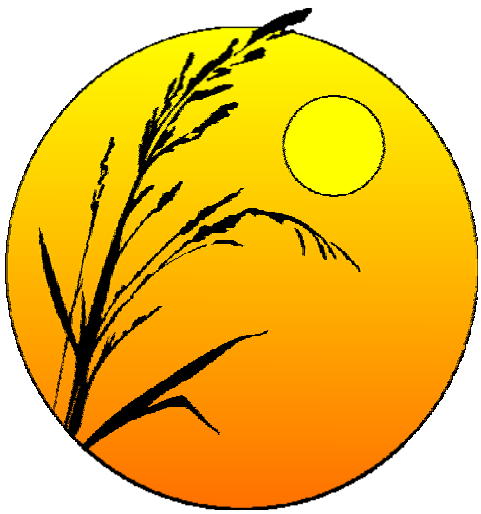
HIGHWAY 524 AREA STRUCTURE PLAN



Bylaw 2008/17

Adopted: 15 July 2008

Prepared for:
Cypress County

Prepared by:
Focus Corporation

CYPRESS COUNTY

BYLAW 2008/17

A Bylaw of Cypress County in the Province of Alberta to adopt the Highway 524 Area Structure Plan and amend Bylaw 1994/13 being the Municipal Development Plan and amend Bylaw 2006/13 being the Land Use Bylaw.

PURSUANT TO the provisions of the Municipal Government Act, being Chapter M-26 of the Revised Statutes of Alberta, 2000, and amendments thereto, the Council of Cypress County in the Province of Alberta, duly assembled, ENACTS AS FOLLOWS:

1. Having prepared an Area Structure Plan for the area in the vicinity of Highway 524 which includes amendments to provisions of the Municipal Development Plan and the Land Use Bylaw.

2. Having held a public hearing on the document, the Area Structure Plan is hereby adopted as the Highway 524 Area Structure Plan shown in the attached Schedule "A".

3. Having held a public hearing on the amendments to the Municipal Development Plan, Municipal Development Plan Bylaw 1994/13 as amended is hereby amended as outlined on the attached Schedule "B".

4. Having held a public hearing on the amendments to the Land Use Bylaw, Land Use Bylaw 2006/13 as amended is hereby amended as outlined on the attached Schedule "C".

5. This bylaw shall take effect upon passage thereof.

Read a first time this 3rd day of June, 2008.

Read a second time this 15th day of July, 2008.

Read a third time and finally passed this 15th day of July, 2008.

Reeve

Designated Officer

TABLE OF CONTENTS

APPENDICES

Appendix A Highway Corridor Development Guidelines

Appendix B Development Guidelines – Rural Commercial/Industrial Area

LIST OF FIGURES

1. Introduction

1.1. Purpose of the Plan

The Highway 524 Area Structure Plan is a statutory document establishing a planning framework for the further development of the subject lands. Cypress County is experiencing pressures for industrial developments along a portion of Highway 524 west of the TransCanada Highway. At the same time, the Province is reviewing routes for a realignment of the TransCanada Highway. When it became evident that the preferred alignment would pass through this area, Cypress County commissioned an area structure plan to develop policies and guidelines for the development of this area. The purpose is to development a plan with policies and guidelines to allow development to proceed, in the short term that would be compatible with a long term highway plan. Focus Corporation was commissioned to prepare this plan.

After this plan was underway, the County requested that Focus provide guidelines and development standards that may be applicable to not only this area, but surround areas that are experiencing pressures for industrial growth. (These guidelines will be included an Appendix B.)

1.2. Approval Process

In accordance with the Cypress County's planning process, the Area Structure Plan will be submitted to the County for review by the Planning Staff. Public meetings will be held and adjustments will be made as required prior to the plan being submitted to County Council for adoption.

1.3. Policy and Legislative Framework

1.3.1. Municipal Government Act (MGA)

The framework for Area Structure Plans is established within Section 633 of the ***Municipal Government Act***. Specifically, the legislation states that:

"An area structure plan

(a) must describe

i) the sequence of development proposed for the area,

ii) the land uses proposed for the area, either generally or with respect to specific parts of the area, and

iii) the density of population proposed for the area either generally or with respect of specific parts of the area, and

iv) the general location of major transportation routes and public utilities, and

(b) may contain any other matters the council considers necessary."

1.3.2. Statutory Plans

The subject lands are included in one adopted statutory plan and one draft statutory plan. In accordance with Section 638 of the MGA, statutory plans must be consistent with each other.

The Cypress County Municipal Development Plan (MDP) outlines the general growth and development objectives for the municipality as a whole. The MDP includes a Rural – Urban Fringe Plan adopted by the City of Medicine Hat, Town of Redcliff and the County. A joint Intermunicipal Development Plan (IDP) was initiated in 2005 and a number of joint meetings and a public meeting have been held. The IDP is still in the draft stage and will be presented in 2008. The study area is included within the IDP Boundary.

The MDP contains goals, objectives and policies to work towards ensuring an adequate supply of industrial and highway commercial lands. This area structure plan is consistent with the goals, objectives and policies of the MDP. The study area lies adjacent to the Nuisances Industry Buffer & Joint Referral District in the Rural – Urban Fringe Plan. Polices in the Fringe Plan have been taken into consideration during the preparation of this area structure plan.

The draft IDP identifies the study area as a Future Rural Commercial/Industrial Development zone.

1.3.3. Land Use Bylaw (LUB)

The Cypress County Land Use Bylaw (Bylaw No. 95/19) divides the municipality into a number of land use districts. The Highway 524 ASP recommends lands within the study area be assigned an industrial or a highway commercial designation. The specific districts and their respective boundaries will be further identified in future land use redesignation applications.

2. Development Area

2.1. Site Location

The subject lands consist of 660 ha± (1630 ac±) of land located within portions of Sections 21, 22, 25, 26, 27 & 28, Township 12, Range 6, W4M. The site is located approximately 3 km north and west of the Town of Redcliff, south and west of the TransCanada Highway (TCH), west of the Highway 524 intersection. Highway 524 bisects the subject lands. The Canadian Pacific Railway mainline and a service road (Old TransCanada Highway) lie between the TCH and the subject lands. *(Figure 1)*

2.2. Land Ownership

The subject lands are currently owned by six different land owners. *(Figure 2)*

2.3. Site Conditions

The majority of the subject lands are being used for agricultural purposes. Approximately 60% the study area is under cultivation while the remaining 30% is being grazed. The study area is sparsely settled with only a couple of farm building sites.

There are several gas wells and pipelines within the study area. Over the past few years three sites have been developed with oil & gas or transportation related industrial activities. These existing uses should not present constraints to development.

The County's Land Use Bylaw designates the eastern portion of subject lands Agricultural District 1 (A-1 Urban Fringe) while the westerly portion are classified Agriculture District 2 (A-2 General Agriculture). Three parcels in the easterly portion of the study area have already been reclassified Industrial District (I). *(Figure 3)*

2.4. Adjacent Land Use

The surrounding land use is primarily agricultural, consisting of a mix of cultivated and pasture lands. There are several industrial operations located south of the study area along the service road, south of the TransCanada Highway. Two compressor stations are located adjacent to the study area, on the south side of Hwy 524 in the NW ¼of Sec 23. A country residential subdivision lies immediately north of the study area in the easterly portion of the subject lands. The interface between the existing country residential land and proposed industrial/commercial is an issue that must be addressed.

The County's land fill is located in the SE ¼ of south and east of the study area. In accordance with the Subdivision & Development Regulations, no residence may be constructed within 450 m of the working area of an operating landfill. The current land fill is beyond this distance. However, portions of the study area may fall within this distance as the landfill expands in the future. Industrial developments should not be impacted by the future development of this landfill.

2.5. Topography

The overall topography of the site is relatively flat, generally sloping from west to east. The overall elevation difference across the total site is approximately 28 m±. There are several quarters where the land slopes in a north easterly direction. Total slope across any quarter section of land is 4 m or less. Topography is not anticipated to create any challenges to the development of the subject lands.

The soils in the study area are rated as Class 4 soils under the Canada Land Inventory (CLI) and, therefore, not considered better agricultural land.

2.6. Geo-Technical Investigation

No overall geotechnical investigation was undertaken to determine the subsurface and groundwater conditions. Individual testing will be required at the development stage.

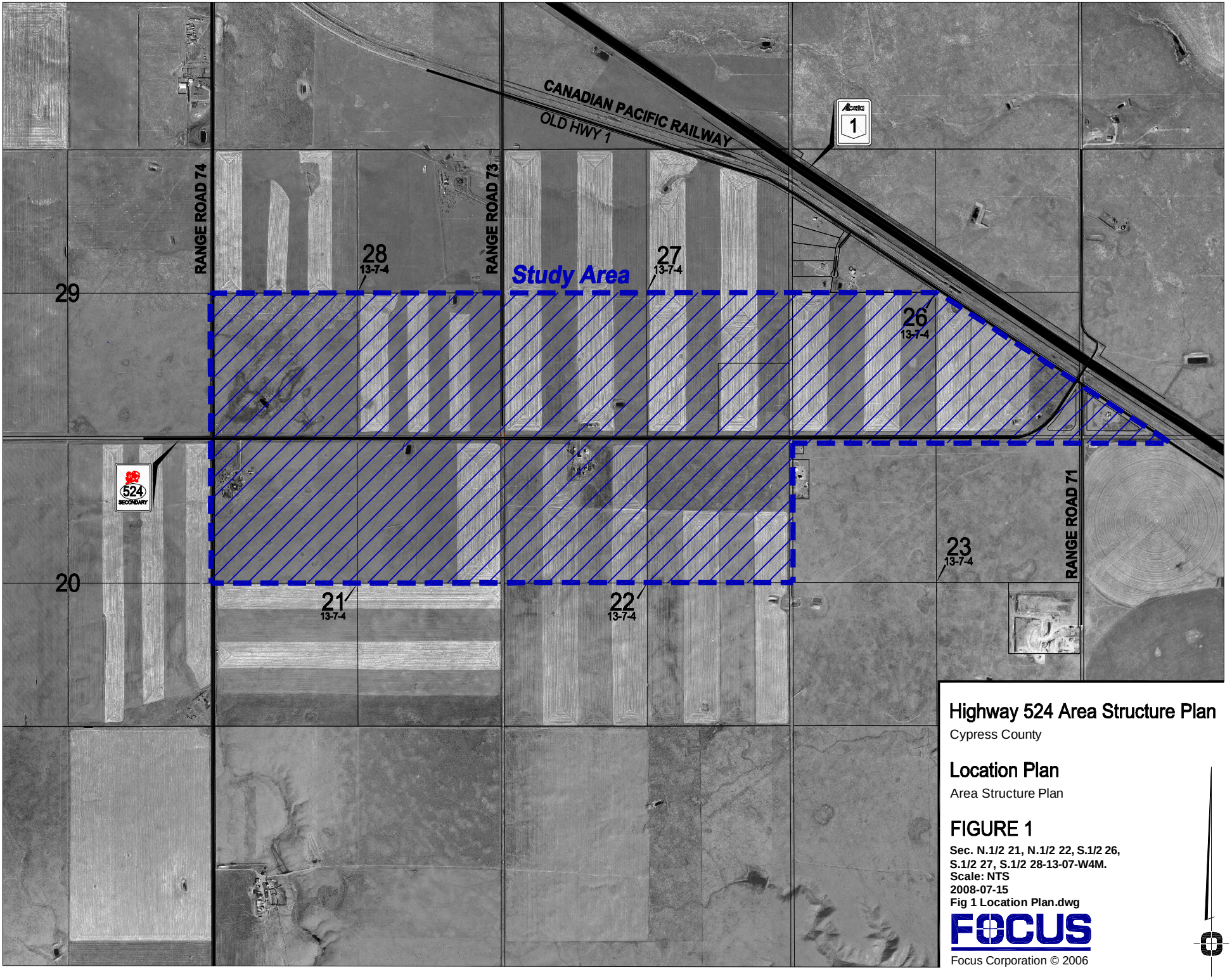
2.7. Biophysical Overview

A biophysical review has not been conducted for the subject lands. The majority of the plan area has been under cultivation or grazing for the past number of years, therefore no issues with regard to natural or native vegetation are anticipated.

