Castle Downs Extension Area Structure Plan

Office Consolidation September 2005

Prepared by:

Planning and Policy Services Branch
Planning and Development Department
City of Edmonton

Bylaw 7361 (as amended) was adopted by Council in November 1983. In September 2005, this document was consolidated by virtue of the incorporation of the following bylaws:

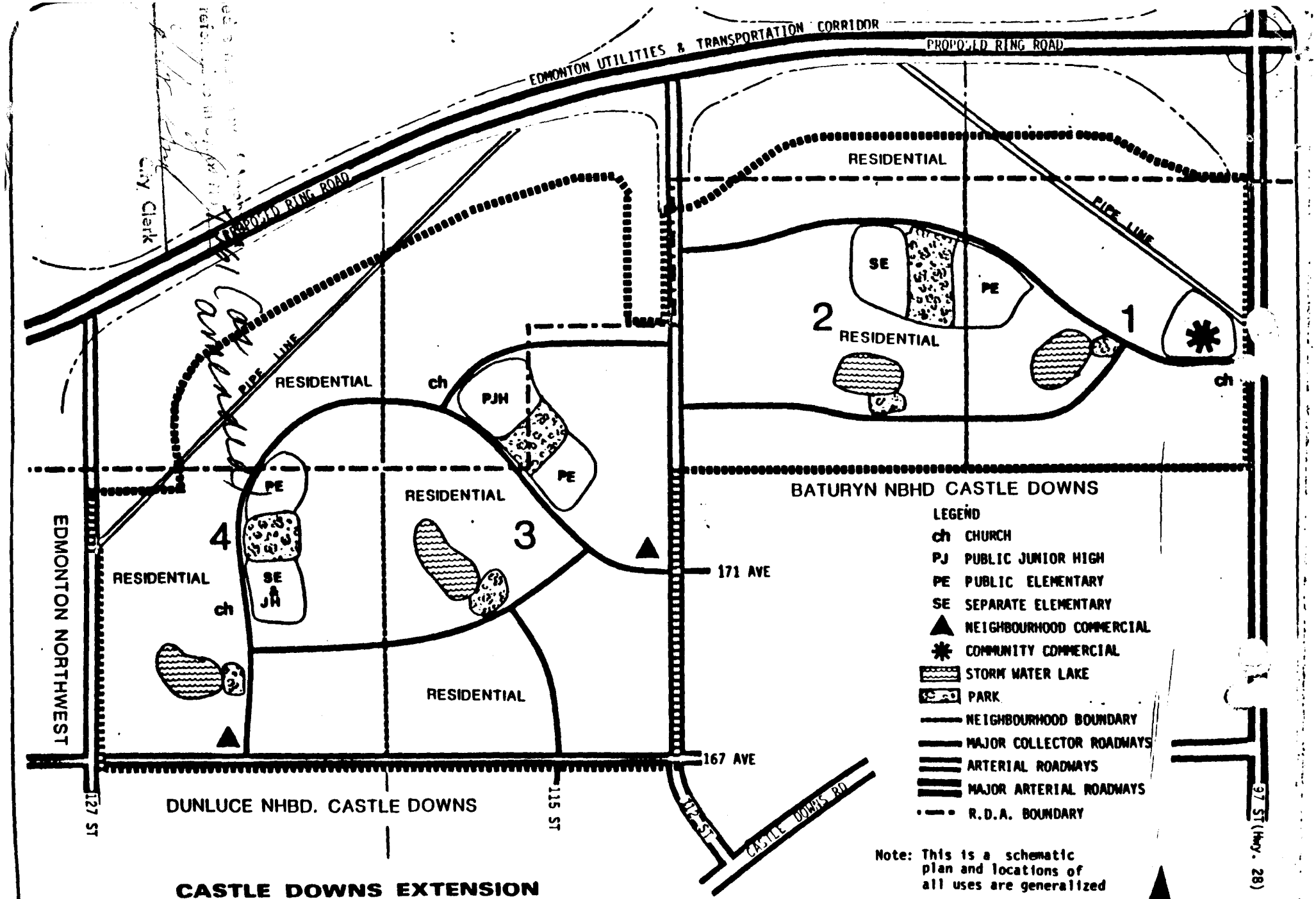
Bylaw 7361 Approved November 15, 1983 (to adopt the Castle Downs Extension Area Structure Plan)

Editor's Note:
This is an office consolidation edition of the Castle Downs Extension Area Structure Plan, Bylaw 7361, as approved by City Council on November 15, 1983.

For the sake of clarity, new maps and a standardized format were utilized in this Plan. All names of City departments have been standardized to reflect their present titles. Private owners' names have been removed in accordance with the Freedom of Information and Protection of Privacy Act. Furthermore, all reasonable attempts were made to accurately reflect the original Bylaws. All text changes are noted in the right margin and are italicized where applicable.

This office consolidation is intended for convenience only. In case of uncertainty, the reader is advised to consult the original Bylaws, available at the office of the City Clerk.

City of Edmonton
Planning and Development Department



CASTLE DOWNS EXTENSION AREA STRUCTURE PLAN

BYLAW 7361

APPENDIX A

CASTLE DOWNS EXTENSION AREA STRUCTURE PLAN

CITY OF EDMONTON

BYLAW NO. 7361
(AS AMENDED)

Certified a true copy of ... as ... 7361 (as amended)

City Clerk

Prepared for Two Private Corporations
(Amended by Editor)

ASSOCIATED ENGINEERING SERVICES LTD AESL

CASTLE DOWNS EXTENSION AREA STRUCTURE PLAN

PREPARED FOR

2 Private Corporations
(Amended by Editor)

PREPARED BY

ASSOCIATED ENGINEERING SERVICES LTD.
EDMONTON, ALBERTA

AUGUST, 1983

ASSOCIATED ENGINEERING SERVICES LTD 13140 - ST. ALBERT TRAIL, EDMONTON, ALBERTA, T5L 4R8. TEL. (403) 453-81 11. TELEX. 037-233

May 9, 1983 File:
AA83

City of Edmonton
Planning Department
12th Floor, Phipps McKinnon Building
Edmonton, Alberta
T5N 3G2

Attention: Mr. Douglas Lychak, MCIP General Manager

Dear Mr. Lychak:

RE: Castle Downs Extension
Area Structure Plan

Further to our submission of an Area Structure Plan proposal in March 1982, we are pleased to resubmit for your review and approval, a revised plan for the Castle Downs Extension Area. This plan is submitted on behalf of *two private corporations*.

