City of Saskatoon
Communications & Public Engagement

ENGAGE

What we Heard

Green Strategy Workshop 2 – Natural Areas Results
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Background

The Saskatoon region is enriched with natural areas and assets, both in planned growth areas and existing built up areas that may see infill development. These natural areas and assets are increasingly becoming integrated into the urban environment in Saskatoon. This is prompting concerns related to the conservation of natural areas and assets; the linkages between natural areas; the interface between natural and built up areas; and the management, public perceptions, and shared use of natural areas with other facilities and infrastructure (e.g. parks, storm water, trails, and utilities). Appropriate policy and standards are required to address development that has the potential to impact natural areas and natural assets.

The Natural Area Standards are a new process being developed to ensure a more thoughtful, consistent approach to development when development is occurring in an area that includes natural areas or assets. The intent is to provide a standard process and predictable requirements for how to plan for natural areas prior to development nearing them.

The Natural Area Standards will provide a standard process and requirements for developers, including the City, to use when development is occurring in an area that includes natural areas or assets. The Standards will provide a consistent, predictable process for determining how to integrate or address natural areas in our development plans.

The Natural Area Standards aim to:

- guide development decisions in places containing natural areas through consistent standards and procedures for the approval of development in, and adjacent to, natural areas;
- minimize negative impacts of development on our natural areas;
- propose designation categories for natural areas within City boundaries and identify a process for ongoing management; and
- provide amendment recommendations for related policies.

Development of the Draft Natural Area Standards is currently underway, expected to be completed in the fall of 2019. The Natural Area Standards and natural area planning are part of the City's Green Infrastructure Strategy (Green Strategy).

Strategic Goals

The Standards support the strategic goals of Environmental Leadership, by striving to ensure that natural areas are identified, conserved and managed for the benefit of current and future generations; Quality of Life, by striving to provide natural areas within the City for the enjoyment of residents; and Sustainable Growth through a balanced approach to land use.

Green Strategy Workshop 2

Green Strategy Workshop #2 took place over two sessions (afternoon and evening) at Francis Morrison Library on October 29, 2018. Subject matter experts from the City of Saskatoon and external organizations were invited to attend one of two sessions. A total of 44 participants attended the afternoon session, and 14 participants attended the evening session.

The workshop provided a combination of wall station and table top activities on the topics of natural areas and urban forest management. Five activities related to natural areas were designed to seek feedback from subject matter experts to inform development of the Natural Area Standards. Each activity is described below in terms of the questions posed to participants and decision(s) that participant comments informed.

Activity	What we asked
Activity A: **What is a Natural Area?**	Participants were presented with a draft natural area definition and a list of identified natural area indicators to review and consider. *Decisions:* • Develop a definition of natural area • Determine appropriate criteria for identifying a green space as a natural area. • Develop a process for determining appropriate boundaries and buffers for natural areas. *Questions:* • How would you improve the definition of natural area? • What natural area indicators are missing?
Activity B: **Saskatoon's Natural Areas**	A series of three posters comprised this wall station activity. Each poster focused on a specific portion of Saskatoon (Southeast, Southwest and North) and included a map of 28 identified natural areas and corresponding descriptions. *Decisions:* • Determine appropriate criteria for identifying a green space as a natural area. • Develop a process for determining appropriate boundaries and buffers for natural areas. *Questions:* • Do these natural area descriptions make sense? Did we miss anything? • Do the boundaries of each natural area make sense?
Activity C: **Compatible Uses**	In this wall station activity, the mapping that was used for "Saskatoon's Natural Areas" was replicated, however instead of natural area descriptions, a table was provided for each natural area which participants were asked to populate to provide comment on compatible uses. *Decision:* • Develop criteria for compatible uses in Natural Areas *Questions:* • Who currently uses each Natural Area? What is it used for? • What would be compatible uses at each Natural Area?

Activity	What we asked
Activity D: **Natural Area Scenarios**	Each table was assigned one of four preselected natural areas to review and provide comment on including the Small Swale, South Holmwood Wetland, Sanatorium Site and Riparian Forest. Participants were also provided with opportunity to comment on all scenarios following the activity. *Decision:* • Develop a process to guide how to apply requirements for avoidance, mitigation and compensation where it is anticipated that development will impact natural areas. *Questions:* • What opportunities and challenges are associated with avoidance, mitigation and compensation at each natural area? What strategy would you recommend here and why?
Activity E: **Levels of Management**	This wall station activity was comprised of a single natural areas map with all 28 natural areas identified and a "dotmocracy" table next to each natural area. Four distinct levels of management (Low, Moderate, High, Highest) were also provided, each with a predetermined set of criteria regarding ecological value, disturbance or previous impact, management plan requirements, layers of protection and importance of conservation at each site. Participants were asked to apply a sticky dot to the level of management they select for each natural area. *Decision:* • Development of natural area categories and standards for development in and adjacent to natural areas. *Question:* • What Level of Management should be applied to each natural area and why?
Follow-up Opportunities	Participants were invited to submit additional thoughts or comments via e-mail and survey questionnaire following the workshop. A total of 4 e-mails were received from participants. No survey responses were received. Two small group meetings also took place which were requested by workshop invitees who were unable to attend the workshop sessions.

What We Heard

Both qualitative and quantitative data was collected during the workshop and follow up activities. Thematic analysis was completed on qualitative (open ended) data, while quantitative analysis was conducted on restricted response data (multiple choice questions).

Data was analysed at two scales: question specific and decisions specific. Participants' comments provided in response to each question were analysed for emergent themes specific to that question. Emergent themes and comment summaries are provided below in terms of the decision the results will inform and the question they were provided in response to.

Develop a Definition of Natural Area

Q. How would you improve the definition of natural area?

Several themes emerged from participant responses to this question and are described in this section.

