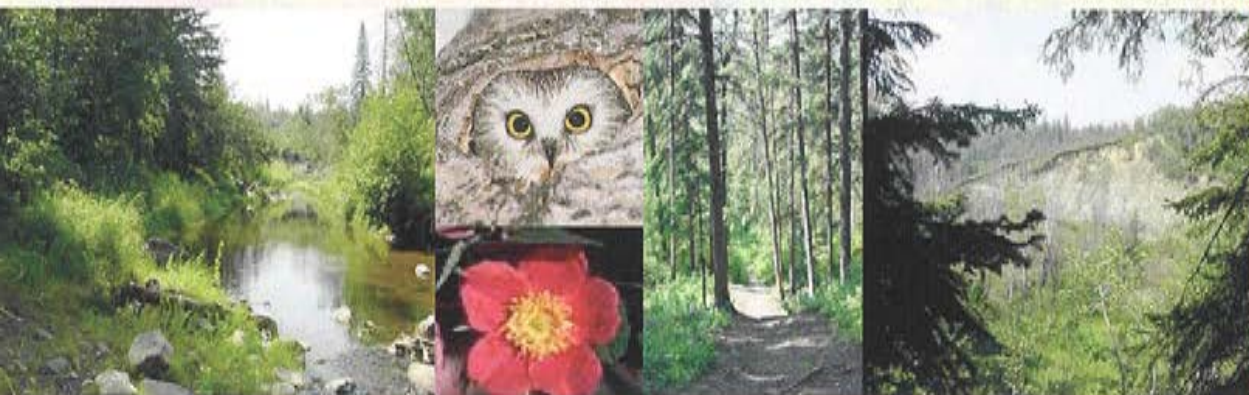


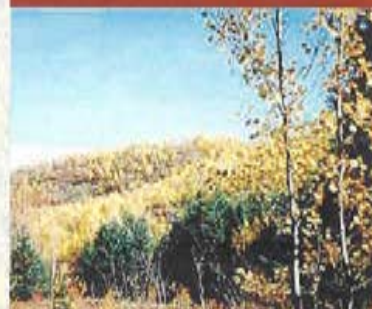
Whitemud Ravine



Recreation and Parks Planning Study South Whitemud Ravine, Edmonton

PREPARED FOR:
City of Edmonton, Community Services

PREPARED BY:
Stantec Consulting Ltd.
November 2004



WHITEMUD RAVINE

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WHITEMUD RAVINE

1.0 Introduction / Background

1.1 PURPOSE OF THIS STUDY

Under the direction of City of Edmonton Community Services, Stantec Consulting Ltd. conducted a planning study of the south portions of the Whitemud Ravine Nature Reserve and the Klondike Valley Campground lands. The purpose of this study was to provide recommendations and an implementation strategy for future recreational development within the upper reaches of the Whitemud Ravine Nature Reserve. The study included three main components: an environmental review, conceptual planning for the ravine trail system, and planning and conceptual design for long term use of the Klondike Valley campground lands. Two open houses were held to obtain input from users, the first with a select group of stakeholders, and the second with the general public.

This study is a continuation of the Whitemud Ravine Trail development plan prepared by the City of Edmonton in 1990 and follows general premises set out in the 1992 Ribbon of Green Master Plan.

1.2 STUDY BOUNDARY

The Study Area encompasses Whitemud ravine from the southern end of existing trail development at approximately 28 Avenue to the southern City boundary at 41 Avenue South, and Blackmud Creek Ravine from its confluence with Whitemud Creek to the City boundary. The boundary is shown on Figure 1 - Study Area on the following page.



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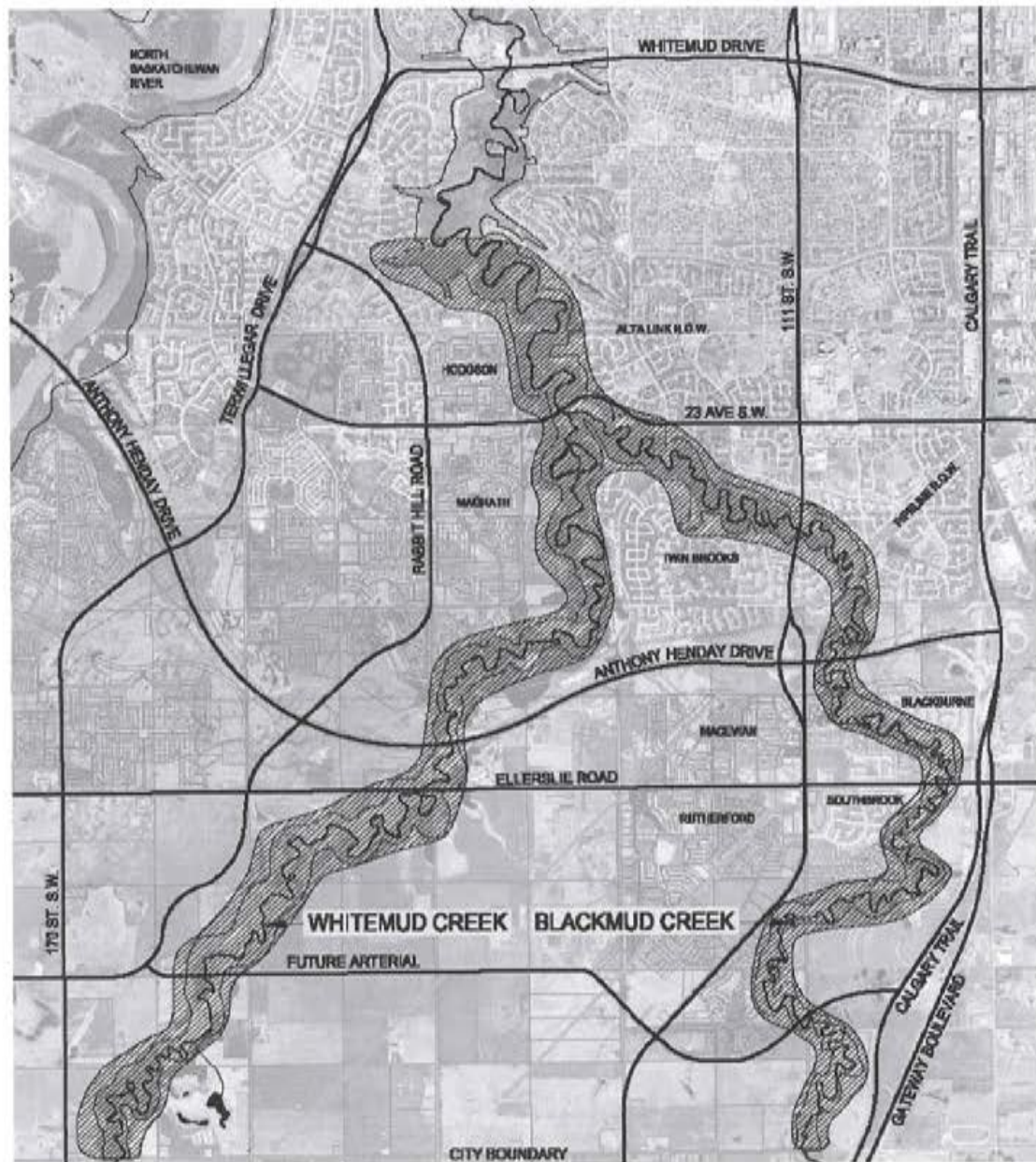


Figure 1 – Study Area

2.0 Environmental Review

2.1 INTRODUCTION

Development decisions were influenced by the environmental sensitivity and resource constraints identified in the Ribbon of Green Master Plan (City of Edmonton, 1992) and supported by a desk top environmental review and public consultation. This environmental review identifies the general plant communities, sensitive areas, potential impacts and erosion potential in anticipation of future recreational development.

2.2 OBJECTIVES

The objectives of the environmental review included:

- Providing a preliminary environmental assessment of the study area based on known reports and literature.
- Performing a general natural inventory and environmental assessment to identify all existing features and ecological conditions in the study area.
- Determining the potential impacts associated with proposed passive recreational uses (primarily trail use).
- Providing recommendations addressing the negative and positive impacts and cumulative effects of development on the habitat in the study area.

2.3 METHODS

2.3.1 Literature Review

The preliminary environmental review was based on various reports and other information provided to Stantec by the City. Reports provided included the following:

- Whitemud and Blackmud Ravines Trails Development Plan (City of Edmonton, Parks and Recreation 1990)
- Whitemud Ravine Nature Reserve Interpretive Plan (EcoLeaders 1992)
- Snow Valley Lodge Redevelopment Master Report (Brinsmead Ziola Associates 1999)
- Whitemud Drive / Terwillegar Drive Facility Planning Study – Preliminary Environmental Review (Gibbs & Brown 2001)



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- Historical Document and Area Assessment – Reported Burial Site – Blackmud Creek Ravine Between 119 and 114 Streets (Altamira Consulting Inc. 1999)
- Whitemud Ravine Nature Reserve – Phase I Trails Construction Environmental Impact Assessment (City of Edmonton 1990)
- Environmental Screen Report Anthony Henday Drive – Southwest Leg Extension (Spencer Environmental 2001)
- Ribbon of Green – North Saskatchewan River Valley and Ravine System Master Plan (City of Edmonton, Parks and Recreation 1992)
- Current aerial photos and available topographical information.

The above reports were reviewed for pertinent environmental information including species lists for vegetation and wildlife, which aided in determining if any At Risk or Threatened species were identified in previous surveys. The aerial photos were used to determine general plant communities, significant corridors, environmentally significant areas and the presence of natural or unnatural obstructions or structures. Ravine slopes were identified through the use of topographic maps found within the available reports.

Based on the preliminary research, a priority ranking system was developed for the Study Area with the intent to continue the ranking system of the Ribbon of Green Master Plan (City of Edmonton 1992). The Study Area was classified into the three area types as identified in the Ribbon of Green:

- i) **Extensive Use Areas** – *“These areas are characterized by parks and facilities bordering major roads and pathways. Human intervention has significantly affected the natural evolutionary pattern of the environment. This includes areas of existing recreation facilities, automobile access, accessible via trails system, and provide a broad range of recreation facilities.”* As indicated in the Ribbon of Green (1992), future development will limit further impact and will be suited for activities such as strolling, picnicking, bicycling, walking, jogging, fishing, horseback riding, nature study and photography.
- ii) **Conservation Areas** – *“These are characterized by moderate ecological sensitivity and high accessibility as a result of adjacent urban development. Some original regrowth forests and wildlife habitats remain intact. These areas contain a variety of trails, however most are currently granular or undeveloped. The following amenities would be viewed as appropriate in a conservation area: granular trails, interpretive signs, natural surface trails, viewpoints, pedestrian bridges, paved trails, washrooms, telephones, drinking fountains and day camps (at perimeter).”*
- iii) **Preservation Areas** – *“These are characterized by high ecological sensitivity and some degree of physical development constraint. Areas contain original stands*

of native vegetation that often shelter significant wildlife populations. Visitor impact must be carefully monitored and managed. The following amenities would be viewed as appropriate in a preservation area: natural surface and granular trails, interpretive signs and displays, viewpoints/decks, pedestrian bridges, and washrooms (at perimeter)".

