Area Structure Plan Hamlet of Zama City

Bylaw No. XXXX









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1 Purpose and Scope

This Area Structure Plan (Plan) has been prepared for the Hamlet of Zama City at the request of Mackenzie County (County), a Specialized Municipality with both urban and rural areas within its jurisdiction.

1.1 Introduction

The purpose of the Plan is to provide a framework for future subdivision, servicing, and development of the Hamlet that builds on the existing community strengths to encourage growth of the permanent population base and diversification of the local economy.

Zama City's population has gone through cycles of fast growth and equally fast decline based on the nature of local economic opportunities related to the oil and gas industry. Growth scenarios are hard to identify as a result. The one consistency is that cycles have been re-occurring and growth should therefore be planned for despite recent declines in population.

The Plan is based on policy direction from the County Municipal Development Plan Bylaw 735-09. It sets out a vision and specifies actions and policies needed to achieve that vision based on the requirements of the *Municipal Government Act* (MGA). The MGA requires an Area Structure Plan to identify:

- Sequence of development for the Plan area;
- Land uses proposed for the area, either generally or with respect to specific parts of the area;
- Density of population proposed for the area either generally or with respect to specific parts of the area;
- General location of major transportation routes and public utilities; and,
- Other matters Council considers necessary.

Area Structure Plans are long-term "living documents." As the land use, socio-demographic and economic context changes it is not uncommon for plans to be reviewed and amended. Despite such changes, the vision of this Plan should remain consistent. However, it is anticipated that more detailed components may be amended in accordance with Hamlet and County needs.

The policies and actions identified in this Plan are intended to influence the Mackenzie County Land Use Bylaw, development standards, more detailed area plans, subdivision design, and development approvals to ensure that the long term vision for growth determined through this planning process is achieved.

1.2 Background Report

Along with the Plan, a background report has been prepared. This report contains most of the analysis undertaken to identify the vision, goals and policies for the Plan. This includes a review of the planning context; an update of demographic considerations; review of existing land uses, natural features, facilities and infrastructure; and identification of opportunities associated with the same.





FIGURE 1

LOCATION PLAN

ZAMA CITY AREA STRUCTURE PLAN

NOT TO SCALE MARCH 2013



1.3 Mackenzie County Municipal Development Plan (2009)

The Municipal Development Plan (MDP) defines the vision, principles, objectives, and policies of the County as well as objectives and policies for Hamlets. By doing so, a foundation for the preparation of more detailed land use plans within existing Hamlets is established.

1.3.1 Objectives for Hamlet Growth

Expanding the role of Hamlets as service centres for surrounding rural areas is a common theme throughout the MDP and is a sound objective to achieving the overall vision for the County and a long term growth strategy for Zama City.

Key objectives expressed in the MDP that provide a foundation for growth in Zama City include:

- Plan for a positive growth rate;
- Promote orderly and economic growth;
- Provide a variety of housing types;
- Plan for future subdivision and development of residential areas;
- Facilitate growth of commercial and industrial areas;
- Provide institutional, recreational, and cultural opportunities;
- Optimize the use of existing services and infrastructure; and,
- Strengthen the long term viability of Zama City.

1.3.2 Policies specific to Growth in the Hamlet of Zama City

Key policies in the MDP that outline a long term growth strategy for Zama City include:

- Develop the Hamlet in accordance with the MDP;
- Support Zama City's role as the centre for oil and gas exploration and development in the surrounding fields;
- Support the separation of residential and industrial traffic by appropriately locating residential uses and non-residential uses;
- Provide residents with community facilities to improve local amenities and recreation opportunities; and,
- Recognize *Fire Smart: Protecting Your Community from Wildfire* design principles when preparing Conceptual Schemes, Area Structure Plans, Outline Plans and subdivisions.



1.4 Community Consultation

Community consultation formed the cornerstone for this Plan. Early stakeholder consultation in Zama City helped focus the direction of this plan, while a public open house ensured wider input into the Plan's vision, policies and concepts. Results of this consultation can be found in the background report for this plan.

