

# Okotoks Flood Plain Policy

July 2001



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# Okotoks Flood Plain Policy

## July 2001

### 1. INTRODUCTION

This policy document has been prepared at the request of the Town of Okotoks Council to ensure that ----

---- all policies of the Town of Okotoks related to development in flood prone areas:

- are readily available to all landowners and interested parties in a concise, comprehensive and clear document; and
- are integrated with other relevant planning policies related to the provision of services, appropriate densities and land uses, and the sensitive integration of *new development* in existing developed areas.

The preparation of this document included an extensive public consultation process. Throughout the public consultation process, landowners and stakeholders were strongly encouraged to provide the Town with written comments. All written comments have been retained in the Town's filing system (D06 FL).

This document includes a Definitions Section [Section 2 on Page 2] to assist users of this document in interpreting the policies that follow. A Background Section [Section 3 on Page 4] follows. This section provides context regarding the relationship between municipal, provincial and federal *flood risk area* policies. The Policy Sections [Sections 4 to 6 beginning on Page 6] follows and contains the Town's land use and development policies specific to the *flood risk area*. These policies do not preclude the application of other standard Town of Okotoks regulations and rules as contained in the Land Use Bylaw [LUB] and Municipal Development Plan [MDP]. The document concludes with an Implementation Section [Section 7 on Page 17].

## 2. DEFINITIONS

Italicized words and phrases used in the body of this document are defined in this Section. In this policy document:

“**Bank**” means the natural boundary of a body of water as determined by an Alberta Land Surveyor in accordance with the Surveys Act.

“**Design Flood**” means a 1 in 100 year flood event, or a flood which has a one percent chance of being equalled or exceeded in any year.

“**Essential Public Infrastructure**” means publicly funded infrastructure which may include but is not limited to erosion protection works, sewage disposal facilities, water treatment facilities, major utility mains, park access roads and major road connections. Such infrastructure is required for the greater public good in an urban setting and at times requires their development partially or wholly in the *flood risk area*.

“**Existing**” means buildings or structures that were developed in flood prone areas prior to designation of the Okotoks *flood risk area* on May 11, 2000.

“**FDRP**” means the Canada-Alberta Flood Damage Reduction Program. This program was initiated by senior levels of government in 1989 for the purpose of mapping and designating *flood risk areas* in urban communities and increasing awareness of flood risk in designated communities.

“**Flood Fringe**” means those lands as illustrated on the *Flood Risk Map* that would be inundated by shallow, slow moving and generally less destructive floodwaters during a *design flood*.

“**Flood Level**” means the calculated level or elevation to which water would rise during a *design flood*. *Flood levels* vary from location to location depending on variations in the width of the flood channel, grades etc. The *Flood Risk Map* indicates the calculated *flood level* at a number of cross-sections along the Sheep River. Site specific *flood levels* are determined by Alberta Environment or its successor in response to subdivision and development application referrals from the Town.

“**Flood Mitigation Measure**” means any measure taken to reduce the risk of flood damage to both *existing* or *new development* and includes among other measures elevated pads, fill, back sloping, dykes and certain construction methods intended to reduce the risk of flood damage during a 1:100 year flood event.

“**Flood Risk Area**” means the area as illustrated on the *Flood Risk Map* that would be flooded during a *design flood*.

“**Flood Proofed**” means measures have been taken consistent with the *FDRP* to permanently protect *new developments* located within the *flood fringe* from flood damage. An effective and preferred method of flood proofing is to use elevated pads or fill to raise buildings at least 0.5 m (1.64 ft.) above the calculated *flood level*. Flood proofing also includes safeguards such as locating electrical panels and shut-off valves and water lines above the calculated *flood level* and restricting the use of rooms below the *flood level*.

“**Floodway**” means the river channel and adjoining lands as illustrated on the *Flood Risk Map* that would be inundated by deep, fast moving and destructive floodwaters during a *design flood*.

