

OLESKIW

RIVER VALLEY PARK

MASTER PLAN

Environmental Sensitivities Report
February 2017

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Introduction

The Oleskiw River Valley Park is an important link for people and wildlife in Edmonton's green space network, with use expected to grow over the coming years.

Project Background

The Oleskiw River Valley Park is an important link in the North Saskatchewan River Valley park network. Once known as the Edmonton Country Club, then Wolf Willow Farm, the park area is treasured by neighbouring communities and visitors travelling from within Edmonton as well as from outside the city. The natural, quiet and serene environment draws people to the park and invites them to linger in the River Valley. Currently, the main activities that occur in the park are cycling, running and walking.

The project area is approximately 82 hectares in size and is located in the west end of the city, south of the Fort Edmonton Footbridge and adjacent to the Edmonton Country Club. There is a 45-metre drop in elevation from the top of bank on the west side of the park area to the river shoreline on the east. Currently, the Oleskiw River Valley Park can be accessed through four points: the Edmonton Country Club private road to the west, the Woodward Crescent trail to the north, the Fort Edmonton Footbridge to the east and the Terwillegar Park Footbridge to the south. The Terwillegar Park Footbridge and West End Trails projects, which include the new asphalt shared-use pathway that runs through the project area, are projected to increase the number of visitors into Oleskiw River Valley Park.

As part of the 10-Year Capital Investment Agenda, The River Valley Park Renewal program has identified the Oleskiw River Valley Park Master Plan as a way to provide direction on investment for the park. The Master Plan will build upon existing plans, policies and initiatives while identifying public needs and priorities for the park. It will provide direction for environmental management as well as recommendations for civic, cultural and recreational uses that are appropriate to the area. The new Master Plan will establish a vision and management plan for Oleskiw River Valley Park for the next 25 years and will be developed throughout 2016 and 2017.

The Master Plan is currently in the Concept Phase of the City of Edmonton's Park and Facility Development Process. Existing policy, City Administration and public input will inform the process and outcomes of the Concept Phase, at the end of which the Master Plan report and concept design will be submitted to City Council as part of the 2019-2022 budget cycle to seek funding for its implementation.

Purpose of the Report

To date, O2 Planning + Design Inc. has presented their initial understanding of existing conditions in the park area to City of Edmonton staff, key stakeholders and the public for feedback. No design options have been proposed at this stage. The purpose of this report is to determine ecological sensitivities that may exist within the project area at the preliminary stages of park concept development.

Environmental considerations are reported per the requirements of the North Saskatchewan River Valley Area Redevelopment Plan (ARP) Bylaw 7188 Schedule D, which is intended to ensure that the objectives and policies of the ARP are achieved. The City requires that a summary of environmental costs and benefits (or opportunities and constraints) be presented for any project site outside the Central area defined by the ARP.

The information presented in this report will be used to help the project team (including O2 Planning + Design Inc., sub-consultants and the City of Edmonton) understand the opportunities and constraints within the project site. Findings will be analyzed in conjunction with public feedback and City priorities to determine potential concept design options.

This report includes:

- » A summary of the key findings from the Environmental Overview, desktop analysis and field assessments
- » Site mapping of the following environmental factors:
 - » Surrounding land use
 - » Site geology/geomorphology
 - » Site hydrology
 - » Site soils
 - » Site vegetation and wildlife habitat
 - » Visual assets and sensory experience
 - » Historical/archaeological considerations
- » Environmental sensitivity analysis (guided by the 1992 Ribbon of Green Master Plan Resource Classification System)
- » An overall description of the sensitivity levels in the project area and their implications for the Master Plan
- » A description of the resulting landscape units within the site and their key attributes that contribute to opportunities and constraints for the project area

Methodology

Basin Environmental Ltd., an environmental consulting firm based out of Edmonton, Alberta, prepared an Environmental Overview for the Oleskiw River Valley Park. The Environmental Overview outlines the presence of environmental sensitivities and potential general impacts associated with future development in the Oleskiw River Valley Park.

In addition to the above-mentioned reporting, O2 Planning + Design Inc. synthesized the following material and information to complete the environmental analysis presented in this report:

- » Data:
 - » Sewer and pipe lines (MPE Engineering Ltd.)
 - » Floodplain delineation (Matrix)
 - » Geotechnical drawings (Thurber Engineering)
 - » Ground cover, vegetation and land use (Solstice)
 - » LIDAR elevation and surface data
 - » City of Edmonton geographic information, including City infrastructure, utilities, vegetation and park assets
 - » Multiple site visits and observations
 - » Desktop analysis of vegetation, topography and hydrology
- » Reports:
 - » Overview of Potential Historic Resources for Dawson and Oleskiw Parks by Heritage Collaborative Inc.
 - » Hydrotechnical Engineering Overview by Matrix Solutions, Inc.
 - » Geotechnical Report by Thurber Engineering Ltd.

The information in this report is presented to the level of detail and accuracy that is possible at the present stage of the project, informed by the completion of the Environmental Overview. Additional analysis, such as a complete land cover health assessment and a wildlife corridor study, will be more feasible after the completion of a full Environmental Impact Assessment. It is recommended that the City of Edmonton integrate the findings of the Environmental Sensitivity Mapping project into the environmental analysis of their current and future park and open space planning initiatives, where appropriate.

Habitat in the River Valley

The North Saskatchewan River Valley is one of the most diverse landscapes in Edmonton. The ever-changing river edge and forested valley lands create ecological corridors that many animals use to travel, hunt and live. One of the goals of this report is to summarize the environmental conditions of the Project Area to inform future use in the Oleskiw River Valley Park.



Regulatory Setting

The Master Plan for the Oleskiw River Valley Park will operate under the framework of existing environmental policy. The implementation and maintenance of the Master Plan will be in accordance with the following policies.

Federal

Canadian Environmental Assessment Act

The Canadian Environmental Assessment Act, 2012 (CEAA 2012) project review process pursuant to the requirements of CEAA is triggered when a federal authority proposes a project, grants money to a project, grants an interest in land to a project, and/or exercises a regulatory duty in relation to the project. CEAA only applies to projects described in the Regulations Designating Physical Activities or those designated by the Minister of the Environment.

Fisheries Act

The Fisheries Act is administered by the Department of Fisheries and Oceans Canada (DFO) and has provisions aimed at the protection of fish and fish habitat from serious harm. The Fisheries Act applies to all projects that have a potential to cause serious harm to fish and fish habitat that are part of or support a commercial, recreational or aboriginal fishery.

Navigation Protection Act

The Navigation Protection Act (NPA), administered by Transport Canada, provides the protection of navigation on all public navigable waterways in Canada through the Navigation Protection Program. Regulatory approval is required in scheduled navigable waters where the works risk a substantial interference with navigability. Scheduled navigable waters are included in the List of Scheduled Waters under the NPA. For works in non-scheduled waterways, owners of the works may opt-in for a review under the NPA. Non-scheduled waterways are still protected under the Act and could be subject to court proceedings if the works interfere with navigation.

Migratory Birds Convention Act

The Migratory Birds Convention Act (MBCA) is administered by Environment Canada and provides protection and preservation for migratory birds and migratory bird habitat through the Migratory Birds Regulations and Migratory Birds Sanctuary Regulations. The MBCA and its regulations apply to migratory game birds (e.g., ducks, geese and swan), migratory

insectivorous birds (e.g., chickadees and cuckoos) and migratory non-game birds (e.g., gulls and herons). See Article I of the MBCA for the list of the families of migratory birds protected under the MBCA.

Species at Risk Act

The Species at Risk Act (SARA) is federal legislation intended to protect sensitive species. Species included under Schedule 1 are established by the Federal Cabinet and are based on recommendations by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and consultation with government, Aboriginal peoples, stakeholders and the Canadian public. SARA applies to federal lands; however, it may also apply to other lands when provincial protection is deemed inadequate by the Federal Minister of the Environment. SARA applies to all lands in Canada for Schedule 1 bird species protected by the Migratory Birds Convention Act.

SARA also has a provision to protect 'critical habitat' "...that is necessary for the survival or recovery of a listed wildlife species and is identified as the species' critical habitat in the recovery strategy or in an action plan for the species" (Section 2(1) of SARA). If an activity is expected to affect a wildlife species listed under Schedule 1 of SARA or destroy any part of its 'critical habitat', additional regulatory requirements, including notification of appropriate regulatory agencies and application for a permit under Section 73 of SARA, will need to be fulfilled.

Provincial

Environmental Protection and Enhancement Act

The purpose of the Environmental Protection and Enhancement Act (EPEA) is to ensure sustainable use of the environment through protection, enhancement and wise use of natural resources. EPEA ensures environmental protection is considered in the early stages of planning. This process helps predict potential environmental consequences of an activity and minimize any adverse impacts before they occur. Alberta Environment and Parks regulates a wide range of activities under the EPEA through conditions set out in regulations, approvals and Codes of Practice.

Public Lands Act

The Public Lands Act regulates various public land uses (e.g., land dispositions), the sale and purchase of land, and the declaration of water bodies as being owned by the Crown. The Crown may claim the bed and shore of permanent water bodies (e.g., wetlands, creeks and drainage channels) found on a given property.

Water Act

Pursuant to Section 36 of the Water Act, activities that may impact water bodies and the aquatic environment, regardless of ownership, require an approval unless otherwise authorized by the Water Act. In the Water Act, 'activity' is broadly defined to include the following actions: placing construction works within a water body; erosion protection; draining a water body; removing or disturbing ground and/or vegetation within the bed and shore that results in altering the flow, level, direction and/or location of a water; and channel realignment.

Wildlife Act

The Wildlife Act and Wildlife Regulation provide the legislation and regulatory provisions to protect and manage wildlife on all land in Alberta. The Minister responsible for Fish and Wildlife Management has the authority under the Wildlife Act to influence and control activities that may have direct adverse

effects on the populations and habitat of wildlife species (Section 103 of the Wildlife Act). If the proposed development is anticipated to disturb or destroy habitat of prescribed wildlife species listed under the Act, additional regulatory requirements may need to be met depending on jurisdiction and land ownership (Section 36(1) of the Wildlife Act).

The following birds are not protected under the MBCA, but are protected provincially under Alberta's Wildlife Act: grouse, quail, pheasants, ptarmigan, hawks, owls, eagles, falcons, cormorants, pelicans, crows, jays and kingfishers.

Weed Control Act

The Weed Control Act regulates the control of noxious weeds, and the destruction of prohibited noxious weeds in Alberta. The Weed Control Act Regulation provides a complete listing of all designated Noxious and Prohibited Noxious weed species in the province.

The application of pesticides is controlled through the Environmental Protection and Enhancement Act and should be reviewed in the event that pesticide application is required.

Historical Resources Act

The Historical Resources Act requires clearance for any development that may impact historical resources in Alberta. Clearance is issued by the Heritage Resources Management Branch of Alberta Culture and Tourism (Alberta Culture and Tourism 2015). Historical resources include structures, archaeological sites, paleontological resources, and other works of humans or nature that are of value.