2.8. Historic Resources

A review of the Alberta Culture & Historic Resources' Historic Resources Inventory indicates there are no known archaeological or palaeontological resources within the study area. However, an Archaeological Resource Potential Map included in the Highway 1 & 3 Functional Planning Study, prepared for Alberta Infrastructure and Transportation, shows the majority of the study area as having medium potential for archaeological resource potential, with one pocket identified has having a high potential.

In accordance with the ***Historical Resources Act***, any historic resources encountered during subdivision or development of lands must be reported to Alberta Community Development.



Highway 524 Area Structure Plan

Cypress County

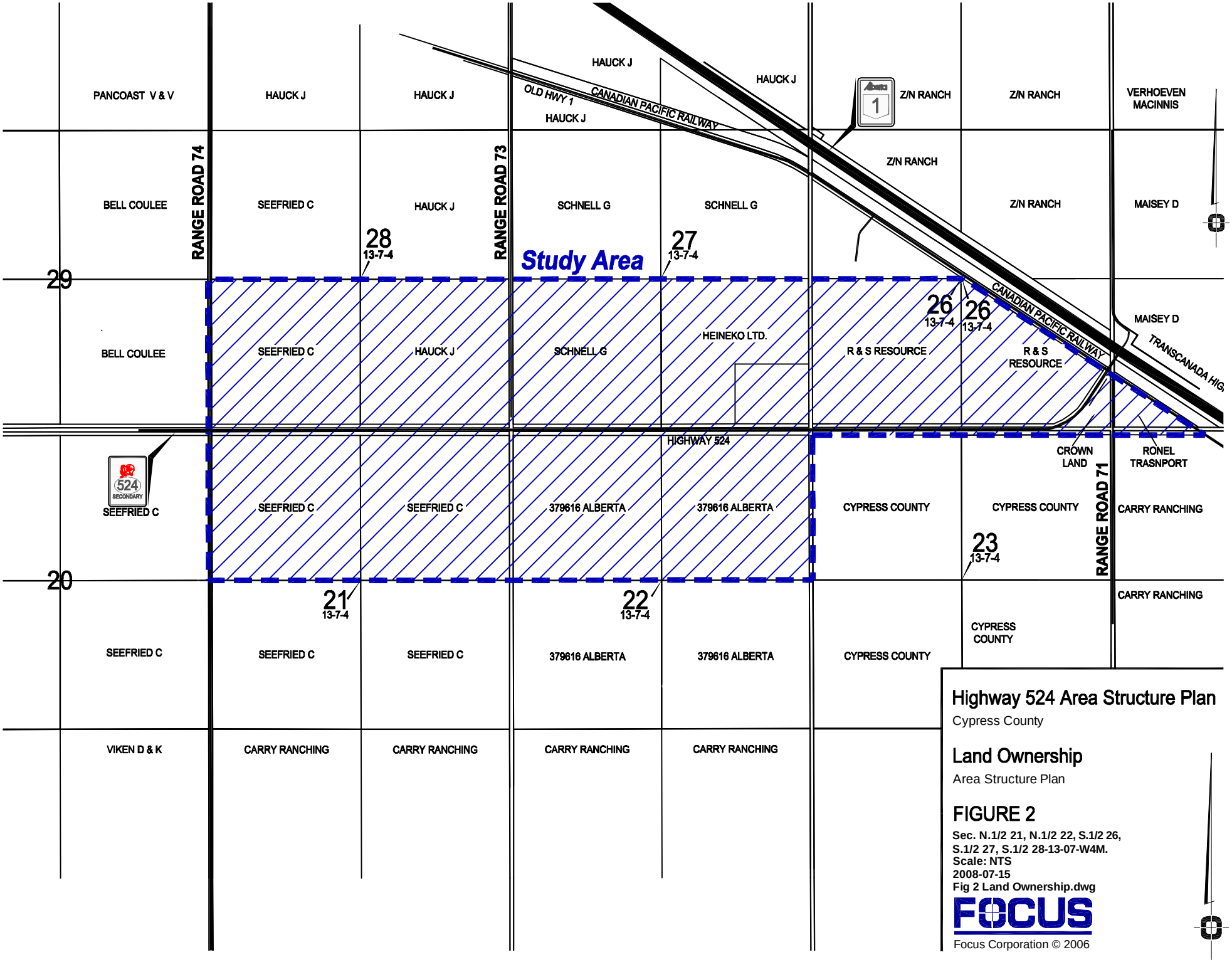
Location Plan

Area Structure Plan

FIGURE 1

Sec. N.1/2 21, N.1/2 22, S.1/2 26, S.1/2 27, S.1/2 28-13-07-W4M.
Scale: NTS
2008-07-15
Fig 1 Location Plan.dwg

FOCUS



Highway 524 Area Structure Plan

Cypress County

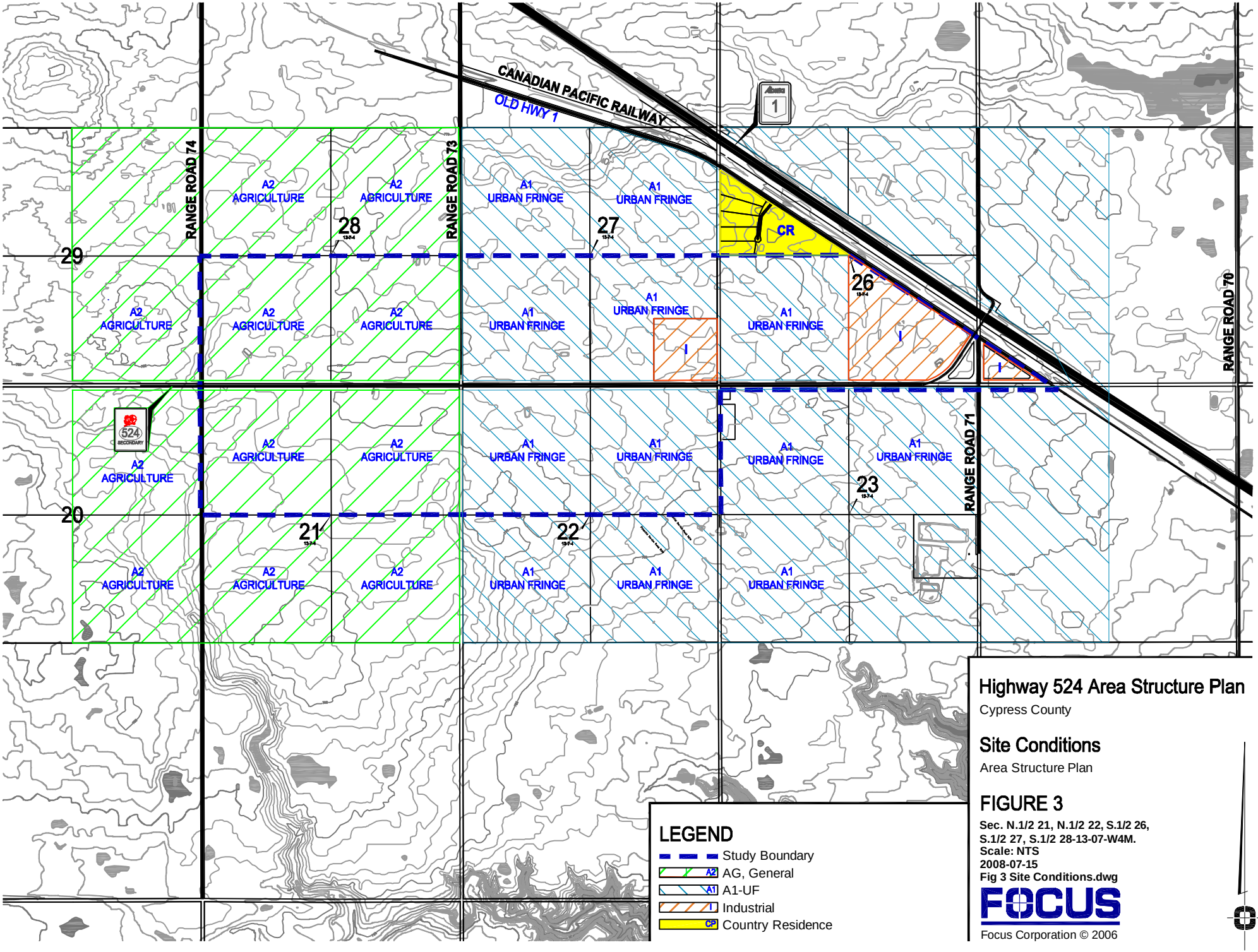
Land Ownership

Area Structure Plan

FIGURE 2

Sec. N.1/2 21, N.1/2 22, S.1/2 26, S.1/2 27, S.1/2 28-13-07-W4M.
Scale: NTS
2008-07-15
Fig 2 Land Ownership.dwg

FOCUS



Highway 524 Area Structure Plan

Cypress County

Site Conditions

Area Structure Plan

FIGURE 3

Sec. N.1/2 21, N.1/2 22, S.1/2 26, S.1/2 27, S.1/2 28-13-07-W4M.
Scale: NTS
2008-07-15
Fig 3 Site Conditions.dwg

FOCUS

3. Development Concept

3.1. Development Concept

The intent of this area structure plan is to establish a development concept for 657 ha± of land to guide the future subdivision and development. The plan identifies proposed land uses, the spatial relationship between said uses, a transportation network and the sequence of development. *(Figure 4)*

The site is bisected by Hwy 524 which will be the main source of access for development in the study area. The timing of the new alignment of the TransCanada Highway and interchange, proposed through this area creates issues that need to be carefully evaluated as subdivision and development of this area is proposed. *(Figure 5)*

The plan, once adopted, provides assurances to the land owners, Cypress County, Government Departments and the general public that specific development plans will be able to be undertaken within this area. The development plan is conceptual in nature in that the exact boundaries may change as more detailed planning is carried out at the subdivision and development stage. The plan will not force any land owners to sell or develop their land should they chose not to, rather it is intended to provide an opportunity to allow the conversion of their land from agricultural to the proposed industrial/commercial uses in the owners own time table.