Refer to Drawing 1 – Site Assessment

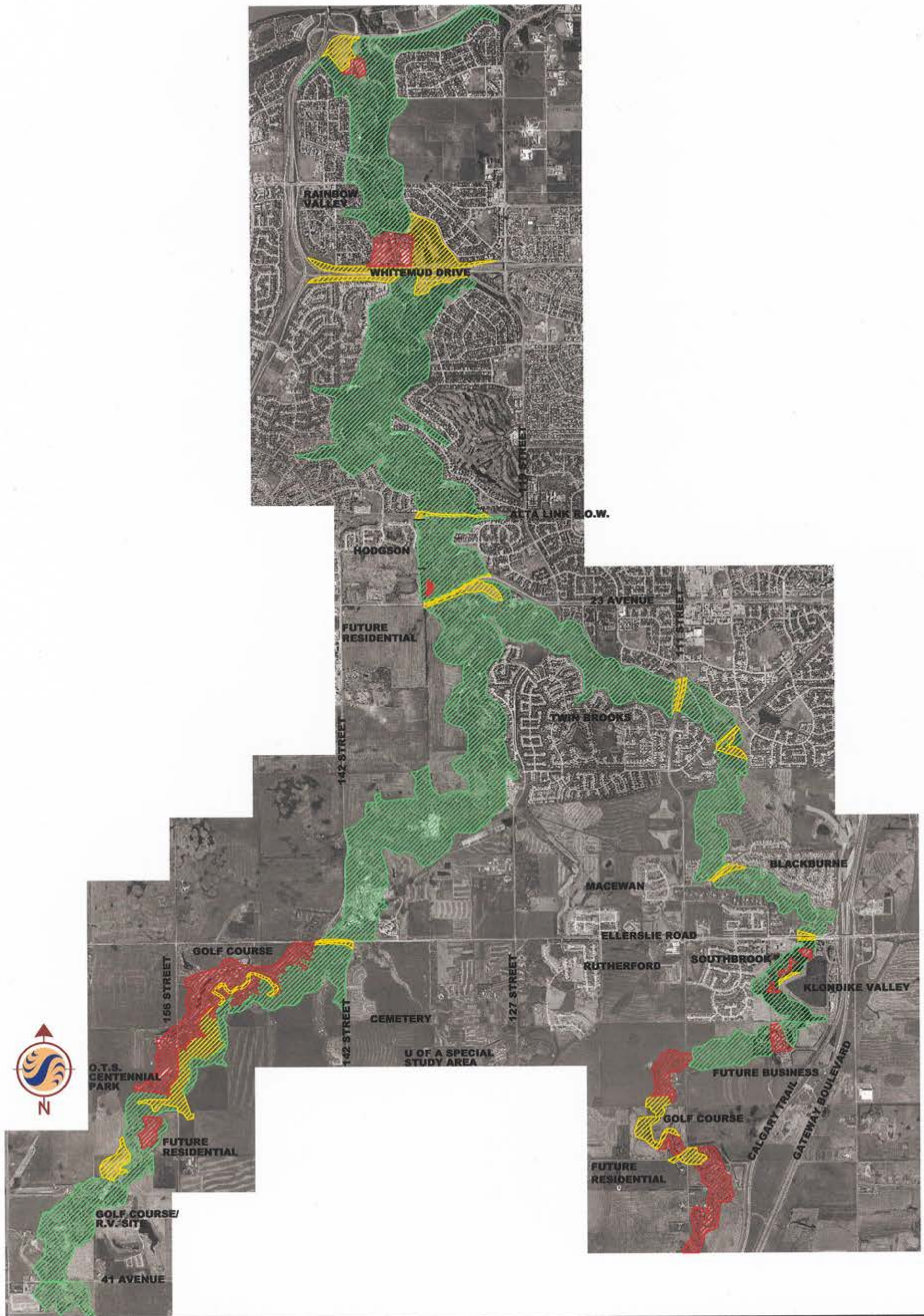
2.3.2 Field Assessment

A more detailed field site assessment should be conducted shortly before actual development is considered. This site assessment should involve a rare plant survey, habitat identification and vegetation and wildlife assessment and will help confirm areas of Extensive Use and those of Preservation or Conservation.

In the absence of federally, provincially, or municipally adopted guidelines, it is suggested that the following information be considered to provide a basis for conducting the rare plant surveys in the proposed development areas. In addition, establishing this information prior to development will identify baseline conditions necessary to guide future reclamation activities in the area.

According to the Alberta Natural Heritage Information Center (ANHIC), the objective of a rare plant survey is to determine the presence and location of all rare plant species and botanically significant plant communities on a survey site. It should be noted that a rare plant survey can confirm the presence of rare species on a site, but it cannot rule out completely the existence of rare species on a site. Surveys also require that the surveyor responsible must have a variety of qualifications, including botanical field experience, taxonomic experience and a background in plant ecology.

A pre-survey program is generally conducted to prepare for the field survey. This generally involves compiling a list of, and information on, potential rare plants in the study area(s). At a minimum a preliminary rare plant survey requires the completion of a survey of the site with reasonable geographic coverage of each representative plant community, and conducting a survey of the site when potential rare species are most visible. Ideally, sites should be assessed over a number of growing seasons and moisture conditions, and several times during one growing season. This more thorough approach allows for the possibility of observing rare species when they are most visible.



LEGEND

SITE RANKING SYSTEM FROM RIBBON OF GREEN MASTER PLAN - CITY OF EDMONTON - 1992

- EXTENSIVE USE AREAS**- THESE ARE CHARACTERIZED BY PARKS AND FACILITIES BORDERING MAJOR ROADS AND PATHWAYS. HUMAN INTERVENTION HAS SIGNIFICANTLY AFFECTED THE NATURAL EVOLUTIONARY PATTERN OF THE ENVIRONMENT. THIS INCLUDES AREAS OF EXISTING RECREATION FACILITIES, AUTOMOBILE ACCESS, ACCESSIBLE VIA TRAILS SYSTEM, AND PROVIDE A BROAD RANGE OF RECREATION FACILITIES.
- CONSERVATION AREAS**- THESE ARE CHARACTERIZED BY MODERATE ECOLOGICAL SENSITIVITY AND HIGH ACCESSIBILITY AS A RESULT OF ADJACENT URBAN DEVELOPMENT. SOME ORIGINAL REGROWTH FORESTS AND WILDLIFE HABITATS REMAIN INTACT. THESE AREAS CONTAIN A VARIETY OF TRAILS.
- PRESERVATIONS AREAS**- THESE ARE CHARACTERIZED BY HIGH ECOLOGICAL SENSITIVITY AND SOME DEGREE OF PHYSICAL DEVELOPMENT CONSTRAINT. AREAS CONTAIN ORIGINAL STANDS OF NATIVE VEGETATION WHICH MOST OFTEN SHELTER SIGNIFICANT WILDLIFE POPULATIONS. VISITOR IMPACT MUST BE CAREFULLY MONITORED AND MANAGED.

WHITEMUD RAVINE SOUTH PLANNING STUDY

SITE ASSESSMENT



NOT TO SCALE
APRIL 6, 2004

1

DRAWING

2.4 RESULTS

2.4.1 Literature Review

Existing Biophysical Characteristics - The Whitemud and Blackmud Creek systems form the most significant tributary of the North Saskatchewan River within the City limits. Compared to other recreational developed areas within the river valley, the Study Area has been minimally disturbed. Due to the relatively low amount of disturbance, native plant and plant community diversity has resulted in high diversity of wildlife habitat. Based on the aerial photo review and a basic overview of the topography in the area, the majority of the Blackmud and Whitemud Ravines have been classified as Preservation areas (refer to Figure 2.1).

Vegetation - The North Saskatchewan River Valley and Ravines System Biophysical Study (1980) identified fifteen plant communities. Based on the limits of the Study Area for this current project, approximately four or five plant communities could be affected by any development.

A complete list of all plant species identified during previous environmental assessment is provided in Appendix A.

There are 16 rare plant records record at ANHIC for the Study Area. Table 2.1 gives a brief summary of the historical records of rare plants observed in the area and their respective habitats. There are also occurrences for Peregrine Falcon (*Falco Peregrinus*) in the vicinity. These occurrences have been flagged as sensitive by the Fish and Wildlife Service.

Table 2.1
Summary of Rare Plant Records

Scientific Name	Common Name	Habitat
<i>Thymelicus lineola</i>	European skipper	U of A experimental farm and John Janzen Nature Center
<i>Pellia neesiana</i>	Liverwort	Whitemud Creek, Iron Springs
<i>Brachythecium rutabulum</i>		Whitemud Creek – forested areas
<i>Bryum algovicum</i>		Whitemud Creek – north slope, woods, and humus slope
<i>Bryum pallens</i>		Whitemud Creek – calcareous bog areas
<i>Bryum uliginosum</i>	Cernuous bryum	Whitemud Creek - mixedwoods, south facing slope
<i>Conardia compacta</i>		Whitemud Creek – on old wood near Iron Springs area
<i>Didymodon tophaceus</i>	blunt-leaved hair moss	Whitemud Creek

Scientific Name	Common Name	Habitat
<i>Rhodobryum ontariense</i>	Ontario rose moss	Whitemud Ravine – south of Whitemud drive in white spruce stand
<i>Micarea melaena</i>		Rainbow Valley
<i>Pseudevernia consocians</i>		Whitemud Creek – near ski slope on living spruce
<i>Peltigera evansiana</i>		Rainbow Valley
<i>Peltigera horizontalis</i>		Whitemud Creek – south of Fort Edmonton in woods
<i>Artemisia tilesii</i>	Herriot's sagewort	Whitemud Creek
<i>Aster umbellatus</i>	flat-topped white aster	Whitemud Ravine – balsam poplar stand
<i>Rubus x paracaulis</i>	hybrid dwarf raspberry	Whitemud Creek – among willows

Wildlife - A list of bird species known to occur in the Study Area is provided in Appendix A (City of Edmonton 1990).

A list of mammals that have been directly or indirectly observed in the Study Area is provided in Appendix A (City of Edmonton 1990).

Previous environmental assessments have identified six species of reptiles and amphibians (City of Edmonton 1990) (Appendix A).

Seven species of fish have been previously identified in the Whitemud and Blackmud Creek systems (City of Edmonton 1990) (Appendix A).

2.4.2 Aerial Photography Review

The Study Area and vicinity appears to contain a variety of plant communities including stands of conifer (spruce) and deciduous trees (poplar, birch etc.), as well as mixedwood stands. The conifer stands are generally located along the steep side slopes of the ravines and generally prefer sandy soil. The deciduous stands appear to be scattered throughout the ravines on terraced areas, down the flood plain and along some of the side slopes. Under story species typically associated with deciduous types of communities include red-osier dogwood, saskatoon, pin cherry, raspberry, high bush cranberry and sarsaparilla.

The air photos indicate that both the Whitemud and Blackmud Creeks have developed an extensive meandering pattern across the landscape. Associated with the meandering pattern, oxbow lakes and meander scars are visible within the Study Area, indicating that these creeks have been flowing for a long period of time. The meandering pattern observed will often provide significant wildlife habitat because it allows for an increased number of micro-sites and varied vegetation in the area.

According to the air photos, there has been a significant level of disturbance in the southern portion of the Study Area, particularly south of Ellerslie Road. These disturbances include 3 golf courses with development spanning the creek, farm yards, and construction that has extended to the bank of the creeks. Signs of the decommissioned campground development, Klondike Campground, are still visible both within the ravine and on an adjacent top of bank.

Throughout the Study Area it was noted that some disturbance from informal trail development has occurred along steep slopes, flood plain and terraced areas. It was also noted that there are several areas of what appear to be increased erosion along the length of the Study Area. These areas are characterized by a lack of vegetative growth and steep slopes. Overall, it was noted that the vegetation generally maintained connectivity along the ravines to the south City limits for Whitemud Ravine, and to the 111 St crossing for Blackmud Creek ravine. As a result, the two ravines provide significant wildlife habitat.

Based on the above observations, the Study Area was ranked as Preservation, Conservation or Extensive Use. As shown in Figure 2, the portion of the Study Area that lies north of Ellerslie Road (with the exception of roadway crossings) has been classified as Preservation as any disturbance has generally been limited to informal trail use and small areas of erosion. The Study Area south of Ellerslie Road contains portions that have been ranked Preservation, Conservation and Extensive Use. Those areas that appear to have significant amounts of traffic, erosion and clearing have been classified as Extensive Use. This would include the golf courses and several farm areas. Areas of Conservation include patches of disturbance within Preservation areas or where the disturbance does not appear to be irreparable. Preservation areas included large sustainable patches of trees/vegetation and those patches connected to the Creek.