Oleskiw River Valley Park within the River Valley Policy Framework

Oleskiw River Valley Park is located within the Regional Biological Corridor, mostly in the Central North Saskatchewan River Valley Planning Area and partly in the Upper North Saskatchewan River Valley Planning Area (Hobson et.al. 2008). Oleskiw River Valley Park contains stretches of biodiversity core area (i.e., large vegetative area that provides support for wildlife community) surrounding the abandoned agricultural field (Hobson et.al. 2008). The park area is subject to federal, provincial and municipal policy.



Municipal

North Saskatchewan River Valley Area Redevelopment Plan (Bylaw 7188)

The purpose of the North Saskatchewan River Valley Area Redevelopment Plan (Bylaw 7188) is to ensure the preservation of the natural environment in the River Valley and tributary ravine system. The plan requires environmental reviews of development projects that occur within the Bylaw's boundaries. The Environmental Impact Assessment is intended to fulfill the Bylaw requirements for this Project.

Community Standards Bylaw 14600

The Community Standards Bylaw 14600 establishes construction working periods (Monday to Saturday: 07:00 to 22:00; Sunday and Holidays: 09:00 to 19:00) and acceptable noise levels (maximum 65 dBA). It is a requirement that this Bylaw be adhered to during construction. Standard protocols for exceptions may be granted with special permission by the City of Edmonton.

Corporate Tree Management Policy

All naturally treed areas and ornamental trees on city-owned land are the responsibility of Edmonton's Park Branch (including procurement, maintenance, protection and preservation) and are encompassed in Edmonton's Corporate Tree Management Policy C456A. The policy states that where loss or damage to a City tree(s) occurs, compensation for the loss will be recovered from the individual causing the damage or loss and applied to future tree replacements. The Corporate Tree Management Policy includes the replacement of some non-native or invasive tree species and must be taken into account in projects focusing on invasive species removal.

City of Edmonton Wildlife Passage Guidelines

The City of Edmonton's Wildlife Passage Engineering Design Guidelines were introduced in 2010 (Stantec Consulting Ltd. 2010). The guidelines provide recommendations to incorporate the needs of wildlife into transportation projects by restoring previously removed wildlife connectivity corridors and passages. The guidelines also assist in minimizing human-wildlife interactions such as vehicle collisions and reducing habitat fragmentation.

City of Edmonton Natural Area Systems Policy

Natural Area Systems Policy C531 by the City of Edmonton underlines the city's commitment to protect natural area systems through effective urban planning and development, encouragement of public engagement in natural area issues, promotion of environmental stewardship and establishment of conservation practices using the best available science.

Environmental Context

Oleskiw River Valley Park is located in a quieter neighbourhood in the south west of the City of Edmonton. The park helps to form a crucial green link in the River Valley for wildlife and park visitors alike.

Oleskiw River Valley Park is located in the City of Edmonton, within the Eastern Alberta Plains and the Central Parkland Natural Subregion of the Parkland Natural Region (Natural Regions Committee [NRC] 2006). The Central Parkland Subregion includes the heavily populated, intensely cultivated, and fertile area of central Alberta. The landscape is characterized by undulating till plains and hummocky uplands, eolian deposits, aspen forests and prairie vegetation (NRC 2006). Precipitation in the subregion is usually significant from June to August with a peak in July (NRC 2006). Warm, long summers, suitable soils and significant annual precipitation create adequate conditions for the growing season. Prevalent soil types include Black Chernozems, Orthic Dark Grey Chernozems and Solonchic soils (NRC 2006).

The North Saskatchewan River Valley and Ravine system is considered a national environmentally sensitive area as it provides critical habitat, corridors and linkages for a diverse range of wildlife species. The Oleskiw River Valley Park is located within the Regional Biological Corridor, mostly in the Central North Saskatchewan River Valley Planning Area and partly in the Upper North Saskatchewan River Valley Planning Area (Hobson et.al. 2008). The Oleskiw River Valley Park contains stretches of biodiversity core area (i.e., large vegetative area that provides support for wildlife community) surrounding the abandoned agricultural field (Hobson et.al. 2008).

Zoning and Surrounding Land Use

The Oleskiw River Valley Park is located in Zone A: Metropolitan Recreation Zone in the City of Edmonton. Much of the land around the park area is located within the River Valley. Terwillegar Park, the largest off-leash dog area in the city, is located to the south and connected by the new Terwillegar Park Footbridge. Across the river and to the north is Fort Edmonton, a managed historical park and green space. Fort Edmonton is connected to the Oleskiw River Valley Park by the regional multi-use pathway and the Fort Edmonton footbridge. The adjacent Edmonton Country Club is also zoned as Metropolitan Recreation Zone A. Ecological connections to the Oleskiw River Valley Park are located along the river edge to the north and west ends of the park. These connections are narrow; human and wildlife movement is therefore somewhat restricted in these areas.

The surrounding neighbourhoods are mostly residential, with single family homes making up the majority of the housing stock. Some vacant parcels are located across the river. These neighbourhoods are compatible with the development of a new River Valley park. However, green space connections into the park should be enhanced and pollution and storm water runoff from the Country Club and adjacent neighbourhoods should be controlled. Future park amenities and activities should also be compatible with the surrounding land uses.

**Oleskiw River Valley Park
Land Use Map**



0 500 M

Overview of Environmental Factors

The following environmental factors are presented to provide an objective overview of the existing features within the project boundaries. The topics presented are guided by the requirements of the North Saskatchewan River Valley Area Redevelopment Plan (ARP).

Site Geology & Geomorphology

Methodology:

Relevant existing geological data within the designated study area was collected and reviewed. Aerial photograph interpretation (API) using available air photos and a review of LiDAR data of the study area were used to determine the top of bank line. A limited site reconnaissance was also carried out to confirm the findings of the desktop study.

Summary of Features:

The Oleskiw River Valley Park is situated on a relatively flat low level terrace within the floodplain of the North Saskatchewan River. The valley slopes at the west edge of the park are generally sloped at between 21 and 34 degrees and are approximately 35 to 40 m in height. The elevation of the upland plateau is an average of 665 m. The low level terrace lands range in elevation from about 626 m to 630 m and dip slightly towards the North Saskatchewan River. In general, it is not recommended to develop on slopes over 15%. However, further geotechnical analysis would be required to confirm the feasibility and risk. Slope stabilization may be required on steeper slopes.

The bedrock underlying the surficial deposits at Oleskiw River Valley Park consists of the Upper Cretaceous, Horseshoe Canyon Formation. The Horseshoe Canyon Formation consists of deltaic and fluvial deposits of interbedded and interlensed fresh and brackish water sandstone, siltstone and shale. Typical sediments consist of soft grey, greenish and white weathered bentonitic feldspathic sandstone, brown bentonitic shales, coal seams and beds of carbonaceous shale.

Seven geotechnical references were available within the study area in the Oleskiw River Valley Park, in which 13 test sites with data were reported. In general, the soil conditions are alluvial

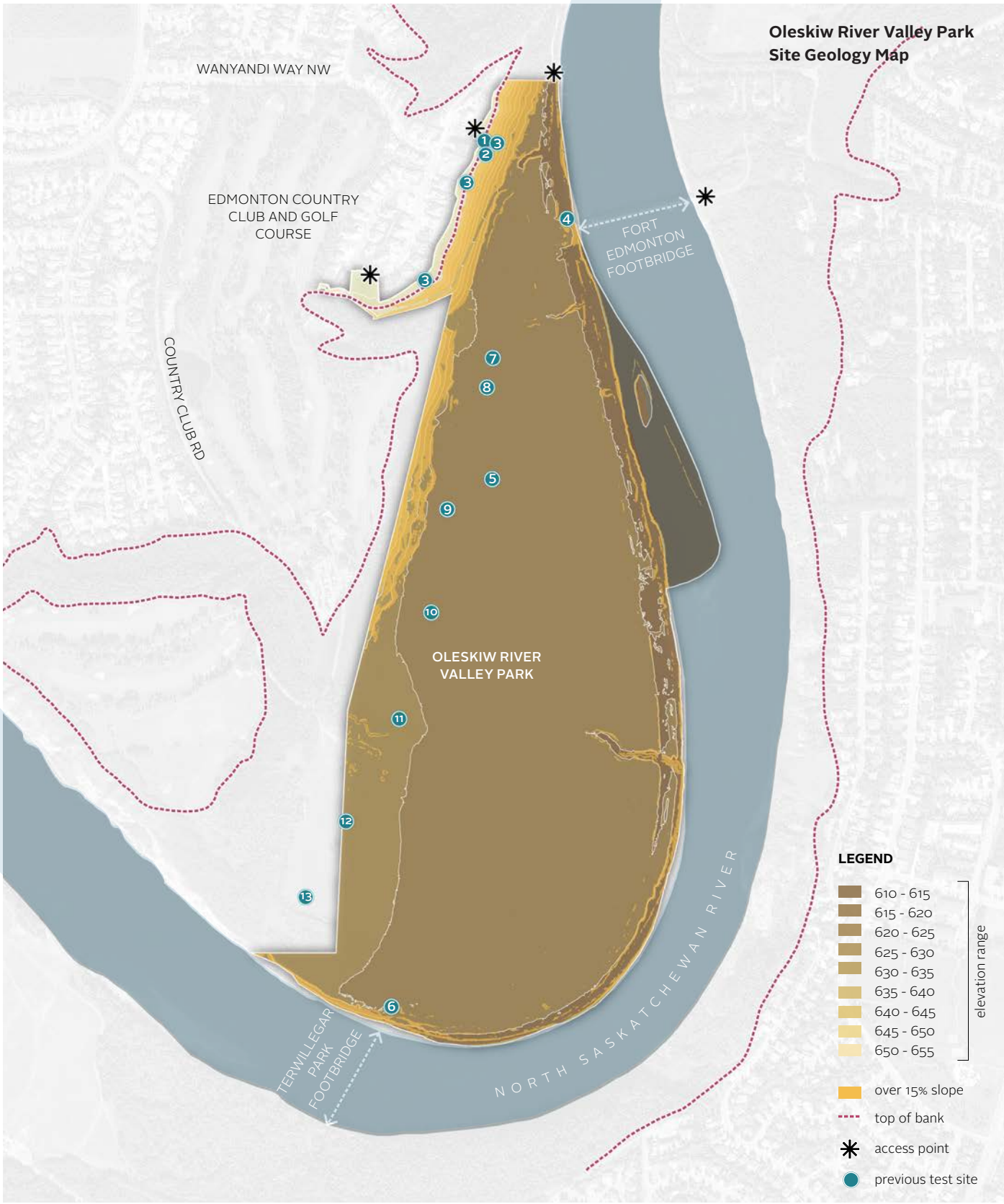
sand, clay and silt overlying bedrock within the floodplain area below the valley slopes and clay over clay till over bedrock within the plateau areas above the valley slopes.

