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Item No. 12.1.2
Environment & Sustainability Standing Committee
January 10, 2019

TO: Chair and Members of the Environment & Sustainability Standing Committee

SUBMITTED BY: **-Original Signed-**

Denise Schofield, Director, Parks & Recreation

-Original Signed-

Jacques Dubé, Chief Administrative Officer

DATE: December 14, 2018

SUBJECT: HRM Park Naturalization Strategy

ORIGIN

February 21, 2017 Regional Council motion:

MOVED by Councillor Austin, seconded by Councillor Nicoll that Halifax Regional Council requests a staff report on the possibility of an HRM park naturalization strategy and that it be forwarded to the Environment & Sustainability Standing Committee. **MOTION PUT AND PASSED UNANIMOUSLY**

LEGISLATIVE AUTHORITY

Halifax Regional Municipality Charter Section 70(1)(a) Area improvement and promotion
The Municipality may

...

(a) beautify, improve and maintain property owned or leased by the Municipality.

Halifax Regional Municipality Charter Section 79(1)(ai) Powers to expend money
The Council may expend money required by the Municipality for

...

(ai) public grounds, squares, halls, museums, parks, tourist information centres and community centres.

RECOMMENDATION

It is recommended that the Environment & Sustainability Standing Committee (ESSC) recommend that Halifax Regional Council direct staff to advance the naturalization initiatives outlined in the Discussion section of this report, including:

- a) naturalizing areas within parks and right-of-ways which may be difficult to maintain with lawn cover;

- b) naturalizing parks or areas within parks that are comprised of older and underutilized park features and equipment;
- c) introducing naturalization in new parks or when undertaking park plans for existing parks;
- d) raising public awareness regarding the benefits of naturalization and local projects through HRM's website and on-site signage;
- e) continuing to foster partnerships with stakeholder and community groups to establish naturalization projects; and
- f) cataloguing naturalization programs and projects over a 2-year period for monitoring purposes towards consideration of a future naturalization guideline/policy.

BACKGROUND

There is a growing trend towards naturalization in urban areas. Naturalization is an ecologically-based approach to landscape management that seeks to enhance biodiversity and ecological resilience in the urban landscape through the use of native or non-invasive-adapted plant species. Natural landscapes are inherently low-maintenance, self-renewing, and can help foster environmental stewardship. Connected naturalized areas can also help restore landscape functions within and between the surrounding ecosystem. Naturalization has many ecological and environmental, educational, recreational and economic benefits, including that it:

- brings beauty to the city,
- conserves local native plants,
- provides wildlife habitat,
- improves air quality,
- reduces urban heat island effects,
- mitigates stormwater runoff,
- decreases municipal maintenance and operation costs,
- reduces municipal greenhouse gas emissions, and
- improves mental and physical health by providing opportunities for outdoor recreation in proximity to nature.

Many municipalities have naturalization strategies. Volunteer participation is a key component; in some municipalities community groups take a central role early in the planning process, in others they become involved at the implementation stage. Some municipalities focus on parkland, while others include a range of municipal land such as road right-of-ways (ROW's), and have programs to help citizens increase pollinator habitat on private land. While the motion refers only to parkland, this report also includes naturalization in ROW's as HRM currently has several initiatives on these lands (see *Local Context*).

DISCUSSION

Naturalization Methods

Naturalization can include tree, shrub, meadow and wildflower planting, reduced-mowing prescriptions, and control of non-native and "weed" species. The naturalization process defines a strategy of establishing native landscapes, such as woodland, wetland and meadow areas to selected lands using minimum maintenance intervention. While naturalization processes are at the low end of the scale of management, they still incur costs. There is a common misconception that naturalization is low cost by simply halting the mowing of grass and engaging in some planting. What can regrow after halting mowing are non-native grasses and weeds. As a management alternative, the funds formerly allocated to mowing a space are typically directed towards enhanced upkeep of well-utilized park spaces and planned naturalization (i.e., site preparation, purchasing of plant materials, planting, and maintenance). Once sites have established, naturally regenerating areas of desirable species occur, which are lower cost to maintain.

Naturalization can result from three methods of management:

- *Plantation* – the initial planting of species where final composition is characterized by the initial plantings;
- *Managed succession* – where fast growing pioneer species are first introduced with intermediate and later species planted at future stages to provide an environment for natural migrations of additional species over time; and
- *Natural regeneration* – where mowing of turf grass is reduced significantly or discontinued altogether in areas where a natural seed source is in close proximity.

