Planning Process Overview

Edmonton Water Treatment Plants Vegetation Management Plan

Improving environmental quality E.L. Smith and Rossdale water treatment plants

EPCOR's Edmonton water and wastewater treatment plants are all situated in the river valley, within Edmonton's "green network." As we complete projects in this region, including the Edmonton Water Treatment Plant Flood Mitigation Project, we have an opportunity to improve the environmental quality of areas within our plant fence lines.

EPCOR has a long history of working collaboratively to improve the North Saskatchewan River's (NSR) watershed health as part of EPCOR's Source Water Protection Plan and Integrated Watershed Management Strategy. We are committed to stewarding the environment at our water and wastewater treatment plants by:

- ✓ Minimizing the impact of our activity on vegetation and wildlife.
- ✓ Replanting, restoring or replenishing habitat to a functional Aspen parkland ecosystem where possible within our fenceline.

To do this, we have begun to develop a vegetation management plan (VMP) to improve overall ecological structure and function and restore some types of habitat at our treatment plant sites. These areas are currently largely grassed and provide limited societal and ecological value.

We are mapping current vegetation at each site, working to understand shared values and Indigenous perspectives, and outlining a long-term plan to increase natural areas. This could include wildflower/ pollinator gardens, developing a diverse undergrowth and forest succession strategy around already treed areas, and planting more trees to support city-wide goals toward improving the urban forest. As part of this work we will also be looking for opportunities to incorporate stormwater management through green infrastructure to support the naturalization efforts.

The close proximity of these locations to the North Saskatchewan River also offer a unique opportunity to work collaboratively with the City of Edmonton in areas outside our fencelines to improve habitat connectivity, structure and function at important pinch points along the green network, aligning with the City's existing Urban Forest Management Plan.

Honouring Traditional Ecological Knowledge

As EPCOR moves forward with flood protection for its Edmonton water treatment plants (WTPs), a key part of consultations has focused on working with Indigenous leaders and communities, who wanted to more deeply understand the project and connect with the lands. To respect what was heard, EPCOR requested participation from interested Nations to form a Traditional Ecological Knowledge (TEK) working group to provide meaningful input to vegetation management at the two WTP sites. In the first half of 2023, we held several meetings to walk the sites and discuss shared values, naturalization strategies, and gather feedback to ensure these lands were cared for appropriately.

Now that this knowledge has been shared, EPCOR will begin the work of ensuring the various needs for water treatment asset operations and maintenance are considered alongside this advice. To complete the process, we will return the integrated plan for vegetation management to the Elders and Knowledge Holders who advised us, to ensure a harmonious integration of TEK and operations has been achieved.

Proposed Plan Development Phases

This vegetation management plan will aim to regenerate Aspen Parkland ecosystems over the long term, including assessing opportunities to incorporate stormwater management through green infrastructure to support the naturalization efforts.

For the work associated with the Edmonton Water Treatment Plants Flood Mitigation Project, EPCOR will begin implementing the VMP with the aim of taking the first steps towards achieving an overall net gain in ecosystem structure and function in the area. This includes expanding natural areas within our fenceline and engaging with the City for opportunities to reach outside on a case-by-case basis.

1. DETERMINE OVERALL OBJECTIVES & VALUES

As a starting point of the VMP development, we are seeking to understand current environmental values associated with the project. We understand that we are shared stewards in watershed protection and health. The WTPs are situated within Treaty 6 territory — the traditional and ancestral territory of the Cree, Dene, Blackfoot, Saulteaux and Nakota Sioux — and within the City of Edmonton's green network. These are areas that have a long history of human use and the ecological value of being adjacent to a riparian area and the North Saskatchewan River.

Some of the values and assumptions to consider as a starting point are:

- Habitat restoration through vegetation establishment is a critical first step in restoring ecological function but other structural components should also be considered (e.g. soil, woody debris).
- The areas within our plant sites are part of the Central Aspen Parkland Ecoregion. Planting species associated with that ecoregion is a priority.
- Human use, including Indigenous use, of this land has occurred for thousands of years and it is culturally significant. Aspects that consider this use must also be incorporated through discussion and may include access, gathering places, and harvesting/foraging, for example.
- Managing stormwater to reduce impacts to the North Saskatchewan River is important.

We understand that the flood mitigation project will result in vegetation changes; however, our plan is to achieve no net loss of vegetative cover and net gains of naturalized area comprised of species typical of an Aspen Parkland Ecoregion, over time.