Based on geotechnical recommendations, higher intensity development is less appropriate in areas where ground water levels could interfere with the construction and maintenance of potential facilities. Areas with a shallower ground water table require more effort during excavation and have a greater risk of ground water contamination from human activity.

The sand bar is a transformative landscape that may change based on the flow of the river, showcasing the geomorphological effects of the North Saskatchewan River. Un-managed or high impact activities on the sand bar have the potential to alter the landform and its ecologies, and could potentially result in damages or injury.

Test Site	Bedrock Depth below Surface and Type where Available	Ground Water Depth below Surface
1	34.3 m; clay shale	32.9 m
2	Two landslide locations 35 m wide and 20 m wide. (Wolf Willow Landslide Assessment)	
3	not encountered	from 0.9 m
4	5.3 m	not reported
5	not encountered	5.8 m
6	11.4 m	9.9 m
7	8.6 m	7.7 m
8	not reported	5.2 m
9	not reported	not encountered
10	not reported	not encountered
11	not reported	not encountered
12	not reported	not encountered
13	5.7 m	7.5 m

Oleskiw River Valley Park Site Geology Map



Site Hydrology

Methodology:

Aerial photograph interpretation (API) using available air photos and a review of LiDAR data of the study area was carried out to determine extent of river erosion. The study also included a review of the Alberta Fisheries & Wildlife Management Information System (FWMIS) and a site visit.

Summary of Features:

The North Saskatchewan River originates from the Saskatchewan glacier in the Columbia Icefields in Banff and Jasper National Park at an elevation of approximately 2,080 m above sea level and flows 1,287 km eastward towards the Alberta/Saskatchewan border (Benke and Cushing 2005). Within the City of Edmonton, 11 sport fish species and 19 non-sport fish species have been documented in the North Saskatchewan River (AEP 2015).

A comparison of historical bank lines for the North Saskatchewan River spanning a period of 1969 to 2008 indicates that there is little lateral movement of the west bank in the Oleskiw River Valley Park area. However, the bank line along the southern extent of the meander bend has experienced localized erosion typical for a channel of this size, producing nearly vertical banks approximately 2-3 m in height. **Should near bank development be undertaken in these erosional zones, either appropriate setbacks or bank stabilization measures will be required.**

Two small watercourses (WC) are present in the Oleskiw River Valley Park, and may be potential tributaries to the North Saskatchewan River. Historical hydrometric data is available for station 05DF009 for Whitemud Creek, a tributary to the North Saskatchewan River downstream of the project area. Based on the data, it is expected that discharge in the two watercourses, if flow is present, would follow a similar bimodal trend and would fluctuate throughout the seasons (Government of Canada 2014). Both watercourses are classified as unmapped Class C water bodies with a Restricted Activity Period (RAP) of September 16 to July 31 (ASRD 2012).

WC1 is classified as an intermittent watercourse less than 0.7 m wide. It has defined banks upstream, but poor definition in the wetland area downstream, and appears to become an undefined wet area further downstream prior to entering the groundwater, showing no apparent connectivity with the North Saskatchewan River. Lack of overland connectivity and an approximately 2 m high bank along the north side of the North Saskatchewan River provides a potential barrier to fish

movement upstream into WC1. A culvert over WC1 supports a paved trail. **WC1 has poor quality habitat and low probability of fish presence.**

WC2 is classified as an intermittent watercourse less than 0.7 m wide, with defined banks. No flow was observed during the field visit, and it is suspected that no flow has occurred in the past several years. Natural drainage of WC2 into the North Saskatchewan River is prevented by high river banks. **WC2 is deemed to offer poor quality/no fish habitat, and the probability of fish presence is low.**

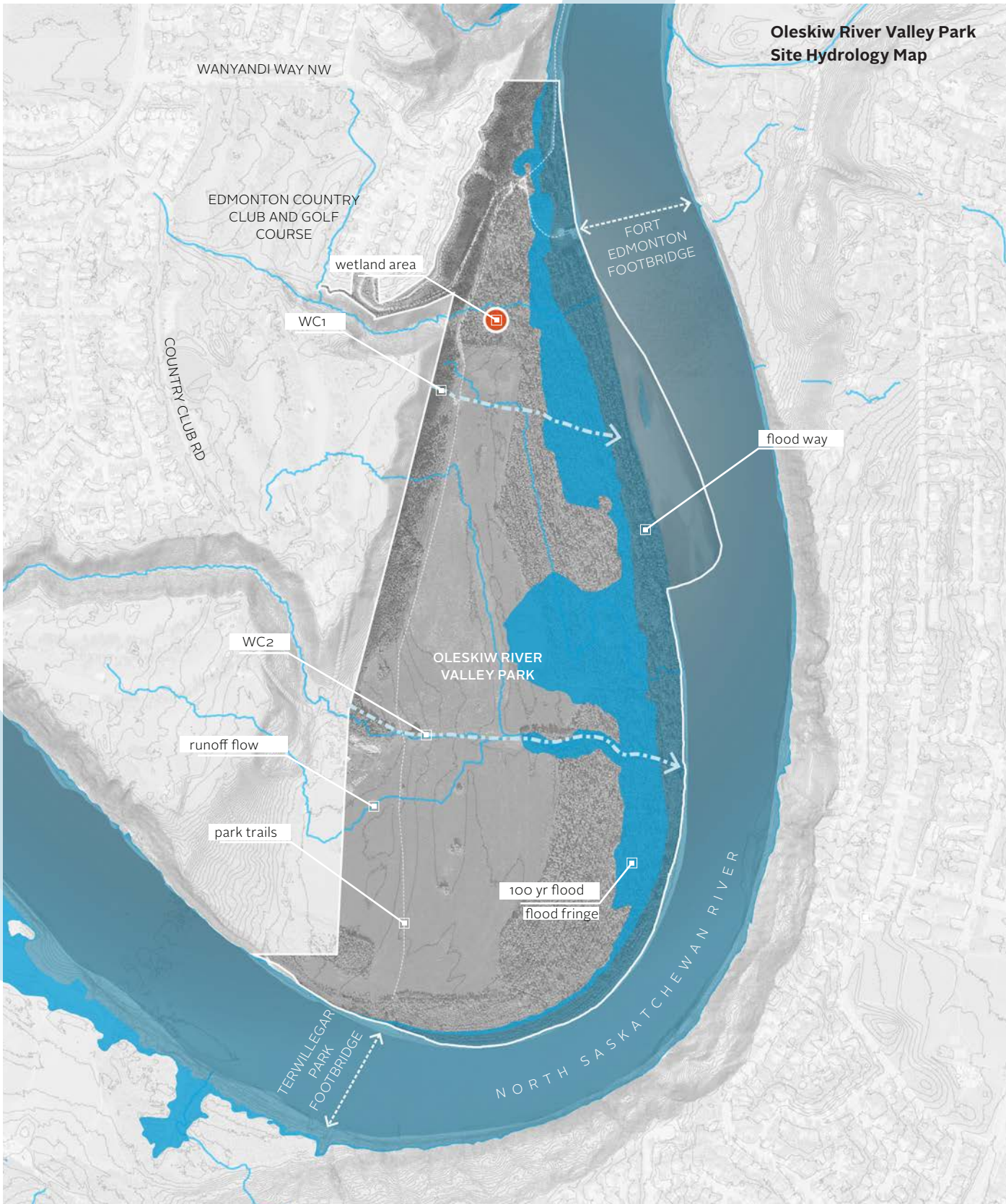
Recommendations:

During a 1:100 year flood event, approximately 25% of the park area located along the east and northeastern extents will be inundated. As such, **proposed developments should either be situated sufficiently outside of this flood zone or appropriate flood proofing measures will be required.**

Although the 'wetland area' associated with WC1 is not a true wetland, there may be potential to enhance this feature for habitat or recreational value in the park. The wetland area should be delineated and, prior to development, guidelines from the Water Act should be considered to protect and enhance the potential habitat provided by this landscape feature.

It is important to avoid conditions that trap or block surface water on slopes. Concentrated runoff can result in the development of deep erosion gullies on valley slopes, which, over time, can undermine and destabilize the slopes. When designing a development, the slopes should be contoured such that the majority of precipitation drains away from the slope.

Oleskiw River Valley Park
Site Hydrology Map



Site Soils

Methodology:

Aerial photograph interpretation (API) using available air photos and review of LiDAR data of the study area was carried out to determine active and inactive slope movements. LiDAR data and air photos were reviewed to determine historic landslide retrogression into the crests of the North Saskatchewan River Valley and ravine slope.

The desktop soil assessment consisted of reviewing previous geotechnical and environmental assessment reports, the Abacus Datagraphics online database (AbaData), the Alberta Soil Information Viewer and the Alberta Geological Survey. The desktop soil assessment did not include a site visit, vegetation or topography assessment, and as a result, the soil assessment should only be used as a general guideline.

Summary of Features:

The bedrock is covered by surficial deposits composed of late Tertiary and Quaternary Period deposits. Tertiary deposits in the Edmonton area are part of the Empress Formation (also referred locally as the Saskatchewan sands and gravels) that were deposited in the pre-glacial river valleys that occupied the Edmonton area. These valleys are now referred to as buried valleys as they were infilled with glacial and lacustrine deposits during post glacial times.

The Empress Formation sands and gravels are composed primarily of quartzite with minor chert, ironstone and coal fragments. The origin of the sand and gravel material is from the Canadian Rockies to the west of Edmonton.

Quaternary deposits are mostly glacial deposits covered by recent postglacial deposits. Most of the glacial deposits at sites consist of till covered by glaciolacustrine silt and clay deposited in the glacial Edmonton lake.

Postglacial deposits consist of alluvium and colluvium deposits. Alluvium is located at the bottom of the North Saskatchewan River Valley, and was formed during the creation of the valley. Alluvium is composed of bedded gravel, sand and clay (becoming coarser with depth) and is generally a few metres thick. It can be up to 10 m thick under the low level terraces. In places where the existing North Saskatchewan River is incised into buried valley deposits, alluvium may be overlying glacial deposits or even preglacial deposits. Otherwise the alluvium overlies the bedrock. Colluvium is bedrock that has been moved by gravity or surficial deposits, covering much of the River Valley and creek slopes.