Park Naturalization Strategies

Naturalization approaches vary. For example, London, Ontario, has an assortment of city-led programs and a policy that support the addition of naturalization in their parks, woodlands and environmentally significant areas. The city also has a comprehensive invasive species management strategy and programs that provide residents with the opportunity to enhance pollinator habitat on private property. Similarly, Vancouver, British Columbia, draws on several plans and strategies, including its *Rewilding Action Plan* and *Biodiversity Strategy*, to provide a basis for restoring and protecting natural areas, species, and ecological processes. Their strategies aim to improve access to nature for all of Vancouver's neighbourhoods, and operate on both public and private lands. Calgary, Alberta, and Portland, Oregon, have naturalization strategies which are administered through their municipal parks departments.

Portland Parks and Recreation's (PP&R) strategy is outlined in *the Ecological Sustainable Landscape Initiative* (ESLI), which describes the need for PP&R to continue its leadership in best management practices for sustainable planning, design, and operations. Overarching themes of the ESLI include increasing ecological resiliency to help the park system adapt to ecological disturbance and climate change, addressing environmental justice, and increasing public awareness of ecological sustainability through education and participation. The initiative pertains only to parkland and has three overarching goals:

1. continue to use and refine best management practices to improve soil and plant health and to reduce inputs such as water, fertilizers, herbicides, maintenance, and labor;
2. maintain and create diverse park landscapes by converting under-utilized public spaces into habitat patches thereby increasing their ecological function; and
3. plan, design, and manage ecologically sustainable landscapes through improved collaboration among PP&R staff (operations, planning, capital projects, and ecologists), and community members.

The initiative draws upon two comprehensive sustainable landscape programs: the American Society of Landscape Architect's Sustainable Sites Initiative (SITES) and the New York High Performance Landscape Guidelines. A Portland-specific project checklist based on these programs was created for the initiative (Attachment A). The ESLI also highlights the need for measuring performance of the converted landscapes through metrics such as the acreage of land developed into habitat patches, soil health, plant diversity, public acceptance, and operational costs. In the spring of 2015 ten pilot sites within developed parks were identified as being suitable for naturalization patches. Patch types include riparian, tall grass meadow, pollinator gardens, and forest. Selection criteria for pilot sites included proximity to existing natural areas, physical extent of habitat patch, public and staff support, visibility, and equity. The initiative has a dedicated full-time program manager and, as of April 2018, the first three sites are successfully underway. Comments from staff and community include, 'the habitat patch is a great fit for the park', 'fits so well with the surrounding uses', 'scale feels perfect', 'makes great sense', and 'the neighbourhood really appreciates it'.

As part of its 10-year biodiversity strategic plan, *Our BiodiverCity*, Calgary is using naturalization in its parks and green spaces to help restore 20% of its open space by 2025. By adding diversity to the landscape within its parks they are supporting native plants and animals, helping to control weeds, pests and diseases, and increasing sustainability. In the long-term, maintenance costs from irrigation, pruning, pesticide use, and fertilization are expected to be reduced. The naturalization program is administered by the Calgary's Parks department. As the program develops, however, it will rely more heavily on citizens, whereby interested community groups approach the city with their ideas and select a project manager to work with Calgary Parks. Design professionals and landscape contractors may also be involved depending on the scope of the project. Calgary provides resources to the community which outline the benefits of

naturalization, and details regarding things to consider, deliverables, and timelines for each of the required steps: site analysis, initial discussions, concept planning, detailed planning, implementation, and maintenance and monitoring (Attachment B).

Local Context

The Province of Nova Scotia is in the process of creating a *Biodiversity Act* to improve conservation and sustainable use of wild species and ecosystems. The *Act* will also address legislative gaps and manage emerging risks. Within HRM, the *Urban Forest Master Plan* (UFMP) and the *Halifax Green Network Plan* (HGPN) speak to the health, environmental, and economic benefits that accompany increased naturalization and biodiversity. The UFMP calls for naturalization in parks and greenspaces by increasing tree planting, increasing the species and age diversity of trees, and retaining dead standing trees in remote park areas for wildlife habitat. The UFMP explains how parks are faced with serious challenges, such as high rates of imperviousness (i.e., paved surfaces), low canopy cover, low species diversity, and high rates of natural tree decline. It recommends that several thousand trees be added to parks, ensuring diversity of species and age, requirements for a healthy urban forest. The HGPN has an action item (#58) to prepare policies and procedures to incorporate naturalization in parks, and suggests that any park in over-serviced areas be assessed for naturalization suitability.

