

Town of Whitecourt

NORTH FLATS AREA STRUCTURE PLAN

BYLAW #xxxx-xx, as amended

TABLE OF CONTENTS

1	Introduction.....	4
	1.1 Purpose	5
	1.2 Plan Area Location	7
	1.3 Land Ownership	7
2	Existing Conditions and Context.....	9
	2.1 Statutory Context	10
	2.2 Surrounding Context	11
	2.3 Existing Land Use	13
	2.4 Sub Areas	16
	2.5 Existing Infrastructure	21
	2.6 Flooding & River	25
	2.7 Parks and Recreation	26
3	Public Engagement.....	27
	3.1 Public Engagement	28
4	Vision and Guiding Principles.....	30
	4.1 Vision Statement	31
	4.2 Guiding Principles	31
5	Future Land Use Concept.....	32
	5.1 Future Land Use Concept	33
	5.2 Land Use Policies	36
6	Future Open Space Network.....	38
	6.1 Open Space Concept	39
	6.2 Open Space Policies	40
7	Transportation Concept.....	42
	7.1 Transportation Concept	43
	7.2 Transportation Policies	47
8	Utility Infrastructure.....	48
	8.1 Overview	49
	8.2 Utility Policies	56

9	Implementation.....	57
9.1	Development Phasing	58

Maps:

Map 1	- Plan Area	6
Map 2	- Land Ownership	8
Map 3	- Surrounding Context	12
Map 4	- Existing Land Use	14
Map 5	- Sub-Areas	15
Map 6	- Flooding	24
Map 7	- Future Land Use Concept	35
Map 8	- Transportation	46
Map 9	- Storm Water Utilities	53
Map 10	- Water Utilities	54
Map 11	- Sanitary Utilities	55

1

INTRODUCTION



1.1 PURPOSE

In 2020 the Town of Whitecourt annexed the North Flats Area which is located between North Flats road and the Athabasca River. The North Flats Area Structure Plan (ASP) was developed to establish a planning framework for this land. The area structure plan describes:

- The land uses proposed for the area,
- The population density proposed for the residential areas within the plan,
- The general location of major transportation routes and public utilities, and
- The proposed sequence of development for the area.

This plan includes the following sections:

- Overview of existing conditions and context;
- A summary of public engagement;
- Vision and guiding principles;
- Future land use concept;
- Future open space network;
- Future transportation concept;
- Future utility framework; and
- Implementation plan including development phasing.

North Flats Area Structure Plan

Map 1: Plan Area



- LEGEND**
- Plan Area
 - Municipal Boundary



1.2 PLAN AREA LOCATION

The plan area is bounded by Flats Road on the south, the Athabasca River on the north and west, and the Woodlands County/Town of Whitecourt municipal boundary on the east. This area was formerly within the municipal boundary of Woodlands County and was annexed to the Town of Whitecourt in 2020.

1.3 LAND OWNERSHIP

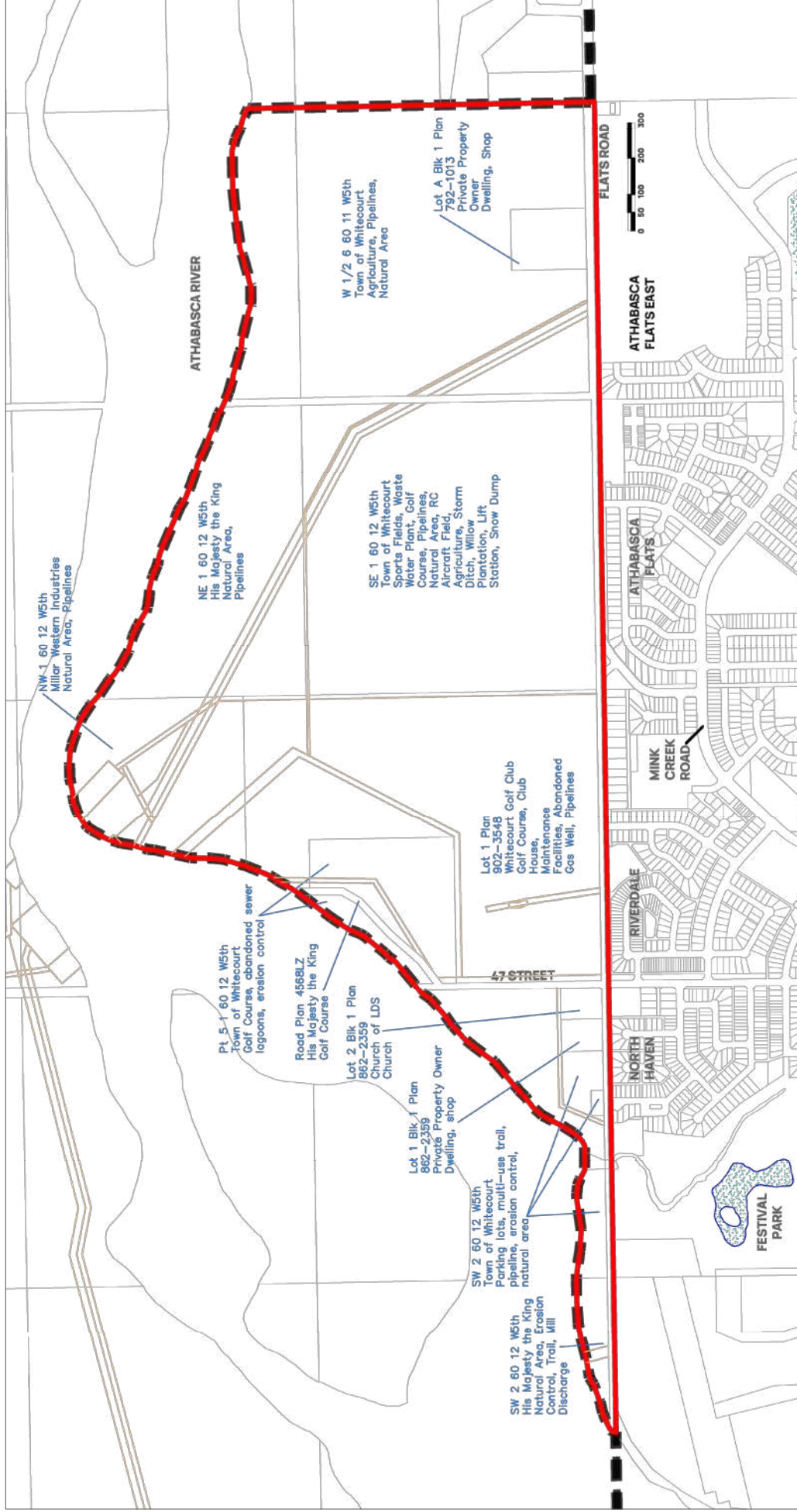
Lands within the plan area are under the ownership of seven entities. The Town of Whitecourt owns more than 50% of the land, predominantly in large parcels. The past subdivision of large parcels has resulted in the creation of small holdings (properties 3, 4, and 12 below). Coordination of development is required to ensure maximum realization of development opportunities and minimization of adverse impacts of development.

Table 1 - Land Ownership

Property	Owner	Current Use	
1	SW 2 60 12 W5th	His Majesty the King	Natural Area, Erosion Control, Trail
2	SE 2 60 12 W5th	Town of Whitecourt	Parking lots, multi-use trail
3	Lot 1 Blk 1 Plan 862-2359	Private Property Owner	Country Residential (1 dwelling)
4	Lot 2 Blk 1 Plan 862-2359	Church of LDS	Church
5	Lot 1 Plan 902-3548	Golf Course	Golf Course
6	Pt 5 1 60 12 W5th	Town of Whitecourt	Golf Course, abandoned sewer lagoons
7	Road Plan 4568LZ	His Majesty the King	Golf Course
8	NW 1 60 12 W5th	Millar Western Industries	Natural area, Pipelines
9	NE 1 60 12 W5th	His Majesty the King	Natural area, Pipelines
10	SE 1 60 12 W5th	Town of Whitecourt	Sport fields, wastewater plant, golf course, remote control aircraft field, pipelines, agriculture, natural area
11	W 6 60 11 W5th	Town of Whitecourt	Agriculture, pipelines, natural area
12	Lot A Blk 1 Plan 792-1013	Private Property Owner	Country Residential (1 dwelling)

North Flats Area Structure Plan

Map 2: Land Ownership



- LEGEND
- Plan Area
 - Municipal Boundary
 - Pipelines



2

EXISTING CONDITIONS AND CONTEXT



2.1 STATUTORY CONTEXT

Intermunicipal Development Plan (2013)

The purpose of an Intermunicipal Development Plan is to facilitate and sustain coordinated long-term growth between Whitecourt and Woodlands County. This plan facilitates cooperation between the two municipalities and acts as a framework for decision-making in each municipality.

The IDP shows the North Flats area as 'proposed annexation' transitioning from County to Town. Land to the east of the ASP is intended to continue with agricultural uses and limited country residential use. Intensification of Country Residential uses has been considered for the multi lot rural subdivision east of the plan area, with shadow planning prepared that would allow additional subdivisions of municipal utilities extended to that area.

Municipal Development Plan

The Town's Municipal Development Plan (MDP) is a visionary document which provides direction for Council and Administration to guide future growth and development of the town. The MDP informs landowners and developers of the comprehensive land use and growth strategy for the future development of the community. Therefore, the MDP provides a foundation for the preparation of more detailed plans, such as this Area Structure Plan. The Future Land Use Concept detailed in the 2023 Municipal Development Plan allocates land uses such as parks, recreation, residential, and institutional development within this area.

Land Use Bylaw

The purpose of the Land Use Bylaw (LUB) is to regulate and control the use and development of lands and buildings within Whitecourt. The LUB divides Whitecourt into various land use districts and regulates the purpose for which land and buildings may be used in each district.

The 2024 Land Use Bylaw designates the North Flats Area into the following land use districts:

- Parks and Recreation (P-1),
- Future Urban Development (UD-F), and
- Urban Services (U-S).

Growth Study

Whitecourt's 50-Year Comprehensive Growth Study presents data, trends, and recommendations which allow the Town to understand the potential growth that can be expected over the long-term. The Growth Study was used to inform the 2023 update of the Town's Municipal Development Plan. The Growth Principles identified in this study have helped to guide the proposed development pattern for the North Flats Area.

Flood Study

The Town of Whitecourt lies at the confluence of the Athabasca and McLeod Rivers. Due to high open water flows and ice jams during spring breakup, flooding has a significant impact on the North Flats area. The Flood Hazard Identification Study of the Athabasca and McLeod Rivers Woodlands County and Town of Whitecourt (2021) establishes the 10, 50 and 100-year flood levels as well as the 1:100 floodway and flood fringe areas. Significant portions of the North Flats area lie within the floodway and the flood fringe. These factors impact the types and intensity of development which can occur within the area.