No significant retrogression has occurred in the Oleskiw River Valley Park in the time available from the air photos (1978-2010), however, **signs of previous landslides and existing erosion channels were noted. These slopes are considered marginally stable.**

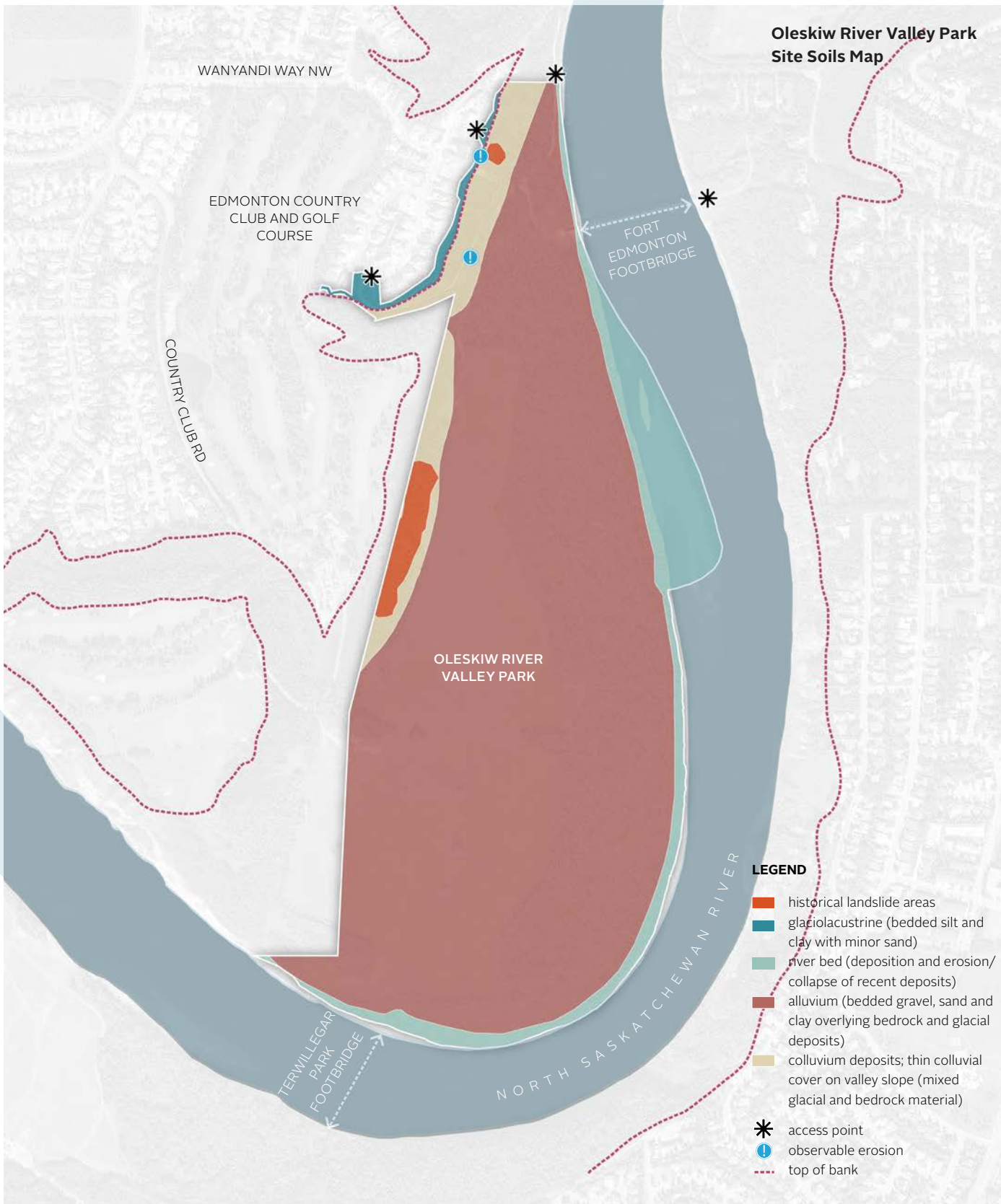
In general, runoff potential would be expected to be higher on more sloping terrain and also where soils of low permeability are present at ground surface. Frost heave potential is generally greatest in fine grained soils with high silt contents, moderate in clays and low in clean gravels and clean sands. Frost heave is also generally higher in areas with high groundwater table. Swell/shrink potential is greatest in clay soils of high plasticity, moderate in medium plastic clay and low in plastic clays, sands and gravels. Infiltration capacity is greatest in pervious gravelly and sandy soils.

The terrace and the slopes in Oleskiw River Valley Park have different characteristics. **On this basis, the Oleskiw River Valley Park terrace has low shrink/swell potential, low to moderate runoff and frost heave potential and moderate infiltration capacity. The Oleskiw River Valley Park slopes have low swell/shrink potential and infiltration capacity, low to moderate frost heave potential and high runoff potential.**

Recommendations:

It is recommended that vegetation on the valley slopes, especially in erosion channels, be maintained or restored to help stabilize the soils. If further work needs to be done to assess the slope stability outside of the Woodward Cres. trail project, it should be included in this Master Plan as there are several areas of observable erosion on the slopes. Any grading that is proposed on or near a slope should be carefully assessed by a geotechnical engineer to determine the feasibility and any potential remedial measures that are required to maintain the Factor of Safety at a reasonable level.

**Oleskiw River Valley Park
Site Soils Map**



LEGEND

- historical landslide areas
- glaciolacustrine (bedded silt and clay with minor sand)
- river bed (deposition and erosion/collapse of recent deposits)
- alluvium (bedded gravel, sand and clay overlying bedrock and glacial deposits)
- colluvium deposits; thin colluvial cover on valley slope (mixed glacial and bedrock material)
- ✱ access point
- ! observable erosion
- - - top of bank



Site Vegetation

Methodology:

Vegetation analysis for the Oleskiw River Valley Park included a desktop review of LiDAR data and a field assessment in the park area. A background search of the Alberta Conservation Information Management System (ACIMS) database was also completed.

Summary of Features:

Native vegetation is minimal in the Central Parkland Subregion due to intensive cultivation and urbanization (NRC 2006). Native plant species within the Subregion include, but are not limited to: trembling aspen (*Populus tremuloides*), balsam poplar (*Populus balsamifera*), white spruce (*Picea glauca*), Labrador tea (*Thermopsis rhombifolia*), feathermosses (*Hylocomium splendens*), willow (*Salix* spp.), common cattail (*Typha latifolia*), bulrush (*Typha* spp.), bunchberry (*Cornus canadensis*), wild lily-of-the-valley (*Maianthemum canadense*), wild sarsaparilla (*Aralia nudicaulis*), and beaked hazelnut (*Corylus cornuta*) (NRC 2006).

Vegetation within the North Saskatchewan River Valley is dominated by trembling aspen and balsam poplar with pockets of black and white spruce. Riparian areas that are not treed are dominated by grasses, sedges and shrubs. Approximately 487 vascular plant species (e.g., trees, shrubs, forbs/herbs, grasses, sedges, aquatics, rushes, ferns and carnivorous plants) inhabit the North Saskatchewan River Valley (Hobson et al. 2008). Within the Oleskiw River Valley Park area is a large field, positioned centrally and surrounded by predominantly upland deciduous forest. The field is a former agricultural field in which an alfalfa brome hay mix was harvested.

A background search of the Alberta Conservation Information Management System (ACIMS) database resulted in no reported rare plant species or ecological communities within the project area (AEP 2016). Three non-sensitive plant species were previously identified within the project area; however, there is a low probability that these species have the potential to occur on site:

- » creeping ancyliid (*Ferrissia rivularis*), observed in 2001
- » flat-topped white aster (*Doellingeria umbellata* var. *pubens*), observed in 1999 and 2007
- » smooth sweet cicely (*Osmorhiza longistylis*), observed in 2007

Additional background literature review determined moderate potential for presence of the following species:

- » callicladium moss (*Callicladium haldianum*)

- » leskea moss (*Leskea gracilescens*)
- » frosted rim-lichen (*Lecanora caesionubella* ssp. *saxiomtana*)
- » smooth sweet cicely (*Osmorhiza longistylis*)
- » flat-topped white aster (*Doellingeria umbellatus*)
- » wild comfrey (*Cynoglossum virginianum* var. *boreale*)
- » dark-green goosegoot (*Chenopodium atrovirens*)
- » lance-leaved loosestrife (*Lysimachia hybrida*)
- » porcupine sedge (*Carex hysterecina*)
- » river bulrush (*Bolboschoenus fluviatilis*)

During the field assessment, 49 plant species were observed in the project area. **Among the observed species, 36 species (74%) were native, while 13 (26%) species were exotic, including noxious weeds** (i.e., Canada thistle, perennial sow thistle, white cockle and common burdock). **No vegetation Species at Risk were identified in the project area.** All potential and observed species are listed in the Environmental Overview.

The Terwillegar Footbridge ESA reported two additional potentially invasive species in the open field, neither of which are regulated:

- » yellow bedstraw (*Galium verum*)
- » burnet saxifrage (*Pimpinella saxifraga*)

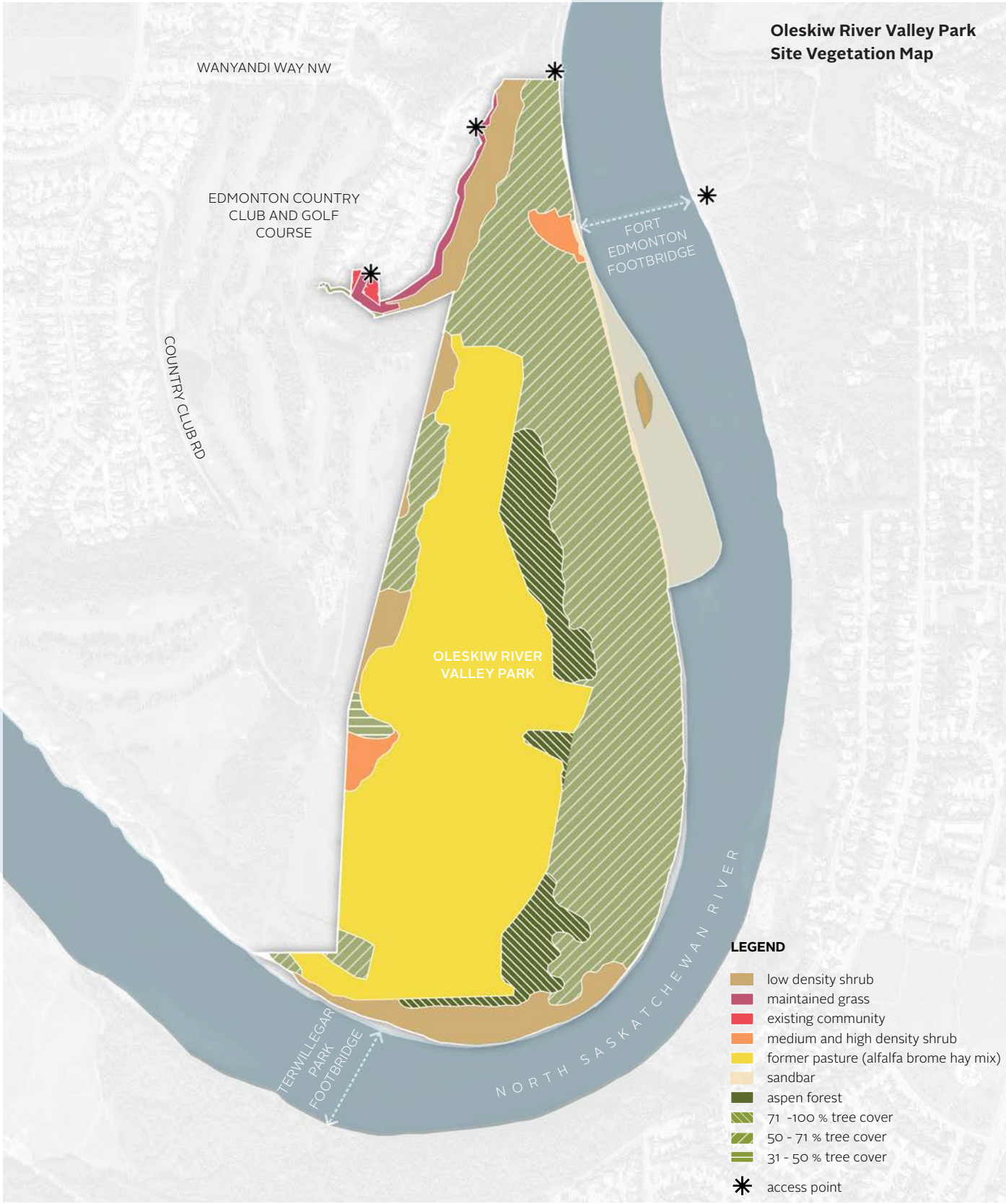
Recommendations:

The sensitive plant species survey was conducted past the blooming season of smooth sweet cicely, wild comfrey, lance-leaved loosestrife, porcupine sedge, and river bulrush. However, the Oleskiw River Valley Park has limited habitat suitability for these species providing a low to moderate potential of occurrence within suitable habitat on site.