“**Flood Risk Map**” means the map dated January 1996 or any subsequent replacement produced by Alberta Environment or its successor pursuant to the *FDRP* that depicts the *flood risk area* in Okotoks including the *floodway* and *flood fringe* zones and provides calculated *flood levels* along selected cross-sections along the river.

“**Full Urban Standards**” means that a site or subdivision is serviced by municipal water, sewer and storm water systems and the roads providing access to the site or subdivision are paved, have curb and gutter and include a sidewalk system, street lighting etc.

“**Low density Residential**” means single detached dwellings on lots sufficient in size to accommodate a private water well and retain a rural or semi-rural setting.

“**New Development**” means filling and any building or other structure including additions to *existing* buildings or structures that are proposed within the *flood risk area*.

### 3. BACKGROUND

#### Okotoks Municipal Development Plan [MDP]

The Town's current policy framework regarding land use and development within the *flood risk area* is found in the Town's MDP [Escarpment and Shoreline Areas Section]. In summary the MDP states that:

- The Sheep River and its associated shorelines and *flood risk area* have and will continue to **shape the design and character of the Town** and **contribute significantly to the Town** as a desirable place to live;
- The general policy of the Town is to **restrict urban development** in the *flood risk area*;
- The Town will attempt to **secure the undeveloped (1998) river valley lands** (*flood risk area*) **as natural open space** for conservation, public use and enjoyment by 2005 and rehabilitate these lands to a natural state by 2010;
- The **1988 UMA Flood Mitigation Alternatives Report shall be used as a guideline** for reviewing proposals in the *flood risk area*;
- **Development** within the *floodway* **should be limited to recreational uses, linear parks and pedestrian/bicycle pathway systems** (low intensity public uses); and
- **Limited development** of lands (low intensity private uses) within the *flood risk area* **may be considered** but only if it can be demonstrated that both public access and shoreline stability will be protected and that the development proceeds in accordance with the guidelines of the current Flood Mitigation Study.

#### Okotoks Land Use Bylaw [LUB]

The Okotoks LUB includes general requirements that regulate the use and development of lands subject to flooding [Section 9.11.0].

#### Canada Alberta Flood Damage Reduction Program

The Town of Okotoks is one of sixty-six Alberta communities included in the Canada-Alberta Flood Damage Reduction Program [FDRP]. This program is designed to reduce the financial cost incurred by both landowners and governments due to flooding. Under this program, a *Flood Risk Map* has been prepared for Okotoks illustrating the area designated as having a flood hazard. The mapping shows two zones: the *floodway* and the *flood fringe*. The *floodway* presents the greatest risk for flood damage and *new development* in this zone is strongly discouraged. *New development* in the *flood fringe* may

be permitted under this program provided it is adequately *flood proofed*. Under the *FDRP*, senior levels of government...

...will not:

- develop new government buildings;
- provide financial assistance under any government program for *new development*; or
- provide flood disaster assistance for development that occurs after designation under the *FDRP*...

...within the *floodway*.

Under the *FDRP*, *new development* will be allowed within the *flood fringe* provided that the *new development* is adequately *flood proofed*. Further, any development within the *flood risk area* already in place at the time of designation (*existing*) will be eligible for flood disaster assistance. An addition or enlargement to an *existing* building does not disqualify an *existing* building from flood disaster assistance. Normal maintenance and repair to *existing* structures is also permitted under the program.

## Investigation of Flood Mitigation Alternatives in the Sheep River Basin

This report, commonly referred to as the 1988 UMA Report, made a series of recommendations that were based on flood plain analysis and mapping conducted by Alberta Environment in 1985. It is important to note that the 1988 UMA report does not distinguish between *flood fringe* and *floodway* lands. In summary, this report determined that only a few new developments could occur in the flood plain without causing a significant increase in flood water levels and hence increased impacts on other properties in the flood plain. As a result, **the report recommends against new development occurring in much of the flood plain.** The report also states that the installation of dykes at certain locations would allow additional development to occur in the flood plain without adverse impacts on other properties in the flood plain. Such additional development should occur only after a dyke is constructed and that such additional development be raised above flood levels.