Amended by Editor

Although our initial plan submission of March 1982 was sufficient to effect a separation of the Castle Downs Extension Area from the Edmonton Northwest Area, the Plan lacked sufficient detail to be approved as an Area Structure Plan.

The subject plan satisfies the Term of Reference for Area Structure Plan preparation and we believe that this plan establishes a sound basis for approval of a development concept for the Castle Downs Extension area. The plan submission also satisfies a majority of owners endorsement requirement as the combined land holding of Wimpey Western Limited and Groveridge Imperial Properties Ltd. exceeds 50% of the plan area.

We look forward to discussing the contents of the plan with your staff and other municipal, regional and provincial departments associated with the review process.

Yours very truly,

ASSOCIATED ENGINEERING SERVICES LTD.

Wayne Quinn

Wayne Quinn, B.A. (Hons)
Project Manager

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EXECUTIVE SUMMARY

1.1 Introduction

Castle Downs Extension is the area located immediately north of the existing Castle Downs community.

Contained on three sides by proposed major transportation corridors, this recently annexed area which extends north to the expanded city limits, is a natural extension of the Castle Downs community (Figure 1).

The northern limit of the existing Castle Downs community (Stage 1, 1973) was determined by three major factors in effect at that time. These were:

- the northern boundary coincided with the City limits
- the influence of Namao Airport restrictions did not allow residential development in the plan area, and,
- the Parkway ring road alignment was proposed to be located within the plan area.

None of the above circumstances now exist as development constraints.

Annexation of the Plan Area to the City (effective January 1, 1982) created the opportunity for additional development of residential land. The recommendation of the Urban Growth Strategy Report to allow Area Structure Plan preparation to commence in early 1982 recognized the imminence of development in the Plan Area immediately adjacent to the existing community of Castle Downs.

Development of the Plan Area will also promote effective utilization of existing soft services (schools, parks, town centre, police and fire protection) and utility and hard services infrastructure (roads, storm system, sanitary system, waterworks), thereby effecting substantial cost saving to the City of Edmonton in the delivery of essential services.

The initial area structure plan (ASP) report (entitled Castle Downs North) was submitted to the planning department on March 31, 1982, and circulated to various civic departments. Several departmental comments were received on the first submission. This final Plan addresses comments documented in the planning department's response letter dated August 19, 1982 and further comments received after the June, 1983 recirculation of the revised plan.

A slight reduction of the northern boundary of the Plan Area has occurred resulting from updated information received through Alberta Environment. The revision affects Neighbourhoods 3 and 4, which have been reduced by approximately 10 hectares (25 acres). The reduced area now encompasses 357.64 gross area.

It is recognized that lands presently within the Restricted Development Area (RDA) may be declared "surplus lands" which would have the effect of altering neighbourhood population sizes, as well as the size of school sites and parks. These lands are described in greater detail within the context of this Area Structure Plan, and in separate tables included in the appendices.

1.2 Objectives

The objective of this document is to present an Area Structure Plan which:

- is in conformance with General Plan policies and those policies of the Urban Growth Strategy adopted by City Council
- is based on known facts relative to the existing Castle Downs community
- evaluates the major factors influencing development of the Plan Area in the overall context of the City of Edmonton
- proposes land use compatible with the existing community and adjacent land uses
- adheres to all relevant City policies and guidelines relating to the preparation and submission of Area Structure Plans.

The Plan is referred to hereafter as the Castle Downs Extension Area Structure Plan.

1.3 Land Use

Castle Downs Extension proposes predominantly residential land use. Other uses include parks and open space and institutional and commercial land use in support of residential development, all of which are essential to the daily well being of neighbourhood residents. The proposed land use is in conformance with policies stated in both the City's Urban Growth Strategy and General Municipal Plan.

1.4 Development Concept

The development concept is based on the intended land uses. The proposed development concept will accommodate a residential population of approximately 21,900 persons. Development will be supported by a high standard service infrastructure and community services.

The development concept substantiates the following:

- The Plan Area is a well defined urban planning unit of the newly annexed area, which is a timely and practical completion of the existing development of Castle Downs.
- The Plan Area is serviceable to the extent that early development can take place
- Timely approval of the first phases of development will permit development of moderately priced residential lots available for housing construction.

1.5 Conclusion

The Castle Downs Extension Area Structure Plan presents a planning and servicing rationale which demonstrates the opportunity for a northward extension of the existing community of Castle Downs. The Plan is compatible with adjacent land uses.

Significant input to this Plan has also been received through working meetings and written comments from the various City Departments and other agencies following the March, 1982 submission.

II

PLANNING CONTEXT

SECTION II

PLANNING CONTEXT

This section highlights the policy and administrative factors influencing development of the Plan Area. The urban context of the plan area is shown in Figure 1.