3.1.1 Development Concept – Industrial

The majority of the land in the study area is proposed to be designated industrial for the development of larger lots for oil & gas related activities. The current demand is for larger lots to allow for the construction of offices and shops and large storage areas for equipment and materials. The desired lot size appears to be in the 2 ha± range. The conceptual layout is designed to allow quarters sections of land to be easily divided into lots of 2 ha± or larger. With the number of quarters of land involved, the concept plan is structured to allow different quarter to proceed independently as demand warrants. However, as each quarter proceeds, the subdivision and development plans must have regard to the way that its development may impact the adjacent quarters. Issues such as road locations and access and storm water drainage must be considered and coordinated.

Considering the type of development proposed for this area, limited municipal services are expected to be required. Most activities only require limited amounts of water for domestic use. Domestic water for this purpose can be handled by private wells or cisterns, while sewage disposal can be accommodated by septic fields or holding tanks. Storm water will need to be controlled to municipal and provincial regulations on a site by site basis. Water for fire protection is also an issue that shall need to be addressed on a site to site basis.

A country residential subdivision is located immediately north of the study area in the SW ¼ of Sec 26. To reduce the conflict between the proposed industrial development and the existing country residential properties, a buffer will be required (see Section 3.1.3). Activities that will generate noise, dust, manufacture or store hazardous materials or products; or generates excessive light should not be located in the areas immediately adjacent to this buffer. The storage of equipment or materials must be screened from the adjacent residences to the satisfaction of the Development Authority.

3.1.2 Development Concept – Highway Commercial

To capitalize on the fact that the TransCanada Highway will bisect the study area, and an intersection is planned to be constructed, approximately 53 ha of highway commercial land use is proposed for the properties adjacent to the interchange. Since the interchange may not be constructed for some time, it is recommended that lands proposed for highway commercial either be left vacant or developed with temporary uses so that the 'highest and best use' of this land can occur when the interchange is constructed. When the interchange is constructed, use such as truck stops, restaurants, etc would be considered appropriate.

No access will be allowed directly from the interchange; rather access will be from established locations along Hwy 524. The concept proposes to provide access to the land adjacent to the interchange with internal service roads. This is seen to be a more efficient design and to reduce the amount of road required and the need to service roads along the TCH. Guidelines have been designed to control the visual impact of development along the TCH, (see Appendix A).

3.1.3 Development Concept – Separation Zone

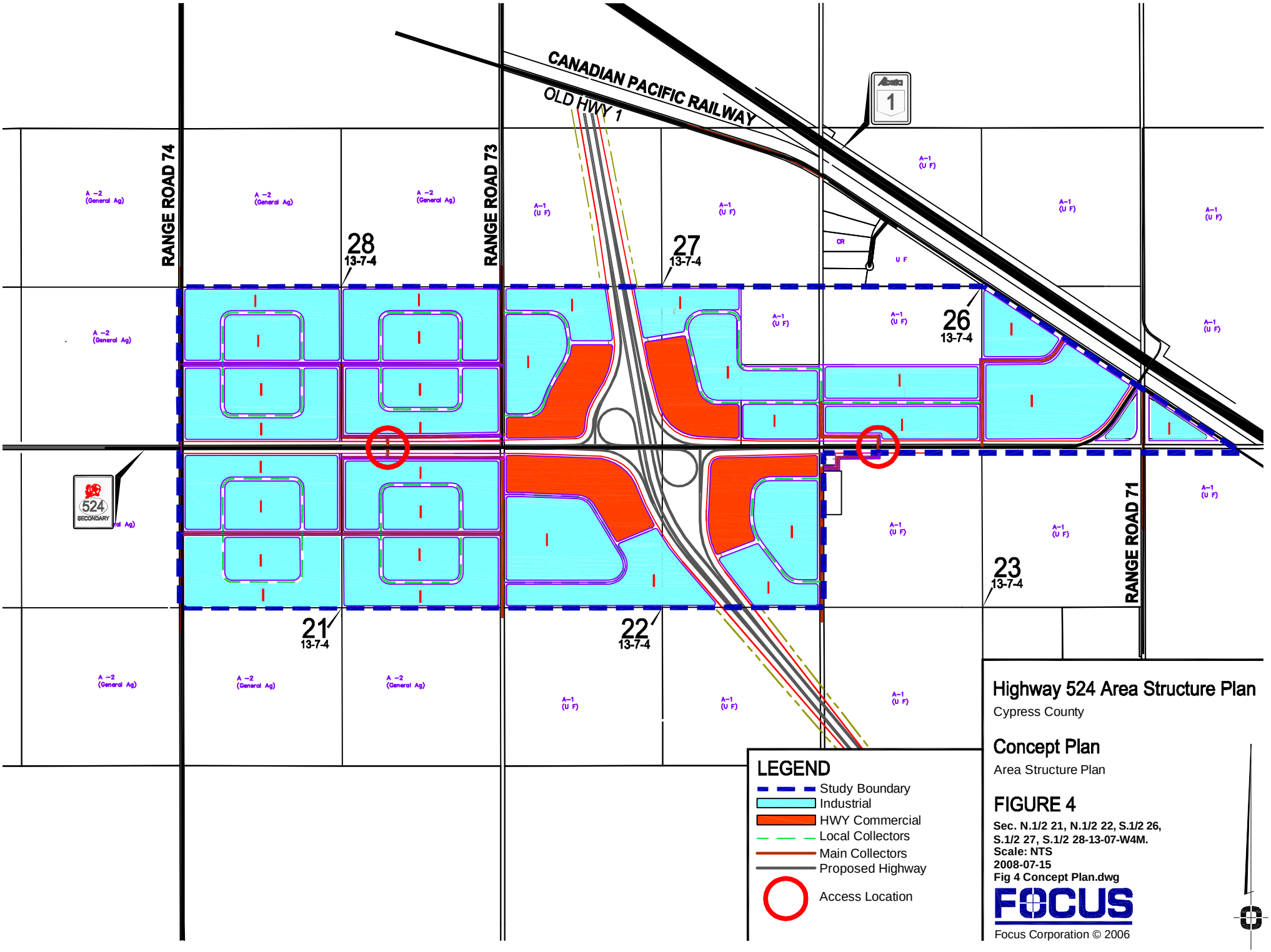
As mentioned in Section 2.4 Adjacent Land Uses, a multi lot country residential subdivision lies north of the study area in the SW ¼ Sec 26. During the process of reclassifying the existing industrial parcels, the adjacent land owners raised objections and were reportedly given an assurance that there would be a significant separation between their properties and the industrial developments. The current industrial land owners in this area when presented with this notion generally agree that a separation between their properties and the country residences is an acceptable concept. This zone would be established to separate the two land uses.

The extent of this separation appears to be a matter of interpretation. A review of the minutes of the public hearing and Council meeting setting out the approval of the land use amendments makes no mention of a specific commitment. This matter was reviewed with Council, who directed staff to hold a meeting with the land owners. After considerable discussion, no consensus was reached on a separation distance. The matter was referred back to Council who ultimately decided that 80 ac± of land along the northern portion of SW Sec 26 and 40 ac± of land in SE Sec 27 be left as agricultural land. This works out to approximately a 400 m separation between the country residential lots and industrial uses. This area is to remain Agricultural and will not be reclassified to Industrial. The intent is to use this strip of land to provide a separation between the industrial land uses and the country residences to minimize the impacts of industrial uses on the country residences.

As an incentive to maintain the 400m± separation area in agricultural use, at the subdivision stage, the County may consider waiving the municipal reserve requirement on the industrial land adjacent to this buffer zone. The details will be negotiated at the subdivision stage.

3.2 Land Use Statistics

Land Use	**Summary Of Land Uses**	**%**
	Area (Hectares±)	
Total Study Area	**657**	
Environmental Reserve	0	
Hwy 524 Right of Way	35.0	
TCH Interchange	40.8	
Net Developable Area	**581.2**	**100**
Service Roads	6.0	1.0
Main Collectors	17.0	2.9
Local Collectors	29.1	5.0
Separation Zone	48.6	8.4
Industrial	427.6	73.6
Hwy Commercial	52.9	9.1