2.4.3 Preliminary Impact Assessment

Ongoing Impacts from the existing developed facilities generally occur within the boundaries of the facility sites, although development of these facilities has impacted the ravines in those locations. Informal recreational uses generally occur along a few well-defined informal trails and have minimal to moderate impact.

As identified in previous environmental assessments and planning documents the Study Area will be protected and managed as a pedestrian oriented natural park. Recreation opportunities would be selected that are compatible with the natural features of the Study Area and that would prevent damage to the area from uncontrolled access and uses.

The intent of the preliminary environmental assessment is to insure that any future development is planned and constructed in an environmentally sound manner.

2.4.4 Vegetation

Potential impacts to the plant communities include loss of native plant species, introduction of non-native plant species, erosion and loss of soil substrate and compaction of roots.

2.4.5 Birds

Mixedwood and deciduous forest communities generally provide the most significant habitat for bird species. Groomed, grassy areas generally support the lowest number of bird species. Spencer (1976) indicated that the Whitemud Ravine supports the greatest number of bird species, compared to the MacKinnon, Mill Creek and Groat Ravines.

Vegetation disturbance impacts wildlife habitat; therefore, the lowest impact activities limit vegetation disturbance. New trail development in mixedwood forest would have a significant negative impact, whereas new trail development in grassed area would have a decreased impact. Localized activities, such as bridge or boardwalk construction, may negatively impact birds and other wildlife on a more short-term basis. Construction duration and extent of vegetation disturbance will be the key indicator of potential impact significance. New trails also increase the amount of edge habitat at the expense of interior forest habitat. With upgraded existing trails or new trails, recreational use may increase. This increased use may have a negative impact to breeding bird species.

Prior to any construction activities, the appropriate bird surveys should be conducted in order to determine if any nesting is occurring.

2.4.6 Mammals

Activities that will disturb native vegetation and wildlife habitat should be limited and short term in duration. Activities off the designated trails should be discouraged in order to limit trampling of vegetation. This may be accomplished by upgrading existing trails in order to provide users with appropriate facilities. Construction activities, whether winter or summer, should be conducted with the minimum footprint possible in order to decrease the chance of disturbed habitat. Opening the forest communities may result in increased predation of small mammals by raptors or larger carnivores. Winter construction will impact ungulates that use the ravine systems for overwintering sites. Trail development, however, may positively impact ungulates by providing access to new sites.

2.4.7 Reptiles, Amphibians and Fish

New trail development will have a greater impact than upgrading the existing trail. The existing trail does not impact breeding or overwintering habitats. Improvements that would mitigate existing impacts include the use of boardwalks in wet areas and ensuring erosion is not an issue. Directing trail users away from prime habitat would decrease the potential for negative impacts.

2.5 CONCLUSIONS AND RECOMMENDATIONS

Based on the preliminary assessment the following conclusions were made:

- The Study Area was classified into three areas, as demonstrated in the Ribbon of Green (1992): Extensive Use, Conservation and Preservation.
- The Study Area is used for a variety of recreational purposes, including walking, running, cross-country skiing, camping, hiking, snowshoeing, dog walking, nature observation, biking, berry picking, and photography. Most of these activities occur on informal trails in the area.
- The Whitemud and Blackmud Creek systems are the most significant tributary of the North Saskatchewan River within the City limits and compared to other recreational developed areas within the river valley, the Study Area has been minimally disturbed. Thus, most of the Study Area has been classified as "preservation".
- There are 16 rare plant records record at ANHIC for the Whitemud Ravine Nature Reserve and occurrences for Peregrine Falcon, which have been flagged as sensitive by the Fish and Wildlife Service.
- The Study Area supports a wide variety of birds, mammals and several species of fish.

Based on the conclusions listed above it is recommended that:

- a) All areas classified as "**preservation**" areas should have a rare plant survey, vegetation and habitat assessment and a general slope analysis completed prior to development. In addition, erosion control would play a significant role in maintaining water quality and slope stability during trail development. Any environmentally sensitive or significant areas identified in the rare plant survey and vegetation and habitat assessments should be avoided when possible. If it is not possible to avoid these areas, mitigative strategies should be employed.
- b) All areas classified as "**conservation**" areas should have a vegetation and habitat assessment and general slope analysis completed prior to development. Any environmentally sensitive or significant areas identified in the rare plant survey and vegetation and habitat assessments should be avoided when

possible. If it is not possible to avoid these areas, mitigative strategies should be employed. Like "preservation" areas erosion control methods should be incorporated into the trail development in order to maintain water quality. Within these conservation areas, it may be necessary to consider reclamation activities in order to provide a sustainable environment for future recreational activities. Such activities may include habitat development, grading, seeding of native grass species and planting of native tree species.

- c) All areas classified as "**extensive use**" areas should have a vegetation and habitat assessment completed prior to development in order to determine general plant communities and the existing level of disturbance. It is likely, depending on previous land management that there will be a high level of disturbance associated with these areas and attempts at reclamation may be impossible to sustain.

2.6 LIMITATIONS

In conducting the investigation and rendering conclusions, Stantec gives the benefit of its best judgment based on its experience and in accordance with generally accepted professional standards for this type of investigation. This report was submitted with the best information to date and on the information provided. The conclusions made within this report are a professional opinion, not a certification of the site's environmental condition, no other warranty, expressed or implied is made. This report has been prepared for the exclusive use of the City of Edmonton for the purposes of assessing the current state of the Whitemud and Blackmud Ravines. Any use which any other third party makes of this report, or any reliance on or decisions to be made on it, are the responsibility of such third parties. Stantec accepts no responsibility for damages, if any, suffered by any other third party as a result of decisions made or actions based on this report.

This preliminary assessment was based on previous environmental reports and literature for the Study Area.

3.0 Concept Plan

3.1 EXISTING DEVELOPMENT

The Study Area is used for a variety of primarily recreational purposes, with some variation in level and type of use between the north end and the south end.

Developed facilities within and adjacent to the study area include:

- Whitemud Creek Golf and RV Resort - private golf course and RV campground in Whitemud ravine
- OTS Centennial park – private oilfield interpretive park in Whitemud ravine
- Jagare Ridge Golf Course – private golf course in Whitemud ravine
- Rosehill Cemetery – located along the top of bank of Whitemud Ravine south of Ellerslie Road
- Seven Oaks Gold Course – public golf course in Blackmud Creek ravine.
- The former Klondike Valley Campground is located along Blackmud Creek in the southern portion of the Study Area and has been recently decommissioned.
- Rainbow Valley Campground and Snow Valley Ski Hill are not located within the study area but provide an access point for users of the study area.

Throughout the study area, common uses include walking, running, cross-country skiing, hiking, snowshoeing, dog walking, nature observation, berry picking, and photography. Informal trails have been created by the users throughout the area. Some signs of cycling use are present, including a home built bmx obstacle course.



An extensive trail system was developed by the City through the lower portions of Whitemud Creek ravine in the 1990s. This system addressed the growing demands for recreational trails and an increase in random and often destructive use of the ravine. The trails were constructed after an extensive public consultation program and developed to a standard acceptable to the majority. All trails within the ravine are gravel surfaced and 2m in width and a number of pedestrian bridges cross the creek. Trails have not and will not be developed within Blackmud Creek ravine due to steep slopes of the ravine and the meandering nature of the creek.

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Top of bank trails have been constructed by developers along many portions of the Whitemud Creek and Blackmud Creek ravines and this trail development is

continuing at a rapid pace. Several new sections of trail were completed in 2004 and more will be completed in 2005.

Much work has been done to date addressing trail development in the two ravines. This current study began with the assumption that decisions made in earlier studies are still valid. This assumption was ratified by stakeholders and general public during the two events held to gain input. Previous reports that helped guide this study include the following:

- *Whitemud and Blackmud Ravines Trails Development Plan (City of Edmonton, Parks and Recreation 1990)*
- *Whitemud Ravine Nature Reserve Interpretive Plan (EcoLeaders 1992)*
- *Ribbon of Green – North Saskatchewan River Valley and Ravine System Master Plan (City of Edmonton, Parks and Recreation 1992)*
- *Multi-use Trail Corridor Study (EDA Collaborative Inc. for Transportation and Streets 2001)*
- *Various planning documents for future residential development including Windermere Area Structure Plan*

3.2 PROPOSED USE

The Ribbon of Green Master Plan outlines acceptable activities and amenities for the three levels of environmental sensitivity identified in the Environmental Review section.

Extensive Use Areas – *suitable activities include informal ice skating, tobogganing / sledding, picnicking, bicycling, walking and jogging, hot air ballooning, snowshoeing, cross country skiing, model boating, photography, orienteering, rowing / canoeing and kayaking, hang gliding, riverbank and lake fishing, nature study / observation, horseback riding and archery in designated areas. Appropriate amenities include children's playgrounds, washrooms, pedestrian bridges, drinking fountains, telephones, parking areas, day camps, and paved trails.*

Conservation Areas — *suitable activities include photography, walking and jogging, cross country skiing, nature study / observation, orienteering, snowshoeing, bicycling, rowing / canoeing and kayaking, riverbank and lake fishing, horseback riding and picnicking. Appropriate amenities include granular trails, interpretive signs, natural surface trails, viewpoints, pedestrian bridges, paved trails, washrooms, telephones, drinking fountains and day camps (at perimeter)."*

Preservation Areas – *suitable activities include nature study / observation, photography, canoeing and kayaking, walking and jogging. Appropriate amenities*

include natural surface and granular trails, interpretive signs and displays, viewpoints/decks, pedestrian bridges, and washrooms (at perimeter)".

Although a number of activities have been identified as acceptable uses from an environmental viewpoint, all uses were not necessarily seen as appropriate for development in the study area. At the two open houses, the general consensus from the stakeholders and the general public was that similar uses and level of development as the north reaches of the ravine should continue southward in Whitemud Ravine. Granular surfaced trails are an acceptable standard with bridges developed as required to cross the creek crossings and view points as surroundings warranted. More intense staging area development should only be considered in "extensive use" areas. Where possible, trails should be developed at appropriate slopes for barrier free access; where it is not possible due to slope constraints, alternate access routes should be considered.

Associated trail facilities developed according to the following general guidelines would be appropriate.

- Signage – trail heads to include a sign with trail map and trail rules, small scale signs to mark all trail intersections
- Benches – approximately 2 benches per km at locations with views and where terrain and existing vegetation are suitable
- Waste Receptacles – at accessible locations for convenient emptying

3.3 PHYSICAL PLAN

3.3.1 Trail Development

The intent for trail development within the Whitemud Creek Ravine is to provide one continuous 2m wide granular trail through the ravine with creek crossings as required to access suitable physical terrain and to provide adequate access from adjacent neighbourhoods. Interesting views and a variety of surroundings are important considerations, as are physical constraints of slopes and instability. Currently there are many well-defined informal trails throughout the ravine and some of these trails have been identified for upgrading as the "official" trail route.

This concept plan was developed through the use of airphotos, site observation and available topographical information. Many of the proposed trail locations were field checked for feasibility. Finalization of the detailed trail alignment will require further field investigation to review slopes, bank stability and vegetation.

3.3.2 Access

Whitemud and Blackmud Ravines are special areas within the City and should be accessible to all residents. Walking access is close and convenient for many residents from adjacent neighbourhoods, but provision must also be made for those who live farther away and who may wish to drive to the area. Major roadway crossing locations are generally the most feasible location for easy access without causing disturbance to quieter residential areas. A typical staging area would include the following basic facilities:

- **Parking** – a small gravel surfaced parking area that would accommodate up to 10 vehicles with safe access. The lot should be located to be visible from the adjacent road for easier identification and for security. Barriers should be installed to prevent unwanted vehicular access into the ravine.
- **Signage** – a signage board should identify the trail system with a map and a list of trail rules
- **Toilet facility** – for male and female users, minimum 3 season use. If economical, the facility could be tied into the City sewer system, however, this is often not feasible. Other alternatives include pump out toilets or compost toilet systems
- **Waste receptacle**
- **Benches or Picnic Tables**

Additional elements that could be considered if space, level of usage, and finances were favorable:

- **Picnic Sites**
- **Interpretive Displays**
- **Shelter**
- **Water Fountain**

To serve the needs of the neighbourhood residents, developers of residential developments adjacent to the ravines, generally provide good walking access. Limited street parking is also usually available, but separate parking facilities are not normally provided.

