

**To:** Warden and Members of County Council

**From:** Director of Public Works

## Managed Forest Plan Update: 2020 Review and Operational Activity Forecast

### RECOMMENDATION

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1. That County Council receive Report No. PW 2021-07 entitled “Managed Forest Plan Update: 2020 Review and Operational Activity Forecast” for information.

### REPORT HIGHLIGHTS

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- This report seeks to provide an update on 2020 Managed Forest Plan undertakings, including, but not limited to:
  - Commercial timber harvesting generating over \$39,000 in revenue, including harvests on 26.4 ha. (65.4 ac.) across McBeth, Zenda, Creditville Tracts and Thornton Wellfield - Hodges Pond ‘O’;
  - Afforestation plantings of 3,361 trees across 13.5 ha. (32.9 ac.) of fallow land;
  - Reforestation plantings of 1,177 trees across 20.3 ha. (50.2 ac.) of previously-harvested woodland; and
  - Invasive species management across 25.4 ha. (63.3 ac.).
- 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

Total Woodlands revenue generated for the 2020 operating period was over \$44,000, of which approximately 90% is attributable to revenue from commercial harvesting. While \$15,000 in harvesting revenue was forecasted under the MFP in 2020, actual harvests exceeded this forecast and generated over \$39,000 in revenue. Total Woodlands revenue is comprised of the following amounts:

- McBeth Tract generated \$21,680 from conifer thinning;
- Zenda Tract generated \$3,601 from single tree selection in a small hardwood parcel;
- Thornton Wellfield - Hodge's Pond 'O' property generated \$4,880 from conifer thinning;
- Creditville Tract generated \$8,880 from conifer thinning;
- \$4,200 in revenue received as part of two separate tree planting offset agreements; and
- Sale of trees removed from County road allowances as part of normal maintenance operations generated \$1,048.







The total Woodlands Conservation 2020 operating budget included expenses of \$159,230 in 2020. The 2020 operating budget included MFP activity expenses related to the management of County-owned forested properties and wetlands (approximately \$92,000) 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 2021-07 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 (2015-2018)

					
<b>WORKS WELL TOGETHER</b>	<b>WELL CONNECTED</b>	<b>SHAPES THE FUTURE</b>	<b>INFORMS &amp; ENGAGES</b>	<b>PERFORMS &amp; DELIVERS</b>	<b>POSITIVE IMPACT</b>
1.ii.		3.ii. 3.iii.	4.i.		

## DISCUSSION

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### 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 with the McBeth Tract (an agreement forest) being scheduled for completion in 2020.

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 Sourcewater 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 2020 Managed Forest Plan Undertakings

Consistent with the MFP, a number of projects and/or programs were undertaken in 2020 in support of the active management of the County's forested properties as detailed below.

##### i) Tree Harvesting

In addition to commercial harvesting within the McBeth Tract, three parcels not included in the MFP commercial harvest schedule (Creditville Tract, Zenda Tract, Thornton Wellfield - Hodge's Pond 'O') were added to the list of 2020 undertakings as several weeks of cold or dry weather created conditions ideal for harvest activity. These three properties were originally omitted from the MFP harvest schedule as they are typically too wet to allow for machinery access. The "Thornton Wellfield - Hodge's Pond 'O' property was scheduled for harvest in 2019 but conditions were not ideal. The parcels on the Creditville Tract and Zenda Tract were not scheduled because the total acreage was small and both parcels were quite static in their development. Both were to be monitored until weather and tree regeneration conditions were ideal at which time they could be actively managed.

In accordance with the MFP, the 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 2020**

<b>Operation</b>	<b>Objective</b>	<b>Acreage</b>	<b>MFP Timeframe</b>	<b>Actual Timeframe Completed</b>
McBeth Tract (agreement forest)	Second thinning of white pine/Norway spruce plantation	16.2 ha. (40 ac.)	2020	March 2020
Thornton Wellfield - Hodge's Pond 'O'	Initial thinning of white pine, red pine and Norway spruce	4 ha. (10 ac.)	2019	March 2020
Creditville Tract (agreement forest)	Second thinning of red pine/white pine plantation	5.3 ha. (13.3 ac.)	No given timeframe	June 2020
Zenda Tract (agreement forest)	Red oak crown spacing/tolerant hardwood removal	0.90 ha. (2.13 ac.)	No given timeframe	August 2020

## ii) Tree Reforestation and Afforestation

Afforestation projects in 2020 included 3,361 trees across 13.5 ha. (32.9 ac.) of fallow land. Reforestation projects consisted of 1,177 trees across 20.3 ha. (50.2 ac.) of previously-harvested woodland. Overall, a total of 561 6-foot saplings and 3,977 seedlings planted.

The woodland parcels subject to commercial harvest all received some degree of reforestation, 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 McBeth Tract and Hall Tract parcels were relatively devoid of any hardwood regeneration. The Hall Tract was underplanted in anticipation of harvest in the winter of 2021 while the McBeth Tract was reforested post-harvest where tree regeneration was lacking.

Afforestation, which is the planting of trees in an area not previously forested, focused on the Thames River Wetlands (Beachville Park: C & D) and Thornton Wellfield - Hodge's Pond 'P'. In order to improve the wildlife corridor north of the Thames River, 1,300 seedlings were planted along and immediately adjacent to the trail at the Thames River Wetlands property. Intended to mimic an open savannah, 561 saplings were planted along the south side of the Thames River and adjacent to newly excavated wetland cells. To help advance the woodland edge along cedar creek, 1,500 seedlings were planted adjacent to newly excavated wetland cells at the Hodge's Pond property.