Highway 524 Area Structure Plan

Cypress County

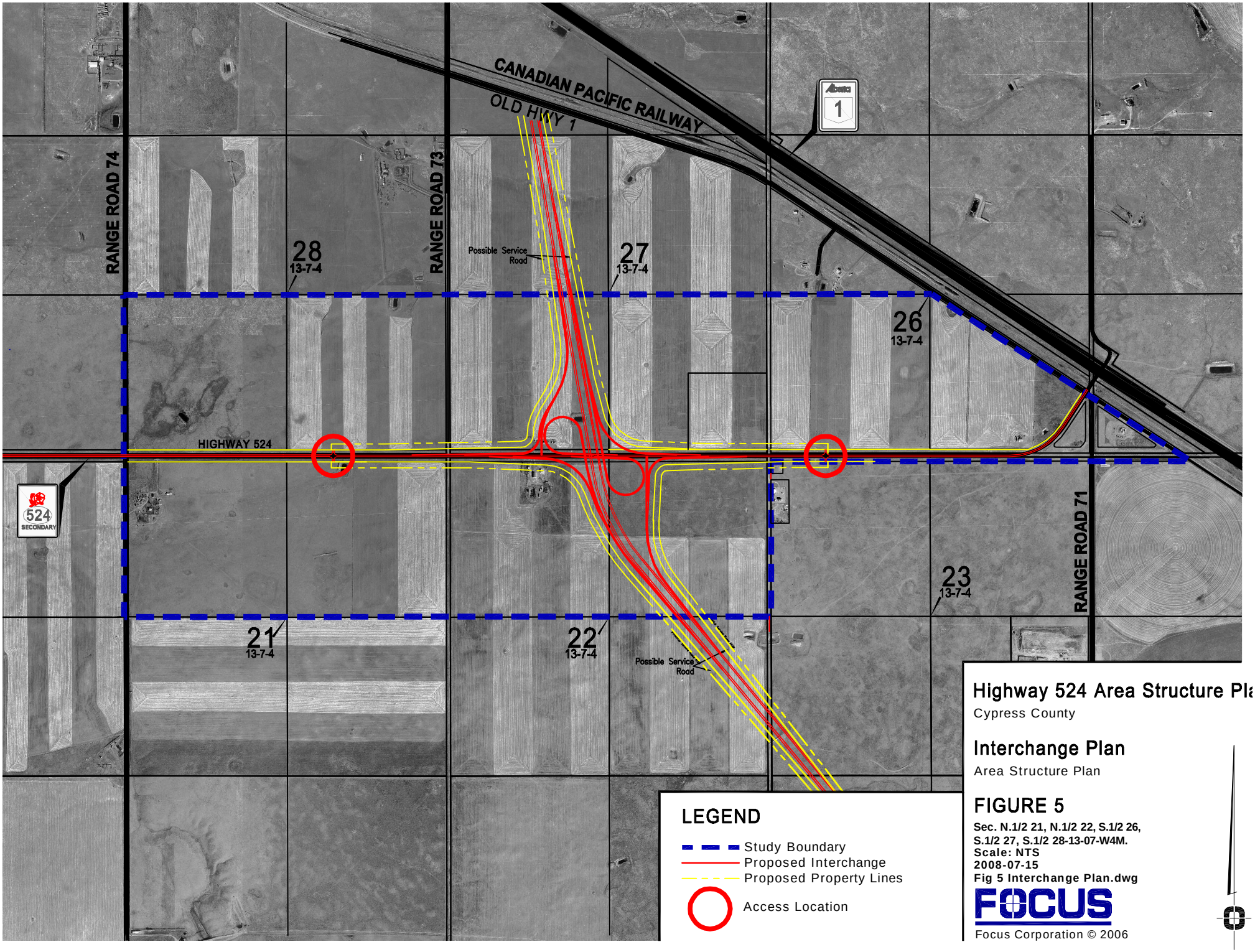
Concept Plan

Area Structure Plan

FIGURE 4

Sec. N.1/2 21, N.1/2 22, S.1/2 26, S.1/2 27, S.1/2 28-13-07-W4M.
Scale: NTS
2008-07-15
Fig 4 Concept Plan.dwg

FOCUS



Highway 524 Area Structure Pla

Cypress County

Interchange Plan

Area Structure Plan

FIGURE 5

Sec. N.1/2 21, N.1/2 22, S.1/2 26, S.1/2 27, S.1/2 28-13-07-W4M.
Scale: NTS
2008-07-15
Fig 5 Interchange Plan.dwg

FOCUS

4. Transportation

4.1. Existing Transportation Network

Over the past few years, there has been an increasing demand for properties along Hwy 524. This demand is seen to be due to the fact that Hwy 524 is a paved roadway with good access to the TransCanada Highway and in close proximity to the City of Medicine Hat and Town of Redcliff. Also the easterly portion of Hwy 524 is not impacted by road bans.

4.2. Future TransCanada Highway Interchange

Stantec, a transportation engineering consulting firm was commissioned to prepare the Highway 1 & 3 Functional Plan for Alberta Infrastructure & Transportation. The transportation network for the subject lands has been prepared using public information provided by Stantec. The Stantec study identifies the preferred TransCanada realignment bisecting the study area, with a full interchange at the intersection of the TransCanada Highway & Hwy 524. The preferred route is an alignment that will commence east of Dunmore, run south and west of the City of Medicine Hat and the Town of Redcliff, then cross the South Saskatchewan River south of the subject land, bisect the study area to reconnect with the current TransCanada alignment approximately two (2) km north of the study area. The plans from Stantec's Transportation Report have been presented to the public at several Open Houses and ratified by Cypress County, the City of Medicine Hat and the Town of Redcliff. Stantec's plans have been forwarded to Alberta Infrastructure & Transportation for review and are anticipated to be adopted in the fall of 2008. The timelines for the construction of this realignment and interchange is in range of 10 to 20 years. *(Figure 5)*

The intention of this area structure plan is to develop a concept that identifies the interchange location so the adjacent properties may be developed while at the same time preserving the interchange right of way as in its draft location. Once the Functional Plan is adopted, landowners impacted by this interchange may decide to start negotiating agreements with Alberta Infrastructure & Transportation with regard to the sale or preservation of lands required.

4.3. Access and Circulation

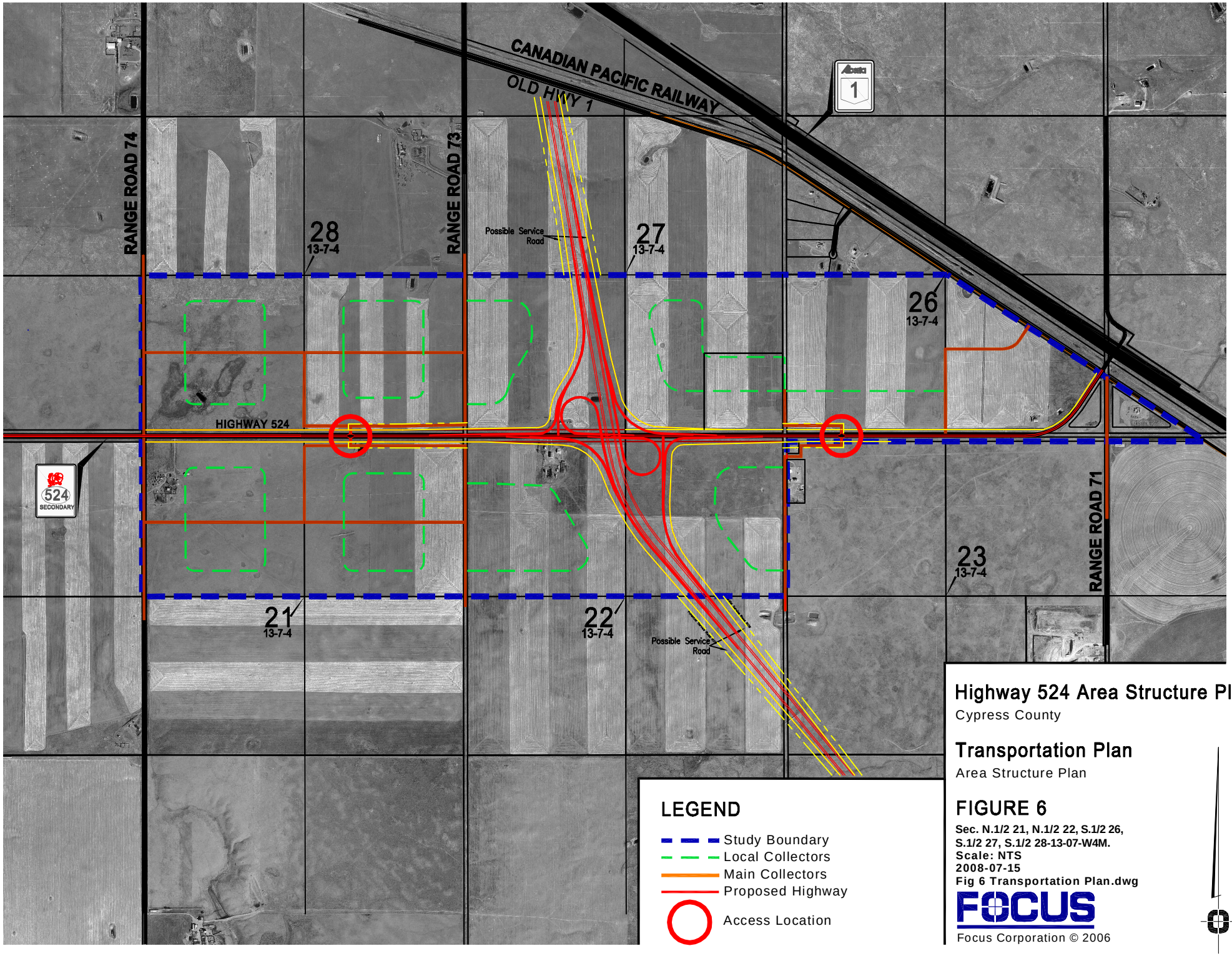
Access to all properties within the study area will be from the existing road network in the area and proposed service roads. Access points onto Hwy 524 will be limited to ensure proper access management. *(Figure 6)*

In accordance with the recently adopted policy – *Paving Roads in Rural Subdivisions (January 2008)*, all public roads providing access to parcels in this study area should be paved to a standard sufficient to accommodate the heavy truck loads anticipated for this area. The paving of these roads will create a high standard of development in the County and reduce the amount of dust created and lessen the impact of dust on adjacent properties.

4.4. Service Roads

When the proposed interchange is constructed, no direct access to the TransCanada Highway will be allowed. Based on good engineering practise, the first accesses onto Hwy 524 on either side of the interchange must be 400m from the end of the exit ramps. As a result there will be a need to create a minimal length of service roads along Hwy 524 to allow access to some of the subject lands. Since these services roads will be are required due to the interchange, they should be built as part of the interchange. Any development of the properties in the proximity would be prudent to take this requirement into consideration. *(Figure 6)*

The Highway 1 & 3 Functional Plan identifies possible service roads along both sides of the TransCanada Highway. Service roads will only access the highway at interchanges. Other than the service roads required shown on Figure 5, the design concept for the subject lands does not propose service road paralleling the TransCanada Highway. However, there may be a requirement for service roads to provide access to adjacent properties outside of the study area. This requirement should be taken into consideration at a more detailed stage.



Highway 524 Area Structure Plan

Cypress County

Transportation Plan

Area Structure Plan

FIGURE 6

Sec. N.1/2 21, N.1/2 22, S.1/2 26, S.1/2 27, S.1/2 28-13-07-W4M.
Scale: NTS
2008-07-15
Fig 6 Transportation Plan.dwg

FOCUS

5. Utility Services

5.1 Water

5.1.1 Domestic Water

At this time there are no plans to supply municipal water to this area. As a result, water supply will be the responsibility of the individual owner. Owners will be responsible for submission of all documents pertaining to quality, quantity, provincial approvals and required licensing for the domestic water supply being provided for the site. Typically domestic water requirement for the type of zoning for this area is limited and can be accommodated through water hauling or private wells. The hydro geological maps for the county indicate water flows may vary from 10 to 300 m^3/day range depending on the depth of the well. Similarly water quality may vary. Water wells will require a licence from Alberta Environment.