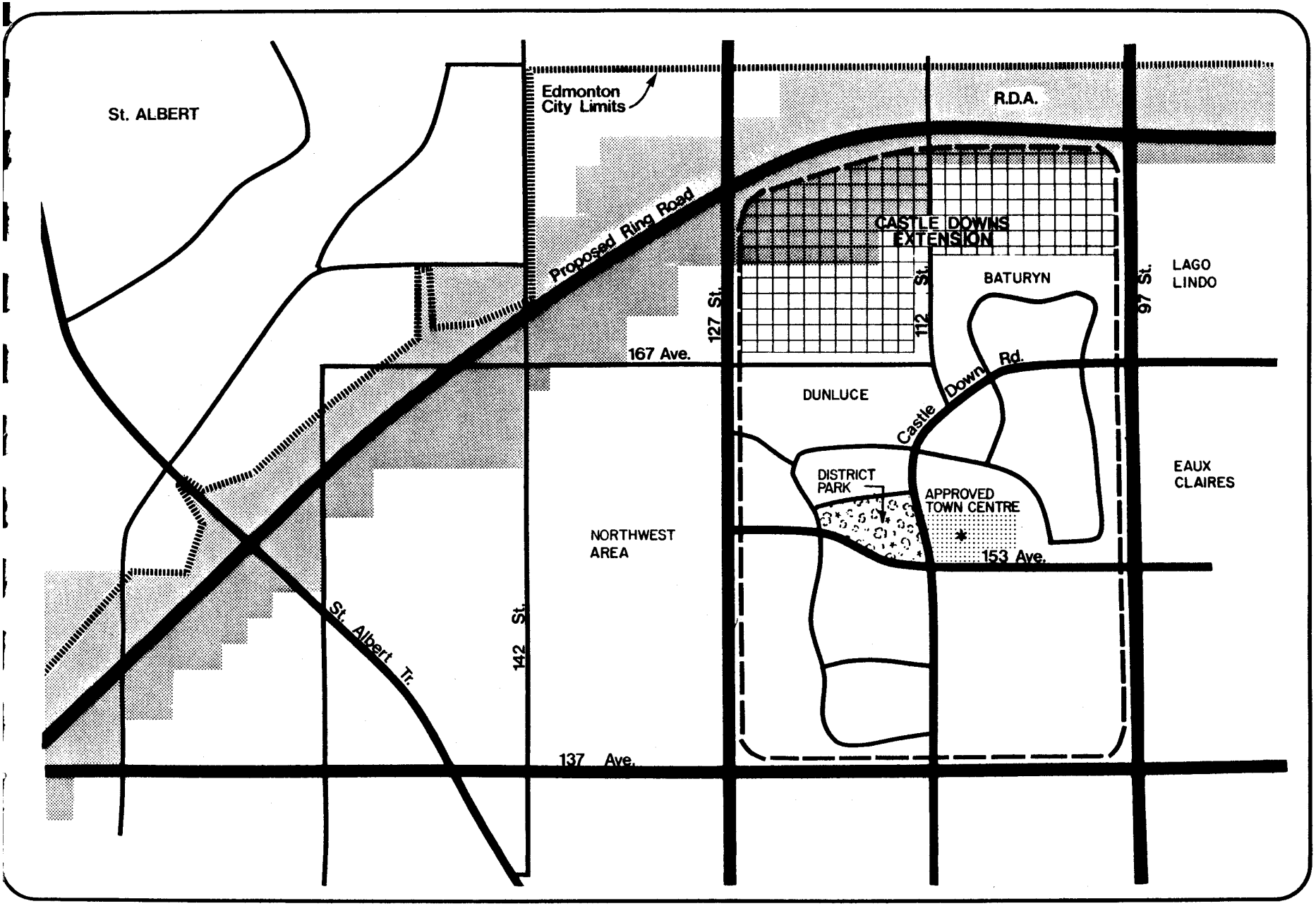
2.1 Preliminary Regional Plan - Metropolitan Part (PRP - Metro Part)

The Plan Area was recently annexed to the City of Edmonton (effective January 1, 1982), and is presently designated agricultural under the PRP - Metro Part. The Urban Growth Strategy report, adopted by City Council, proposes that the land use designation be changed to permit General Urban uses. The Edmonton Metropolitan Regional Planning Commission (EMRPC) has adopted an amendment to the PRP-Metro Part (Amendment #1170) endorsing thier support of residential land uses for the Plan Area.

2.2 General Municipal Plan

The subject area was not within the City boundaries when the General Municipal Plan was adopted in October, 1980. An urban land use strategy for the Castle Downs Extension planning area was, therefore, not included.

Subsequently the Urban Growth Strategy Study recommended that certain lands within the newly annexed areas around the City of Edmonton be allowed to proceed. The Castle Downs Extention area was included as part of those lands for which Area Structure Plans could be prepared in 1982.



CASTLE DOWNS EXTENSION AREA STRUCTURE PLAN

URBAN CONTEXT

Plan Area

Castle Downs

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The Castle Downs Extension area was identified as an area structure plan area, which could be formally recognized by an amendment to the General Municipal Plan. City Council adopted the amending By-law #6904 on November 23, 1982.

2.3 Land Use By-law

Edmonton's Land Use By-law #5996 has not been amended to include this portion of the annexed area. In the interim, the M.D. of Sturgeon land use by-law is in effect which identifies the present re-districting under an agricultural category. Re-districting will occur at the more detailed planning stages.

2.4 Restricted Development Area (RDA)

A portion of the Plan Area is located within the RDA, established by the Province of Alberta in 1974. The stated purpose of the RDA was the creation of a corridor for major transportation and utility trunk lines around the City of Edmonton (as illustrated on Figure 2).

Public acquisition of RDA lands followed section lines or property boundaries to simplify land assembly.

The establishment of the proposed Ring Road and utility right of way alignments will define those residual lands which may he released for general land use (similar to Millwoods and Pilot Sound Area Structure Plan). A brief description on the future disposition of the RDA lands is outlined in the Development Concept section of the Plan, which has been discussed at length and supported by Alberta Environment staff.

Finalization of alignments will be resolved at the Neighbourhood Structure Plan and Subdivision Plan stage.

2.5 Namao Airport Protection Area

The Castle Downs Extension area is affected to a negligible extent by the Canadian Forces Base (CFB), Edmonton, Namao. The two restrictions which will affect this area are the height of the buildings and noise control.