Currently, HRM Parks and Recreation has begun using reduced-mowing standards in some of the municipality's 900+ parks and ROW's, aiming to decrease the mowed area by 2.5% (136,000m²) by 2019. Reduced mowing occurs in underutilized regions along perimeters of park greenspaces and areas that are difficult to maintain, such as sloped sections. Naturalized areas are also present in many of the 150+ undeveloped parks and several of our developed parks have areas with intact patches of forest, wetland, meadow, and riparian zone. While some of these natural areas were acquired through the subdivision parkland acquisition process, a naturalization assessment during the early planning phases of development (i.e. prior to land clearing) could lead to more strategic preservation of natural areas in parks. This approach would also reinforce the *Vegetation Parkland Quality of Land Criteria* in the subdivision by-law, which sets proportion standards for retention of natural vegetation according to park type. For example, in community and district parks designated passive areas are to retain a minimum of 75% natural vegetation and in active areas, 25%.

Intentional naturalization has also been introduced in some of the municipality's developed parks. Some examples include:

- An urban orchard project has been implemented in the Dartmouth Common and tree plantings were placed in the Baker Drive Community Park. Both projects relied heavily on volunteers and the involvement of the Sierra Club of Canada;
- In Shubie Park, staff partnered with Clean NS to add native species and understory plants along the Frenchman Brook to stabilize the banks, thereby decreasing erosion into Lake Mic Mac;
- In Dillman Park, a pollinator meadow which includes milkweed for Monarch butterflies, was introduced in a difficult to maintain area;
- With youth from the Adventure Earth Centre, staff have been planting native plantings and pollinators in other parks;
- Together with Tree Canada, staff has planted 250 trees to facilitate forest succession in some tall grass/weed areas along forest fringes within parks with more planned this fall; and
- Staff will be starting to implement the forest management plan outlined in the Point Pleasant Park Comprehensive Plan; the focus of which is to ensure a healthy mixed-age Acadian Forest. This will involve stand thinning, removal of plant and tree species not native to Acadian Forests, and strategic planting.

Naturalization projects are also occurring in ROW's. In partnership with Dalhousie University, HRM introduced an Acadian Forest at the intersection of Hwy 111 and Massachusetts Avenue, and another along the rail corridor on the Bedford Highway. Some difficult to mow areas in Burnside have also been left to naturalize. To ensure sightlines are preserved, ROW plantings must only occur in staff-identified areas and will likely require trimming and edge mowing. Naturalization initiatives aim to diversify the number of tree species in the region, which increases resilience to invasive insects such as the Emerald Ash Borer, Japanese Beetle and Asian Longhorned Beetle.

Other related initiatives include the 17 community gardens in HRM parks, which through a variety of vegetables, fruits, herbs and flowers, support the pollinator community, and the *Living Shorelines* program. *Living Shorelines* is a naturalization initiative which was implemented through a collaboration with the Ecology Action Centre, University of Waterloo, HRM, and numerous volunteers in 2014, using the St. Mary's Boat Club, as a demonstration site. Trees, shrubs, grasses, and flowering perennials, were planted to stabilize the shoreline; increasing its resilience to sea-level rise associated with climate change, and decreasing the need for hard infrastructure that is costly to install and maintain. HRM also has a protocol to remove invasive species from municipally-owned property, prioritizing those which are harmful to human health. It should be cautioned, however, that invasive plants such as Japanese Knotweed, Goutweed and Giant Hogweed, if present, may dominate natural areas. These invasive species can often be controlled with consistent mowing so the potential for invasive species need to be assessed when considering naturalization projects.

To date, there has been limited coordination regarding the addition of intentional naturalization in HRM, and the projects thus far have had varying levels of success. For example, the pollinator meadow in Dillman Park has established, but the seedlings planted within a naturalized embankment at the Baker Drive Community Park did not survive. The urban orchard in the Dartmouth Common is doing well, due in part, to consistent care from local community members. As part of preliminary naturalization efforts in HRM parks, there have been a few concerns raised by citizens. For example, some residents express concerns that the natural area poses a fire hazard, attracts ticks and rats, and is not attractive. Some of these issues could be mitigated with greater public information and involvement, an iterative 'lessons learned' approach, and increased collaboration across the applicable HRM business units. These elements, and several others, make up the comprehensive naturalization strategies of Portland and Calgary.