Existing staging areas in or near the study area include:

- A Whitemud Park** – this is an active park with picnic facilities, parking and toilets. It is well used and many people currently park here to access the existing Whitemud trails in the lower reaches of the ravine. It is not within the study area, however, it is an important staging area for the entire Whitemud Ravine trail system.

- B Snow Valley / Rainbow Valley** – Although Snow Valley Ski Hill is privately operated, their relatively large parking lot is available to the general public. The ski lodge and the Rainbow Valley Campground both have washroom facilities, but neither are intended for general public use.
- C 23 Avenue / Whitemud** – A small gravel parking lot is currently located on the south side of 23 Avenue near Whitemud Ravine. A well-developed trail leads from the parking area to a bench and rock with an information plaque about the naming of Smith Crossing. The trail then continues to a bridge crossing Whitemud Creek, and on to informal but well traveled trails in the ravine.

New staging areas are proposed in the following locations:

- D 23 Avenue / Whitemud** - This existing parking lot will be removed, however, when 23 Avenue is widened, due to safety concerns about the access. A new parking lot is shown on the 23 Ave arterial road plans to the west of the current location and up the hill. Negotiations are required with the landowner south of 23 avenue to ensure that suitable access is provided to the ravine. This is a crucial location for a community access point as there are no other feasible locations between Whitemud Drive and the future Anthony Henday Drive.
- E 127 Street and 9B Avenue / Whitemud** - This location may be a possible consideration for a small staging area at a later date. Currently, a small farm occupies the site adjacent to the ravine west of 127 St, at the end of 9B Avenue. A future interchange is proposed for 127 St and Anthony Henday Drive, which would require removal of the farm, but the date of this is as yet undetermined, and may not occur for many years. The potential for a small parking lot at this location would require further study to determine feasibility.
- F Ellerslie Road / Whitemud** - With the current configuration of Ellerslie Road across Whitemud Creek, provision of a staging area would be difficult. However, Ellerslie Road will be upgraded as development to the west continues. At this time, provision of a staging area with public access should be considered close to the ravine.
- G Future Arterial / Whitemud** - Long range plans for the south side of the City include a future arterial road which would cross Whitemud Creek south of Ellerslie Road.
- H 41 Avenue South / Whitemud** – a staging area in the south reaches of the creek should be considered in the future when trail development can be considered in the area. Currently the only public access to the creek is 41 Avenue where it crosses the creek. All other land is privately owned.

- I Klondike Valley / Blackmud** – Klondike Valley provides public access and parking, but currently does not connect to trails along Blackmud Creek. It is recommended that trails be developed to connect the Klondike Valley parking area to the north and to the top of bank trails in the adjacent neighbourhood, Southbrook.
- J Future Arterial / Blackmud** – Long range plans for the south side of the City include a future arterial road which would cross Blackmud Creek south of Ellerslie Road.

3.3.3 Road Crossings

An extensive amount of road upgrading or development is planned and / or occurring in south Edmonton over the next few years. Roads can be a serious impediment to continuous trail development and must be given careful consideration. It is important that all new roads crossing the creek consider trail access during the design phase.

According to current plans, existing or future road crossings over Whitemud Creek include the following:

- 1. Whitemud Drive / Whitemud** – a large bridge spans Whitemud Creek for Whitemud Drive. Snow Valley and Rainbow Valley are both accessed by a small local road, which travels under the Whitemud Drive overpass.
- 2. 23 Avenue / Whitemud** – currently a small bridge spans Whitemud Creek for the existing 2 lanes of 23 Avenue. Plans for upgrading include twinning of the bridge for the development of 2 new lanes of traffic. These plans include provision for trail passage under the bridge.
- 3. Ellerslie Road/ Whitemud**– the current bridge for Ellerslie Road is high enough to allow trail access. Ellerslie Road is being upgraded as land development spreads westward, but upgrading of the portion over Whitemud Creek has not yet scheduled. Detailed design for any bridge upgrading or replacement should consider trail access along the creek.
- 4. 41 Avenue South / Whitemud** – a rural, gravel road currently crosses Whitemud creek at 41 Avenue. The creek flows under the road through a culvert, which does not allow for trail access. There are no current plans for upgrading this road.
- 5. 111 St / Blackmud** - 111 St crosses Blackmud Creek via a bridge with very high clearance.
- 6. Ellerslie Road/ Blackmud**– the bridge for Ellerslie Road over Blackmud Creek is high enough to allow trail access but there currently is no access to the crossing

7. **111 St / Blackmud South** - 111 Street again crosses Blackmud Creek south of Eilerslie Road via a culvert
8. **41 Avenue South / Blackmud** – 41 Avenue crosses Blackmud Creek at the south boundary of the city.

A number of new road crossings over the two creeks are planned. Some are under construction.

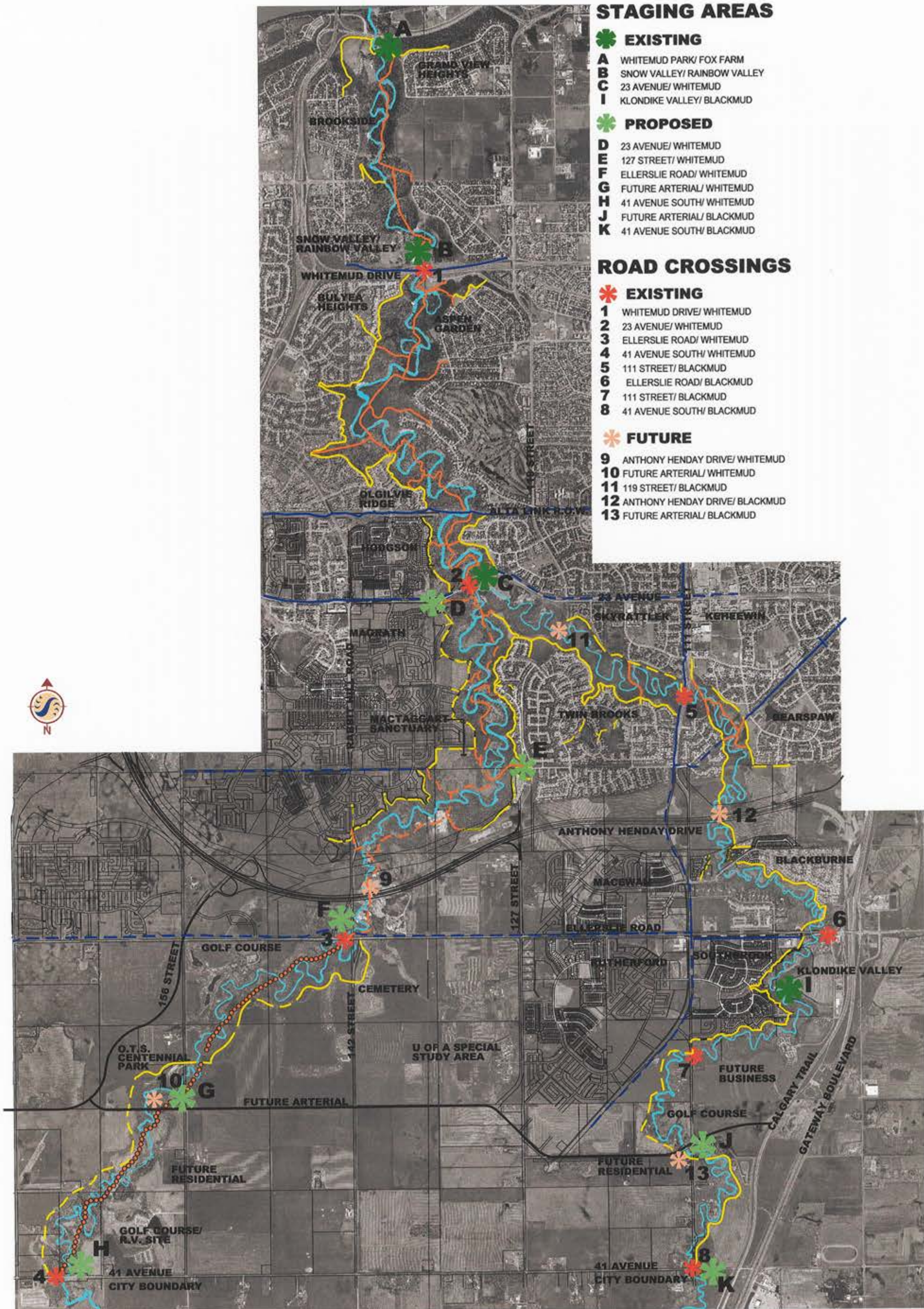
9. **Anthony Henday Drive (AHD) / Whitemud** – the Whitemud Creek crossing for AHD was constructed in 2003 and includes provision for construction of a trail along the east side of the creek.
10. **Future Arterial / Whitemud** – construction of this road and creek crossing will occur as development extends into this area.
11. **119 Street / Blackmud** – long term transportation plans include a new crossing of Blackmud Creek for 119 Street.
12. **Anthony Henday Drive (AHD) / Blackmud** – the proposed Blackmud Creek crossing for AHD includes provision for construction of a trail along the creek.
13. **Future Arterial / Blackmud** – construction of this road and creek crossing will occur as development extends into this area.

Refer to Drawing 2 – Overall Trail Plan

3.4 PARTNERSHIP OPPORTUNITIES

Developers – Developers have constructed many of the existing trails in Edmonton and current land development practices will ensure that they continue to play an important role in trail development. Top of bank trails are currently under construction along the west side of Whitemud ravine in Hodgson, which will connect 23 Avenue with the Altalink R.O.W. It is anticipated that top of bank access via roads or trails could be completed from 23 Avenue to Eilerslie Road within the next 5 to 10 years. Top of Bank trails along the west side of Blackmud Creek, in the new subdivision of Southbrook were completed in the summer of 2004.

Developers of residential developments adjacent to the ravines generally provide good walking access to the ravines for their residents. Limited street parking is also usually available, but separate parking facilities are not normally provided.