The recommendations for development within the *flood risk area* that flow out of the *FDRP* differ considerably from the UMA Report due primarily to the greater detail regarding the flood risk as depicted by the 1996 *Flood Risk Map*. The UMA Report, however, continues to be a helpful technical resource for the Town when considering development within the *flood risk area*.

## 4. FLOOD RISK AREA POLICY

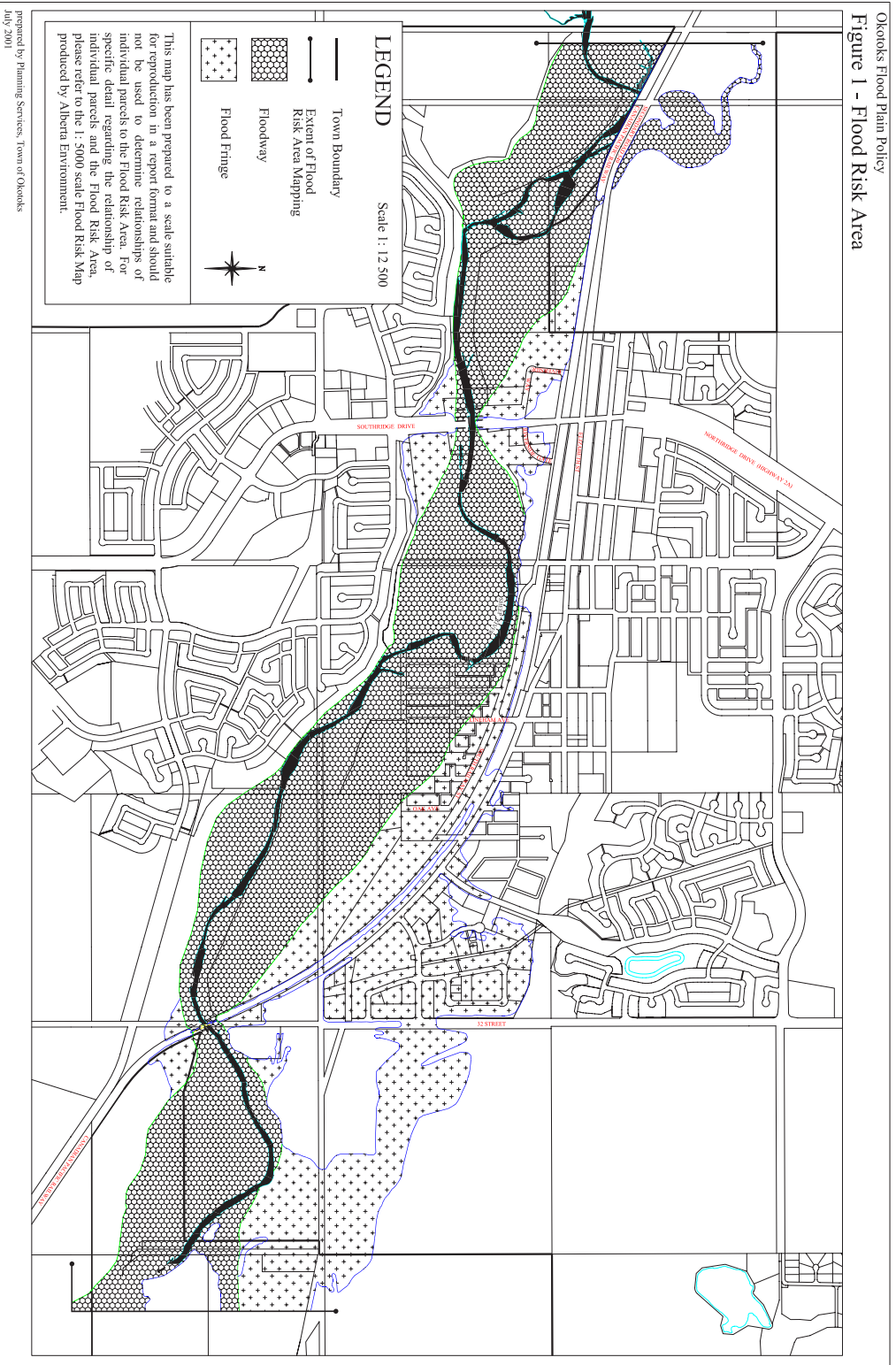
The policies in this Section are intended to apply within the *flood risk area* of the Sheep River as depicted on Figure 1.

