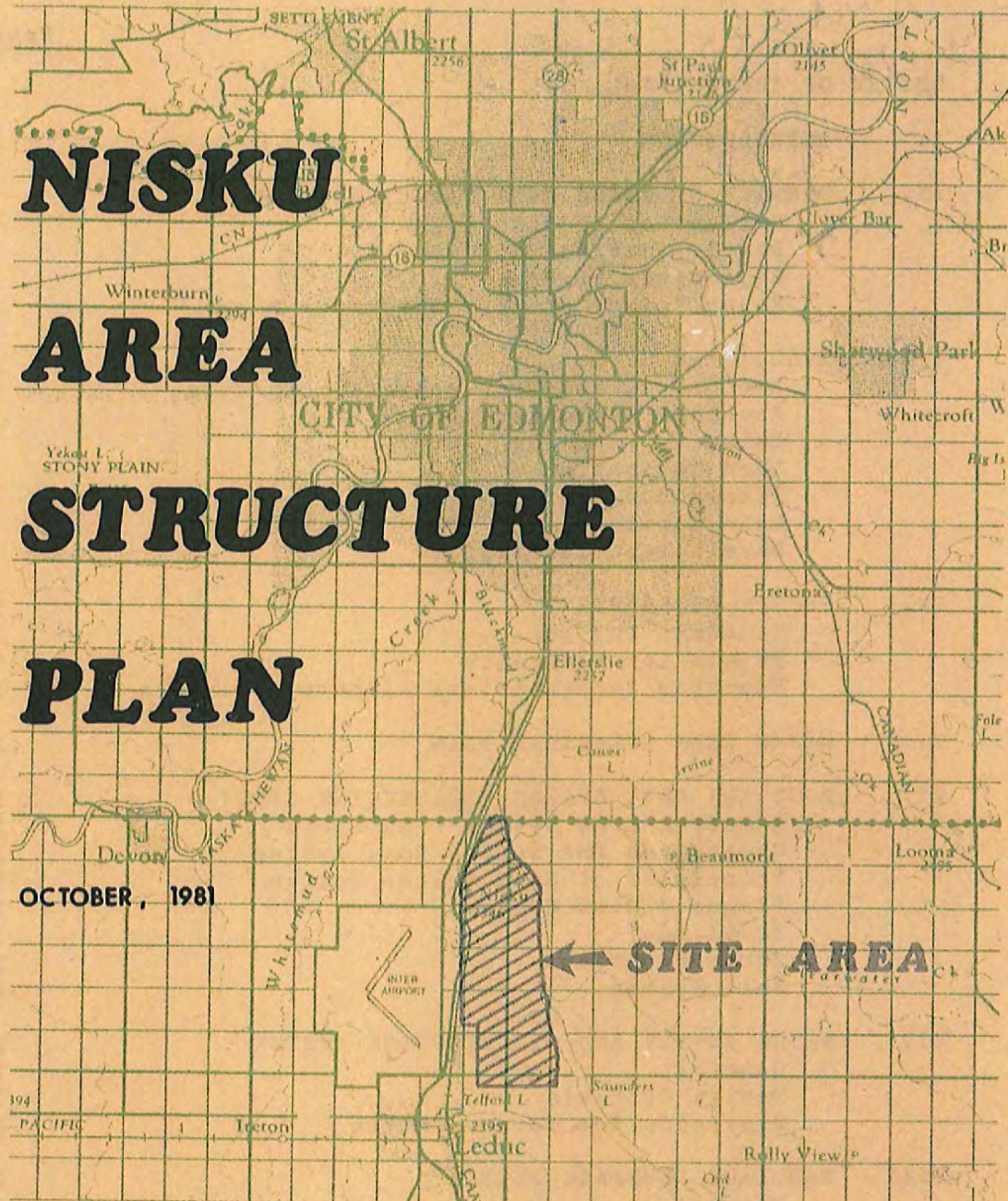




County of Leduc No. 25

NISKU AREA STRUCTURE PLAN

OCTOBER, 1981



STEWART, WEIR & Co.

BEING THE COUNTY OF LEDUC NO. 25 NISKU AREA STRUCTURE PLAN ADOPTING BY-LAW PURSUANT TO THE PROVISIONS OF PART 6 OF THE PLANNING ACT, 1977.

WHEREAS a proposed Area Structure Plan (hereinafter referred to as "The Nisku Area Structure Plan") has been prepared for the County of Leduc No. 25 based on surveys and studies of land use, population growth, industrial and commercial demands, the economic base of the County, transportation and communication needs and other relevant factors; and

WHEREAS the Nisku Area Structure Plan provides a framework for subsequent industrial and commercial subdivision and development of lands within the Nisku area, more particularly described as:

Section 32-49-24-W4th lying west of Saunders Lake

Section 31-49-24-W4th

Pt. Sections 5, 7, 18, 19, 30 and 31-50-24-W4th lying west of Saunders Lake and/or the Blackmud Drainage Channel

Section 6-50-24-W4th

Section 36-49-25-W4th

Sections 1, 12, 13, 24 and 25-50-25-W4th

Pt. Sections 11, 14, 23 and 26-50-25-W4th lying east and west of the present north bound lane of Highway No. 2.

Pt. Section 36-50-25-W4th lying east of the present C.P.R. right-of-way and/or present north bound lane of Highway No. 2 and west of the Blackmud Drainage Channel


NOW THEREFORE the Council of the County of Leduc No. 25 under the authority of Part 6, the Planning Act 1977, enacts the following:

- (1) The Council of the County of Leduc No. 25 hereby adopts the Area Structure Plan to be known as "The County of Leduc No. 25 Nisku Area Structure Plan".
- (2) The Nisku Area Structure Plan map and policy statements are hereby adopted as part of this By-Law and shall be maintained under separate cover at the County Office in the Town of Leduc or such other location of the County Office as may be established by Council from time to time,
- (3) The County of Leduc No. 25 Nisku Area Structure Plan contains projections and policies for development which shall be used to explain, justify and interpret the Nisku Area Structure Plan adopting By-Law.
- (4) This By-Law may be amended by By-Law in accordance with the provisions of the Planning Act 1977.

READ A FIRST TIME this 14th day of September, A.D., 1979.


REEVE

S E A L


SECRETARY-TREASURER

READ A SECOND TIME THIS 17th day of July , A.D., 1980.

READ A THIRD TIME by unanimous consent of the Council Members present this 17th day of July , A.D., 1980.

DONE AND PASSED IN open Council meeting this 17th day of July , A.D., 1980.


REEVE

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APPENDIX A

I. INTRODUCTION

The purpose of this Nisku Area Structure Plan is to define, evaluate and plan the area suitable for the long term expansion of the Nisku Industrial Park.

The study area covered by the Plan is bounded as follows: on the east by the Saunders Lake-Black Mud Creek Valley, on the north by the County of Strathcona, on the west by the proposed realignment of Highway 2 and part of the Town of Leduc, and finally on the south by a line passing eastward through Telford Lake and coinciding in part again with the Town of Leduc boundary.

Within the site area there are at least twelve square miles of highly accessible land well suited for light industrial or higher uses. Based on the characteristics of the present growing stage of Nisku Industrial Park, such an area could, when developed, accommodate a work force of 15,000 to 17,000 people and return a municipal assessment of the order of \$60,000,000.00.

However, there is an obvious potential for higher use of land here which if realized, could double, even triple these work forces and assessment estimates. For instance the core area along Airport Road has a quite exceptional, in fact a unique locational advantage within the Edmonton region by reason of its proximity to both the International Airport and Highway 2. This location is ideal for a major airport-highway related regional service centre with hotel accommodation, office space, shopping and other support facilities. Also many other industrial and commercial firms willing to pay a premium for the location could well be attracted to the vicinity.

Much of this report is predicated on the necessity of realizing the full potential of this strategic area and not allowing it to be pre-empted by less profitable uses.

It is clear that the ultimate impact of an expanded Nisku Industrial area will be immense, offering some considerable administrative challenge to the County of Leduc. We believe this Nisku Area Structure Plan offers a practical first step in facing the problems of future development on a comprehensive basis. It will provide a general context for municipal decision making and give concrete guidance in such matters as (i) land acquisition, (ii) criteria for the evaluation and control of subdivision and development proposals, (iii) construction and general planning standards, (iv) location and planning of municipal roads and other major services.

The land owners and developers of the area should also be benefited since they will have a context for their own decisions and plans.

The Nisku Area Structure Plan is long term, with 1996 as a nominal target year. This year is used for convenience and does not imply a hard and fast completion date. Rather it is a means of indicating an estimated range of time varying between 15 to 25 years for the substantially full development of the area.

The main components of the document with its supporting text are as follows:

1. A Conceptual Land Use Plan
2. Engineering Studies on:
 - (a) Road and Rail System
 - (b) Water Supply and Distribution
 - (c) Sanitary Sewerage System
 - (d) Storm Drainage

In support of this project, basic aerial photography and topographic mapping of the area north of the north boundary of the Town of Leduc has been prepared and supplied to the County.

Finally, it should be made clear that the philosophy pursued in the preparation of this Plan has been to serve the interests of the while Nisku-Leduc corridor area, recognizing that there is much to be gained by mutual cooperation between municipalities. Therefore, we trust that the proposals made can stand on their own merits and serve a useful purpose regardless of the location of future municipal boundaries.

II. SUMMARY OF NISKU AREA STRUCTURE PLAN

For convenience this chapter presents in very brief capsulized form the main points of the plan.

EVALUATION OF SITE AREA

1. Shares market, service area and work force of Edmonton.
2. A key location next to International Airport, Highway 2 and C.P.R. main line.
3. Physically well suited for industry.
4. Servicing constraints preclude heavy manufacturing and food processing industries.
5. Airport protection regulations preclude air polluting industries, also restrict building heights and certain uses.
6. Nisku Park expanding rapidly.
7. 7,000 acres of developable land, 2-1/2 miles of sites with Highway 2 exposure.

DEVELOPMENT ASSUMPTIONS

1. Continued strong economic growth based on intensified oil, gas, coal, and other resource development and expanding secondary industry.

2. <u>Forecast Growth</u>	<u>1976</u>	<u>1996</u>
<u>Population</u>		
Edmonton Metropolitan Area	595,000	954,000
Town of Leduc	8,576	50,000
County of Leduc	10,949	18,000
Devon	2,786	14,500
Beaumont	851	13,000
<u>International Airport</u>		
Passengers	1,495,000	5,160,000
Cargo (lbs.)	40,400,000	310,000,000

OBJECTIVES OF PLAN

1. Diversification of land use to attain full potential of commercial and industrial sites.
2. Improve transportation into and through area.
3. Protect neighboring area from impact of industry.
4. Maintain high environmental standards.
5. Provide adequate services and recreational facilities for local industries and work force.

MAJOR POINTS OF NISKU AREA STRUCTURE PLAN

1. A major regional service centre on Airport Road with hotels, offices, and shops with business, professional and other support services designed to serve air passengers and tourists, "fly-in" business meetings and as a promotion and development centre for local industry.
2. Areas for premium sites along Highway 2 and around regional service centre on fully serviced land.
3. Large areas for light industry with special areas designated for extensive storage type uses.
4. A new road system with grade separated free flow access (with one new access) to Highway 2, limited access arterial roads and internal industrial collector roads.
5. New rail spur lines and a team track service area.
6. Agricultural zones on east and south boundary to protect the integrity of the creek and lake valley and to buffer non-compatible uses.
7. Provision of local service centres and recreational amenities.

III. EVALUATION

This chapter contains a general evaluation and description of the site area. Further more detailed information can be found in the engineering studies which appear in Chapters 6 to 9.

LOCATIONAL AND TRANSPORTATION FACTORS

At a geographic level the site area is part of Metropolitan Edmonton and shares the recognized strategic advantages of Canada's most northern major city. Transportation routes to the north connect here with east-west routes to make it the most important service and supply centre for the Northwest Territories and Yukon. These routes include direct air line routes, the Alaska and MacKenzie highways, the Great Slave Lake Railway, not to mention road and rail access to the Athabasca-MacKenzie system of water routes. The Yellowhead Highway and rail routes form the principal east-west land routes, with connections to other east-west routes available in southern Alberta.

Provincially, Edmonton of course dominates the central and northern part of Alberta in all phases of economic activity. Around it there is now a well developed system of highways and railways serving the agricultural hinterland and the oil, gas and other resource development areas. As befits a city of over half a million people there is a strong local economy based on secondary industry, construction, administration and tertiary services.

A noteworthy feature of Albertan development is the excellent highway and airline connections between Edmonton and Calgary and continuing south to Lethbridge. Regional studies in North America indicate that these are conditions which presage the growth of corridors of intensifying urban and industrial development. In Alberta this growth is at an early stage with its main weight still to come. The Nisku Industrial area can be seen as one of the developing nodes of this corridor.

Focusing down another level, it can be seen that within the Edmonton region itself the site area has some locational advantages which in combination are particularly favourable for industrial or higher uses of land.

1. The area is only 7 to 8 miles from the growing southern edge of Edmonton and adjacent to the Town of Leduc while the potential growth centres of Devon and Beaumont area also close by. Thus there is a major market and labour force within easy reach.

2. Close proximity and excellent access to the Edmonton International Airport. This point alone gives the area an exclusive regional significance for specialized airport related commercial and industrial uses.
3. Very good access to Highway 2 with approximately 2-1/2 miles of highway exposure for premium industrial sites.
4. Good alternative access to Edmonton and by pass routes around Edmonton.
5. Rail service with industrial spur lines.

Various aspects of these locational factors are illustrated in Figures 1 to 3. These show the site area location relative to airline routes, to the traffic volumes of the main provincial highways and finally in a regional setting in relation to highway routes and other proposed industrial areas of the Edmonton Metropolitan Area.

PHYSICAL CHARACTERISTICS

Topography

The site area varies from almost level to gently rolling in character with the general slope being eastward and becoming more pronounced closer to the Saunders Lake-Black Mud Creek Valley. The steeper valley side slopes form a natural boundary for industrial development. The width of the valley varies from 1/4 to 1/2 mile in width, a good natural buffer zone.

On the south Telford Lake drainage basin has no distinct topographic demarcation. In the wet central part of the site area there are a few shallow sloughs and poorly drained depressions but elsewhere the drainage is good.

On the whole the area topography is excellent for industrial purposes, gently sloping but well drained.

Soils

The main soil types of the study area are Kavanagh Loam and Ponoka Loam. These correspond respectively with areas of soil of Class 4 in agricultural capability covering the major part of the area, and Class 2 covering about two square miles in the central part. Both soils are subject to limitations of structure or drainage which somewhat reduce their farming capability. It is worthwhile noting that Class 1 land is found north east and west of the site area. Thus the proposed industrial expansion coincides with the poorer soils and cannot be said to be alienating the best agricultural land of the district.

