



PATTON CONCEPTUAL SCHEME

Southern ½ of Section 31-23-28-W4M



**MUNICIPAL DISTRICT OF ROCKY VIEW NO. 44
BYLAW C-5478-2001**

A Bylaw of the Municipal District of Rocky View No. 44 to amend Bylaw C-4841-97.

WHEREAS the Council deems it desirable to amend the said Bylaw, and

WHEREAS the Council of the Municipal District of Rocky View No. 44 has received an application to adopt a Conceptual Scheme to provide a comprehensive policy framework to guide and evaluate redesignation, subdivision and development proposals within the S 1/2 -31-23-28-W4M

WHEREAS a notice was published on Monday, January 08, 2002 and Monday, January 15, 2002 in the Rocky View Five Village Weekly, a newspaper circulating in the Municipal District of Rocky View No. 44, advising of the Public Hearing for Monday, January 22, 2002; and

WHEREAS Council held a Public Hearing and have given consideration to the representations made to it in accordance with Section 692 of the Municipal Government Act, being Chapter 24 of the Revised Statutes of Alberta, 1995, and all amendments thereto.

NOW THEREFORE the Council enacts the following:

1. That the Conceptual Scheme be adopted to provide a framework for subsequent redesignation, subdivision and development in the S 1/2-31-23-28-W4M; as hereto attached as Schedule 'A';
2. The Bylaw comes into effect upon the date of its third reading.

File:3331001/002-2001311

First reading passed in open Council, assembled in the City of Calgary, in the Province of Alberta, on December 18, 2001, on a motion by Councillor Cameron.

Second reading passed in open Council, assembled in the City of Calgary, in the Province of Alberta, on January 22, 2002, on a motion by Councillor Kent

Third reading passed in open Council, assembled in the City of Calgary, in the Province of Alberta, on January 22, 2002, on a motion by Councillor Goode,

REEVE OR DEPUTY REEVE

MUNICIPAL SECRETARY

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The following studies and reports have been submitted under a separate cover:

- A: Traffic Impact Study - Conclusions
- B: Stormwater Management Report - Recommendations

1.0 Background

1.1 Vision

This Conceptual Scheme is intended to establish a context and subsequent guide for the subdivision and redesignation of 320 acres of lands within the Municipal District of Rocky View located in the south ½ of Section 31 T23 R28 W4M. Through a comprehensive planning process, this Conceptual Scheme describes a proposed industrial centre designed to adhere to the provisions set forth within the Shepard Area Structure Plan (herein referred to as the Shepard ASP), address the requirements of the local community, and effectively meet the needs of the industrial market.

As a result of this vision and the requirements set forth within the Shepard ASP, this Conceptual Scheme has been prepared to facilitate the subsequent redesignation, subdivision, and development of the subject lands.

1.2 Conceptual Scheme Objectives

To establish a comprehensive Conceptual Scheme for the development of a 320 acre parcel within the south ½ of Section 31 T23 R28 W4M.

- 1.2.1** To provide a policy framework that will guide the development of the subject lands to ensure a consistency with the provisions of the Shepard Area Structure Plan.
- 1.2.2** To ensure a land use and subsequent development that is appropriate for future and existing surrounding land uses.
- 1.2.3** To allow for a resilient long-term development strategy that can adapt to the changing demands of the real estate market and ensure long term viability.
- 1.2.4** To establish performance standards and development guidelines for industrial land uses within the Conceptual Scheme Planning Area.
- 1.2.5** To ensure the long-term development strategy can facilitate the future servicing and infrastructure needs today.

1.3 Plan Format

- 1.3.1** This Conceptual Scheme provides a comprehensive planning framework and descriptive reference for the proposed development of the lands

Patton Conceptual Scheme
S½ - 31 - 23 - 28 - W5M

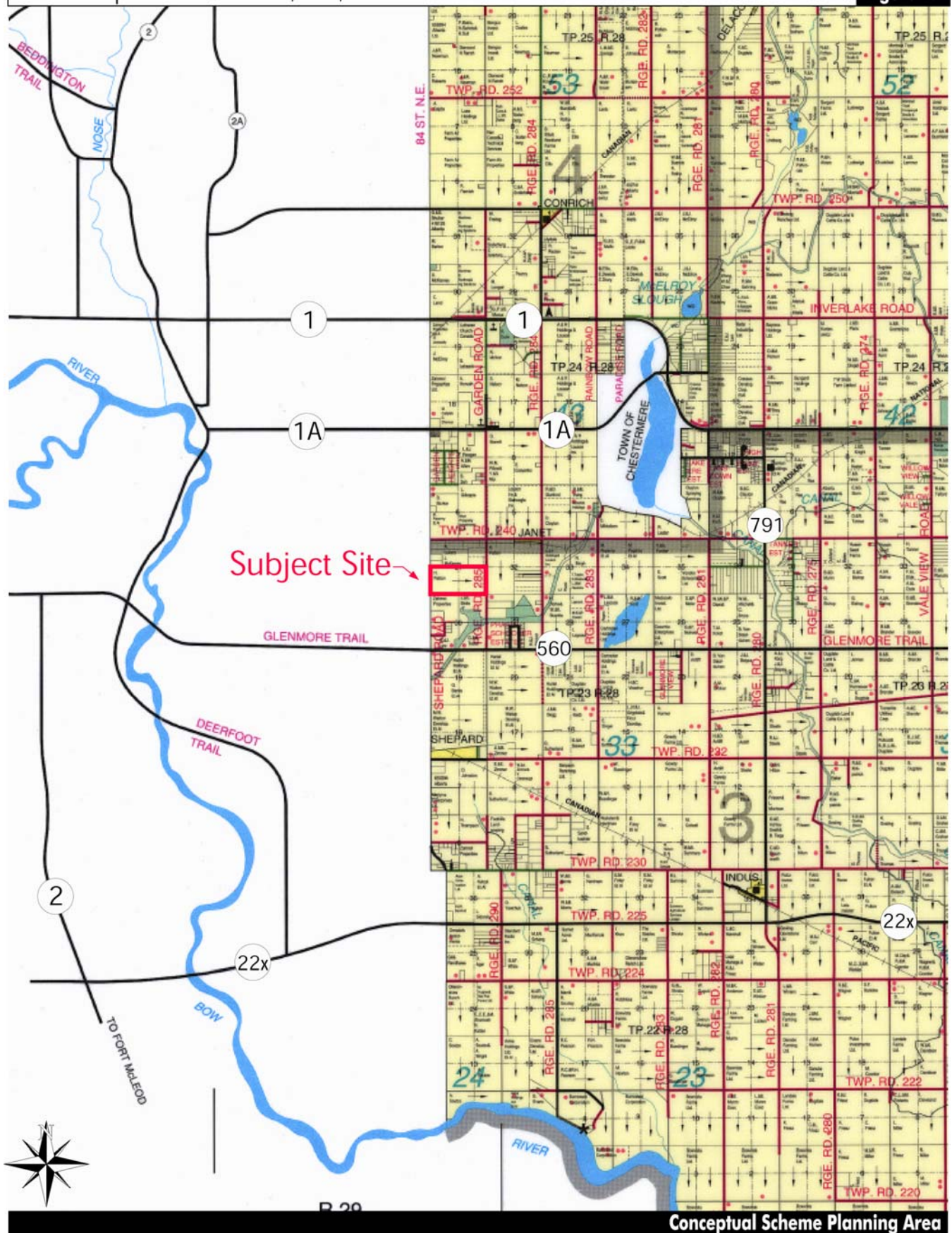
within the Conceptual Scheme Planning Area. The report is divided into five sections and is followed by an appendix. Section 1.0 provides a general framework and sets the principal visioning and report objectives. Section 2.0 describes the existing physical characteristics of the Conceptual Scheme Planning Area. Section 3.0 provides all land use information including existing, contextual and proposed land uses and provides preliminary performance standards. Section 4.0 contains a comprehensive development proposal that includes elements of circulation, servicing, and subdivision design. Section 5.0 concludes the main body of the report with a general statement of report implementation.

All policies contained herein are italicized and numbered as follows:
“X.X.X. *Policy:*”

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Concept Scheme S1/2 31,T 23, R 28 W4M

Figure 2.1



2.0 Physical Site Characteristics

2.1 Conceptual Scheme Planning Area

The subject lands are located within the Shepard Plan area of the Municipal District of Rocky View along the eastern limits of Calgary. The site comprises 129.5 ha. (320 acres) in the south ½ of Section 31 T23 R28 W4M and is bounded by Range Road 285 on the east and 84th St. SE on the west (also marking the Calgary city limits).

2.1.1 Policy: *Policies contained within this Conceptual Scheme shall apply to all lands within the Conceptual Scheme Planning area as identified in Figure 2.1 Conceptual Scheme Planning Area.*



2.2 Topography & Hydrology

The topography of the site consists of predominantly flat prairie with an elevation range of approximately 12 metres from 1033m to 1044.75m. The lowest point is located in the southeast corner of the subject site and is defined by a small drainage draw.

There are two additional significant low areas that serve as site drainage and water retention. The most significant is a wetland located in the upper central portion of the site that is identified within the Shepard Plan as part of the Shepard Slough Complex.