5.1.2 Fire Protection

Water requirements for fire protection will need to be addressed. The Alberta Building Code requires buildings in excess of 1500 m^2 to provide fire sprinklers. The installation of sprinklers requires a considerable reserve of water as specified by the National Fire Protection Association (NFPA). Some properties developed in the area have been approved on the basis of providing fire sprinkler systems for their buildings and the owners have used adequately sized dugouts to meet the required fire demand. In general, this type of system may be an acceptable solution. However, the sprinkler system will require continual maintenance to ensure there is adequate volumes of water and that the equipment will function when required. The maintenance issue is a major concern for the Fire Protection Underwriters.

The developments in the area that have installed more elaborate systems have included wells in addition to ponds or reservoirs to meet their fire flow requirements. Due to the uncertainty of runoff as a source of water, approvals were given on the basis of drilled wells and pumps installed to maintain a constant volume of water to ponds and/or reservoirs. Pressure systems complete with a series of water lines and hydrants were installed to provide the required fire protection. These systems may be more elaborate than the minimum code requirement; however, they will provide enhanced fire protection.

As individual fire protection systems are designed & submitted to the County, coordination with Cypress County needs to occur to ensure that all aspects of the equipment are installed in accordance to Cypress County standard equipment. An inventory of fire protection systems shall be submitted to the County as a reference for their fire department to ensure the fire department has up to date data in the event of major fires in the area. This inventory would also be used as a reference for routine inspections.

5.2 Sanitary Sewer

No municipal sanitary sewer system is planned for this area. Domestic sewage shall be handled by septic systems, holding tanks or other system approved by the municipality and the province. In the ASP designated area non domestic sewage generated by any non domestic use shall be accommodated by using methods approved by Alberta Environment. All sewer systems will require specific approvals from Alberta Environment and Cypress County.

5.3 Storm Water Management

At the discretion of the Municipality, for support of an application for a specific use in this area an environmental site assessment of the development area may be required to be done in accordance with CSA Standards and a report submitted for approval. This report may include a geotechnical investigation conducted by a qualified Engineer to address the suitability of the site for development. No development shall proceed until all engineering reports are approved.

A Stormwater Management Report is required to be submitted which includes a description of the proposed stormwater management and drainage system for both on-site and adjacent off-site lands. Supporting plans are to include proposed suitable building locations and elevations, standards to be incorporated in the final design, with hydrology and hydraulic calculations that justify the system design in accordance with Alberta Environment and Cypress County requirements. The proposed system must accommodate any drainage from adjacent areas, which had naturally drained through the site. Any drainage from the proposed development which is directed onto existing developed private properties shall be controlled such that post development runoff rates are equal or less than pre-development runoff rates. A system that implements Best Management Practices (BMP's) and provides for low cost maintenance should be tailored for each development.

The drainage system design and construction should address the following objectives:

1. Eliminate or at the least minimize potential property damage and flooding.
2. Maintain release rate of runoff from new development to pre-development rates or as required to protect the receiving drainage course.
3. Control soil erosion, sedimentation, and erosion of creek channels and drainage courses and ditches.
4. Protect significant wetlands in accordance with the Provincial Wetlands policy.
5. Overall maintenance of the stormwater management system should accommodate the nature of the subdivision and the rural context of the Municipality.
6. Use BMP's to estimate quantity and quality of the stormwater runoff.

5.3.1 Existing Provincial Regulations

The requirements of the following and any additional guidelines and standards for storm drainage systems should include but not necessarily limited to:

1. Environmental Protection and Enhancement Act
2. Wastewater and Storm Drainage Regulations
3. Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems
4. Stormwater Management Guidelines for the Province of Alberta
5. Water Act
6. Provincial Wetlands Policy
7. Municipal Government Act
8. Subdivision and Development Regulation
9. Subdivision and Development Amendment Regulation
10. Public Lands Act
11. Environmental Guidelines for the Review of Subdivisions in Alberta
12. Plumbing and Drainage Act of Alberta

5.3.2 System Design Requirements

The design of the storm drainage system shall be complete and shall be submitted in support of the Subdivision Plan based upon the preliminary design accepted by Cypress County and Alberta Environment. The following should be submitted to the County:

An Overall Drainage Plan (Scale – 1:1,000 or 1:1,500) depicting the following:

1. Existing 0.5m interval ground contours (based on an actual field survey), wetlands, and creeks or drainage courses and their estimated floodplains where possible.
2. The designated Suitable Development Area on each lot together with design building and lot grading elevations where possible.
3. The designated Suitable Development Area on each lot together with design building and lot grading elevations where possible.
4. Road and driveway layout and culvert locations and sizes.
5. Drainage arrows to depict the directions of existing and proposed drainage.
6. Boundary limits of each drainage area tributary to culverts and ditches.
7. Existing wetlands to be retained.
8. Existing wetlands to be filled in or drained.
9. Stormwater runoff control facilities.

10. The results of an assessment of offsite downstream ditches, culverts, and water courses and plan of any offsite downstream drainage improvements that are required to accommodate drainage from the development and to minimize the potential for downstream flooding or erosion.
11. Cross-sections showing water levels and pipe elevations for stormwater detention areas. Where existing wetlands are used for detention, sufficient information must be provided to quantify the wetlands perimeter before and after development including the 1:100 year event.
12. A description of the proposed stormwater management and drainage system (both onsite and offsite), standards to be incorporated in the final design, and the hydrology and hydraulic calculations that justify the system design and define the estimated floodplain where existing creeks or drainage courses pass through the development.
13. A sediment and erosion control plan
14. Environmental Reserve for wetlands that will be retained as part of the development.

Implementation of the design shall be under the supervision of a qualified professional engineer so that site specific needs are met.

5.3.3 Drawing Submission Requirements

Plan/Profile Drawings for all ditches combined with roadways wherever possible (Scales – 1:1,000 or 1:1,500 Horizontal, 1:50 Vertical) depicting the following:

1. Existing ground profile along ditches.
2. Proposed ditch and culvert grades, depths, or sizes.
3. Plan/Profile Drawings for any offsite ditch improvements required.
4. Overall plan view showing detailed design calculations to justify the design system.
5. Legend page

<u>Subdivision Ditches and Culverts</u>

1. Ditch depth: grid road = 1.0m, country residential subdivision roadway = 0.75m.
2. Bottom width: Class I grid road = 3.0m, Class II, III, and IV grid road = 2.5m, country residential subdivision roadway = 1.0m.
3. Side slope: grid roads =4:1, country residential subdivision roadway = 5:1.
4. Minimum Culvert Sizes:
   - Entrance and Exit Roads – 600mm
   - Driveways – 400mm
5. Culvert Material:
   - Corrugated Steel Pipe (CSP)

6. Culvert Structural Design Basis:
   - Minimum 300mm earth cover.
   - Based on earth load plus greatest live load (either road construction equipment or loaded water delivery truck passing over the culvert).
7. Hydraulic Design Basis:
   - Flows calculated using Rational Formula for maximum development size = 65 ha. Larger areas will require computer modelling.
   - Intensity based of 1:25 year storm event I.D.F. curve for Cypress County.
   - Ditches and culverts sized based on Manning's Formula with free flow conditions (no headwater assumptions at culvert inlet). Manning's n=0.024 for culverts and n=0.05 for ditches.

5.3.4 Erosion and Sedimentation Control

During site preparation and/or construction of roads and buildings, care shall be taken to mitigate potential impact from erosion and sedimentation. Prior to undertaking any site preparation, the Owner of the works shall submit to the Municipality as part of the stormwater management plan an erosion and sedimentation control plan that includes:

- Map showing topography, overland flow routes, soils, drainage, final grading, stockpiles, zones of erosion potential, stream dimensions and stream flow data, any special feature, and the sensitivity of the downstream environment where flows could leave the site;
- Details and extracts of objectives and conditions in any Overland Drainage Plan and/or Site Drainage Plan;
- Dust control measures and location, height and removal of stockpiles;
- An indication of the degree of erosion and sediment control measures anticipated, based on the site erosion potential and downstream impact;
- Procedures for monitoring and maintaining the erosion and sedimentation controls, including methods of removing and disposing of sediment from any sediment traps;
- Details of contingency plan for failure of control elements during extreme runoff events.

Rock rip-rap is required at all culvert inlets and outlets, minimum erosion protection accepted:

1. All disturbed areas shall be seeded
2. Rock ditch checks used in ditch sections determined by the consultant to be prone to erosion

On occasion, unique conditions may occur which would dictate the use of special erosion protection measures to be submitted to and approved by Cypress County.

5.3.5 Maintenance of Stormwater Facilities

The performance and maintenance of any stormwater management system component is the responsibility of the owner/developer. If the system fails to perform satisfactory under actual conditions, the County and /or the Province will require that the system be brought up to the required standards.

The overall maintenance of the stormwater infrastructure shall accommodate the rural nature of the Municipality. An easily maintained stormwater infrastructure is a significant benefit to the Municipality and to the community as a whole.

5.4 Shallow Utilities

Shallow utility servicing for the subject site will provided from existing infrastructure in the area. Natural gas will be provided by Forty Mile Gas Co-op Ltd. Electrical power to be provided by FortisAlberta Inc. and telephone service to be provided by Telus Communications Inc. Each land owner will be responsible for the cost of extending services to their lands. Wherever possible it is expected that landowners work together to coordinate servicing to reduce overall costs.

5.5 Solid Waste Collection and Disposal

Waste collection and disposal will be the responsibility of the landowner or tenant of all properties in the study area.

6. Staging & Implementation

6.1 Development Sequence

The logical sequence of development should occur from the existing sites in the east and move westerly as demand warrants. Since utility servicing is not a factor, there is nothing preventing the County from reclassifying parcels out of sequence and allowing development to proceed independent of adjacent quarters provided the development follows and conforms to this area structure plan. This is not a recommended strategy as it can have an impact of surrounding land uses and can create a leap frog type development.