STAGING AREAS

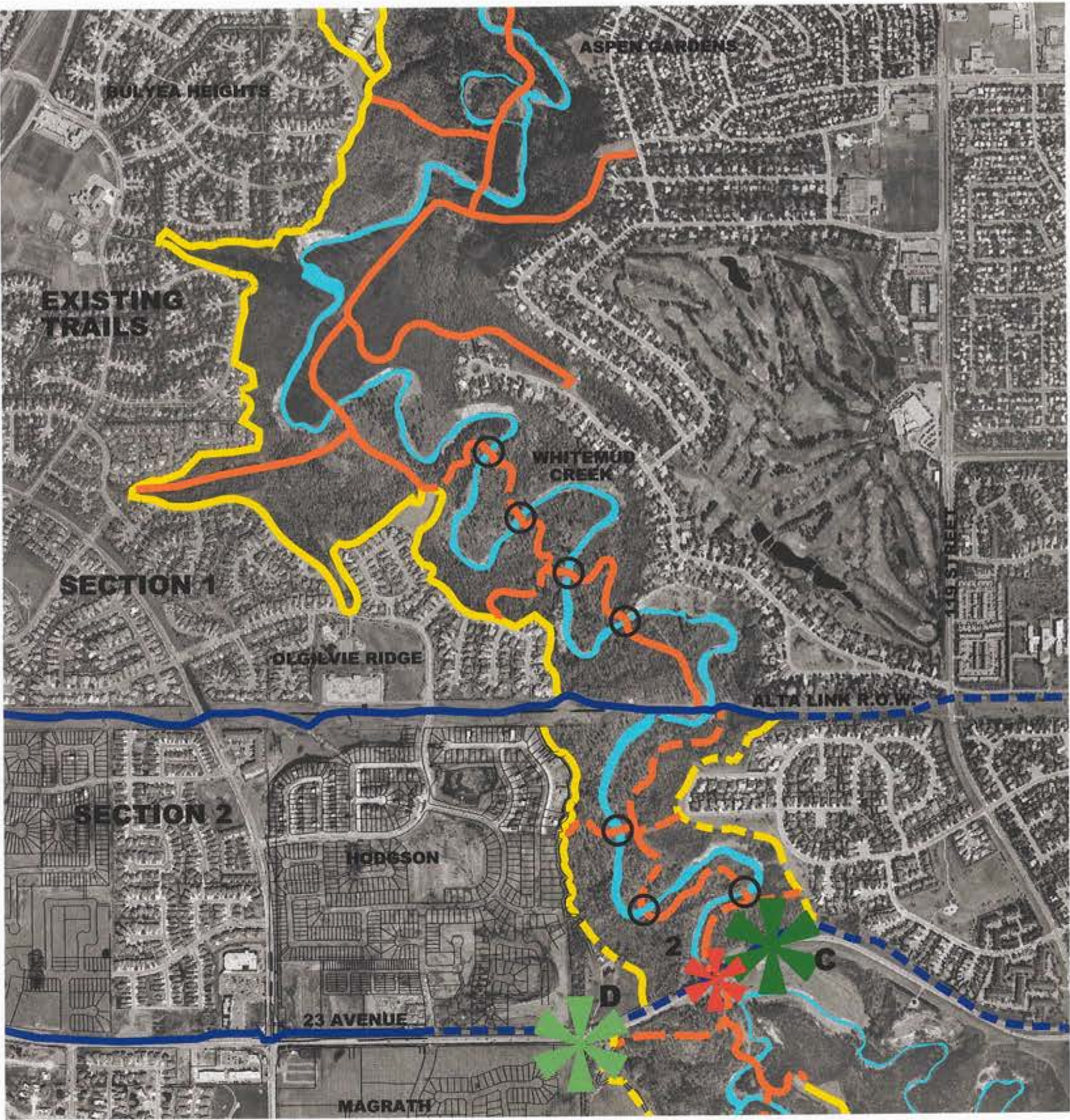
- EXISTING**
 - A** WHITEMUD PARK/ FOX FARM
 - B** SNOW VALLEY/ RAINBOW VALLEY
 - C** 23 AVENUE/ WHITEMUD
 - I** KLONDIKE VALLEY/ BLACKMUD
- PROPOSED**
 - D** 23 AVENUE/ WHITEMUD
 - E** 127 STREET/ WHITEMUD
 - F** ELLERSLIE ROAD/ WHITEMUD
 - G** FUTURE ARTERIAL/ WHITEMUD
 - H** 41 AVENUE SOUTH/ WHITEMUD
 - J** FUTURE ARTERIAL/ BLACKMUD
 - K** 41 AVENUE SOUTH/ BLACKMUD

ROAD CROSSINGS

- EXISTING**
 - 1** WHITEMUD DRIVE/ WHITEMUD
 - 2** 23 AVENUE/ WHITEMUD
 - 3** ELLERSLIE ROAD/ WHITEMUD
 - 4** 41 AVENUE SOUTH/ WHITEMUD
 - 5** 111 STREET/ BLACKMUD
 - 6** ELLERSLIE ROAD/ BLACKMUD
 - 7** 111 STREET/ BLACKMUD
 - 8** 41 AVENUE SOUTH/ BLACKMUD
- FUTURE**
 - 9** ANTHONY HENDAY DRIVE/ WHITEMUD
 - 10** FUTURE ARTERIAL/ WHITEMUD
 - 11** 119 STREET/ BLACKMUD
 - 12** ANTHONY HENDAY DRIVE/ BLACKMUD
 - 13** FUTURE ARTERIAL/ BLACKMUD

LEGEND

- | | | | |
|---------------------|---------------------------|----------------------|-------------------------|
| PAVED TRAILS | TOP OF BANK ACCESS | RAVINE TRAILS | EXISTING STAGING AREA |
| EXISTING | EXISTING TRAIL | PROPOSED | PROPOSED STAGING AREA |
| PLANNED | FUTURE TRAIL OR ROAD | LONG TERM FUTURE | EXISTING ROAD CROSSINGS |
| | | | FUTURE ROAD CROSSINGS |



NOTES

- ALL TRAIL AND BRIDGE LOCATIONS CONCEPTUAL ONLY - CONFIRM ALIGNMENT DURING DETAIL DESIGN STAGE.
- PAVED TRAILS ALONG ALTALINK AND 23 AVENUE TO BE DEVELOPED BY OTHERS.

SECTION 1

- 2 km OF RAVINE TRAIL
- 4 BRIDGES

SECTION 2

- 2.2 km OF RAVINE TRAIL
- 3 BRIDGES
- ★ 1 NEW STAGING AREA - 23 AVENUE TO REPLACE EXSITING

STAGING AREAS

- ★ **EXISTING**
C 23 AVENUE/ WHITEMUD
- ★ **PROPOSED**
D 23 AVENUE/ WHITEMUD

ROAD CROSSINGS

- ★ **EXISTING**
2 23 AVENUE/ WHITEMUD

LEGEND

- PAVED TRAILS**
- EXISTING
 - - - FUTURE

- TOP OF BANK ACCESS**
- EXISTING TRAIL
 - - - FUTURE TRAIL OR ROAD

- RAVINE TRAILS**
- EXISTING
 - - - PROPOSED
 - LONG TERM FUTURE

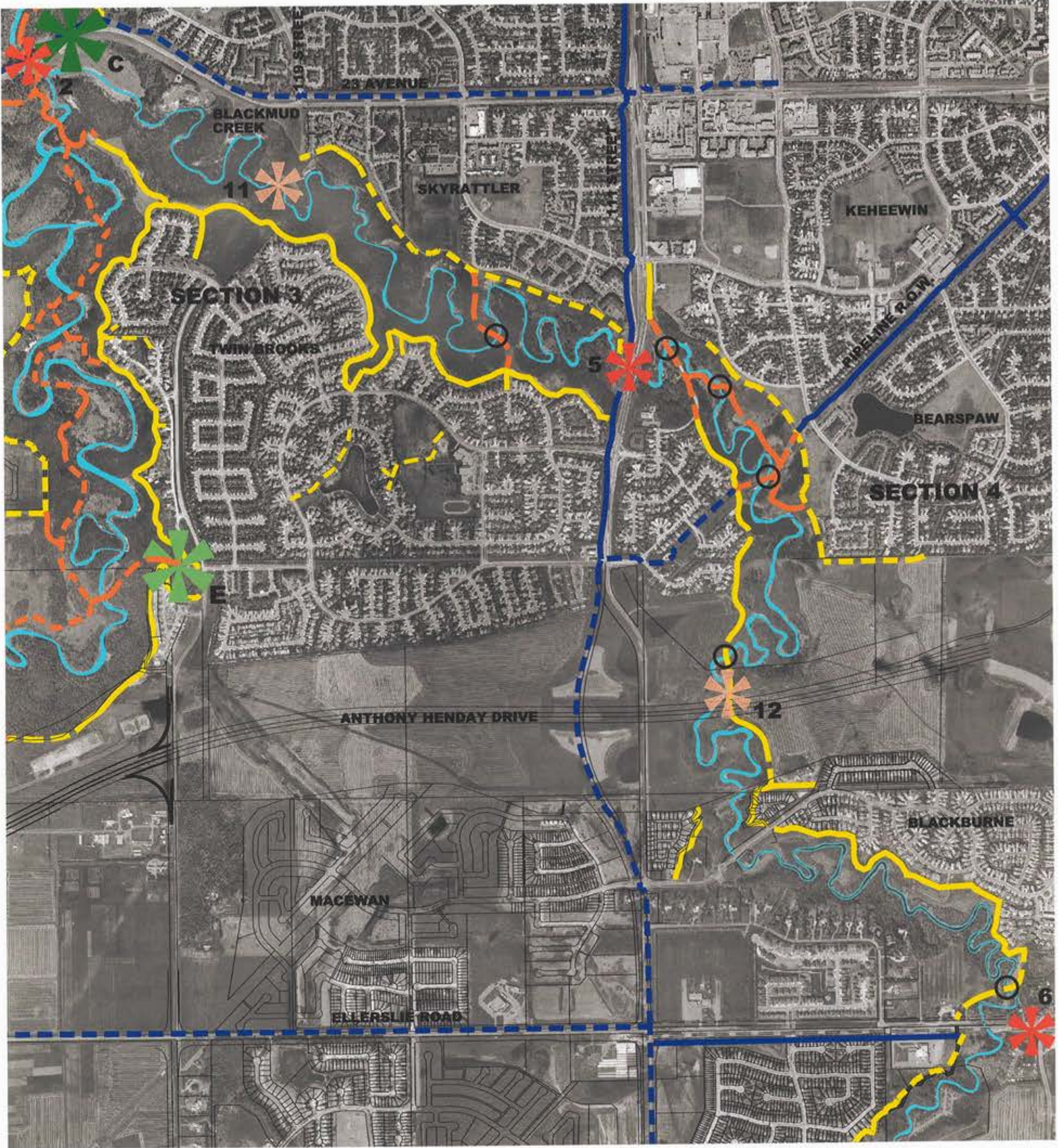
- ★ EXISTING STAGING AREA
- ★ PROPOSED STAGING AREA
- ★ EXISTING ROAD CROSSINGS
- ★ FUTURE ROAD CROSSINGS

WHITEMUD RAVINE SOUTH PLANNING STUDY
PHASE 1 WHITEMUD



NOT TO SCALE
NOVEMBER 2004

3
DRAWING



NOTES

- ALL TRAIL AND BRIDGE LOCATIONS CONCEPTUAL ONLY - CONFIRM ALIGNMENT DURING DETAIL DESIGN STAGE.
- PAVED TRAILS ALONG PIPELINE R.O.W., 111 STREET, AND ELLERSLIE ROAD TO BE DEVELOPED BY OTHERS.