Natural vs Naturalized

Participant comments mention the need for more clarification of the City's perspective on the relationship between "natural" and "naturalized" or restored areas. Some participants described the proposed definition of "Natural Area" as synonymous with terms like "pristine", "native" or "untouched" and suggested or questioned if any areas that met that definition existed in Saskatoon. Participants also indicated that due to the lack of undisturbed areas in city, and the habitat function that naturalized areas provide, naturalized, self-regenerated or repaired areas should be considered natural areas in the definition.

Some participants commented that the current definition of natural area is high level and that a staged definition with different levels of detail or value may be appropriate and should include a separate definition for "naturalized." A participant also indicated that a natural area could be zoned in different categories. One participant suggested that natural elements on private land should also be included in the definition.

One participant challenged the definition explaining that because humans are natural, "built" should also be considered natural.

Connectivity

Participants touched on the value of connectivity, indicating that while habitat in the city is fragmented into patches, these patches have value in terms of structure, composition and scale and contribute to connectivity.

Function and Characteristics

Participants indicated that a natural area should be defined by its function with wildlife habitat and diversity listed as important functions. Participants also suggested that adaptability and resilience are considered as part of the definition of a natural area. Participants also felt that green spaces such as grasslands and parks that are mowed should not be considered natural areas.

One participant indicated that natural areas function to "give the land a voice" and that this should also be captured in the definition.

Determine appropriate criteria for identifying a green space as a natural area.

Q. Do these natural area descriptions make sense? Did we miss anything?

Participants were asked to review and comment on prepared natural area descriptions. While the responses to each description were considered in refinement of those descriptions, the data was also used to identify aspects of each area that participants place enough value in to warrant a request to add that aspect or characteristic to the natural area description. Of the proposed list of indicators, the following were acknowledged in participant comments in response to the natural area descriptions:

- Historic & recent rare species observations
- Heritage resources
- Size
- Ownership
- Connectivity
- Previous land uses (described as disturbance)
- Native vegetation
- At risk ecosystem/community, native grasslands, plains rough fescue grassland
- Migrating/staging waterfowl
- Wildlife habitat
- Wetlands
- Soils

Q. What natural area indicators are missing? What would you recommend to evaluate each indicator? Why?

In response to the request to identify missing indicators, some participants instead suggested alternative approaches to grouping the proposed indicators into categories to limit the number of individual indicators. The following groupings were suggested:

- Disturbance: soil, past use
- Drainage, Wetlands and Storm Water Management
- Use: drainage, storm water, recreation
- Native Grassland: rare species, vegetation and wildlife
- Drainage Catchment: storm water, run-off and wetlands
- Native Vegetation: wildlife habitat, can support rare species
- Storm Water Management and Flood Protection
- Heritage: archaeological, historical
- Human Element: heritage, cultural
- Terrestrial: native vegetation, at risk ecosystems, historical/recent species observations, connectivity, size.
- Aquatic: Wetlands, migrating/staging water fowl, storm water management, connectivity, size.

Participants also provided comments on the proposed indicators, identified several additional indicators and/or chose to evaluate existing indicators from a slightly different perspective.

Comments on proposed indicators are described below with additional or alternative indicator discussion provided under the “other” heading.

Historical Rare & Recent Species

Participant comments suggested that evaluation of historical rare and recent species is a weak indicator and that a more appropriate approach would be to assess habitat quality, explaining that it is hard to find these species in the City. Participants also explained that “more rare” does not necessarily equate to “more natural”.

Another approach suggested by participants was to evaluate historical rare and recent species by assessing the total number of species present with the number of species expected. This could be determined by completing baseline and recurring longitudinal studies. Participants explained that single survey approach would not be sufficient.

Additional information indirectly related to this indicator is provided under the heading of ecological integrity and biodiversity.

Storm Water Management & Flood Protection

Participants suggested that creating storm water retention areas where they don’t presently exist is a natural area indicator. Participants also suggested that how water is managed at a regional level and how those management practices may impact water management locally should also be considered.

Participants suggested that the indicator could be evaluated using a climate vulnerability assessment. Evaluation of existing storm water management infrastructure to identify opportunities for naturalization was also suggested.

Heritage Resources

All comment provided in relation to heritage resources were classified as “Cultural and Historical” and are discussed under the heading Cultural Resources.

Size

Participants suggested that while there is value in large contiguous habitat patches in Natural Areas, smaller fragmented natural areas also have value and should not be excluded. Participants explained that size does not necessarily imply success and that while some species do require large natural areas, other species are less dependent on size and more dependent on unique characteristics of the site such as ecological function, connectivity, and quality. Participants also described the importance of all natural areas - “save all the pieces” and suggested that no minimum size be applied in evaluation of natural areas.

Ownership

In discussion about Ownership as a proposed indicator, participants identified additional bodies beyond the land-owner who have both stake and potential influence in designation of natural areas. Participants also challenged the concept of ownership suggesting that the land belongs to everyone or no one.

Participants commented on the importance of the role of stewardship and management as functions outside of ownership, which complements Indigenous perspectives of stewardship. Participants explained that land does not need to be owned to be properly managed and management oversight

through partnership is a valuable model to consider. That said, participants do urge the City to purchase lands for conservation purposes where existing management is not already in place.

Participants also suggested consideration of external constraints associated with decision making processes that are outside of the land owner's control including market value of natural areas vs developable land, regional leadership (such as P4G and area Watersheds), and legal restrictions on land use including presence of conservation easements and land banks.

To ensure longevity and sustainable use, participants suggested that consideration of long term protection and how we interact and access the land be considered in evaluation of this indicator. Participants also suggested that it should not only be public land under consideration for natural area protection, indicating that many natural areas, like Kernan Prairie, are privately owned and should remain privately owned.

Connectivity

Participant comments expressed need for additional clarification and consideration around connectivity as an indicator.