1.4.1 Early Stakeholder Consultation

- Paving the road to Mackenzie Highway should be a priority for emergency egress.
- Consider a road improvement to Zama Lake and Rainbow Lake.
- Work camps in town cause issues such as parking.
- Small business should be encouraged.
- Hazardous/noxious uses are best located west, away from residences.
- There should be a difference between a work camp and a hotel.
- Camps that are larger than 20 units should be treated differently.
- Existing trees should be retained in new development.
- Larger lots are preferred for residences.

1.4.2 Public Open House

THIS SECTION WILL BE UPDATED WHEN OPEN HOUSE IS COMPLETE



2 Creating a Vision

The County has prepared this Plan to clarify, communicate and deliver its vision for the future development and redevelopment of Zama City

In 20 years, Zama City is envisioned to be an oil and gas services centre with an expanded permanent population that supports the local provision of basic commercial services and offers a great place for people to work, live and play in a rural setting.

In order to implement the vision, the Plan seeks to achieve specific objectives which are identified below. These objectives recognize and build on the Zama City policies of the MDP.

- Guide interim and long-term growth in a deliberate manner that coordinates with infrastructure provision and facilitates a complementary land use mix;
- Promote the separation of residential and industrial uses to ensure a high quality of life is available for residents;
- Expand residential development primarily to the northeast and ensure heavy industrial uses are located west of Tower Road;
- Protect natural areas that contribute to the rural character of Zama City;
- Expand community facilities and services to meet changing demands;
- Support economic development and diversification;
- Address emergency planning in new developments;

As part of delivering these objectives, the Plan must be consistent with existing municipal, provincial, and federal policies, regulations and plans for the area. To illustrate the intent of the Land Use Concept, plans for municipal services, roadways and staging have been prepared.



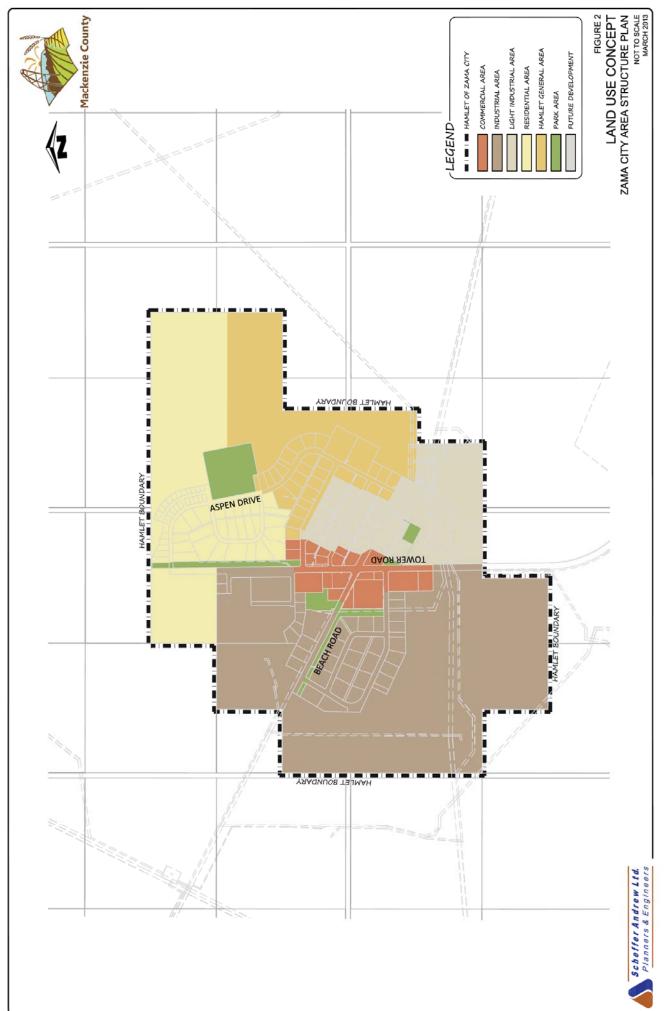
2.1 Land Use Concept

The Land Use Concept integrates the natural and man-made considerations of the Plan area with the needs of the community while meeting relevant policy guidelines and regulatory requirements.

The land use areas displayed in the Land Use Concept are conceptual and are intended to reflect the state of development toward the end of the 20-year planning horizon. They are intended to provide a broad road map for future development. Further planning through Conceptual Schemes or Neighbourhood Area Structure Plans and Outline Plans may revise the designation and area of land uses. Substantial deviations from this concept will require amendments to the Plan.