### Guiding Principles - Flood Risk Area

- To follow *FDRP* guidelines;
- To prohibit *new development* other than trails and walkways including associated park furniture and *essential public infrastructure* in the *floodway*;
- To ensure the municipality and subsequently tax payers do not assume any liability for *new development* in the *flood risk area*;
- To minimize the risk of flood damage to both public and private property within the *flood risk area* of the Sheep River;
- To avoid any *new development* that would incur damage in a *design flood*;
- To utilize cost effective *flood mitigation measures* that minimize construction and long term maintenance costs for both the municipality and individual landowners;
- To exercise extreme caution regarding proposals involving extensive filling, and development in close proximity to the *floodway*;
- To only accept changes to the *Flood Risk Map* as approved by Alberta Environment or its successor;
- To treat all landowners within the *flood risk area* equitably insofar as flooding issues are concerned, recognizing that other planning issues may determine varying limitations for development from one location to another; and
- To ensure compatible transition between all *new development* and the *existing* and the planned Sheep River Open Space system.



Okotoks Flood Plain Policy  
**Figure 1 - Flood Risk Area**



## Referrals

- Policy 4(i) The Town will refer all proposals for subdivision or development within the *flood risk area* to Alberta Environment or its successor for comments and recommendations.

## Floodway

- Policy 4(ii) The location of the *floodway* is established by the Provincial Government. Proposals submitted to the Province to adjust the *floodway* limit are not supported by the Town.
- Policy 4(iii) No *new development* other than trails and walkways including associated park furniture and *essential public infrastructure* shall be permitted within the *floodway*.
- Policy 4(iv) All privately owned land within the *floodway* shall be designated Restricted Development (RD) District and all publicly owned land within the *floodway* shall be designated Environmental Protection (EP) District in the LUB.
- Policy 4(v) When a subdivision is proposed where any portion of the title area is located within the *floodway*, all lands within the *floodway* shall be dedicated as Environmental Reserve [ER].
- Policy 4(vi) Notwithstanding Policy 4(v) above, when an *existing* dwelling is located partially or wholly within the *floodway*, a reasonable area within the *floodway* may be retained under private ownership through subdivision. Such an area may encompass, among other similar features, the building envelope, parking area, access driveway, manicured yard including ponds, septic disposal field and water well but shall not include land extensive features such as pastures, corrals, cultivated fields etc. In no case shall such an area extend more than 80m from the dwelling further into the *floodway*.
- Policy 4(vii) For parcels containing an *existing* dwelling or other permanent building, an Environmental Reserve Easement is considered an appropriate alternative to Environmental Reserve dedication. Such an easement should be designed to preserve *floodway* land in its natural state but should not be intended to facilitate public access to and along the Sheep River or its tributaries. Where an Environmental Reserve Easement is considered, all portions of the parcel within 30m of the *bank* of the Sheep River or its tributaries must be dedicated as Environmental Reserve to provide for public access to and along the Sheep River and its tributaries.

- Policy 4(viii) The Town's approving authorities shall not approve grading within the *floodway* unless it is associated with trails and walkway systems including associated park furniture and *essential public infrastructure*.
- Policy 4(ix) Existing vegetation and topography within the *floodway* should not be disturbed to maintain the Sheep River corridor as a pristine natural area with the intent to:
- minimize impacts on wildlife corridors;
  - retain existing drainage patterns; and
  - retain the natural mix of plant species in the Sheep River Valley.