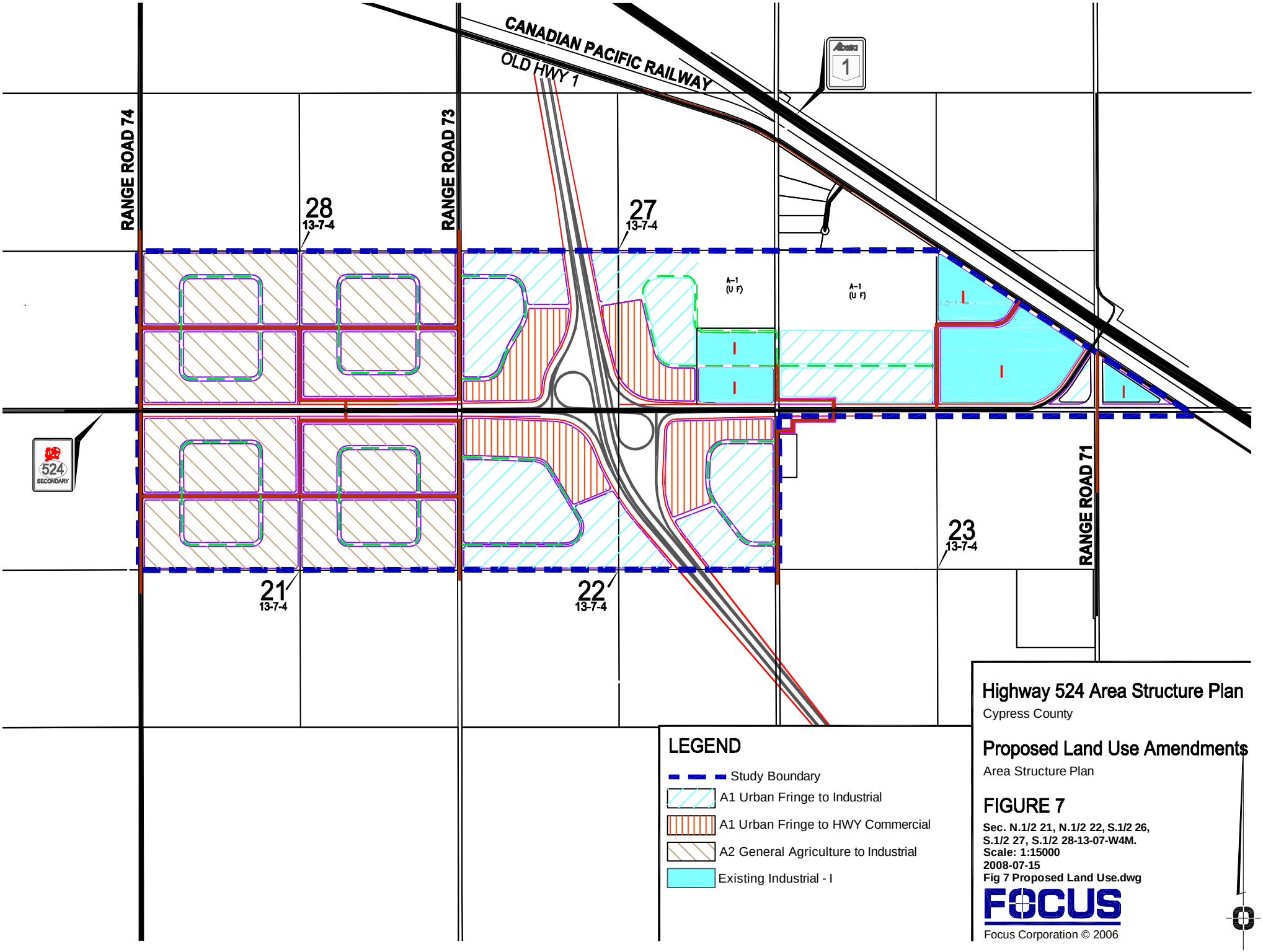
6.2 Reserve Dedication

In accordance with the provisions of the Municipal Government Act (Sections 661 to 667), a municipality may require a landowner to dedicate up to 10% of the land being subdivided as reserve. The lands dedicated as reserve may be used for parks, school or buffers.

The primary land uses proposed for the subject lands are industrial or highway commercial uses; as a result, there is limit need for parks or reserves in this area. It is therefore recommended that at the time of subdivision, the reserve requirement be met by payment of money in place of public reserve in accordance with Section 669(1) of the MGA.

6.3 Land Use Amendment

The subject lands are currently designated Agricultural District 1 (A-1 Urban Fringe) and Agricultural District (A2 General Agriculture). To allow this area to be developed, the land use will need to be reclassified to more appropriate land districts. The proposed land uses Industrial District (I) or Highway Commercial District (HWY-C) are shown on *Figure 7 Proposed Land Uses*. It is recognized that over time, market demand can change and land use bylaws are amended. Therefore, the land use reclassifications should be made prior or as part of the subdivision application process.


CANADIAN PACIFIC RAILWAY
OLD HWY 1
1
RANGE ROAD 74
RANGE ROAD 73
RANGE ROAD 71
28
13-7-4
27
13-7-4
23
13-7-4
21
13-7-4
22
13-7-4
A-1
(U F)
A-1
(U F)
524
SECONDARY
LEGEND
Study Boundary
A1 Urban Fringe to Industrial
A1 Urban Fringe to HWY Commercial
A2 General Agriculture to Industrial
Existing Industrial - I
Highway 524 Area Structure Plan
Cypress County
Proposed Land Use Amendments
Area Structure Plan
FIGURE 7
Sec. N.1/2 21, N.1/2 22, S.1/2 26,
S.1/2 27, S.1/2 28-13-07-W4M.
Scale: 1:15000
2008-07-15
Fig 7 Proposed Land Use.dwg
FOCUS
Focus Corporation © 2006

Appendix A

Highway Corridor Development Guidelines

1. Purpose

Cypress County wishes to maintain a visually pleasing image for travelers passing along the highways through this study area. The following guidelines are intended to assist in maintaining this image by establishing a positive visual impression of the highway corridors by enhancing the quality and appearance of developed properties within this area.

2. Application

2.1. The guidelines apply to the development or redevelopment of all lands classified for industrial or commercial purposes that are visible from the highway and located within 300 metres of a highway right-of-way;

2.2. The guidelines shall be applied as a condition of a Development Permit.

2.3. The guidelines shall apply to the redevelopment of existing buildings and facilities as well as all new development.

2.4. Where the provisions of the guidelines conflict with other regulations of this bylaw, the more restrictive provisions shall take precedence.

3. Fencing & Landscaping

3.1. All front and side yards visible form the highway shall be landscaped to the satisfaction of the Development Authority.

3.2. Landscaping should provide greenery and seasonal colour to visually soften paved areas and buildings;

3.3. Unsightly equipment or materials shall be screened from the view of the highway, adjacent roadways or adjoining properties;

3.4. Screening may included fencing, berms or landscaping that provides a visual barrio, and

3.5. Fencing along the highways shall not exceed 2 m (6 feet) and may not be solid or consist of wood or wooden slabs.

4. Additional Standards

4.1 Development Authority may require the application of additional standards, if in its opinion:

1. the proposed development may generate undesirable impacts on surrounding sites, such as unsightly storage, excessive noise, light, odours, traffic, litter or dust;
2. the proposed development may generate undesirable impacts on the site, and cause conflicts with other businesses within the development;

4.2 The additional standards that may include, but are not limited to, the following:

1. Additional separation space between incompatible uses;
2. The use of trees, shrubs, opaque fences, walls, and berms to buffer or screen uses;
3. The use of trees, shrubs, planting beds and surface treatments to enhance the appearance of a proposed development.

5. Signs

5.1 In addition to the Sign Regulations contained in the Cypress County Land Use Bylaw, the following requirements shall apply.

5.2 No sign advertising off-premises developments or facilities (billboards) shall be permitted in this area.

5.3 Building facades shall not be used as billboards.

5.4 Moving or animated signs and electronic message boards that may distract adjacent highway users are not permitted within this area.

5.5 Sign types other than freestanding signs, but excluding billboards sign, facing and visible from the highway corridor may be considered by the Development Authority if they comply with the following principles:

1. One illuminated logo sign per visible façade. The maximum dimension of such sign shall not exceed 3.0 m (10 ft.) in vertical and horizontal direction, parallel to the façade of the building, nor exceed a depth of 0.3 m (1.0 ft.);
2. One illuminated business name sign per visible façade shall not exceed 15% of the area of the façade of the building.

6. Lighting

6.1 Outdoor lighting provided for security, display or attraction purposes for any development shall be arranged so that no light is directed at any adjoining site or interfere with the effectiveness of adjacent traffic, and shall comply with the following provisions:

1. Light structure shall not exceed a height of 7.62 m (25.0 ft.);
2. The developer shall provide a plan indicating the location of all exterior lights, including the projected light patterns in relation to adjacent public roadways and developments; and,
3. No flashing or strobe, or revolving lights, which may impact the safety of motorists using adjacent public roadways, shall be installed on any structure or site.

7. Access

7.1 Vehicular entrances and exits, vehicular routes shall be designed in a manner that provides a safe and clearly defined circulation pattern.

7.2 Loading bays shall be located in such a manner as to not impede the efficient flow of traffic and pedestrian movement and to minimize impacts on adjacent land uses.

7.3 To provide opportunities for convenient and free flowing traffic movements between lots, development on adjoining lots may be integrated by direct on site access connections.

8. Architectural Features

8.1 All buildings on a lot shall exhibit a high standard of appearance.

8.2 Mechanical equipment (including roof top equipment) shall be screened from view. Screening shall be compatible with the character of the site.

8.3 All waste collection areas, visible from the corridor shall be screened. Screening shall take the form of any one or a combination of the following: berming, landscaping or solid fencing.

APPENDIX B

Development Guidelines – Rural Commercial/Industrial Area

Cypress County has received inquires and applications for industrial developments on properties outside the study area. During the preparation of the Highway 524 Area Structure Plan, the County decided to expand the scope of the project to include development guidelines that would also be applicable for areas outside the ASP study area.

The following is intended to service as a guideline when considering land use or development application in the areas outside of this area structure plan study area, as shown on the attached Figure.