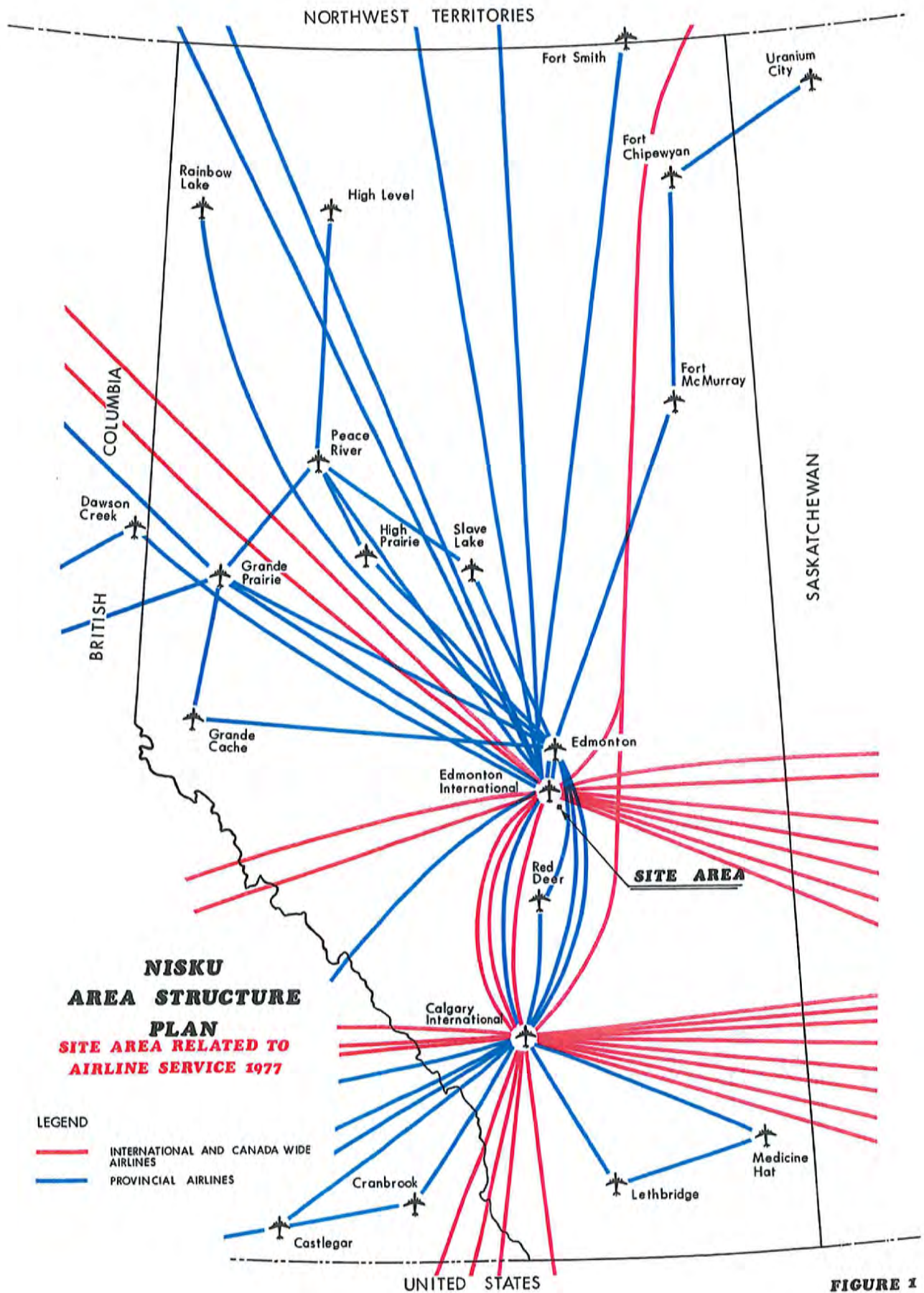
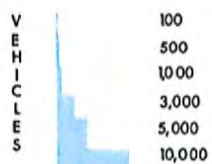


FIGURE 1

**NISKU
AREA STRUCTURE
PLAN**

**SITE AREA RELATED TO
PROVINCIAL TRAFFIC FLOW 1977**

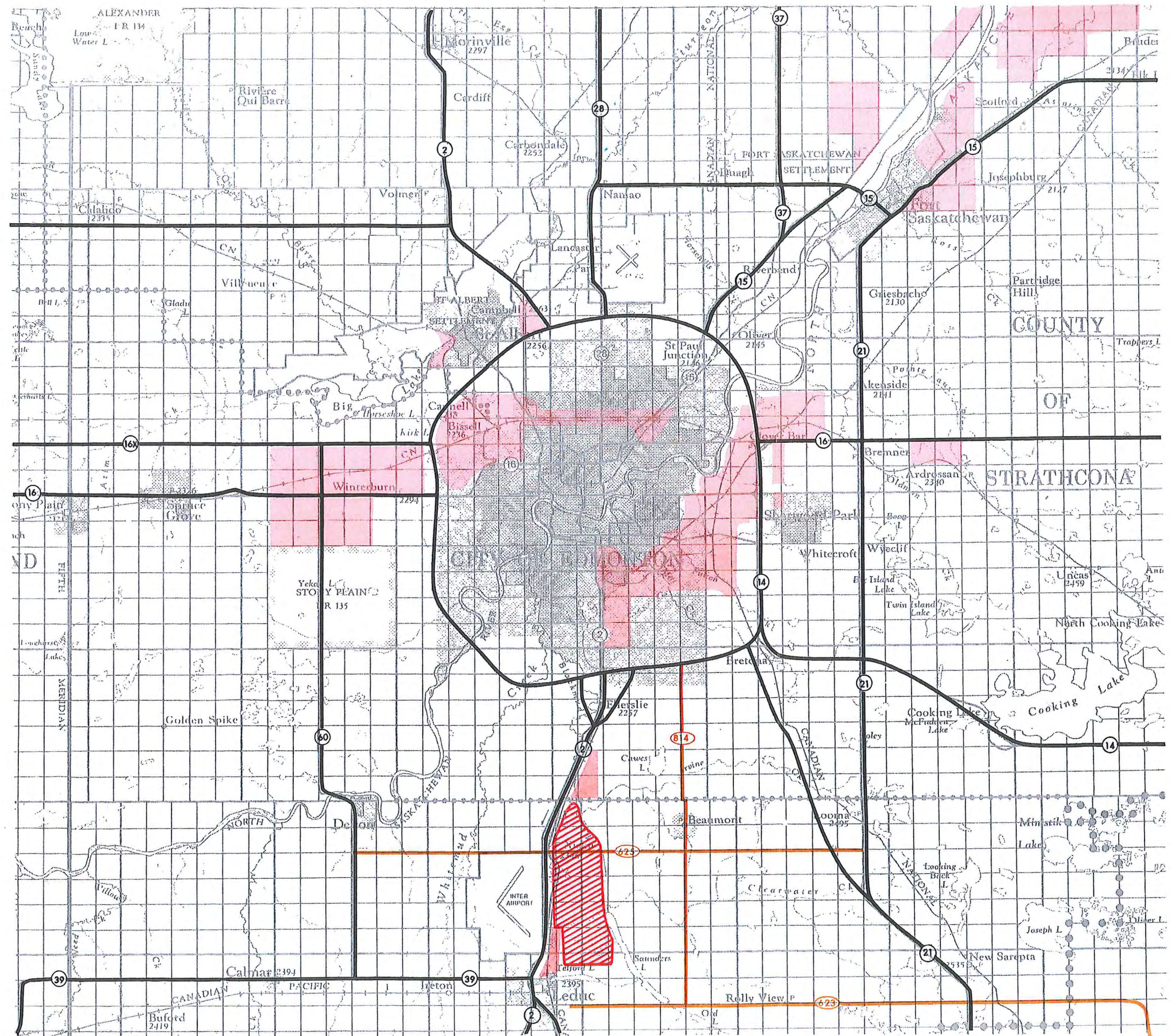
LEGEND



AVERAGE ANNUAL DAILY TRAFFIC



FIGURE 2



NISKU AREA STRUCTURE PLAN

REGIONAL SETTING

LEGEND

- * FUTURE INDUSTRIAL AREAS
- NISKU FUTURE INDUSTRIAL AREA
- ** FUTURE PRIMARY HIGHWAYS
- SECONDARY ROADS (S.E. AREA ONLY)

* INCLUDES EXISTING AND PROPOSED AREAS, NOT ALL OF WHICH ARE OFFICIALLY ADOPTED AS YET.

** INCLUDES SOME EXISTING HIGHWAYS.

NOTE: MAIN ROUTES THROUGH CITY NOT SHOWN.

SCALE (in miles)



STEWART, WEIR & Co.

FIGURE 3

The characteristics for construction vary from fair to good in bearing strength and compressibility, (excluding topsoil horizons) with special techniques sometimes being required to avoid moisture retention and frost heave problems.

In an overall construction cost index prepared by the Edmonton Regional Planning Commission,¹ the site area is rated 1.2 in the Ponoka Loam and 1.3 in the Kavanagh Loam soil. This means that in relation to the parts of the Edmonton region which have the lowest construction costs, the site area would have theoretical costs 1.2 or 1.3 times as great. This cannot be regarded as a significant obstacle to industrial development.

Vegetation

Only small areas of trees or bush (mainly poplar and willows) remain on most of the farmland outside the existing industrial area of Nisku. These treed areas are associated with creeks, watercourses, depressions, line fences or farm steads. However, along the west edge of the Black Mud-Saunders Lake Valley there are some large tree bluffs. These could enhance the buffer effect of the valley and act as a natural screen for industrial development as viewed from the east side.

EXISTING LAND USE

Agriculture

The major part of the site area, some 8,000 acres, is still in active cultivation. Most fields are quite large and open.

Industrial

Of the non agricultural uses, by far the biggest in area is industrial. The Nisku Business Industrial Park and Sky Harbour account for most of this with approximately 1,000 acres developed though not yet all built upon. Most of this development has been carried out by Sparrow Development Ltd., who have been able to work at a large scale and plan comprehensively. The development has attained considerable momentum and a further stage covering another quarter section of land will soon be available.

At the moment the area is largely oriented to the oil industry with many drilling contractors and direct oil field services in evidence. There are a good many other industries which support the oil industry but also serve a wider market, for instance, trucking, general contracting, welding and machine shops.

¹ The Development Potential Index Technique" Technical Paper 5, Edmonton, Region Growth Studies 1976.

Recently there has also been an expanding proportion of general light manufacturing and service industry such as camper and recreational water craft. Two large uses deserving mention are an 80 acre pipe storage yard and an auction mart. The latter attracts customers numbering in the thousands to major auctions. The individual industries, like the area, are mostly in an active stage of growth. Together with the oil oriented firms need for storage space, this helps to account for a low site coverage factor. This will undoubtedly increase as the area matures.

Other Uses

There is a small service centre at Nisku adjacent to the present Highway 2 and also some residences and grain elevators. West of the present north bound lanes of Highway 2 is the Airway Motel. There are also a few other isolated nonfarming uses in the area such as country residential lots, a swine research centre, power transformer station, sewage lagoon, developed industrial sites, and some utility installations.

LAND OWNERSHIP

The majority of land holdings, outside the developed industrial area are large at least 80 acres. There are relatively few rights of way for pipelines or powerlines. These two factors will greatly facilitate the planning of development in the area.

TRANSPORTATION

Highway 2 of course dominates the site area with three accesses provided by the east-west road allowances. Apart from the industrial park, the area is still basically served by the standard road allowance system with a few forced roads parallel to the C.P.R. mainline. Some roads are upgraded e.g. Secondary Road 625 and Airport Road but for the most part they are still gravelled roads on a 66 foot road allowance. Nisku Industrial Park has no direct outlets on its east boundary. The major problem area at the moment is the increasing traffic on Secondary Road 625 and a difficult and dangerous intersection at Nisku.

The C.P.R. mainline Edmonton to Calgary passes through the area and at the moment provides two spur lines servicing the industrial area. All intersections are at grade.

LAND SERVICES

The area is served by three utility companies, TransAlta Utilities Corporation, Northwestern Utilities Ltd. and Plains Western Gas and Electric Company. For water supply and sewage disposal please

refer to Chapters 7 and 8 for information.

DEVELOPMENT CONSTRAINTS

These are illustrated on Plan No. 1.

Servicing Constraints

Due to economics and environmental impact of industries with large water requirements and effluent disposal such as food processing and heavy manufacturing, these uses cannot be considered suitable for the area.

Airport Vicinity Protection Area Restrictions

There are various restrictions under Transport Canada Zoning regulations (or shortly to be enacted under provincial regulations) which affect the area.

The major one is that on uses which produce visibility-reducing emissions (smoke, dust, fumes and water vapour) or attracts birds. This restriction reinforces the servicing constraint on heavy manufacturing uses.

Other restrictions applying to the area are building height; acoustic protection within certain noise zones; large metal clad buildings within certain areas; and uses which affect the electronic guidance and communication systems of the airport (industrial x-ray equipment, welding, etc.).

The latter set of restrictions must be considered of lesser importance, since for industrial uses the building height limitation exceeds that required for light industrial uses, while the other restrictions can be overcome by acoustic protection, electronic shielding or by other suitable construction modifications.

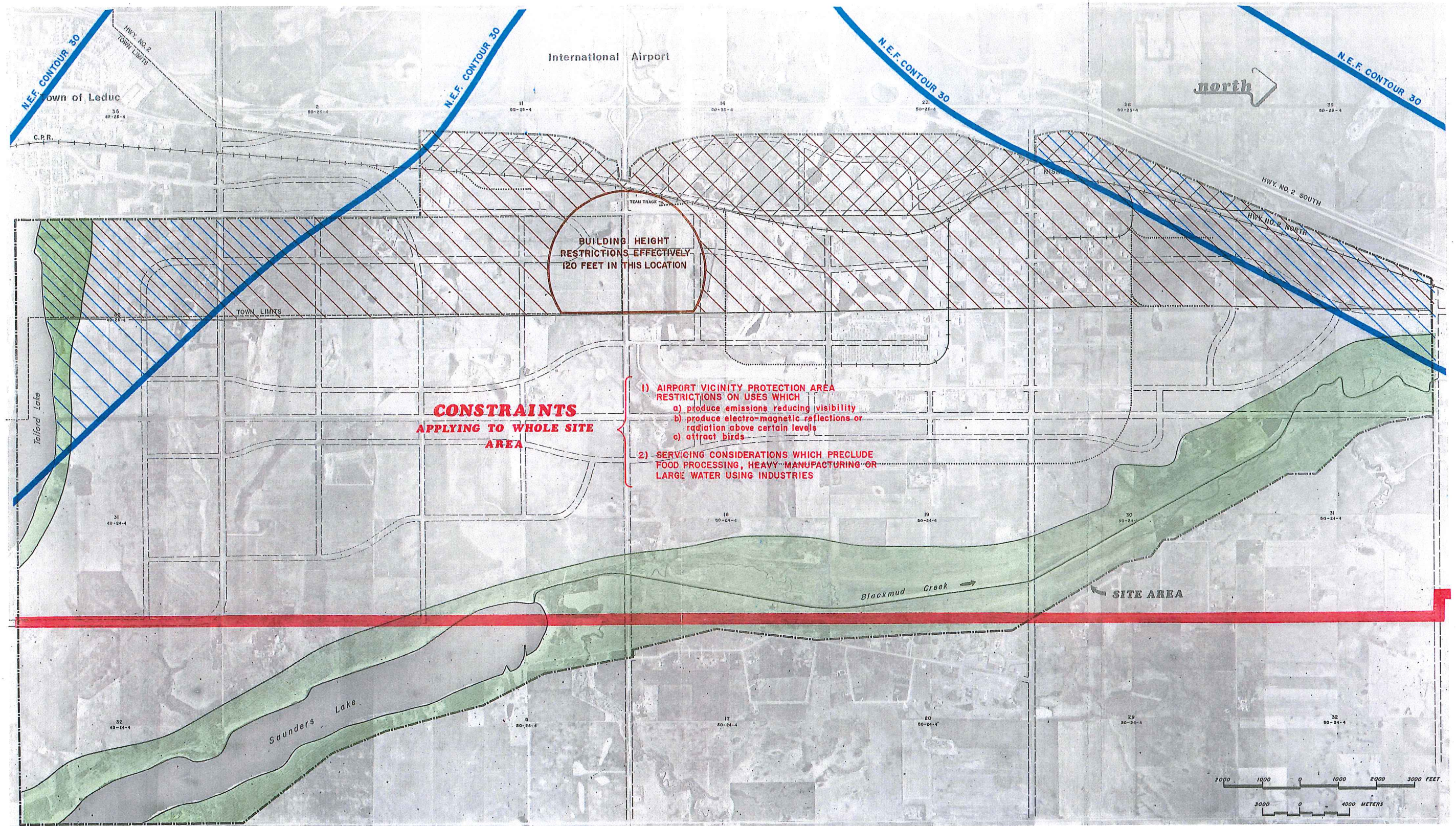
The height factor could be of importance for office or hotel buildings in the Airport Road area where the effective height limitation is approximately 120 feet.

Topography

The steep valley slopes, lake and flood plain of Black Mud Creek and Saunders Lake preclude development and form an eastern boundary for the industrial area.

Highway 2

Under the Public Highways Development Act, Alberta Transportation has a measure of control over the appearance and use of land adjacent to Highways. The chief concern would be to avoid distracting signs, billboards and unsightly uses.