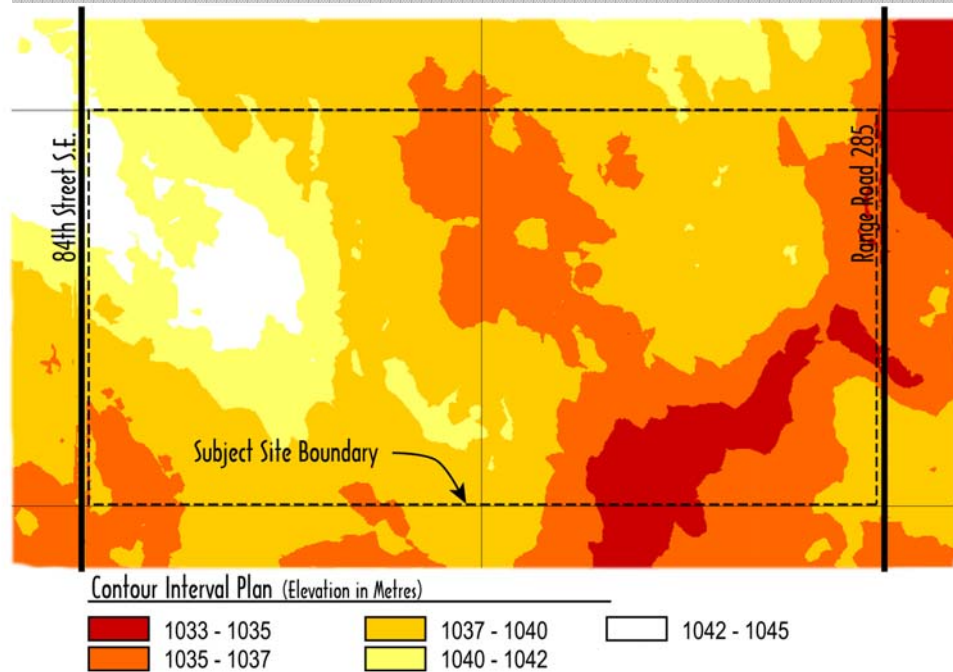


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A second low area is located in the southwest portion of the site that serves as periodic water retention slough and is surrounded by the site's only significant trees and shrubs.

The highest point is located in the northwest portion of the site. Site drainage currently flows generally from the northwest to the southeast.

Figure 2.3 Contour Interval Plan



2.3 Subsurface Conditions

Detailed geotechnical investigations will be undertaken on a site-specific basis at the time of Development Permit applications as outlined in Section 4.8.

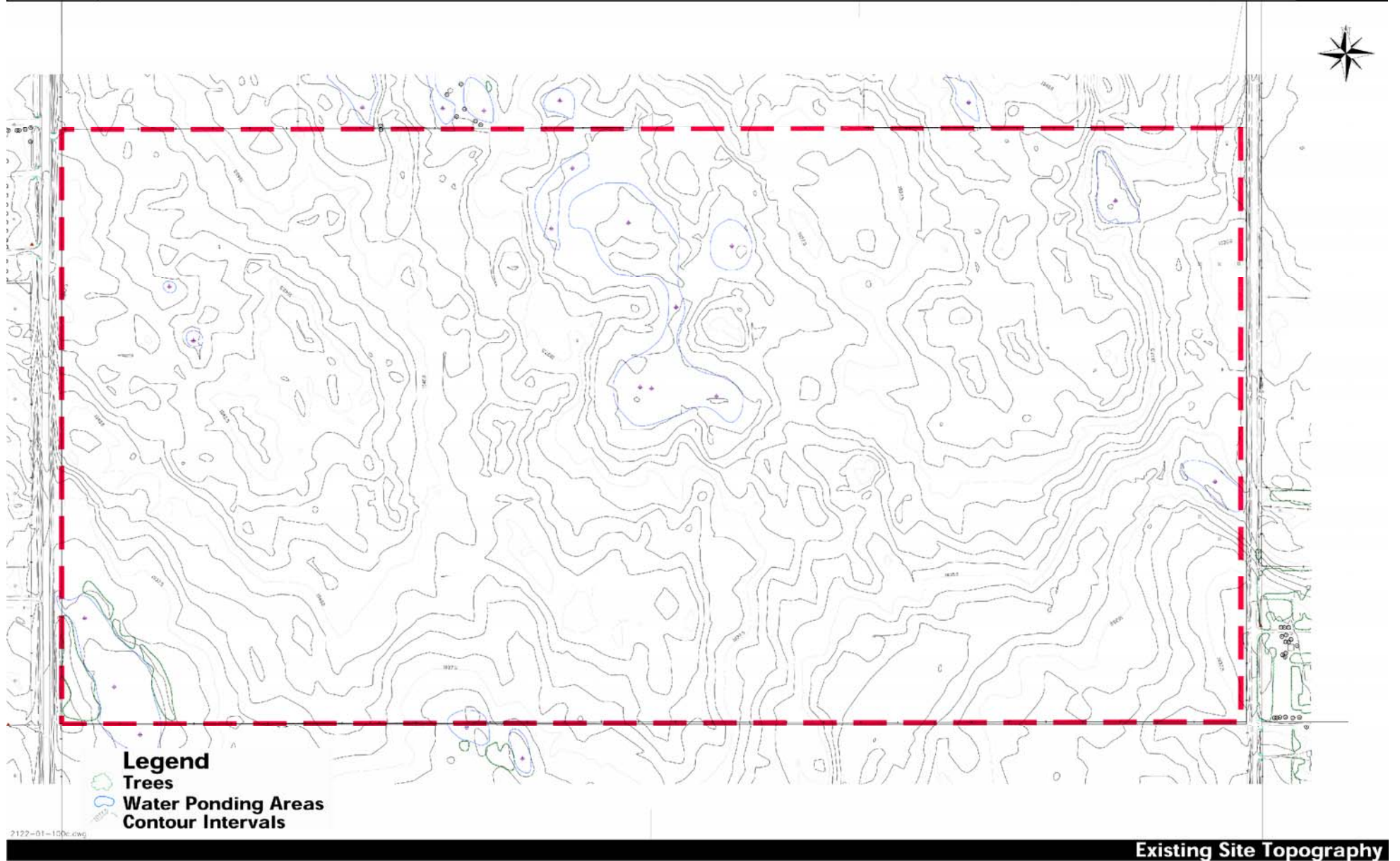
2.4 Existing Structures

There are currently no structures on the subject lands and the land has been under agricultural crop production for years.

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Concept Scheme S1/2 31,T 23, R 28 W4M

Figure 2.2



2.5 V e g e t a t i o n

Site vegetation consists primarily of non-native crop species that are actively farmed. Typical prairie wetland species surround the wetland area on the north central portion of the site. The only substantial shrubs and trees on the subject lands surround the slough on the southwest corner of the site. Whenever possible, trees and shrubs will be preserved and the existing wetland will be enhanced through the stormwater management plan described in Section 4.6 of this document.

2.6 E n v i r o n m e n t a l C o n s i d e r a t i o n s

The subject site features three significant low spots that include ephemeral ponds and waterways as mentioned in Section 2.2 *Topography and Hydrology*. The most significant of these lies in the upper central portion of the site and has been identified by the Shepard Plan as a significant wetland area. This wetland area will be preserved and enhanced to provide a healthy prairie wetland ecosystem. The wetland will also become an important component of the post-development drainage scheme serving as both a water retention and treatment site. This wetland area will be addressed as part of the Stormwater Management Plan; Appendix B *Stormwater Management Plan Recommendations*.



3.0 L a n d U s e

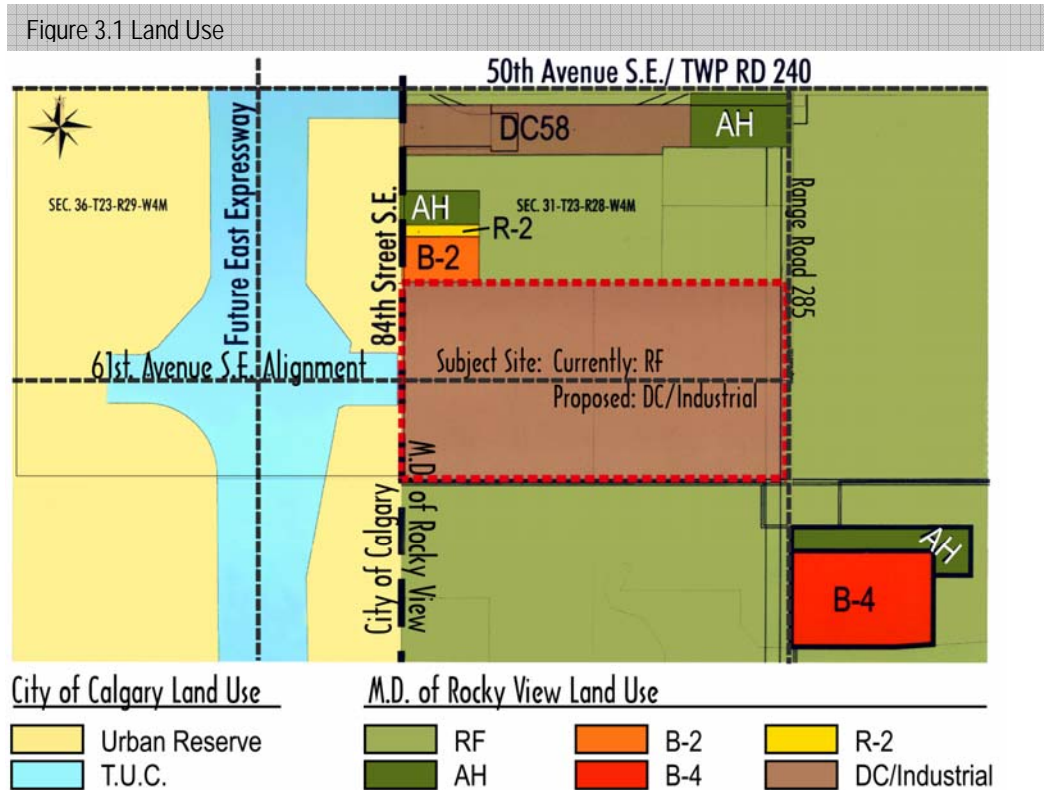
3.1 E x i s t i n g L a n d U s e

Currently the subject lands are designated as a Ranch and Farm District (RF) within the Municipal District of Rocky View #44 *Land Use Bylaw*. The lands are currently in active crop production. Section 3.0 of the Shepard Plan allows for the continued use of lands for agricultural purposes throughout the plan area and as development is phased over the subject lands, there would be an opportunity to continue with agricultural pursuits on the undeveloped portions of the site.