2.2 SURROUNDING CONTEXT

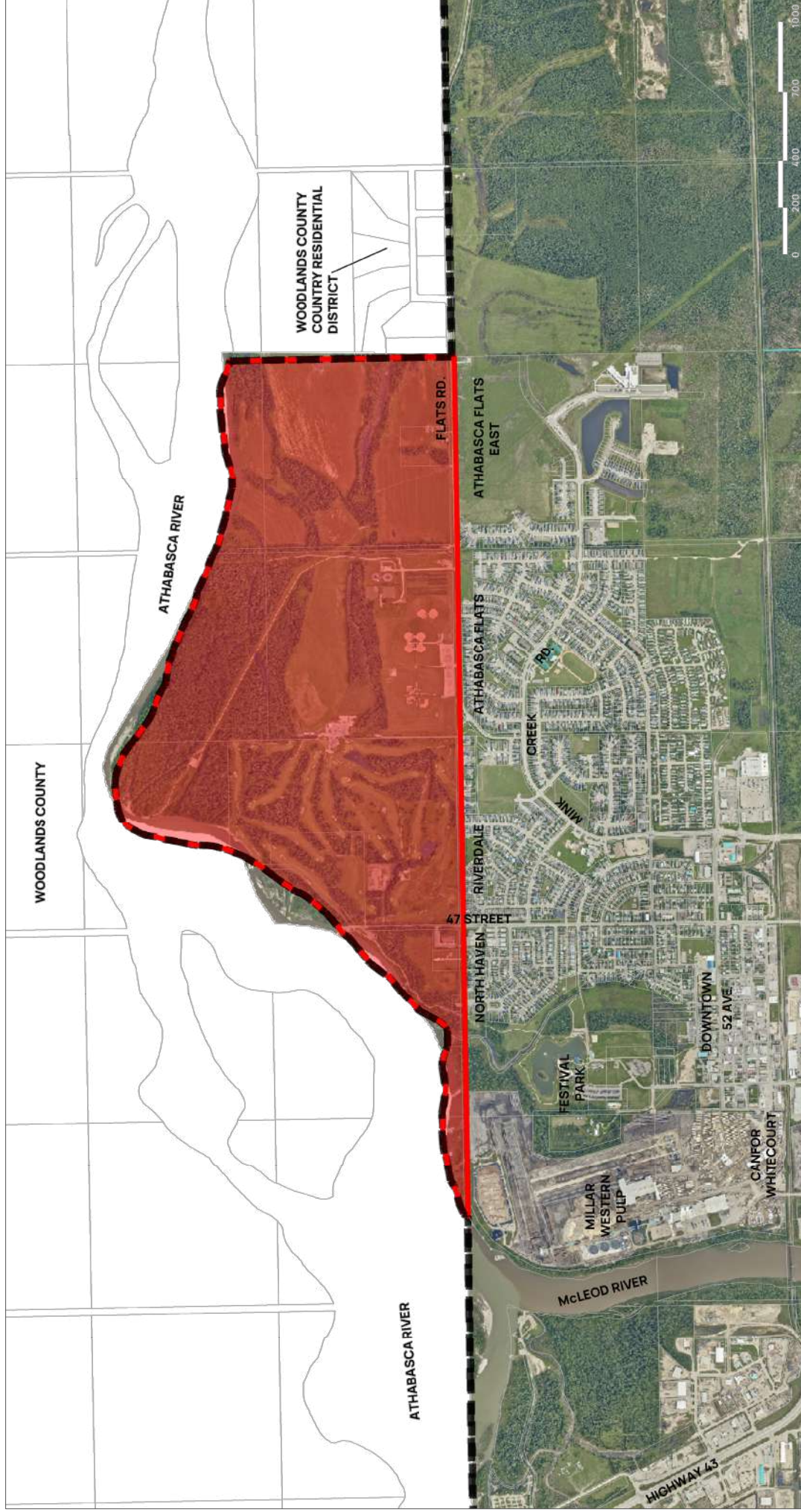
Existing Adjacent Land Use

Development south of the plan area is predominantly low density residential. These existing residential developments along with their proposed expansions provide community level schools, regional and neighbourhood level parks, and future commercial development. Development of land south of the plan area is about 75% complete, with detailed planning of the remaining 25% underway. There are not any anticipated changes to the existing and proposed land uses south of the plan area.

To the east of the plan, the area is a mix of agricultural and country residential land uses in the jurisdiction of Woodlands County. The residential development in this area is low intensity and is primarily serviced by Flats Road. There may be some intensification of this residential development in the long-term.

North Flats Area Structure Plan

Map 3: Surrounding Context



- LEGEND**
- Plan Area
 - Municipal Boundary



2.3 EXISTING LAND USE

General

The Area Structure Plan encompasses an area of approximately 292.86 ha (723.68 acres) on the north side of Whitecourt. Erosion of land into the Athabasca River since the dominion land survey of 1905 has reduced the area of properties bordering the river.

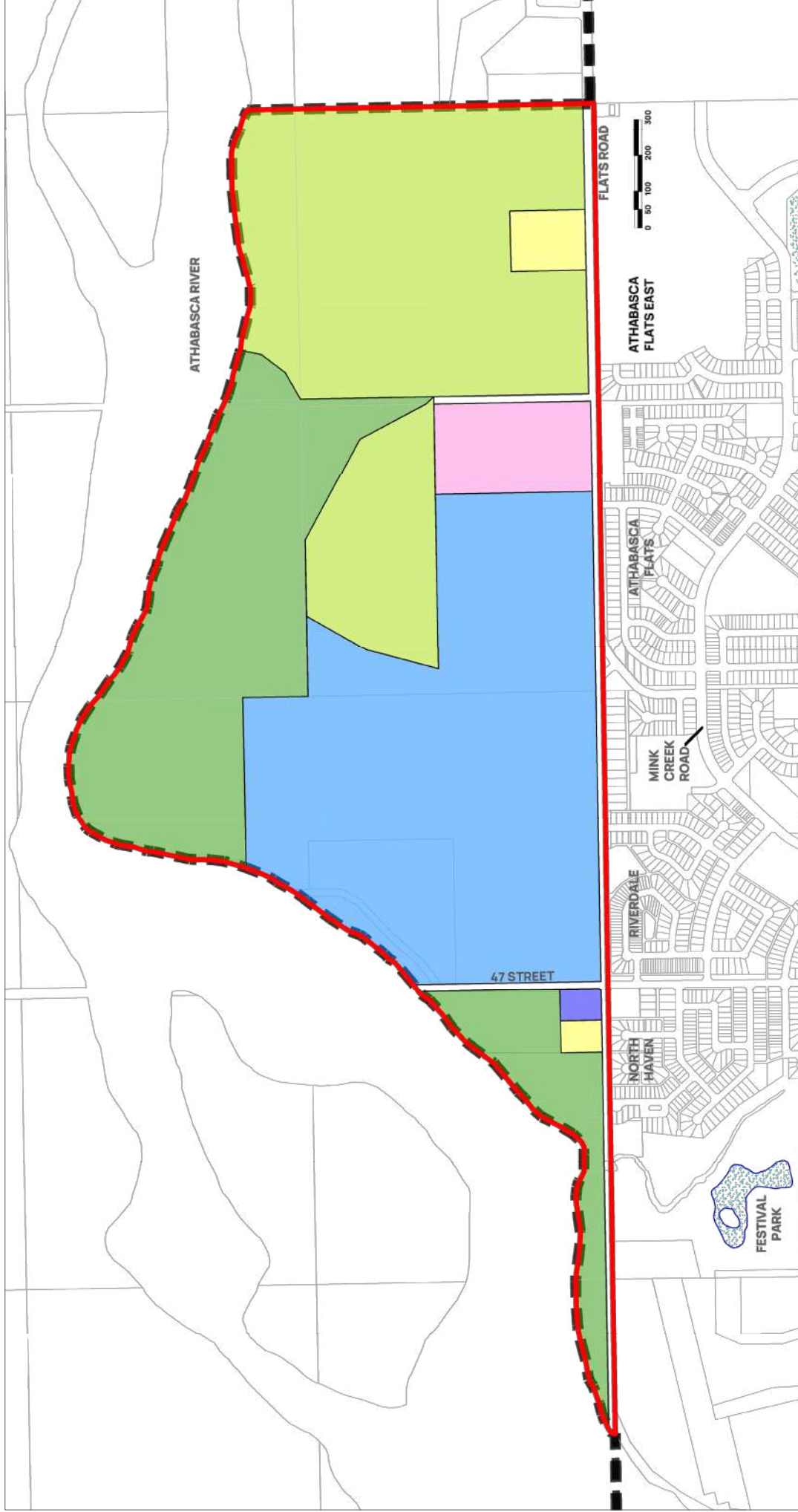
Historical Land Use:

The following outlines the main changes in land use in the North Flats area since its first development:

- In the early 1900s, approximately 160 ha (390 acres) was converted from a natural area to an agricultural use.
- Most of this agricultural area has since been converted to the following uses:
 - Sports fields
 - Golf course
 - Utility
 - Country residential
 - Institutional
- Approximately 60 ha (150 acres) of agricultural land remains.
- The introduction of petroleum pipelines and golf course development have decreased the remaining natural area to approximately 77 ha (190 acres) of the total area of 292.86 ha (723.68 acres).

North Flats Area Structure Plan

Map 4: Existing Land Use



LEGEND

- Plan Area
- Municipal Boundary
- Agriculture
- Natural Vacated Area
- Recreational
- Residential
- Institutional
- Utility



North Flats Area Structure Plan

Map 5: Sub-Areas



LEGEND

- Plan Area
- Municipal Boundary
- Sub-Area Boundaries



2.4 SUB AREAS

The ASP area has been divided into sub-areas for discussion, please refer to Map 5.

W-1 – West 1

The West 1 (W-1) sub area is the western most portion of the plan area and is located directly north of Festival Park. This area has the following key characteristics and existing conditions:

Natural areas:

- A Natural area occupies approximately 2.0 ha and is predominantly a deciduous forest.
- The area lies west of a former creek, which now serves as a drainage channel from downtown.
- There is limited trail development in the area.

Connectivity:

- The east-west road allowance south of the sub area has been partially cleared and serves as a snowmobile trail.

Land Use:

- A restrictive covenant on the property limits its use for park and trail development.

River Interaction:

- The Athabasca River has eroded much of the area. More than 5 ha within the sub area W-1 and W-2 have been lost to erosion since the original survey of the area.
- Erosion Control structures have been built on the riverbank, which are expected to limit further loss of land.

W-2 – West 2

The W-2 sub area is located directly north of the North Haven residential neighbourhood. This area has the following key characteristics and existing conditions:

Connectivity:

- Riverside Trail, a paved and well-lit multi-use trail, follows the riverbank through this area connecting to Festival Park and 47th Street.
- The east side of the sub area is bounded by 47th Street, which provides access to the Riverside Trail parking area, the Church of Jesus Christ of Latter-day Saints, the Whitecourt Golf and Country Club maintenance area, and natural gas facilities. The road is currently constructed to a rural gravel standard.

Land Use

- Approximately 80% of the area was originally cleared for cultivation, with the remainder of the land used for grazing.
- The western most portion of the area is used as a temporary gravel parking lot which serves the

off-leash dog area in Festival Park. This area was formerly a homestead site, and there may be an abandoned water well in the vicinity of this area.

- The lands between the current temporary parking lot and 47th Street were developed as a Drive-In Theatre in the 1960s. This area has since been subdivided into two parcels, now occupied by a rural dwelling and a church.
- The north portion of the area was cleared to within 80m of the Athabasca River and is relatively level. The remaining treed area has several drainage channels up to 2 metres deep.
- In the northeast portion of this area there is a parking lot that supports trail and river users. It provides access to minor park improvements such as benches, picnic tables, and river viewpoints.

Utilities

- The rural dwelling within the sub area has on-site water and sewer.
- The church has on-site sewer and a connection to the Town water system through a private line to the Town main in the east most lane of the North Haven neighbourhood.
- A natural gas pipeline (ATCO Pipelines) crosses the site in a 9.0-metre right-of-way providing service to the Canfor and Millar Western mill site.
- Additional small gas lines, providing service to the church and the residence also cross the area. These lines are not in a right-of-way or easement.

River Interaction

- Two (2) erosion control structures are located on the riverbank.

C-1 – Central 1

The C-1 sub area is located directly north of the Riverdale residential neighbourhood. This area has the following key characteristics and existing conditions:

Land Use:

- The predominant land use in this area is the Golf Course and Country Club.
- The golf course was expanded from 9 to 18 holes in 1990 followed by development of the clubhouse and the maintenance building.
- The golf course occupies land owned by the club, land leased from the Town and land included in Road Plan 4586 LZ.
- The northwest part of the area is town-owned and was the site of the Town's former sewage lagoons before the construction of the current Wastewater Treatment Plant. The area previously occupied by lagoons has been contoured, vegetated, and integrated into the golf course.

Connectivity:

- The Road Plan 4586 LZ was the former route to the Athabasca River Ferry Crossing northeast of this area.

Utilities:

- A private lift station servicing the development lies east of the clubhouse, on Town land leased to the club.

- The clubhouse area of the golf course is connected to Town sewer and water. Private water and sewer mains serving the site connect to Town mains south of Flats Road.
- An abandoned gas well site occupies about three acres of the golf course land. Though abandoned, the site has not been reclaimed.
- Active and abandoned pipelines lie throughout the area.

River Interaction:

- 3 erosion control structures (spurs) are on the riverbank of this area. The middle spur serves as a tee box for the adjacent golf hole.
- An access route for the erosion control structures lies between the river and the golf course.
- Approximately 1.5 ha (30m wide strip) of golf course owned land has been lost to erosion since 2003.

C-2 – Central 2

The C-2 sub area is located directly north of the golf course and the C-1 sub area. This area has the following key characteristics and existing conditions:

Land Uses:

- This area is undeveloped.
- Formerly, the area was used for fenced livestock grazing. The fence has since deteriorated, and the site has naturalized.
- The area is tree covered with deciduous trees on the north and a mix of coniferous and deciduous trees to the south.

Utilities:

- Pipeline rights of way occupy over four hectares of the area.
- A pipeline operations facility, power line, and service road occupy the area.

River Interaction:

- The title area is 28.7 ha however, river erosion has reduced the area to less than 16.4 ha.
- This area is not protected by the erosion control project.
- The north shore of the area is a broad gravel beach, which has been used for informal camping.
- The former ferry crossing was part of this sub area but has since been lost to river erosion.