- LEGEND**
- STEEP SLOPES, FLOOD PLAIN OR SHORE PROTECTION AREA
 - SOME BUILDING RESTRICTIONS FOR NOISE EXPOSURE FORECAST AREA ABOVE 30
 - BUILDING RESTRICTIONS (Not to rise more than 150 feet above airport reference level)
 - ALBERTA TRANSPORTATION VISUAL STANDARDS
 - EAST BOUNDARY AIRPORT VICINITY PROTECTION AREA

COUNTY of LEDUC NO: 25

NISKU AREA STRUCTURE PLAN

DEVELOPMENT CONSTRAINTS

SCALE 1:30,000

STEWART, WEIR & Co.

IV. FUTURE PROSPECTS

This chapter sets out the basic economic, population and other growth assumptions of the Nisku Area Structure Plan.

ECONOMIC OUTLOOK

A bright economic outlook is assumed for Alberta in general and the Edmonton region in particular. The main basis for this is the continuing development of resources in the province and the Canadian northwest. These would be chiefly oil and gas but others would be significant including forest products, minerals and coal. Secondary industry will continue the rapid expansion of the early 1970's. The substantial coal resources close to Edmonton provide an energy reserve which can only enhance its long term industrial prospects. In addition there will be a strong local economy based in construction and expansion of social facilities to meet the needs of a regional population expanding to 60% above its 1976 level. Edmonton's role as transportation, distribution, educational and administrative centre will be at least commensurate with this growth.

We do not feel it necessary to substantiate this outlook in detail but some idea of the gathering momentum of development comes from a forecast of the Alberta Energy Resources and Conservation Board.* By the year 2004 the following major plants are expected to be in place providing Alberta's Energy requirements are translated in terms of world scale plants.

- 13 Oil sands extraction plants
- 7 Ethylene plants
- 8 Ammonia plants
- 6 Methanol plants
- 6 Coal gasification plants
- 6 Thermal power generating plant (over & above 1975 number)

To these major plants can now be added the Alaskan gas pipeline project with possibilities of other major northern pipelines as overseas oil supplies become more costly and less reliable.

Also it is now explicit provincial government policy to encourage and facilitate the expansion of manufacturing and other secondary government industry.

*Alberta's Requirements of Energy and Resources 1975-2004, Energy Resources Conservation Board.

POPULATION FORECASTS

Table I shows preliminary forecasts as supplied by the Edmonton Regional Planning Commission. To some extent, the municipal forecasts reflect growth limits imposed by the local councils, (Leduc, Beaumont) and in any case extend only to the year 1986.

TABLE I
POPULATION FORECAST

	<u>1976</u>	<u>1981</u>	<u>1986</u>	<u>1991</u>	<u>1996</u>
Edmonton Metro- politan Area	595,000	692,150	781,050	868,450	954,550
Town of Leduc	8,576	13,350	18,500		
County of Leduc	10,949	12,000	12,600		
Town of Devon	2,786	4,200	4,900		
Village of Beaumont	851	2,200	3,500		

Table 2 shows our own forecast for the local municipalities to the year 1996 revised to reflect higher growth rates based on previous experience in other parts of the region and assuming freer market conditions.

TABLE 2
NISKU AREA STRUCTURE PLAN FORECASTS

	<u>1976</u>	<u>1981</u>	<u>1986</u>	<u>1991</u>	<u>1996</u>
Town of Leduc	8,576	15,000	26,000	37,000	50,000
County of Leduc	10,949	12,000	13,000	15,000	18,000
Town of Devon	2,786	5,400	8,500	11,500	14,500
Village of Beaumont	851	3,600	7,000	10,000	13,000

It is extremely difficult to forecast reliably the growth of smaller urban centres close to a major city but we feel that the higher figures for Leduc, Beaumont and Devon will make for a more realistic prediction of traffic volumes in and through the study area. In any case, for planning purposes it is better to be prepared for the higher figures since unexpected growth poses greater problems than a short fall of expected growth.

It should be stressed that the viability of the expanded Nisku Industrial area in no way depends on the use of the higher figures. The main spur to growth lies elsewhere, in the general expansion of industry and population in the Edmonton region as a whole, and in the oil industry and other resource development in central and northern Alberta.

EDMONTON INTERNATIONAL AIRPORT FORECASTS

Table 3 gives forecasts² of two main indicators of growth, passenger traffic and cargo.

TABLE 3

	<u>1976</u>	<u>1981</u>	<u>1986</u>	<u>1991</u>	<u>1996</u>
Total Emplaned and Deplaned Passengers/year (millions)	1.495	2.150	3.136	4.016	5.160
Total Emplaned and Deplaned Cargo/year (millions of lbs.)	40.4	96	163	242	310

These figures show a very considerable increase over present levels, approximately 3-fold for passengers, over 7-fold for cargo. It can be seen that even by 1986 only 2 or 3% of the passenger volume would suffice to keep a 300 room hotel in full occupancy. (Assuming average room occupancy of 1.5 persons, average 2 day stay). Similarly the cargo volumes would appear to hold good prospects for facilities in the Nisku area.

² Official C.A.T.A. Forecasts, April 1978 Transport Canada

V. NISKU AREA STRUCTURE PLAN

In formulating the Nisku Area Structure Plan the following objectives were held in mind.

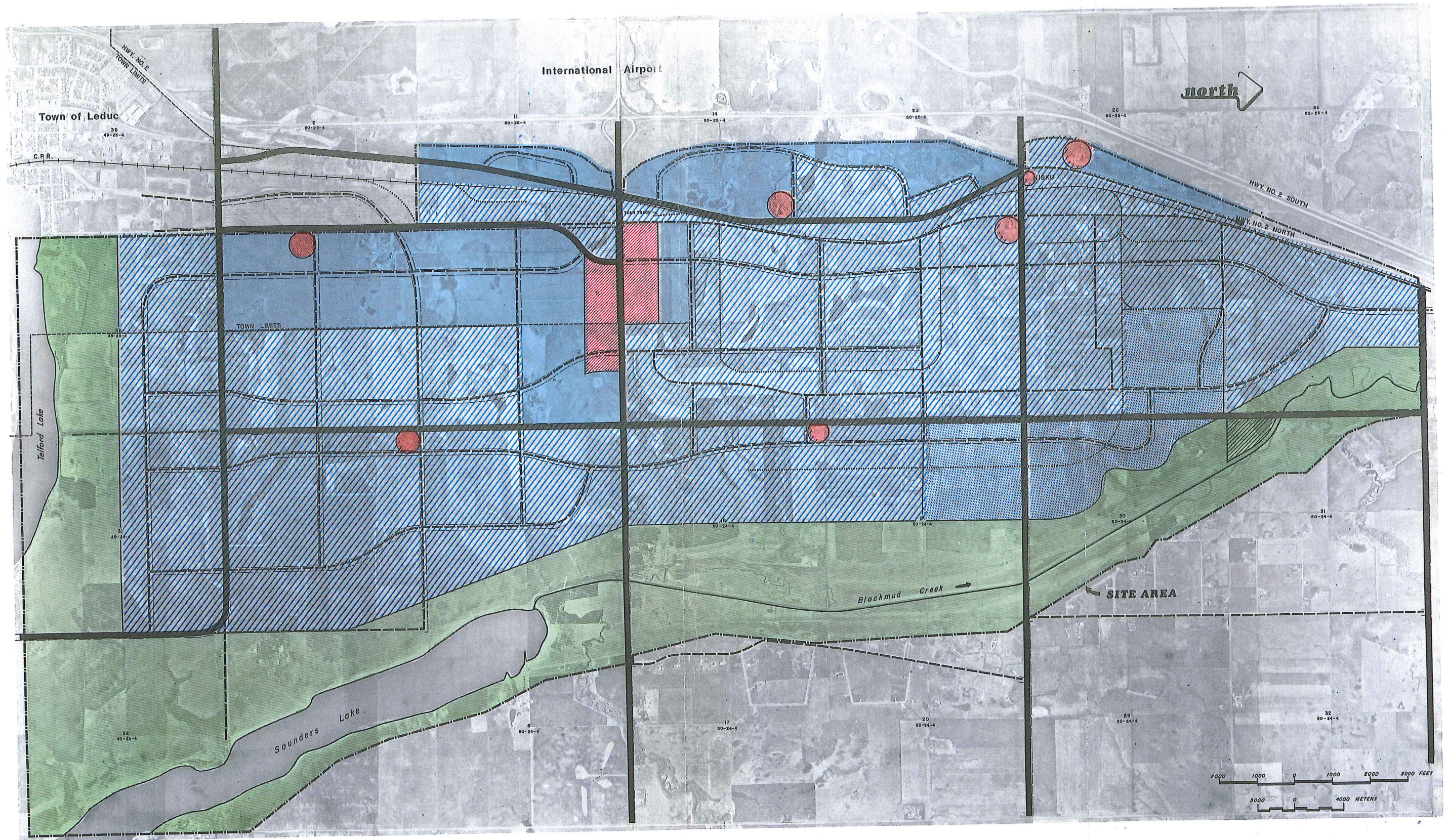
1. The orderly development of a diversified major industrial park catering for a range of suitable uses centred round a strong regional commercial core area.
2. Improvement of transportation into and through area to the highest level.
3. Protection of neighboring areas from the direct impact of industrial development.
4. Maintenance of high environmental and appearance standards.
5. Provision of adequate service and recreational facilities for local industries and work force.
6. Extensive storage type uses should be limited.

To achieve these objectives the future pattern of land use is proposed as in Plan No. 2 with its major features as follows:

1. A major regional service centre is to be located on both sides of Airport Road east of the C.P.R. main line. It should provide substantial hotel accommodation, office space, shopping facilities and support services. These would serve air passengers and tourists, "fly in" business meetings and conferences and a development and promotional function for the Nisku area (and possibly for a wider region including South Edmonton and the whole Leduc corridor).
2. Premium light industrial uses are to be established adjacent to Highway 2, in the area surrounding the Airport Road regional service centre and in the area lying between the centre and the Town of Leduc. These areas would have full services and be developed with a degree of architectural control.
3. Most of the remainder of the site area would accommodate a range of light industrial uses with different levels of services available to cater for the needs of new industrial ventures and established firms.
4. The extensive storage type uses such as pipe yards would be located primarily in the north and east parts of the area and planned so that they could later be redeveloped into smaller light industrial parcels.

5. The major sewage treatment facility needed for the site area would be located in the area of the present sewage lagoon.
6. The road system is to be developed on a conventional hierarchical pattern of high capacity limited access arterial roads, internal industrial collector roads and local access roads. There would be grade separated free flow access to Highway 2 at three points; Airport Road, Secondary Road 625 and a new directional access proposed one and a half miles north of Nisku. Access from the arterial roads to the internal collector roads would in general be limited to one per quarter section.
7. Minor service centres are to be located at strategic points. These would supply sites for service stations, restaurants, convenience stores, banks and other services of a local nature. They would also be the focus for recreational parks and buildings to accommodate fire halls and police detachment offices. In the long term perhaps even motels could locate near these centres.
8. An Agricultural Industrial Reserve Zone is located on the south and east boundary of the site area. Along the Black Mud Creek and Saunders Lake this zone corresponds approximately with the Valley but some extra land has been attached to it to take in large bluffs of trees, residences and farmsteads and the boundary quite often follows quarter section lines for administrative convenience. In the south along Telford Lake and its drainage basin there is no distinct topographic boundary that corresponds with this zone. Therefore, an area has been designated arbitrarily as a boundary to the industrial area. It should be noted that portions of the land under this designation have some potential for industrial development while other portions are undevelopable. The onus will be on the developer to establish the boundary between the industrial area and the recreation open space area.

In conclusion it should be noted that as a conceptual plan the Nisku Area Structure Plan does not purport to define land use areas precisely. This is particularly true in relation to those areas shown as premium industrial and light industrial. The boundary between these two is somewhat arbitrary and could be moved provided the general objectives are upheld.



- LEGEND**
- REGIONAL SERVICE CENTER
 - LOCAL SERVICE CENTER
 - PREMIUM INDUSTRIAL
 - LIGHT INDUSTRIAL
 - EXTENSIVE INDUSTRIAL
 - SEWAGE TREATMENT FACILITIES
 - AGRICULTURAL INDUSTRIAL RESERVE ZONE
 - ARTERIAL ROAD
 - COLLECTOR ROAD

COUNTY of LEDUC NO: 25

NISKU AREA STRUCTURE PLAN

FUTURE LAND USE

SCALE 1:30,000

STEWART, WEIR & Co.

PLAN 2

VI. ROAD AND RAIL SYSTEM ENGINEERING STUDY

This chapter analyses the present transportation system, and presents a plan for the proposed network together with standards and recommendations for implementation.

EXISTING ROAD SYSTEM - ANALYSIS

Highway 2

Highway 2 provides the major access to the site area and the high capacity route to Edmonton or points south. Along the site area boundary a realignment of north bound lanes is proposed which will bring them adjacent and parallel to the existing south bound lanes. (Space for future core lanes will be left to give long term extra traffic capacity in both directions). The realignment will be carried out in the next two or three years and then the existing north bound lanes will revert to municipal jurisdiction as a 2-way road thus opening up a substantial acreage of land for development (approximately 450 acres).

There are three major accesses from Highway No. 2 to the site area. These fall on the alignment of east-west road allowances. At each intersection, grade separated interchanges are presently under construction and scheduled for completion by 1981.

Secondary Road 625

In the north, Secondary Road 625 is the present major access point for Nisku Industrial Park. It also provides a route east past Beaumont to Highway 21. To the west, it becomes Highway 919 providing access to the cargo handling and runway service area of the International Airport. It continues to Devon and is a potential bypass route round Edmonton via Highway 60 to Highway 16 west.

Airport Road

Airport Road provides the major access to the International Airport Terminal and also another eastward route connecting to Highway 21. There is already an overpass crossing Highway 2 but the new interchange will involve considerable improvement of traffic flow at this intersection.

Telford Lake Ring Road

Through the north part of the Town of Leduc there is another east-west road allowance which gives an access to the site area and to the Town of Leduc from Highway 2. To the east and south, this route provides a potential ring road round Telford Lake giving access to south-east Leduc (a residential expansion area) also to Secondary Road 623 (east-west) and Highway 2A south.

Nisku Correction Line Road

There is no access or interchange planned here with Highway 2 but this road offers an alternative route to Edmonton, through the County of Strathcona on Secondary Road 814 (the alignment of 50th Street, Edmonton). This road also provides access to about 600 acres of industrial land just east of the C.P.R. line in the County of Strathcona.

Nisku Spine Road

The only straight north-south road running the whole length of the site area is that on the east side of the Nisku Business Industrial Park. As it is fairly central to the study area, it has obvious significance as a major spine road serving the future industrial area and through traffic travelling between south-east Edmonton and Leduc. At the moment there is no direct access to the Industrial Park from this road.

Leduc Road

The north-south road allowance leading out of Leduc east of the C.P.R. mainline is important for access of Leduc residents to the site area.

Beaumont Forced Road

The forced road west from Beaumont lacks only about four tenths of a mile to become a continuous east-west route into the site area.

OBJECTIVES FOR FUTURE ROAD SYSTEM

The following objectives were held in mind when formulating the proposed road system.

1. To improve accessibility into the area to highest level.
2. To provide safe and efficient movement of traffic in and through the area at acceptable service level.
3. To provide reasonable cross movement between parts of the study area.

PRINCIPLES OF ROAD SYSTEM DESIGN

The basic principle used in the proposed road network is the hierarchical system of freeway, arterial, collector and local roads. Each type of road performs a different function so that the system as a whole operates efficiently and safely. Table 4 illustrates some aspects of these functions.

TABLE 4

	<u>Speed (kph)</u>	<u>Size</u>	<u>Access</u>	<u>Characteristics</u>
Freeway	70-100	6-12 lanes	2-3 mile intervals	Free flowing, grade separated intersections
Arterial Road	50-80	4-6 lanes	1/2 mile intervals	Channelized or signalized intersections
Collector Road	50 max.	2 lanes	Direct access to land	Continuous, sign posted intersections
Local Road	50 max.	2 lanes	Direct access to land	Non-continuous

PROPOSED ROAD SYSTEM

Plan No. 3 illustrates the proposed road system. The main features are as follows:-

1. Road allowances become major arterial roads requiring a 150 foot width of right-of-way.

2. One major new directional access from Highway 2 is to be provided by a fly-over structure about 1-1/2 miles north of Nisku. This will connect by arterial road to the Nisku Spine Road through Section 36.
3. In the long term an arterial road is proposed on the alignment of the forced road west from Beaumont to be extended until it meets the Nisku Spine Road.
4. Both Airport Road and Secondary Road 625 will have flyovers across the C.P.R. main line.
5. Collector roads are shown conceptually. Apart from those already built, they do not have to be located exactly where shown provided the general intention of the plan is met. This is to provide one continuous collector road per half mile width of land in the north-south direction, and one continuous road in the east-west direction approximately along quarter section line.
6. The access from arterial roads to collectors will be limited to those shown on the plan i.e., either half mile intervals or one per quarter section. Generally these access points should be at least 600 feet from a major intersection.
7. Local roads are not shown. Thus provided that collector or arterial road are provided as required, the developer will be free to design according to his market, site conditions and development concept.