3.2 Land Use in Context

3.2.1 Existing Land Use Context

The subject lands are within the M.D. of Rocky View and are directly adjacent to the City of Calgary limits on the west boundary. Except for a General Business District parcel to the northwest, Ranch and Farm District parcels surround the site to the north, east, and south. The west boundary is directly adjacent to an Urban Reserve (UR) District and the Transportation Utility Corridor (TUC) within the City of Calgary. Other districts within a kilometre of the Conceptual Scheme Planning Area include Agricultural Holding (AH) Districts, Residential-2 (R-2) District, and a Recreation Business District (B-4).



3.2.2 Shepard Plan Land Use Strategy

The Shepard Plan has identified the subject lands within a *Business Area Land Use* policy area, specifically within the Phase 2 Business Area.

From Part B, *5.0 Business Area Land Use Policies* of the Shepard Draft ASP:

“The plan area consists of existing and approved Business Uses. The business areas are intended to consist of large, limited service business parcels existing in harmony with other land uses.”

Sec.5.1(a) “The Municipality encourages businesses that enhance, strengthen and diversify the Municipality’s economy.”

The proposed use of the subject lands for a limited service industrial business park is consistent with the policy intent of the Shepard Plan with respect to future land uses.

3.2.3 Industrial Activity and Intermodal Potential

The northern portion of the Shepard Plan planning area has been a focus of industrial activity. Drawing from the synergy of the southwest Calgary industrial area, access to Glenmore Trail, and readily serviceable rail access, market demand for limited service and fully serviced industrial lands in the area has been strong. Currently several limited service



industrial developments occupy the region as shown in Figure 3.2 *Industrial Development Context*, and several more are underway. Most significantly, the Calgary Distribution Centre to the north has experienced rapid industrial absorption and has exemplified the demand for rail line service.

A major Canadian National Railway mainline runs east-west one half mile north of the subject lands. CN Rail is actively servicing small intermodal spurs and through collaborative planning efforts with the Calgary Distribution Centre to the north, the subject lands will directly benefit by a direct spur connection from this mainline. Canadian National Railway is a progressive intermodal railway

company aggressively pursuing routes from coast to coast within Canada and from Alaska to the Louisiana coast. Railway distribution and delivery will become increasingly important as volatile energy prices threaten the feasibility of long haul tractor-trailer systems. Pound for pound, the shipment and distribution of goods and materials by rail costs considerably less than tractor-trailer service, has a smaller environmental impact, and represents a more sustainable form of transport.

Looking into the future, the significance of the future East Freeway that parallels the western boundary of the Shepard Plan area, has major implications for highly efficient rail to highway distribution opportunities. Careful planning for industrial lots and support services for both the expressway and future industrial will ensure continual viability and investment for the business areas within the Shepard Plan business districts.

3.2.4 Shepard Plan Phasing Sequence

The Shepard Plan has identified a three stage phasing sequence for development of the business districts within the planning area. Phase One consists of the half section of land north of the subject lands known as the Calgary Distribution Centre and approximately 200 acres straddling Glenmore Trail just east of 84th Street S.E. The majority of lands within Phase One are in active development or actively pursuing approvals. The Calgary Distribution Centre is expanding south onto an additional 110 acres of land and will share a common boundary to the north with the subject lands.

The lands within the Conceptual Scheme Planning Area are within the second phase of the Shepard Plan land use strategy. Pursuant to Section 5.1(c) of the Shepard Plan, development proposal may proceed out of phase with the sequence provided a rationale can be given for the proposal. The following represents that rationale:

Rationale for Out of Phase Development

Through steady development of the Calgary Distribution Centre to the north (Phase One of the Shepard Plan land use strategy), a solid demand for rail accessible limited service industrial lots has become apparent. A well-timed collaborative plan with the Calgary Distribution Centre's expansion south will ensure that the growing demand for inter-modal industrial lands can be met and will also provide the opportunity for the Distribution Centre to share access to future major roadways through the subject site.

As lands within the Phase One business area have initiated development and have identified clear market demand, the subsequent development of the subject lands within Phase Two provides a logical extension of this development. It is more

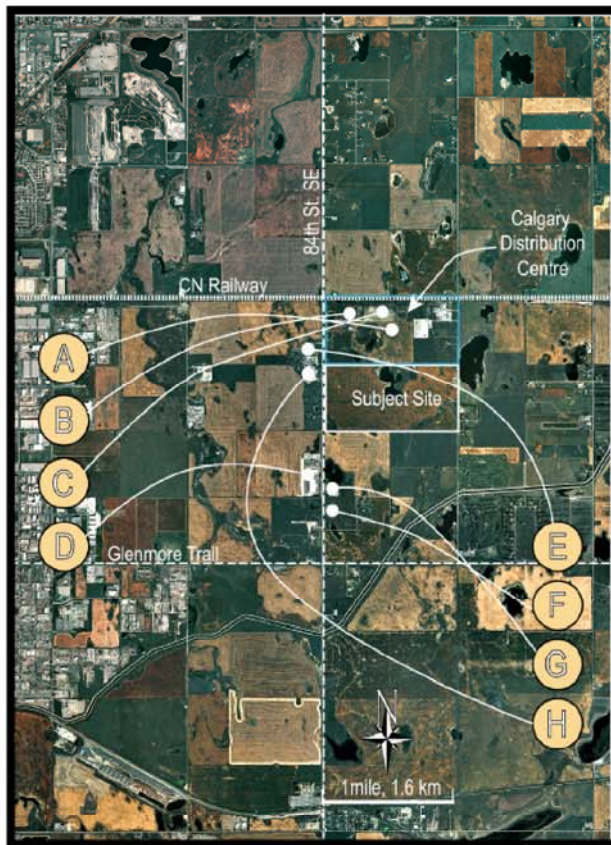
reasonable that the development of the subject lands follows the natural sequencing of development from the north at the Calgary Distribution Centre, rather than the potentially untimely initiatives of land owners within the other Phase One business district areas.

3.2.5 Policy: *Redesignation, subdivision and development of the subject lands may proceed out of phase with the Development Phasing Sequence depicted in the Shepard Plan as a logical southward extension of existing business development to facilitate future road networks, supporting infrastructure and utilities.*

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Figure 3.2



3.3 Proposed Land Use

Pursuant to Section 5.0 of the Shepard Plan, the subject lands will be redesignated to accommodate general business uses. This is not only in accordance with the policy provisions of the Shepard Plan with regard to appropriate future land uses but is also consistent with the precedent already established for industrial development generally in the area and more particularly adjacent to the north of the site.

Due to the proximity to the future East Freeway interchange, railway connections, other business uses, and the impending centrally located major roadway (61st Ave.), this site has the ability to effectively serve several industrial uses that include (but are not limited to): inter-modal distribution facilities, manufacturing, warehousing, fabrication, assembly, disassembly, production or packaging of materials, goods, or products; and indoor and outdoor trans-shipment, containerization, and/or storage of materials, goods or products, commercial and commercial recreational uses.

While the primary use for the site is large scale limited service industrial, the future East Freeway interchange offers an opportunity to provide commercial uses such as restaurants, service stations and bulk fuel suppliers, support retail, and automotive repair, restoration, storage, and maintenance. Commercial activities will be concentrated around the 84th St S.E. and future 61st Ave. S.E. intersection in anticipation of the future East Freeway connection and at the intersection of 61st Ave. S.E. and Garden Road.

This will serve to provide major road visibility for tenants while constraining the bulk of commercial generated traffic to the western and eastern boundaries of the site. Other commercial facilities such as restaurants, service stations, and offices associated with business uses may be located on other portions of the site and should function primarily as support for adjacent industrial uses.

Commercial uses will be confined to limited servicing until such time that piped servicing is provided. Full development of any intensive commercial activities will likely coincide with offsite improvements such as the East Freeway and the extension of an urban infrastructure. All uses within the Conceptual Scheme Planning Area will be designated within a Direct Control District.