## Flood Fringe

- Policy 4(x) All *new development* approved in the *flood fringe* shall be *flood proofed*. In the case where the *new development* is an addition to the *existing* building, only the addition is required to be *flood proofed*. However, reasonable measures to reduce the risk of flood damage to the *existing* building may be required.
- Policy 4(xi) Basements are discouraged within *new development* in the *flood fringe* in accordance with the *FDRP*. In the case where the *new development* is an addition to an *existing* building that includes a basement, the *existing* basement may remain but expansion of the basement is discouraged. An underground parking area is not deemed to be basement development and may be considered in accordance with the *FDRP*.
- Policy 4(xii) *New development* should be setback as far as feasible from the *floodway* and in no instance shall new structures be permitted within 10m of the *floodway*. Back sloping associated with *flood mitigation measures*, may be developed up to the *floodway* limit but such slopes should not exceed 4:1. This development setback area is intended to provide a buffer and margin of safety between development and the *floodway*. It also preserves the option for future construction of a dyke if deemed desirable at some time in the future to protect *existing* dwellings that are not *flood proofed*.
- Policy 4(xiii) In the case where a subdivision is approved within the *flood fringe*, the applicant for subdivision shall be responsible for servicing and making provision for *flood mitigation measures* on all proposed new lots.
- Policy 4(xiv) The applicant for any *new development* shall provide verification from a qualified professional engineer that the *new development* conforms with *FDRP* and Town of Okotoks flood risk policies upon completion of the development.

## Dykes

- Policy 4(xv) Dykes are considered an acceptable but costly and partial form of flood mitigation and should only be considered to protect *existing* dwellings that are not already *flood proofed*. Due to the high capital and maintenance cost associated with a dyke and their limited effectiveness, the Town does not intend to construct any dykes within the Town.
- Policy 4(xvi) The construction of dykes or other *flood mitigation measures* is strongly discouraged within the *floodway* and should only be considered where *existing* buildings preclude their development away from the *floodway*. As such, *new development* should be setback as far as possible from the *floodway*.

## 5. FLOOD FRINGE LAND USE AND SERVICING POLICIES

The policies in this Section are intended to apply within the *flood fringe* of the Sheep River as depicted in Figure 1.

### Guiding Principles

- To ensure all *new development* is harmonious with both the surrounding riverine environment and adjacent neighbourhood built form.
- To ensure that all *new development* is connected to the Town sanitary sewage system, serviced with a suitable potable water supply, storm water management systems, and adequate vehicle and pedestrian circulation systems.
- To take all reasonable measures to minimize the risk of contamination to groundwater which is the water source both for the Town's water system and a number of private water wells.
- To ensure that any infrastructure associated with servicing *new development* is consistent with and compatible with infrastructure servicing surrounding development.
- To ensure the proponent for any *new development* bears all costs associated with servicing that development.
- To ensure that *new development* does not cause the imposition of upgraded services to *existing* development that would result in an immediate financial cost to the owner of any *existing* development<sup>1</sup>.

### Land Use and Density

Policy 5(i) With the exception of the Lineham East residential sub area [LE sub area], the Town will consider LUB amendments from Restricted Development District to any land use district that is consistent with:

- the land use and development policies contained in MDP;
- this policy document; and
- the Railway Area Analysis and Policy Report.

Policy 5(ii) Within the LE sub area, the Town will only consider LUB amendments from Restricted Development District to accommodate *low density residential* development that is consistent with the existing level of service in this area.

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<sup>1</sup> This policy is not intended to preclude development(s) that might over time increase property values in a particular area and hence may have an impact on property taxes. Such a financial cost is not deemed appropriate for the Town to take into consideration.

Policy 5(iii) Within the LE sub area, minimum lot size for *low density residential* lots in a new subdivision is 0.81 ha (2 acres).