Naturalization Strategy

Regional Council could direct staff to develop a formal strategy to prescribe the municipality's prospective approaches to naturalization. However, this may be premature. Rather, it would be beneficial for the municipality to proceed with the initiatives outlined below to properly assess naturalization projects which could then be reviewed before considering the development of a formalized strategy. The suggested initiatives are:

- a) the continuation of naturalizing areas within parks and ROW's that may be difficult to maintain with lawn cover;
- b) naturalizing parks or areas within parks that are comprised of older and underutilized park features and equipment;
- c) introducing naturalization in new parks or when undertaking park plans for existing parks;
- d) raising public awareness regarding the benefits of naturalization and local projects through HRM's website and on-site signage;
- e) continuing to foster partnerships with stakeholder and community groups to establish naturalization projects; and
- f) cataloguing naturalization programs and projects over a 2-year period for monitoring purposes towards consideration of a future naturalization guideline/policy.

As the municipality gains additional experience with naturalization and with increased public awareness, a formal strategy may be warranted. The implementation of the above noted initiatives would enable that additional experience and provide insight into any components that could be specific to HRM in order to inform consideration of a future policy.

FINANCIAL IMPLICATIONS

There are no financial implications associated with this report. Currently, naturalization efforts are managed through existing Parks operating budgets and enhanced by donations and volunteer efforts. If there is a growing interest or demand for naturalized areas, budget reprioritization and/or additional resources may be required.

RISK CONSIDERATION

The risks associated with this report recommendations rate low. To determine this rating, consideration was given to financial and operational risks. The addition of naturalized areas into parks may increase the amount of habitat suitable for ticks, however, the impact is expected to be low considering the small-scale nature of the naturalization projects relative to the expansive natural areas that exist throughout the Municipality.

The risk associated with not adding naturalized areas is a park network less resilient to ecological disturbance and climate change, and loss of the numerous associated benefits outlined herein.

COMMUNITY ENGAGEMENT

There was no community engagement for this report. Should Regional Council approve the recommendations in this report, on-site signage and website updates will be implemented to increase public awareness of the benefits of naturalization and local projects

ENVIRONMENTAL IMPLICATIONS

Environmental benefits are articulated in the Background and Discussion Sections of this Report.

ALTERNATIVES

Alternative 1: The Environment & Sustainability Standing Committee could recommend that Regional Council direct staff to cease naturalization initiatives.

Alternative 2: The Environment & Sustainability Standing Committee could recommend that Regional Council direct staff to develop a formal strategy outlining a comprehensive approach to naturalization without a period of assessment of the outlined initiatives.

ATTACHMENTS

Attachment A - Portland Parks and Recreation ESLI Checklist

Attachment B - Calgary Parks On-line Resources: Naturalization and Steps to Naturalization

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.

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PORTLAND PARKS & RECREATION

Healthy Parks, Healthy Portland

Ecological Sustainable Landscape Initiative Project Management Tool

ESLI GOAL SUMMARY

1. Continue to use and refine best management practices to increase soil and plant health and to reduce inputs such as water, fertilizers, herbicides, maintenance and labor.
2. Maintain and create diverse park landscapes by converting under-utilized park spaces to habitat patches.
3. Plan, design, and manage landscapes through collaboration among PP&R staff and community members.

PARK NAME - Park Name

Project Address:

Neighborhood Association:

PROJECT PLAN SECTIONS

A: Project Check Sheet Summary

B: Pre-Design Site Assessment & Pre-Monitoring

C: Design Guidelines

D: Budget

E: Planning for Construction

-----**Section A: Project Check Sheet Summary**-----

This checklist section serves as the summary of the overall process which can be adjusted on a project by project basis by the Technical Advisory Committee.

1. Form Technical Advisory Committee (TAC) and determine Project Manager

Planning/Strategy – **Lead Contact Name and Phone #**

Design/Construction – **Lead Contact Name and Phone #**

Site Supervisor - **Lead Contact Name and Phone #**

Horticulturalist - **Lead Contact Name and Phone #**

Park Maintenance Staff – **Lead Contact Name and Phone #**

Ecologist – **Lead Contact Name and Phone #**

Irrigation Specialist – **Lead Contact Name and Phone #**

2. Complete Pre-Design Site Assessment and Pre-Monitoring (Section B)

3. Engage Users, Neighborhood Associations, and Others

Refer to PP&R's *Public Involvement Plan* document (see *Public Involvement Gabriel* as an example), and meet with assigned Public Engagement staff to develop a strategy. This should involve determining current and anticipated user/neighborhood demographics.

