thinning of black walnut	4.6 ha.	2025	February 2022
Tavistock Lagoons (woodland)	Beech salvage; single tree selection of mixed hardwoods	7.5 ha.	No given timeframe	February 2022
Embro Tract North (agreement forest)	Spruce/pine plantation (first thinning)	7.6 ha.	2021	Summer 2022
Lakeside (closed landfill)	Pine plantation (second thinning)	9 ha.	2021	Summer 2022
Zenda Tract (agreement forest)	Pine plantation (second thinning)	4.3 ha.	No given timeline	Summer 2022
Tree Reforestation and Afforestation				
Hall Tract: 2021 red pine harvest block: reforestation	Hand plant red oak & poplar (2000)	4 ha.	No given timeframe	Spring 2022
Holbrook closed landfill: buffer lands: afforestation (seedlings and tall stock)	Machine plant coniferous and deciduous seedlings (7000 trees)	3.3 ha.	No given timeframe	Spring 2022
Thames River Wetlands (Beachville Park: 'C'): afforestation (seedlings)	Hand plant coniferous and deciduous seedlings: low density (6000 seedlings)	3.8 ha.	No given timeframe	Spring 2022 – *may be deferred to fall 2022 if spring conditions are too wet to access the parcel.

Operation	Objective	Acreage	MFP Timeframe	Anticipated Timeframe
Invasive Species Management				
Embro Tract (2022 harvest block): invasive spp. management	Garlon RTU application on European buckthorn	7.6 ha.	No given timeframe	Spring 2022
Lakeside closed landfill (2022 harvest block): invasive spp. management	Garlon RTU application on European buckthorn	9 ha.	No given timeframe	Spring 2022
Lakeside Tract: invasive spp. management	Garlon RTU application on European buckthorn	7.6 ha.	No given timeframe	Summer 2022
Thames River Wetlands - Beachville Park 'C': invasive spp. management	Glyphosate foliar application on reed canary grass & wild parsnip	3.8 ha.	No given timeframe	Spring 2022

Challenges

As no detailed inventory of County-owned forest tracts has been completed and historical management data is limited, many smaller-scale timber harvesting activities have not been given a specific timeframe for completion. As many woodland tracts are seasonally flooded, the window of harvest opportunity is restricted to persistent sub-zero winter temperatures or dry summer weather. Ideal winter conditions are becoming less common with the change in climate, adding additional challenges to harvesting on schedule. The window for offsetting the impacts of Emerald Ash Borer and Beech Scale through commercial harvesting is narrowing as a result of timber quality decline.

By breaking down large tracts into smaller parcels, actively monitoring each property and maintaining high level communication with logging contractors, mills and local forestry professionals, staff are able to operate under shorter timeframes. This allows for a larger percentage of forest stands to be actively managed under ideal conditions and presents the opportunity to eradicate invasive species and reforest cut-over areas with greater efficacy.

Conclusions

The Managed Forest Plan serves as a framework to guide the activities associated with active management of County-owned forested lands. The ultimate goal is not restricted to maximizing the revenue generated over the short term, but rather the long-term sustainable supply of forestry products.

The operational activities identified will improve the overall health of the forest lands and has the potential to serve as a role model for sustainable environmental management practices through habitat enhancement and good forestry practices.

SIGNATURES

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