SECTION 3

- 1.5 km OF TOP OF BANK TRAIL
- 0.3 km OF RAVINE TRAIL
- 1 BRIDGE

SECTION 4

- 2.6 km OF TOP OF BANK TRAIL
- 1.5 km OF RAVINE TRAIL
- 5 BRIDGES

STAGING AREAS

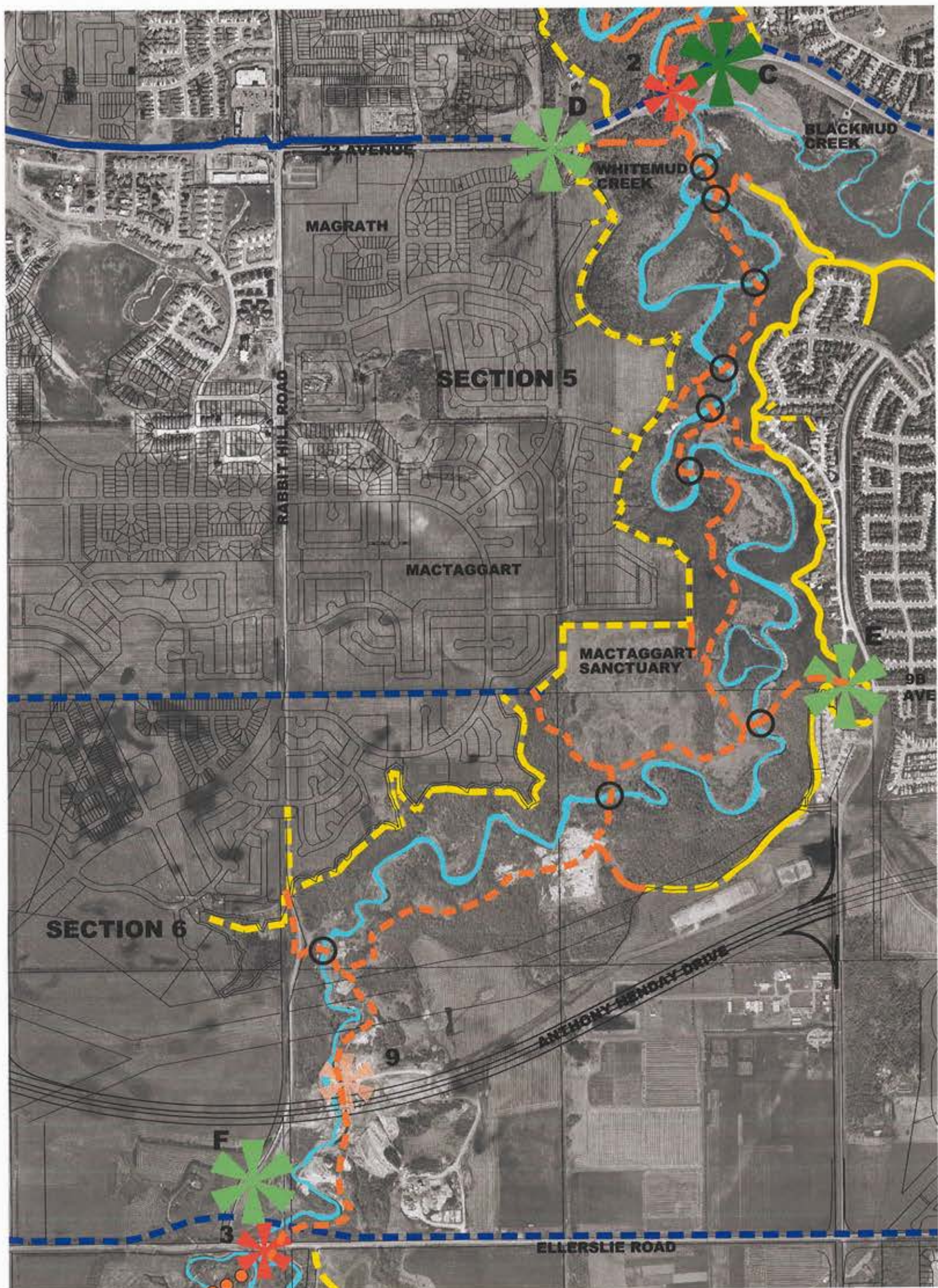
- EXISTING**
- C** 23 AVENUE/ WHITEMUD (INCLUDED IN SECTION 2)
- PROPOSED**
- E** 127 STREET/ WHITEMUD

ROAD CROSSINGS

- EXISTING**
- 2** 23 AVENUE/ WHITEMUD
- 5** 111 STREET/ BLACKMUD
- 6** ELLERSLIE ROAD/ BLACKMUD
- FUTURE**
- 11** 119 STREET/ BLACKMUD
- 12** ANTHONY HENDAY DRIVE/ BLACKMUD

LEGEND

- | | | | |
|---------------------|----------------------------|-------------------------|-------------------------|
| PAVED TRAILS | TOP OF BANK ACCESS | RAVINE TRAILS | EXISTING STAGING AREA |
| — EXISTING | — EXISTING TRAIL | — EXISTING | PROPOSED STAGING AREA |
| - - - FUTURE | - - - FUTURE TRAIL OR ROAD | - - - PROPOSED | EXISTING ROAD CROSSINGS |
| | | ●●●●●● LONG TERM FUTURE | FUTURE ROAD CROSSINGS |



NOTES

- ALL TRAIL AND BRIDGE LOCATIONS CONCEPTUAL ONLY - CONFIRM ALIGNMENT DURING DETAIL DESIGN STAGE.
- TOP OF BANK TRAILS OR ROADS TO BE DEVELOPED BY OTHERS.

SECTION 5

- 4 km OF RAVINE TRAIL
- 6 BRIDGES
- ✱ 1 STAGING AREA - 98 AVENUE

SECTION 6

- 4 km OF RAVINE TRAIL
- 3 BRIDGES
- ✱ 1 STAGING AREA - ELLERSLIE ROAD

STAGING AREAS

- ✱ **EXISTING**
- C** 23 AVENUE/ WHITEMUD
- ✱ **PROPOSED**
- D** 23 AVENUE/ WHITEMUD
- E** 127 STREET/ WHITEMUD
- F** ELLERSLIE ROAD/ WHITEMUD

ROAD CROSSINGS

- ✱ **EXISTING**
- 2** 23 AVENUE/ WHITEMUD
- 3** ELLERSLIE ROAD/ WHITEMUD
- ✱ **FUTURE**
- 9** ANTHONY HENDAY DRIVE/ WHITEMUD

LEGEND

PAVED TRAILS

- EXISTING
- - - FUTURE

TOP OF BANK ACCESS

- EXISTING TRAIL
- - - FUTURE TRAIL OR ROAD

RAVINE TRAILS

- EXISTING
- - - PROPOSED
- LONG TERM FUTURE

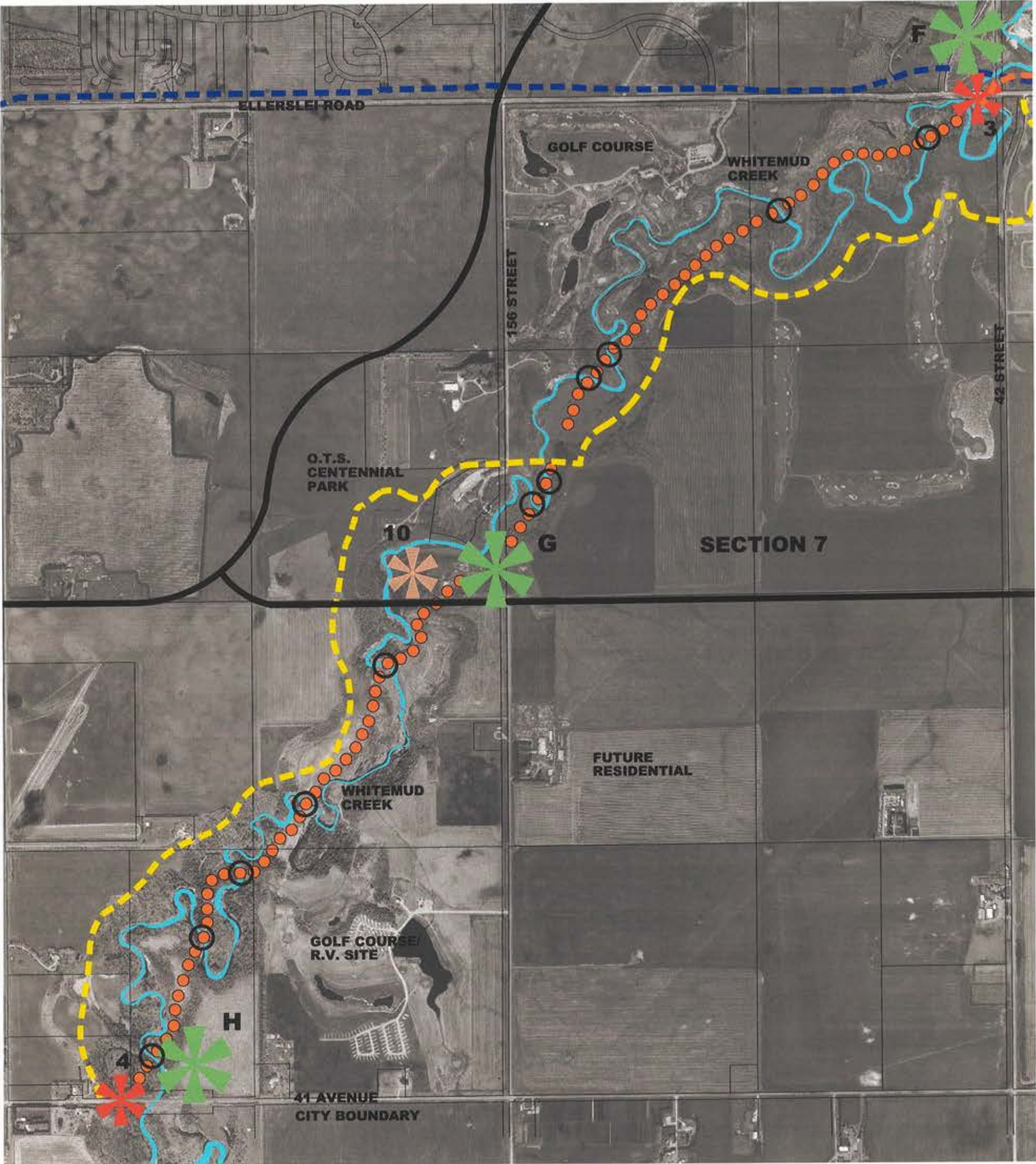
- ✱ EXISTING STAGING AREA
- ✱ PROPOSED STAGING AREA
- ✱ EXISTING ROAD CROSSINGS
- ✱ FUTURE ROAD CROSSINGS

WHITEMUD RAVINE SOUTH PLANNING STUDY
PHASE 2 WHITEMUD



NOT TO SCALE
NOVEMBER 2004

5
DRAWING



NOTES

- ALL TRAIL AND BRIDGE LOCATIONS CONCEPTUAL ONLY - CONFIRM ALIGNMENT DURING DETAIL DESIGN STAGE.
- TOP OF BANK TRAILS OR ORAD TO BE DEVELOPED BY OTHERS.

SECTION 7

- 15 km OF RAVINE TRAIL
- 11 BRIDGES
- 2 STAGING AREAS

STAGING AREAS

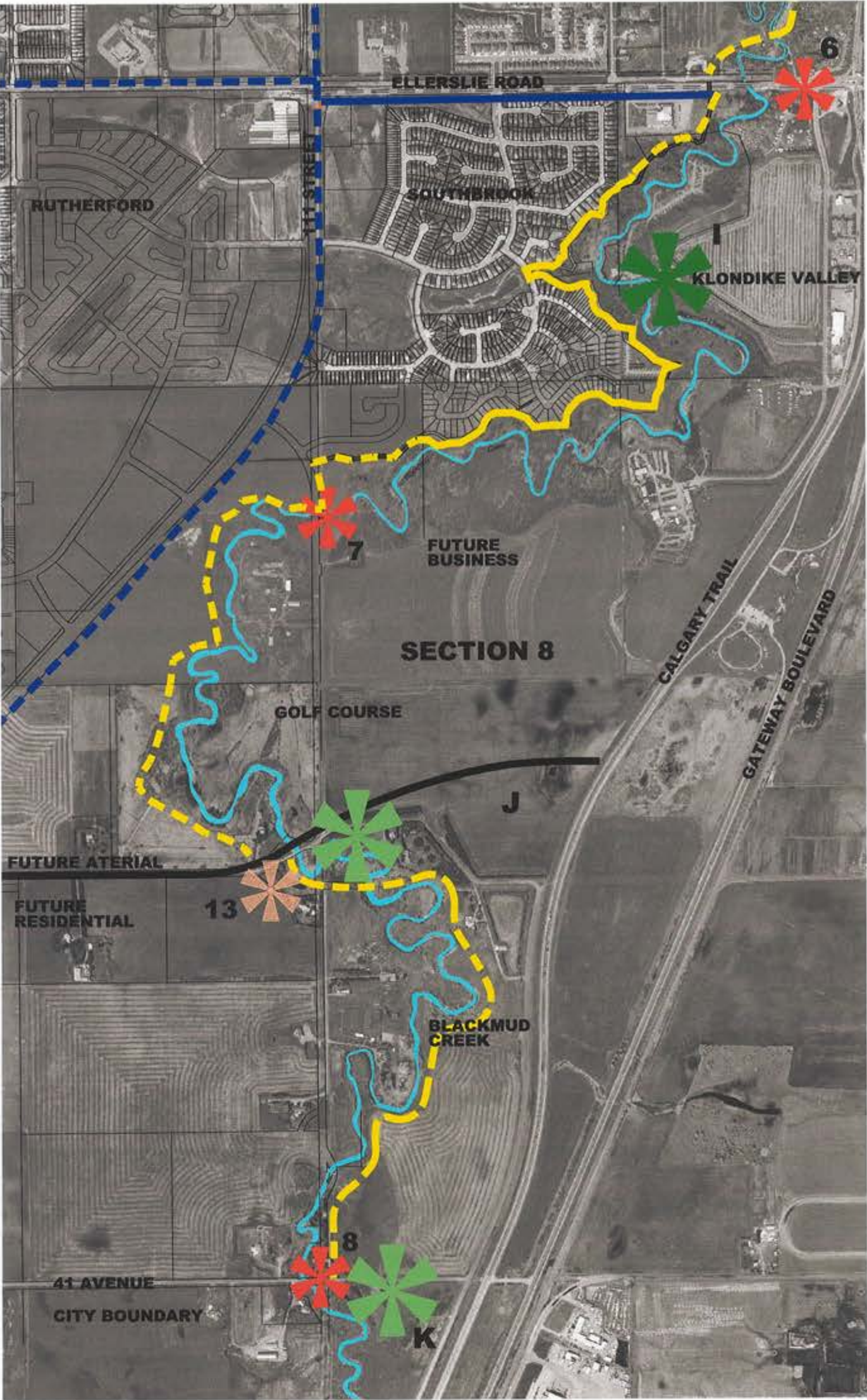
- PROPOSED**
- F** ELLERSLIE ROAD/ WHITEMUD (INCLUDED IN SECTION 6)
- G** FUTURE ARTERIAL/ WHITEMUD
- H** 41 AVENUE SOUTH/ WHITEMUD