STANDARDS

The recommended standards to be used in the development of the road system are as follows:

Geometric Design Standards

These should conform with the standards of the Roads and Transportation Association of Canada. These cover such items as design speed, stopping sight distances, gradients, curve radius, acceleration and deacceleration lanes, bus bays, etc.

Construction Standards

Subgrade and pavement structure should meet the following criteria:

1. 20 year design period.

2. Pavement structure to permit a loading of up to 20,000 pounds per single axle, 35,000 pounds on tandem axles and a maximum vehicle weight of 110,000 pounds.

Parking Standards

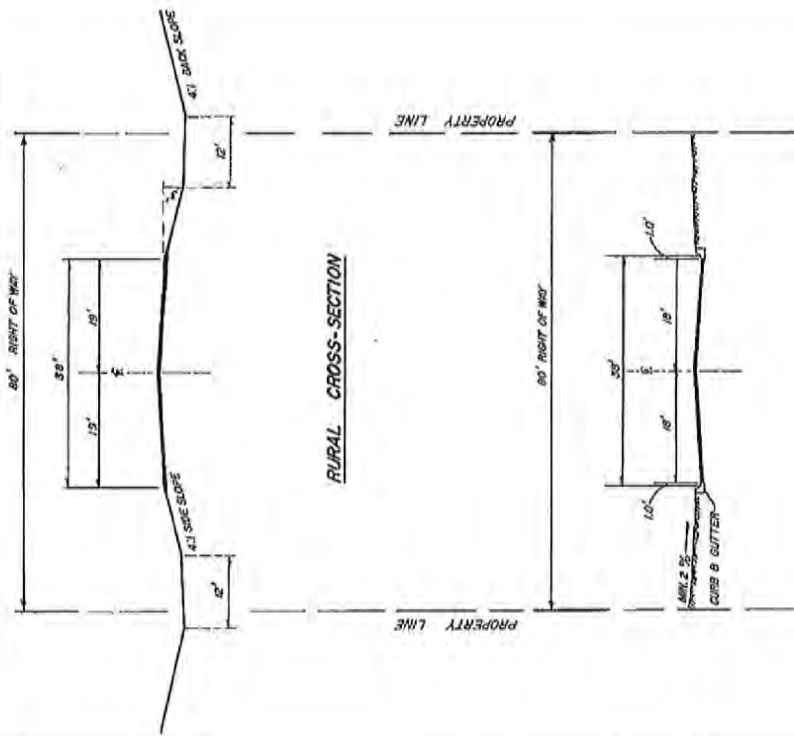
1. No street parking should be permitted.
2. For industrial uses sufficient parking space should be provided to accommodate the maximum foreseen number of employees or customers.
3. For offices, a minimum of one stall per 250 sq. feet of floor space should be provided.
4. For light warehousing a minimum of one stall per 2,000 sq. feet of floor space is required.

Recommended Roadway Cross Sections

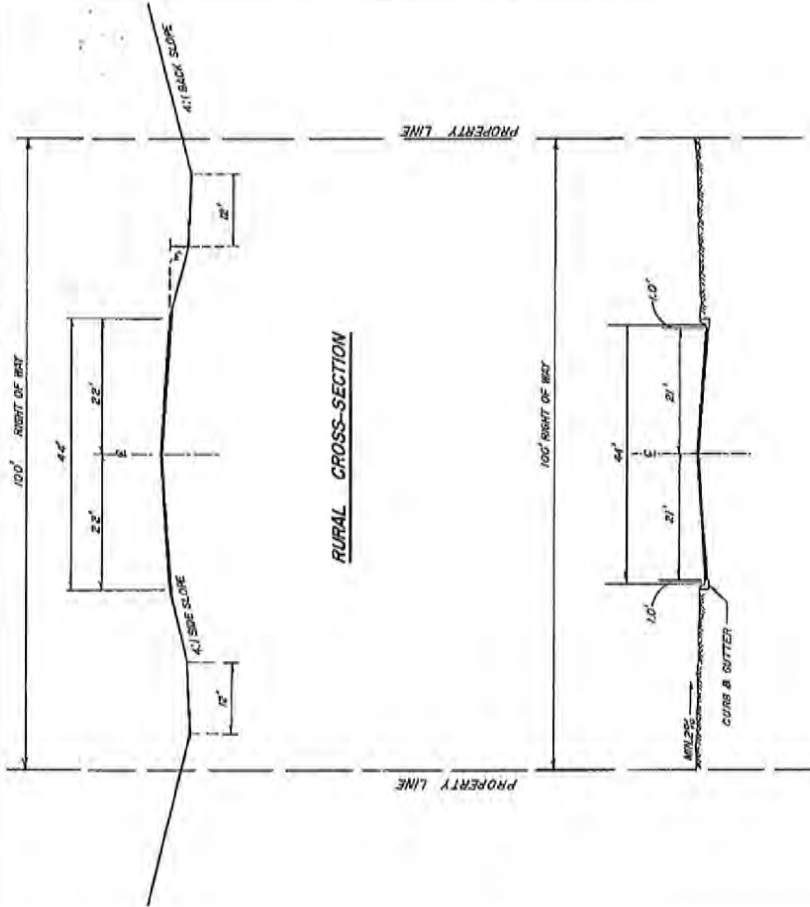
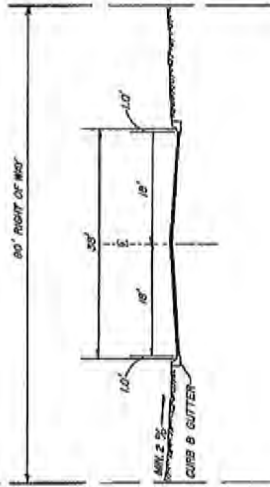
These are described in Table 5 and also illustrated by the diagrams following (Figures 4 and 5).

Notes

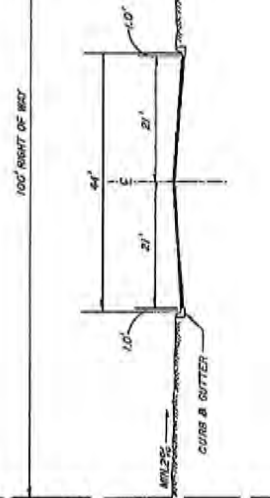
1. Widths of rights-of-ways are given to accommodate the eventual maximum future requirement.
2. Each section of road should be designed so as to accept future improvements with the minimum of additional construction expense.



URBAN CROSS-SECTION (FUTURE)



URBAN CROSS-SECTION (FUTURE)



CROSS-SECTION STANDARDS

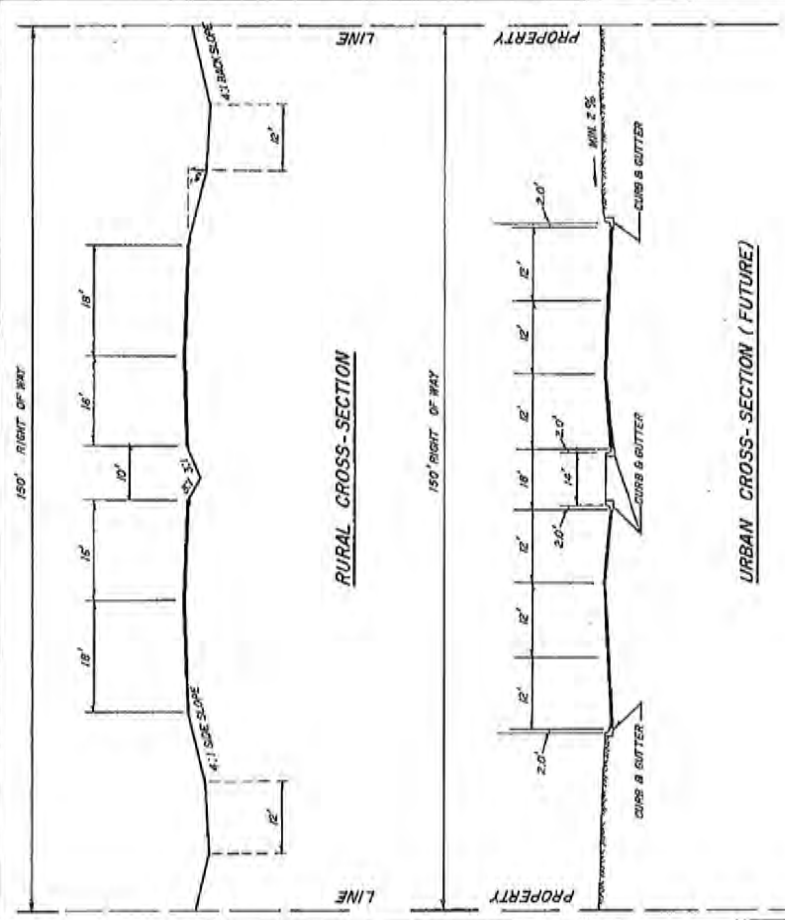
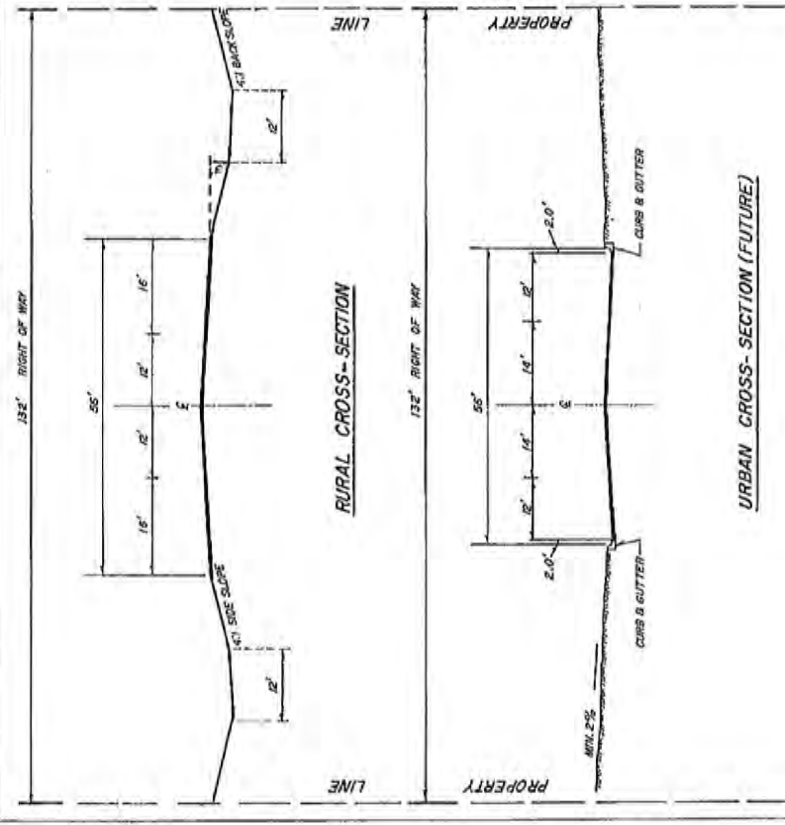
COUNTY OF LEDUC NO.25

NISKU AREA STRUCTURE PLAN



STEWART, WEIR & CO.

FIGURE - 4



CROSS-SECTION STANDARDS

COUNTY OF LEDUC NO. 25
NISKU AREA STRUCTURE PLAN
FIGURE - 5
STEWART, WEIR & Co.

TABLE 5

Classification	No. of Lanes	Furnished Surface Width	Side-slope Ratio	Back-slope Ratio	Ditch Width	R.O.W. Width
Local (Rural)	2	38'	4:1	4:1	12'	80'
Local (Urban)	2	36'	N/A	N/A	N/A	80'
Industrial Collector (Rural)	2	44'	4:1	4:1	12'	100'
Industrial Collector (Urban)	2	42'	N/A	N/A	N/A	100'
Minor Arterial (Rural)	4	56'	4:1	4:1	12'	132'
Minor Arterial (Urban)	4	52'	N/A	N/A	N/A	132'
Major (Rural) Arterial Divided	4	2@34'	4:1	4:1	12'	150'
Major (Urban) Arterial Divided	6	2@36'	N/A	N/A	N/A	150'

N/A means "not applicable".

RECOMMENDATIONS

1. A regional transportation study should be undertaken to determine future traffic flows into and through the site area for these purposes.
 - (a) To size arterial roads.
 - (b) To identify bottlenecks or possible problem intersections.
 - (c) To suggest detailed design solutions for these bottlenecks and also for the various intersections associated with flyovers of the C.P.R. track.
2. No subdivision approval or development permit should be given for projects which do not provide the arterial or collector road rights-of-way, including extra land in the vicinity of intersections.

3. To maintain the integrity of the collector road system it may at times be necessary for right-of-way to be dedicated or acquired in advance of development of a particular parcel of land. This right-of-way would also accommodate water distribution lines or in some cases sanitary sewers needed to service adjacent areas.
4. During development, there may occasionally be a need for short interim roads. These can later be abandoned or replaced by another section so as to fulfill the general intent of the proposed system.

RAIL SYSTEM

Present Development

The C.P.R. mainline between Edmonton and Calgary has two spur lines serving the site area. One of these passing through section 24 and serving the Totran Services pipe yard has been planned as a loop to connect again with the main line in Section 13. However, due to increasing mainline traffic, the C.P.R. will not permit a connection until an auxiliary track adjacent to the main track has been constructed. A team track operation is proposed near this future junction to serve local industries without direct rail service.

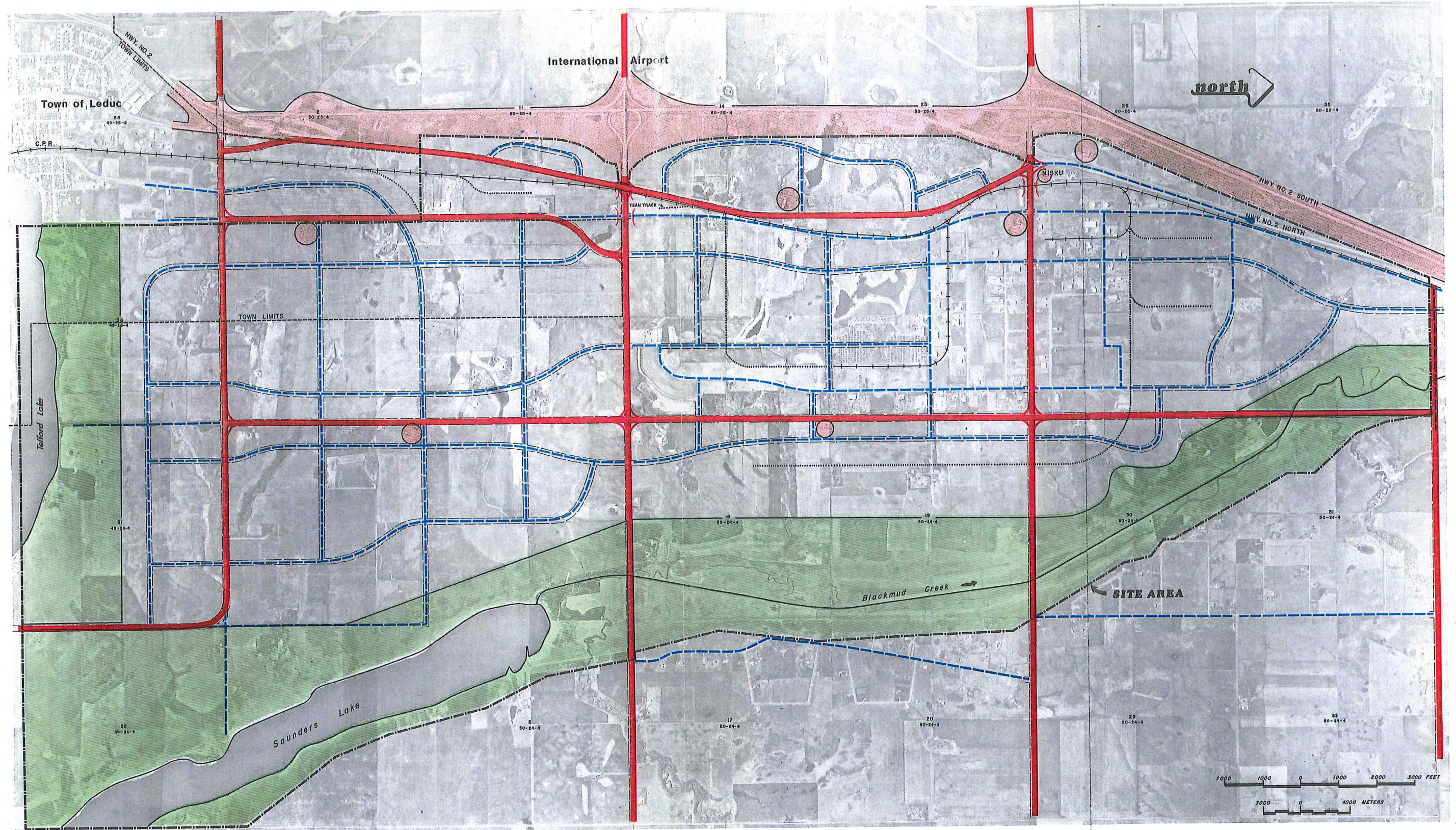
The short spur line north of Secondary Road 625 offers the possibility of extension eastward or northward.