The Land Use Concept recognizes the established development pattern within the existing Hamlet, and integrates compatible and complementary land uses to create a complete community while maintaining a distinct rural Hamlet character and separating industrial and residential land uses.

Where the land use area identified in the Land Use Concept does not follow a property boundary, road or significant natural feature, or where there is uncertainty regarding the location of the boundary, the specific boundary location may be determined at the time of subdivision or development, through legal survey and/or supporting technical documents.





2.2 Land Use Distribution

The tables below display the land use statistics for the Land Use Concept. Net developable area includes only undeveloped areas identified in the Plan for development, while the gross developable area includes the entire Hamlet area.

Table 1 Land Use Statistics

	Area (ha)	% of NDA
Gross Developable Area	476	
Existing Developed Areas	249.4	
Net Developable Area (NDA)		100%
Residential	75.4	34%
Industrial	69.6	31%
Commercial	No new land added	
Open Space (assumed 10% NDA)	22.4	10%
Stormwater Management Facilities (assumed 5% NDA)	11.2	5%
Roads and Access (assumed 20% NDA)	45	20%

Table 2 Unit and Population Estimates

	Net Area (ha)	Units/Net ha	Units	People/Unit	Population
Existing Hamlet Residential	60.70	0.57	35	2.1	93
New Hamlet Residential	75.36	7.98	601	2.85	1,712
Total	136.06		636		1,805

Notes:

These statistics are intended for discussion purposes and are subject to change.

Residential calculations are for the Residential Area only and do not reflect accessory residential uses or work camps.

PPU for new Hamlet residential dwellings is assumed to increase similar to the Hamlets of La Crete and Fort Vermilion.



3 Achieving the Vision

This section sets out policies to guide development in a manner that can achieve the 20-year vision for Zama City, as well as fulfill the requirements of the MGA.

3.1 General Development Policies

The following policies reflect the intent of the vision across the Hamlet and also speak to development processes that can help ensure that the vision is implemented.

- All Areas 1. Development should strive to maintain the natural drainage pattern of the land to reduce impacts from development.
- All Areas 2. New multi-lot development should be in accordance with a Conceptual Scheme, Outline Plan or Neighbourhood Area Structure Plan.
- All Areas 3. Conceptual Schemes, Neighbourhood Area Structure Plans or Outline Plans shall be generally consistent with the Land Use Concept; however:
 - 1. They may deviate from the Land Use Concept provided the objectives of this Plan are maintained.
 - 2. They may deviate from the Land Use Concept when a new site specific constraint is identified that requires a change.
- All Areas 4. Work camps should be encouraged to locate in areas where they will be compatible with existing or planned development.
- All Areas 5. Where work camps are proposed within the Hamlet boundaries the density of the intended camp population should be regulated by requiring a minimum land area per intended camp resident that is sufficient to allow for the safe and orderly development of the site in a way that can be compatible with surrounding uses.
- All Areas 6. Development within the Airport Vicinity Protection Area should adhere to relevant regulations in respect to land use, building height, building orientation, setbacks and buffering, control of offsite impacts, and landscaping, to ensure no conflict between airport operations and land uses.



3.2 Hamlet Residential Area Policies

The majority of new residential lands are located in the north and east of the current built area. The predominant dwelling type is anticipated to be low density residential (i.e. single detached dwellings, manufactured homes). Current residential development is largely mixed in with industrial and business uses, save for areas in the northeast which are entirely residential. The Plan supports a greater separation between residential and industrial uses with the intent of offering an attractive lifestyle for residents, while also recognizing that a mix of residential and business uses is suitable in some areas and can be attractive to some business owners and employees.

Hamlet Residential A.	Single-family detached dv	vellings will be	the primary	development in

the Hamlet Residential Area; however duplexes and similar multi-unit

developments are encouraged.

Hamlet Residential B. Design of residential developments should be contextual and take

place with consideration to existing nearby development and

adjacent uses.

Hamlet Residential C. Home based businesses are encouraged, provided they do not alter

the residential character of a property or buildings.

Hamlet Residential D. Connectivity between neighbourhoods should be encouraged through

the provision of streets that are designed to support safe pedestrian, cycle and vehicle movements and by pedestrian-only connections.