C-3 – Central 3

Area C-3 lies north of the residential development of Athabasca Flats. This area has the following key characteristics and existing conditions:

Land Use:

- Graham Acres, the Town's major sports field development, occupies the southwest portion this area.
- The Town's wastewater treatment facility (mechanical plant and lagoons) is on the east side of the area.
- A willow plantation screens the wastewater treatment plant from the residences to the south.
- The golf course lift station, parking lot, cart storage building, and driving range are on the northwest part of C-3.
- Cultivated land lies east of the golf course, with a small area dedicated to model aircraft flying.
- A treed area over 100m in width lies north of the agricultural use, with a pipeline corridor crossing diagonally through the area.
- Material dredged from a ditch on the east side of the area is stockpiled in the southeast portion of the forested area.

Drainage

- Open stormwater ditches on the east and west sides of C-3 carry drainage from the developed areas through the site to a natural drainage course north of the sports fields and wastewater treatment plant.
- The drainage course is within a 100m wide treed area which separates the agricultural and golf course uses from the sports fields and treatment plant.

Utilities:

- Utility lines connecting the golf course lift station and the clubhouse cross the property adjacent to the west boundary. These are not currently protected by easements, or right of ways.

C-4 – Central 4

The C-4 sub area is located directly north of the C-3 sub area. This area has the following key characteristics and existing conditions:

Land Use:

- This area is forested and is crossed by pipelines and service roads (energy and municipal sewer)
- Other than the above noted development, this area is otherwise undisturbed.

River Interaction:

- Several shallow gullies and former river channels cross this area.
- This area has not experienced significant erosion, with a bank loss of less than 5 m in the last 15 years.

E-1 – East 1

The eastern most sub area lies north of the partially developed Athabasca Flats East residential neighbourhood. This area has the following key characteristics and existing conditions:

Land Use:

- This area is predominantly cultivated land.
- One residence on a small holding is located within the area adjacent to Flats Road.
- The land is relatively level, with three well-defined channels draining to the north and east. These channels are bordered by shrubby trees and windrows of material from land clearing.

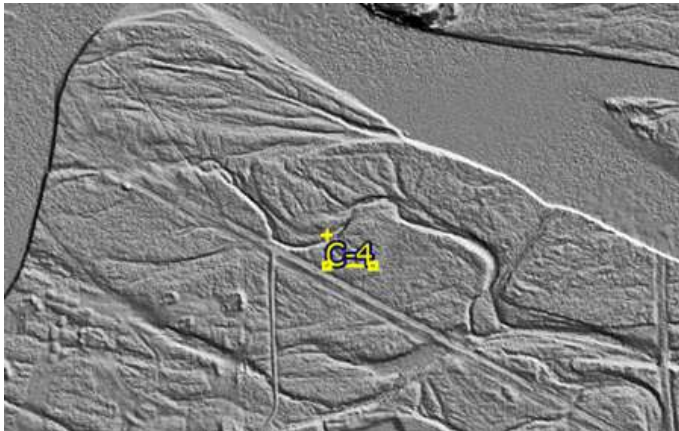
Utilities:

- An abandoned gas well (reclamation certificate issued) is in the northeast part of the area.
- Active pipelines cross the west side of the site.

River Interactions:

- Minor erosion of the Athabasca Riverbank (less than 10 m over 15 years) has taken place.

Lidar Image of Channels on Sub Areas C-2 and C-4



2.5 EXISTING INFRASTRUCTURE

General

There are areas within the plan area that can be serviced to urban standards and are not adversely affected by environmental or infrastructure constraints. These areas should be considered as extensions to existing urban development and integrated to establish neighbourhood connectivity without imposing nuisance on existing development. Further, the existing community-wide uses of the annexed land should be maintained and may be expanded where that can be done with nominal impact on existing development. The municipal infrastructure on adjacent land uses can support increased development.

Sanitary

Lift Stations:

North Haven Lift Station: North Haven Lift Station: This lift station is east of the lane between 47th Street and Wood Drive. It currently serves the north portion of North Haven, and has the following operational details:

- Operates at 25% of the station's capacity
- Can serve an additional 200- 250 dwelling units
- Discharges into the North Trunk Main

Golf Course Lift Station: This lift station is located in the northwest portion of the C-3 sub area of this plan. This lift station is privately owned and discharges south to the North Trunk Main.

East Flats Lift Station: The East Flats lift station has been designed to serve the remaining land in the East Flats that lies within 800 metres at normal residential densities. This lift station pumps sewage west through a force main to the trunk main that flows north to the Wastewater Treatment Plant. The force main lies 13m south of the Road ROW.

Abandoned Utilities: An abandoned sewage force main lies within 47th Street. It previously carried sewage from the downtown area to the sewage lagoons south of the river, east of 47th Street. It is believed to be intact north of the 47th Street/Graham Road intersection to the former lagoon site. The abandoned sewer lagoons in the SW 1-60-12-W5th are on Town-owned land within the golf course. The site has been contoured and is vegetated. A reclamation report is not available. Without extensive testing, development of the site is not recommended.

Wastewater Treatment Plant: The current Wastewater Treatment Plant and associated lagoons are east of the centre of the plan area. The plant receives sewage via the trunk main connecting to the North Sanitary Trunk, south of Flats Road. The plant is a mechanical operation, with two clarifiers. Clear effluent is discharged to the Athabasca River, through a main flowing north on the west side of the road allowance east of the plant. Solids are collected in lagoons on site and removed on an annual basis. Solids are hauled by trucks for spreading on agricultural land.

- Odours from the lagoons have previously raised concerns by residents south of the plant and users of the golf course and sports fields to the west. Measures implemented by the Town in the

last several years (e.g. addition of water caps on the lagoons and injection of biomax chemical to control H₂S generation) have mitigated the majority of these concerns. A wastewater treatment plant study is currently underway that will provide recommendations for fiscally sustainable upgrades, improvements, and best practices with options for implementation.

- Regulations preclude residential, food service, or institutional uses within 300m of the treatment plant. A wastewater dump site is located on the south end of the plant property. Access to the plant and the sewage dump are from Flats Road. Potential for the diversion of the treated effluent from the Athabasca River is being considered, with the effluent to be used in place of fresh water in the energy industry. This diversion would require a new pumphouse and pipeline to transfer the effluent west to the potential users.

Water

To service future development in the ASP area, water mains could be extended from Pritchard Drive (west area), Baly Road (central area), Flats Connector (sports fields area) and in the future residential roads in the Athabasca Flats East neighbourhood.

The Pritchard connection has been accommodated with the line having been stubbed out to allow extension, while a Baly Road connection was not previously considered. Extending the Pritchard or Baly lines without interconnection may not provide the redundancy normally anticipated. The design of the Athabasca Flats East neighbourhoods can address extension and looping of lines to the north as a coordinated system.

The area is relatively level, with a slight slope (about 0.16%) from the west down towards the east, and from the south down to the north. The area is broken up by drainage channels, potentially vestiges of past river channels. These channels normally carry local drainage and will carry river flood flows through the plan area. The general flow of runoff is to the east, then north to the river.

Storm:

North Haven: North Haven storm drainage is mostly collected within the neighbourhood and discharged directly west to a backwater channel of the Athabasca River. A small amount of drainage is carried by the ditch south of Flats Road, with very minor discharge to the backwater channel and greater discharge to an underground line starting at the 47th Street/Flats road intersection. This line flows north to daylight in the west 47th Street ditch, about 150m south of the Athabasca River. The line is shallow and does not have capacity to carry additional flows.

Riverdale and Athabasca Flats: Storm water mains from Riverdale and Athabasca Flats cross Flats Road and discharge into ditches flowing north to an eastward flowing natural drainage course. The drainage course is frequently obstructed by vegetation and sediment, resulting in the ditches and drainage course acting as storm water retention ponds. The drainage flows to the Athabasca River, with three natural connections to the river in the N½ 6 60 11 w5th. The existing flows must be accommodated in any changes to land use in this area.

The surface elevation ranges from a high of 690.7 metres to a low of 683.5 metres. The river surface elevation at the natural drainage course discharge is below 682.0m except during peak flows.

Roads

47 Street South of Flats Road

47th Street south of Flats Road was built as an arterial roadway to the standards of the 1960s and early 1970s. It has devolved into a high level collector, with parking permitted. It serves this function between the intersection of Harolds Hollow and 49th Avenue. North of Harolds Hollow, it carries traffic to a church and the riverside park area north of Flats Road, with a connection to Flats Road for the golf course and sports fields to the east. It has a physical capacity of over 8000 vehicles per day (VPD), however, at more than 3000 VPD, residents fronting on the street will experience negative impacts. 47th is estimated to currently carry less than 2200 vehicles per day north of 55th Avenue, with that level exceeded during spring sport field use. The available capacity on 47th Street of 800 vehicles per day would allow for residential development in the northwest part of the plan area of between 80 (low density) and 115 (high density) dwelling units without adversely affecting 47th Street residents. 55th Avenue between 47th Street and Mink Creek Road would see an increase in traffic, potentially requiring improvements to the 47th Street/55th Avenue intersection.

47 Street North of Flats Road

47th Street north of Flats Road is a rural gravel road, ending at the riverside parking lot. It provides access to the golf course maintenance compound, the park area, and the (abandoned) gas well-site.

Flat Road South of Golf Course

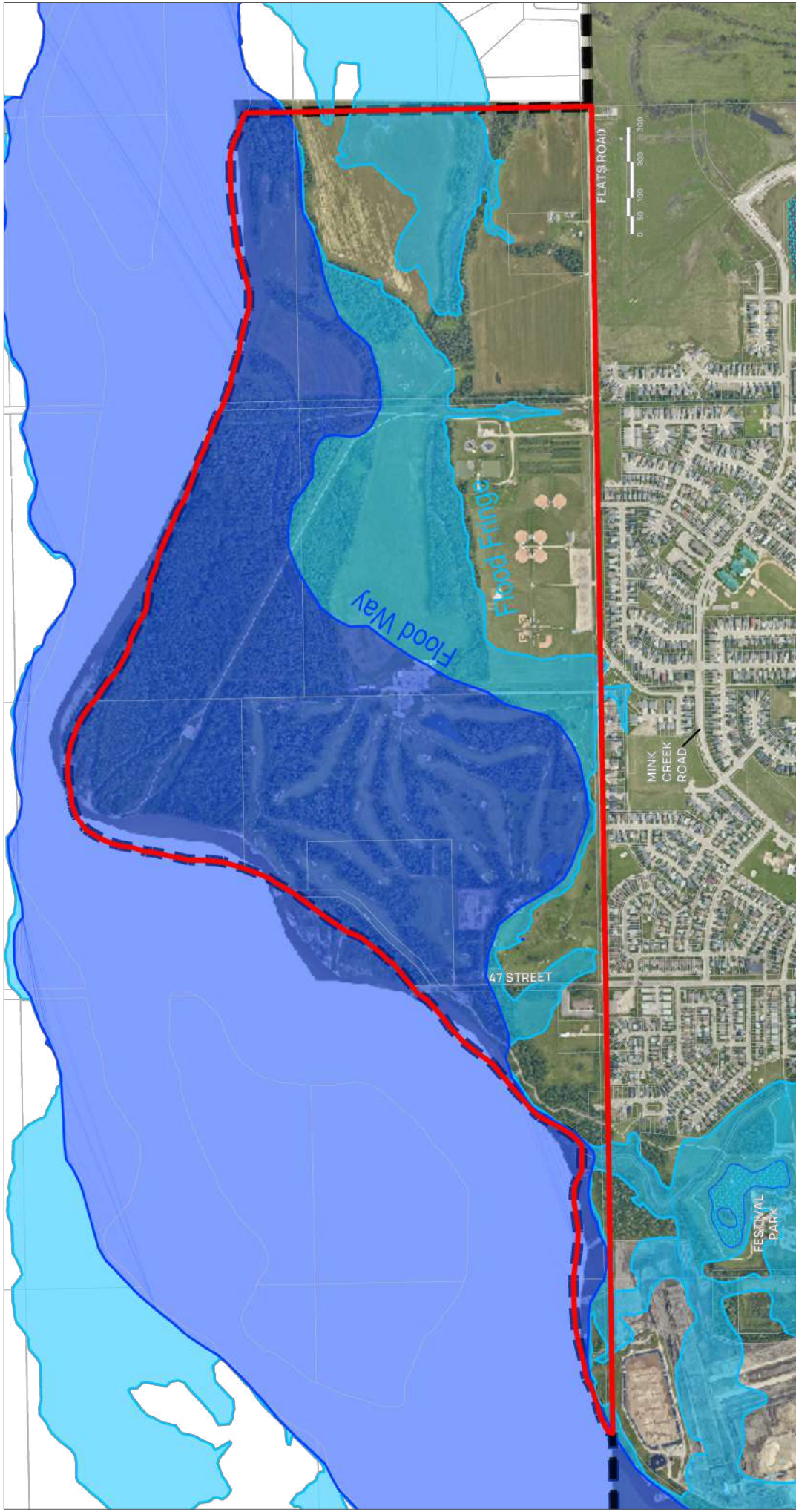
Flats Road south of the golf course carries peak traffic during the heavy spring sports field use, golf tournaments, and special events. The peak use is predominantly in the early evening.