Some participants felt that lack of natural areas geographically should be an indicator of the need to allot space for natural areas to enhance the green network, to "fill a gap". Participants made note of opportunities to protect isolated natural areas such as the west swale from further development and identified opportunities to enhance connectivity between natural areas in close proximity to each other. Participants explained that the "ecosystem is a false boundary" and may not be a suitable evaluation tool for connectivity. Finally, participants questioned where gardens fit in the green network, suggesting there is participant support for designation of garden spaces as natural areas given their function to attract wildlife.

Connectivity can be evaluated using carrying capacity assessment, consideration of distance and open path, and identification of drainage connectivity.

Undevelopable Land

Participant comments suggested that undevelopable land should not be considered an indicator of "natural" but it is more often considered a factor of cost or value. Participants suggested that undevelopable land could be evaluated in terms of land formations, contamination, cost to develop, water table levels and changes, and legal restrictions.

Previous Land Uses

On the topic of previous land uses, some participants suggested that level of contamination and existing disturbance be considered indicators. However, participants also indicated that precluding disturbed land from natural area designation may also exclude restored areas and create mixed messaging when it comes to using or recognizing man-made disturbance as a natural process (e.g. grazing, prescribed burning).

Comments on the natural area descriptions included identification of several naturalised or reclaimed areas restored with native species or wildlife habitat that participants suggested should be considered natural areas. The request to include these spaces suggests that participants place more value in these areas than non-restored, disturbed areas.

Participants suggested that previous land uses could be evaluated by considering existing use/value to residents, previously communicated vision the land, and ease and/or suitability of

transitioning the land from its current state to either natural area or developed land. Maintenance needs and costs suggested for consideration related to designation as a natural area.

Native Vegetation

Participants referenced the need for clarification of the City's interpretation of "native" in relation to "natural," a concept that was also echoed in response to the natural area definition discussed earlier.

They suggested that, while green spaces that support native vegetation are important, the presence of non-native or invasive species should be considered an indicator but should not necessarily result in exclusion of those green spaces as Natural Areas as they may provide habitat function and do not reduce the value of adjacent native species. However, comments in response to the natural area descriptions suggested that, in some cases, presence of pests or disease can reduce the value of a natural area.

Participants suggested the following considerations for evaluation of the native vegetation indicator:

Participants suggested evaluation of native species using long term monitoring to determine abundance and diversity as this can indicate health of the system, quality of wildlife habitat and social benefits through education and recreation.

Evaluation and assessment through plant surveys was also suggested, though participants explained that, due to a limited amount of native species in the City, it may be better to evaluate presence of invasive species, presence of very rare vs common species, and how the species present relate to those commonly expected in the ecoregion.

Several participants suggested categorizing native plants under broader categories as noted in an earlier section. Participants who suggested categorizing native vegetation as a terrestrial indicator also suggested that native vegetation should be classified as "increasers", "decreasers" and "invasives".

At Risk Ecosystem/community/native grasslands, plains rough fescue grasslands

No direct comments provided. See ecological integrity and biodiversity heading for additional information.

Migrating/Staging Water Fowl

No direct comments provided. See ecological integrity and biodiversity heading for additional information.

Wildlife Habitat

Participants mention that the way that natural areas are designed should be considered when evaluating habitat value. For example, spiral shelter belts may have more habitat value than linear designs. Wildlife habitat was referenced under alternative headings by several participants. See ecological integrity and biodiversity heading for additional discussion.

Wetlands

Participants suggested that evaluation of wetlands can continue to be accomplished using Steward and Kantrud, and MnRam models as they are objective and familiar. Wetlands should be evaluated based on how they function as drainage catchments; however, no changes to existing drainage should be implemented if it places native vegetation at risk of destruction.

Wetlands were described under several alternative categories. Participants who suggested that wetlands are best categorized as aquatic indicators also suggested that wetlands could be further classified by ephemeral or permanent bodies.

Soils

Participants suggested that evaluation of soil as an indicator could include consideration of the status of the A Horizon (determined by shovel testing), and by determining if the sod has been turned over.

Cultural Resources

Participants requested more clarity and definition of what the city means by culture and heritage and in most cases the two indicators were discussed under that combined heading. Key elements mentioned as suggested indicators include:

- First Nations Use and Resources
- Cultural Responsiveness
- Archaeological Resources
- Historical Resources

Participants also explained that not all natural areas have heritage significance and not all heritage sites should be considered natural areas. As such, more clarification is required.

Participants also felt that to continue to address the Truth and Reconciliation Commission recommendations, set a good example, and embrace history and what is unique to Saskatoon, this indicator could be evaluated by:

- Language inclusivity
- Known heritage sites
- Signage
- Indigenous Use
- Use of native vegetation in plantings

Drainage Catchment

Drainage catchment was discussed under alternative indicator categories. See wetlands and storm water management & flood control for additional information.

Topography

No comments provided.

Other

When asked to comment on missing indicators and tools for evaluation of indicators, participants responded both directly and indirectly to these questions. Indicators specifically referenced in response to these questions (direct) were included as written and summarized where additional justification was present. In some cases, because of the layout of the response sheet and presence of more than one question, the location of comments or format of responses made it unclear which question they intended to respond to (indirect). The list of additional indicators and alternative indicator categories below comprise both direct and indirect responses with indirect response heading identified using thematic analysis.

Accessibility

Participant comments suggested that natural areas with limited access are more valuable than easily accessible, high use areas which are considered to be more prone to environmental stressors. However, participants also mentioned value in being able to access natural areas for social, educational and cultural uses.

Unique and Recognizable Places

Features such as rivers, creeks, swales, forests and riparian areas were given special mention in several participant comments regarding the natural area descriptions. This suggests that there may be social or ecological value placed on these features for unique reasons which are not adequately reflected in the existing proposed indicators.

Ecological Integrity and Biodiversity

Participants explained that ecological integrity is on a spectrum and not measurable, but also made note that National Parks do have established criteria. Participants also mentioned that the several indicators are “moving targets” so assessment of indicators cannot be rigid and must be flexible.