3.3 Commercial Area Policies

There are few existing commercial services within the Hamlet. The card lock, convenience store and post office building serves as the commercial centre of the Hamlet, along with Noralta Inn West for food services. Land for new and expanded commercial uses is identified along Tower Road, with the intent that new commercial services develop in a location central to existing Hamlet employment and residential areas. Uses that locate in this area should be targeted toward providing personal and professional services, food services or retail sales to the community or businesses in the area.

Commercial A. Sites should be designed in a comprehensive manner that integrates

with existing and future development opportunities on surrounding sites, including consideration of building design, mass, transportation and site operation. This may require cooperation amongst adjacent property owners through a Conceptual Scheme, Neighbourhood Area Structure Plan or Outline Plan process to create attractive and functional commercial areas. Joint access, drainage and parking easement agreements may be required to facilitate cooperative use

and development.

Commercial B. New developments should be subject to landscaping and appearance

requirements to ensure that these areas are aesthetically pleasing.

Commercial C. Development of properties adjacent to residential areas should

address potential land use conflicts through building siting, landscaped buffers, lighting design, architectural treatments and operational requirements. Additionally, landscaped buffer areas may

be required at the interface.

Commercial D. A property developed with multiple commercial buildings should be

designed as a comprehensive development, considering the relation between the appearance and operational characteristics of the

different buildings and their individual uses.

Commercial E. Low Impact Design features should be incorporated into

development.



3.4 Industrial Areas Policies

There are three types of industrial development areas identified in the plan, including: General Industrial, Light Industrial and Hamlet General.

The General Industrial Area is expected to accommodate a wide range of medium and heavy industrial uses such as manufacturing, processing, oil and gas, assembly, distribution, service and repair uses. Typical uses in this area will carry out a portion of their operations in an outdoor area and are not compatible with residential uses. The General Industrial Area is located west of Tower Road.

The Light Industrial Area may act as a transitional land use between the General Industrial Area and nearby land uses which are potentially sensitive to nuisances (e.g. noise, dust, odours, gases, particulate substances, toxic substances). It is not expected that heavy industrial uses involved with manufacturing or resource processing will be developed within the Light Industrial Area, which is located in the southeast area of the Hamlet.

The Hamlet General Area should provide an area for business owner-operators to live on the same property as their business for convenience, and also allow workers to reside on the same property where appropriate. Commercial and Industrial uses in this area are expected to be compatible with residential uses, exclude hazardous materials in dangerous quantities, and only create minor nuisances at levels compatible with proximate residential uses.

Industrial A.	Residential uses should be excluded	from the General Industrial Area.

Industrial B. Heavy industrial uses should not be permitted to locate in the Light

Industrial Area as this area serves as an intermediate area between

nearby residential uses.

Industrial C. Light industrial uses should be compatible with nearby residential

uses.

Industrial D. Industrial uses in the Hamlet General Area should be compatible with

residential uses that might locate on the same property.

Industrial E. Residential uses located in the Hamlet General area should be

ancillary to a primary industrial use.

Industrial F. All industrial sites should be developed in a manner that minimizes

the potential impacts on adjacent or nearby properties. Methods to ensure industrial developments do not negatively impact adjacent properties and roadways may include the construction of landscaped berms, architectural treatments, landscaping and fencing, distance separation, the retention or planting of native vegetation, and the on

site treatment of stormwater.





3.5 Open Space Development Policies

Open space, both formally landscaped and natural, is an essential component of the physical structure of the Land Use Concept. There is currently one existing central park based around a water feature and campground near the residential land uses in Zama City and open space areas serving as buffers between residential and industrial areas.

3.5.1 Open Spaces

Open spaces are currently used to buffer residential areas from incompatible uses, while there is also potential for open space to protect environmentally sensitive natural areas and manage stormwater. It is anticipated that the following lands may ultimately be dedicated at time of subdivision:

- Buffer areas between industrial and residential uses as Municipal Reserve.
- Areas identified for stormwater management facilities as Public Utility Lots.
- Buffer areas around wetlands and streams as Environmental Reserve.