There is one other spur line under construction in the area south of Airport Road but this is difficult to extend further. Still further to the south outside the site area, is another planned spur line which possibly could be extended into the area of Section 1.

Rail serviced lots have sold at a moderate but steady pace in Nisku Industrial Park. This indicates that for the long term some further provision of rail service should be made for light industry. Recently proposals have been made for more pipeyard and storage uses in the north part of the area. These uses are far more dependent on rail service, and will require substantial extra trackage.

Proposed Extensions

The Nisku Area Structure Plan proposed significant extensions as shown in Plan No. 3 in the north part of the study area. None have been proposed in the area south of Airport Road because rail service is not compatible with the premium industrial uses proposed there.



LEGEND

- HIGHWAY NO. 2 EXPRESSWAY
- ARTERIAL ROAD
- - - COLLECTOR ROAD
- + + + RAIL LINE (Existing)
- - - RAIL LINE (Future)
- SERVICE CENTER
- AGRICULTURAL INDUSTRIAL RESERVE ZONE
- = OVERPASS

COUNTY of LEDUC NO: 25 **NISKU AREA STRUCTURE PLAN** **FUTURE ROAD AND RAIL SYSTEM**

SCALE 1:30,000

STEWART, WEIR & Co.

PLAN 3

VII. WATER SUPPLY AND DISTRIBUTION SYSTEM

GENERAL

The County of Leduc obtains water from the Strathcona Leduc Water Board who in turn purchase water from the City of Edmonton water works system for distribution in the Nisku, Leduc, Beaumont area.

The water is pumped by the Water Board to a county reservoir located in the Hamlet of Nisku, with a capacity of 1.0 million gallons. From here, the Water Board repumps the water into the County of Leduc water distribution system to supply the Hamlet of Nisku, the Nisku Industrial Park, the small holdings east of the Industrial Park and the Village of Beaumont.

The water distribution system in the Nisku Industrial Park is connected to the Strathcona Leduc Water Board System by an 8-inch diameter pipe to provide for average daily water demand and to the county reservoir by an 18-inch diameter steel pipe to provide for peak water demands and fire flows.

The distribution pipe network was planned to provide for a two way feed into each area of the Park with pipes of sufficient capacity to deliver water for fire protection at a flow rate of about 2,000 gallons per minute. The pipe network consists primarily of, a 12-inch diameter main running north to south along the west side of the Park, a 10-inch diameter main running parallel along the east side of the Park, and a series of 8-inch and 10-inch cross mains between the 12 and 10-inch mains.

To date the water distribution has been constructed as development progressed, and the loop system is not complete.

A diesel engine driven fire pump, located at the county reservoir, provides additional water flow over average demand for fire protection. The pump is rated to supply 1,000 gallons per minute at normal distribution system pressures. Plan 4 shows the existing water distribution system.

DESIGN CRITERIA

The following design criteria were used in this study:

1. A projected fire flow of 3000 gpm, as recommended for light industrial parks by the Insurance Advisory Organization, was used in the mathematical analysis of the distribution system.
2. Limiting velocity of water flow in pipes 4-5 feet per second.

3. Normal demand was estimated at 250 gals/acre day.

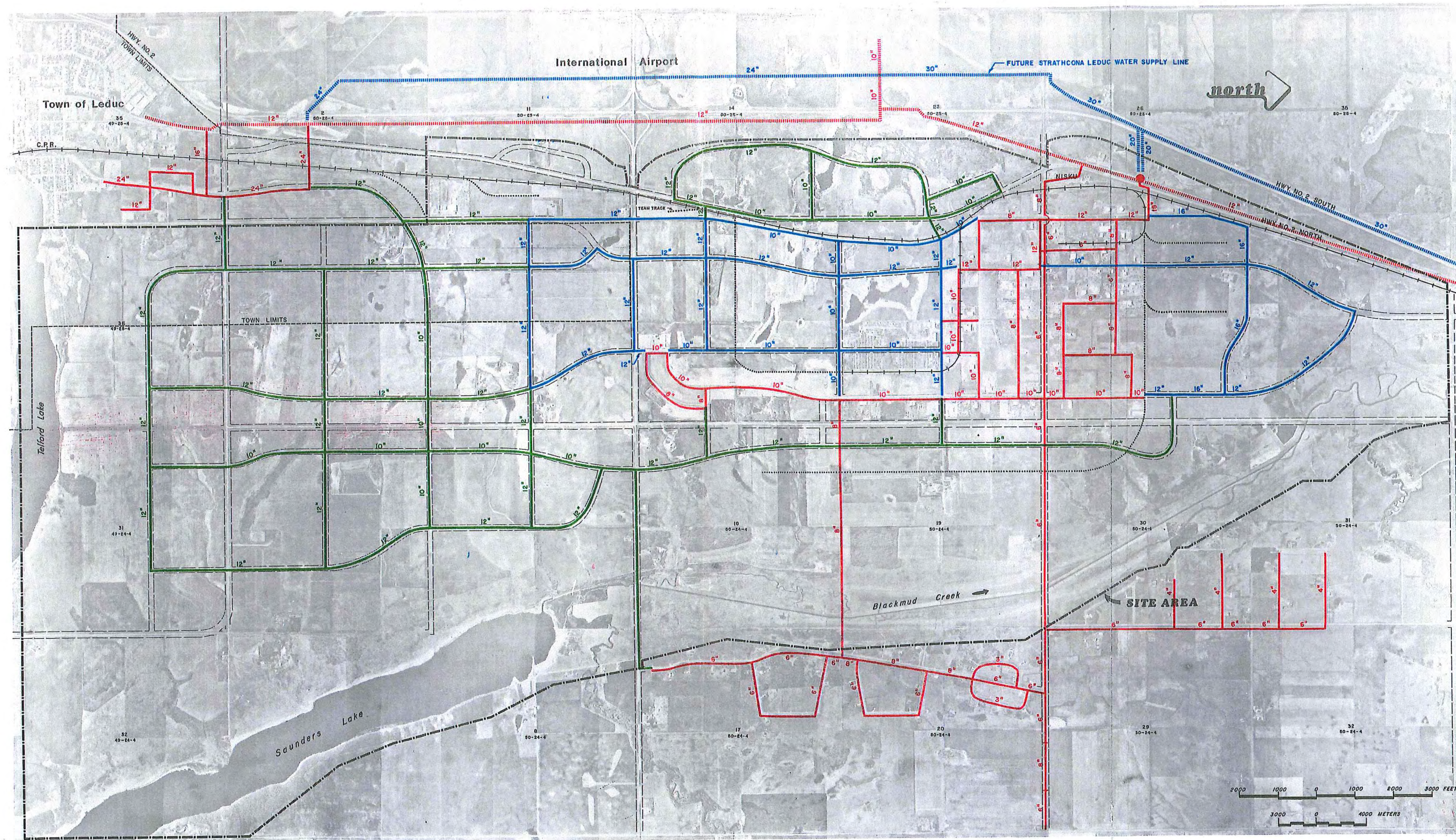
EXPANSION FOR FUTURE GROWTH

The existing Strathcona Leduc Water Board supply system from the City of Edmonton installed in 1959 has limited capacity to meet present regional water demands. Construction of a new supply system, designed to provide for projected regional demands to the year 2001, is now in progress with completion scheduled for summer 1979.

The water distribution system within the Industrial Park will continue to expand with future development. Plan 4 shows the existing system, planned extensions and future mains required to serve projected development.

A mathematical model study of the existing and projected sections of the water distribution system was used to calculate the potential capacity of the system to distribute water at rates sufficient to satisfy both domestic and fire flow demands. Existing and projected pipe sizes were verified as determined by this model study.

The existing fire pump has a rated capacity of 1,000 imperial gallons per minute at a delivery pressure of 90 psig. This pump was selected when the Industrial Park was started to provide for fire flows that could be accommodated in a distribution system with single mains in most areas. Now that the Park development has progressed to the point where the mains are being looped and the flow capacity within the system increased consideration should be given to providing additional pumping capacity by replacement of the existing 1000 gpm pump with a larger unit.



LEGEND

- 12" EXISTING STRATHCONA LEDUC WATER SUPPLY LINE
- 10" EXISTING WATER MAIN
- EXISTING RESERVOIR
- 12" PROPOSED WATER MAIN (Immediate)
- 12" PROPOSED WATER MAIN (Long range)

COUNTY of LEDUC NO: 25 **NISKU AREA STRUCTURE PLAN** **WATERWORKS SYSTEM**

SCALE 1:30,000

STEWART, WEIR & Co.

PLAN 4

VIII. SANITARY SEWERAGE SYSTEM

GENERAL

The Nisku Industrial Park is not presently serviced by sanitary sewers. When the Park development started in 1972 there did not appear to be an immediate need for sanitary sewer service to serve the low water demand business anticipated to locate in the Park. Each business was required to provide a sewage holding tank and to truck haul the sewage to a disposal area.

The County purchased a quarter section of land on which a sewage lagoon was constructed to provide treatment and disposal for the sewage hauled from the industrial area.

As long as the Industrial Park Development continues to maintain a low population density and low water demand the sewage collection tanks and truck hauling to the sewage lagoon will continue to provide an acceptable level of service. A municipal sewage collection system will be required some time in the future to provide for projected changes in development pattern that would see the location of hotels or other high water users in the Industrial Park.

Plan 5 outlines a conceptual layout for a sanitary sewerage system that could be developed in stages to serve the existing and projected future Park development areas.

The plan shows pipe sizes only in the present park area. However these pipes are sized to serve adjacent service areas.

DESIGN CRITERIA

The following design criteria were used as the development of a conceptual plan for a sanitary sewage collection system.

1. Peak sewage contribution including infiltration 6,000 gallons/acre day ($27.2 \text{ m}^3/\text{hectare day}$).
2. Minimum velocity of flow in sewers at design flow 2 ft/sec (0.6 m/sec).

CONCEPTUAL SEWAGE COLLECTION SYSTEM

For sanitary sewer servicing the present Nisku Industrial Park divided generally into two sections. The northerly area extending south from the lagoon to include Sections 19 and 24 may be served by gravity flow directly to the lagoon site. The southerly area extending south from and including Sections 13 and 18 will require

the pumping of collected sewage.

The conceptual outline plan shows generally a sewer system laid out to serve the existing and planned industrial park. However the sewers are sized to accommodate the geographic area to the south and west that form a natural part of the service area.

The land area east of the present industrial park to the Blackmud Creek that is projected in this report to become a future extension of the industrial area has not been included in the sanitary sewer service area. This area may be served at some future time by a trunk sewer system running parallel to the Black Mud Creek and would be independent of the present park area.

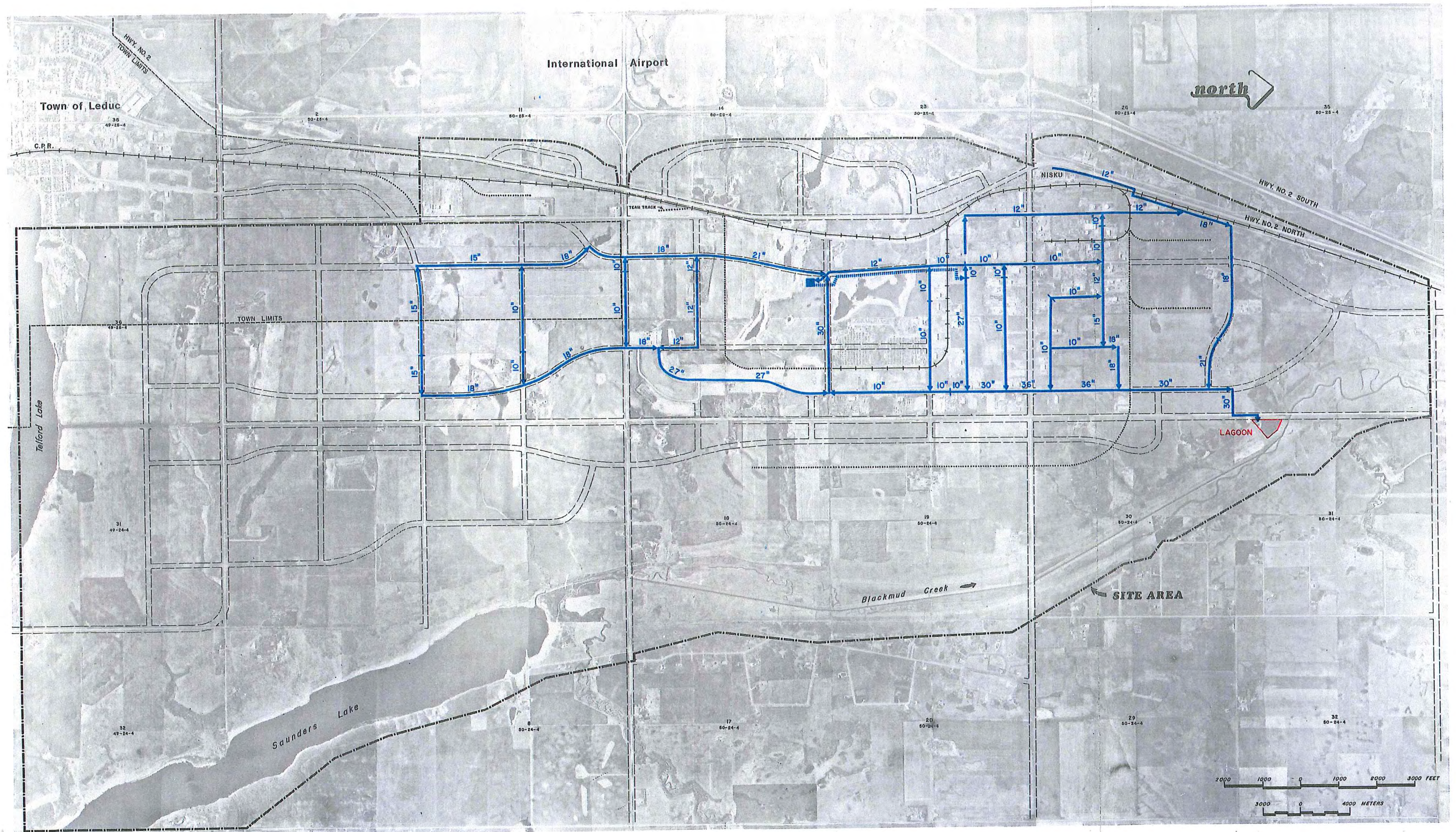
SANITARY SEWAGE TREATMENT

To provide for projected requirements of the Industrial Park the County established the S.W. 1/4 Section 30-50-24-W4M as a sanitary sewage treatment facility site in 1974.