4. Design Site

___ follow *Design Guidelines* (Section C)

___ ensure the design 'fits' with the aesthetic of the park

___ incorporate cost estimate/budget into design process (Section D)

___ internal review

5. Construct Site

___ follow *Planning for Construction* (Section E)

6. Maintain Site & Monitor Performance

___ use *Vegetation Management Plan in Design Guidelines* (Section C)

___ use *Performance Monitoring in Design Guidelines* (Section C)

7. Evaluate, Report and Adjust *Design Guidelines* and *Management Tool* as Needed

-----Section B: Pre-Design Site Assessment & Pre-Monitoring

This check sheet section is based on the New York High Performance Landscape and SITES Guidelines, it documents the existing conditions of the site, identifies opportunities and constraints, and performs pre-monitoring.

1. SITE INVENTORY – Create a basemap before going into the field

Basemap

Context – adjacent uses

Utilities – electrical, irrigation, gas lines

Vegetation – trees and shrubs

Park Features – play areas, paths, buildings

Hydrologic – floodplain, streams, wetlands

Contours

% canopy cover

Environmental zone overlays

Aerial photo

Cultural landscape

Topography () slopes () aspects () low points () flat

Notes:

Hydrology () wet areas () stream and buffers required-field check

() drainage problems/patterns

Notes:

Geology/Soils

Soil hand texture () clay () loam () sand

Soil type (see NRCS classification):

Top Soil Depth (soil corer or spade):

Fill place (if obvious per field indicators):

Compaction (if obvious per field indicators):

Presence of bedrock - indicating shallow soil depth:

Evidence of slope and soil instability:

Notes:

Laboratory Chemical Analysis (use A&L Laboratories Analytical Services @ www.al-labs-west.com)

- ___ % organic matter
 - ___ bulk density
 - ___ soil texture
 - ___ pH & buffer pH
 - ___ soluble salts
 - ___ total nitrogen
 - ___ nitrate nitrogen
 - ___ ammonium nitrogen
 - ___ extractable nutrients (P,K,Ca,Mg,Fe,Mn,Zn,Cu,B)
 - ___ cation exchange capacity
 - ___ soil microbiology
-

Dominant Vegetation () trees () shrubs () understory () turf () other

PLANT NAME (Latin name preferred)	TYPE (rare, native, NW Hardy, invasive)	% COVER	CONDITION (ex. vigor, diseased, damaged)	SIZE (ex. tree dbh)	RECOMMENDATION RETAIN, REMOVE OR COVER with mulch

Notes:

Photographic Documentation of Site - from vantage points that will show change over time

Notes (document view points):

Microclimate

General sun/shade patterns:

Reflected heat (from buildings and hard surface):

Wind:

Fungus, mold or insect problems:

Notes:

2. SITE HISTORY AND USE

Historic or current cultural landscape (ex. site history, views, original plans or designs):

Patterns of human use (ex. types of recreation, movement):

Temporal patterns of use (ex. daily, weekly, seasonally):

Notes:

3. SITE OPPORTUNITIES & CONSTRAINTS – based on preliminary assessment

Location and depth of subsurface utilities (see base map):

Location of irrigation infrastructure (see base map):

Location of trees:

Notes:

4. PRE-MONITORING TABLE - Use *ESLI Performance Measures* spreadsheet

-----Section C: Design Guidelines-----

This check sheet section is based on best practices from the ESLI document and the New York High Performance Landscape and SITES Guidelines. This section considers and analyzes the existing conditions of the site and the goals of the ESLI to identify habitat patch opportunities and constraints at this site.

1. DESIGN CONSIDERATIONS FOR ALL HABITAT PATCHES

Choose which of these design guidelines apply and include any other guidelines that may be applicable.