Public Safety

There are not any public safety facilities in the plan area. Response to the area from Emergency Services is currently provided.

North Flats Area Structure Plan

Map 6: Flooding



LEGEND

- ▭ Plan Area
- ▬ Flood Fringe Area
- ▭ Flood Way Area
- ▬ Flood Fringe
- ▬ Flood Way
- ▬ Flood Fringe



2.6 FLOODING & RIVER

The Athabasca River is the north limit of the plan area; however, the influence of the river extends throughout and beyond the plan boundary. Flooding, drainage patterns, ground conditions, plants and wildlife impact the potential future use of the area.

Flood hazard mapping prior to 2014 showed most of the ASP area as affected by flooding. However, more recent flood hazard mapping (2021), shows considerable land to be available for potential development. Approximate estimates include:

- 75 hectares is affected by the 1:100 flood hazard zone and is unrestricted by flood regulations,
- 50 hectares (123 acres) is within the Flood Fringe, which may be developed under the right circumstances, and
- 150 hectares (370 acres) is in Floodway and is not considered developable.

The lands subject to 1:100 flooding include most of the golf course, except about six hectares at the southwest end. The golf course clubhouse and sewer lift station were constructed to be above the design flood level. Over 80% of the course is within the floodway. Portions of the course will be flooded with standing water by 1:10 events, with most of the course inundated during 1:50 floods. During a 1:100 flood, water would flow across the course causing major erosion damage.

The natural areas west, north, and east of the golf course are affected by flooding. Retaining them in their natural state allows room for the river during floods without affecting flood levels and putting development at risk.

The Town sports fields and wastewater treatment plant are not within the 1:100 flood hazard area. Further, the southern portion of the plan area north of Athabasca Flats East is not affected. The design flood level (100 years) is 691.24 m (geodetic) at the west end of the plan area, dropping to 685.24 m at the east end (Flood Hazard Identification Study of the Athabaskan and McLeod Rivers Woodlands County and Town of Whitecourt 2021).

As noted earlier, bank erosion downstream of the golf course has resulted in a significant loss of land. The erosion control structures fared well during the 2023 flood, however, exact effectiveness is still to be confirmed by the Province. These structures are intended to reduce bank erosion but will not reduce the impact of flooding.

Bank Erosion North of Golf Course 2018



The natural drainage channels crossing the plan area are indicative of past river flows. They currently carry local drainage and can accommodate additional flows. During major flood events these channels may be subject to erosion and could become reestablished in the future as the river wanders. Obstructing these channels can aggravate flooding at low levels and redirect damaging flows to other areas.

Lidar Image Showing Channels



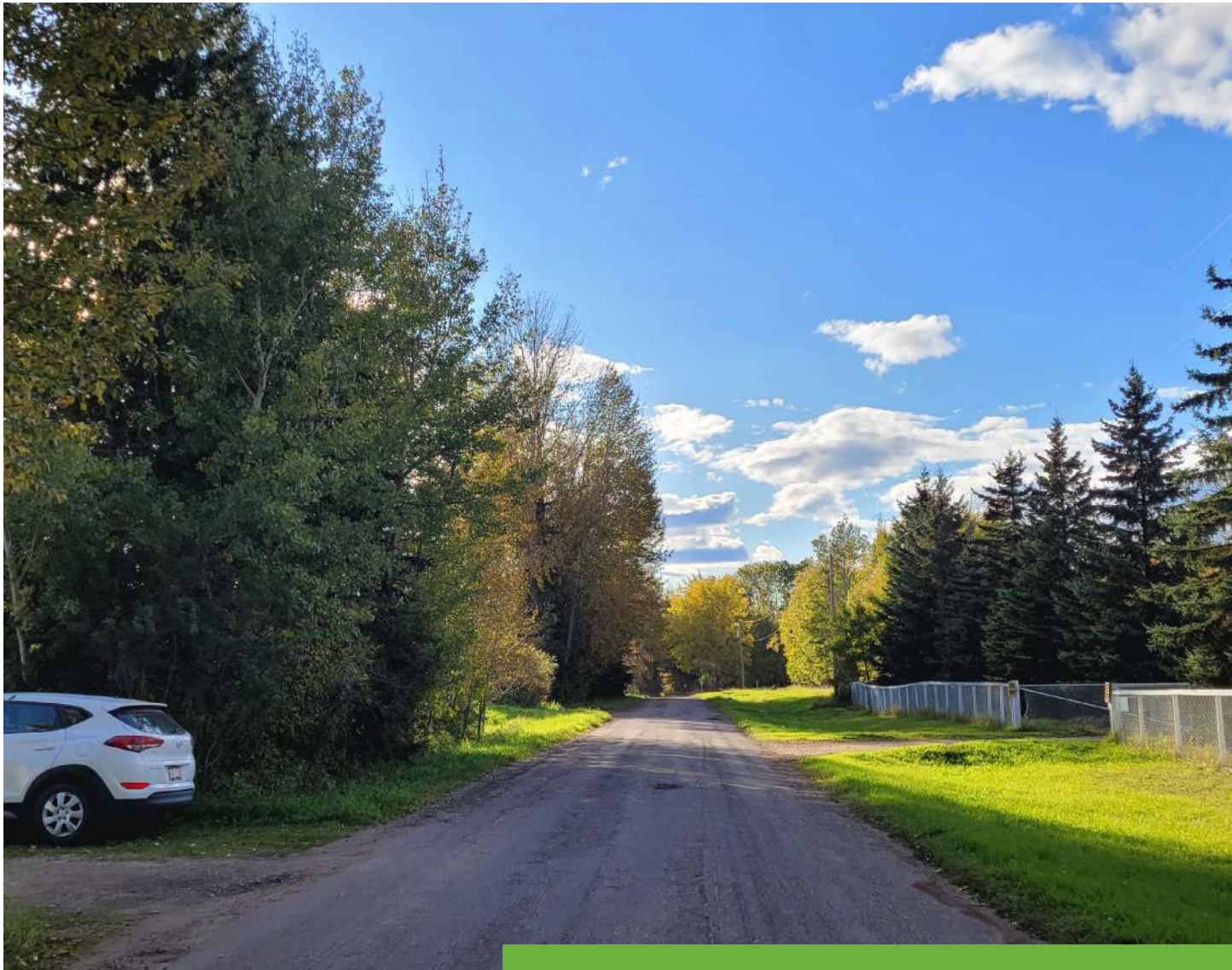
The Athabasca River has changed course many times over the millennia. During its wandering, it has laid down granular material across the breadth of the valley. The silt and organic layers above the granular material vary in depth. In the plan area, the granular material is typically within 2.5m of the surface, coinciding with the groundwater level. The granular layer exceeds 3.0m in thickness.

2.7 PARKS AND RECREATION

The golf course and adjacent sports fields occupy about 30% of the plan area. These areas serve as regional recreation facilities. There has been consideration of adding a campground to the golf course operation, east of the clubhouse. A temporary campground (unserviced) was located north of the wastewater treatment plant for a slow pitch tournament in the recent past. The golf course is particularly affected by the flood hazard of the Athabasca River. The erosion control structures recently placed will slow bank loss but will not reduce damage from flooding. A flood of a 1:50 to 1:100 level could destroy the portion of the course adjacent to the river and damage the remainder. In addition to land that will be available upon reclamation of the gas well site, land northeast of the clubhouse may be suitable for expansion or relocation of parts of the course.

3

PUBLIC ENGAGEMENT



3.1 PUBLIC ENGAGEMENT

The preparation of this plan was guided by feedback provided by the community, stakeholders, and property owners. Property owners, Woodlands County, and the general public were first notified of the intent to prepare an ASP for the North Flats area in the spring of 2019 and were requested to provide input for plan development. The Covid-19 Pandemic paused this process, which resumed in 2022. Public engagement was undertaken in tandem with the public engagement associated with the Whitecourt Land Use Bylaw and Municipal Development Plan update projects.

Engagement continued between September 2022 and April 2024. Highlights from this phase of engagement include:

- Establishing an Advisory Committee to provide advice to the Town and the Project Team. The Advisory Committee consisted of council members, the business community, non-profit organizations and citizens at large. The role of the Advisory Committee was to workshop issues and opportunities related to the North Flats area (in addition to issues related to the MDP and LUB projects), and provide feedback on the plan. A total of four (4) Advisory Committee meetings were held.
- Three online surveys were conducted. These surveys allowed the project team to collect a broad range of feedback and establish direction for the plan.
- Three (3) Open Houses were held which allowed for conversation between community members and the project team. These events supported conversations regarding community preferences and perspectives on the North Flats Area.
- Property owners were contacted individually in the fall of 2023 to provide input.
- A Public Hearing was held on May/June ___, 2024 to provide the public a final opportunity to comment on the draft ASP before Council review and adoption.

Key findings from these engagement events include the identification of issues, opportunities and the creation of a vision for the North Flats Area. Potential issues highlighted by the community include concerns around:

- Odour from the water treatment plant;
- The area being in a flood zone;
- Wildlife preservation; and
- Maintaining natural areas.

The community highlighted key points of their vision for the North Flats area including:

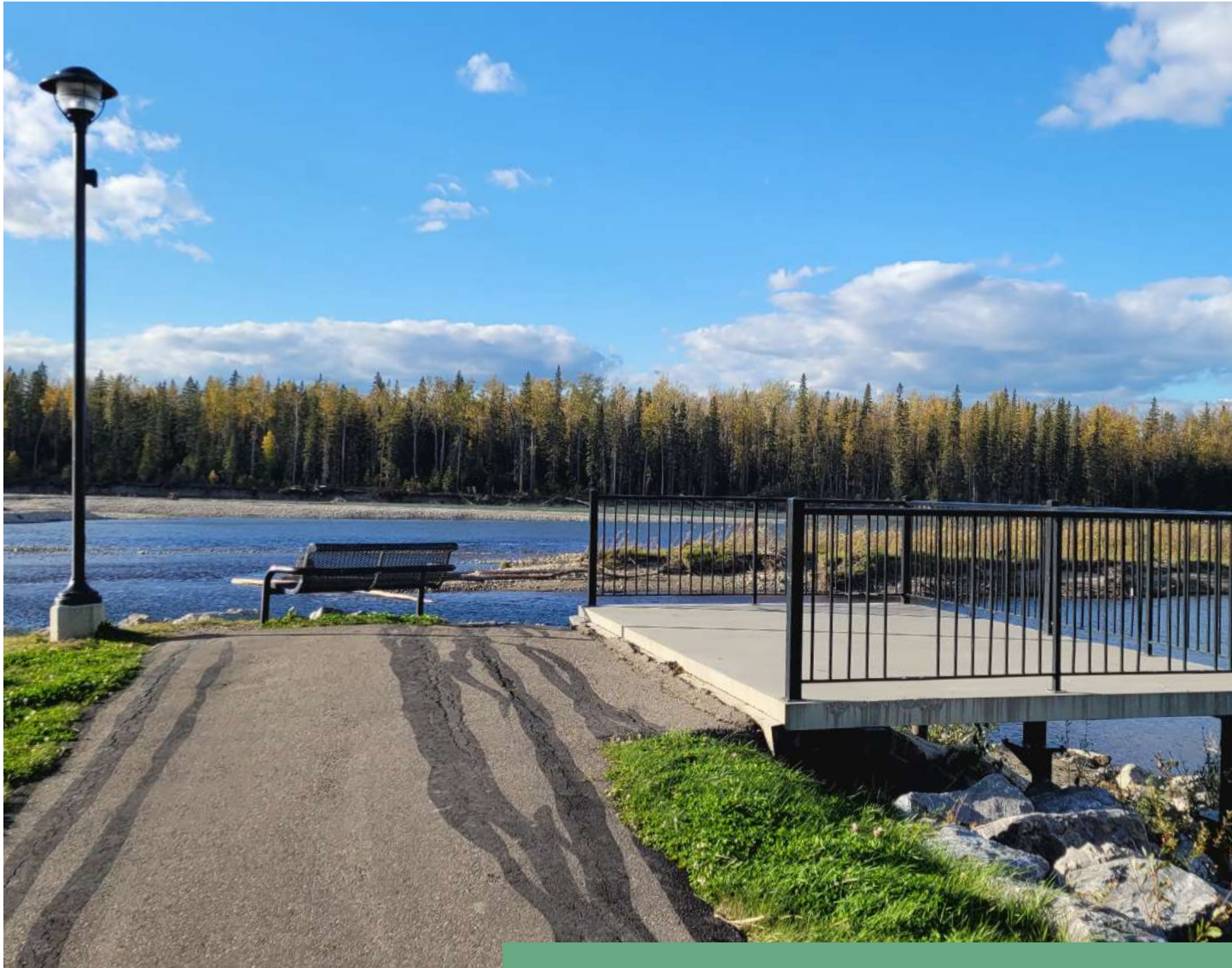
- Expanding recreation areas;
- Creating and expanding walkways and trails;
- Creating access to the river; and
- Developing a campground.