As a first stage of development a small lagoon was constructed to handle treatment and disposal of sewage delivered by tank trucks from holding tanks in the existing Park.

The existing lagoon was designed to be expanded to provide sufficient capacity to provide treatment and twelve months retention for the projected sewage flows from the Industrial Park when it is developed to approximately twenty five hundred acres.

When the demands of the Industrial Park exceed the capacity of the projected sewage lagoon treatment facility it is considered that the demands of the Leduc region as a whole will be such that a regional type sewage collection and treatment facility will be required and that the Nisku Industrial Park will join a regional sewage collection system.



LEGEND

- 18" PROPOSED TRUNK MAIN
- - - - - PROPOSED FORCE MAIN
- PROPOSED LIFT STATION

COUNTY of LEDUC NO: 25
NISKU AREA STRUCTURE PLAN
SANITARY SEWERAGE SYSTEM

SCALE 1:30,000

STEWART, WEIR & Co.

PLAN 5

IX. STORM DRAINAGE ENGINEERING STUDY

EXISTING DRAINAGE

The site area encompasses about twelve square miles of land designated for development including the existing Nisku Industrial Park. This land occupies the major part of an area which drains eastward from a watershed lying approximately one-half mile west of Highway 2. Black Mud Creek and Saunders Lake are the receiving water bodies. The Black Mud has a minimal grade flowing north through the area, much of it in an excavated canal.

Water courses or small creeks at roughly half mile intervals are the main channels for storm drainage and are performing effectively without erosion. However there is evidence of channel erosion in some road allowance ditches.

Along Highway 2, Alberta Transportation has constructed a drainage channel which intercepts storm drainage from the International Airport. This drains north along the highway eventually reaching the Black Mud through a water course in the north part of the site area (Section 36).

The existing Nisku Industrial Park has been designed so as to utilize the road ditches and storage ponds for detention storage of storm water.

There is very little specific data available for run-off quantities in this Black Mud area. However on agricultural land it is estimated to range from 10 c.f.s. to 20 c.f.s. per square mile depending on topography.

STORM DRAINAGE MANAGEMENT OBJECTIVES

The objectives adopted are as follows:

1. To maintain satisfactory drainage of developed areas.
2. To minimize environmental damage and disturbance of the drainage regime in downstream agricultural areas.
3. To regulate discharge of storm waters into receiving areas to predevelopment levels.
4. To utilize surface drainage wherever possible.

STORM DRAINAGE MANAGEMENT PRINCIPLES

The major principle involved is detention storage of storm water by all means possible. This can start on site by adopting building design that can detain rain fall on roof tops. It can be extended to utilize parking areas, road ditches, ornamental ponds, treed areas and existing depression areas before resorting to the construction of downstream retention ponds.

If at each stage a few inches of water, occasionally a foot or two, can be detained, a more economical system will result with less capacity required of retention ponds. However, the outflow conduits or pipes must be properly sized in accordance with the amount of storage available and the allowable outflow rate.

Properly planned and landscaped, such a detention storage system will work well and give aesthetic value, even recreational benefits to the surrounding areas. A detailed drainage scheme for each stage of development should include drainage easements or parkways and preserve vegetation where possible.

ENGINEERING CRITERIA

1. To maintain a reasonable resemblance to predevelopment conditions, an outflow rate of 15 c.f.s. per square mile should not be exceeded after development.
2. An average run-off factor of 0.5 should be used for light industrial land with a lower level of services; 0.6 for the more fully serviced areas.
3. Detention storage ponds should be sized to detain a 25 year storm at an outflow rate of 15 c.f.s. per square mile.
4. A storm return period of five years should be used for sizing drainage culverts.

MANAGEMENT PLAN

For purposes of this management plan the site area is divided into five drainage zones. The existing county arterial roads and the industrial collector roads, existing or proposed, are used to define the boundaries of these zones. (Please refer to the Storm Drainage Plan No. 6). The requirements of each zone are examined in turn to provide acreage, run-off factor, storage requirement and allowable out flow rate.

Zoning 1 - Existing Nisku

Existing Nisku encompasses approximately 2 square miles of industrial land. In the design of these developments, provisions have been made for drainage of both developed and undeveloped areas in an overall drainage plan. Detention storage of 51 acre-feet has been provided to cover 810 acres of drainage area. The remaining 500 acres drains generally to the south ditch of Secondary Road 625. Since the existing Nisku Industrial Park has been designed to control the outflow rate to the desirable levels downstream, no further drainage facilities should be required in this area.

Zone 2 - Nisku North

Nisku North encompasses approximately 1,000 acres of land of which 320 acres have been developed as industrial sites. A temporary holding pond was built to detain local storm run-off midway at the east boundary of Section 25.

Two separate sub-drainage areas in Zone 2 are:

1. Drainage Area A including part of the existing industrial development.
2. Drainage Area B including the storm run-off of the highway portion and the remaining part of the existing industrial development.

Table 6 shows data on these sub-drainage areas.

TABLE 6
NISKU NORTH - DRAINAGE AREAS

Drainage Area	Approximate Contributory Area (acres)	Runoff Factor	Required Storage (Ac Ft)	Allowable Outflow Rate (c.f.s.)
A	480	0.5	41.0	11.25
B	520	0.5	46.0	57.15

Zone 3 - Nisku South

Nisku South encompasses 2.5 square miles. The proposed conceptual land use plan indicates that part of this area will be developed as commercial and premium industrial land.

The proposed roadways and the topography of the area form four prominent drainage areas. Their requirements are shown on Table 7 below.

TABLE 7
NISKU SOUTH - DRAINAGE AREAS

Drainage Area	Approximate Contributory Area (acres)	Runoff Factor	Required Storage (Ac Ft)	Allowable Outflow Rate (c.f.s.)
A	360	0.6	40.0	8.44
B	260	0.5	22.0	6.09
C	640	0.5	55.0	15.00
D	320	0.5	27.0	7.50

Zone 4 - Nisku West

Nisku West covers approximately 1.5 square miles between the north and south bound lanes of Highway 2. This area is proposed as prime industrial development. On the west boundary there is highway drainage ditch which leads the drainage north to Blackmud Creek.

Since Alberta Transportation has a detailed drainage scheme for this area, future development should not disturb the integrity of the highway drainage plan.

The designated drainage areas are:

1. Drainage Area A which covers the future industrial area.
2. Drainage Area B which covers the highway drainage.

TABLE 8
NISKU WEST - DRAINAGE AREAS

Drainage Area	Approximate Contributory Area (acres)	Runoff Factor	Required Storage (Ac Ft)	Allowable Outflow Rate (c.f.s.)
A	380	0.6	42.0	8.91
B	1920	TO BE DETERMINED		45.00

Zone 5 - Nisku East

Nisku East encompasses approximately four square miles of land dominated by small drainage courses. The location of downstream on-site ponds depends much on the proximity of the natural watercourse.

Six storage ponds are designated at strategic points to cover this area.

TABLE 9
NISKU EAST - DRAINAGE AREAS

Drainage Area	Approximate Contributory Area (acres)	Runoff Factor	Required Storage (Ac Ft)	Allowable Outflow Rate (c.f.s.)
A	400	0.5	35.0	9.38
B	400	0.5	35.0	9.38
C	320	0.5	27.0	15.94
D	550	0.5	48.0	18.98
E	640	0.5	55.0	30.00
F	320	0.5	27.0	15.00

X. FINANCE

COST ALLOCATION DIVISIONS

Costs applicable to land development and the provision of services can be allocated in the following manner:

Onsite Costs

Onsite costs refer to those costs incurred in the process of providing development of the subdivided lands within the subdivision area. Specifically, these costs include provision of water distribution mains and services; sanitary sewage collection mains and services; storm drainage facilities and services; roadways, including sidewalk, curb and gutter and pavement; and general site grading.

These costs can either be the total responsibility of the Developer with the ultimate cost reflected in the cost of the individual lots; or the County may assume some of the costs, i.e. sanitary sewerage system, and pass on the costs in terms of frontage assessment.

In the latter case, presumably the individual lot prices are lower and the cost of the local improvement is borne by the lot owner, but as a separate cost. This cost would reflect the reduced interest costs based on the difference between mortgage interest rates and the preferred interest rates municipalities can obtain in their municipal financing.

Offsite Costs

For simplicity, the costs deemed to be offsite costs are assumed to be those costs as defined eligible for "Offsite Cost Levy" as defined in The Planning Act, 1977, Part 4, Division 2 "Redevelopment and Offsite Levies and Development Conditions" a copy of which is attached as information.

Connecting Services Costs

Connecting services are deemed to be those municipal trunk services which are not eligible for inclusion under the terms of "Offsite Costs" but are required to be oversized and may require special installation conditions (i.e. deep sanitary trunk sewers) to serve relatively large areas of land and thus generally serve more than one subdivision development proposal.

ROLES OF COUNTY AND DEVELOPERS

Offsite Costs

Generally, the "offsite" costs are assumed by the municipality with costs recovered through senior government grants, offsite cost levies and local taxation revenues. The division of costs between offsite levies and the general County revenues will be based on the adoption of County policy and the following questions:

1. How much should existing residents and businesses contribute to new facilities when they have contributed to the County's existing system?

and

2. How much would new facilities benefit existing residences and businesses with higher standards of services?

Connecting Services Costs

The resolution of the distribution of "connecting services" costs and the roles that the County and Developer's assume is generally a more complex one.

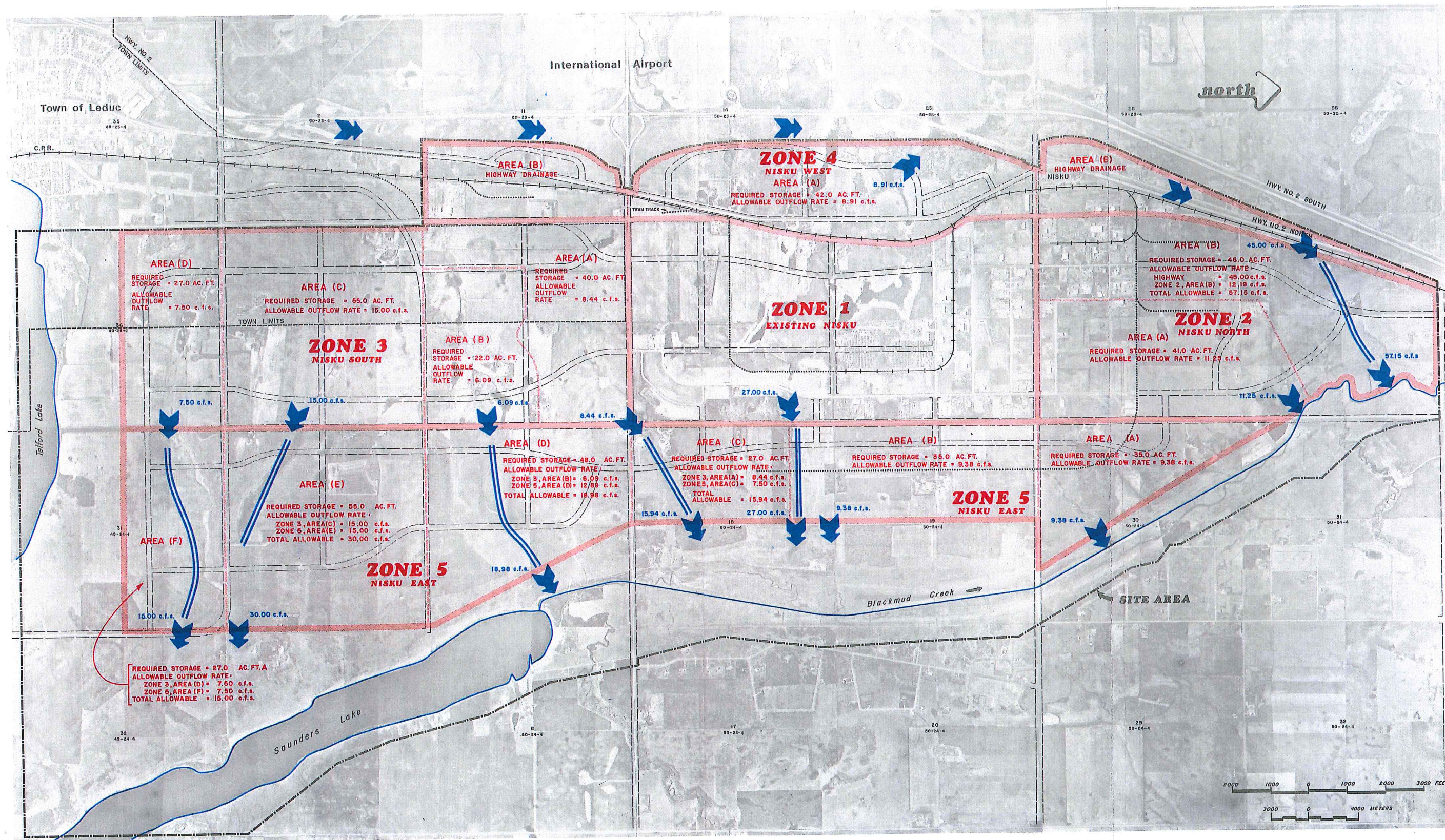
In cases where existing development benefits from new "connecting services", an approach that can be used would be similar to that used in the "offsite cost levies" where a "connection charge" can be assessed to new developments to recover a share of the construction costs, with the County front ending the financing.

However, in areas where "connecting services" are required to service new development, two potential solutions arise.





Developer Cost Sharing

In this case, the Developers would be required to front end all the costs associated with the installation of all connecting services through their individual properties. Then the County would assist the first developer(s) in obtaining reimbursement from all subsequent developers, through a pre-set cost sharing formula that would be included in all the development agreements.

The advantage to this approach is that the County would not be required to finance the connecting services projects with all costs being the responsibility of the developer. Thus, all the developers costs are passed on to the future lot owner.




LEGEND

-  DRAINAGE PARKWAY
-  DRAINAGE FLOW DIRECTION
-  ZONE BOUNDARY
-  AREA BOUNDARY

COUNTY of LEDUC NO: 25 **NISKU AREA STRUCTURE PLAN** **STORM DRAINAGE**

SCALE 1:30,000

 STEWART, WEIR & Co.

PLAN 6

A disadvantage is that all costs recovered by the Developer from subsequent developers would probably not be distributed to the property owners in the development but would go directly to the developer. Complications may arise if the initial developer is no longer in business nor available for some reason. Thus, subsequent developers may not have to contribute their "fair" share of costs as determined by the cost share formula.

County as Banker with Connecting Services Charge

Within this approach, the County would front end the cost of construction of the connecting services through or by one or more of the developers lands and would in turn charge back to the developers, at the time that they develop, a cost to connect to the service which is deemed to be their cost based on a preset formula.

An advantage to this option is that it eliminates the need for a cumbersome formula of cost sharing between developers which the County would necessarily have to administer. Also, all costs incurred by the County, including administration costs and interest charges could be recovered through the charges.

A disadvantage is the requirement of the County to add to its immediate debt loading in the process of front ending these costs and the added administrative work loads which would be imposed on the County staff.

DETERMINATION OF COST SHARING FORMULA

A variety of methods can be adopted in determining cost sharing formula, however, the two most accepted methods are based on area served and potential users demands. The area formula is applied by determining the new area served by any particular facility and dividing the total applicable cost by the area to determine a cost permit area. Each development is then assessed a cost based on its area of development.

The user formula is an extension of the area formula whereby the demands of a particular type of land use are recognized. Costs to developers are allocated according to land use and number of acres served compared to the total area and type of land use served.

Proposed Cost Share System

To provide for continuity of development in the Industrial Park area with equitable cost sharing between the existing and future tenants we would propose the following:

1. Developers continue to provide onsite services for roadways, water mains, etc. In future this would include sanitary sewers and roadway pavement.
2. The County continue to impose a reasonable offsite levy to be used for water supply and storage facilities plus limited sanitary sewage treatment and disposal facilities.
3. The County finance the construction of a sanitary sewage collection system, improved sewage treatment and disposal facilities, pavement and other local improvements that may be required in the established Park area by means of debenture issue to be repaid by way of a local improvement tax assessment.
4. The County finance the construction of arterial roads by way of debenture issue to be repaid by way of general and local tax assessment.
5. The County develop a connecting service charge to provide for sharing of cost of service between established and future developments.