## Servicing

Policy 5(iv) With the exception of the LE sub area, the Town requires all *new development* to be serviced to *full urban standards*.

Policy 5(v) Within the LE sub area, the Town requires all *new development* to be serviced with:

- Direct access to a public road developed to a condition acceptable to the Town, or an access easement if access to an *existing* lot proposed for *new development* is not feasible from a public road;
- A municipal sanitary sewer connection; and
- Either a private water well or municipal water supply. The Town does not support water coops and communal wells as a water supply. *New development* will be required to connect to the municipal water supply at the time that municipal water lines are adjacent to property lines.

Policy 5(vi) Within the LE sub area, the Town requires all new parcels created by subdivision to have direct access to a public road developed to municipal standards.

Policy 5(vii) Where water wells are proposed to service a subdivision to accommodate *new development* within the LE sub area the proponent of the subdivision shall meet all requirements of the Provincial Water Act prior to endorsement of a subdivision.

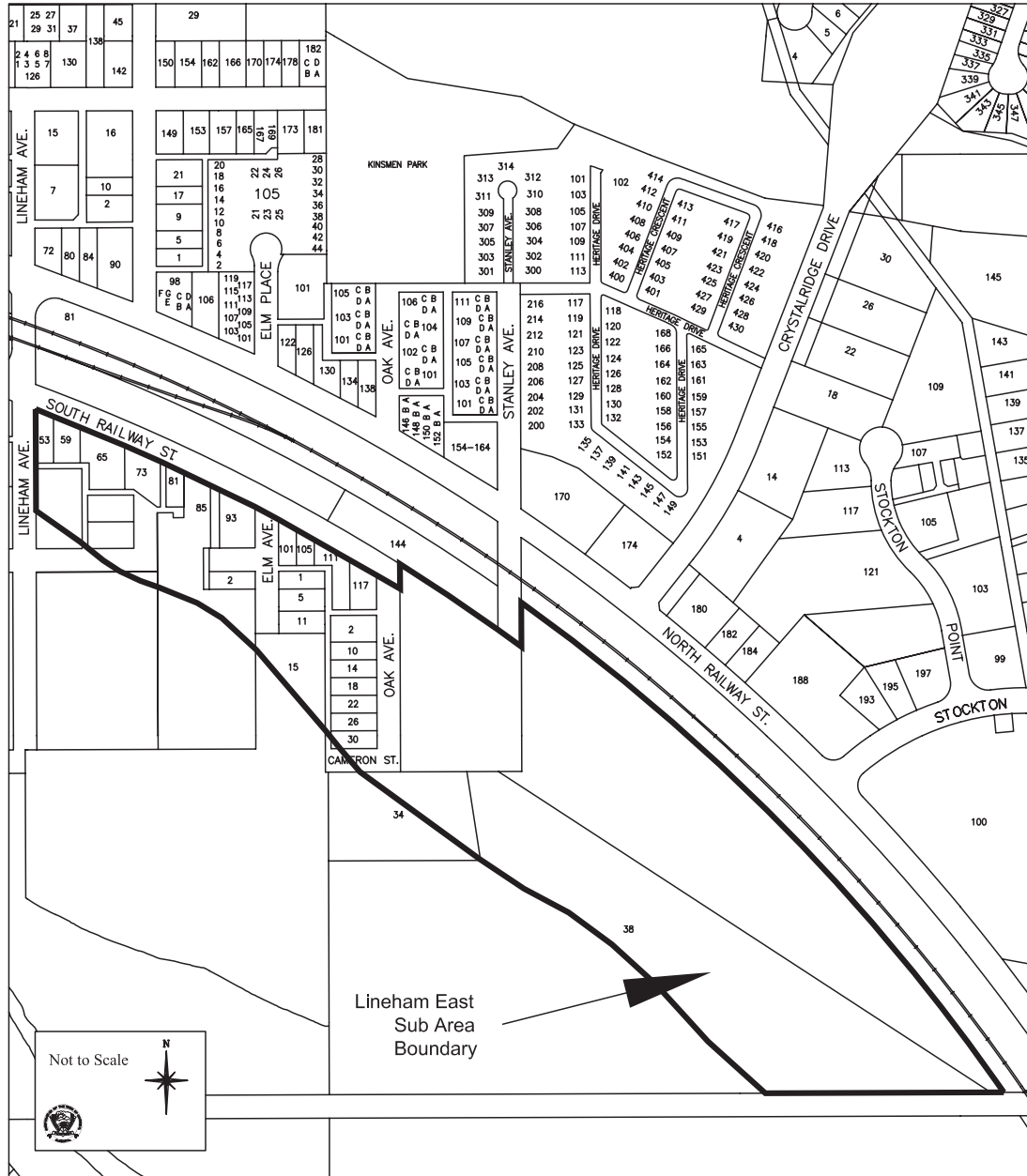
Policy 5(viii) Within the LE sub area, all new public roads created by subdivision shall be constructed to a rural standard (no parking).