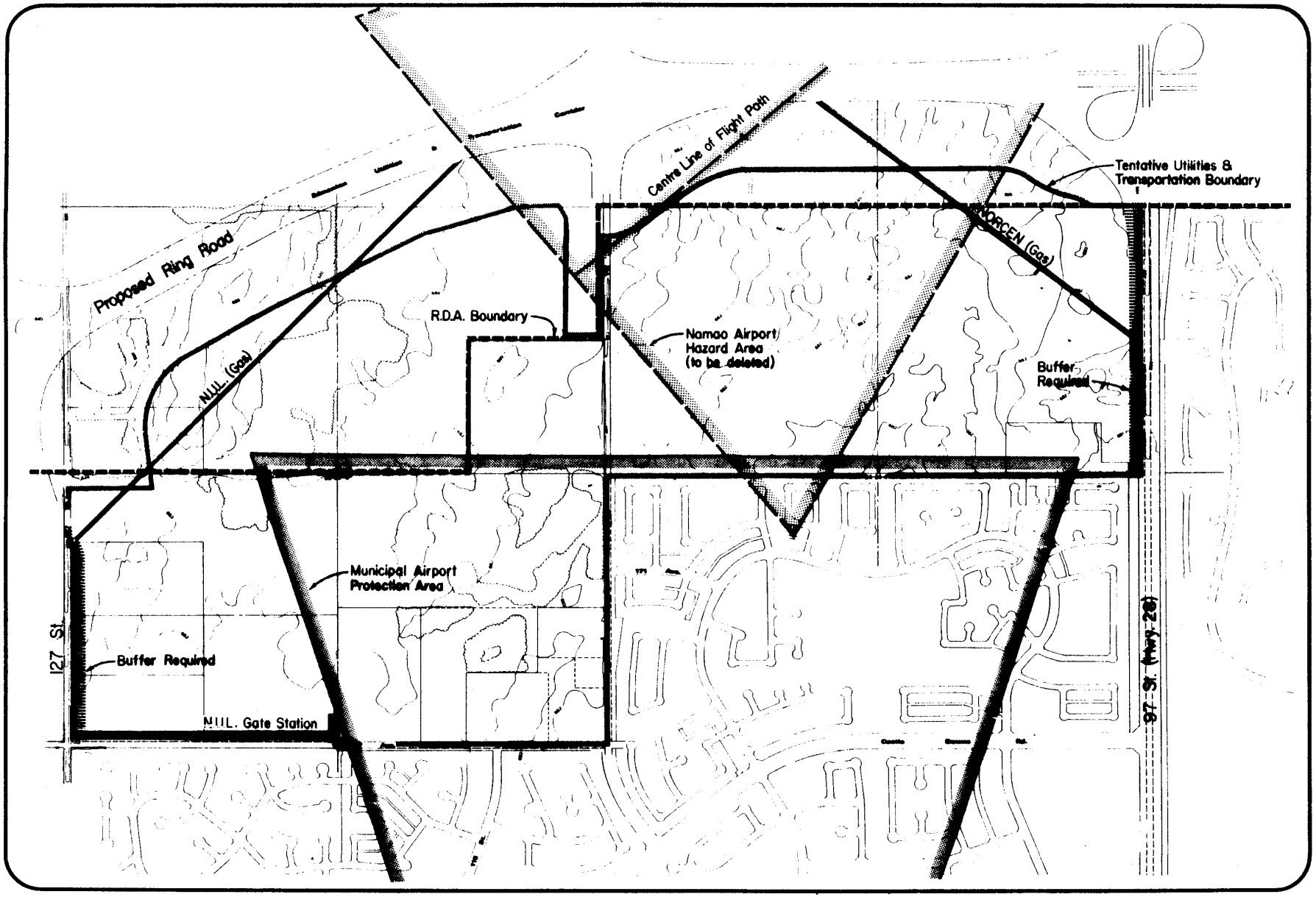
1. Height Restrictions/Safety Standards

The Edmonton Metropolitan Regional Planning Commission (EMRPC) has determined that the flight path portion of CFB Namao which runs in a southwest to northeast direction is very seldom used. On that basis, they intend to delete the airport hazard area (southwest to northeast direction) in future mapping of the area. Height restrictions as set out by the Ministry of Transport do not pose a constraint to proposed residential uses within the Plan Area.

2. Noise Control

Noise control was established through noise exposure forecast (NEF) contour guidelines formulated by the Ministry of Transport on behalf of CMHC. Due to the low volume of air traffic within the southwest to northeast flight path, the 30 NEF contour is being deleted by EMRPC as mentioned above. The Castle Downs Extension area will therefore not be affected by this land use restriction with the removal of the 30 NEF contour.

Development constraints including the RDA, Namao Airport, and utility corridors are shown in Figure 2.



CASTLE DOWNS EXTENSION AREA STRUCTURE PLAN

DEVELOPMENT CONSTRAINTS

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2.6 Other Policy Factors

1. Castle Downs Outline Plan (1973 and 1976)

The original 1973 Castle Downs Outline Plan envisaged six neighbourhoods, each centering on a school park area and focusing on the district Town Centre. This 1973 plan projected a population of 40,000 persons based on 21 persons per gross acre.[1] In 1978 the *Planning and Development Department* modified that projection to 28,000 persons based on a reduced density factor of 16 persons per Toss acre.[2] The modified projection retained the original number of dwelling units. The 12,000 person reduction in projected population equates to a 23.8% decline in the number of people per household unit. According to the *Planning and Development Department*, the 1981 population in Castle Downs stood at 22,000 persons.

Amended by Editor

A 1976 amendment to the Castle Downs Outline Plan resulted in a downgrading of 127 Street from a freeway standard to an arterial road standard. This resulted in the release of an additional area of approximately 116.26 hectares (278 acres) for development of which 45.6 hectares (113 acres) was included for residential development in Dunluce neighbourhood.

The latest figures for Castle Downs indicates a projected population of 35,500 persons[3], based on a density of 17.5 persons per gross residential acre. Thus, the number of persons projected in Castle Downs is 4, 500 persons less than originally projected in 1970.

The purpose of illustrating these density and population changes is to show that intended projections can vary with actual conditions as development proceeds. Similar

[1] Reid, Crowther & Partners Ltd., Castle Downs Outline Plan, June, 1973, Appendix III, P.4.
[2] City of Edmonton Population Projections, 1978.
[3] City of Edmonton General Research Services 1982

fluctuations could be expected to occur in Castle Downs Extension as development proceeds.

2.0 Terms of Reference for Area Structure Plans

The Castle Downs Extension Area Structure Plan adheres to the revised draft terms of reference for ASP's prepared for Council's consideration at their January 12, 1982 meeting. The updated guidelines were prepared to include reference to the General Municipal Plan Bylaw adopted in October 1980.