Hydrology

- ___ protect natural hydrology
- ___ restore natural hydrology
- ___ reduce flow to stormwater infrastructure
- ___ create a pervious landscape

Soils

___ choose vegetation to match soil conditions and/or amend soils for desired plantings (based on *B1.Site Inventory Geology/Soils*)*

___ provide adequate soil volume and depth for desired plantings*

___ minimize soil disturbance during construction (ex. if heavy machinery is required)

**use compost to amend soil or as part of imported soil mixtures to improve functioning - consider using Appendix F.3 from Stormwater Manual (from 2010 City of Portland Standard Construction Specifications) as a guide or other protocols suggested by TAC ecologist and horticulturist*

Vegetation

___ consult *Urban Forestry* to assess tree health and limb up trees if needed

___ provide adequate protection for trees and vegetation that are remaining – consult *Urban Forestry* to see if a permit is required

___ avoid utility conflicts when planting

Vegetation Management Plan

___ create staging schedule and maintenance plan (see *Gabriel Meadow Treatment Schedule* spreadsheet as an example)

___ communicate and collaborate with maintenance staff regarding unique protocols (ex. mowing schedules)

___ partner with local neighborhood associations, stewardship groups and private investors to assist with habitat patch creation and maintenance

___ factor performance monitoring into the vegetation management plan (see *Performance Monitoring* below)

For creating Healthy Turf:

___ recondition as needed for healthy turf (use *Maintenance Standards 2013*)

For creating Habitat Patch Types:

___ choose vegetation to match soil conditions (may need to amend soils – see *Soils* section above)

___ choose vegetation to match level of care (to require minimal maintenance after 3- 5 years)

___ create species list from appropriate *Habitat Patch Plant Palette** to maximize ecological effectiveness (refer to *ESLI Steps to Maximize Ecological Effectiveness* document)

*For **Pollinator/wildflower meadow** refer to *Gabriel Park Pollinator Meadow Plant Palette*

For **Understory planting** refer to *Albert Park Plant List*

___ consult with Horticultural Services to ensure desired plant species are available, order as needed

___ plan and manage with desired succession outcomes in mind

___ maximize species diversity regionally (ex. compare in *Diversity Geodatabase* – **to be created**)

___ design landscaped areas to reconnect fragmented vegetation within site

___ design landscaped areas to reconnect fragmented vegetation beyond site boundaries

___ consider an edible landscape

___ space plants in order to reach 100% coverage within 3-5 years (if applicable for conversion type)

___ use a mycorrhizal root dip for bare root transplants

___ manage invasive species

Human Health & Well-Being

___ use universal design principles when possible (ex. paved, compacted gravel or soil pathways)

___ follow CPTED guidelines

___ support mental restoration by providing visual and physical connection to nature

___ provide an edible landscape where appropriate (signage required)

2. ADDITIONAL DESIGN CONSIDERATIONS

When appropriate include one or more of the following design elements.

Interpretation Element

Consider Habitat Patch site context when deciding whether or not to include this design element, for example: size of site; park usage; type(s) of information that could be included; educational outreach opportunities; and, equitable access to natural areas.

If an Interpretation Element is included, refer to the *Interpretation Strategy Media Format (2012)* document and *Interpretive Sign Policy* (in development).

Additional Interpretive considerations include:

___ promote understanding of ESLI in ways that positively influence user behavior by interpreting on-site features and processes (ex. succession)

___ design interpretive elements with potential audiences in mind

___ create interpretation that appeals to a wide range of ages

___ deliver one focused message, make it compelling

___ consider using multiple languages to reflect demographics and/or use only visual information

Natural Spot (Natural Materials for Physical Exploration)

Consider Habitat Patch site context when deciding whether or not to include this design element, for example: size of site; park usage; type and location of natural elements for exploration in the overall park context; and, equitable access to nature elements and interaction.

___ incorporate natural features such as logs, stumps, and boulders

___ encourage tactile exploration and connection with the natural world

Artistic Element (Community Art)

Consider Habitat Patch site context when deciding whether or not to include this design element, for example: park usage; presence of local schools; and, community interest.

___ inspire community art that reflects the ESLI theme

3. DESIGN DEVELOPMENT

Based upon the information above, create a design for the habitat patch project site.

Opportunities and Constraints Identification

Notes:

TAC Recommendations for Habitat Patch Conversion - Preferred patch type(s)

Riparian enhancement

Tall grass meadow

Pollinator/wildflower meadow

Understory planting

Upland forest creation

Oak woodland

Stormwater management

Shrub and small tree

Other _____

Create Design

___ create design based upon design elements that consider the site analysis, the opportunities and constraints identified, the design parameters like plant selection and arrangements, circulation and pedestrian movement, views, and other goals and elements listed above, etc.

Notes:

Attach maps, drawings and schematics

-----Section D: Budget -----

This section begins with a preliminary budget as seen on the Project Summary Sheet. A more refined budget will be created in the budget template.