XI. IMPLEMENTATION AND PHASING

This chapter contains a brief review of steps that can be taken in the implementation of this plan and a recommended phasing of development.

IMPLEMENTATION

1. Under the Planning Act, this plan could be adopted by bylaw in its own right as an area structure plan (Section 62). Alternatively it could be incorporated in the General Municipal Plan for the County and adopted in that manner (Section 59).

In both cases the procedures related to public hearings and input would have to be observed as outlined in Sections 135 and 136 of the Planning Act.

After adoption of the plan, the Council could pass land use bylaws giving effect to the plan. Following this there would be various specific steps taken to protect the integrity of the plan such as the caveating of land where road widenings, internal collector roads, utility easements, etc. will be required.

2. There are also some steps of a technical and planning nature that would be required for effective implementation of the Plan.
 - (a) Commissioning of a transportation study as recommended in Chapter 6 for the purpose of sizing major arterial roads, dealing with possible intersection problems and timing of major improvements.
 - (b) Require an overall conceptual design plan for the proposed regional service centre on Airport Road. This should be prepared preferably by urban design specialists and based on studies of the land use requirements of all the various facilities which will be needed. Thus the place of individual building and development proposals within a larger setting will be known and the successful overall functioning of the centre can be assured.
 - (c) Initiation of detailed design and construction estimates for the trunk sewer and additional treatment facilities necessary for the regional service centre and premium industrial areas.

PHASING

The over-riding consideration is to avoid a pattern of piece meal or leapfrogging development in which costly extensions of utility services have to be made resulting in underutilization of the services and minimal returns of tax revenue.

While it is not always feasible to develop in a linear manner starting from one end of an area and proceeding by steps to the other, the growth areas should be minimized.

The County should continue with its present policy of not approving new development proposals until the land utilization in previously approved areas is 60% complete.

RECOMMENDED ORDER OF DEVELOPMENT

1. Development should be contained within the present industrial areas namely Sections 13, 24 and 25, also parts of Sections 11 and 14, east of C.P.R. line, with possible commencement of Airport Road regional service centre provided services are available and conceptual urban design plan is adopted.
2. Commence development of major regional service centre on Airport Road and of premium industrial areas around this centre and also adjacent to Highway 2. This covers Sections 12, 11, 14, and 23.

At the North end light industrial and extensive storage type developments in Secs. 25, 36, 30 and 19. Servicing could possibly be done in conjunction with adjacent industrial areas of the County of Strathcona.

3. This area in the south and southeast comprising parts or the whole of Sections 18, 7, 6, 21, 1, 36 and 31 would be held as reserve industrial land.



County of Leduc No. 25

NISKU AREA STRUCTURE PLAN

OCTOBER, 1981



Amendment



STEWART, WEIR & Co.

Nisku Area Structure Plan

Bylaw No.	Date	
Motion 1064-81	July 16, 1981	Amended Plan to Include 2 changes recommended by Transportation
Bylaw 32-97	Nov. 14, 1997	Zoning change from "Premium Ind." To Regional Service Centre.
Bylaw 16-99	Apr. 13, 1999	Expanding of Plan Boundaries
Bylaw 4-00	Mar. 7, 2000	Zoning change from Regional Service Centre to Premium Industrial
Bylaw 7-00	Jun. 13, 2000	Removal of lands surrounding Saunders Lake from Nisku ASP
Bylaw 8-00	Jun. 13 2000	Removal of lands that became Nisku West ASP
Bylaw 12-00	Mar. 14 2000	Revised text to permit gambling establishments
Bylaw 1-04	Feb. 3, 2004	Removal of lands that became Blackmud Creek ASP

BY-LAW NO. 32-97

COUNTY OF LEDUC NO. 25

A BY-LAW OF THE COUNTY OF LEDUC NO. 25, IN THE PROVINCE OF ALBERTA,
TO AMEND THE NISKU AREA STRUCTURE PLAN BY-LAW NO. 1404-79.

WHEREAS the Council of the County of Leduc No. 25 deems it to be in the public interest to amend the Nisku Area Structure Plan By-Law No. 1404-79;

NOW THEREFORE be it resolved that the Council of the County of Leduc No. 25, duly assembled, hereby enacts that By-Law No. 1404-79 be amended as follows:

1. That PLAN 2 - FUTURE LAND USE be amended by changing the designation of Lots 4 and 5, Block 19, Plan 792 2576 in the S.W. 13-50-25-W4th from "Premium Industrial" to "Regional Service Centre", as shown in Schedule A.

This By-Law shall take effect on the date of the third reading.

Read a first time this 14th day of November, A.D., 1997.

Read a second time this 14th day of November, A.D. 1997.

Read a third time with the unanimous consent of the Council Members present and finally passed this 14th day of November, A.D. 1997.

W. J. Reeve

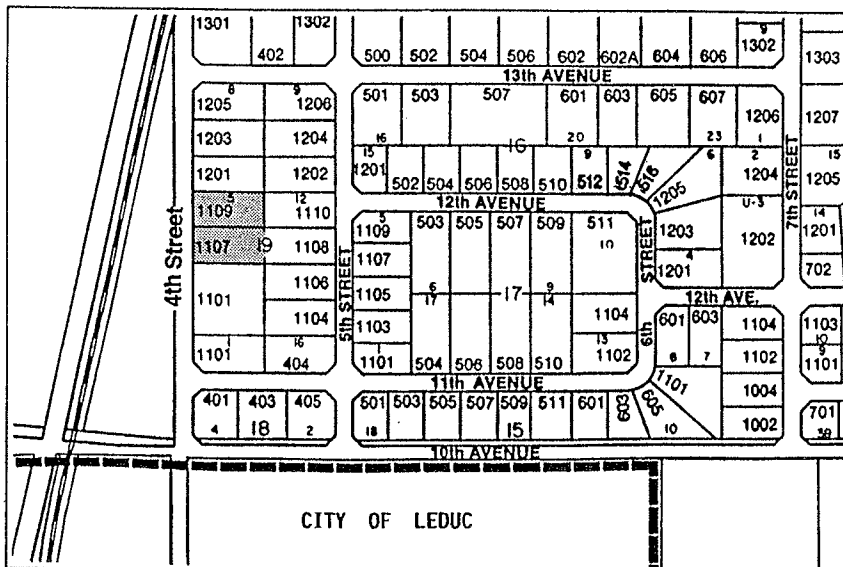
REEVE

SEAL

W. J. Reeve
COUNTY MANAGER

Schedule "A" - Bylaw # 32 - 97

Proposed Amendment to the Nisku Area Structure Plan
(Plan 2 - Future Land Use)
Lots 4 & 5, Block 19, Plan 792 2576 (Pt. of SW 13-50-25-W4th)
(1107, 1109 - 4th Street, Nisku)



CITY OF LEDUC



From: PREMIUM INDUSTRIAL
To: REGIONAL SERVICE CENTRE

BY-LAW NO. 16-99

LEDUC COUNTY

**A BY-LAW OF LEDUC COUNTY, IN THE PROVINCE OF ALBERTA, TO AMEND
THE NISKU AREA STRUCTURE PLAN BY-LAW NO. 1404-79.**

WHEREAS the Council of Leduc County deems it to be in the public interest to amend the Nisku Area Structure Plan By-Law No. 1404-79;

NOW THEREFORE be it resolved that the Council of Leduc County, duly assembled, hereby enacts that By-Law No. 1404-79 be amended as follows:

1. That Plan 2 - Future Land Use be amended by:
 - (a) expanding the plan boundaries to include a portion of the N.W. 31-50-24-W4th, as outlined on the attached Schedule "A", and designate this land as LIGHT INDUSTRIAL.

This By-Law shall take effect on the date of the third reading.

Read a first time this 13th day of April, A.D., 1999.

Read a second time this 13th day of April, A.D. 1999.

Read a third time with the unanimous consent of the Council Members present and finally passed this 13th day of April, A.D. 1999.

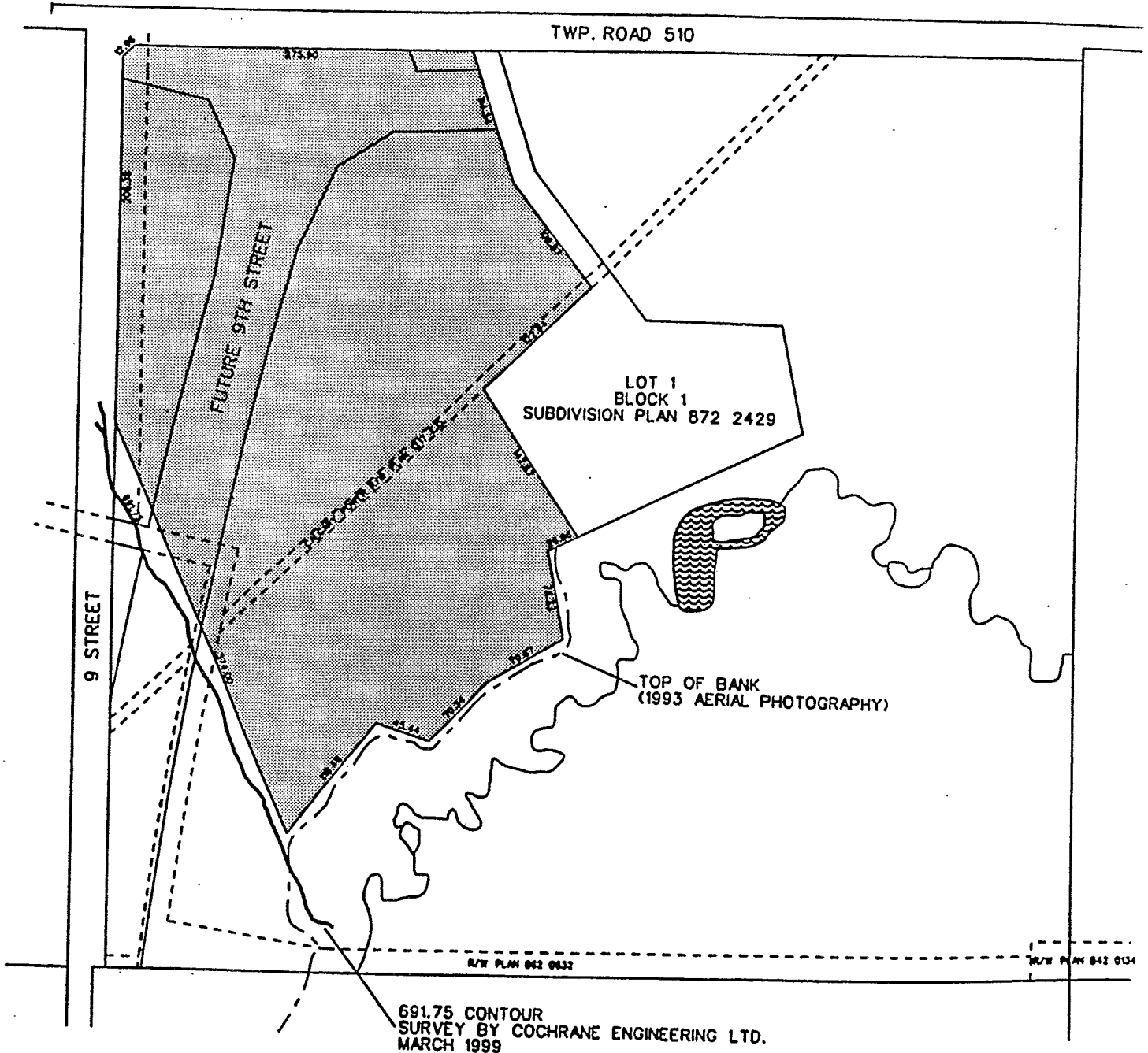

REEVE

SEAL


COUNTY MANAGER

BYLAW NO. 16-99

"Schedule A"



To LIGHT INDUSTRIAL

BY-LAW NO. 4-00

LEDUC COUNTY

A BY-LAW OF LEDUC COUNTY, IN THE PROVINCE OF ALBERTA, TO AMEND
THE NISKU AREA STRUCTURE PLAN BY-LAW NO. 1404-79.

WHEREAS the Council of Leduc County deems it to be in the public interest to amend the Nisku Area Structure Plan By-Law No. 1404-79;

NOW THEREFORE be it resolved that the Council of Leduc County, duly assembled, hereby enacts that By-Law No. 1404-79 be amended as follows:

1. That Plan 2 - Future Land Use be amended by changing the designation of Lots 12, 13, 14, 15 and 16, Block 17, Plan 792 2576 in the S.W. 13-50-25-W4th from Regional Service Centre to Premium Industrial, as shown in Schedule "A".

This By-Law shall take effect on the date of the third reading.

Read a first time this 7th day of March, A.D., 2000.

Read a second time this 7th day of March, A.D. 2000.

Read a third time with the unanimous consent of the Council Members present and finally passed this 7th day of March, A.D. 2000.

Edward Bluska
REEVE

SEAL

Kenneth J. S. S. S.
COUNTY MANAGER

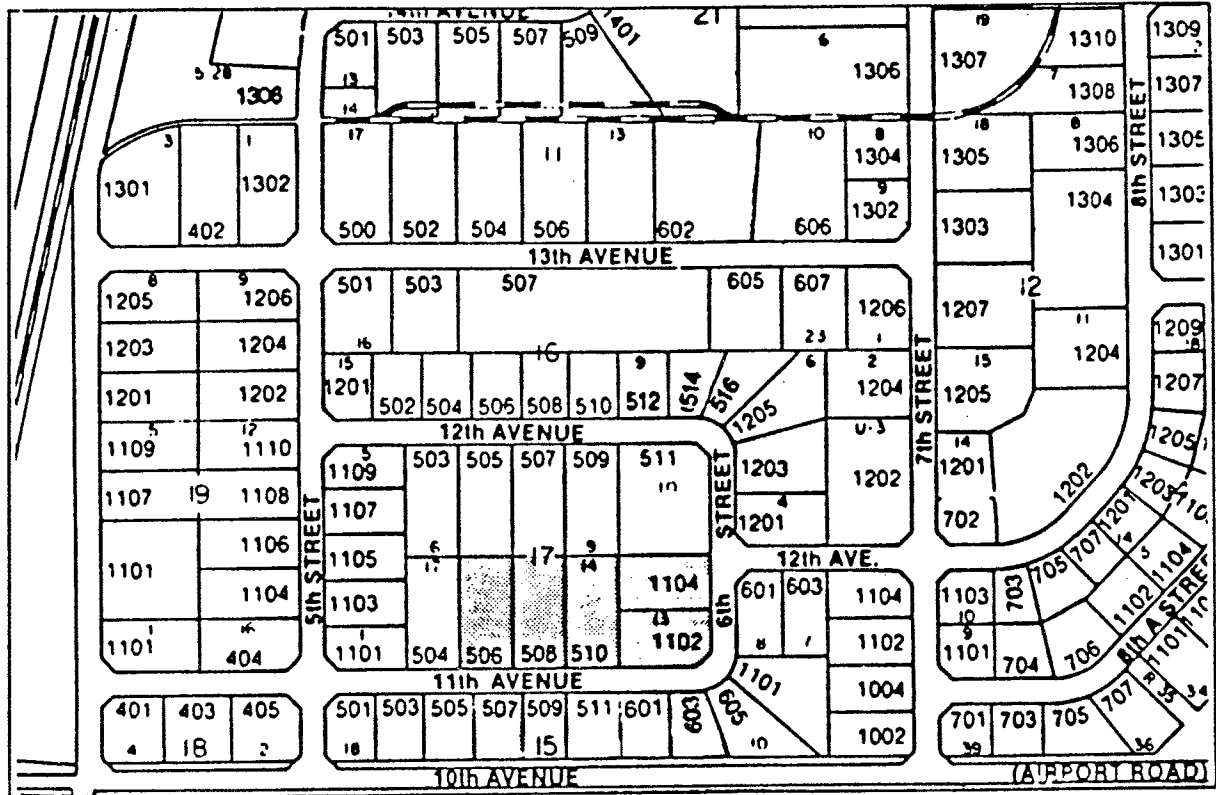
BY-LAW NO. 4-00

SCHEDULE A

Proposed Amendment to the Nisku Area Structure Plan Bylaw No. 1404-79

Plan 2 - Future Land Use

Lots 12 - 16 Block 17 Plan 792 2576 (Pt. of SW 13-50-25 W4)



From: Regional Service Centre
To: Premium Industrial

BY-LAW NO. 12-00

LEDUC COUNTY

A BY-LAW OF LEDUC COUNTY, IN THE PROVINCE OF ALBERTA, TO AMEND
THE NISKU AREA STRUCTURE PLAN BY-LAW NO. 1404-79.