2.7 Conclusion

In September, 1982, City Council initiated appropriate amendments to the PRP - Metro Part, through the Urban Growth Strategy. The Castle Downs Extension Plan Area was rezoned from Low Density Agricultural use to General Urban use, by admending the General Plan for those lands affected. The EMRPC has since ratified the PRP-Metro Part to allow General Urban uses. Administrative issues and policy factors therefore, support Area Structure Plan preparation.

III

THE PLAN AREA

SECTION III

THE PLAN AREA

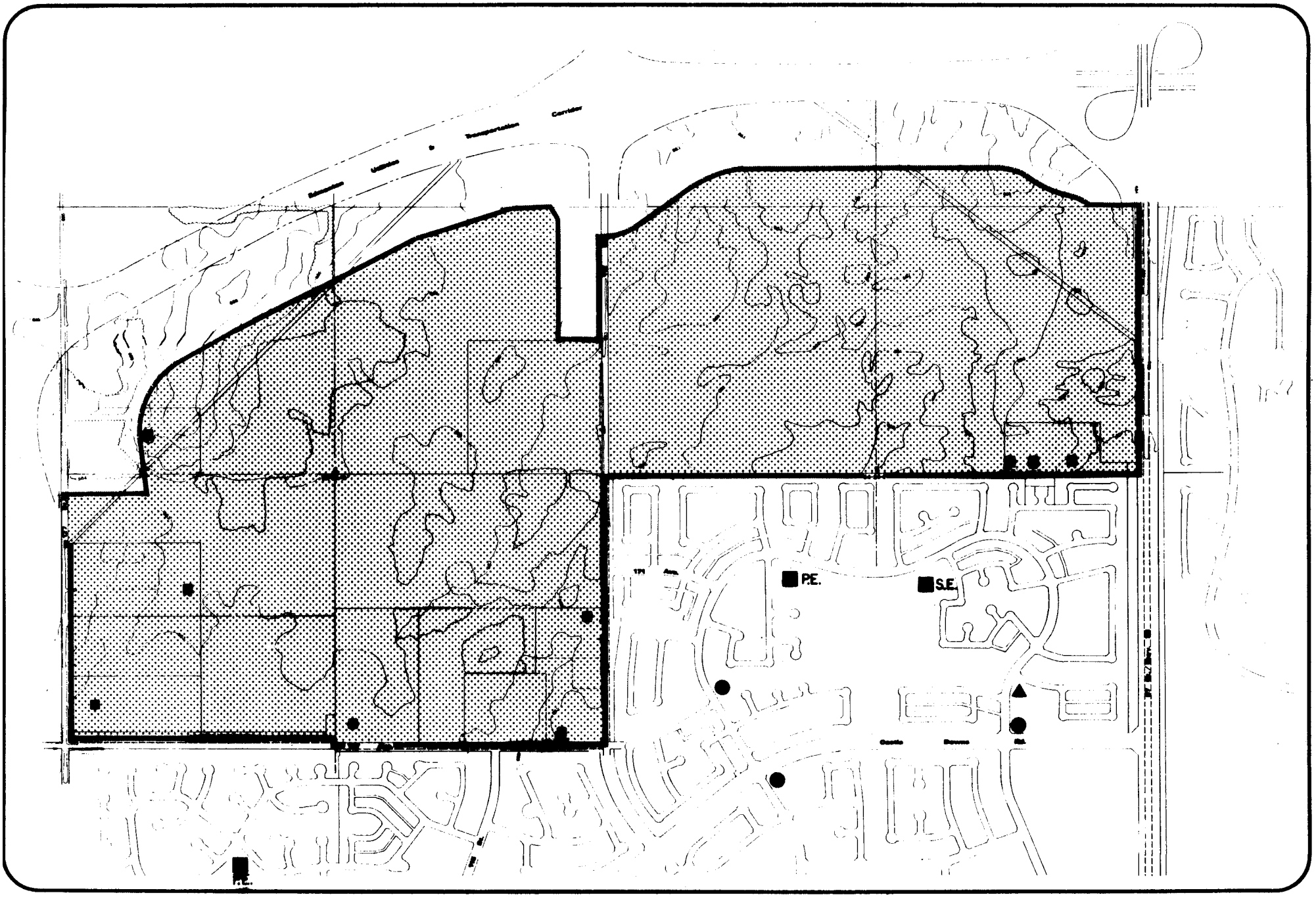
3.1 Existing Land Use

The lands are under various degrees of agricultural production ranging from a feedlot and cash cropping to occasional hay production. A large percentage of the land use may be classified as "part-time" farming or country residential use. Existing residences are illustrated on Figure 3. It is expected that the residences will remain until more detailed planning occurs, at which time it may be determined which residences can be incorporated into the subdivision design.

Further consideration will also be given at the neighbourhood structure plan stage to incorporation or re-alignment of existing utility lines illustrated on Figure 2.

3.2 Existing Boundaries

Southern boundaries are coincident with northern boundaries of the existing Castle Downs community. The remaining boundaries of the area are defined by the following major transportation routes: to the east, 97 Street (Highway 28); to the north, the Edmonton Utilities and Transportation Corridor; and to the west, 127 Street. The preliminary alignment for the corridor and Parkway Ring Road, as shown on the existing land use map, has been defined by the City of Edmonton Transportation Systems Design, "Roadway Functional Alignment, Northwest Sector Including St. Albert," December, 1980.



CASTLE DOWNS EXTENSION AREA STRUCTURE PLAN

EXISTING BOUNDARIES AND LAND USE

Agricultural/Country Residential
School site
Neighborhood Commercial
Church site

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The resulting northern boundary of the Area Structure Plan will, therefore, be determined at the detailed design stage of the alignment.

An area of approximately 3.96 hectares (9.8 acres) to the west of 112th Street, northeast of Neighbourhood 3, has been excluded from the Plan and area calculations. It is the intention of Alberta Environment to retain this portion of land as part of the utility and transportation corridor, should it be needed. Once neighbourhood planning commences for Neighbourhood 3, it will be demonstrated how this small portion of land could be incorporated into the design layout, as low density residential should it be determined at a future date that Alberta Environment may no longer require the land for road and utility purposes.