Buffer areas may be left in their natural state including topography and vegetation and additional landscaping to ensure sufficient buffering between uses. Low impact recreational uses (i.e. trails and benches) are appropriate within buffers where there is no conflict with surrounding uses. Additionally, complementing community infrastructure (i.e. stormwater management facilities, small parks integrated with existing landscaping) may also be appropriate.

3.5.2 Parks

There is one existing central park in the Plan area that is integrated with a stormwater management feature and campground near the residential areas of the Plan. New parks should be strategically located within the plan area to maximize their benefits to residents. Generally, a park should be accessible to all residents in a residential area within a short walk from each dwelling. Parks should be landscaped and where appropriate should have recreation facilities (i.e. trails, playgrounds, play or sport fields).

Park sites should be dedicated as Municipal Reserve at the time of subdivision. A suitable location for one park would be adjacent to the stream running through the proposed northeast residential area.

Sports fields may be suitably located in commercial or industrial areas of the Hamlet to address the possibility of incompatibility with residential uses associated with noise and traffic.



3.5.3 **Open Space and Parks Policies**

Vegetated buffer areas should be provided between industrial and Open Space A. residential areas with dimensions sufficient to create visual screening.

Open Space B. Stormwater management facilities (SWMF) are intended to be multi-

purpose in that they also function as open space and amenity areas.

SWMFs should generally have a naturalized landscaping aesthetic with low

intensity recreation opportunities built into their design when in a

residential or commercial area. The recreation facilities may include trails, benches, and open access (no fences) to the facilities. To complement and

be fully integrated into the community it is important that all SWMF

integrate recreational opportunities into their design.

Open Space C. At the time of subdivision the SWMFs should be dedicated as Public Utility

> Lots. Those stormwater management facilities that incorporate recreational opportunities and benefit the community may receive

Municipal Reserve credit for up to 20% of their area.

Open Space D. Developers may be requested to establish environmental reserve easements

as provided for in the Municipal Government Act. Environmental reserve

easements may address lands that would otherwise qualify as

environmental reserve. Mackenzie County may also establish conservation

easements as provided for in the Alberta Land Stewardship Act.

Open Space E. Mackenzie County may require that municipal reserve dedications in

> residential areas be in the form of land or cash-in-lieu. Where there are multiple land owners in an area, some land owners may be requested to provide more than their share of the 10% reserve dedication, while others may be requested to pay 'money in lieu' of dedicating land to compensate those land owners who provided the land so that in effect every developer

makes a similar contribution of 10%.

Open Space F. The landscaping of public parks and open space should only include species

which are native.



3.6 Community Facilities and Emergency Services

Community facilities include developments such as schools, emergency services, municipal services, cemeteries, places of worship, and community health services. These land uses can provide valuable cultural, social and health services to the community and surrounding areas. Zama City is currently well served by public facilities.

With respect to provision of emergency services, Zama City is vulnerable to wildfires. It is important to ensure that emergency preparedness and fire prevention is incorporated into the design of future development.

The proximity of the Plan area to existing natural areas, combined with the presence of densely treed areas throughout the plan area highlights the fact that forest fires are a real and tangible threat in this portion of Mackenzie County. The ability of emergency services to provide effective fire protection is dependent, in large part, on future development patterns and onsite preventative measures.

- Facilities A. The County may permit the development of institutional land uses in areas identified for industrial, commercial or residential land uses where adjacent existing and planned development is compatible. High traffic generating uses should be required to locate near streets capable of accommodating the traffic effects.
- Facilities B. Emergency services providers should be consulted on all subdivision applications, Conceptual Plans, or similar planning applications.
- Facilities C. Development within the Plan area should integrate Crime Prevention through Environmental Design principles in the design of public and private spaces.
- Facilities D. Mackenzie County should require developers to prepare an emergency preparedness plan as a part of the planning process for multi-lot industrial subdivisions. The emergency plan should address applicable recommendations contained in the Fire Smart Guide Book for the Oil and Gas Industry, produced by the Alberta Partners in Protection, including:
 - 1. Vegetation removal/conversion/reduction
 - 2. Siting and orientation of buildings
 - 3. Siting and orientation of flarestacks
 - 4. Siting and orientation of power lines
 - 5. Siting and orientation of roads and emergency routes
 - 6. External building materials (i.e. siding and roofing materials)
 - 7. Storage of flammable materials



8. Notification and communication with applicable provincial, municipal and emergency response agencies.

Facilities E.