In addition to business uses, open space uses are proposed in association with the previously described stormwater retention areas, the existing wetland and the stand of aspen in the southwest portion of the subject lands. The large wetland/stormwater retention area in the north central area of the site will provide a significant open space amenity for the development.

3.3.1 Policy: *Until such time as further services are available, proposed land uses are characterized by limited service industrial and commercial development that requires no significant water or sanitary sewer services.*

3.3.2 Policy: *All land uses proposed within the Conceptual Scheme plan area shall be established and regulated through the provisions of a Direct Control Bylaw.*

3.3.3 Policy: *Commercial Development requiring access to major roadways will be encouraged to locate adjacent to the intersections of 61st Avenue and 84th Street and 61st Avenue and Range Road 285.*

3.4 Performance Standards

Preamble

As required by Section 5.1(e) of the Shepard Plan Performance Standards and Development Guidelines contained herein are intended to provide guidelines for the development of Industrial and Commercial land uses within the Conceptual Scheme Planning Area and to establish standards for the management of potential nuisances that may result from activities occurring therein. A Direct Control Bylaw will implement performance standards through the development permit process.

3.4.1 Air Contaminants, Visible and Particulate Emissions

Airborne particulate matter originating from storage areas, yards or roads shall be minimized by landscaping, paving, or application of water on these areas or by other means considered appropriate by the Municipality as defined in a Development Permit and in accordance with sound environmental practices.

3.4.2 Odorous Matter

No use or operation on any site shall cause or create the emission of odorous matter or vapour beyond the building or site that contains the use or operation.

3.4.3 Toxic Matter

No use or operation at any location on the site shall cause or create the emission of toxic matter beyond the building that contains it. The handling, storage, and disposal of any toxic or hazardous materials or waste shall be in accordance with the regulations of any government authority having jurisdiction and in accordance with any Chemical Management Plan that may be required by the Municipality and as defined in a Development Permit.

3.4.4 Garbage Storage

Garbage and waste material at any location on the site shall be stored in weatherproof and animal proof containers located within buildings or adjacent to the side or rear of buildings, and which areas shall be screened from view by all adjacent properties and public thoroughfares. Mechanical waste compactors are encouraged.

3.4.5 Fire and Explosion Hazards

Uses and operations on the site which store, manufacture, or use materials or products which may be hazardous due to their corrosive, poisonous, flammable, reactive, or explosive characteristics shall comply with the applicable fire regulations of the Municipality or the regulations of any other government authority having jurisdiction and in accordance with any hazard or emergency management plan that may be required by the Municipality, and as defined in a Development Permit.

3.4.6 Policy: *Development Performance standards shall be included in a Direct Control Bylaw and implemented through a development permit process on a site specific basis in accordance with the guidelines established in the Conceptual Scheme.*

3.5 Development Guidelines

Development Guidelines will be provided through the provisions of a Direct Control Bylaw and are intended for implementation through the development approval process. Minimum Development Guidelines for Commercial and Industrial Land Uses contemplated by this plan are as follows:

3.5.1 Access, Parking, and Loading

Entrances shall be designed to accommodate the turning movement of tractor-trailers and shall be positioned to allow for safe and adequate sight distances.

Parking and loading facilities shall be provided in accordance with the requirements of the Municipality and/or Land Use Bylaw. Loading and vehicle servicing areas should be integrated into the site and building architecture. Loading on commercial buildings and uses shall be provided at the side or rear of buildings.

Parking areas for employee and visitors shall be provided for in a clearly defined area.

Shared vehicle railway access is encouraged for maximum circulation efficiency.

3.5.2 Signage

The size and placement of all signage shall be considered an integral part of site development and a Signage Plan shall be submitted to the Municipality upon application for a Development Permit and be in accordance with the Land Use Bylaw or special district provisions prepared for the site. Temporary signage is prohibited with the exception of temporary signs required during development or building construction.

3.5.3 Lighting

All onsite lighting shall be located, oriented, and shielded to prevent adverse effects on adjacent properties. All uses shall demonstrate adequate lighting that meets the provisions of an approved CPTED Plan (Crime Prevention Through Environmental Design) to be submitted as part of a development permit application, as outlined in Section 3.5.7.

3.5.4 Landscaping and Controlled Appearance

A landscaping plan shall be submitted to the Municipality upon application for a Development Permit for all developments within the Conceptual Scheme Planning Area. The Landscape Plan shall identify the location and extent of landscaped areas proposed for the site.

Landscaped areas should be provided within front yard setback areas, side yards between the front and rear of the principal building when they are not proposed to be used for vehicular movement. Existing soft landscaping retained on a site may be considered in fulfillment of the total landscaping requirement.

The amount of landscaping on each site shall be determined generally by the Direct Control Bylaw and implemented through the development permit process and required landscaping plans.

Except in natural wetland areas and areas allowing otherwise through natural water conditions, tree species and other foliage shall be appropriate to dry prairie conditions. Natural prairie grass landscaping is preferred over high water consumptive non-native grass species. Where non-native grasses are used, low water species shall be required. All plant species shall conform to the standards of the Canadian Nursery Trades Association for nursery stock.

The quality and extent of the landscaping established on a site shall be the minimum standard to be maintained for the life of the development. Irrigation and maintenance of landscaping shall be detailed in the Landscape Plan.

3.5.5 Outside Storage

Outside storage, including the storage of trucks, trailers, and other vehicles may be permitted adjacent to the side or rear of a building provided such storage areas are not located within a required side or rear yard setback and the storage is visually screened from adjacent non-commercial land uses.

Storage of trucks and trailers shall be permitted in accordance with a Development Permit and such storage shall be visually screened from all major roadways including 84th St. SE, Range Road 285, 61st Ave. SE (future), and the future collector stemming from 61st Ave. SE to north.

3.5.6 Outside Display Areas

Outside display areas are permitted provided they are limited to examples of merchandise related to the commercial and/or industrial use located on the site containing the display area and are not located within any required setback.

3.5.7 CPTED

A CPTED (Crime Prevention Through Environmental Design) strategy shall be required as part of the Development Permit application. The CPTED strategy should anticipate problematic places and situations where crime may occur within the subject development parcel and establish design guidelines for the evaluation and mitigation of this potential. Planning and design factors that can enhance safety and security and should be addressed in the CPTED strategy include:

- Awareness of the Environment
- Visibility by Others
- Community Context and Finding Help

-

3.5.8 Development Adjacent to Major Roads

Three major roadways are associated with the site: 84th Street, the future extension of 61st Avenue through the Conceptual Scheme plan area and Range Road 285 on the east boundary of the lands. With development proposed adjacent to each of these roadways, the form and massing of development should be sensitive to the interface with these important public right of ways.

In particular, the height of buildings may be controlled through the provisions of the Direct Control Bylaw to create a stepped building form from the adjacent roadway back onto the development site.

3.5.9 Policy: *Development Guidelines shall be included in a Direct Control Bylaw and implemented through a development permit process on a site-specific basis in accordance with the guidelines established in the Conceptual Scheme.*

4.0 Proposed Subdivision and Development Concept

4.1 Subdivision Design

Figure 4.1 provides a conceptual subdivision proposal designed to efficiently accommodate limited service industrial uses through a network of straight thoroughfares and by offering a wide range of parcel sizes suitable for large and small industrial and commercial development proposals.

Subdivision Concept Statistics

Parcel Type	Area	% of Total Area
Business Lots	216.04 Ac. (87.43 Ha.)	68.32
Open Space/Stormwater	49.42 Ac. (20.00 Ha.)	15.62
Rail	8.39 Ac. (3.39 Ha.)	2.65
Major Roads	14.18 Ac. (5.73Ha)	4.48
Collector Roads	2.87 Ac. (1.16 Ha.)	0.90
Local Roads	9.59 Ac. (3.88Ha.)	3.03
Power Line ROW/Widening	15.82 Ac. (6.40Ha.)	5.00
Totals:	316.31 Ac. (127.99Ha.)	100.00

A minimum parcel size of 3 acres will be established under the Direct Control bylaw and this is reflected in the subdivision concept. An important aspect of the subdivision configuration as shown in Conceptual Scheme is the opportunity for flexibility in the creation of parcel sizes by combining parcels into larger blocks depending upon the needs of individual businesses and development proposals. Although a total of 38 parcels are shown in the subdivision concept, fewer or more may be created as subdivision is phased in over time through the Conceptual Scheme Plan Area.