Prior to ground disturbance associated with park improvements within the suitable habitat on site for these species, a targeted species survey should be conducted by a qualified biologist to determine if these species are present within the areas of proposed ground disturbance. If they are present, then a Rare Native Plant and Lichen Survey Form should be completed and submitted to the Conservation Data Centre to document the occurrence of the sensitive species.

The Master Plan will consider the requirements and budget allowance to mitigate invasive species and noxious weeds in the project area. Invasive tree species, such as caragana, would need to be replaced if removed according to the Corporate Tree Management Policy. There is potential to re-forest parts of the open field or maintain it as a grass land.

**Oleskiw River Valley Park
Site Vegetation Map**



LEGEND

- low density shrub
- maintained grass
- existing community
- medium and high density shrub
- former pasture (alfalfa brome hay mix)
- sandbar
- aspen forest
- 71 -100 % tree cover
- 50 - 71 % tree cover
- 31 - 50 % tree cover
- * access point



Habitat Potential and Human Impact

Methodology:

A desktop analysis of habitat potential based on human impact was completed. The human impact measure represents the combined impacts of paved and unpaved circulation routes, human-centric and disturbed landscapes, off-leash dog areas and shallow slopes (which are more easily accessible by people) on habitat potential. In the Oleskiw River Valley Park, the highest human impact on wildlife is likely where pathways and shallow slopes converge. These areas are highlighted in red on the map.

In addition to desktop analysis, a review of the Alberta Fisheries & Wildlife Management Information System (FWMIS) and a field assessment were completed.

Summary of Features:

A FWMIS database search was conducted to determine the presence of wildlife within a 2 km radius of the project area. Wildlife that have the potential to occur within the project area include:

- » Canadian toad (*Bufo hemiophrys*)
- » peregrine falcon (*Falco peregrinus*)
- » and short-eared owl (*Asio flammeus*)

The **Canadian toad** (*Bufo hemiophrys*) population has been in decline due to habitat loss and degradation, and the species has been identified as data deficient by Alberta's Endangered Species Conservation Committee. The species is listed as May be at Risk under Alberta Wildlife Act. The Canadian toad is one of the most terrestrial amphibians, usually residing in nearby rivers, lakes and wetlands. They are active from April to August, breeding in spring and entering hibernation in early fall.

The **peregrine falcon** (*Falco peregrinus*) population has been on a rebound since severe declines between 1950 and the 1970s. Currently, the peregrine falcon is listed as Threatened under the Alberta Wildlife Act and Special Concern under Schedule 1 of SARA. In Alberta, peregrine falcons are active from April to October until they migrate south for the winter. They usually nest on cliffs next to bodies of water, and may potentially be nesting nearby the Oleskiw River Valley Park while using the open agricultural field within the project area for foraging.

The **short-eared owl** (*Asio flammeus*) population has been declining for the past 40 years, potentially due to habitat loss and degradation. It is listed as May be at Risk in under the Alberta Wildlife Act and Special Concern under Schedule 1 of SARA. The short-eared owl often resides in Southern Alberta,

typically nesting in the ground of grasslands and foraging in open spaces. Within the project area, the short-eared owl is unlikely to nest, but may forage in the agricultural field.

Several wildlife species were observed or deemed to be present based on the signs of their activity in the project area during the biological survey on July 13, 2016. Audio and/or visual observations lead to the identification of 22 species of birds in the project area. Presence of deer and coyotes in the area is also likely given that three potential dens, two of which suggested presence of coyotes, and deer tracks were noted during the visit. Two nests (one of which suggested presence of American crow) were also noted. **No federally listed Species at Risk were observed during the field visit.**

Audio identification confirmed the presence of a provincially listed species, least flycatcher (*Empidonax minimus*), that is considered Sensitive in Alberta (Government of Alberta 2012). The least flycatcher species has been on decline in Alberta and may be threatened by wintering habitat changes. All other potential and observed species are listed in the Environmental Overview.

Recommendations:

Depending on the commencement date and duration, construction activities in support of Oleskiw River Valley Park development may impact wildlife species habitat. Sensitive species habitats should be protected and linkages maintained. **The removal of vegetation can cause long term habitat loss and/or fragmentation, but these impacts may be minimized by planting native tree, shrub and grasses once the project work is complete.**

Due to the number of bird species observed during the field visit, it is recommended that potentially damaging construction activities occur outside of the migratory bird breeding season. Should the construction activities occur during the breeding bird season, then a nest sweep will be required no more than 7 days prior to clearing and construction. If an active nest is found, then the appropriate buffer will be required.

Current human activity does not have a large impact on habitat potential within the park, but the historical use of the land (for farming and golfing) significantly altered the ecological functions of the site. The Oleskiw River Valley Park is unique in that the disturbed landscape has created a habitat and foraging grounds for sensitive bird species. These species should be considered if restoration efforts are made in the open field.

**Oleskiw River Valley Park
Human Impact Map**



LEGEND

human impact gradient
low high
* access point



Visual Assets and Sensory Experience

Methodology:

The Visual Assets and Sensory Experience findings are based on observations made during site visits by the consultant team.

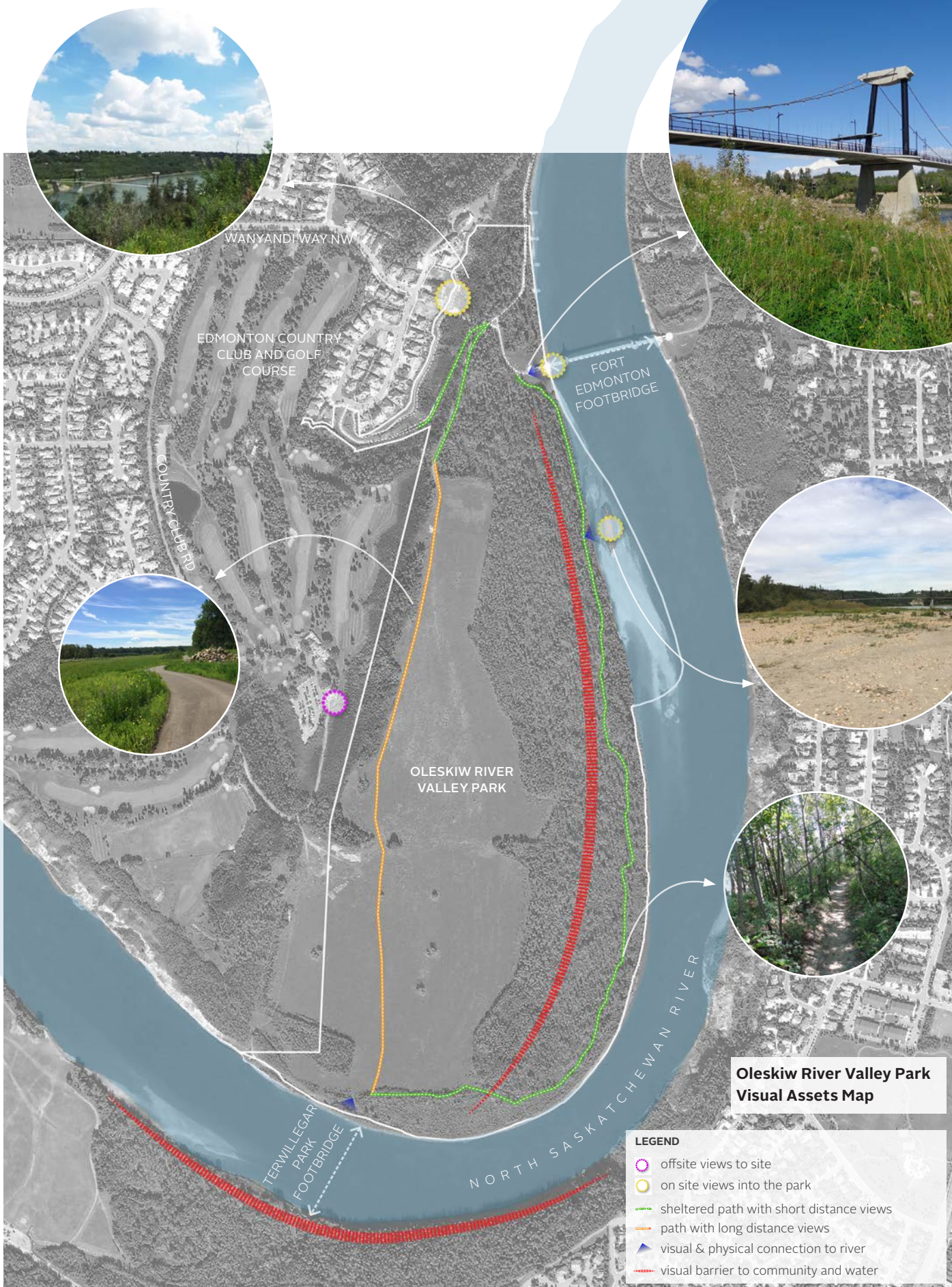
Summary of Features:

There are viewpoints overlooking Oleskiw River Valley Park to the north of the project area as well as from the Edmonton Country Club to the west. The park is visible from several points across the river, but in many locations outside the project boundaries, it is difficult to see the interior of the park. Oleskiw River Valley Park offers visitors long-distance views of the deciduous forest and grass field once they enter the park, but the forest creates a visual barrier to the river from the shared use path. Although river views do not exist in most areas of the park, the sand bar is accessible via the natural trail that runs along the eastern portion of the site.

The project area is extremely quiet, often described as serene and calming. One workshop participant relayed that she can hear the ice melting on the river in the spring. The quietness in the Oleskiw River Valley Park is a key attribute to the identity of the park.