Some participants expressed a need for clarification on the City’s definition of biodiversity. Participants suggested that specific indicators related to measuring or assessing biodiversity should be considered with one participant explaining that you “can’t bring back biodiversity” once it is gone. These considerations or assessment tools include:

- Abundance of rare and non-rare species
- Species richness
- Opportunity for reproduction and genetic exchange
- Structure and composition
- Presence of specific species or species guilds (e.g. pollinators)
- Inclusion of migrating song birds (in addition to migrating waterfowl)
- Need for detailed native and natural vegetation surveys
- Site location and balance of ecosystem services and accessibility
- Range health assessments to determine % of native species
- Prioritize native species and bird habitat
- Community appropriate ecosystem health measures
- Presence of invasive species
- Comparison of present state to expected state

Current Use

In addition to discussion of previous land uses as an indicator, some comments on the natural area descriptions suggested that how a natural area is currently used can greatly impact the value of that area. For example, dog parks and playgrounds were considered less valuable as natural areas even if other indicators such as native grasses were present. The stressors of specific uses (namely foot traffic and presence of dogs) are thought to outweigh any benefit of designating that space a natural area.

Beyond our Borders

Participants made mention in natural area description and indicator related comments of the importance of being aware of management and regulatory decisions or designations occurring at the regional, provincial and federal level with potential to impact how we designate, manage and fund natural areas in Saskatoon. Examples provided by participants include:

- National Migratory Bird Sanctuary
- Changes to the Species at Risk Act
- National and Provincial Historic Site Designation
- Regional water management practices
- City Initiatives

Geomorphology and Geology

Participants acknowledged value in unique geological features such as limestone deposits, glacial scars and channels. Mention was also made of the importance and impacts of changing geomorphology, such as slumping and slope failures, in the decision making process.

Site Management Needs

Participants suggested that site management needs should also be considered in natural area designation. The cost and effort required for maintenance, monitoring and protection of the site should be considered for natural areas that can be conserved with minimal cost and effort considered more valuable or attainable.

Social Indicators

Social indicators such as wellness, aesthetics, spirituality and knowledge sharing were not included on the list of proposed indicators, however were referenced several times by participants in response to the topic of missing indicators and tools for indicator evaluation. The following indicators that could be classified as social in nature included:

- Spiritual
- Beauty
- Health
- Signage
- Indigenous use
- Natural Aesthetics
- Education
- Tourism
- Stewardship
- Social Health/Wellbeing

Participants elaborated on the topic of aesthetics by mentioning its value in both wetland and terrestrial landscapes, but also noted that what is considered to be beautiful can vary among populations. A participant explained that areas that look “messy” often have more ecological value than manicured spaces.

Indicators related to education were also elaborated on by participants who suggested that presence of interpretive signage, educational and tourism opportunities should be considered in evaluation of indicators. It was also suggested that the unique perspectives of teachers and children also be considered.

Additional Indicators

The following indicators were suggested by participants but not supported with additional commentary to frame the comments:

- Dark Skies and Light Pollution
- Regulatory Protections and Concurrent Initiatives
- Carbon Sequestration and Capture

Missing Natural Areas and Connectivity Opportunities

Participants identified several green spaces that were not identified as natural areas that they feel meet the criteria for natural area designation. These include:

- Smith Field Cemetery
- Chief White Cap Park
- Buena Vista Park
- Montgomery Place Railway Historic Site
- George Genereaux Afforestation Area
- West Swale
- President Murray Park
- South Saskatchewan River Riparian Habitat Delineation
- Gardens in front of CP Station
- U of S Remediation/Reclamation and Buffer Lands,
- Ag Canada Land.
- Maple Grove Park
- Yorath Island
- Native chunk off central, north of Saskatoon Grasslands, between Fedoruk and SNG.
- Montgomery 11th St grass/bluff area
- Holiday Park Golf Course
- Hudson Bay Slough
- Opimihaw Creek
- Riddell Site
- National Migratory Bird Sanctuary
- U of S and Innovation Place
- U of S Patterson Garden Arboretum and tree nursery east of arboretum
- Chappel Marsh
- Private Land north of Petturson's Ravine
- Jewish Cemetery
- Cemeteries
- Railway Right of Ways
- Dog park with native grassland (north portion of quadrant)

Direct comments offering justification for designation of these green spaces as natural areas were not provided for all locations. Additional discussion with participants may be beneficial during the natural area assessment process to identify values related to these specific locations.

In addition to missing natural areas, participants also identified existing infrastructure that could support connectivity and enhance the green network including wetlands, utility corridors and remnant aspen stands (bluffs) across the City and extending out to the regional setting. Participants expressed concern with the lack of natural areas identified on the west side of the city and urged the City to designate and protect the West Swale.

Participants had recommendations for enhancing connectivity by altering, linking or adding specific natural areas to the network. These suggestions include:

- Ag Canada land part of Sutherland Forest Nursery Station
- Small swale connects to river at both ends
- The Northeast Swale is a large ancient river scar with includes all of the Meewasin Conservation Zone, Petturson's Ravine, Saskatoon Natural Grasslands, Crocus Prairie, Sutherland Dog Park, etc.
- Public ownership/easement of river valley from the weir to Wanuskewin.
- Drainage, flooding, wetland retention - goes beyond the city to regional issues.
- Consider some naturalized areas on the west side. This map is very lopsided to the east side of Saskatoon. Specifically the West Swale.
- Link afforestation areas to Maple Grove and Yorath Island to create wildlife corridor.
- Link wetlands and parks in South East Quadrant.

Develop a process for determining boundaries and buffers for natural areas.

Q. Do the boundaries of each natural area make sense?

Participant alterations to the boundaries of identified natural areas were provided through hand drawn adjustments to the boundaries on the activity sheet map and through comments requesting confirmation of the existing legal boundaries.

Participants also made note that the ecosystem scale is not a suitable indicator on which to base natural area boundaries. Geological boundaries such as glacial scar extents, however, were mentioned as potential boundary indicators.