1. Initial Budget & Funding

BUDGET SUMMARY	In-House Estimate	Contractor Estimate	Actual
Total project budget estimate			
Direct Costs			
Consultant Costs			
Internal Staff Costs			

FUNDING SOURCES

(E.g. SDC, PDC, grant, state, federal, major maintenance, general fund)

Major Maintenance	\$
	\$
	\$
	\$
	\$
	\$

2. Consultants and contracts

List consultants, general scope of work, date signed, and contract amounts
List hazmat consultant and possible engineer?

-----Section E: Planning for Construction -----

This section lays out the construction process which will vary considerably between projects performed in-house and by contractor.

Construction

- ___ integrate construction thinking into design process and budget (Section D)
- ___ advertise contractor bids (if applicable)
- ___ bid review and approval (if applicable)
- ___ contract award and registration (if applicable)
- ___ meet with contractor (if applicable) and PP&R staff to explain goals behind ESLI
- ___ use construction as opportunity to continue to inform public about the ESLI
- ___ use local, sustainably focused contractors (if applicable)
- ___ select materials considering reuse of salvaged materials (ex. for fencing) and plants
- ___ install explanatory signage
- ___ install erosion control, tree protection fencing as needed
- ___ perform grading if required
- ___ install irrigation if required
- ___ install fencing (temporary or split rail with dog wire fencing)
- ___ prepare soil as outlined in the staging schedule *Section C - Vegetation Management Plan*
- ___ procure and plant plants as per the staging schedule *Section C - Vegetation Management Plan*
- ___ use regional materials and plants

Performance Monitoring Post Construction

- ___ factor monitoring into the design process and budget
- ___ monitor ESLI performance measures (use *ESLI Performance Measures spreadsheet*)

What is Naturalization?

Naturalization is a process for transforming an open space into one that reflects the naturally-occurring landscape of the region. Naturalization includes the purposeful reintroduction of native plant species to an area in order to enhance the natural environment and increase biodiversity.

Who can do Naturalization?

This pamphlet is for community associations and groups in Calgary who are interested in working with The City to create a naturalized open space. A community project manager leads the project on behalf of the community and follows the Steps to Naturalization (see other side).

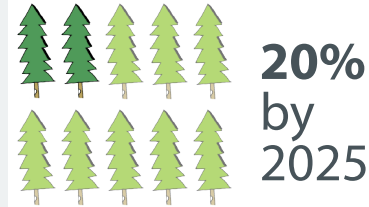


Why Naturalization?

Why is naturalization important for Calgary?

Naturalization supports biodiversity conservation

The City of Calgary aims to restore 20 per cent of open space by 2025 (key target of Our BiodiverCity: Calgary's 10-year biodiversity strategic plan).



Naturalization is cost-effective

Naturalization can reduce maintenance costs when compared with traditionally manicured areas (mowing, fertilizers, pesticides, etc).

Naturalization builds resilience

Naturalization improves an ecosystem's ability to cope with extreme weather events and pest outbreaks.



Naturalization provides the opportunity for nature education

Naturalization fosters education about nature and develops ecological literacy in Calgarians.

Naturalization is beautiful

Naturalization has aesthetic value and adds to the diversity of landscapes across Calgary.



Naturalization is healthy

Naturalization promotes mental health and relaxation. It encourages more diverse recreational uses of a space.

What does Naturalization Look Like?

Variety of plants

Naturalized areas contain a variety of different types of plants. Forested naturalized sites may contain trees, shrubs, perennials and grasses. Grassland or meadow sites may contain a variety of shrubs, grasses, and wildflowers.

Early Years

Naturalized areas can appear unkempt during the first several years. Given time to establish, they will appear like a landscape that has always been there.

Size

Naturalized areas can be as small as a garden of several square meters, or as large as a regional park.

Location

Naturalized sites can be located anywhere, including private gardens and backyards, schoolyards, public open spaces, parks, and roadsides.

Site Usage

Some naturalization sites will take mowed areas with little active use by citizens and change them to areas that can be enjoyed through activities such as wildlife viewing, photography, nature appreciation and relaxation. Naturalized sites are sensitive to foot traffic in the early years, so please respect area closures in effect.

Site Maintenance

Naturalized sites do not look formal or manicured (traditional horticultural practices). Once established, they may not require costly maintenance practices like pruning, trimming, fertilizing, or pesticide spraying.