Also excluded from area calculations are the road allowances for 167th Avenue and 112th Street, which already exist as rights-of-way.

The areas shown on Figure 3 are now formally within the City of Edmonton corporate limits.

3.3 Adjacent Land Uses

To the south and east of the planning areas, existing development consists of low density residential. To the north, the Ring Road and transportation and utility corridor are proposed. West of the Plan boundary, vacant land is being proposed for residential, commercial and light industrial uses under a separate area structure plan (Edmonton Northwest Area Structure Plan).

3.4 Ownership Pattern

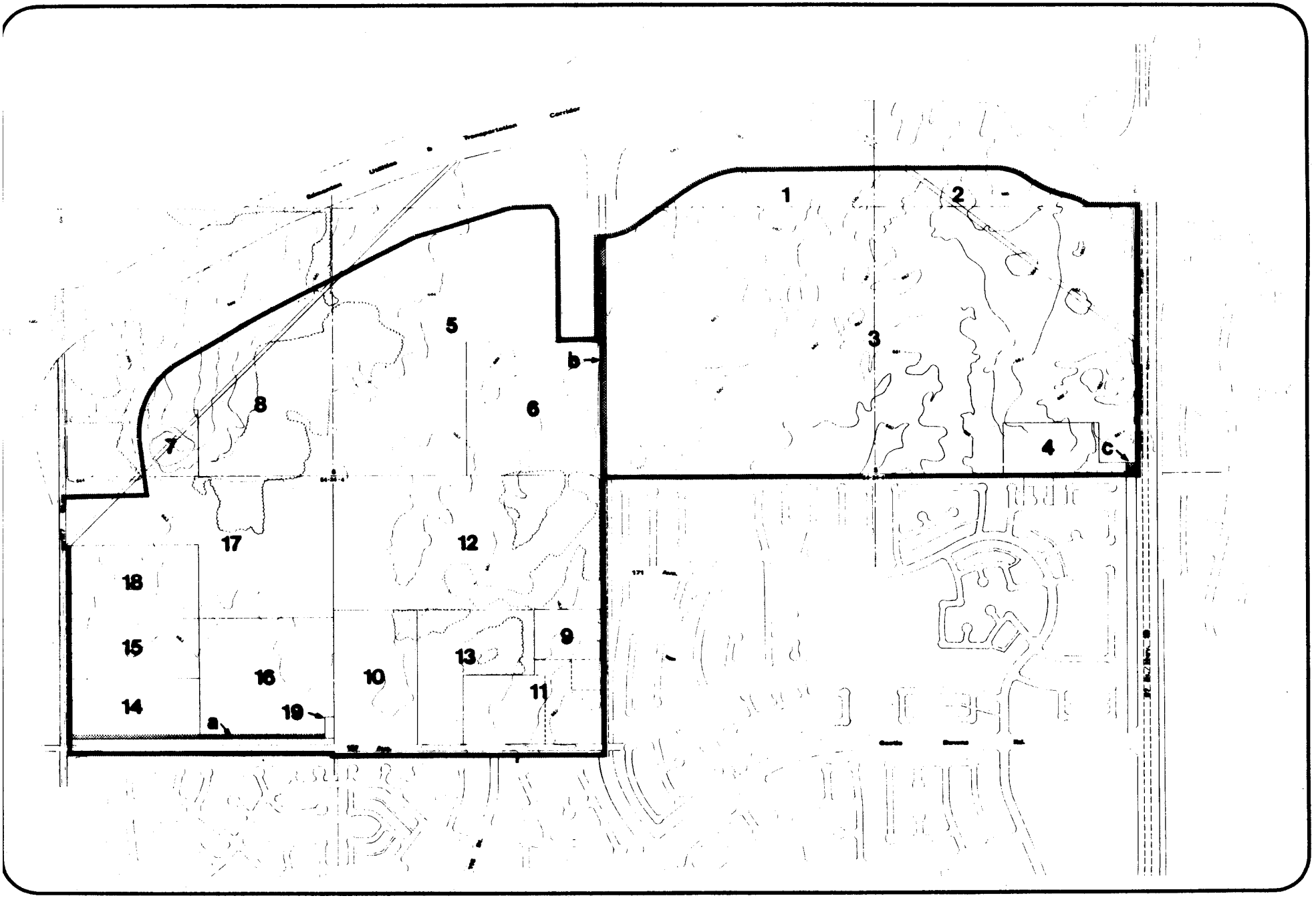
Nineteen parcels are registered under sixteen owners within Section 6-54-24-W4 and parts of Sections 8 and 5-54-24-W4. The following map, coupled with Table XI I, indicate the owners, acreages, and caveats registered against each title. The majority of the north half of Section 6 has been designated as the RDA, however, only portions of those lands will be required for the utilities and transportation corridor and for required buffering. The remainder of the RDA is included in the area structure plan, as Alberta Environment have indicated they have no objection to the proposed land use. The majority of landowners (by area) support area structure plan preparation, as lands owned by *two private corporations* exceed 50% of the total Plan Area. The ownership pattern is shown on Figure 4 and detailed in Table X I I of the Appendices.

Amended by Editor

3.5 Natural Features & Environmental Impact

1. Topography

The site is generally level land with scattered moist low lying areas and gentle rises not exceeding a 1% grade. Section 6 slopes from the northwest to the southeast, with a total relief of about 5 metres (16.4 ft.). A depressional area is located in the centre of the east half of this section. The north half of section 5 drains from both road allowances to the centre at a point on the north boundary of the existing development, resulting in a relief of 4 metres over the quarter section. The low grades will promote efficient servicing in general, and



CASTLE DOWNS EXTENSION AREA STRUCTURE PLAN

OWNERSHIP

Note: See Table XII Appendices for Ownership detail

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specifically, the three larger low lying areas will be utilized in the storm water management system. Over the entire Plan Area, these depressional areas can be incorporated into the final land use design layout. None of the low lying areas are environmental reserve lands. All lands within the Plan area are considered to be developable land and are included in area calculations. The sites natural features are shown on Figure 5.