ROAD CROSSINGS

- EXISTING**
- 3** ELLERSLIE ROAD/ WHITEMUD
- 4** 41 AVENUE SOUTH/ WHITEMUD
- FUTURE**
- 10** FUTURE ARTERIAL/ WHITEMUD

LEGEND

- | | | | |
|---------------------|---------------------------|----------------------|-------------------------|
| PAVED TRAILS | TOP OF BANK ACCESS | RAVINE TRAILS | EXISTING STAGING AREA |
| EXISTING | EXISTING TRAIL | EXISTING | PROPOSED STAGING AREA |
| FUTURE | FUTURE TRAIL OR ROAD | PROPOSED | EXISTING ROAD CROSSINGS |
| | | LONG TERM FUTURE | FUTURE ROAD CROSSINGS |



NOTES

- ALL TRAIL AND BRIDGE LOCATIONS CONCEPTUAL ONLY - CONFIRM ALIGNMENT DURING DETAIL DESIGN STAGE.
- TOP OF BANK TRAILS OR ROAD TO BE DEVELOPED BY OTHERS.

SECTION 8

- 0.5 km OF RAVINE TRAIL (KLONDIKE VALLEY SEE DRAWING 8)
- TOP OF BANK TRAIL (BY OTHERS)
- 1 BRIDGE
- ✱ 2 STAGING AREAS

STAGING AREAS

- ✱ **EXISTING**
- I KLONDIKE VALLEY/ BLACKMUD
- ✱ **PROPOSED**
- J FUTURE ARTERIAL/ BLACKMUD
- K 41 AVENUE SOUTH/BLACKMUD

ROAD CROSSINGS

- ✱ **EXISTING**
- 6 ELLERSLIE ROAD/ BLACKMUD
- 7 111 STREET/ BLACKMUD
- 8 41 AVENUE SOUTH/ BLACKMUD
- ✱ **FUTURE**
- 13 FUTURE ARTERIAL/ BLACKMUD

LEGEND

- | | | | |
|---------------------|----------------------------|-------------------------|---------------------------|
| PAVED TRAILS | TOP OF BANK ACCESS | RAVINE TRAILS | STAGING AREAS |
| — EXISTING | — EXISTING TRAIL | — EXISTING | ✱ EXISTING STAGING AREA |
| - - - FUTURE | - - - FUTURE TRAIL OR ROAD | - - - PROPOSED | ✱ PROPOSED STAGING AREA |
| | | ●●●●●● LONG TERM FUTURE | ✱ EXISTING ROAD CROSSINGS |
| | | | ✱ FUTURE ROAD CROSSINGS |

WHITEMUD RAVINE SOUTH PLANNING STUDY
PHASE 3 BLACKMUD



NOT TO SCALE
NOVEMBER 2004



LEGEND

- | | |
|-------------------------|--------------------|
| PROPOSED PAVED TRAIL | RENATURALIZED AREA |
| EXISTING GRANULAR TRAIL | PARKING |
| PROPOSED GRANULAR TRAIL | EXISTING TREES |
| PROGRAMMED AREA | TOT LOT |
| MANICURED LANDSCAPE | HILL |

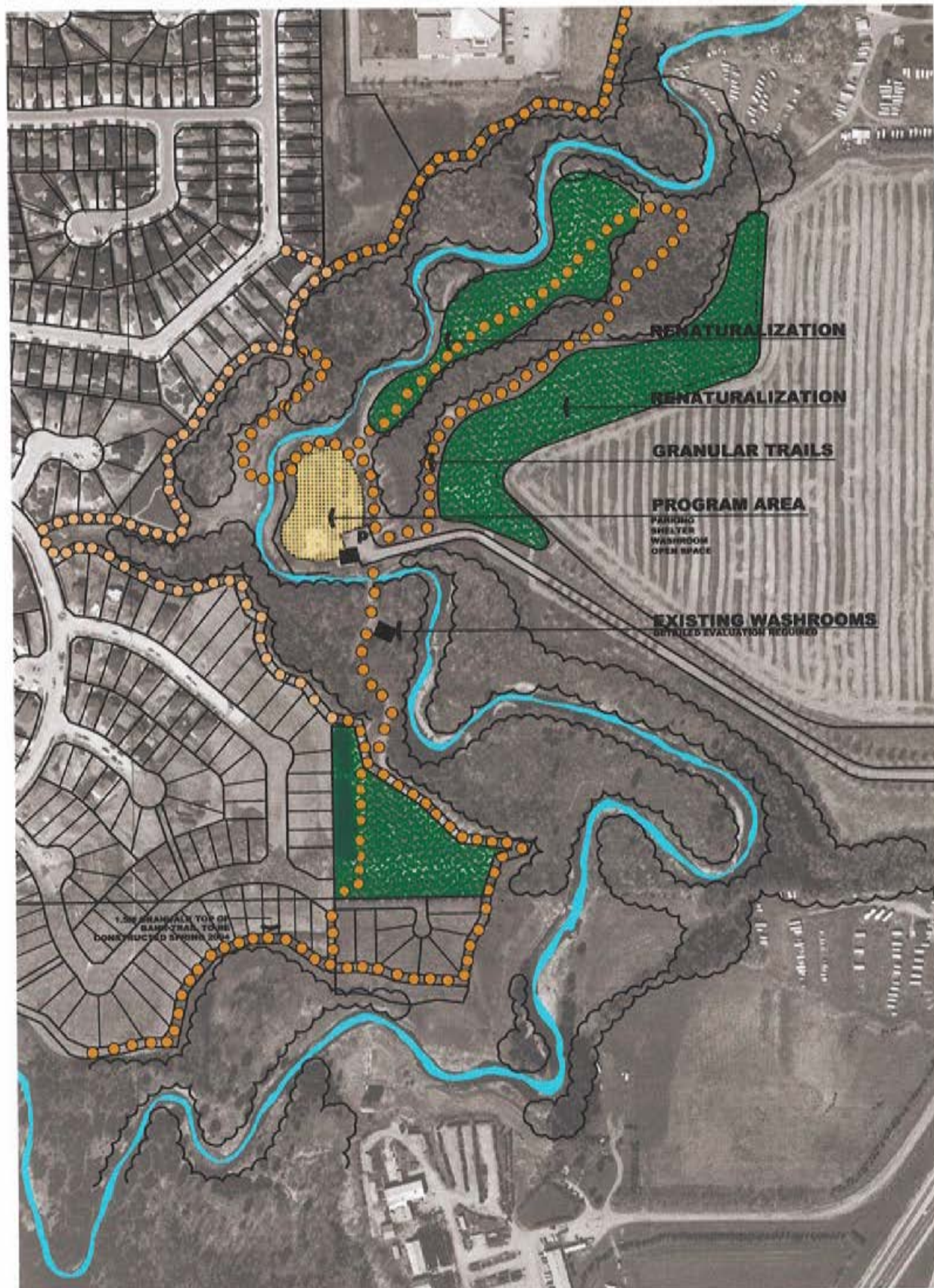
WHITEMUD RAVINE SOUTH PLANNING STUDY

KLONDIKE VALLEY OPTION 1



NOT TO SCALE
 APRIL 8, 2004

8
 DRAWING



LEGEND

- EXISTING GRANULAR TRAIL
- PROPOSED GRANULAR TRAIL
- PROGRAMMED AREA
- RENATURALIZED AREA

- PROPOSED PLANTING
- PARKING
- EXISTING TREES

WHITEMUD RAVINE SOUTH PLANNING STUDY

KLONDIKE VALLEY OPTION 2



NOT TO SCALE
APRIL 8, 2004

9
DRAWING

Private Landowners – In the south portion of both ravines, several private landowners own property spanning across the creek. The existing golf courses include development on the top of bank, through the ravine and across the creek. In the future, if these landowners wish to subdivide their land, the land below the top of bank will become FR and transfer to City ownership. Until that time, if ever, agreements should be explored between the City and facility owner to provide right of access for trails through their land.

Provincial and Federal Governments – Involvement from other levels of government is generally restricted to funding assistance such as infrastructure grants. The City must continue to be involved in Anthony Henday Drive work to ensure that trail needs continue to be considered, and funded through the program where possible. Further work with the province for trail development in the TUC is required to ensure trail connectivity.

3.5 IMPLEMENTATION

Three phases have been identified for Implementation of the plan as proposed in this report. Phase One is proposed for a five year time frame (2006 to 2011), Phase Two would be developed over a ten year time frame (2012 – 2017), and Phase Three includes all future development, which would occur as the City expands along the ravines to the south city boundary. Individual sections have been identified within each phase, allowing development of smaller individual projects. Enlargements of the Overall Trail Plan show a conceptual trail route in each section as described below.

Phase One – 5 Years – The objective of the first phase of development is to complete missing portions of the trail system in both ravines to serve existing residential areas. Four sections are identified as described following:

Section 1 – existing trail development in the lower reaches of Whitemud Ravine south to the Altalink R.O.W. (approximately 34 Ave to 29 Ave.)

Section 2 – Whitemud Ravine from Altalink R.O.W. south to 23 Avenue

Section 3 – Blackmud Ravine from the Whitemud confluence to 111 St.

Section 4 – Blackmud Ravine from 111 St to Ellerslie Road

Refer to Drawing 3 – Phase 1 Whitemud for sections 1 and 2

Refer to Drawing 4 – Phase 1 Blackmud for sections 3 and 4

Phase Two – Ten Years – This phase would complete trail development to closely follow land development along the west side of Whitemud Ravine between 23 Avenue and Anthony Henday Drive. Four sections have been identified in this phase:

Section 5 - Whitemud Ravine from 23 Avenue to 9B Avenue

Section 6 – Whitemud Ravine from 9B Avenue to Ellerslie Road

Refer to Drawing 5 - Phase 2 Whitemud for sections 5 and 6

Phase Three – Future – This phase includes future trail development to the south City boundary. Timing will depend on the rate of development along the ravines. Two sections have been identified

Section 7 - Whitemud Ravine from Ellerslie Road to 41 Avenue South

Section 8 – Blackmud Ravine from Ellerslie Road to 41 Avenue South

Refer to Drawing 6 - Phase 3 Whitemud for section 7

Refer to Drawing 7 - Phase 3 Blackmud for section 8

An overall phasing plan on page 21 shows locations of all stages (Figure 2 – Phasing Plan)

Conceptual level budgets have been proposed for each of the three phases, based on the conceptual trail alignments shown in the plans, and using 2004 dollars. These budgets are intended to provide some guidance for long term funding strategies and should be reviewed in more detail for each section as the trail routes are finalized. A summary budget chart is included on page 22.