WHEREAS the Council of Leduc County deems it to be in the public interest to amend the Nisku Area Structure Plan By-Law No. 1404-79;

NOW THEREFORE be it resolved that the Council of Leduc County, duly assembled, hereby enacts that By-Law No. 1404-79 be amended as follows:

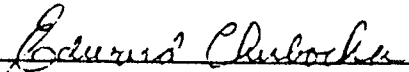
1. That Section V, referencing "the future pattern of land use proposed as in Plan No. 2," be amended in point 1 by adding the words "and may include gambling establishments" to the sentence "It should provide substantial hotel accommodation, office space, shopping facilities, and support services."

This By-Law shall take effect on the date of the third reading.

Read a first time this 14th day of March, A.D., 2000.

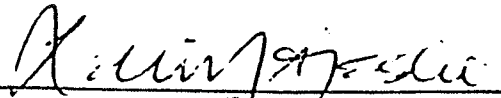
Read a second time this 14th day of March, A.D. 2000.

Read a third time with the unanimous consent of the Council Members present and finally passed this 14th day of March, A.D. 2000.



REEVE

SEAL



COUNTY MANAGER

BY-LAW NO. 7-00

LEDUC COUNTY

**A BY-LAW OF LEDUC COUNTY, IN THE PROVINCE OF ALBERTA, TO AMEND
THE NISKU AREA STRUCTURE PLAN ADOPTING BY-LAW NO. 1404-79.**

WHEREAS the Council of Leduc County deems it to be in the public interest to amend the Nisku Area Structure Plan By-Law No. 1404-79;

NOW THEREFORE be it resolved that the Council of Leduc County, duly assembled, hereby enacts that By-Law No. 1404-79 be amended as follows:

1. That those lands shown as Schedule A that is attached to and forms part of this By-Law, be removed from the Plan.

This By-Law shall take effect on the date of the third reading.

Read a first time this 14th day of March, A.D., 2000.

Edward Shubocka
REEVE

S E A L

Kelvin Pjesslow
COUNTY MANAGER

Read a second time this 13th day of June, A.D. 2000.

Read a third time and finally passed this 13th day of June, A.D. 2000.

Edward Shubocka
REEVE

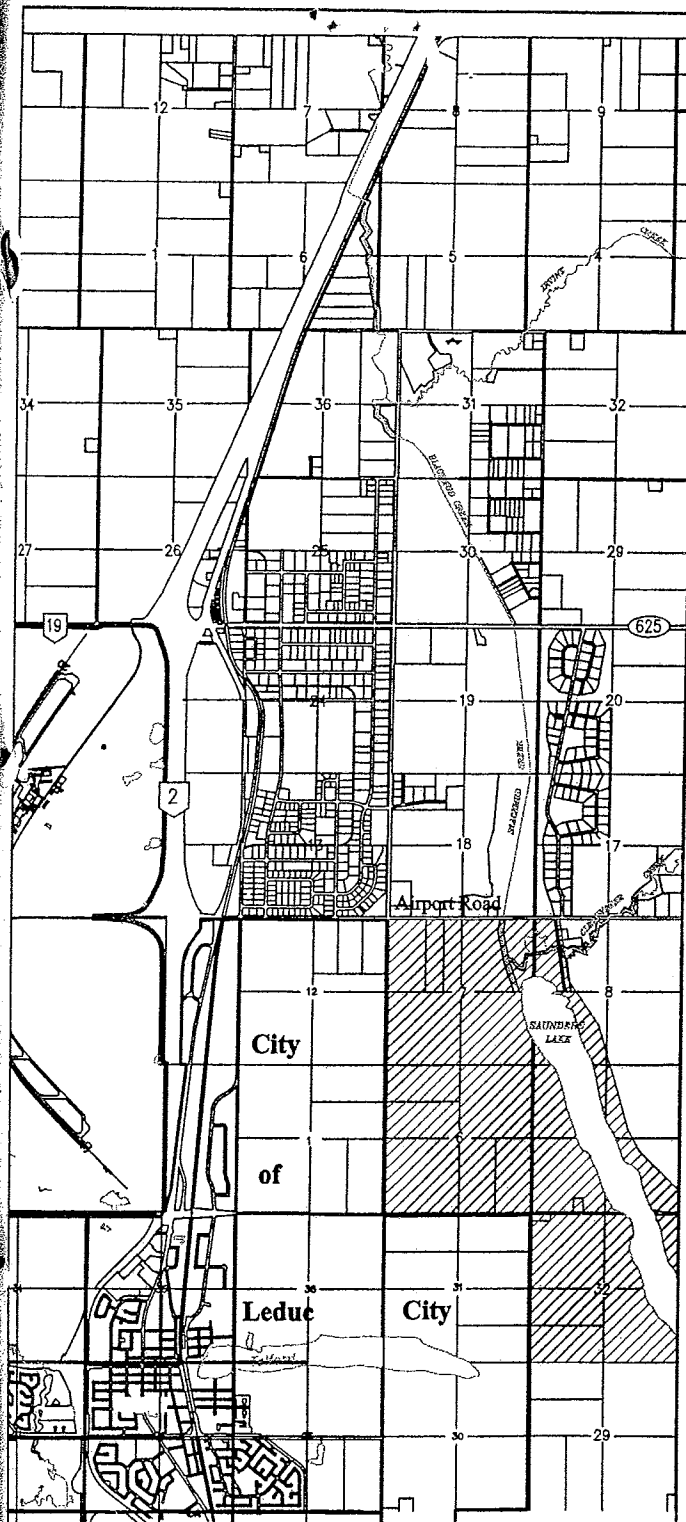
S E A L


Kelvin Pjesslow
COUNTY MANAGER

Leduc County
Nisku
Area Structure Plan

Proposed
Amendment

Bylaw No. 7-00



 Delete from Nisku Area Structure Plan

March __, 2000

BY-LAW NO. 8-00

LEDUC COUNTY

A BY-LAW OF LEDUC COUNTY, IN THE PROVINCE OF ALBERTA, TO AMEND
THE NISKU AREA STRUCTURE PLAN ADOPTING BY-LAW NO. 1404-79.

WHEREAS the Council of Leduc County deems it to be in the public interest to amend the Nisku Area Structure Plan By-Law No. 1404-79;

NOW THEREFORE be it resolved that the Council of Leduc County, duly assembled, hereby enacts that By-Law No. 1404-79 be amended as follows:

1. That those lands shown as Schedule A that is attached to and forms part of this By-Law, be removed from the Plan.

This By-Law shall take effect on the date of the third reading.

Read a first time this 14th day of March, A.D., 2000.

Edward Chubocha

REEVE

SEAL

William J. J. J.

COUNTY MANAGER

Read a second time this 13th day of June, A.D. 2000.

Read a third time and finally passed this 13th day of June, A.D. 2000.

Edward Chubocha

REEVE

SEAL

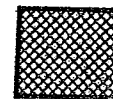
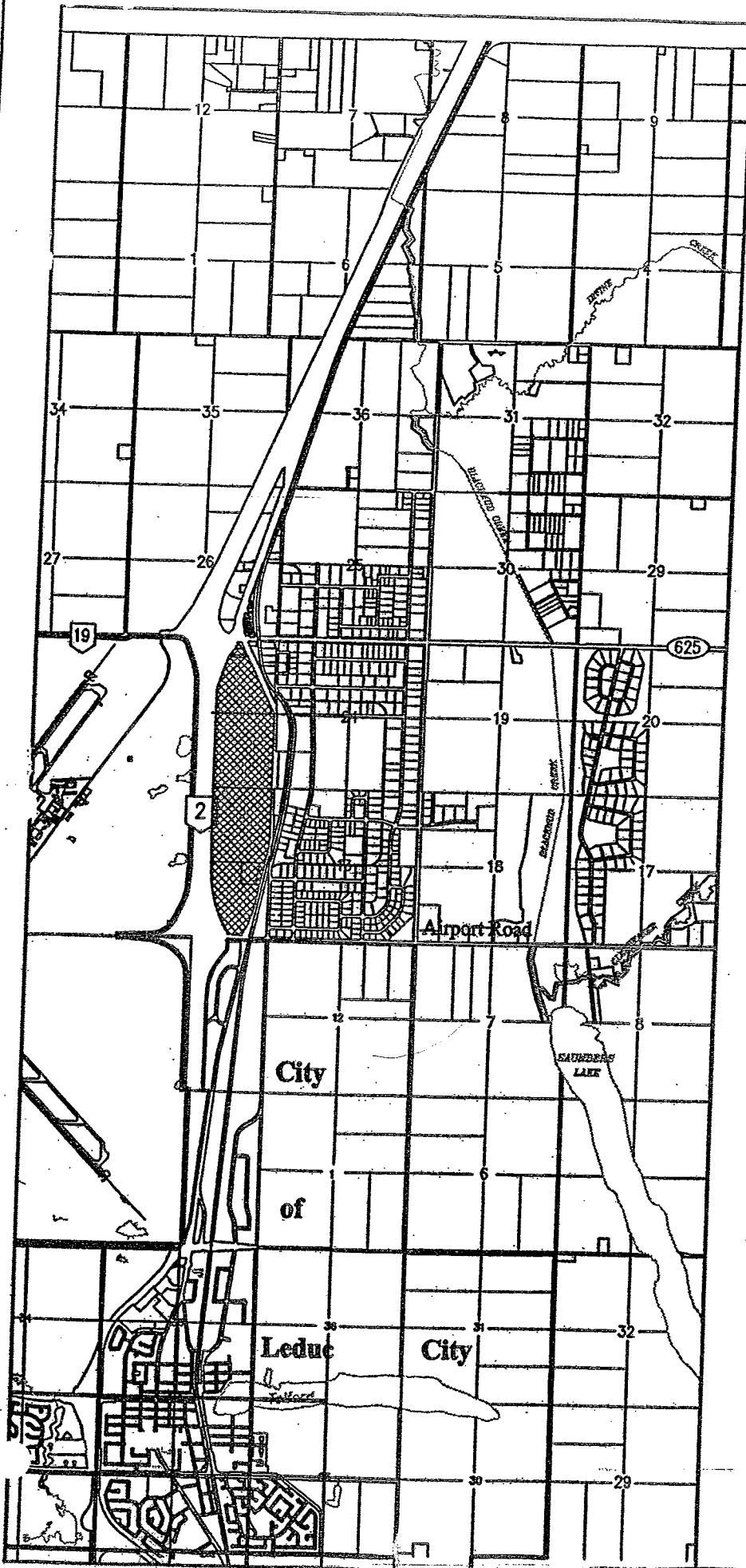
William J. J. J.

By-Law No. 8-00
Schedule "A"

Leduc County Nisku Area Structure Plan

Proposed Amendment

Bylaw No. 8 -00



Delete from Nisku Area
Structure Plan

March __, 2000

BY-LAW NO. 1-04

LEDUC COUNTY

**A BY-LAW OF LEDUC COUNTY, IN THE PROVINCE OF ALBERTA, TO AMEND THE
NISKU AREA STRUCTURE PLAN BY-LAW NO. 1404-79.**

WHEREAS the Council of Leduc County deems it to be in the public interest to amend the Nisku Area Structure Plan By-Law No. 1404-79;

NOW THEREFORE, be it resolved that the Council of Leduc County, duly assembled, hereby enacts that the Nisku Area Structure Plan By-Law No. 1404-79 be amended as follows:


1. That all of those lands within the east halves of Sections 18 and 19, and portions of the west halves of Sections 17 and 20, all within Township 50, Range 24, West of the 4th Meridian, as shown on Schedule A that is attached to and forms part of this By-Law, be removed from the Plan.

This By-Law shall take effect on the date of the third reading.

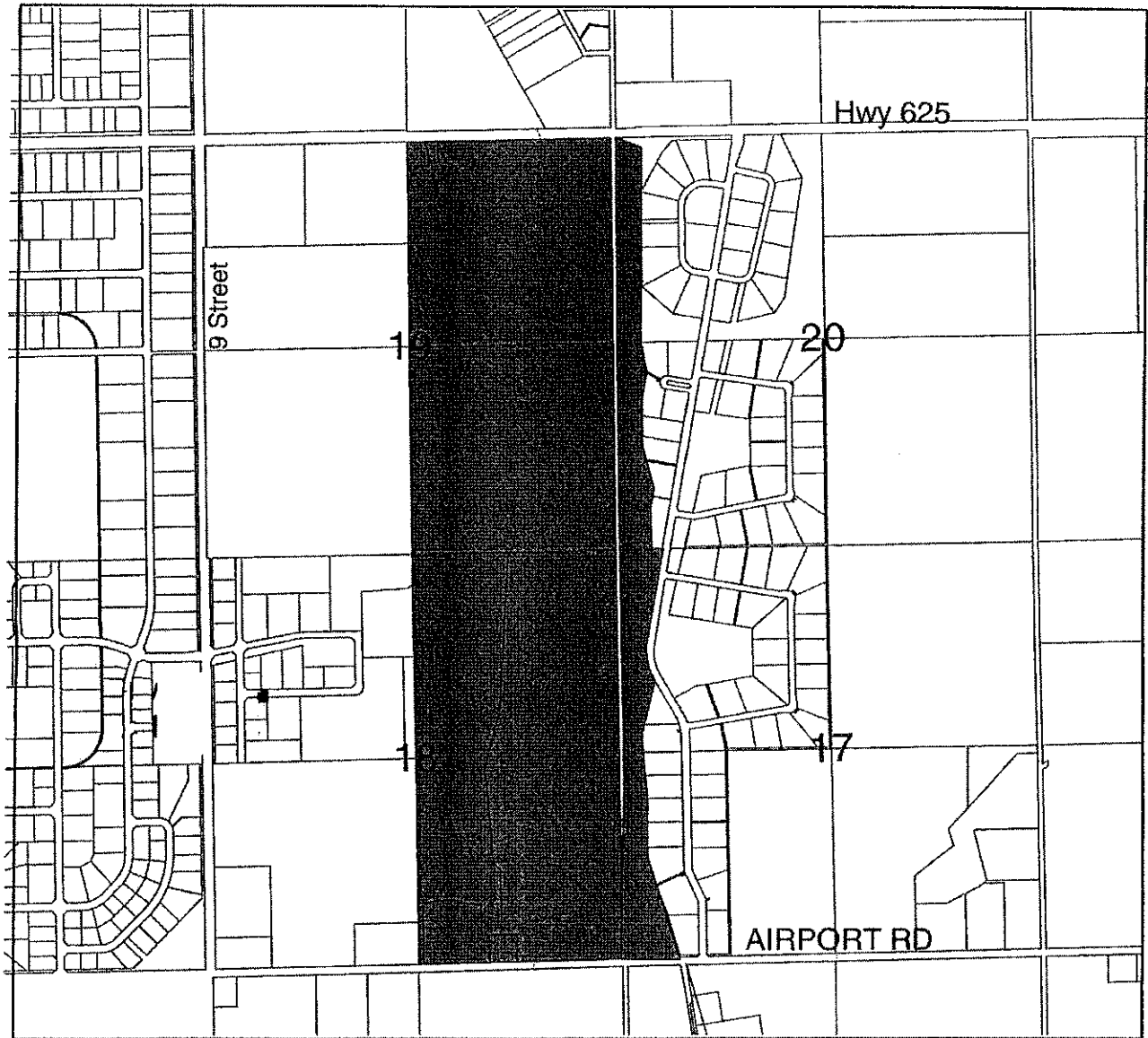
Read a first time this 3rd day of February, 2004.

Read a second time this 3rd day of February, 2004.

Read a third time with the unanimous consent of the Council Members present and finally passed this 3rd day of February, 2004.


REEVE


COUNTY MANAGER



To be Removed from Nisku Area Structure Plan

SCHEDULE A
Amendment to
Leduc County
Nisku ASP

Lo Co