Developers may be required to prepare an emergency plan as part of a subdivision, Conceptual Scheme or similar plan for residential and commercial uses. The emergency plan should address recommendations in the Fire Smart: Protecting Your Community from Wildfire manual published by Partners in Protection.



3.7 Servicing Policies

Services identified in this Plan are conceptual, and therefore it is anticipated that more detailed land use and subdivision plans will be completed in the future to provide further required detail to the concepts.

UPDATE THIS SECTION WITH DCL SIEMENS INPUTS

Servicing A.	All development should be serviced by municipal water and wastewater.
Servicing B.	Infrastructure should be designed to accommodate lands outside of the Plan boundaries where required by the County.
Servicing C.	Municipal services should be provided by a developer at their cost, including extensions to adjacent sites where deemed useful by the County.
Servicing D.	Production and distribution capacity for power and natural gas service in Mackenzie County should not be considered as limiting factors to development.
Servicing E.	A servicing study to the satisfaction of the County may be required to be completed prior to developing any lands.
Servicing F.	Developers are encouraged to explore the most cost efficient servicing options available.
Servicing G.	Developers should take into consideration the long-term operation and maintenance cost to the County when evaluating servicing options.
Servicing H.	The layout of municipal utilities identified in this Plan is likely to be subject to refinement at the subdivision stage.
Servicing I.	All water services should be metered and designed for peak servicing requirements and adequate fire suppression needs.
Servicing J.	Where desirable, stormwater management facilities and utility corridors should accommodate passive recreation opportunities.
Servicing K.	All design and installation of stormwater management facilities should be in compliance with Alberta Environment and Water standards.
Servicing L.	A developer may be required to provide rights-of way for shallow services.
Servicing M.	Provision of services should be in accordance with the Infrastructure Master Plan for La Crete.



3.8 Roads and Access Policies

As this Plan incorporates residential, commercial and industrial development, future road networks both within the plan area and connecting to adjacent lands should be able to accommodate a wide variety of vehicles, volumes and traffic use patterns. The Roads and Access Map of this Plan (Figure 7) generally describes how current, upgraded and new roadways can service existing and planned developments. Heavy vehicles should be restricted from entering residential neighbourhoods in order to help create a quiet and safe residential road network.

Roads and Access A.	All roadways, intersections and accesses should be developed to Mackenzie County standards.
Roads and Access B.	At their cost developers should install paved roads, sidewalks, landscaped boulevards and pedestrian trails to the satisfaction of the County.
Roads and Access C.	The County should require all benefitting developers to contribute proportionally to the cost of road upgrades.
Roads and Access D.	Heavy vehicles and dangerous goods should be restricted from primarily residential areas.
Roads and Access E.	The County may consider deviation from the transportation network if the deviation is to avoid creating isolated undevelopable parcels, enable safer intersection design, or achieve an identifiable better outcome.



4 Making it Work

The implementation strategy addresses transformative public projects, planning processes and development sequences.

4.1 Transformative Public Projects

Sometimes projects led by the public sector can alter the nature of the community in which they are developed. They are intended to help alter the current direction development is going in order to achieve a vision that does not necessarily reflect continuing with the present nature of development outcomes.

4.1.1 Regional Access Improvements

Currently Zama City is accessed from Mackenzie Highway along Township Road 1171A, which has a gravel surface. There is only one way in to the Hamlet. Consultation indicated that paving this road is a priority within the Zama City community. There are a few possible benefits of creating a paved road from Zama City to the Mackenzie Highway. These may include:

- Increased access for residents to goods and services not presently available in the Hamlet.
- Safer emergency egress as dust is controlled and speeds are increased.
- Greater ease of access into the community for non-residents potentially contributing to a larger market catchment to promote diversity of local commercial services.

In the longer term, providing public road access through Zama City to Rainbow Lake could establish an alternative regional connection. By making Zama City a stop on a through road to Rainbow Lake and the Hay – Zama Lakes Wildland Provincial Park, a diversified economy may become more viable as a result of increased regional access and tourism opportunities created by the regional connection.