Participants also discussed how boundary decisions should be based on designated use areas. They explained that within a single green space, there could be areas that require more or less protection. This would result in multiple areas with different levels of protection and associated compatible uses.

Develop criteria for compatible uses in Natural Areas.

Q. What are Current Uses in Natural Areas?

Natural area uses were noted by participants for nearly all of the identified natural areas. Identified uses are categorised and summarized below.

Recreational uses were mentioned in response to the majority of natural areas identified. Common uses included hiking, biking, running, dog walking, picnics, water recreation, skiing, motorized vehicle use, sports and casual recreational fields.

Knowledge sharing and gathering uses were also noted at several natural areas. Recurring uses included wildlife observation, school educational programming, land based learning, research, exposure and connection to nature and outdoor training areas for local organizations.

Arts and Culture uses such as photography and social gathering (picnics, weddings) were mentioned in select natural areas. Photography was mentioned in natural areas such as Sutherland Dog Park, Goose Island and the Riparian Forest, all of which offer river views.

Health and Wellbeing uses were mentioned at some natural areas in connection to spiritual or therapeutic uses such as consciousness acknowledging and connecting with nature.

Views and Vistas were noted as current uses in some natural areas on or adjacent to the river.

Wildlife use was mentioned both directly and indirectly in the comments. Some participant comments identified specific species as natural area users, while others alluded to the presence of wildlife by identifying wildlife observation activities as current uses. Wildlife groups mentioned mammals, pollinators and birds. Bird uses were primarily focused around presence of mating grounds and nesting habitat.

Designated Use Areas were also identified by participants, where present, in natural areas. Some of these uses included community gardens, research projects, plant nurseries, commercial use areas and storm water ponds.

Q. Who is currently using Natural Areas?

Participants provided a variety of responses identifying who is currently using natural areas. A few recurring groups emerged. Use by families, specifically parents and children, was mentioned often, indicating that natural areas are used often for social gathering. Nature lovers were also mentioned often using several labels such as naturalists, birdwatchers and everyone who loves the river. Educators, students, tourists and researchers were also noted. Local use was also referenced several times, noting that people from adjacent residential areas were likely to be using those natural areas for a variety of purposes.

During a workshop follow-up meeting with Business Improvement District representatives, participants identified that natural areas in close proximity to commercial areas would be beneficial, not necessarily for commercial uses but for the social use value that natural areas provide to potential customers. Participants explain that research suggests that commercial areas in proximity to natural or naturalised areas attract consumers and employees to the area and makes them want to spend time there.

Q. What uses are compatible?

Participants were asked to identify both current uses and compatible uses at each natural area. It is not clear in most cases if the compatible uses identified were meant to be considered in addition to or instead of the current uses described.

The majority of the compatible uses identified were focused on limiting active recreational uses in natural areas and increasing knowledge sharing and gathering activities such as wildlife watching and educational opportunities. Where recreational uses are permitted, participants suggested that low impact, multi-use areas are preferred to disruptive or single-use areas such as sports fields and motorized vehicle use.

Some concern about uses in naturalized parks were mentioned directly in comments drawing attention to inconsistency between the definition of “naturalized” and the current active recreational use present in naturalized parks in the city. Participants also suggested that the naturalized parks system needs formal protection and definition. Naturalized parks were identified as preferred locations for harvesting uses such as community gardening and food forests.

Develop a process to guide how to apply requirements for avoidance, mitigation and compensation where it is anticipated that development will impact natural areas.

Q. What opportunities and challenges are associated with avoidance, mitigation and compensation at each natural area? What strategy would you recommend here and why?

A common theme that emerged during participant discussions about compensation in the hypothetical scenarios was the need for transparency in the natural area valuation process and allocation of the funding received through compensation for loss of natural areas. Participants suggested that the City should look to create a framework for tools used to determine appropriate compensation amounts and how compensation money is used so that when situations arise where compensation is the most reasonable approach, there is a clear understanding and transparency of where the funding will be allocated. Where possible, it is preferred that the funding be used to enhance natural areas in the same region as the disturbed area.

Small Swale

Avoidance

Participants identified that by avoiding disturbance of the Small Swale there would be opportunities to enhance education and awareness and the Wanuskewin view-scape. Avoidance of the Small Swale may also protect rare species and wildlife habitat and maintain connectivity.

Participants felt that avoidance of the Small Swale could be challenging due to competing City initiatives, timelines in the short term and the difficulty of succession planning and allocation of funding long term. Participants also described challenges related to uncertainty explaining that flooding potential, existing fragmentation and impending climate changes may reduce the viability of remaining natural areas at the Small Swale. Participants also felt that avoidance may be challenging to apply because it is not something the City implements regularly. Finally, participants felt that lack of full City ownership of the land around the Small Swale may be challenging to address.

Mitigation

Participants identified that the presence of already disturbed areas like the snow dump and topsoil storage areas presents an opportunity for mitigation at the Small Swale. Participant comments indicated that, should mitigation occur, it would provide opportunity to mandate site monitoring and treatment of existing drainage issues. Mitigation would also create restoration opportunities such as reconnecting the wildlife corridor using wildlife friendly crossings. While there would be some opportunities associated with mitigation, some participants felt this sort of compromise would not fully benefit the developer or the natural area, explaining the situation in terms of “both and neither” and “some habitat, but a step backward”.

Participants explained that difficulty reversing existing disturbance, flooding issues and long term considerations were all potential challenges to mitigation as a preferred strategy at the Small Swale.

Compensation

Participants identified that compensation for disturbance of the Small Swale could provide opportunity to fund other initiatives such as working toward increased City density and infill objectives.

Participant comments suggested that loss of bird habitat, flooding issues, cost to the City to purchase the rest of the land around the Small Swale and determining value of the land may be challenges for compensation.