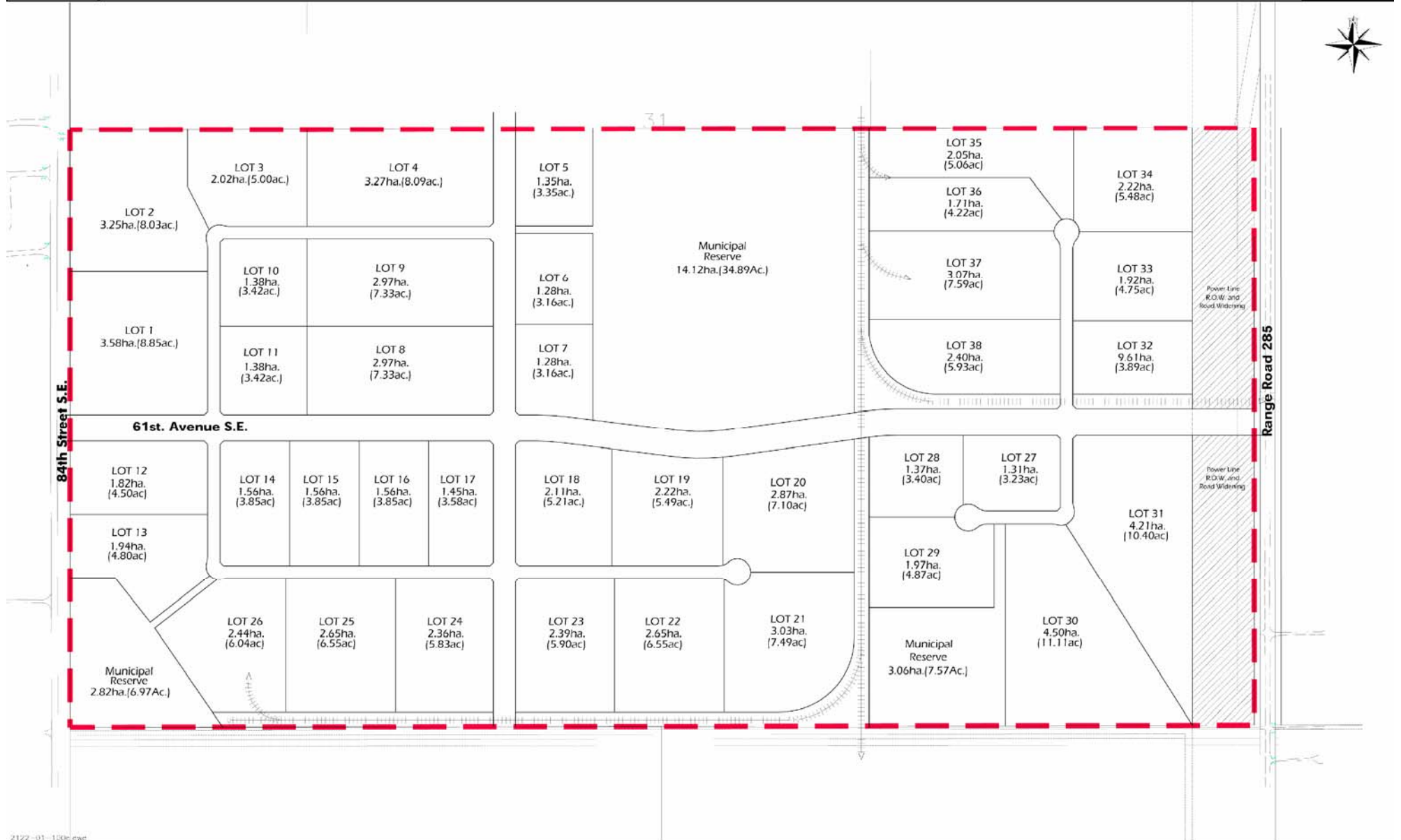
Consideration has been given to the proposed expansion of the Calgary Distribution Centre to the north by providing compatible lot sizes, road connections, rail access extension and clustered stormwater management facilities.

4.1.1 Policy: *Subdivision shall generally be in accordance with Figure 4.1 Proposed Subdivision Concept, however there may be variation in the number and size of lots created as subdivision occurs through the Conceptual Scheme Plan Area.*

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Figure 4.1



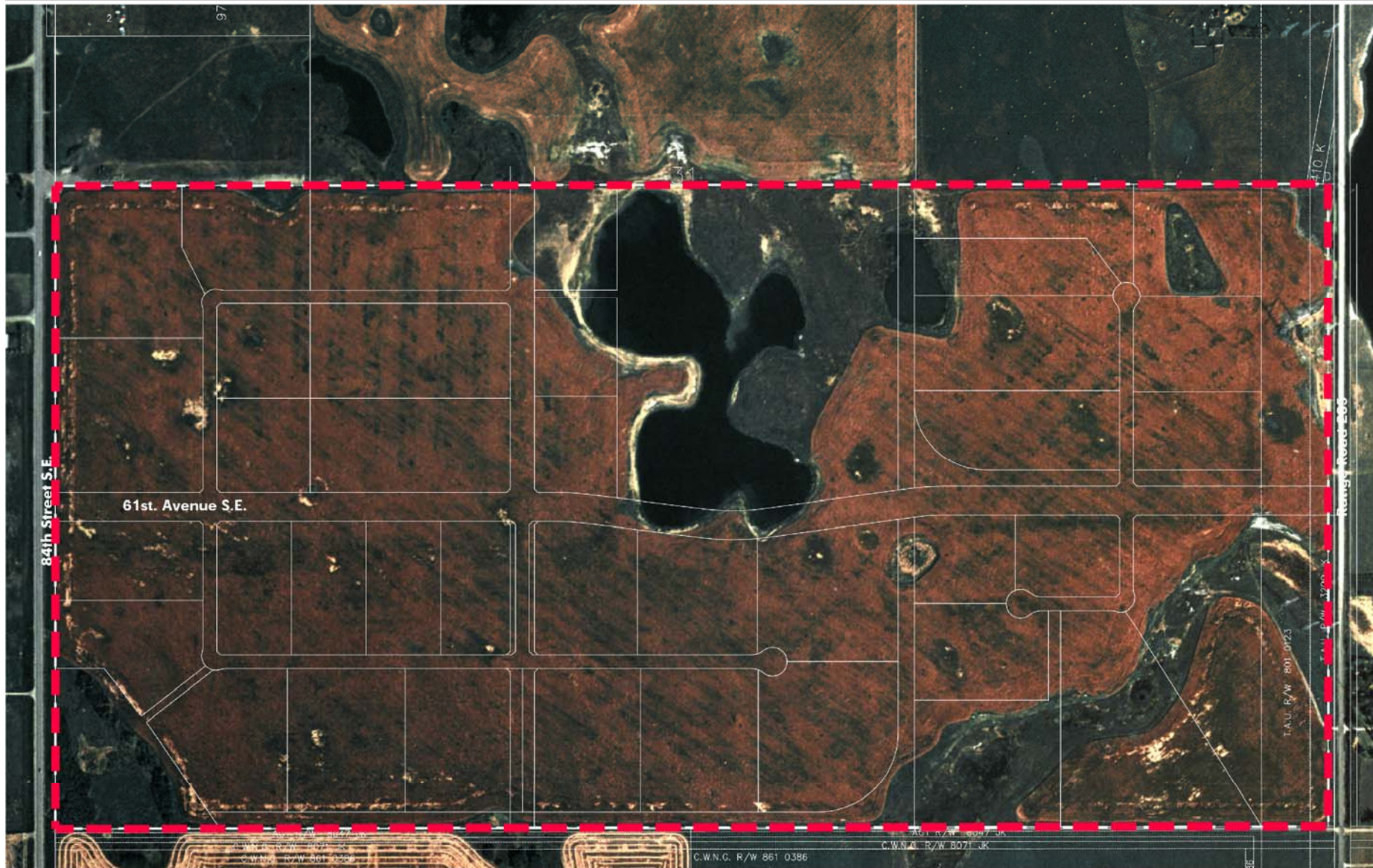
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Proposed Subdivision Concept

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Figure 4.2



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Aerial Photo Context

4.2 Transportation Context

Currently the northern portion of the Shepard Plan area is accessed primarily by 84th St. S.E. via Glenmore Trail and Highway 1A. Range Road 285 is located adjacent to the east boundary of the subject lands and 50th Avenue intersects 84th Street and Range Road 285 one half mile north of the site.

The road network within the vicinity includes:

Glenmore Trail (or Secondary Highway 560 when east of 84th Street)
84th Street S.E.
50th Avenue S.E. (or Township Road 240 when east of 84th Street)
Range Road 285 (or Garden Road)

Glenmore Trail is a 2-lane undivided expressway connecting industrial areas of south-central Calgary to rural areas to the east in the Municipal District of Rocky View. Lanes are 3.7 metres in width and shoulders are 2.5 metres in width. The east and west approaches to 84th Street have a 100 metre taper for exclusive right turn. The intersection with 84th Street is signalized and is very congested during peak traffic hours. The east and west approaches on Glenmore Trail to Range Road 285 have a 100 metre taper for an exclusive right turn deceleration and acceleration lane, and a 140 metre taper for the eastbound bypass lane. Intersection turning volumes are very light. Average daily traffic for September 2001 along Glenmore Trail west of 84th Street is estimated at 7,200 vehicles.

84th Street is a 2-lane undivided major roadway serving as an access to rural and industrial lands on the extreme east side of Calgary. Lanes are 3.7 metres wide and shoulders are 1.0 metres in width. The north and south approaches to Glenmore Trail have very little widening although traffic can easily bypass stopped left turning traffic. Average daily traffic for September 2001 along 84th Street is approximately 8,200 vehicles.