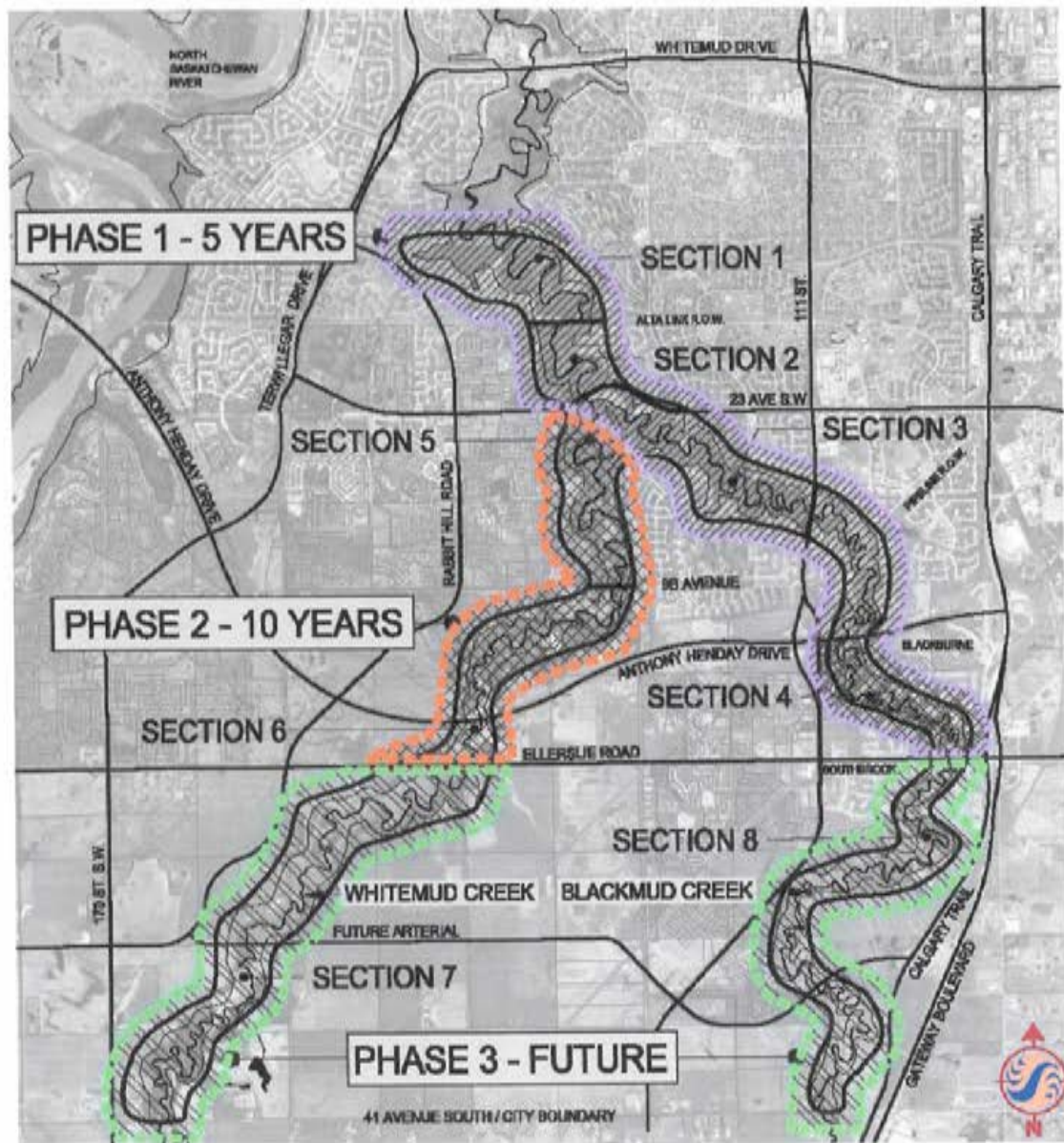


Figure 2 – Phasing Plan

WHITEMUD RAVINE

PHASE ONE	
Section 1 Whitemud	\$ 812,000.00
Section 2 Whitemud	\$ 682,000.00
Section 3 Blackmud	\$ 300,000.00
Section 4 Blackmud	\$ 1,160,000.00
Sub-total Phase 1	\$ 2,954,000.00
<i>Land Easement Allowance - 20%</i>	<i>\$ 591,000.00</i>
<i>Environmental Review - 3%</i>	<i>\$ 89,000.00</i>
<i>Geotechnical Review - 3%</i>	<i>\$ 89,000.00</i>
<i>Trail Design and Construction Documents - 10%</i>	<i>\$ 296,000.00</i>
<i>Contingency - 50%</i>	<i>\$ 1,481,000.00</i>
RECOMMENDED BUDGET PHASE 1	\$ 5,500,000.00

PHASE TWO	
Section 5 Whitemud	\$ 1,369,000.00
Section 6 Whitemud	\$ 1,135,000.00
Sub-total Phase 2	\$ 2,504,000.00
<i>Land Easement Allowance - 20%</i>	<i>\$ 501,000.00</i>
<i>Environmental Review - 3%</i>	<i>\$ 76,000.00</i>
<i>Geotechnical Review - 3%</i>	<i>\$ 76,000.00</i>
<i>Trail Design and Construction Documents - 10%</i>	<i>\$ 251,000.00</i>
<i>Contingency - 50%</i>	<i>\$ 1,254,000.00</i>
RECOMMENDED BUDGET PHASE 2	\$ 4,662,000.00

PHASE THREE	
Section 7 Whitemud	\$ 3,912,000.00
Section 8 Blackmud	\$ 200,000.00
Sub-total Phase 3	\$ 4,112,000.00
<i>Land Easement Allowance - 20%</i>	<i>\$ 823,000.00</i>
<i>Environmental Review - 3%</i>	<i>\$ 123,000.00</i>
<i>Geotechnical Review - 3%</i>	<i>\$ 123,000.00</i>
<i>Trail Design and Construction Documents - 10%</i>	<i>\$ 411,000.00</i>
<i>Contingency - 50%</i>	<i>\$ 2,056,000.00</i>
RECOMMENDED BUDGET PHASE 3	\$ 7,648,000.00

TOTAL BUDGET **\$ 17,810,000.00**

4.0 Klondike Valley

4.1 BACKGROUND

Until its decommissioning in 2003, Klondike Valley campground was a City owned and privately operated facility located on Blackmud Creek in south Edmonton with access from Calgary Trail. Although it was a popular facility, the campground was in need of costly upgrades and was unable to adequately accommodate the increasing RV market. After a lengthy review of the situation, the City determined that campground operation was not an appropriate function of the City and the site was decommissioned. Residential development in the Southbrook subdivision had reached the boundaries of the site and the City felt the need to determine the best use for the site. One task of this study was the review of the Klondike Valley lands and recommendation for their long-term use.

The campground included several distinct areas on both sides of the creek, within the ravine and above the banks. A narrow paved road with a one-lane bridge joined the two sides of the creek. Campground facilities included:

- *A maintenance yard and informal sport field located along the entrance road on top of bank lands east of the creek.*
- *A campground office with laundry facilities, toilet / shower building, individual campsites, and day use facilities including a playground and picnic sites in a treed area adjacent to the creek.*
- *A small group camping area located in the ravine on the west side of the creek with a toilet / shower building.*
- *More campsites and a picnic shelter located on the top of bank lands west of the creek.*
- *A small sewage lagoon (which no longer met Alberta Environment standards) located north west of the creek.*

During the fall of 2003 and spring of 2004, a number of facilities were removed from the site including all campsite fixtures and a picnic shelter from the upper area.

Options for long-term development of the site were reviewed with the City and two alternatives were developed and presented to the public at an open house in March 2004.

4.2 OPTIONS

Two conceptual options were prepared to review possible scenarios for future use of the Klondike Valley lands as described following:

OPTION 1

This option retains most of the existing developed site areas for active use.

North Area – Lower and Upper

- Develop area for Community Services programming / Day Camps in playground area
- Develop north area as group picnic area – available only for bookings
- Redevelop upper area for recreation facilities for group picnic use – i.e. horseshoo pit, informal ball diamond.
- Retain all washrooms
- Retain Roadway
- Retain Maintenance Yard

South Upper Area

- Develop upper area as passive park
- Toboggan Hill
- Tot Lot and seating area
- Approach adjacent developers for partnership

Refer to Drawing 8 – Klondike Valley Option 1

OPTION 2

This option provided minimal formal use areas and returned a large portion of the site "back to nature".

South Upper Area

- Renaturalize
- Granular trails to connect top of bank trails and link to lower area

North Area – Lower and Upper

- Develop area for Community Services programming / Day Camps in playground area

- Renaturalize north lower and upper areas
- Retain washroom for program area

Refer to Drawing 9 – Klondike Valley Option 2

Generally, input received from the public open house indicated a preference for option 2.

4.3 IMPLEMENTATION

Some demolition and removals and redevelopment of the upper campground area were completed in the summer of 2004 and landscaping of the upper area commenced in the fall of 2004.

Prior to preparation of the final plan, further detailed study is required, including a more detailed review of the existing washroom buildings and servicing requirements. This review should include a comparison of alternative energy sources and waste management for new buildings (i.e. solar energy, composting toilets)

A preliminary budget estimate for development of Option 2 is included on page 26.

A LOWER AREA and UPPER AREA EAST of CREEK				
1.0 Removals and Demolition				
1.1 Campsites / Road	2200 m2	\$ 15.00	\$	33,000.00
1.2 Asphalt Surfacing	m2	\$ 10.00	\$	-
1.3 Sewer line	1 lump sum	\$ 10,000.00	\$	10,000.00
1.4 Wash House #1	1 lump sum	\$ 20,000.00	\$	20,000.00
1.5 Sewage Lagoon	1 lump sum	\$ 50,000.00	\$	50,000.00
1.6 Maintenance Yard	1 lump sum	\$ 25,000.00	\$	25,000.00
1.7 Playground	1 lump sum	\$ 3,000.00	\$	3,000.00
SUBTOTAL				\$ 141,000.00
2.0 Trail Construction				
2.1 Granuar Loop Trail c/w upgrading to normal standard	900 lin.m.	\$ 100.00	\$	90,000.00
2.2 Replace steps	1 lump sum	\$ 15,000.00	\$	15,000.00
2.3 Connection to Top of Bank	300 lin.m.	\$ 100.00	\$	30,000.00
2.4 Top of Bank to Ellerslie Road	450 lin.m.	\$ 100.00	\$	45,000.00
2.5 Bridge	1 each	\$ 150,000.00	\$	150,000.00
2.6 New Washroom / Shelter	1 lump sum	\$ 100,000.00	\$	100,000.00
SUBTOTAL				\$ 430,000.00
3.0 Site Development				
3.1 Renaturalization Area A	12500 m2	\$ 10.00	\$	125,000.00
3.2 Renaturalization Area B	20000 m2	\$ 5.00	\$	100,000.00
3.3 Building Upgrade	1 lump sum	\$ 100,000.00	\$	100,000.00
3.4 Site Landscaping	1 lump sum	\$ 30,000.00	\$	30,000.00
SUBTOTAL				\$ 355,000.00
B UPPER AREA WEST of CREEK				
<i>Work initiated in 2004, to be completed 2005, Funding in Place</i>				
TOTAL CONSTRUCTION ESTIMATE				\$ 926,000.00
<i>Environmental Review - 3%</i>				<i>\$ 28,000.00</i>
<i>Geotechnical Review - 3%</i>				<i>\$ 28,000.00</i>
<i>Trail Design and Construction Documents - 10%</i>				<i>\$ 93,000.00</i>
<i>Contingency - 50%</i>				<i>\$ 463,000.00</i>
TOTAL BUDGET				\$ 1,538,000.00