Independent calls with landowners from the North Flats area were conducted throughout the Fall of 2023. These calls allowed landowners to express their preferences and concerns about the North Flats ASP. The outcomes of these calls are summarized as follows:

- Support was expressed for the residential alignment outlined in Map 7 – Future Land Use Concept, assuming the existing residential properties would be retained.
- Concerns were expressed regarding residential access being provided from 47th Street to the west residential area, however, it was noted that the overall access framework was satisfactory.
- Concerns were noted regarding the amount of property that had been lost to the river from flooding.
- It was noted that the golf course may need to be reconfigured in the future, however, the preference is to maintain these lands as a golf course.
- Support was noted for the lands owned by Millar Western Industries to remain as natural areas due to the flood risks associated with these areas.

4

VISION AND GUIDING PRINCIPLES



4.1 VISION STATEMENT

The North Flats ASP Area will provide opportunities for a wide range of land uses including recreational, residential, and institutional uses. It will continue to serve the needs of the municipality and region by:

- Serving as a vibrant community hub anchored by its recreational and natural amenities;
- Providing a range of recreational uses by maintaining and enhancing existing facilities;
- Improving the connectivity of the area through the expansion of the existing trail network; and
- Providing opportunities for residential development that is sensitive to the unique natural and recreational uses in the plan area.

4.2 GUIDING PRINCIPLES

- All development is constrained by the existing flood hazards and shall occur in an environmentally sensitive manner.
- Parks, open spaces, and recreational spaces meet the needs of residents and contribute to the sense of community.
- Open Spaces and Trails are designed to promote and improve safety.
- The housing choices provided within the plan area promote vibrant and diverse communities that provide a broad mix of housing forms.
- Adequate servicing infrastructure is provided to accommodate future growth and redevelopment.
- The North Flats Area is easy to navigate through active transportation methods and has strong connectivity to other areas of Whitecourt.
- Safe and accessible connections to the Athabasca River are supported.
- All development is sensitive to the existing wildlife corridor associated with the Athabasca and McLeod Rivers. Potential wildlife interaction is an ongoing consideration for all development within the North Flats Area.

5

FUTURE LAND USE CONCEPT



5.1 FUTURE LAND USE CONCEPT

Overview

The plan allows the continuation, expansion, and intensification of institutional, recreational, utility, natural, and residential land uses. Agricultural activity will be eliminated as transition to other uses takes place. Integration with adjacent urban development's transportation, utility, and land uses will foster compatibility of development.

Residential development will be accommodated in sub-area W-2 (West Residential Area) and E-1 (East Residential Area). These residential areas will consist of a mix of low and medium-density development.

Recreational areas will be retained, consisting of the existing Whitecourt Golf Course and Country Club and the Graham Acres Sports Fields. Future development of the sports fields will be consistent with the Whitecourt Sportfield Master Plan. A new unserviced campground is being contemplated for the land north of the existing sports fields.

Natural areas are to be preserved in the C-2, C-4, and W-1 sub areas. Two stormwater management ponds are planned for the East Residential (E-1) area, which will incorporate trail access. Further trails are planned to connect to the existing trail network along the Athabasca Riverfront, extend down the pipeline corridor, and connect to the planned and existing residential developments in the area.

Land Use Statistics

Table 1 - Proposed Land Use

Land Use	Area (ha)*	Area %
Natural	102.37	35.0
Recreational / Golf Course	121.91	41.63
Institutional	6.61	2.26
Residential	30.32	10.35
Utility	19.51	6.67
Agricultural	0	0
Transportation	9.97	3.40
Unallotted	2.18	0.74
Total	292.86	100

*All area calculations are based on the cadastral data used at the time that this area structure plan was drafted.

Population Density

The planned future residential areas have been configured to provide a range of housing types and densities while reflecting nearby development, the current dwelling mix in Whitecourt, and the capacity of roads and utilities to be extended to the plan area.

Based on the current density of residential land in Whitecourt, the future development envisioned for the plan area could support a population of approximately 856.

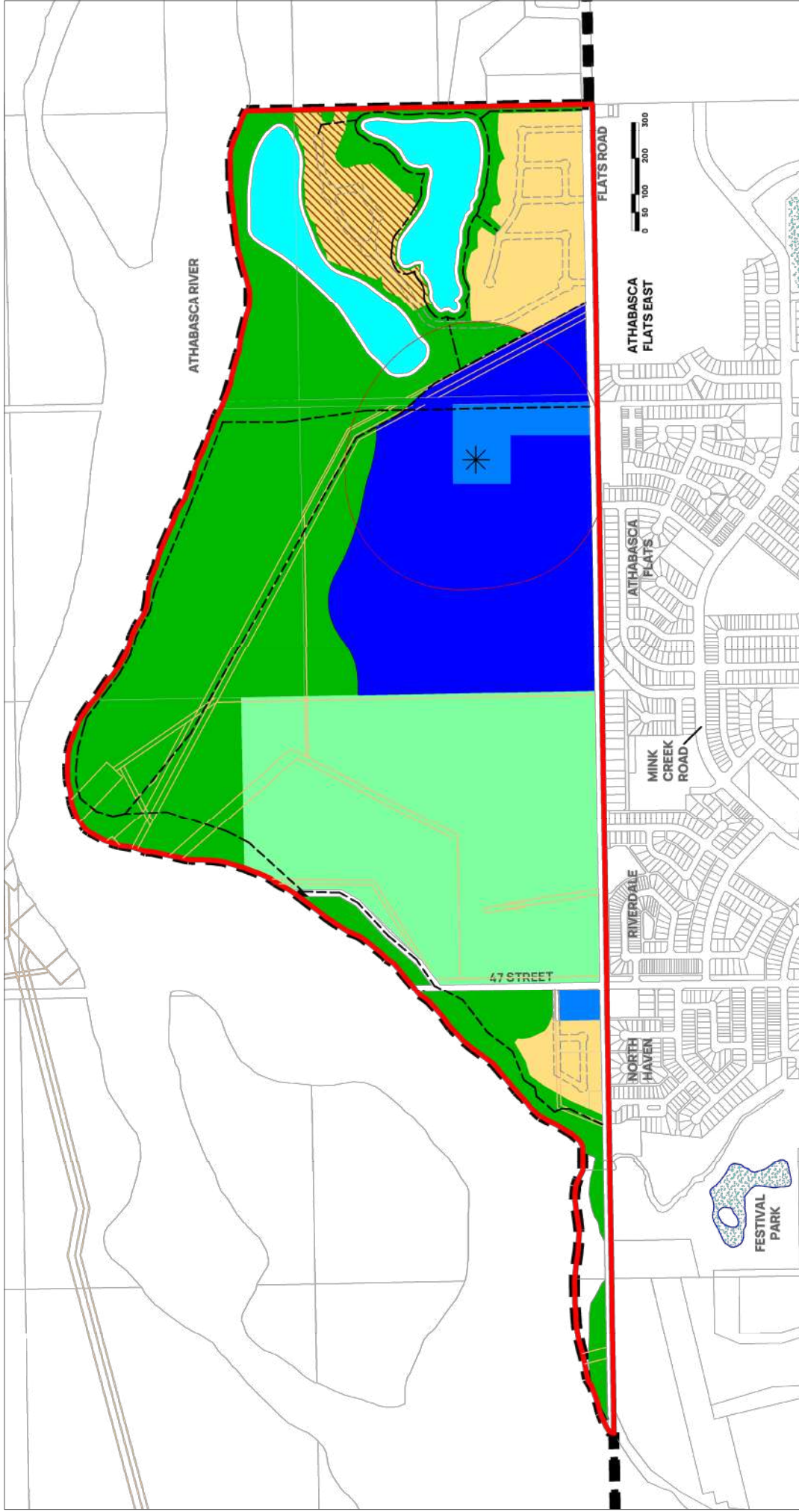
Table 2 - Anticipated Residential Density

Location	Total Area (Gross Ha)*	Total Area (Net Ha - 70% of Gross Area)*	Residential Development Type	Area (Net Ha)*	Density (DU/ Ha)	Total Dwelling Units
East	25.96	18.17	Low Density	16.67	13	217
			Medium Density	1.50	33	50
West	4.35	3.05	Low Density	1.87	13	24
			Medium Density	1.18	33	39
Total	30.31	21.22				330
					Population:	856

*All area calculations are based on the cadastral data used at the time that this area structure plan was drafted.

North Flats Area Structure Plan

Map 7: Future Land Use Concept



LEGEND

- Plan Area
- Municipal Boundary
- Institutional
- Residential
- Residential (Long-term)
- Golf Course
- Natural
- Recreational
- Stormwater Management Pond
- Trails
- Wastewater Treatment Facility (WTF)
- 300m buffer from WTF
- Pipelines



5.2 LAND USE POLICIES

General

- 5.2.1 Future land uses in the Plan area shall be in general compliance with Map 7: Future Land Use Concept.
- 5.2.2 The ASP proposes a wide variety of housing types, with a wide range of prices, to make a more inclusive neighbourhood.
- 5.2.3 Development should maximize views and vistas of park spaces, the Athabasca River, and storm water management facilities.
- 5.2.4 The ASP shall allow for more intensive and/or innovative forms of low and/or medium density residential housing supported by the appropriate level of municipal servicing.
- 5.2.5 Landscaping within the Plan Area should incorporate the use of native plant species within all open spaces and storm water management facilities.

Residential

- 5.2.6 Low Density Residential development may include single detached and/or semi-detached housing types.
- 5.2.7 Lands to be developed as low density residential should be re-districted to the appropriate districts as outlined in the LUB.
- 5.2.8 Low Density Residential should be located abutting local roadways.
- 5.2.9 Medium and High Density Residential should be located abutting collector and arterial roadways.
- 5.2.10 A variety of lot sizes suitable for various housing types should be considered within each stage of development to ensure a mixture of housing and lot sizes.
- 5.2.11 Residential development should incorporate a mix of 30% medium density and 70% low density residential housing types/units.
- 5.2.12 The northern portion of the east residential (E-1) area may be developed subject to the following considerations:
 - a. Financial feasibility of infrastructure provision in a cost-effective manner;
 - b. Application of appropriate flood mitigation approaches; and
 - c. Provision of second access to the subdivision for emergency.
- 5.2.13 If residential development in the north portion of the east residential area is not feasible, development of this area for passive recreational opportunities should be considered.
- 5.2.14 Appropriate noise attenuation shall be provided for residential uses adjacent to the North Flats road.

Recreational

- 5.2.15 The existing recreational facilities including the Whitecourt Golf and Country Club and Graham Acres Field facilities should be maintained and enhanced.
- 5.2.16 Existing sports field facilities should be maintained and expanded as per the Whitecourt Sportsfield Master Plan.
- 5.2.17 The development of an unserviced campground may be considered to be developed north of the Graham Acres Sports Fields east of the Whitecourt Golf and Country Club building provided appropriate buffers are maintained from the Wastewater Treatment Plant site.

Institutional

- 5.2.18 The Whitecourt Wastewater Treatment Plant shall continue to operate in the Plan area.
- 5.2.19 Appropriate enhancements to the treatment plan shall be considered to serve the needs of existing and future populations.
- 5.2.20 In accordance with the MGA, residential uses immediately adjacent to the Wastewater Treatment Plant shall provide a 300 m buffer from the Wastewater Treatment Plant.

6

FUTURE OPEN SPACE NETWORK



6.1 OPEN SPACE CONCEPT

Golf Course

The existing Golf Course lands are envisioned to continue their operation. Given that much of the Golf Course Lands are located within the Floodway and Flood Fringe, maintaining a low intensity recreational use in this area will ensure that flood risks related to development are minimized.

Recreational Areas

Sports Fields: The sports fields located directly north of Flats Road are planned to remain and will expand east and north in accordance with the Whitecourt Sportsfield Master Plan.

Campground: A new campground is to be considered for development north of the Graham Acres Sports Fields east of the Whitecourt Golf and Country Club building. The campground would be unserviced.