Policy 5(ix) All *new development* shall incorporate a storm water treatment and conveyance system that employs Best Management Practices, meets the requirements of Alberta Environment or its successor and Town of Okotoks Engineering Standards, and is consistent with the Sustainable Okotoks initiative.

Policy 5(x) As is the case throughout the Town, the proponent of a subdivision or development is responsible for all on and off-site servicing costs. Off-site levies and acreage assessments will apply in full to all subdivisions and *new development*.

- Policy 5(xi)      Where a *new development* requires installation of a utility service line abutting an *existing* development not serviced with that utility, the *existing* development shall not be required to connect to that service. This policy does not preclude a resident from requesting connection to Town services. (Note: This Policy may conflict with Town Utility Bylaws.)

Figure 2 - Lineham East Sub Area





## 6. PARKS AND OPEN SPACE POLICIES

The policies in this Section are intended to apply within the *flood risk area* of the Sheep River as depicted in Figure 1.

### Guiding Principles

- To secure the entire *floodway* as a natural open space area.

### Purchase of Open Space

- Policy 6(i)      The Town will continue to acquire lands in the vicinity of the Sheep River for the purpose of achieving a significant and continuous natural open space corridor from the west to the east boundary of the Town. The priority of the Town is acquiring *floodway* lands as these lands cannot support *new development* and they represent a significant land area contiguous to the Sheep River. The majority of the *floodway* is undisturbed and contains the bulk of the natural tree cover along the river.
- Policy 6(ii)      Notwithstanding Policy 6(i), the Town may consider other opportunities to acquire lands abutting the *floodway* either within the *flood fringe* or outside of the *flood risk area* if it is determined that such land is required for more intense park development than may be appropriate within the *floodway*.

### Use of Public Open Space

- Policy 6(iii)      Within the *floodway*, improvements on publicly owned lands shall be limited to trails and walkway systems including associated park furniture (e.g. benches, garbage containers) and *essential public infrastructure*.
- Policy 6(iv)      Parks and other publicly owned development within the *floodway* that are considered *existing* development under the *FDRP* may remain in accordance with this program.
- Policy 6(v)      Within the *flood fringe*, *new development* on publicly owned lands shall be consistent with the *FDRP*.

## 7. IMPLEMENTATION

The implementation initiatives below are required to ensure consistency between the various planning documents of the Town of Okotoks.

- The MDP should be amended to clarify that the Town relies on the *FDRP* as the primary source for policy direction regarding development in the *flood risk area* but that the UMA Report will also be considered. If there is a conflict between the *FDRP* and the UMA report, the *FDRP* will prevail. The MDP should also make appropriate reference to this document. Such amendments require a public hearing.
- The LUB should be reviewed and amended as required to ensure it is consistent with, and makes reference to, this document. Such amendments require a public hearing.