Guiding Principles

There are seven guiding principles that frame our naturalization projects:

Connectivity: Increasing the connectivity of Calgary's parks and open spaces will enable wildlife movement and native plant growth

Biodiversity: Increasing the variety of plants and animals in an ecosystem

Structure: Constructing a landscape that has multiple layers which can include: the upper storey (tall trees), understorey (smaller trees and shrubs), and groundcovers (grasses and wildflowers)

Management and Monitoring: Performing stewardship and regular care of the landscape

City-Led Engagement: Undertaking formal, purposeful dialogue between The City, citizens, and stakeholders when appropriate

Community-Led Engagement: Holding informal discussions with the community and local residents

Education: Helping the community understand ecology and the importance of parks and open space



Steps to Naturalization

1 Site Analysis

Complete a thorough review of the existing conditions on the site to identify areas that could be considered for naturalization.

Who is involved?

- Community project manager
- Calgary Parks
- Design professionals (if assistance is needed)

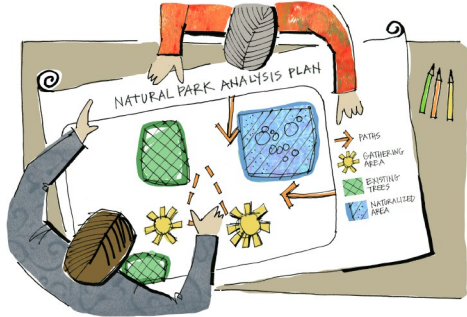
Things to Consider:

- Site history, current site usage and activity types
- Site context, soil analysis, topography, microclimate, existing vegetation
- Budget

Step Deliverables:

- Project summary and purpose
- Site description / observations
- Base plan with existing conditions and project boundary

Timeline: 2-3 months



2 Initial Discussions

Engage local residents as early as possible. Inform The City of the project to discuss goals and feasibility.

Who is involved?

- Community project manager
- Calgary Parks (if assistance is needed)
- Residents

Things to Consider

- Be prepared for intense discussions
- Engagement fosters stewardship
- Project eligibility and feasibility

Step Deliverables

- Written record of resident feedback

Timeline: 6-12 months



3 Concept Planning

Create a general, schematic plan that illustrates the site layout and the proposed naturalization area.

Who is involved?

- Community project manager
- Calgary Parks
- Design professionals (if assistance is needed)

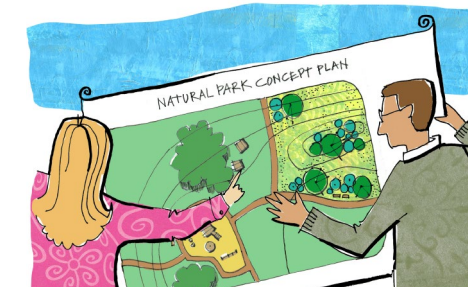
Things to Consider

- How to show the intended design of the site (signage, pathways, strategic mowing)
- Native plant species appropriate for the site conditions
- Seating, existing plants, built elements, topography, pathways, distinct edges, water, exposure and views, signage

Step Deliverables

- Schematic concept plan

Timeline: 4-6 months



4 Detailed Discussions + Final Planning

Discuss potential funding, construction strategies, and the level of City involvement needed for implementation.



Things to Consider

- Changes to timing
- Funding
- Community stewardship
- Regulatory approvals and permits required

Step Deliverables

- Formal City approval
- Construction plans
- Management and maintenance plan

Timeline: 4-6 months

Who is involved?

- Community project manager
- Calgary Parks
- Design professionals (if assistance is needed)

5 Implementation + Construction

Coordinate with The City, a contractor, and/or volunteers to implement the naturalization project.



Things to Consider

- Site preparation
- Control of invasive plants
- Appropriate time and conditions for planting
- All necessary approvals have been obtained

Step Deliverables

- Construction schedule
- Contract with landscape contractor
- Construction and planting

Timeline: 1-3 months

Who is involved?

- Community project manager
- Calgary Parks
- Design professionals (if assistance is needed)
- Landscape contractor
- Community volunteers

6 Post-Construction

Monitor the site and plant growth carefully and regularly. Weeding and watering will be required while the site establishes.



Who is involved?

- Calgary Parks
- Local community association (if stewardship is desired)

Things to Consider

- Naturalization takes time
- Site may appear unkempt while it establishes
- Care and maintenance is most intense during the first 2 years

Step Deliverables

- Record of activity monitoring

Timeline: 2+ years