Recommendations:

Ensure that future infrastructure recommendations for the Oleskiw River Valley Park are consistent with River Valley park development. Development should be low impact and maintain a sense of 'escape' from the city. Maintaining the quiet atmosphere would help to enhance the sense of place within the park. Viewing areas, especially along the River Valley slopes, could be improved to take advantage of the spectacular visual assets in the park.



Historical / Archaeological Considerations

Methodology:

Understanding the history of the Oleskiw River Valley Park is a continuous process, which includes archival and historical research as well as community story-telling. Sources for historical information that have been accessed include:

- » The Edmonton Archives
- » The Historical Resources Act
- » The Alberta Township Survey
- » Public and stakeholder input

Summary of Features:

The history of the Oleskiw River Valley Park is intertwined with the history of the City of Edmonton. The River Valley is an important cultural landscape for the Indigenous populations who have lived in this region for thousands of years and is located on Treaty 6 (1876) land. The history of the Indigenous use of the site is not visible to the everyday observer, nor is it recorded in the local archives. **The oral history of the project area should be further explored by connecting with First Nations communities.**

The post-colonial history of the park is more readily available and is relatively well-known by the local community. River Valley Oleskiw was named after Professor Joseph Oleskiw (1860-1903) who, following an 1895 visit from Ukraine to Alberta, played a key role in promoting Ukrainian immigration to the province.

In 1910, the Edmonton Country Club acquired 426 acres of land where Oleskiw River Valley Park is currently located, making it the third oldest golf course in Canada. In 1913, the lower holes were opened on the southern portion of the Oleskiw River Valley Park and remained there until 1930 when they were moved upland. In the late 1940s, influential landscape designer Stanley Thompson made recommendations for alterations to the landscape on the golf course. The Club membership included some of Edmonton's and Alberta's most prominent citizens, including Premiers Rutherford and Sifton.

Curtis and Edith Munson started the Wolf Willow Farm on about 480 acres of land in the Oleskiw River Valley Park in 1930 when the golf course was moved. Curtis Munson was born in the United States and attended Yale University. He served in the U.S. Army during World War I. The farm produced hay on the open fields and maintained the tree stand to the east of the site. The couple operated the farm until it closed in 1970.

By 2002, the Oleskiw River Valley Park was owned by Centennial Valley Properties, which sought to develop the area. The development plans were halted by public outcry and a city bylaw forbidding development inside the River Valley. This event led the City of Edmonton to seek acquisition of the property.

Historic Resources:

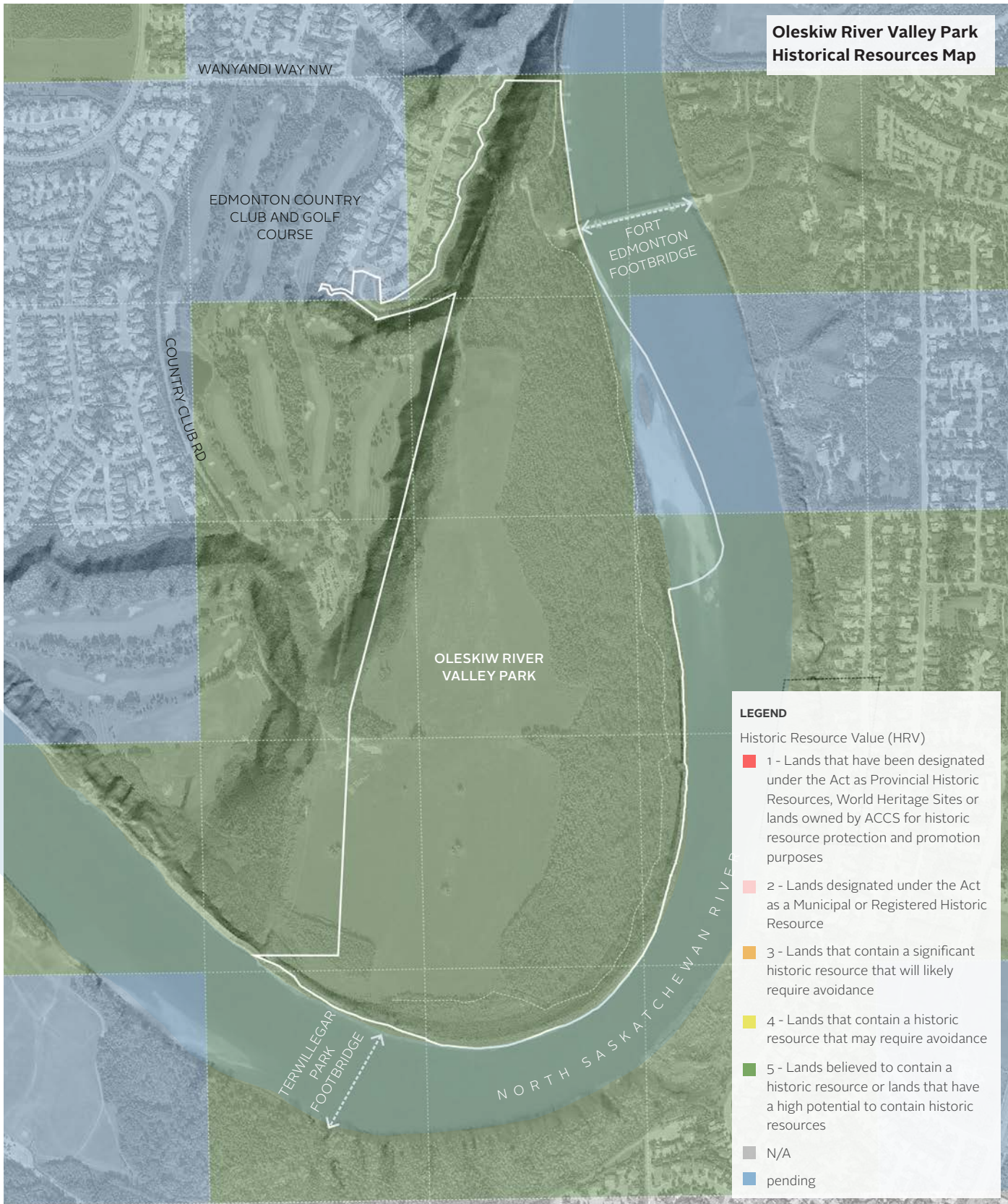
A request for the location of historic sites within the Oleskiw River Valley Park was submitted to Alberta Culture as it is the intent to avoid mitigation requirements where design can be used to achieve zero impact on resources. Information is currently available for historic resources within the Alberta Township Survey (ATS) system and according to Historic Resource Value (HRV) from the Historical Resources Act. Information from the Terwillegar Park Footbridge project environmental assessment (Stantec 2014) was also referenced.

The Historic Resource Value (HRV) is a number assigned to an area of land according to the classification of historic resources that lie within that area. Classifications are colour-coded on the map. Classes with a value of '0' suggest that investigation of the site has resulted in limited returns or the site has been heavily disturbed or destroyed. Nearly the entire project site is classified as HRV 5 (high potential to contain historic resources).

Recommendations:

A cultural landscape study is recommended for this site. If the area is subject to an Environmental Assessment, a Historic Resources Impact Assessment will be required. An oral history based on contributions from aboriginal Elders is essential to understand the cultural landscape of the park area. Consider input from associated organizations, such as the Edmonton Country Club, to enrich the understanding of the site's history.

**Oleskiw River Valley Park
Historical Resources Map**



LEGEND

Historic Resource Value (HRV)

- 1 - Lands that have been designated under the Act as Provincial Historic Resources, World Heritage Sites or lands owned by ACCS for historic resource protection and promotion purposes
- 2 - Lands designated under the Act as a Municipal or Registered Historic Resource
- 3 - Lands that contain a significant historic resource that will likely require avoidance
- 4 - Lands that contain a historic resource that may require avoidance
- 5 - Lands believed to contain a historic resource or lands that have a high potential to contain historic resources
- N/A
- pending



Environmental Sensitivity Analysis

Key findings from each factor in the previous section have been included in the environmental sensitivity analysis, guided by the 1992 Ribbon of Green Master Plan. The following sensitivity levels will help to outline a range of development suitability within the park and will contribute to opportunities and constraints for the Master Plan.

Analysis Overview

As a response to the City of Edmonton's requirement for environmental sensitivity mapping for the Oleskiw River Valley Park Master Plan project, O2 Planning + Design Inc. performed a desktop analysis of ecological sensitivities within the project boundaries. The environmental factors presented earlier in the report contributed directly to the sensitivity analysis. The methodology of the analysis aligns closely with the Resource Analysis Process in the Ribbon of Green Master Plan (1992). Five resource types were classified using GIS software according to their sensitivity to potential development. The five resource types include:

- » vegetation
- » habitat potential
- » slope
- » hydrology
- » and geology/soils.

See the Resource Sensitivity Table on p. 27 and the maps on pages 25-27 for a visualization of the resource sensitivity analysis within the project area. Below is a short description of each resource type and the implications of its sensitivities.

Vegetation

The tree stand in the Oleskiw River Valley Park is an irreplaceable link in the River Valley's green network. The most sensitive vegetative regions in the project boundaries include areas that are densely covered in tree species such as aspen. Development in these areas would cause severe impacts to potential wildlife habitat and established vegetation. Development within the highest sensitivity area should be avoided, and impacts from development in other areas of the park should be monitored.

Habitat Potential

The highest habitat potential was determined to exist in areas that have the least likelihood of human impact from park use. Areas along the trails and on flat land are the most likely to be impacted and therefore have the least habitat potential. Areas along the slopes and in the aspen tree stand have the highest habitat potential. Development implications to wildlife habitat as well as opportunities for improvements to wildlife linkages should be considered in the directives of the Master Plan.

Slope

Slopes with a grade of over 15% pose challenges for development. They also have more potential for erosion, slope failure or construction difficulties. Major development should not occur on slopes over 15% and universally accessible pathways/entrances should be pursued whenever possible.

Hydrology

Surficial drainage was analyzed to determine hydrological sensitivity in this analysis. Potential drainage courses across the site are sensitive areas where development could impact the quality of water flowing into the North Saskatchewan River or permeating into the groundwater. The area included in the 1:100 year flood line within the park boundaries is also significant. It is not recommended to develop within the floodplain.

Geology/Soil

Overall, the soil is fertile and conducive to vegetative growth across the site. Areas of potential slope failure or landslides are the most sensitive zones in relation to geology and soil in the Oleskiw River Valley Park. Extra precaution should be taken in areas where the slope is over 30%. Development should not occur in these areas, and slope stability measures may be required to mitigate existing erosion.