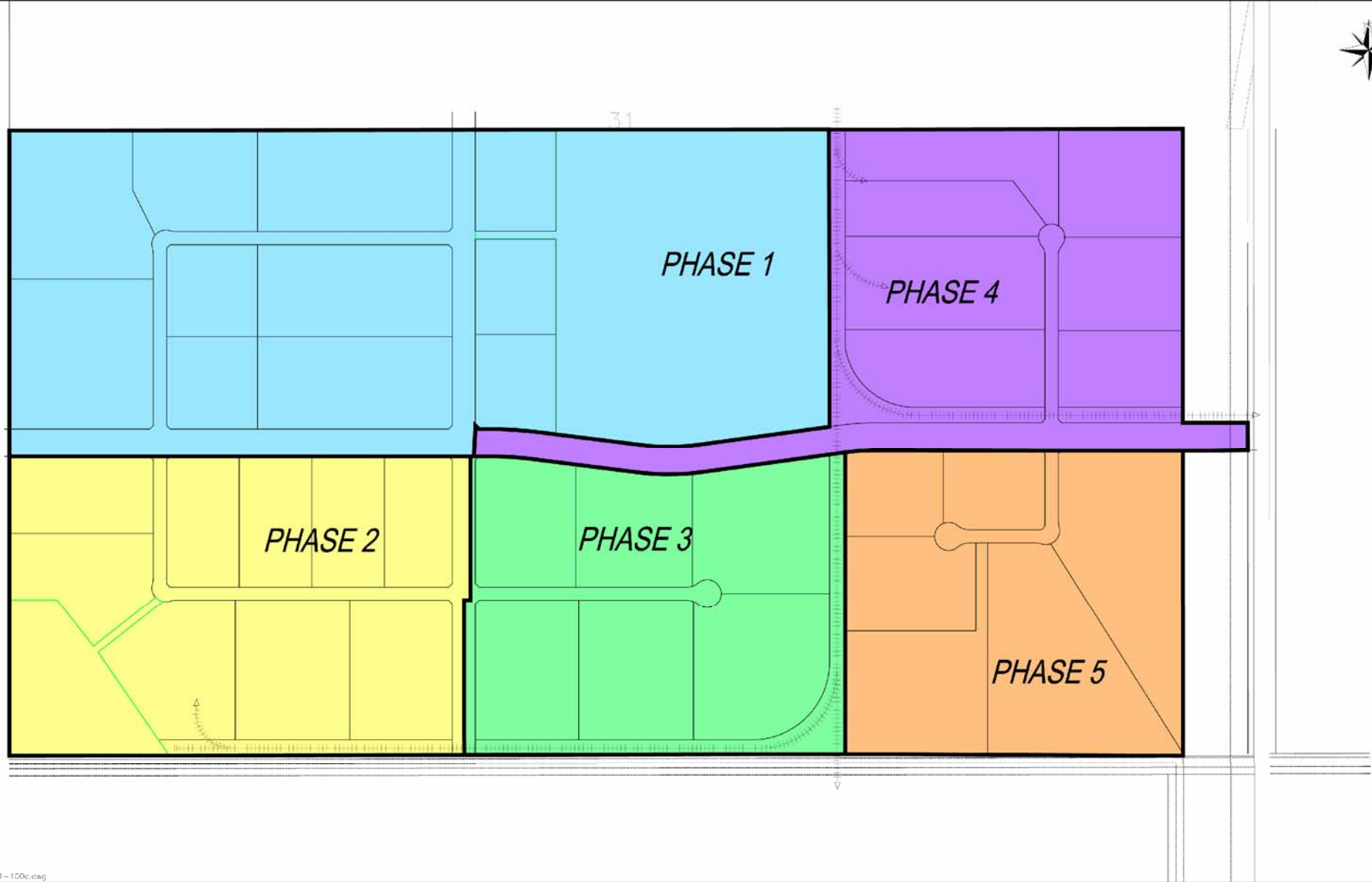
50th Avenue is an unmarked, undivided rural road. It is paved west of 84th Street and is gravel to the east. Roadway width is approximately 8.0 metres. Eastbound and westbound traffic is stop controlled at the intersection of 50th Avenue and 84th Street. Northbound and southbound traffic is stop controlled at the gravel intersection of 50th Avenue and Range Road 285. Average daily traffic for September 2001 along 50th Avenue is 200 vehicles to the east, 1800 vehicles to the west.

Range Road 285 is a rural unmarked 8.0 metre paved and gravel road connecting farmlands to the north to Glenmore Trail (refer to Photo 8). Average daily traffic for September 2001 along Range Road 285 is approximately 100 vehicles.

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Figure 4.3



The City of Calgary East Freeway right of way runs north and south directly west of 84th St. S.E. and will eventually replace 84th St. SE as the primary north-south site accessing the area. The future 61st Ave. that will service the site will connect into the East Freeway creating a significant intersection at the existing 84th St and 61st Ave. alignments.

The East Freeway and 61st Ave. interchange has considerable implications for future land use opportunities and further site servicing. Although the site has been designed to address an immediate industrial market demand, long-term opportunities afforded by the interchange have been considered including possible future commercial uses, fully serviced industrial and commercial support, and a highly efficient rail to highway distribution system. Future access considerations for those lands that lie between Glenmore Trail and the proposed 61st Avenue must be addressed in subsequent Traffic Impact Assessments. Either 61st Avenue or a potential east/west road directly to Garden Road will be required to access these lands in the future.

4.3 Internal Vehicular Circulation and Access

The subject site has been designed to efficiently accommodate both rail service and tractor-trailer circulation. The transportation network set forth within the Shepard Plan includes a 'Major' roadway that will bisect the site connecting from the East Freeway west of the site to Range Road 285 on the east and will consist of a 36m right-of-way. This roadway will provide the primary access point for the subject lands to the future East Freeway and in the interim, to 84th Street.

Midway through the lands along this new major, a collector is proposed to run north to provide an alternative access to the Calgary Distribution Centre. Alignment of this collector has been established in collaboration with the Calgary Distribution Centre to ensure efficient circulation throughout the north portion of the Shepard Plan planning area.

Range Road 285 on the east boundary of the site has been identified as a major roadway by the Shepard Plan and is anticipated by this Conceptual Scheme to be upgraded to a 36m major right of way from the current 20m right of way. The subject lands and the lands to the east of the roadway will split the upgrade difference, each contributing an additional 8m right of way. Provision has been made in the subdivision concept for the dedication of additional right of way for Range Road 285.

The internal roadway system will be designated as general industrial roadways using a City of Calgary street standard. These roadways will be designed to most efficiently accommodate heavy truck movements by providing straight thoroughfares, efficient alignments and wide turning radii.

4.3.1 Policy: *The general transportation network of the subject lands shall follow the provisions set forth within the Shepard Plan and shall be in accordance with the road network shown on Figure 4.1 Proposed Subdivision Concept.*

4.3.2 Policy: *Road right of way along the alignment of 61st Avenue as a divided major roadway through the subject site conceptually shown on Figure 4.1 Proposed Subdivision Concept, shall be provided through conditions of subdivision approval.*

4.4 Internal Railway Circulation and Access



CN Rail and 84th St. spur into Calgary Distribution Centre. View to east.

Parcels with rail connections will be serviced by rear loaded rail spur access and front loaded tractor-trailer service to optimize the inter-modal circulation of the site. The rail line connection will originate from the existing Canadian National Railway mainline that runs along the 50th Avenue alignment to the north. The railway placement has been established in collaboration with the Calgary Distribution Centre to the north of the subject lands and

will be developed as required.

To ensure optimal circulation, the spur line has been designed to cross one thoroughfare only along the proposed 61st Ave. S.E. This crossing will be equipped with crossing arms and lighting appropriate to the design of the major roadway and to Canadian National Railway standards.

4.5 Traffic Impact Study

A traffic impact study was conducted by Urban Systems in the fall of 2001 and the conclusions of the study are included in the appendix of this conceptual scheme.

The study outlines the area road network improvements required today and in the future horizon year of 2010 due to the growth in background traffic. This will be a cost that will be shared by the City of Calgary, the M.D. of Rocky View, and future developers. More importantly, the report identifies the impact of the projected development traffic on the road network and the improvements required to accommodate this additional traffic load.

Below is a summary of the road network improvements recommended by the Traffic Impact Study that should be undertaken which does not include the widening of 84th Street between Glenmore Trail and 61st Avenue prior to 2010. These improvements would be attained through the collaborative efforts of both municipalities and the development industry.

Recommended Regional Road Improvements

INTERSECTION	HORIZON	IMPROVEMENTS
Glenmore Trail & 84 th Street	2001 Existing	Reconfigure EB & WB Approaches to Left + Thru shared Right from Right + Thru shared Left Requires construction of bypass lanes.
	2010 Background	Add EB & WB Through Lane and Exclusive Right Turn Lanes. Requires intersection widening.
50 th Avenue & 84 th Street	2001 Existing	Signalize intersection.
	2010 Background	Add NB & SB Through Lanes. Requires intersection widening.
SH 560 & Range Road 285	2001 Existing & 2010 Background	No improvements.
Twp Rd 240 & Range Road 285	2001 Existing & 2010 Background	No improvements.

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Recommended Developer Initiated Road Improvements

INTERSECTION	IMPROVEMENTS
Glenmore Trail & 84 th Street	Add NB & SB through lanes in conjunction with exclusive turn lanes. Requires intersection widening along 84 th Street.
50 th Avenue & 84 th Street	No improvements.
SH 560 & Range Road 285	No improvements.
Twp Rd 240 & Range Road 285	No improvements.
84 th Street & 61 st Avenue	Signals required at 20% development. Add NB through/right lane and southbound left turn lane at 65% development.
Range Rd 285 & 61 st Avenue	No modifications to Range Rd. 285.