Preferred Strategy

Participants did not select a preferred strategy participants, however several comments or considerations were offered instead. From these comments and considerations, the following themes emerged:

- **Green Network.** The need for integration and connectivity in development and urban planning were mentioned in several comments. Participants suggested that natural areas need to be bigger and better, and not managed as a closed system. City densification was mentioned as a threat to the Small Swale, and it was suggested that the push for densification was related to resident expectations for short travel times across the City.
- **Existing Disturbance.** Participants expressed concern with application of the strategies because the site has already been impacted, “Avoidance may be unreasonable because of impact already.” It was also evident in comments that there was some displeasure in how strategies were applied to past road development through both the Small Swale and Northeast Swale.
- **Proactive Approach.** Several proactive approaches were suggested by participants including purchase of the land by the City, studying the area to determine best options and restoration as an option.
- **Other**
    - Community groups can provide support to help injured animals/etc. and/or education potential,
    - Deer are increasingly moving into the Small Swale, and
    - If it is not completely avoided, then it should receive compensation.

Sanatorium Site

Avoidance

Participants explained that the Sanatorium site is a City owned heritage site that currently has no buildings, is close to the rail lines and accessible by all-terrain vehicle. Enhancing education and awareness about the high historical value of the site were mentioned as opportunities if the site is avoided. Avoidance of the site will also conserve existing natural areas and limit City densification, will promote carbon sequestration and maintain ecological and aesthetic value and protect migrating bird habitat.

Participants identified that avoidance may be challenging in terms of management. The site is not currently well used or serviced and is not being actively pursued for development. Management of mature vegetation is also considered a challenge. Participants also expressed concern over potential loss of heritage through avoidance of the site and suggested exploring alternatives.

Mitigation

Participants suggested that an opportunity for mitigation would be increasing access to the site with a walking trail operated by Meewasin from a parking lot near Gordie Howe Bridge and development of trails on the site to define access. Participants also suggested use of a utility to pay for mitigation and use of the site to offset costs of development and rezoning the area.

Participants felt that riverbank slumping in the area could be a challenge as it may limit vehicle access, but will allow pedestrian access. They also identified the high costs of infrastructure, servicing and construction capital for operation and maintenance as a challenge of mitigation. Participants felt that this site in particular, while it is not a well-known site, would require a lot of resources to manage illegal camping and weed control. Participants were also concerned that if the site was partially conserved the area may lose important function. It would be challenging to determine which parts of the site to conserve.

Compensation

Participants suggested that compensation at the Sanatorium Site should require high financial penalty to develop as it is challenging to quantify the high ecological value of the site. They also suggested opportunity to require only partial development of the site. The compensation funds could be used to improve a different natural area or project.

Participants suggested that illegal camping and presence of trees may be challenges of compensation.

Preferred Strategy

While only one response clearly indicated that the preferred strategy was avoidance, the remaining five comments alluded to avoidance as a preferred strategy as well. These comments included ideas or steps that related to the need to formally identify the area through rezoning and designation. Development of a formal management plan complete with capital investments for operation and heritage interpretation planning was also recommended. Participants also noted the location of the site in the Meeswasin jurisdiction and reaffirmed the heritage value of the site.

In response to why they selected avoidance as a preferred strategy, participants indicated that the site offered the following benefits:

- High biodiversity, aesthetic and heritage value,
- Opportunity to develop a historical sleigh ride trail from the Sanatorium to Wanuskewin
- Flood mitigation, water filtration and prevention of slumping,
- Increased property value through protection of natural areas,
- Carbon sequestration,
- Costs associated with development, and
- Costly to recreate.

Participants also offered advice to be considered as part of the decision-making process including:

- Use a principled approach.
- Compensation alternatives need to be discussed; money is not the only driver. Intrinsic value and the value of green infrastructure should also be considered.
- Explore opportunity to clarify the boundaries of the natural area and show that the site is mixed.
- Review both the City and Meewasin's development review process.

Riparian Forest

Avoidance

Participants suggested that conservation would be an opportunity for avoidance of the Riparian Forest, as the site is difficult to develop due to its topography and location within the 500 year flood plan, is not likely high value land for development and is already under Meewasin's protection. Participants were curious about whether the Riparian Forest is located within the City of Saskatoon or in the growth area.

Participants identified challenges with avoidance of the Riparian Forest in terms of management suggesting that the area is not developable and that it is contaminated by the chemical plant remediation and is difficult to manage due to topography and slope instability. Participants also suggested that there would be no economic benefit even if development is feasible and that proximity to the proposed Saskatoon Freeway and associated bridge may result in fragmentation if the quality of the habitat hasn't already been compromised by recent disturbance to the forest.

Mitigation

Participants identified that mitigation of the Riparian Forest may provide opportunity to enhance accessibility by developing a pathway with potential to connect Meewasin trail to Wanuskewin. They suggested that bussing children to Wanuskewin would cost $100 but if there was a trail they could bike. It could also create cultural connections and increase tourism. Mitigation would also provide opportunity for long term monitoring of the area to assess vulnerabilities.

Participants identified that mitigation of the Riparian Forest may be challenging as it is expensive to maintain trails, development may damage the vegetation and lead to invasive species and may displace the dog park. Proximity to the river was also identified as a change for development.

Compensation

Participants identified opportunities related to economic benefit and availability of funding to enhance another part of the network if compensation is collected for development of the Riparian Forest. Participants also suggested that development and compensation would help increase the size and densification of the City.

Participants noted that it may be costly to develop and service the Riparian Forest and that erosion in the area may be a challenge.

Preferred Strategy

Participants identified both avoidance and mitigation as preferred strategies explaining that development of a trail system in this area would benefit school groups, tourism and cultural

connections. It would aid in further development for Wanuskewin and may help to answer Truth and Reconciliation Commission calls to action.

Participants also offered advice to be considered as part of the decision-making process including:

- Need for an inventory and climate change vulnerability assessment to assess level of effort required and site resilience,
- Clarity on Meewasin's relationship to and acknowledgement of the Riparian Forest, and
- Consider opportunities for partnerships with the Federal Government.