Natural Areas

The northern portion of the plan area as well as the natural areas in the W-1 and W-2 Sub areas are envisioned to remain as natural areas. Preserving natural areas along the river provides a wildlife corridor. These areas, coupled with constructed water bodies and open space will help to minimize human wildlife interaction.

The natural areas identified in Map 7 are within the Floodway. Retaining these areas in their natural state ensures that flooding impacts on developed areas are reduced.

Trails

The ASP strives to achieve a trail network to improve the connectivity and quality of life for current and future residents. It is anticipated that trails will be developed throughout the ASP area, expanding upon the existing trail system along the Athabasca River, and connecting to the planned west and east residential areas. Trail connectivity will also be pursued in alignment with the pipeline ROW connecting the northern portion of the plan area to Athabasca Flats south of Flats Road.

6.2 OPEN SPACE POLICIES

Connectivity and Public Access Open Spaces

- 6.2.1 Encourage trail development to connect to existing trails and to environmental reserve and municipal reserve areas, as well as stormwater management facilities to promote direct and convenient access to public lands.
- 6.2.2 Encourage a contiguous network of multi-use trails that provide connections to and between parks, open space, storm water management facilities, and other focus points within the Plan Area and adjacent neighbourhoods to promote an active, connected and healthy community.
- 6.2.3 Prioritize trails and parks that allow the community to connect with the rivers.
- 6.2.4 Encourage the development of trails within the natural area.
- 6.2.5 Park spaces are provided to this area through connections to Festival Park, Graham Acres, Riverside Park, and the future storm water management ponds.
- 6.2.6 Given that no additional institutional uses or park spaces are proposed for this area, any Municipal Reserve owing for North Flats shall be dedicated in full as cash-in-lieu of land or an acceptable combination thereof. The values for cash-in-lieu shall be agreed upon prior to subdivision.

Preservation of Natural Areas

- 6.2.7 Encourage new roadway and lot layouts to be compatible with existing environmental features.
- 6.2.8 Integrate storm water management facilities, parks, and natural areas to provide habitat and encourage ecological connectivity.
- 6.2.9 Plantings of native species should be utilized to add to the habitat value of the green network within the Plan Area.

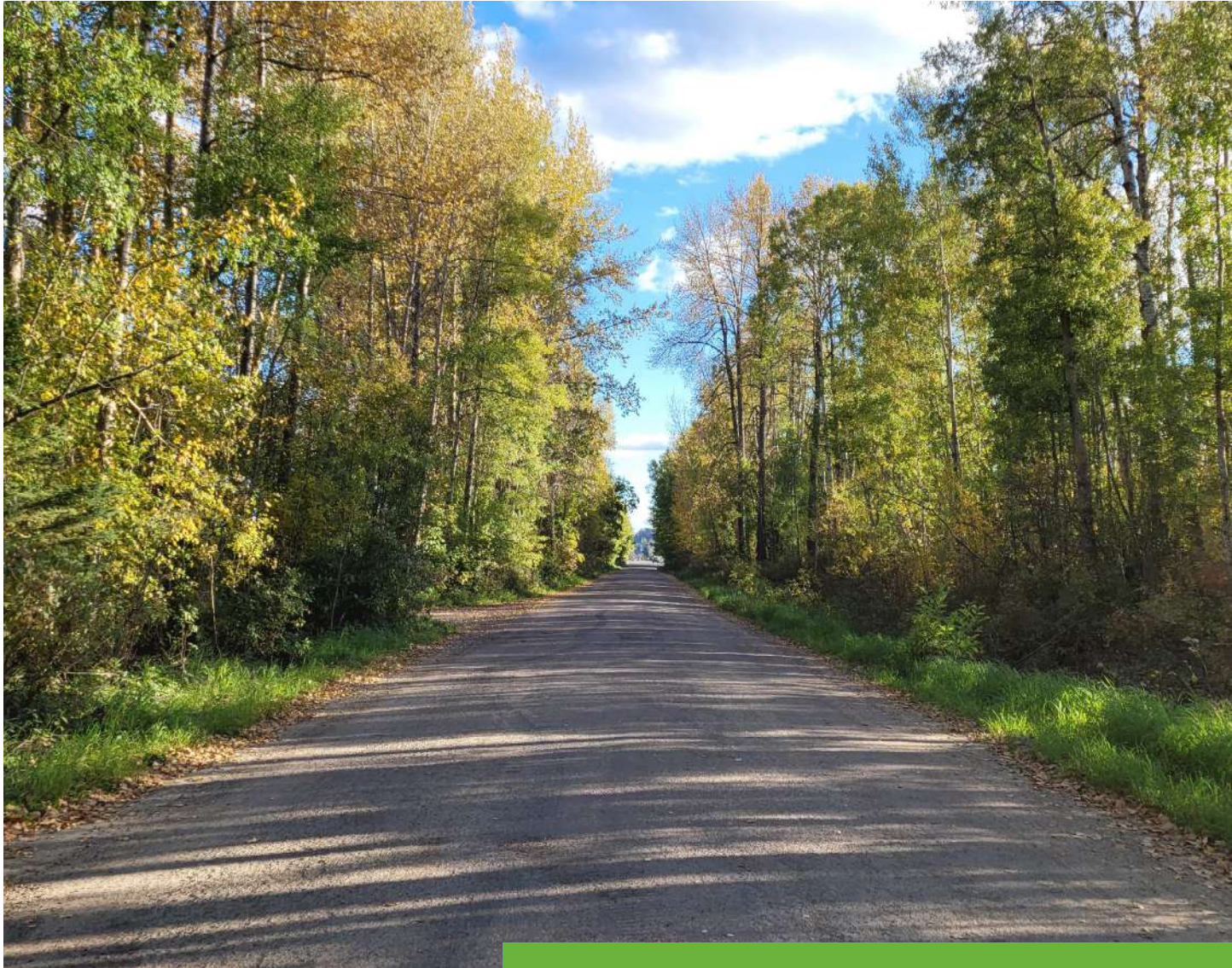
Riverfront Development

- 6.2.10 The lands directly adjacent to the riverfront shall be maintained in their natural state.
- 6.2.11 The Town will endeavor to work with Millar Western Industries, the Whitecourt Golf Course and Country Club and the pipelines in the plan area to create trail connections along the riverfront and looping through the plan area in general accordance with Map 7.
- 6.2.12 Amenities such as gathering spaces and seating shall be provided along the waterfront with a particular focus on the area adjacent to the river at the northern terminus of 47th Street.
- 6.2.13 Access to Athabasca riverfront should be provided via top-of-bank multi-use trail, pedestrian access points or an acceptable combination thereof.
- 6.2.14 Flood resistant design principles should be encouraged for future developments adjacent to the river;

and mitigation measures to help protect existing developments (such as the golf course) should be supported.

7

TRANSPORTATION CONCEPT



7.1 TRANSPORTATION CONCEPT

The transportation concept provides a high level vision for the future transportation network in the Plan area to serve the existing land uses present in the plan area, in addition to the planned west and east residential areas. The following table outlines the affected road sections along with their existing and proposed roadway standard:

Roadway	Existing Road Standard	Future Road Standard
47 th Street - North Flats Road	Local Road (Rural - Gravel)	Local Road (Urban)
Flats Road West - west of 47 th Street	Local Road (Rural - Gravel)	No change
Flats Road - South of Golf Course Lands	Local Road (Rural - Paved)	Collector Road (Urban)
Golf Course Access Road	Local Road (Rural - Paved)	No change
Flats Road East and Flats Road Collector	Local Road (Rural - Paved)	Collector Road (Urban)
West Residential Area - Internal Roads	n/a	Local Road (Urban)
East Residential Area - Internal Roads	n/a	Local Road (Urban)

47th Street North of Flats Road

The West Residential Area north of the North Haven Neighborhood will obtain access off 47th Street. 47th Street north of Flats Road is currently constructed to a rural gravel standard. The new development will add a minimum of 280 vehicles per day. The volume of traffic for this roadway supports that the road be upgraded to an urban residential local standard cross-section as per the Town of Whitecourt's Municipal Design Standards. The increase in the residential units within the west ASP area will also increase the number of people who utilize Riverside Park. As a result, 47th Street north of Flats Road should be upgraded to provide improved access to Riverside Park.

The flood fringe area currently crosses over a portion of 47th Street north of Flats Road. The ultimate design of 47th Street and the future subdivision east of the roadway will need to take into consideration the floodplain extent. The elevation of the future roadway and subdivision area will need to be increased to reduce the extent of the floodplain, containing it to the west side of the roadway, and south of the future development.

The internal road system for the West Residential Area will also adopt a residential local roadway standard. Municipal services for the area will be contained within the roadway carriageway.

As per the Town of Whitecourt's Municipal Design Standards, Local Roads (Urban) include sidewalks on both sides of the road. The Town may choose to develop sidewalks only on the west side of the road right-of-way. This approach would provide adequate pedestrian connectivity to access the West Residential Area as well as provide pedestrian connection to Riverside Park.

Flats Road West

The segment of Flats Road located to the west of 47th Street will not necessitate upgrading. Instead, it will serve as a limited access lane and/or a potential emergency access route. Furthermore, the western section of the roadway may be linked to the northern terminus of Pritchard Drive. In the long term, there may be opportunity to upgrade this road to a paved residential collector, should it be desired.

Flats Road - South of the Golf Course Lands

Flats Road South of the Golf Course Lands (between 47th Street and Flats Connector) will see additional traffic as part of the planned residential developments. The east residential area will increase the traffic along this portion of the roadway for access to the Golf Course, Riverside Park and other amenities in Whitecourt accessed via 47th Street. The West Residential Area will add traffic to this roadway primarily for access to the Town's amenities located on the east side, filtering traffic to the Flats Collector and then south to Mink Creek Road. The volume increase to this roadway will warrant an upgrade to an urban collector roadway standard. The design will need to incorporate storm water management in the form of an underground pipe system and/or overland drainage ditches that parallel the existing roadway.

As per the Town of Whitecourt's Municipal Design Standards, Collector Roads (Urban) include sidewalks on both sides of the road. The Town may choose to develop sidewalks only on the south side of the road right-of-way, or utilize the existing pathway immediately south of the residential lots, to establish continuous east-west pedestrian connectivity.

Currently, thirteen houses access the east end of this section of road from the south side. As future traffic volumes increase, the section of road between Flats Road Connector and 47th Street may benefit from appropriate traffic calming and safety measures.

The other existing access points on this portion of the roadway are the Golf Course Access Road and Baly Road. These access locations will remain as connection points to Flats Road.

A Traffic Impact Analysis may be required to ascertain the optimal timing for the potential upgrades envisioned for the developments within the Area Structure Plan lands. This analysis will help in assessing the impact of the proposed developments on traffic patterns and infrastructure, guiding the planning and implementation of necessary upgrades to ensure safe and efficient transportation within the area.

Flats Road East and Flats Road Connector

The East Residential Area will obtain access from Flats Road at locations determined by the proposed network at time of development. This area is to have two portions, the southern portion and the long-term northern portion.

The total East Residential Area has the potential to add approximately 1480 vehicles per day, with approximately 900 attributed to the south portion and approximately 580 to the north portion. This volume of traffic supports that the internal roadways be constructed to an urban residential local standard cross section as per the Town of Whitecourt's Municipal Design Standards. Municipal services for the area will be contained within the roadway carriageway. The subdivision and roadway design will need to ensure that elevations are maintained above the 1:100 year flood plain level.

In the short term, a residential collector roadway will be sufficient to support traffic and circulation. The collector roadway upgrades would extend from the eastern boundaries of the plan area to Mink Creek Road (including the Flats Road Connector). The increased volume of traffic anticipated from the East Residential Area will be a minimum of approximately 1100 vehicles per day. While this level of traffic is significant, a collector roadway can accommodate this volume.

As part of the roadway improvements, there may also be a need to incorporate stormwater infrastructure into the roadway design to manage surface water within the road carriageway. The specific requirements for stormwater management will be determined during the development of the Stormwater Management Plan and the detailed design process.

As per the Town of Whitecourt's Municipal Design Standards, Collector Roads (Urban) include sidewalks on both sides of the road. The Town may choose to develop sidewalks only on north side of the road right-of-way. This approach would provide adequate pedestrian access to the Whitecourt Golf & Country Club, Graham Acres Fields, and the water treatment plant facility.