In addition the Traffic Impact Study determines that 61st Avenue can function as a two-lane roadway until such time as the East Freeway is constructed and an intersection occurs. At that time, 61st Avenue should be converted into a divided major roadway. Sufficient right of way will be dedicated now to accommodate this.

4.5.1 Policy: *The recommendations of the Traffic Impact Study prepared by Urban Systems and contained in Appendix A of this Conceptual Scheme shall be implemented through provisions of the Direct Control Bylaw and Conditions of Subdivision approval.*

4.6 Stormwater Management

A stormwater management plan has been prepared by Westhoff Engineering Resources and the summary and recommendations are included in the appendix of this conceptual scheme.

The Stormwater Management Plan identifies three existing ponding areas on the site which are appropriate for the retention of post-development stormwater flows. They are the north central wetland area, the ponding area in the southwest corner of the subject lands and a small ponding area in the southeast portion of the lands.

The study concluded that with the expansion and improvement of these three ponding areas, the majority of post-development runoff could be captured and stored. The remaining storage requirements will be satisfied by on-site retention on individual lots based upon the extent of development and will be determined through the development permit process.

Stormwater discharge will be accomplished through evaporation losses from all ponds and detailed calculations regarding required surface areas and rates of evaporation loss are included in the Stormwater Management Plan.

Once the a regional solution to stormwater management and drainage is provided through the ongoing planning and development of the Shepard Slough Complex, the stormwater detention needs for the subject lands can be reviewed and if appropriate reduced. In addition, the main central wetland facility is located adjacent to a corresponding facility on the Calgary Distribution Centre lands to the north, thus providing the opportunity for a combined facility in the future as part of the Shepard Slough Complex design.

- 4.6.1 Policy:** *The recommendations of the Stormwater Management Plan prepared by Westhoff Engineering Resources contained within Appendix B of this Conceptual Scheme shall be implemented through provisions of the Direct Control Bylaw, conditions of subdivision approval and the development permit process.*
- 4.6.2 Policy:** *Stormwater Management shall be provided through a combination of central ponding areas and on-site storage as required by the Stormwater Management Plan and determined through development permits to the satisfaction of the M.D. of Rocky View and Alberta Environment.*
- 4.6.3 Policy:** *The main central ponding area shall be constructed in association with the first phase of development as shown on the Phasing Plan on Figure 4.3.*
- 4.6.4 Policy:** *In accordance with municipal policy, post-development stormwater release rates from the site shall not exceed pre-development stormwater release rates unless otherwise required by the City of Calgary or Alberta Environment.*
- 4.6.5 Policy:** *When required, all stormwater facilities shall be subject to licensing and permitting from Alberta Environment.*
- 4.6.6 Policy:** *A lot owners association shall be incorporated to manage and maintain all central stormwater management and drainage facilities in accordance with the requirements of the M.D. of Rocky View and Alberta Environment.*
- 4.6.7 Policy:** *No post-development stormwater runoff shall be discharged into adjacent lands.*

4.7 Open Space and Municipal Reserves

Open space on the subject lands will serve several important functions including stormwater retention, drainage, pathway and park amenities, local habitat preservation, and offer a break in the impervious surfaces often associated with industrial landscapes. There are three significant open space systems within the Conceptual Scheme Planning Area which correspond to the areas of stormwater retention as previously described in Section 4.6.

The wetland area on the north central portion of the site is to be retained as a wetland habitat with minimal human intervention. It will be crucial for water flowing into the wetland to be free from industrial contaminants that jeopardize the wetland ecosystem. Except for excessive or dangerous contaminants, wetlands provide the added service of purifying runoff before re-entry into the water table.

The aspen stand and low spot on the southwest corner defines a 2.8ha (6.97acre) open space that may be embellished with a low impact natural trail system and benches. This open space is intended for integration with a compatible highway commercial use such as a hotel or a business use such as an office building that can utilize the area as an amenity and ensure its preservation. The low spot will also provide water retention and local drainage.

A third open space area in the southeast corner serves as a stormwater retention area. Though not designated as a significant wetland area, a prairie wetland character will provide added amenity and visual enhancement to surrounding business and industrial uses.

In total there are 49.42 acres set aside in the plan area for open space which represents 15% of the total area. It is intended that up to 30 acres of these open space lands be dedicated as Municipal Reserve to satisfy the requirements of the Municipal Government Act with respect to the dedication of 10% of the lands for reserves.

In this regard, the main north central wetland area and the approximately 34 acres of land surrounding it is proposed for a Municipal Reserve dedication in recognition of the regional significance of this feature for stormwater management as identified in Appendix F of the Shepard Plan. The wetland and related stormwater management facilities will be maintained and operated by a lot owner's association as described in the following Section of this Conceptual Scheme.

4.7.1 Policy: *Approximately 10% of the gross developable area of lands within the Conceptual Scheme may be dedicated as Municipal Reserve through conditions of subdivision approval and shall comprise the north central wetland area as identified on Figure 4.1, Proposed Subdivision Concept.*

4.8 Servicing Scenario

The absence of centralized piped water, sanitary sewage and stormwater infrastructures in the vicinity of the subject lands and throughout the Shepard Plan area necessitates that new development proposals must be self-sufficient in terms of their servicing requirements.

The Shepard Plan contemplates development of business uses within its boundaries under this limited servicing scenario. However, Section 1.1(d) and Section 5.1(d) of the Shepard Plan also indicates that Deferred Services Agreements should be entered into by owners to facilitate connection to a regional service infrastructure when such services become available in the future. Policy contained within this Conceptual Scheme and regulation within the Direct Control Bylaw will require Deferred Services Agreements through subdivision and development approvals.

4.8.1 Policy: *A Deferred Services Agreement shall be registered by Caveat through conditions of subdivision approval against each new parcel of land created within the Conceptual Scheme Plan Area that provides for the future connection of all development to piped services when they become available. Such agreements shall be binding upon all existing and subsequent owners of any parcels of land created.*

In the interim, the Shepard Plan in Section 5.1(e)(iii) requires that Conceptual Schemes describe how lands can be developed for business uses until such time as piped servicing becomes available. The following sections are intended to provide that description:

4.8.2 Potable Water

It is typical in similar types of limited service business developments such as the Calgary Distribution Centre to the north, that potable water is either trucked to the site and provided by cistern or drinking water is provided by a bottled water service. This is sufficient for business uses that have few on-site employees and have no washing or process water needs related to the actual use of the site or buildings.

For developments that have larger on-site water needs for either washing or an industrial process, large capacity underground cisterns will be used with water supplied either by truck or from a groundwater source.

4.8.3 Policy: *Potable Water services are to be determined on an individual site basis through the development permit process. Where water is proposed to be provided from a groundwater source, testing of the well shall be conducted in accordance with the requirements of the M.D. of Rocky View and the provincial Water Act.*

4.8.4 Sanitary

The proximity of the subject lands to the Calgary Distribution Centre and other transportation related industries will likely result in the establishment of similar trucking, commodities transport and inter-modal type business uses such as warehouses and distribution facilities. Typically these types of developments have a limited number of on-site employees and therefore do not generate significant quantities of sewage effluent. In these instances, the use of pump out tanks is often sufficient for managing sanitary sewage.

The exception is if there is a significant office component to the business or in the case of a commercial use, if there are customers who will use washroom facilities on an ongoing basis. For these types of developments, the cost of trucking effluent to the City of Calgary sewage treatment plant may be prohibitive in comparison to an on-site solution.

The use of septic fields in landscaped and setback areas is an effective means of disposing effluent for these types of business uses. Any development proposing to treat and dispose of sewage effluent on site will be required to conduct the appropriate geotechnical testing to confirm site suitability for septic fields.

4.8.5 Policy: *Sanitary Sewage services are to be determined on an individual site basis through the development permit process. Where sanitary sewage treatment and disposal is proposed to be on-site, geotechnical testing shall be conducted in accordance with the requirements of the M.D. of Rocky View to determine suitability for the proposed disposal method.*

4.8.6 Fire Protection

The provision of water for fire protection purposes is a critical component of the development. There are two main sources of water for fire protection. The first will be from on-site storage cisterns and fire pumps in association with buildings that by virtue of the building code are required to have sprinkler systems installed.

The second source is from stormwater stored within the three ponds on site to be accessed via a pipe and “dry hydrant” system to allow for the filling of pumper trucks during fire suppression. All three ponds will have access for emergency vehicles to the hydrant from adjacent developed roadways.

In addition to these two sources, individual business developments may have particular fire protection needs by virtue of the size of storage yards or the substances stored on site. In this instance, additional on-site water storage and pumping capabilities may be required and should be determined on a site-specific basis.

4.8.7 Policy: *Fire protection measures and water for fire suppression are to be determined on an individual site basis through the development permit process in accordance with the requirements of the M.D. of Rocky View Fire Chief.*

4.8.8 Policy: *Central water sources for fire protection shall be provided through the use of common stormwater retention facilities and hydrants and/or a central reservoir, water distribution lines and emergency pump facilities, in accordance with the requirements of the Municipality.*

4.8.9 Shallow Utility Extensions

Shallow utility services are available in the immediate vicinity of the subject lands and can be extended into the project on a phase-by-phase basis as required.