South Holmwood Wetland

Avoidance

Participants suggested that if the South Holmwood Wetland was avoided and the buffers were increased with natural corridors maintained in the design, there would be opportunity to maintain or enhance ecosystem services such as carbon capture, water retention and flood protection, and habitat for endangered species. The high cost to develop wetlands was also mentioned as an opportunity for justification of avoidance of the site.

Participants suggested that existing disturbance, controlled access, cost and competing City needs/initiatives may create changes for avoidance of the site. Developing around the wetland has the potential to isolate the wetland from the natural drainage system, limiting its functional value. Consideration of other functional uses in the area like agriculture and resources use were also mentioned as potential challenges. The following challenges were identified related to avoidance of the South Holmwood Wetland. Participants suggested that the land could be priced at less than the ecological value and make sure the net current asset value (NCAV) is accounted for if development pressure occurred.

Mitigation

By allowing mitigation to occur at the South Holmwood Wetland, participants identified opportunities for crop usage to provide weed control, multi-use potential such as recreation, development of partnerships, and programing potential for education and hands on restoration. Participants suggested that mitigation could require addition to the corridor to maintain habitat and incorporation of the wetland into the storm water system. Conserving the wetland will use less land for water storage, will reduce flood potential and the cost of development.

Participants felt that mitigation may be challenging because it can be cost and resource intensive due to monitoring requirements and the need for long term management. They noted that there are also costs associated with changing construction techniques. With all of the cost and effort applied to mitigation, public acceptance of the naturalized area may be a challenge as not all residents appreciate or understand the ecological value that wetlands provide because they are perceived as aesthetically displeasing, especially in dry years. Participants commented that if the wetland is disturbed and rebuilt, it would become a carbon source and would take 100 years to transition to a carbon sink. Participants also suggested that if the wetland is not designed properly it could lead to loss of vegetation and habitat value. For the wetland to be effective, participants explained that it must remain connected to other wetlands or the function will be reduced. This could be challenging due to the amount of development planned in the area.

Compensation

Participants suggested that if the South Holmwood Wetland is developed and compensation is required, that the funding received could be used to enhance a more valuable natural area.

Participants felt that even with compensation funding available, it is challenging to replace biodiversity and native plants commercially. Seeding mechanisms was also suggested as a challenge.

Preferred Strategy

Participants suggested a combination of avoidance and mitigation be applied to the South Holmwood Wetland, explaining that the area is already disturbed, is a clone to the Brighton neighbourhood and is undevelopable.

Participants also offered advice to be considered as part of the decision-making process including:

- Assessment of ecological and habitat value,
- Determination of hydrological function, and
- Identification of current land ownership and development pressures.

Development of natural area categories and standards for development in and adjacent to natural areas.

Q. What Level of Management should be applied to each natural area and why?

All 28 natural areas were populated with levels of management. Two additional natural areas ("White Cap" and "West Swale") were added by participants who were curious why they were not asked to select levels of management/protection for these locations.

The natural area that received the highest number of responses was the Meewasin Northeast Swale – Ecological Core with 22 participants. The Meewasin Trail System and Riverbank and Goose Island followed close behind with 19 and 18 participants respectively.

Natural areas that received the lowest response rates included Paul Mostoway Dog Park (2 participants), Avalon Dog Park (4 participants) and Mark Thompson and Patricia Roe Parks (Naturalized) (5 participants).

Response rates could be impacted by factors such as familiarity with the site and site marketing, use of the site personally, time constraints during the workshop and perceptions of compatible uses.

For the following Natural Areas, 100% of respondents selected the “high” or “highest” level of management:

- Wanuskewin Buffer Lands and Bison Fields,
- Meewasin Northeast Swale – Recreation Zone,
- Saskatoon Natural Grasslands,
- Petturson’s Ravine,
- Crocus Prairie,
- Kernen Prairie,
- Donna Birkmaier Park (naturalized), and
- Hyde Park (naturalized).

“Meewasin Northeast Swale – Recreation Zone” was the only natural area where 100% of respondents voted for the “highest” level of management (13 participants in total).

For the following Natural Areas, 100% of respondents selected the “low” or “moderate” levels of management:

- Paul Mostaway Dog Park, and
- Avalon Dog Park.

Paul Mostaway Dog Park and Avalon Dog Park also had the lowest participant rates of all natural areas identified.

Two of the three dog parks identified received responses of low-moderate levels of management only. The Sutherland Dog Park however, saw 60% of respondents voting for high-highest levels of management. The single comment left for this natural area indicated that Sutherland Dog Park (Sutherland Beach) was identified as a key place in the Moriyama 100 year plan for Meeswasin.

Evaluation

Evaluation forms were provided to workshop participants during both sessions.

Afternoon Session

A total of 44 participants and 11 City staff were in attendance. Of these 44 participants, 39 comment forms were returned.

What went well?

A total of 41 comments were recorded indicating aspects participants liked about the workshop. Some predominant themes included:

- Good discussion or dialogue (10 comments),
- Participant diversity was appreciated (8 comments),
- Visuals and content were valued (7 comments),
- Workshop design or function was good (7 comments), and
- Happy with facilitation (7 comments).

Participants also expressed that they were happy to have been invited to participate and felt that the project was a good step forward.

What didn't work?

A total of 52 comments were recorded indicating aspects of the workshop they felt were not effective. Some predominant themes included:

- Timing - too rushed, too much information for time allotment, not enough time to record all ideas (29 comments),
- Concerns about visuals or content on visuals (6 comments),
- Not familiar with topics/location (4 comments),
- Unsure how information will be used (3 comments), and
- Issues with microphone (2 comments).

Some participants felt more direction or explanation of activities was required (2 comments).

Evening Session

A total of 14 participants and 10 City Staff members were in attendance. A total of 13 evaluation forms were received.

What went well?