Vegetation

- low sensitivity
- marginal sensitivity
- high sensitivity



Habitat Potential

- not significant
- potential for moderate habitat
- potential for significant habitat



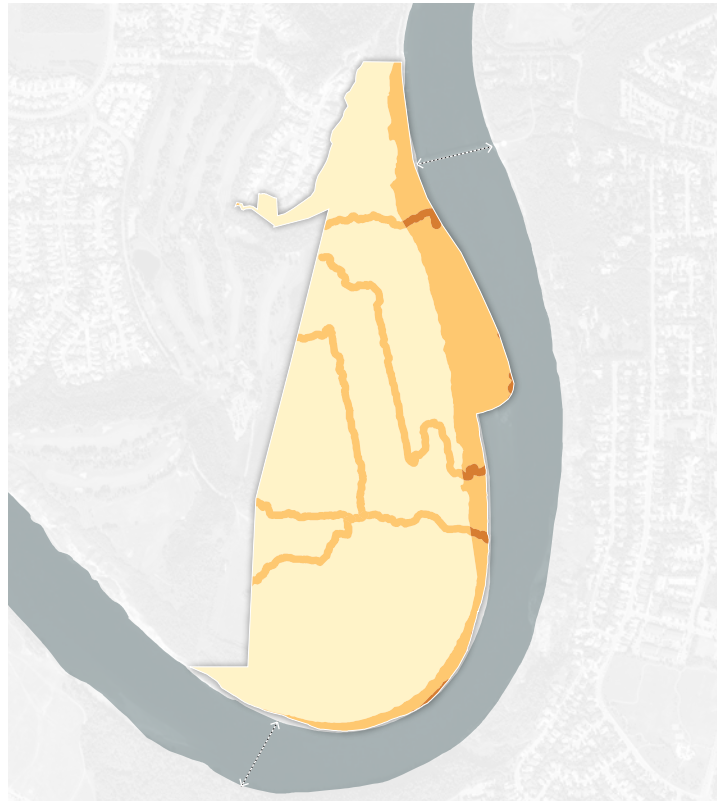
Slope

- flat/minor slope (0-7.5%)
- moderate incline (7.6-15%)
- steep/hazardous (>15%)



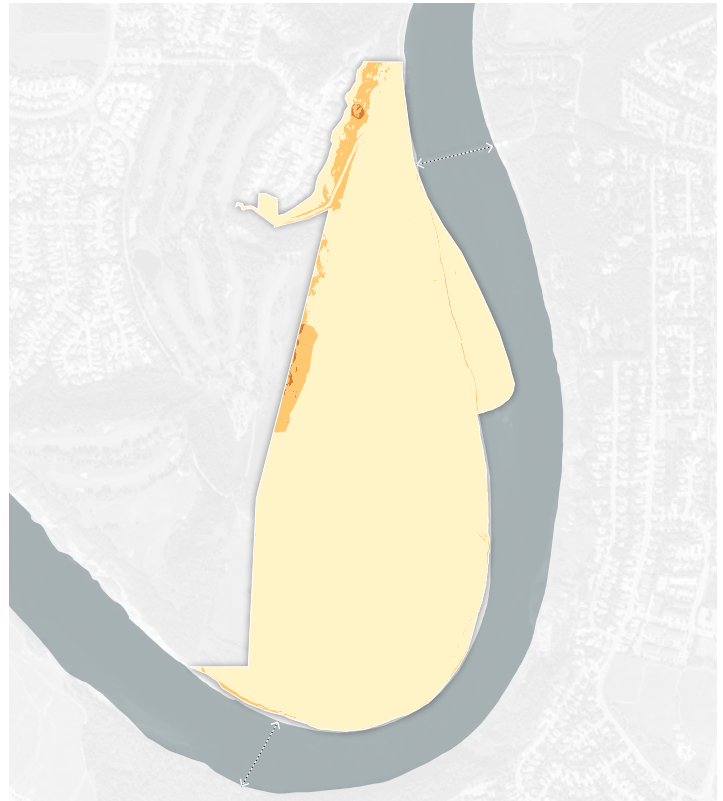
Hydrology

- no significant effect
- moderate effect
- in floodplain + areas of drainage



Geology/Soil

- stable
- marginal stability (potential for landslides)
- unstable (potential for landslides + over 30% slope)



Resource Sensitivity Table

Vegetation	Definition:
low sensitivity	significant vegetation does not exist or exists in low density; vegetation can withstand some degree of mechanical damage and/or environmental change with minor reclamation; park maintenance occurs
marginal sensitivity	tree cover is 31-70%; vegetation can withstand some degree of damage/change with major reclamation; some minor park maintenance occurs
high sensitivity	tree cover is 71-100%; any damage/change would result in severe impacts which could not be mitigated; no/little park maintenance occurs
Habitat Potential	
not significant	human disturbance has eliminated/reduced natural habitat
potential for moderate habitat	some wildlife species exist however numbers are not significant; human influence is present
potential for significant habitat	area contains abundant wildlife species; areas are relatively inaccessible by humans
Slope	
flat/minor slope	0-7.5% slope
moderate incline	7.6-15% slope
steep/hazardous slope	> 15% slope, steep banks
Hydrology	
no significant effect	no drainage impacts/drainage controlled
moderate effect	within watercourses or seasonal drainage (10m buffer) or within the 1:100 year flood line
in floodplain + areas of drainage	within the 1:100 year flood line and drainage areas or observed wetland areas (20m buffer)
Geology/Soils	
stable	no evidence of slope failure, soils exhibit low erosion potential
marginal stability	evidence of potential slope failure from aerial analysis
unstable	evidence of potential slope failure from aerial analysis and > 30% slope

Overall Environmental Sensitivity

In the Overview of Environmental Factors, site-specific features were illustrated to explain characteristics that contribute to ecological sensitivity within the project area. Features were attributed weights in the Environmental Sensitivity Analysis based on their characteristics and using guidelines from the Ribbon of Green Master Plan. The sensitivity maps produced for vegetation, habitat potential, slope, hydrology and geology/soils were overlaid to produce a sensitivity map of the site that integrates all five resource types.

The resulting map outlines three overall levels of sensitivity throughout the park area: higher, moderate and lower sensitivity. Areas where several highly sensitive resource types exist result in a higher overall sensitivity score, highlighting areas that would more likely experience ecological damage from recreational use or park development.

The following describes the City of Edmonton's recommended management practices for each level of sensitivity with the goal of reducing negative ecological impacts in River Valley parks:

Higher Sensitivity Areas

Higher sensitivity areas should be restricted for the protection of natural resources. This could include areas that are very steep, areas that create habitat for sensitive species or areas with unique geological features. Suggested management practices include the restriction of development, routine maintenance, restricted wildlife control and only emergency safety and security services.

Moderate Sensitivity Areas

The interaction of natural resources and people should be managed in Moderate Sensitivity Areas to prevent unnecessary environmental impacts. Moderate Sensitivity Areas could include areas that are characterized by some human disturbance with considerable native vegetation and wildlife habitat intact. Suggested management practices include development limited to trails, routine garbage pick up and trail edge maintenance, limited wildlife control, some habitat restoration and some safety and security services.

Lower Sensitivity Areas

Lower sensitivity areas have experienced the most ecological degradation and, therefore, are the most suitable for many types of park activities if increased active use is desired. However, degraded areas also have the greatest potential for ecological restoration. Restoration efforts should be explored whenever possible.

Extensive Use

Extensive Use is a term that describes the recreational use of River Valley parks in the City of Edmonton. The term is borrowed from the 1992 Ribbon of Green Master Plan in which Extensive Use recommendations include higher impact activities that are appropriate for the lowest sensitivity areas. The City of Edmonton's priorities relating to the management of River Valley park land have shifted since the 1992 Ribbon of Green Master Plan. Instead of recommending Extensive Use in degraded areas, the City's focus is to restore habitat and ecologies where possible.

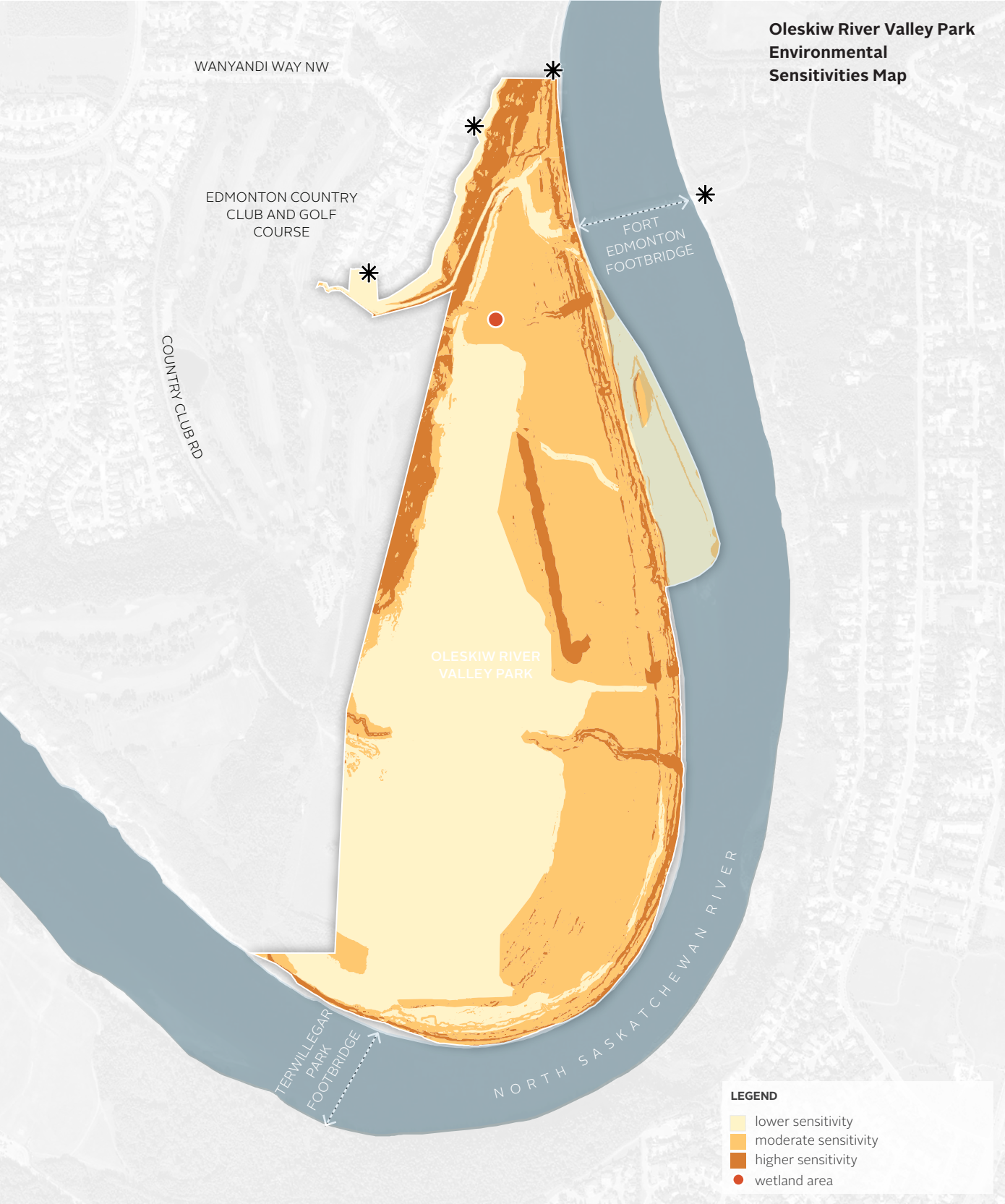
Extensive Use activities may create a high or low environmental impact and could potentially occur within any sensitivity zone. **Activities occurring in higher sensitivity areas will be subject to greater ecological impacts than those in lower sensitivity areas.** Impacts could include the removal, destruction or disturbance of natural features for the implementation of proposed recreational activities.