Pedestrian Connectivity

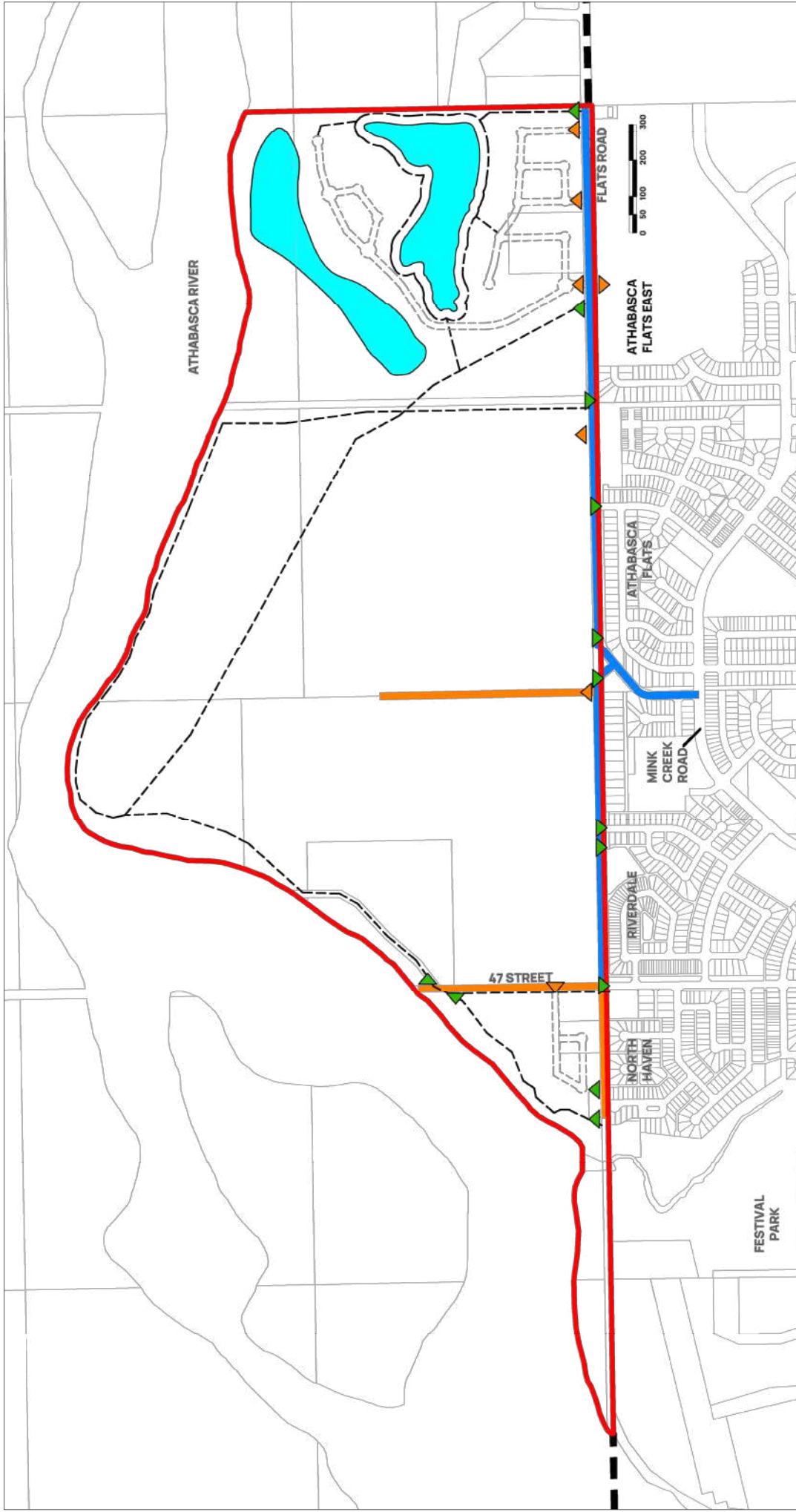
Key pedestrian access points are identified in Map 8 Transportation. Trail access is envisioned to integrate with the greater Whitecourt trail system as per the Open Space and Trails Concept outlined in the Town's Municipal Development Plan. Linkages between sidewalks and trails will create an interconnected pedestrian network that will support connectivity to local amenities such as natural areas, recreational opportunities, and transit.

Pedestrian access to the plan area will be provided through new roadway construction as the area is built out, and through upgrades to existing roadways. This may be achieved through a combination of sidewalks and multi-use trails on one or both sides of the road alignment. With the majority of the roads in the plan area already established, design and placement of pedestrian access will require consideration of the available space within the road rights of way, and existing infrastructure such as streetlights and private driveways.

The primary objective is providing access to pedestrians and cyclists. Sidewalks or trails should be located on the side of the street that provides the most access, in a safe manner. Functional designs should be given higher priority than strict adherence to Municipal Design Standards due to the challenges of working in established areas.

North Flats Area Structure Plan

Map 8: Transportation



- LEGEND**
- Plan Area
 - Municipal Boundary
 - Local Road
 - Future Collector Road
 - ▲ Pedestrian Access
 - ▲ Vehicular Access
 - Stormwater Management Pond
 - Trails
 - Future Local Roadway Network (Shadow Plan)



7.2 TRANSPORTATION POLICIES

- 7.2.1 The future internal roadway network in the Plan Area should:
- a. Be constructed to the current urban street standards described in the Town of Whitecourt's Municipal Design Standards; and
 - b. Comply with the principles outlined in the Town of Whitecourt MDP.
- 7.2.2 The internal roadway network for residential areas shall be established at the subdivision stage and should aim to develop an interconnected roadway system.
- 7.2.3 Future vehicular and pedestrian access points for each phase of the Plan Area should be approved at the subdivision approval stage in general accordance with Map 8.
- 7.2.4 Each stage of development should ensure a minimum of 2 points of access.
- 7.2.5 Landscaping treatment for all roadways shall be in general conformance with the Town of Whitecourt's Municipal Design Standards.
- 7.2.6 Pedestrian crossings shall be safe, convenient and developed at visible locations.
- 7.2.7 Collector roadways shall have adequate access to arterial roadways to maintain appropriate traffic flow in and out of the Plan Area.
- 7.2.8 Ensure that the maximum length of culs-de-sac in residential settings does not compromise the Town emergency response plans, operations, or maintenance.
- 7.2.9 Ensure that internal roadways have ample vehicular and pedestrian connections and form accessible residential developments.
- 7.2.10 Sidewalks should be provided in accordance with the Town of Whitecourt Municipal Design Standards. The Town may pursue to establish sidewalks only on one side of roadways such as along 47th Street North of Flats Road, or Flats Road east of 47th Street. The preferred location of sidewalks on only one side of the right-of-way are as follows:
- 47th Street North of Flats Road: west side;
 - Flats Road South of the Golf Course: south side; and
 - Flats Road East of Flats Connector Road: north side.

8

UTILITY INFRASTRUCTURE



8.1 OVERVIEW

The West Residential Area is planned to accommodate approximately 63 residential dwellings.

The East Residential Area is planned to accommodate approximately 267 residential dwellings. Within the East Residential Area, approximately 167 dwellings can be accommodated in the southern portion of the development, and approximately 100 dwellings can be accommodated in the northern portion of the development in the long-term subject to financial feasibility and demand. The exact number of dwelling units will depend on factors such as the configuration of the road network, as well as type and size of the residential lots.

The plan area has a significant amount of availability regarding the Stormwater Management capacity, however it is expected that the water and sanitary systems will place restrictions on the servicing capacity for the plan area.

Water

For more information on water servicing, please refer to Map 10.

The Town's water system will be extended to serve the new residential areas, connecting to existing water mains adjacent to the plan area.

The West Residential Area (W-2) is intended to have water service provided through a connection to the existing 200mm watermain located at the north end of Pritchard Drive. The plan is to establish a 200mm watermain network within the local road network of this residential area. Looping for this area would involve extending the proposed internal 200mm watermain eastward to connect with the existing 200mm watermain located at the north end of Baly Road.

The East Residential (E-1) area is to be serviced through the extension of the water distribution system from the 200mm watermain crossing Flats Road, east of the Sewage Plant access road. This main will extend along the north side of Flats Road eastward to the East Residential Area. The extension would connect to the proposed 200mm water distribution network internal to the local road system. Internal servicing for the development would be achieved through a 200mm watermain network contained within the roadway carriageway. A 400mm watermain is located south and west of the Athabasca Flats Lift Station. This main could be extended north and across Flats Road to be connected to the east leg of the internal watermain to achieve system looping. It may be necessary to create a looped system in order to achieve the necessary pressures and flows for the northern portion of area. The details and location of the loop connection would be required as part of the detailed design process.

The detailed design process will be crucial in determining the specifics of implementing these water distribution systems, including any required looping, and ensuring that they meet the necessary safety and operational standards for residential water supply.

Wastewater

West Residential Area

A gravity sewer system is proposed within the local road network which is intended to connect to a sanitary manhole located at the northern extents of Pritchard Drive. It is expected that the proposed gravity sewer system will be able to connect to the existing gravity sewer system. The existing gravity sewer system is connected to the North Haven Lift Station. It is anticipated that both the gravity sewer system and the lift station can accommodate the proposed residential development.

A gravity sanitary sewer network is planned to be integrated within the local road network and directed south to connect with the existing gravity sewer system. The proposed system would tie into the existing gravity sewer system south of Flats Road and just west of the Athabasca Flats Lift Station. The existing gravity sewer system discharges into the Athabasca Flats Lift Station, which then directs the effluent into a 300mm force main that carries it west toward the sewage treatment plant.

The detailed design phase will involve a thorough examination of the existing sewage infrastructure, hydraulic calculations, and capacity assessments to ensure that the development can be properly integrated into the existing system while meeting all regulatory and operational requirements.

East Residential Area

A gravity sanitary sewer network is planned to be integrated within the local road network of the East Residential Area and directed south to connect with the existing gravity sewer system. The system would tie into the existing gravity sewer system south of Flats Road and just west of the Athabasca Flats Lift Station. The existing gravity sewer system discharges into the Athabasca Flats Lift Station, which then directs the effluent into a 300mm force main that carries it west toward the sewage treatment plant.

Initial reviews of elevation data suggest that the southern portion of the East Residential Area can utilize a gravity sewer system without requiring excessive earthwork modifications. This is advantageous for the development process as it helps avoid additional costs associated with moving large amounts of earth. However, during the detailed design phase, it will be crucial to investigate the existing system's capacity and assess whether any pipe insulation requirements are necessary to ensure proper functioning of the sewer system.

The long-term northern portion of the East Residential Area may exhibit some challenges in regards to sanitary servicing if considered for development. At the time that development is being considered for this area, the servicing of the area will be a critical consideration and will be reviewed in detail. The type of housing proposed for the area may help to reduce servicing challenges. For example, manufactured homes without a below ground component, or low density homes which allow for the installation of a low pressure system may reduce servicing challenges. The distance from the sanitary system tie in location is excessive which will create issues with obtaining the necessary cover over the system infrastructure. The incorporation of insulated pipe, the inclusion of imported fill material, a lower pressure system and/or a lift station could be considered to alleviate such concerns.

As part of the subdivision process a comprehensive design including precise calculations, hydraulic modeling, and a thorough examination of the existing infrastructure to confirm that the proposed gravity sewer system can effectively handle the sewage generated by the new residential

development will be required. Additionally, the capacity of the existing sewer system will need to be assessed to ensure that it can accommodate the increased load from the new development without causing any operational or capacity issues.

Storm

For more information on stormwater servicing, please refer to Map 9.

The existing surface drainage system will be retained where new development does not take place. Storm Water Management for the proposed residential developments will be accomplished through surface drainage techniques, the use of underground piping systems and storm water management facilities.

For both proposed residential areas, surface water will be directed into the underground storm system through the following methods:

- **Grading Requirements:** The grading of the individual lots within the proposed residential area must comply with the grading requirements set forth by the Town of Whitecourt. Proper grading ensures that water flows as intended and doesn't cause issues such as flooding or erosion. Lot grading typically will direct surface water towards a road system and/or drainage swale.
- **Surface Drainage Swales:** Surface drainage swales may be incorporated as needed. These are shallow channels or depressions in the ground designed to direct surface water runoff away from structures and toward appropriate drainage systems. The swales may need to be contained within:
 - a. **Public Utility Lots:** These areas can be used for various utility purposes, including stormwater management infrastructure or other public services.
 - b. **Drainage Easements:** Drainage easements may be established to facilitate the flow of surface water to the underground system inlets. These are legally designated areas on private property where drainage infrastructure or stormwater management components can be installed and maintained.
- **Underground Pipe Network System:** An underground pipe network system will be installed to collect and manage stormwater runoff. Surface inlets, such as grated openings or drains, will be connected to this system to capture and direct surface water.
- **Road System:** The road system within the residential area will include catch basins. Catchbasins are designed to capture surface water runoff from the roads and direct it into the underground stormwater system.