2. Soils

Area soils are broadly defined as variably drained, Class 2, Prestville group under the Canada Land Inventory classification. More specifically, arable soil depths range from a few inches up to two feet. Shallow soils on the rises are subject to dessication, and soils in depressions are subject to very low permeability. Both conditions indicate a high montmorillonite clay content in the topsoil. Attention to subdivision site grading and drainage at the development stage will therefore be observed.

Subsurface test holes to a depth of 12 metres (39 feet) produced a continuous profile of stone and boulder free glacio-lacustrine sandy to silty clays interspersed with sand lenses. An absence of acquifers and bedrock further indicated the feasibility of deep trunk servicing if required. The soil conditions therefore present no constraint to development.

3. Vegetation

Soil type and topography influence the type and condition of the vegetation. The western portion of the site contains several fairly large stands of aspen and poplar. Rows of trees exist along property lines, fence lines and road allowances. These trees have either been established naturally or have been planted as windbreaks. In the poorly drained areas, typical wetland vegetation exists, consisting of willows and sedges. Ornamental species not native to Alberta, have been planted by the owners

to beautify and provide a windbreak around their farmsteads. Some of these are coniferous species. Specimens which have grown along fencelines and road allowances may have potential for being incorporated into future subdivisions. Rows of trees along the rear property lines of some of the existing residential development in Castle Downs could be maintained and the feasibility of retaining them will be evaluated at the neighbourhood plan and subdivision stage. Ornamental species such as spruce and fir, can be incorporated into the development or transplanted to desired locations as part of a general landscaping theme.

4. Environmental Impact Assessment

Based upon a review of the preceding factors, the environmental impact of the proposed development on the natural environment will be minimal. The proposed land use is entirely compatible with those recommended in the Urban Growth Strategy and PRP-Metropolitan Plan. Where feasible, it is proposed to utilize existing topography, drainage, patterns, vegetation, and residences, into the design layout at the more detailed planning stages.

Careful consideration of these features upon the urban landscape will produce both an attractive residential environment and a plan which respects the sites physical characteristics. No further environmental impact assessment is therefore required.

CASTLE DOWNS EXTENSION AREA STRUCTURE PLAN

NATURAL FEATURES

Contours at 1.0m intervals

Low lying area

Vegetation

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3.6 Transportation Network

The transportation network is shown on Figure 6.

Proposed improvements to major arterial roadways which affect the Castle Downs Extension area include upgrading 97 Street to a six-lane arterial standard, as well as upgrading 127 Street, 112 Street and 167 Street, to four-lane divided arterial roadways.

The limited access restrictions imposed by the Parkway Ring Road will ensure that vehicular traffic within the Plan Area will be local in nature.

The internal circulation network will be designed to utilize these major roadways to accommodate the access requirements of the projected population.

3.7 Engineering Services

Three major servicing components are required to facilitate development in the area. The components consist of sanitary sewer collection and disposal, water supply and distribution, and stormwater drainage.

1. Sanitary Sewage Collection and Disposal

   A major sanitary trunk sewer is proposed to serve the area included within the Area Structure Plan Boundaries. This new sanitary trunk sewer will extend west from the vicinity of 97 Street to 127 Street, approximately paralleling the southern boundary of the area.

   At 127 Street, the trunk sewer will be connected to a proposed trunk sewer extending south. This trunk sewer will approximately parallel 127 Street and will be connecated to existing sanitary trunk sewers south of 137 Avenue. Some upgrading of the existing sanitary sewers south of 137 Avenue

is anticipated.

The initial phases of Neighbourhoods 1 and 3 are proposed to be serviced by separate temporary sanitary sewers connecting to existing sanitary sewer mains in Castle Downs. Landowners within the Plan area will share the cost of upgrading the existing sanitary collection system.

2. Water Supply and Distribution

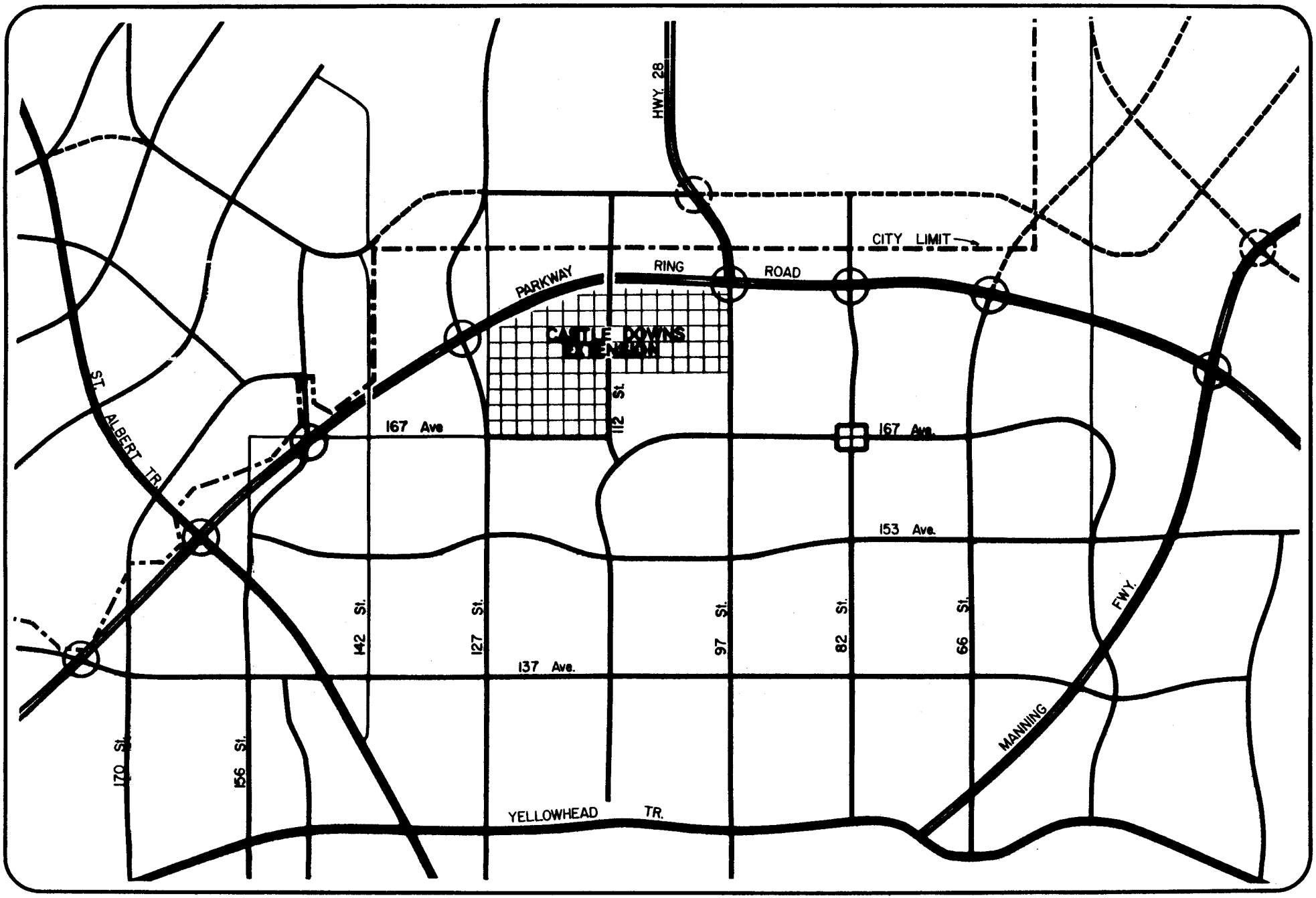
At present, the existing water distribution system in Castle Downs can supply the water required to service initial stages of development for areas included in this, Area Structure Plan. Ultimately, the water supply required for the area will be met by the E.L. Smith water treatment plant. Long term plans involve construction of major distribution mains from the E.L. Smith plant to this area. The projected timing of completion of these distribution mains is 1984.