4.8.10 Policy: *Electrical service, natural gas, telephone, and cable services are to be extended onto the site with precise alignments through a series of utility right of ways on each lot and within the road right of ways, which will be determined as part of the subdivision approval.*

4.9 Subdivision Phasing

Figure 4.3 provides a phasing plan for the subdivision and development of the subject lands in accordance with the previously described subdivision concept.

The phasing scheme is designed to facilitate the extension of road access and services into the site from west to east in order to utilize existing service and access infrastructure along 84th Street. In addition, the first phase of development will allow for the collector roadway extension north into the Calgary Distribution Centre and will also permit the development and establishment of the primary central stormwater retention facility.

The phasing scheme is flexible to allow for the combination of phases dependent upon market demand for proposed parcels but is sequential in recognition of the need to extend road access into the site in a logical manner.

4.9.1 Policy: *Subdivision phasing should proceed generally in accordance with the phasing plan shown on Figure 4.3.*

4.9.2 Policy: *The combining of all or portions of the subdivision phases shown is permitted at the discretion of the M.D. of Rocky view*

provided road access, required services and stormwater facilities can be extended in a contiguous manner.

5 . 0 I m p l e m e n t a t i o n

Implementation of the policies contained within in this Conceptual Scheme will require a series of planning approvals including, redesignation, subdivision and development permit approvals.

5.1.0 Policy: *Redesignation, subdivision and development of lands within the Conceptual Scheme Planning Area shall be guided by the policies herein and implemented through the Direct Control Bylaw, Conditions of Subdivision approval and the Development Permit approval process in consultation with the City of Calgary as required by the Shepard Plan.*

APPENDIX A

***Traffic Impact Study
(Conclusions)***

CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations of this report are summarized as follows:

1. Of the four study area intersections, two require improvements with existing traffic conditions. The intersection of Glenmore Trail and 50th Avenue requires a change to the eastbound and westbound lane configurations. The through shared left plus an exclusive right turn lane need to be changed to an exclusive left plus a through shared right lane. This separation of the eastbound and westbound through and left traffic allows the intersection to operate at a Level of Service C with an average delay of 23 seconds.

The unsignalized intersection of 50th Avenue and 84th Street fails in the afternoon peak hour due to the eastbound left traffic conflicting with a high northbound through volume. It is recommended that the intersection be signalized by the City of Calgary despite low warrant score of 183 (out of 300 points). The warrant score approaches 300 by the year 2010.

2. Based on historical daily traffic growth and comparisons of intersection turning volumes, an annual growth rate of 7% was used for 84th Street, 4% for Glenmore Trail, and 2% for the other roadways for the next 9 years.
3. For 2010 background traffic conditions, two intersections require improvements. The intersection of Glenmore Trail and 84th Street requires an additional through and exclusive right turn lane both eastbound and westbound. Background traffic volumes along Glenmore are too high to be accommodated by a single through lane each direction. With these improvements, the intersection operates at a Level of Service D with an average delay of 38 to 39 seconds for both peak hours.

The intersection of 50th Avenue and Range Road 285 requires an additional through lane both northbound and southbound to accommodate the large growth of traffic along 84th Street. With these City improvements, the intersection operates at a Level of Service B and an average delay of 15 seconds for both peak hours.

4. The 220 acres of proposed developable land is estimated to generate 1,595 trips in the morning peak hour of which 1,324 are inbound and 271 are outbound. 1,458 trips are estimated to be generated in the afternoon peak hour of which 306 are inbound and 1,152 are outbound. On a daily basis, over 11,000 trips are generated.
5. The trip development trip distribution assumes 45% of the traffic is drawn from Glenmore Trail west, 25% from 84th Street north, 15% from 84th Street south, 10% from Glenmore Trail east, and 5% from rural areas to the northeast.
6. For 2010 background + development traffic conditions, the intersection of Glenmore Trail and 84th Street requires improvements. The northbound and southbound approaches require an additional through lane in conjunction with exclusive turning lanes. The improvement is required due to the increase in northbound through, southbound through, and eastbound left traffic volumes - a direct result of the development traffic. With these improvements, the intersection operates at a Level of Service D in the morning peak hour (average delay of 54 seconds) and a Level of Service C in the afternoon peak hour (average delay of 23 seconds).

No improvements are required to the other 3 study intersections.

7. With the development in place, two new intersections are created - 84th Street & 61st Avenue and Range Road 285 & 61st Avenue. These intersections serve as the primary accesses to the development area. The west access off of 84th Street requires signalization, an additional northbound through lane, and a southbound left turn lane. With these improvements, the intersection operates at a Level of Service C in the morning peak hour (average delay of 22 seconds) and a Level of Service E in the afternoon peak hour (average delay of 60 seconds). The east access requires no modifications to Range Road 285. Only an eastbound right shared left stop-controlled lane is required. Movements off of Range Road 285 can be shared from the existing through lanes.
8. Assuming linear growth of the background and development traffic, it is projected that signals will be required at the intersection of 84th Street and 61st Avenue at 20% development build-out or 500,000 ft². The geometric intersection improvements are required at 65% development build-out or 1,625,000 ft². 61st Avenue can remain as a 2-lane major roadway standard until it is connected to the future East Freeway. 84th Street will require widening to 4 lanes between Glenmore Trail and 61st Avenue once daily traffic along 84th Street exceeds 10,000 vpd.

APPENDIX B

***Stormwater Management Report
(Recommendations)***

Conclusions and Recommendations

The preliminary drainage system investigation, analysis and conceptual design, completed as part of this Master Drainage Plan for the proposed Patton Industrial Centre, based on the Outline Plan developed by Urban Systems Ltd., has shown that:

- The moderately undulating terrain that forms the study area currently drains to three existing depressions, which do not appear to spill to downstream areas, except possibly under extreme hydrological conditions.
- A review of historical air photos suggests considerable potential for inundation, and poorly drained soil conditions through the study area and adjacent areas. As such, seepage from existing or proposed storage facilities is anticipated to be negligible. More detailed hydro geological characterizations should be acquired for input into the final design process to more reliably quantify seepage.
- The long-term regional servicing plans, developed as part of the *Western Headworks Canal Diversion Level 1 Study* (WER, 1997), suggest that infrastructure is to be implemented which will permit, at some time in the future, a discharge at a maximum unit area rate of 2.5 L/s/ha from the study area.
- The post development drainage system and grading design will follow the existing topography, with Ponds A, B and C planned at the locations of existing depressions, with minimal disturbance to grading and vegetation. No significant off-site areas are anticipated to drain through the Patton Industrial Centre. In fact, no runoff from off-site areas is to be accommodated within the proposed drainage system.
- Single event hydrologic modeling, has shown that storage volume requirements of 620 to 700 m³/ha will need to be provided, under the long-term scenario, wherein a maximum unit area rate of 2.5 L/s/ha can be discharged. Roughly 7% of the total catchment area would be required for the implementation of the ponds.
- A minimum freeboard 0.5 m above the long-term 1:100 year design water level is recommended at the three proposed ponds. Minimum building grades 0.30 m higher than the top of freeboard should be maintained. Spillover sections should be provided at the pond HWL elevations if possible, along with overland escape routes downstream of the ponds. Ultimate overland spillover elevations should be established during final design, and compared to the proposed HWL. The higher of the elevations should be used to set minimum building grades. Where local culvert roadway overtopping elevations (plus a 0.3 m increment) are higher, these elevations should be used to set minimum building grade elevations.
- Erosion protection requirements and the grading of grassed swales should be considered in conjunction with the possibility of providing on-lot storage, during detailed design, to optimize system performance, construction and maintenance costs. For both interim and ultimate conditions, all overland flows will be required to satisfy AENV's criteria for the combination depth and velocity of flow.
- Where feasible, culvert sizes should be minimized, and swale cross section maximized, to decrease flow velocities, increase peak flow attenuation potential and improve water quality enhancement potential. As per MD of Rocky View guidelines, minimum culvert

diameters of 600 mm are proposed at all roadside crossings. Driveway entrance crossings will require culverts with a minimum size of 450 mm.

- Prior to the implementation of regional drainage infrastructure, no off-site discharge from the development area can be accommodated. As such, runoff generated by the individual commercial and light-industrial lots should be fully contained on-site. In spite of the reduction in catchment area to the three ponds for interim conditions, secondary water level controls may be necessary in wet years to yield stable water levels in the ponds.
- During interim conditions, secondary water level control strategies could include grey-water re-use, irrigation, enhanced evaporation, or off-site disposal. Monitoring, 'trigger' conditions and responsibilities related to these water level control initiatives will need to be addressed and laid out during the detailed design of the ponds. The configuration and operational characteristics of any water removal systems will need to be considered in conjunction with the detailed design of the ponds.
- Assuming negligible seepage losses and 90% hard surface area, for the individual lots the area to be set aside for on-site storage should be about 46% of the lot. Provision of smaller but deeper storage units will not be feasible since the surface area (rather than storage capacity) will be critical as the only method for water removal is by evaporation. Smaller units are possible if the percentage of hard surface area is less than 90% or if seepage is possible but this should be examined on a case-by-case basis.
- The design of the ponds should be configured so as to allow for the most beneficial construction sequencing with a minimum of servicing and environmental disturbance.
- Wherever possible, it is recommended that water re-use approaches be applied, as they present water conservation opportunities with potential for regional benefits.