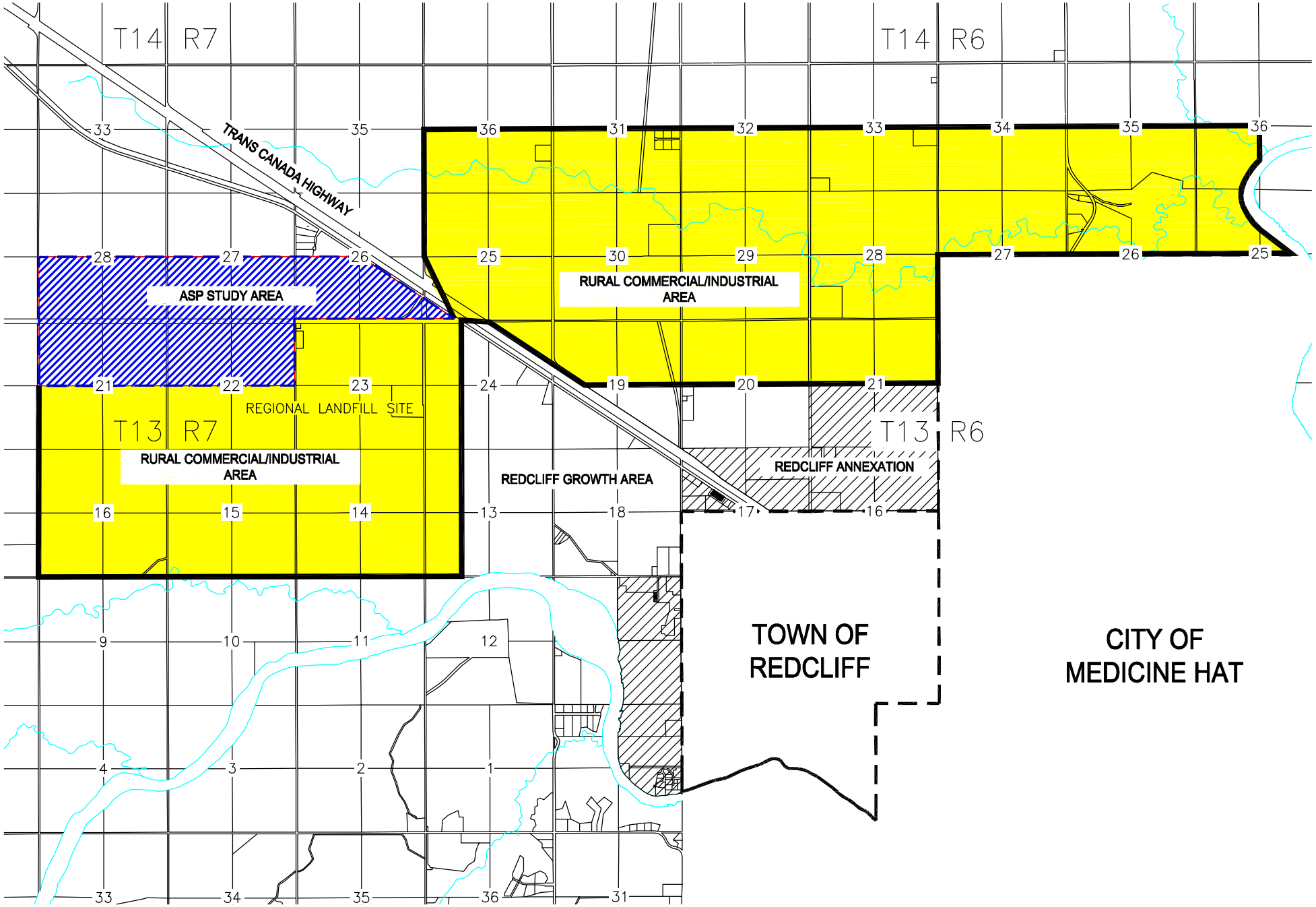
1. Roads

1.1. Principles

Standard development practise requires the developer to be responsible for the costs of developing all 'on-site costs', in other words, all roads within the development area. In addition, they maybe expected to pay all or a portion of the 'off-site cost' of roads up to their property. The County will decide the percentage on a 'case by case' basis. The concept behind 'off-site costs' is that the County and the general taxpayer have been responsible for paying for existing infrastructure. An individual developer/owner will receive some benefit from the infrastructure in place and shall be obliged to contribute monetarily in relationship to that benefit as deemed appropriate by the County.

A single subdivision or development in isolation may not create the necessity for the County to upgrade most developed roadways. It is the combined effect of a number of subdivisions which increase traffic volumes to the point where a road can no longer satisfactorily accommodate the increased traffic volumes. The MDP states that when considering a rural industrial land use reclassification, consideration shall be given to ensure the roads either are or will be constructed to a standard for the intended use. The applicant must be amenable to upgrade or pave the roads to a standard acceptable to the County. When considering land use changes, preference should be given to parcels that are located within ½ mile (800 m) of paved roads or highways.

As properties are subdivided and additional businesses started, increased demand on the County's road network occurs. At some point of development an upgrading of the road network will be required in order to accommodate the increase in traffic volumes. It is recommended that as developments occur, the developers/owners shall be required to conduct a traffic impact analysis as directed by Council and if the analysis indicates traffic volumes will exceed, 300 trips per day or more than 15 vehicles per day with a gross vehicle weight (gvw) of more than 10,000 kg, upgrading of the road should be made a condition of subdivision or development approval. Similarly, any subdivision within a half mile (800 m) of an oiled or paved road shall also be required to oil or pave the road to the subdivision.



FOCUS

RURAL COMMERCIAL/INDUSTRIAL AREA

1.2. Cypress County Road Paving Policy

In January 2008 Cypress County Council passed the Paving in Rural Subdivisions policy. Both new and existing subdivisions are to be regulated by this policy. This policy will be updated from time to time and all owners/developers shall ensure that they abide by this policy and subsequent updates. All road design standards can be obtained from the Cypress County office. All owners/developers shall ensure that they abide by the current upgraded standards at the time of submission of development plans.

1. All roads to be dedicated and constructed as a condition of subdivision must be paved, unless otherwise approved by Council.
2. The adjacent district road for existing multi-lot subdivisions (two or more lots) must have existing dust control, or dust control must be provided by the developer a minimum 50 metres past the boundaries of the subdivision. An annual contribution of $500 per lot will be assessed for maintenance of the dust control strip in front of all subdivisions. (The public should be cognizant that annual contribution may change as deemed appropriate by Council or by legislation.)
3. The developer of any subdivision(s) within a half mile (800 metres) of an oiled or paved road must also oil or pave the access road to the subdivision. If the estimated traffic generation from the subdivision(s) is more than 300 vehicles per day or with more than 15 vehicles with a gross vehicle weight (gvw) of more than 10,000 kg, then the road and adjacent dust control strip must be paved.
4. All subdivisions of three or more lots must have access to County roads by means of a paved service road.
5. Where not prohibited for safety reasons, 1-2 lot subdivisions may have direct access to County roads provided that there will not be more than two approaches per half mile of road frontage, including access to the subdivision and the remnant parcel. In the event of further subdivision, the developer must dedicate to the County a 20 metre wide service road right-of-way parallel and adjacent to a County road or a 30 metre wide service road right-of-way parallel to a highway. The developer must then agree to a Development Agreement being placed as a caveat against the remnant and newly created parcels requiring the development of a service road by the owner of the remnant parcel in the event that further subdivision of the remnant parcel takes place.

1.3. Operating Procedures

1. This policy shall come into affect on the day of its passing and will be applied to all multi-lot subdivisions whether approved or in the approval process which do not have signed Development Agreements.
2. All road design and construction must be certified by and performed under the supervision of a qualified professional engineer registered with APEGGA.
3. Security for Development Agreements is required in the form of an Irrevocable Letter of Credit from a local branch of a chartered bank, Alberta Treasury Branch, or Credit Union.

4. All Road designs must include a construction cost estimate, be prepared by a certified engineer, include 10% engineering costs and GST.
5. Once the Developer is ready to endorse the subdivision, security will be required as part of the Development Agreement, based on the Engineer's construction cost estimate, as follows:
    - 150% of items not completed and/or,
    - 50% of items satisfactorily completed.
6. Security requirements at the time of CCC, placement of Second Lift of Asphalt and FAC will be determined based on the following guidelines:
    - 150% for items not completed and/or,
    - 50% for items completed to the satisfaction of the Municipality
7. Upon completion of construction and submission of as built drawings, pertinent testing and related infrastructure as per the Development Agreement, all roads will undergo an inspection by the Municipality. If no deficiencies have been identified, a Construction Completion Certificate (CCC) will be issued and the maintenance period will commence.
8. Upon issuance of a CCC, the maintenance period for a paved road development is as follows:
    - Two years subsequent to CCC, placement of second lift of asphalt.
    - Three years subsequent to CCC, eligible to apply for FAC.
9. Security will be released in full upon issuance of an FAC by the Municipality.
10. Within 5 years of issuance of a Construction Completion Certificate (CCC) for a privately developed paved road, the County will endeavour to assist in the recovery of a proportionate share of the cost of the road upgrade costs where it provides access to a new non-agricultural development on an adjoining parcel.
11. The design criteria for constructing subdivision roads are set out as follows:

Country Residential Roads			
Designation	Potential # of lots	Posted Speed	Description
CR50	Max 10	50	Internal residential road accessing 10 lots or less, 9m subgrade width, 150mm GBC, 7m paved surface 75mm ACP
CR60	>10	60	Minor residential collector road accessing more than 10 lots, 10m subgrade width, 150mm GBC, 8m paved surface 75mm ACP

Industrial/Commercial Roads			
Designation	Potential # of lots	Posted Speed	Description
IR50	Max 10	50	Internal industrial road accessing 10 lots or less, 10m subgrade width, 200mm GBC, 8m paved surface 100mm ACP
IR80	>10	80	Minor industrial collector or internal road accessing more than 10 lots, 10m subgrade width, 300mm GBC, 8m paved surface 125mm ACP

12. Approaches

Road approaches to newly subdivided lots shall have a minimum 8.0 metre wide paved surface, a minimum of 4:1 (or more shallow) side slopes, and have the appropriate sized culverts. Using good engineering practices and the "Manual of Geometric Design Standards for Canadian Roads", lot access shall be designed to address the turning requirements of large vehicles; such as pavement widening, three-point turning radii and other site specific criteria.

1.4. Existing Subdivisions

1. Cypress County may provide pavement on roads within and/or adjacent to existing multi-lot Country Residential Subdivisions if 2/3 of all of the owners representing at least ½ of the value of the assessments of the parcels of land within the multi-lot Country Residential Subdivision sign a petition, in the form attached to this policy, requesting pavement on roads within and/or adjacent to existing multi-lot Country Residential subdivisions as a Local Improvement pursuant to Part 10 Division 7 of the Municipal Government Act at a rate of $200.00 per annum per property for a periods of 25 years. (The public should be cognizant that annual contribution may change as deemed appropriate by Council or by legislation.)

2. Cypress County may provide pavement on roads within and/or adjacent to existing multi-lot Industrial subdivisions if 2/3 of all of the owners representing at least ½ of the value of the assessments of the parcels of land within the multi-lot Industrial Subdivision sign a petition, in the form attached to this policy, requesting pavement on roads within and/or adjacent to existing multi-lot Industrial subdivisions as a Local Improvement pursuant to Part 10 Division 7 of the Municipal Government Act at full cost recovery amortized over the benefiting properties for a period of 25 years.

2. Water

Many industries or businesses wishing to locate within the County do so because they require large tracts of land for the storage of equipment, machinery or materials but only require limited or no municipal services. Given the costs of providing municipal infrastructure, the cost of locating within urban centres can be prohibitive.

2.1 Domestic Water

Businesses locating in the County traditionally require limited water for domestic purposes, to accommodate office bathrooms, lunch rooms, etc. Typically this amount of water can be provided by private wells, dugouts or holding tanks. If development is spread over a large area, this is not an issue. However, as the concentration of wells and the amount of water usage increases significantly in one area, it can have a negative impact on existing wells in the area.