Proposals for activities within River Valley parks are driven by City priorities and public input, resulting in a range of desired activity levels and ecological impacts that must be calibrated according to the sensitivity of the site. Proposals for Extensive Use should be overlaid with the sensitivity analysis to understand the potential ecological impacts that exist and the feasibility of the proposed activity. It should be noted that Extensive Use and restoration are not mutually exclusive. **Innovative and sensitive design has the potential to create opportunities for engaging recreational activities while at the same time providing ecological benefits to the site.**

Oleskiw River Valley Park

Most of the park area is classified as lower or moderate sensitivity, with higher sensitivity in the forested areas. Even though there is currently relatively little human activity that occurs in the park, historical land disturbance has reduced the habitat potential across much of the site. The design, planning and management of the sensitive areas of the park should align with the directives for Moderate and Higher Sensitivity Areas according to the Ribbon of Green Master Plan (1992) and ongoing City of Edmonton policy regarding River Valley park management. The lowest sensitivity areas, including the sand bar and open field, should have a focus on restoration to enhance ecological links in the River Valley landscape.

**Oleskiw River Valley Park
Environmental
Sensitivities Map**



Landscape Units: An Understanding of Oleskiw River Valley Park Moving Forward

The site-specific features that were used to inform the sensitivity analysis were also used to develop landscape units, which are areas with similar ecological characteristics throughout the park. **Each of the landscape units has a unique set of opportunities and constraints that will help shape the Master Plan. The unique characteristics along with the sensitivities of each landscape unit will help to define what activities should and should not occur in that area.** The landscape units in the Oleskiw River Valley Park are summarized below, with an explanation of the key features and concerns within each unit.

River Valley Slopes

The River Valley Slopes make up a relatively small area within the park, but add to the character and identity of the park. Restoration efforts can be made to reduce the occurrence of invasive species and to stabilize the slope material. Access into the park is likely to occur down this slope. If vehicle access into the park is desired, it would require an extensive earth-moving operation and intensive slope stabilization, which would be costly and destructive to existing vegetation. **Management of this landscape unit should follow the guidelines for Higher Sensitivity Areas.**

Mobility Corridor

The Mobility Corridor consists of the new paved multi-use pathway that runs north-south through the grass fields and forest in the project area. The pathway already provides space for several activities, including dog walking, walking, running and cycling. More activities or circulation connections could result from the Master Plan. **Management of this landscape unit should generally follow the guidelines for Lower Sensitivity Areas.**

Valley Field

The Valley Field, formerly a golf course and hay field, is currently an un-managed grass field that contains some potentially invasive grass species. Two ephemeral streams also pass through this landscape. Some birds of prey may use this part of the landscape for hunting small mammals. **Management of this landscape unit should generally follow the guidelines for Lower Sensitivity Areas and restoration efforts are highly encouraged.**

Riparian Forest

The Riparian Forest is an established tree stand with relatively few invasive species. This landscape unit runs along the eastern portion of the project area and is potentially a habitat for several species of birds, animals and amphibians. **Management of this landscape unit should generally follow the guidelines for Moderate Sensitivity Areas with some areas of Higher Sensitivity (including steep slopes and potential drainage channels) requiring greater protection.**

River Edge

The River Edge is the steep and narrow transition landscape unit between the tree stand and the river. Vegetation grows nearly to the water's edge, which helps to mitigate river erosion. **Management of this landscape unit should follow the guidelines for Higher Sensitivity Areas.**

Sand Bar

The Sand Bar is a separate landscape unit because it is the most dynamic landform in the project area and is one of the only locations in the park where people can access the North Saskatchewan River. The Sand Bar is formed from the deposition of sand material in the river and is sensitive to highly impactful human activity. **To provide access to the river while protecting this landscape feature, management should follow the guidelines for Moderate Sensitivity Areas.**

Plateau Parks

The Plateau Parks are small, flat areas of land that are gateways into the park. These areas generally contain managed vegetation and pathways or bridges. They are highly geared to human use and currently have little ecological function. They have potential to be enhanced through planting, amenities and signage. **Management of this landscape unit should generally follow the guidelines for Lower Sensitivity Areas and restoration efforts are highly encouraged where possible.**

**Oleskiw River Valley Park
Landscape Unit Map**



LEGEND

- areas of highest sensitivity
- sand bar
- valley field
- river valley slopes
- mobility corridor
- river edge
- riparian forest
- plateau parks
- park entrances



Synthesis

Public consultation, site analysis and City priorities are all considered to determine relevant opportunities and constraints in the project area and to develop the vision, principles and identity of the park.

Environmental Sensitivities and Site Analysis

To develop opportunities and constraints within the project area, all topics and themes presented in this report were considered. To summarize, the environmental factors presented in this report include:

- » Site geology and geomorphology
- » Site hydrology
- » Site soils
- » Site vegetation and wildlife habitat
- » Visual assets and sensory experience
- » Historical/archaeological considerations

The environmental sensitivities analysis presented will be used to guide development and maintenance recommendations in the Master Plan.

Phase 1 Public and Stakeholder Consultation

Public input is an important factor to decision-making in the Master Plan process. During the first phase of public engagement, which occurred in August and September of 2016, the general public and key stakeholders were presented with an Inventory and Analysis of existing conditions in the Oleskiw River Valley Park. Presented features included: site history; vegetation and habitat; topography and hydrology; access and circulation; site amenities and neighbourhood context. A detailed summary of our findings from the public engagement sessions is included in a What We Heard report.

The major themes that emerged from the engagement sessions for the Oleskiw River Valley Park were:

- » Park Use & Amenities
- » Access & Circulation
- » Natural Asset Management
- » Maintenance, Safety & Enforcement
- » Atmosphere & Identity

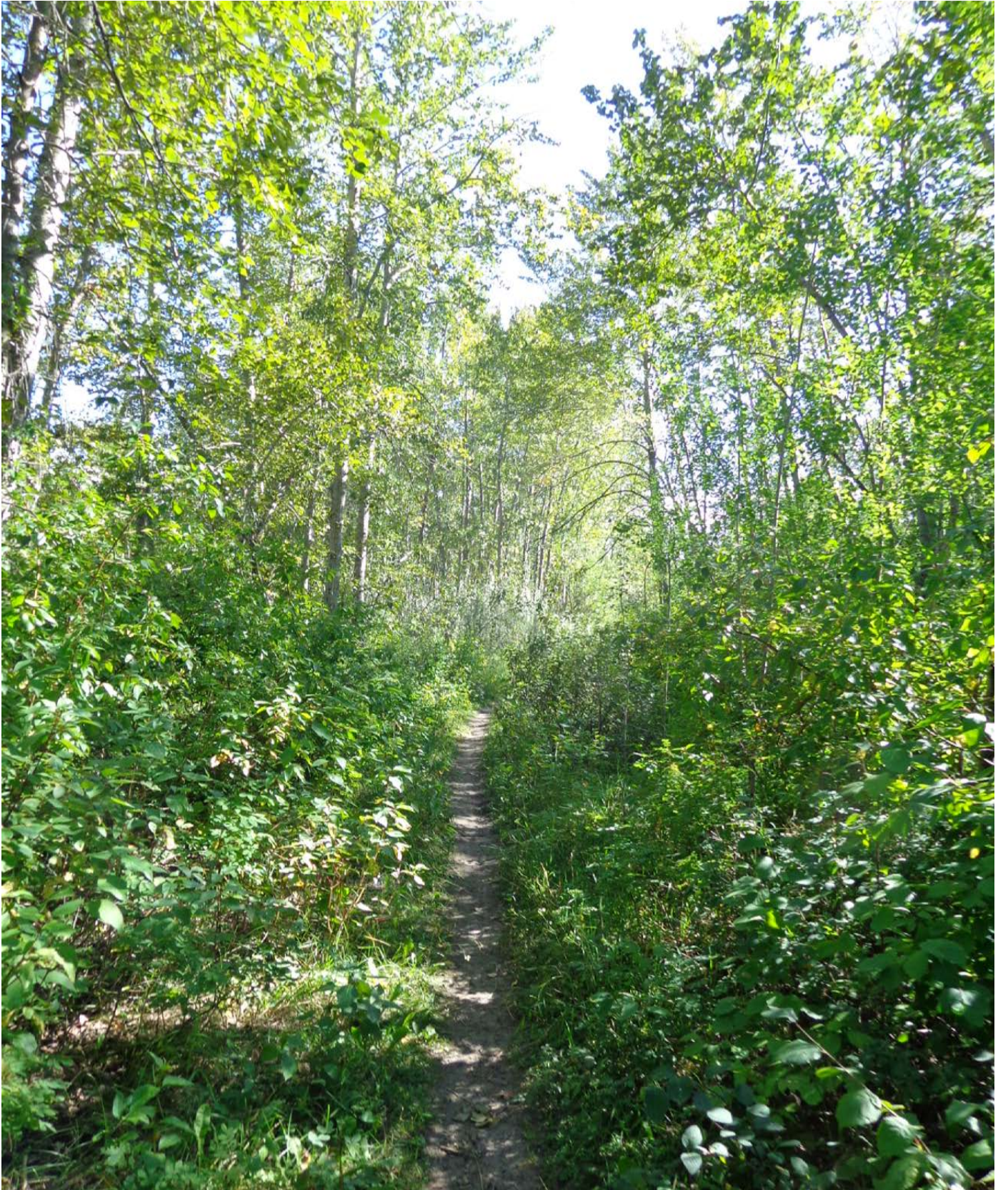
The underlying values of participants became clear through the analysis of comments and conversations. The values are summarized below.

- » Create a level of harmony among various park users (including cyclists, mountain bikers, pedestrians, dog-walkers and runners).
- » Create universally accessible park features and amenities, including access ramps and park entrances.
- » Make the Oleskiw River Valley Park part of a strategy for greater connectivity within the River Valley.
- » Increase the sense of safety in the park area by reducing unwanted activity and user conflict.
- » Share and celebrate the history of the Oleskiw River Valley Park.

These themes and values help to inform the Master Plan by providing direction on the future activities and management practices for the park. To determine if these are appropriate for the park, the environmental sensitivities as well as the appropriate park uses as defined by City plans and policies must be considered.

Moving Forward

The landscape units will form the framework for conversations regarding opportunities and constraints within the project area. The environmental considerations presented in this report as well as the themes and concerns we heard in the first phase of engagement will inform the questions and conversation topics presented to the public. They will also help to form the vision and guiding principles for the park.



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