EPCOR anticipates the removal of a combined total of 77 mature trees that are greater than 25cm diameter at breast height (dbh) between both sites as part of this project. EPCOR will also need to remove a combined total of 231 smaller trees between 10 - 25cm dbh, and numerous saplings less than 10cm dbh at both sites. A detailed breakdown of this impact is available within the Environmental Impact Assessment completed for the flood mitigation work. As this and other projects are completed at the WTPs, we will apply elements of this plan to achieve these net gains and vegetation improvements.

2. DETERMINE THE CURRENT ECOLOGICAL STATE

We have mapped and reviewed the vegetation already present within our WTP sites, including both grassed and other vegetated areas, and have identified the species and location of shrubs and trees. The figures that follow show the mapped and identified species at each site.

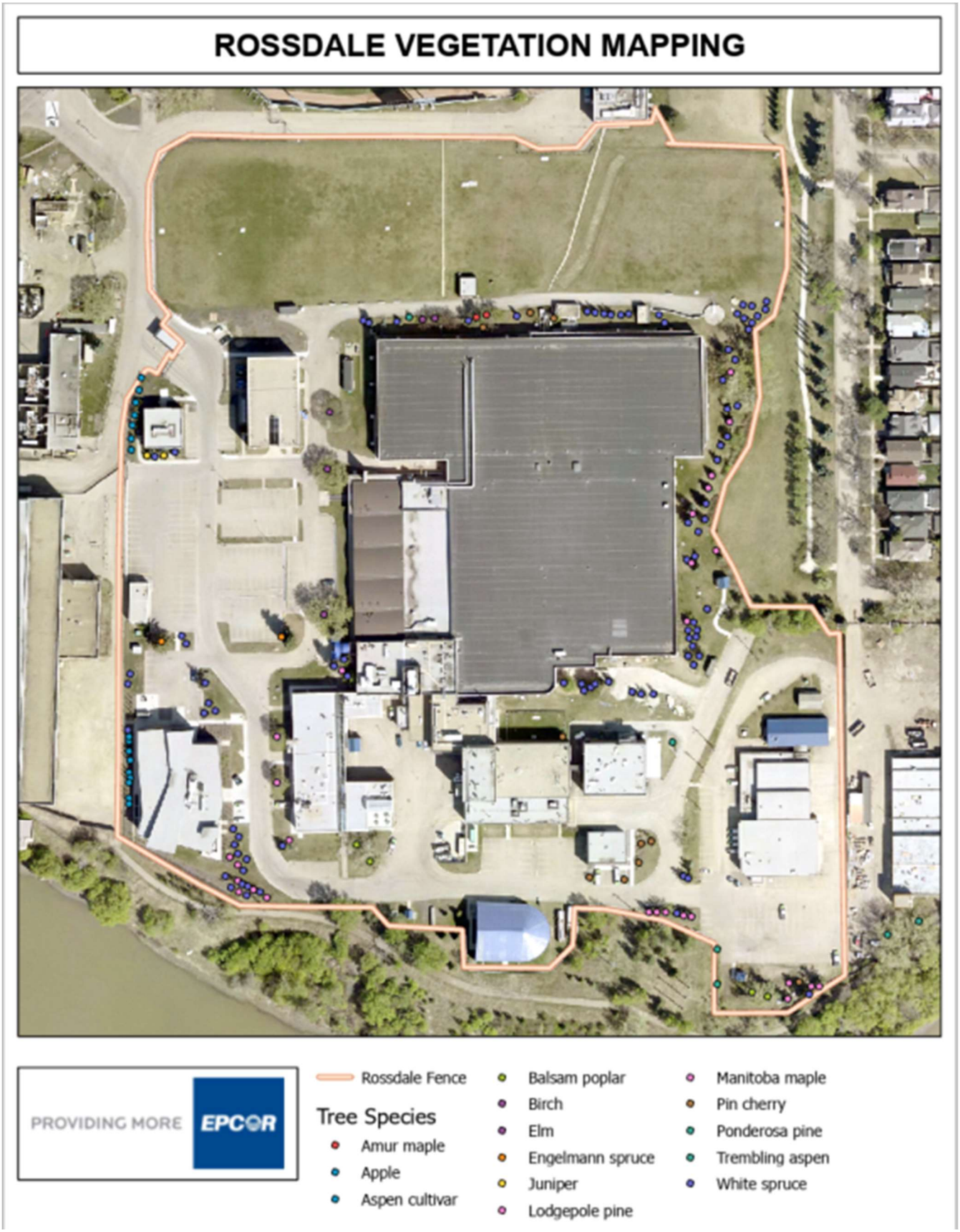

Figure 1: Vegetation species identified at the Rossdale Water Treatment Plant site.

Figure 2: Vegetation species identified at the E.L. Smith Water Treatment Plant site.