The Water Act states that water for household purposes has priority over other users. When country residences and industrial users are located in the same area, and wells are the main source of water, concerns regarding the impact on existing water aquifers are often raised. To minimize concerns over the impact on existing wells, it is recommended that if a multi-lot country residence development is located within 1.6 km of a parcel being proposed for land use change or development approval, for industrial or commercial use, the applicant is required to provide plans on how an assured supply of water will be provided. In the event the water supply is to be via wells, an evaluation should be conducted to ensure no significant interference or degradation of existing wells will occur as a result of the new or additional wells. Such report should be prepared by a groundwater geologist, hydrologist or person qualified to conduct this evaluation.

2.2 Fire Protection

Water requirements for fire protection will need to be addressed. The Alberta Building Code requires buildings in excess of 1500 m^2 to provide fire sprinklers. The installation of sprinklers requires a considerable reserve of water as specified by the National Fire Protection Association (NFPA). Some properties developed in the County have been approved on the basis of providing fire sprinkler systems for their buildings and the owners have used adequately sized dugouts to meet the required fire demand. In general, this type of system may be an acceptable solution. However, the sprinkler system will require continual maintenance to ensure there is adequate volumes of water and that the equipment will function when required. The maintenance issue is a major concern for the Fire Protection Underwriters.

Developments in the County that have installed more elaborate systems have included wells in addition to ponds or reservoirs to meet their fire flow requirements. Due to the uncertainty of runoff as a source of water, approvals were given on the basis of drilled wells and pumps installed to maintain a constant volume of water to ponds and/or reservoirs. Pressure systems complete with a series of water lines and hydrants were installed to provide the required fire protection. These systems may be more elaborate than the minimum code requirement; however, they will provide enhanced fire protection.

As individual fire protection systems are designed & submitted to the County, coordination with Cypress County needs to occur to ensure that all aspects of the equipment are installed in accordance to Cypress County standard equipment. An inventory of fire protection systems shall be submitted to the County as a reference for their fire department to ensure the fire department has up to date data in the event of major fires in the area. This inventory would also be used as a reference for routine inspections.

3. Sanitary Sewer

No municipal sanitary sewer system is located within this area of the County. Domestic sewer shall be handled by septic systems, holding tanks or other systems approved by the municipality and the province. Non domestic sewer generated by any business locating in this area shall be accommodated by methods approved by Alberta Environment. All sewer systems will require specific approvals from Alberta Environment and Cypress County.

As part of a subdivision application, evidence confirming the site conditions are suitable for the type of sewage system being proposed should be required.

4. Storm Water Management

At the discretion of the Municipality, for support of an application for a specific use in this area an environmental site assessment of the development area may be required to be done in accordance with CSA Standards and a report submitted for approval. This report may include a geotechnical investigation conducted by a qualified Engineer to address the suitability of the site for development. No development shall proceed until all engineering reports are approved.

A Stormwater Management Report is required to be submitted which includes a description of the proposed stormwater management and drainage system both on-site and adjacent off-site lands. Supporting plans are to include proposed suitable building locations and elevations, standards to be incorporated in the final design, with hydrology and hydraulic calculations that justify the system design in accordance with Alberta Environment and Cypress County requirements. The proposed system must accommodate any drainage from adjacent areas, which had naturally drained through the site. Any drainage from the proposed development which is directed onto existing developed private properties shall be controlled such that post development runoff rates are equal or less than pre-development runoff rates. A system that implements Best Management Practices (BMP's) and provides for low cost maintenance should be tailored for each development.

The drainage system design and construction should address the following objectives:

1. Eliminate or at the least minimize potential property damage and flooding.
2. Maintain release rate of runoff from new development to pre-development rates or as required to protect the receiving drainage course.

3. Control soil erosion, sedimentation, and erosion of creek channels and drainage courses and ditches.
4. Protect significant wetlands in accordance with the Provincial Wetlands policy.
5. Overall maintenance of the stormwater management system should accommodate the nature of the subdivision and the rural context of the Municipality.
6. Use BMP's to estimate quantity and quality of the stormwater runoff.

4.1 Existing Provincial Regulations

The requirements of the following and any additional guidelines and standards for storm drainage systems should include but not be limited to:

1. Environmental Protection and Enhancement Act
2. Wastewater and Storm Drainage Regulations
3. Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems
4. Stormwater Management Guidelines for the Province of Alberta
5. Water Act
6. Provincial Wetlands Policy
7. Municipal Government Act
8. Subdivision and Development Regulation
9. Subdivision and Development Amendment Regulation
10. Public Lands Act
11. Environmental Guidelines for the Review of Subdivisions in Alberta
12. Plumbing and Drainage Act of Alberta

4.2 System Design Requirements

The design of the storm drainage system shall be complete and shall be submitted in support of the Subdivision Plan based upon the preliminary design accepted by Cypress County and Alberta Environment. The following should be submitted to the County:

An Overall Drainage Plan (Scale – 1:1,000 or 1:1,500) depicting the following:

1. Existing 0.5m interval ground contours (based on an actual field survey), wetlands, and creeks or drainage courses and their estimated floodplains where possible.
2. The designated Suitable Development Area on each lot together with design building and lot grading elevations where possible.
3. The designated Suitable Development Area on each lot together with design building and lot grading elevations where possible.
4. Road and driveway layout and culvert locations and sizes.
5. Drainage arrows to depict the directions of existing and proposed drainage.

6. Boundary limits of each drainage area tributary to culverts and ditches.
7. Existing wetlands to be retained.
8. Existing wetlands to be filled in or drained.
9. Stormwater runoff control facilities.
10. The results of an assessment of offsite downstream ditches, culverts, and water courses and plan of any offsite downstream drainage improvements that are required to accommodate drainage from the development and to minimize the potential for downstream flooding or erosion.
11. Cross-sections showing water levels and pipe elevations for stormwater detention areas. Where existing wetlands are used for detention, sufficient information must be provided to quantify the wetlands perimeter before and after development including the 1:100 year event.
12. A description of the proposed stormwater management and drainage system (both onsite and offsite), standards to be incorporated in the final design, and the hydrology and hydraulic calculations that justify the system design and define the estimated floodplain where existing creeks or drainage courses pass through the development.
13. A sediment and erosion control plan
14. Environmental Reserve for wetlands that will be retained as part of the development.

Implementation of the design shall be under the supervision of a qualified professional engineer so that site specific needs are met.

4.3 Drawing Submission Requirements

Plan/Profile Drawings for all ditches combined with roadways wherever possible (Scales – 1:1,000 or 1:1,500 Horizontal, 1:50 Vertical) depicting the following:

1. Existing ground profile along ditches.
2. Proposed ditch and culvert grades, depths, or sizes.
3. Plan/Profile Drawings for any offsite ditch improvements required.
4. Overall plan view showing detailed design calculations to justify the design system.
5. Legend page

<u>Subdivision Ditches and Culverts</u>

1. Ditch depth: grid road = 1.0m, country residential subdivision roadway = 0.75m.
2. Bottom width: Class I grid road = 3.0m, Class II, III, and IV grid road = 2.5m, country residential subdivision roadway = 1.0m.
3. Side slope: grid roads =4:1, country residential subdivision roadway = 5.1m.

4. Minimum Culvert Sizes:
   - Entrance and Exit Roads – 600mm
   - Driveways – 400mm
5. Culvert Material:
   - Corrugated Steel Pipe (CSP)
6. Culvert Structural Design Basis:
   - Minimum 300mm earth cover.
   - Based on earth load plus greatest live load (either road construction equipment or loaded water delivery truck passing over the culvert).
7. Hydraulic Design Basis:
   - Flows calculated using Rational Formula for maximum development size = 65 ha. Larger areas will require computer modelling.
   - Intensity based of 1:25 year storm event I.D.F. curve for Cypress County.
   - Ditches and culverts sized based on Manning's Formula with free flow conditions (no headwater assumptions at culvert inlet). Manning's n=0.024 for culverts and n=0.05 for ditches.

4.4 Erosion and Sedimentation Control

During site preparation and/or construction of roads and buildings, care shall be taken to mitigate potential impact from erosion and sedimentation. Prior to undertaking any site preparation, the Owner of the works shall submit to the Municipality as part of the stormwater management plan an erosion and sedimentation control plan that includes:

1. Map showing topography, overland flow routes, soils, drainage, final grading, stockpiles, zones of erosion potential, stream dimensions and stream flow data, any special feature, and the sensitivity of the downstream environment where flows could leave the site;
2. Details and extracts of objectives and conditions in any Overland Drainage Plan and/or Site Drainage Plan;
3. Dust control measures and location, height and removal of stockpiles;
4. An indication of the degree of erosion and sediment control measures anticipated, based on the site erosion potential and downstream impact;
5. Procedures for monitoring and maintaining the erosion and sedimentation controls, including methods of removing and disposing of sediment from any sediment traps;
6. Details of contingency plan for failure of control elements during extreme runoff events.

Rock rip-rap is required at all culvert inlets and outlets, minimum erosion protection accepted:

1. All disturbed areas shall be seeded
2. Rock ditch checks used in ditch sections determined by the consultant to be prone to erosion

On occasion, unique conditions may occur which would dictate the use of special erosion protection measures to be submitted to and approved by Cypress County.

4.5 Maintenance of Stormwater Facilities

The performance and maintenance of any stormwater management system component is the responsibility of the owner/developer. If the system fails to perform satisfactory under actual conditions, the County and/or the Province will require that the system be brought up to the required standards.

The overall maintenance of the stormwater infrastructure shall accommodate the rural nature of the Municipality. An easily maintained stormwater infrastructure is a significant benefit to the Municipality and to the community as a whole.

5. Development Guidelines

5.1. Fencing & Screening

1. Unsightly equipment or materials shall be screened from the view of any highway, adjacent roadways or adjoining properties;
2. Screening may include fencing, berms or landscaping that provides a visual barrier, and
3. Fencing shall not exceed 2.5 m (8 Feet) and should not be solid or consist of wood or wooden slabs, unless otherwise approved.

5.2. Landscaping

1. All front and side yards visible from the adjacent roadways shall be landscaped to the satisfaction of the Development Authority.
2. Landscaping should visually soften buildings, parking and storage areas
3. Plant materials used should be low maintenance species suitable for this area and be drought resistant and Chinook tolerant.

5.3. Additional Standards

If in the opinion of the Development Authority, the proposed development may have an undesirable impact on the surround area additional standards may be imposed. The additional standards may include, but are not limited to, the following:

1. Additional separation space may be required between in compatible uses; any industrial development that may generate undesirable impacts on surrounding sites, such as unsightly storage, excessive noise, light, odours, traffic, litter or dust; should not be located within ½ mile of an existing country residence or farm residence.
2. The restriction of specific uses or developments.