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

**Table 2: Tree Reforestation and Afforestation Undertaken in 2020**

<b>Operation</b>	<b>Objective</b>	<b>Acreage</b>	<b>MFP Timeframe</b>	<b>Actual Timeframe Completed</b>
Thames River Wetlands (Beachville Park: C & D): afforestation (seedlings)	Hand plant: 1,000 white cedar; 200 tamarack; 100 swamp white oak	2.5 ha. (6.1 ac.) Planted in clumps adjacent to trail and wetland cells	No given timeframe	May 2020
Thornton Wellfield, Hodges Pond – 'P': afforestation (seedlings)	Hand plant: 800 white cedar; 300 tamarack; 200 swamp white oak; 200 sycamore	3.5 ha. (8.5 ac.) Planted in clumps adjacent to trail and wetland cells	No given timeframe	May 2020
McBeth tract: reforestation (seedlings)	Hand plant: 160 shagbark hickory; 600 white pine	16.2 ha. (40 ac.) Scatter planted across harvest block	Post-harvest	May 2020
Hall Tract: reforestation (seedlings)	Hand plant: 400 white pine; 17 potted hemlock	4.1 ha. (10.2 ac.) Scatter planted across planned harvest block	Pre-harvest	May 2020
Thames River Wetlands: (Beachville Park: C & D): afforestation (saplings)	Plant with mini-excavator: 561 6-foot saplings	7.5 ha. (18.3 ac.)	No given timeframe	November 2020

### 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* 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 throughout the Thames River Wetlands property have been completely taken over by reed canary grass. Anecdotal evidence suggests the once-pastured sections of the property have persisted in the current state for at least 80 years. In an attempt to eradicate the reed canary grass on a 13.2 ha. section of this property, a foliar herbicide application was carried out with a follow up spray scheduled for spring 2021. The seed bank will be propped up with native grass and wildflower seed once control of the invasive grass is evident.

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 12.2 ha. 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 2020**

<b>Operation</b>	<b>Objective</b>	<b>Acreage</b>	<b>MFP Timeframe</b>	<b>Actual Timeframe Completed</b>
Chesney Tract (Blandford-Blenheim): invasive spp. management	Garlon RTU application on European buckthorn & multiflora rose	4.0 ha. (10 ac.)	No given timeframe	July 2020
Thornton Wellfield, Hodge's Pond: P: invasive spp. management	Garlon RTU application on European buckthorn & Tatarian honeysuckle	8.2 ha. (20.3 ac.)	No given timeframe	July 2020
Thames River Wetlands (Beachville Park: C & E): invasive spp. management	Arsenal Powerline foliar application on reed canary grass	13.2 ha. (33 ac.)	No given timeframe	August 2020

### Planned 2021 Managed Forest Plan Undertakings

Consistent with the MFP, the projects and/or programs planned to be initiated in 2021 are detailed below in Table 4. A large section of the Hall Tract is scheduled for 2025, but a small parcel is currently being thinned as the weather conditions, hardwood regeneration and tree stocking were all ideal. The white cedar at Thornton Wellfield - Hodge's Pond 'L' has suffered several pockets of windthrow. This tends to create a domino effect; therefore, a small scale harvest will be scheduled to salvage any downed trees and thin out the remaining area to improve stand stability. The harvest window for the Tavistock lagoons property was left open for the right conditions.

**Table 4: Planned 2021 Undertakings**

<b>Operation</b>	<b>Objective</b>	<b>Acreage</b>	<b>MFP Timeframe</b>	<b>Anticipated Timeframe</b>
<b>Tree Harvesting</b>				
Hall Tract (agreement forest)	Second thinning of white pine plantation and ash salvage	4.1 ha. (10.2 ac)	No given timeframe	January 2021
Zenda Tract (agreement Forest)	Conifer plantation: first & second thinning (two parcels)	17 ha. (42 ac.)	2021	Summer 2021
Thornton Wellfield - Hodge's Pond "L"	Cedar thinning / windthrow salvage & historical garbage / scrap metal cleanup	3.6 ha. (8.8 ac.)	No given timeframe	Summer 2021
Tavistock Lagoons	Hardwood harvest: single tree selection and group selection	7 ha. (17.4 ac.)	No given timeframe	2021: On hold for dry or frozen conditions
<b>Tree Reforestation and Afforestation</b>				
Thornton Wellfield - Hodge's Pond "O": reforestation	Hand plant red oak & white oak (1200-2000)	4 ha. (10 ac.)	No given timeframe	Spring 2021
Thornton Wellfield - Hodge's Pond "G", "C" & "P": afforestation	Machine plant coniferous and deciduous seedlings (16,000 trees)	10 ha. (25 ac.)	No given timeframe	Spring 2021
Thames River Wetlands- Beachville Park "C": afforestation / reforestation	Sow native wildflower seed	4 ha. (10 ac.)	No given timeframe	Fall 2021



Operation	Objective	Acreage	MFP Timeframe	Anticipated Timeframe
<b>Invasive Species Management</b>				
Zenda Tract: invasive spp. management	Garlon RTU application on European buckthorn	18.2 ha. (45 ac.)	No given timeframe	Summer 2021
Thornton Wellfield - Hodges Pond "P": invasive spp. management	Garlon RTU application on European buckthorn	25 ha. (65 ac.)	No given timeframe	Summer 2021
Thames River Wetlands - Beachville Park "D", "C" & "E": invasive spp. management	Glyphosate foliar application on reed canary grass & wild parsnip	22 ha. (55 ac.)	No given timeframe	Spring 2021

### 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. 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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