3. IDENTIFY METRICS FOR RESTORATION AND NATURALIZED AREA

We will complete a literature review on what structure and function is expected in the Central Aspen Parkland Ecoregion. This would include a species list and also metrics that could be used to determine both structure (how species are distributed amongst each other) and function (community characteristics: fungi, woody debris, standing dead trees). This work would also outline how these metrics would be measured and monitored over time.

4. IDENTIFY METRICS FOR HUMAN AND CULTURAL USE

Through open dialogue and workshops, we will establish other important aspects for the WTP sites that should be considered as part of the vegetation management plan.

As noted above, the Traditional Ecological Knowledge process has yielded important information that we will consider in this step, and indeed throughout the VMP process. The final steps in the TEK process will be to combine the operational needs and the recommendations to return to the TEK working group for review and comment, then to begin implementing the plan as opportunities arise.

We expect these final steps towards finalizing this work will take us into the spring of 2024.

5. GREEN INFRASTRUCTURE INCLUSION

We will continue to identify opportunities to incorporate stormwater management through green infrastructure to support naturalization efforts. At the E.L. Smith WTP, three low-impact development (LID) opportunities for stormwater collection into rain gardens are already under construction.

Figure 3: Low Impact Development at E.L. Smith, showing bioswales to collect and store storm water.

6. DRAFT THE VEGETATION MANAGEMENT PLAN

The vegetation management plan will summarize the guiding principles and values of the project, map the current state of vegetation; map options for types of vegetation across each plant site as well as options for other uses (gathering, gardening, berry picking); and summarize an implementation plan with estimated budget. As noted above, this is a long-term plan that will be implemented opportunistically over the next 20 years.

Priorities so far include:

- Restore an established forest ecosystem where possible by planting native tree species and associated understory.
- Where tree planting is not possible (over infrastructure such as pipes and reservoirs) restore native grassland species and ensure minimal disturbance.

See the preliminary maps on the following pages for examples of the conceptual future state of vegetation on our plant sites.

E.L. Smith Preliminary VMP & Flood Hardening Vegetation Alterations

At E.L. Smith, the spatial extent of the flood barrier construction zone is an estimated 3.8 hectares (Ha). Including the required 4.6 m root-free maintenance zone. The end-state impact of these important barriers to protect the E.L. Smith WTP from flood damage will result in approximately 0.3 Ha of forested area to be removed. This plan is an important tool to help mitigate that impact, with a focus on the narrowest section of the wildlife corridor to be returned to a more complete and functional state first.

The E.L. Smith site contains approximately 30 Ha of mowed lawn within the fenceline. Although still in the development phase, preliminary priorities of the VMP are to naturalize and revegetate to Aspen Parkland Ecoregion vegetation with a mixture of successional stages to target 10 Ha (approximately 1/3) of the plant site. Finalization of these targets will include a thorough review of operational needs at the WTP to ensure access and security requirements are met. There is also a strong desire for harvestable berries and ceremonial sites for Indigenous teachings. Key aspects of the VMP will be to target reforestation and a return of native grassland to the site.

Overall, the long-term ecosystem regeneration will offset losses from the flood hardening project at EL Smith and show a long-term commitment to reduce EPCOR's footprint as much as possible at this site.

Rossdale Preliminary VMP & Flood Hardening Vegetation Alterations

For the Rossdale site, the proposed vegetation clearing includes City-owned and maintained trees, naturalized forest area and EPCOR-owned trees. EPCOR has been working to reduce the impact of these losses and has to date realized a net improvement from the original preliminary design, where there has been a reduction to 12 from 29 City of Edmonton-owned trees, and a reduction to 61 total trees removed from 141 at initial preliminary design. We are continuing to work on further reducing these numbers.

Of the 8.6 Ha fenced Rossdale area, there is less green space available for naturalization. One potential space to implement grassland species with gentle root structures is 1.5 ha of reservoir cover, to be coordinated with the City for future public access and enjoyment. We will offset tree losses by naturalizing in grassed areas of the WTP as appropriate, and also working with the City of Edmonton to reforest and naturalize the area to the south of the Rossdale fence line.

E.L. Smith WTP Conceptual Vegetation Management Plan Map:

Figure 4: Infographic of EL Smith WTP plant site showing the expected impact from the flood hardening project and preliminary areas that are being considered for naturalization.