A total of 28 comments were recorded indicating things participants liked about the workshop. Some predominant themes included:

- Dialogue/Discussion was appreciated (9 comments),
- Liked aspects of how the workshop was designed (7 comments),
- Good facilitation (6 comments),
- Liked the visuals or content provided in the workshop (3 comments),
- Delicious snacks (2 comments), and
- Appreciated opportunity for community involvement (2 comments).

There were also comments indicating that the workshop and discussion was inspiring and that it was valuable to have the Project Team present to answer questions.

What didn't work?

A total of 21 comments were recorded indicating things participants felt were not effective about the workshop. Some predominant themes included:

- Visuals/Content could have been improved (8 comments),
- Timing was rushed (6 comments),
- Aspects of workshop design (5 comments),
- Not familiar with topics or locations discussed (4 comments), and
- Concerns over project design (3 comments).

Going forward, engagement content will be better suited for complexity of information, size of room and time available for the event. This will allow for more meaningful and thoughtful participation.

Engagement Summary

In addition to the themes and comments provided by participants to inform specific decisions, some overarching themes emerged that are not directly related to specific decisions. These are framed as opportunities and considerations. Discussion of data limitation and how results will be used are also discussed in this section.

Opportunities

The following themes emerged from engagement activities that can be framed as opportunities for the project team to consider.

Social Value. While values such as views, vistas and view-sheds, natural connected and walkable and physical and mental wellbeing are described as principles of the Green Strategy, they were left largely absent from Natural Area Standards content shared with participants. This gap was identified and challenged by participants during all engagement activities. There is opportunity to tie social value into the natural area standards by creating indicators that must be evaluated as part of the natural area screening and assessment process by external consultants. To understand the social value around a natural area, a requirement for public engagement could also be mandated as part of this process.

Definition and Clarity. Several participants required more clarity on subjective terms used through the activities such as natural, naturalized, cultural, heritage and biodiversity, as examples. It is clear from participant responses that the language used and meaning applied to these words or concepts can greatly influence the level of acceptance for the terms in natural area discussions. In any future engagement, communication and reporting, all terms should be thoroughly defined in the context of the communication.

Compensation Framework Development. Participants suggested the need for development of a compensation framework to guide how natural areas are valuated and to provide structure and transparency in how compensation funds are allocated.

Considerations

Comments provided by subject matter experts suggested the need for consideration of financial implications for tax payers of implementing protection and management of natural areas. This is a topic that should be further addressed in natural area discussions as part of the Green Strategy engagement program going forward.

Another theme that emerged was a general mistrust in the City's decision-making processes, recognition of completing City initiatives, and ability of the Natural Area Standards Project Team to create change. While it was noted that overall the intention of the Project Team to protect natural areas seemed sincere, many participants questioned if there was enough support across Administration and City Council to support the initiative over the long term through both allocation of resources and funding. Helplessness in the process was also evident in comments by participants who were not in support of the perceived financial implications of natural area protection and the Green Strategy in general. These concerns should be acknowledged through future engagement and communications opportunities where possible to manage expectations for implementation of the Natural Area Standards.

Data limitations

Time allotment

Workshop participants expressed in their evaluation forms that the afternoon session specifically did not provide enough time for meaningful responses given the amount of content required for review and comment. As such, quantitative data such as the levels of management dotmocracy, identification of missing natural areas and indicators will not be considered representative of all participants at the workshop.

Use of Restrictive or Unclear Terminology

During the Levels of Management activity participants were asked, verbally (where applicable), to identify levels of management for the natural areas identified. The activity sheet, however, was titled "Levels of Protection" which may have mislead participants and altered the context of the results. The term "management" can imply recurring expenditure of cost and effort which can impact residents economically. "Protection" on the other hand can imply both expenditure of cost and effort or simply just avoidance of disturbance or access to the natural area which would not result in additional costs to residents. For example, during other workshop activities, participants mentioned that Goose Island has valuable migratory bird staging and nesting habitat and is inaccessible to the public. While protection of this location would require minimal change to the current low effort management level, only 75% of respondents selected the high or highest level of management/protection for this location. It can be argued that while the desire to protect this natural area is high, there is no desire to increase the levels of management at the site as the current levels are considered satisfactory.

The levels of management/protection were preselected by the project team structured around indicators such as assessment of ecological value, risk of impact from development, risk of impact from incompatible use, management plan requirements, level of protection and if/how the site is managed for conservation on an increasing scale of low, moderate, high and highest. While it was communicated to participants that this exercise was designed to help select levels of management or protection, it could be more accurately described as a mechanism to identify natural areas requiring low, moderate, high or highest levels of effort to be expended by City staff and budgets.

While it is important to understand the levels of effort that would be required to properly protect or manage natural areas in a way that reflects participant preferences, more work is required to properly unpack and understand those preferences before level of effort can be determined. Additional research is recommended to identify what residents of Saskatoon value or devalue about each natural area, and natural areas in general.

Several participant comments were left on the activity sheet that mentioned values that could not be classified under the indicators used to rank the levels of management/protection including:

- Cultural Value,
- Learning and educational opportunities,
- Climate Change Mitigation,
- Storm water,
- Shelter,
- Flood mitigation,
- Reference in other management planning documents,
- Compatible or unique uses (wildlife rehabilitation),
- Historical relevance or importance,
- Tourism value,
- Aesthetics, and
- Accessibility and connectivity.

Without more holistic and inclusive indicators for participants to capture how natural areas are valued outside of the frame of ecology, risk of disturbance, and effort required, the capacity for understanding and acknowledging perceived value outside of the prescribed indicators is limited. For example, only 25% of respondents felt that Factoria, a site with noted historical significance, should be managed at a high or highest level of management. This percentage may have been different had historical or heritage indicators been applied to the scale.

It is advised that results of this activity should not be used to determine the extent to which certain natural areas are valued at the expense of others.

Next Steps

Completion of the draft Natural Area Standards document is expected in the fall of 2019. The Natural Area Standards document and process for implementation will be recommended to the Standing Policy Committee on Planning, Development and Community Services, and copied to City Council for information in the fall of 2019.