Actions for consideration:

- 1. Consider prioritizing the hard surfacing of Township Road 1171A.
- 2. Explore opportunities for creating a road through to Rainbow Lake via the Hay Zama Lakes Wildland Provincial Park.
- 3. Explore partnership funding arrangements for a new road to Rainbow Lake and improvements to existing roads with private companies and Provincial and Federal agencies on the basis of increased access to local natural resources, tourism, local economic development, fire safety and similar rationales.



4.2 Planning Processes

4.2.1 Implications for Other Municipal Plans and Bylaws

This Plan has been prepared to be generally consistent with the MDP and other overarching land use planning documents that affect the Plan area. However, to ensure consistency between plans the following is suggested:

- Repeal Hamlet of Zama City Area Structure Plan (2006).
- Review and update the Land Use Bylaw to reflect any differences between the Land Use Concept, policies and the current land use districts.

4.2.2 Conceptual Schemes

The Plan addresses future development in conceptual terms. Prior to development and at the discretion of the County, an application for subdivision and development may require the preparation of a Conceptual Scheme as defined in the MGA (an Area Structure Plan or Outline Plan may achieve a similar result). The boundary of these plans should be based on good planning practice and not necessarily land ownership. These documents would ensure consistency with the Plan and coordinate new development with existing development.

4.2.3 Municipal Reserve Credit

To create a complete and functional community, cooperation and a strategy is required to ensure that parks and school sites are located in appropriate locations to serve future residents. To accomplish this where there are multiple land owners in an area, it is often necessary for some land owners to provide more than their share of the 10% reserve dedication, while others are requested to pay 'money in lieu' of dedicating land to compensate those land owners who provided the land so that in effect every developer makes a similar contribution of 10%. Thus to implement the Plan, a reserve dedication process that involves over-dedication in some cases and compensation in others is important to ensure that the open space provision is distributed effectively throughout the Hamlet as it grows.

4.3 Development Sequence

Development of lands within the Plan should follow a general practice of contiguous expansion. It is generally anticipated that future development will occur in areas adjacent to existing development. Additionally, the sequencing and extent of development will largely be governed by the availability of services (water and sanitary) to accommodate the expansion of the community and timing will be at the behest of the development industry as demand for new units develops over time. Discontinuous development may be considered, provided that costs of extending services are borne entirely be the developer.

A suggested development sequence is identified in the Development Staging Map.



5 Maps and Diagrams

The following maps and diagrams are included in this section:

- Plan Boundaries
- Man Made Constraints
- Environmental Considerations
- Parks, Open Spaces and Facilities
- Roads and Access
- Road Diagrams
- Water
- Sanitary
- Stormwater
- Development Staging
- Plan Boundaries





Mackenzie County EXACT SETBACKS AND LOCATIONS OF OIL AND CAS INFRASTRUCTURES SHOULD BE PETERMINED IN CONSULTATION WITH ERCA AND INFRASTRUCTURE OPERATORS. LICENCED/PERMITTED
OIL-WELL EFFLUENT PIPELINE
LICENCED/PERMITTED
SOUR NATURAL GAS PIPELINE DISCONTINUED/ABANDONED
SOUR NATURAL AS PIPELINE
DISCONTINUED/ABANDONED
DISCONTINUED/ABANDONED
PRESSH WATER PIPELINE
FRESH WATER PIPELINE DISCONTINUED/ABANDONED OIL-WELL EFFLUENT PIPELINE - AIRPORT VICINITY OVERLAY POTENTIAL SETBACK AREA NATURAL GAS PIPELINE INJECTION WELL - SOUR ABANDONED GAS WELL FRESH WATER PIPELINE HIMLET OF ZAMA CITY ABANDONED OIL WELL SALT WATER PIPELINE SUSPENDED OIL WELL CRUDE OIL PIPELINE FUEL GAS PIPELINE ABANDONED WELL OIL WELL - SOUR GAS WELL FACILITY LEGEND NOTES ASPEN DRIVE TOWER ROAD



MAN MADE CONSTRAINTS ZAMA CITY AREA STRUCTURE PLAN NOTTO SCALE MARCH 2015,

FIGURE 4



ENVIRONMENTAL CONSIDERATIONS
ZAMA CITY AREA STRUCTURE PLAN
NOTTO SCALE
MARCH 2015

FIGURE 5