Rossdale WTP Conceptual Vegetation Management Plan Map:

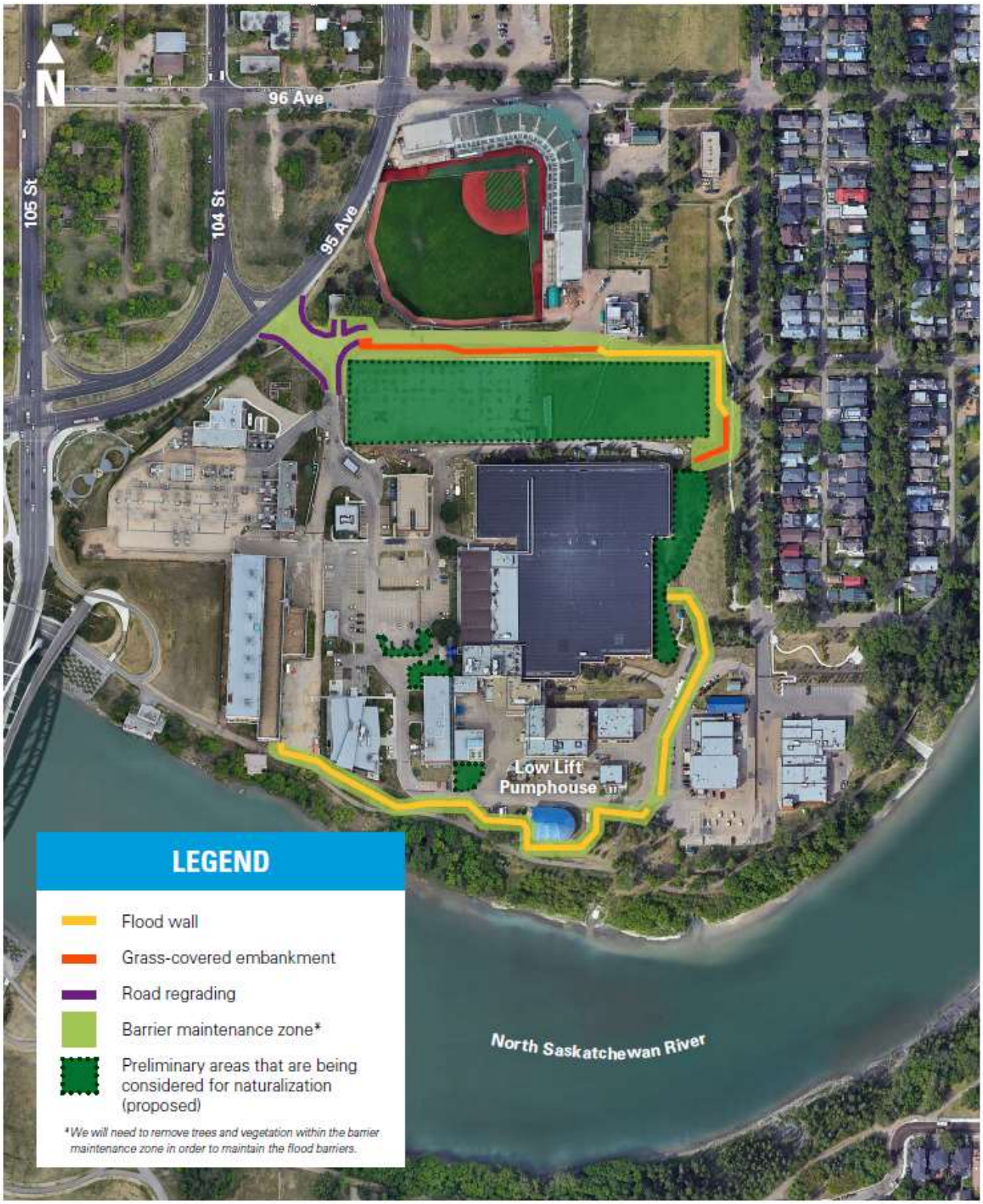

Figure 5. Infographic of Rossdale WTP plant site showing the expected impact from the flood hardening project. Pockets of naturalization are proposed to occur around the plant site over time, such as at the areas marked for naturalization on the map.

Summary

The collaborative development of a vegetation management plan at both WTP sites will not only help mitigate losses from the flood hardening project, but also show an ecological benefit within the Ribbon of Green. More specifically, approximately 1/3 of the EL Smith plant site (10 ha) has been identified as having some opportunity to be returned to natural Aspen Parkland Ecoregion habitat as operations and maintenance activities continue there over the next 20 years. At the Rossdale site, the short-term plan is to plant native species with gentle root structures over the reservoir (1.5 ha area) and return the area to the City of Edmonton for park space. Tree losses will be offset by naturalizing in available grassed areas of the WTPs as appropriate, and also working collaboratively with the City of Edmonton to reforest and naturalize the area to the south of the Rossdale fence line.

More Information

For more information about the Edmonton Water Treatment Plants Flood Mitigation Project, visit epcor.com/floodprotection.

For questions and comments, contact:

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