For the West Residential Area, the underground stormwater systems will direct the stormwater to the existing drainage courses that outlet to the Athabasca River. A Stormwater Management Facility (Forebay) has been shown conceptually on Map 9 within the flood plain, north of the existing Church and south of Riverside Park. This is one of many concepts that could be considered to improve the quality of the water entering the Athabasca River. The idea would be to slow down the drainage and allow the settling of heavier particles and pollutants prior to discharging. The Town may explore alternative methods for stormwater management in accordance with the AEP requirements and standards.

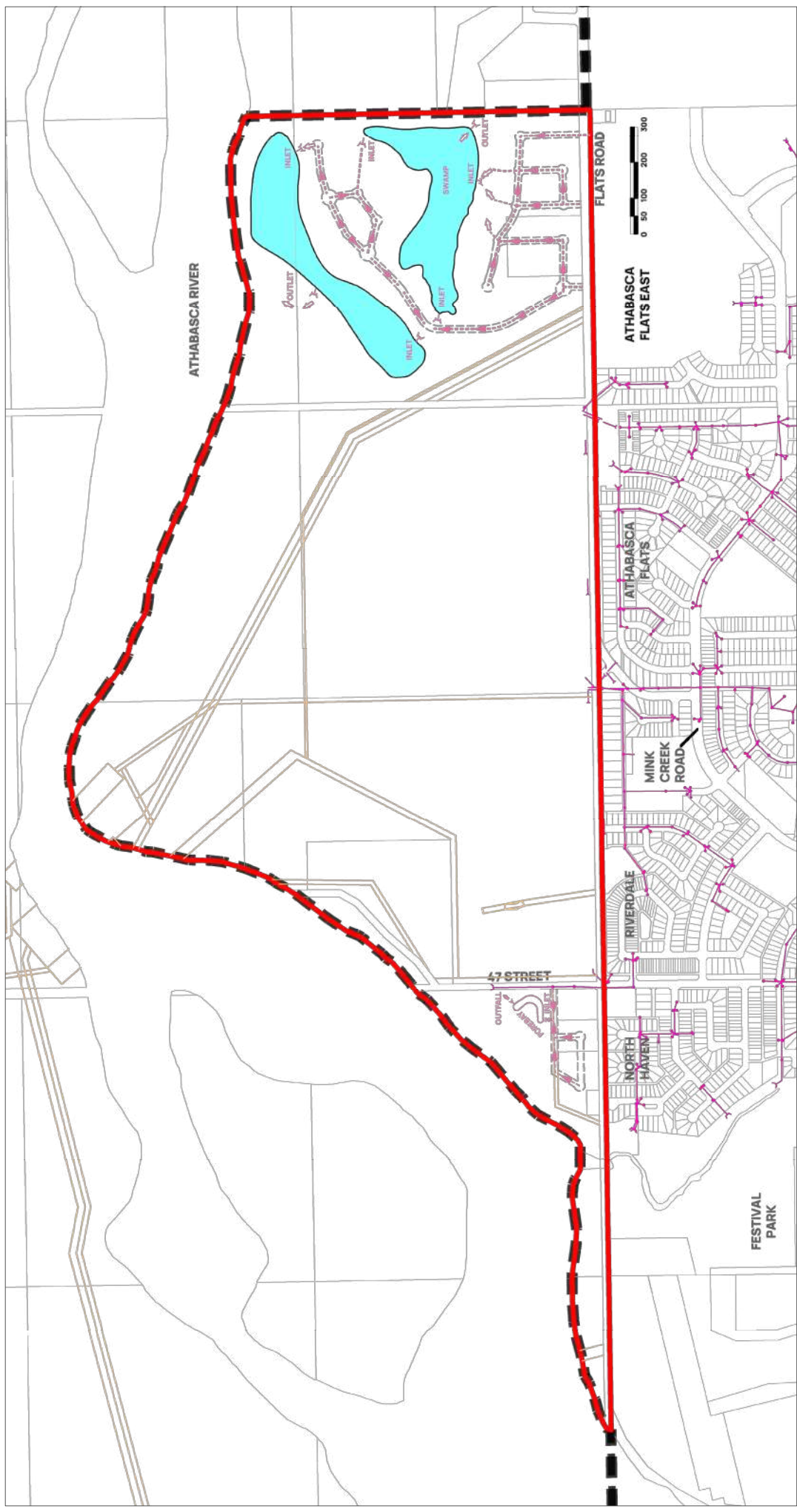
The East Residential Area is much larger than that for the west end, it is proposed that a Storm Water Management Pond (SWMP) be incorporated into the plan. The proposed pond will be used for both quality and quantity management of the associated storm water. For the southern portion of the East Residential Area, a pond just north of the area can be utilized for the SWMP, within the identified Athabasca River flood plain. This area will need to be graded so that the surface water is directed to the north where it will be able to drain into the SWMP. The development of the long-term northern portion will utilize the SWMP proposed for the southern portion as well as a SWMP to the north of the area.

The SWMP will need to have a large footprint so that the water level fluctuation is relatively small. The area does not have a large elevation gradient, therefore the SWMP inlet and outlet elevations will not allow for a large fluctuation elevation in the pond.

The details for the specifics associated with the stormwater management systems will need to be identified during the design and approvals phase before any development activities commence.

Other Services

Natural gas and electrical services will be provided by the Town's franchise utility operators, ATCO and Fortis, with facilities installed within and adjacent to roadways. All new wire services will be installed underground.



LEGEND

- Plan Area
- Municipal Boundary
- Existing Storm Manhole
- ↗ Overland Drainage
- Pipelines
- Existing Storm Sewer
- - - Proposed Storm Sewer

North Flats Area Structure Plan

Map 10: Water Utilities



- LEGEND**
- Plan Area
 - Municipal Boundary
 - Existing Watermain
 - Proposed Watermain
 - Existing Hydrant
 - ⋈ Existing Valve
 - Pipelines



North Flats Area Structure Plan

Map 11: Sanitary Utilities



LEGEND

- Plan Area
- Municipal Boundary
- Existing Sanitary Sewer
- Proposed Sanitary Sewer
- Existing Sanitary Manhole
- Existing Sanitary Lift Station
- Pipelines



8.2 UTILITY POLICIES

Water and Wastewater Network

- 8.2.1 All development within the Plan Area shall be connected to municipal water and sanitary sewer network in general accordance with Map 9: Stormwater Utilities, Map 10: Water Utilities, and Map 11: Sanitary Utilities.
- 8.2.2 Water servicing to the Plan Area shall be provided in accordance with the Water Study 2014, Municipal Design Standards, and Utilities Bylaw 1511.
- 8.2.3 A Sanitary Servicing Report and Water Distribution Design Report shall be required prior to any residential development to determine existing capacities and whether infrastructure upgrades are necessary to allow further development to connect to the existing systems.

Stormwater Management

- 8.2.4 Drainage works shall be constructed in a manner that provides for adequate surface water drainage and does not adversely affect adjacent properties.
- 8.2.5 Drainage works shall be encouraged to incorporate natural features and ecologically sustainable features into the Storm Water Management Plan.
- 8.2.6 The storm water management facilities (SWMFs) shall be designed:
 - a. using Crime Prevention Through Environmental Design principles,
 - b. to be accessible through public lands, and not land-locked by -private development;
 - c. incorporating landscaping, walkways and access for maintenance purposes; and
 - d. including naturalized shoreline plantings intended to provide habitat opportunities for wildlife and improve water quality.
- 8.2.7 All-weather access to the storm water facility should be provided for ongoing maintenance and emergency access.

Utility Rights of Way

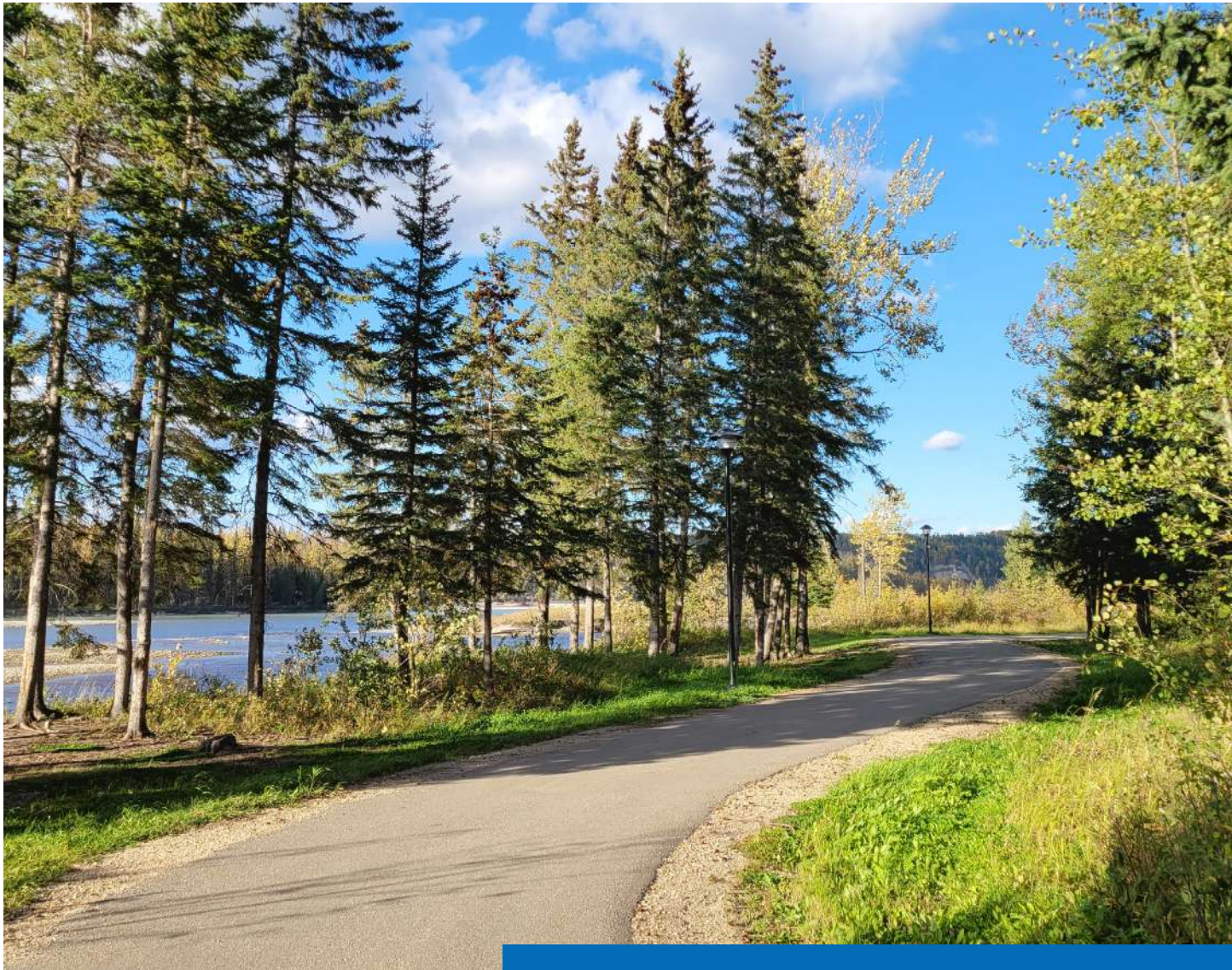
- 8.2.8 The Gas Pipeline ROWs which runs through the Plan Area should be incorporated into future development in a manner which does not compromise the viability of future residential lots or the operation of utilities within the ROWs.
- 8.2.9 No permanent or temporary structures shall be allowed on top of the applicable ROW.

Shallow Utilities

- 8.2.10 Shallow utilities shall be extended into the plan area as required.
- 8.2.11 Shallow utilities shall be provided via logical and economic extension of existing utilities in the surrounding area.

9

IMPLEMENTATION



9.1 DEVELOPMENT PHASING

Land within the area is controlled by several parties, each having their own schedules for development. Intensification of the use of the public recreation and park facilities will occur as the community's overall population increases, independent of development in the plan area. Changes on the golf course site will be determined by the club when economics or land availability presents opportunities. Enhancement and protection of the natural areas will take place as required.

Sequencing of residential development is more easily determined as it is predicated on the economically viable extension of roads and services to the development areas. There are currently residential development sites within Whitecourt that do not require offsite infrastructure investment (Athabasca Flats, Athabasca Flats East, Southlands Estates), which are likely to be developed before the plan area becomes economically viable.

Residential development adjacent to North Haven requires moderate offsite infrastructure investment and will be the initial development in the plan area. This area could be developed in two or three stages, depending on demand at the time of development.

Development north of Athabasca Flats East requires the land in the East Flats to be substantially developed for supporting utilities and roadways to be available. Site preparation (pond excavation) of the north area could take place simultaneously with land development in the East Flats as the East Flats requires fill to be obtained from the north area. Upon extension of roads and utilities to the north limits of the East Flats, a development north of Flats Road could take place in stages, starting in the southwest, and then progressing north and east.