3. Stormwater Drainage

Stormwater drainage servicing for the area included within the Area Structure Plan boundaries is proposed to include stormwater management facilities with connections from these facilities to existing storm sewers.

Two general drainage basins will be developed, including an easterly area, generally between 97 Street and 112 Street, and a westerly area, generally between 112 Street and 127 Street.

Four stormwater management facilities are proposed with two facilities in each area. In both the easterly and westerly areas, the two facilities will be connected to new downstream connecting sewers which will drain southerly to existing storm sewers in Castle Downs. Storm drainage servicing will generally conform in principle to the Watershed Drainage Plan for the Northwest annexation area. A master drainage plan for the Plan area must be approved by Edmonton Water and Sanitation.



CASTLE DOWNS EXTENSION AREA STRUCTURE PLAN

TRANSPORTATION NETWORK

Freeway / Expressway
Minor Arterial
Major Arterial
Interchange

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3.8 Soft Services

It is apparent in viewing the land use in Castle Downs that the Castle Downs Extension ASP area can also look toward the Town Centre as a central focus. The Town Centre will be the future commercial and community focus for the entire district.[4] It has been downgraded since the original concept, but its combined function as a commercial and community centre illustrates its importance. It already contains many of the components desired through the District Planning process (a branch library, public health and dental clinic, fire sub-station, district park, senior high school campus, and possible LRT terminal). Current economic conditions support the premise that it would be extremely costly to duplicate these types of soft services which already exist in Castle Downs and are not being utilized to capacity.

It is not intended to duplicate a number of these major soft services in the Castle Downs Extension ASP. Rather, new development will help to optimize those services already in place.

3.9 Conclusion

The timing and staging of development for the area is facilitated by the extension of major sanitary trunk sewers. Stormwater servicing is economically achieved with stormwater management facilities draining to existing storm sewers in Castle Downs.

The increased utilization of existing facilities is intended to promote optimum servicing potential and operational capabilities.

Based upon a review of major issues affecting the Plan Area it has been determined that the most appropriate land use is residential development, supported by associated uses necessary to the daily well being of neighbourhood residents (schools, parks and open spaces, commercial sites and church site).

[4] Concepts for the design rationale are highlighted in the Castle Downs Outline Plan report, June, 1973, P.15,33, and reinforce statements about the inter-relationship between Castle Downs North and existing community.

Finally, major transportation corridors on three sides will have had a direct influence in arriving at specific types of residential land use when more detailed level planning commences.

IV

AREA STRUCTURE PLAN

SECTION IV

AREA STRUCTURE PLAN

4.1 Historical Context

Existing Castle Downs and the Lake District have been planned on the concept of a low to high density gradient. Higher density residential development as well as commercial, educational, and recreational land uses have been located central to the community.

As mentioned previously, Castle Downs is now substantially developed. The revised population, is projected to be 35,500 persons, when the area is fully developed.

Design objectives in the 1973 report[5] were to "meet human needs in a manner which considered both economy and quality of development, and which take into account both the metropolitan setting of the development and the particular potential of the site." Briefly, the guidelines and objectives contained within the 1973 Plan are summarized as follows:

Community Centre:	To provide a sense of community and focal point. To concentrate commercial, institutional, social and year round facilities.
Housing:	To provide, in varying degrees, for a broad spectrum of housing needs, both in terms of accommodation and income levels.
Schools:	To provide suitable sites reasonably central to the school catchment area.
Parks & Open Space:	To be situated in conjunction with school locations.
Transportation:	Local traffic to be separated from through traffic by a hierarchy of roads, notwithstanding that transit routes are to be located adjacent to or passing through higher density residential areas.

[5] Reid, Crowther & Partners, Castle Downs Outline Plan, June, 1973,

The proposed ASP for Castle Downs Extension is in general conformance with these original design objectives, and those policies set out in the General Municipal Plan.

4.2 Planning Rationale

While it is recognized that the Castle Downs Extension area is a separate planning area, the ASP for Castle Downs Extension is presented as a completion of residential development between existing Castle Downs, and the RDA transportation and utility corridor to the north. Residential is the most suitable land use based on an analysis of existing conditions and adjacent land uses. On that basis, the planning rationale is outlined as follows:

1. A population of 19,900 to 21,900 people is projected for the Plan Area. Development of the Castle Downs Extension area provides an opportunity to utilize the existing excess capacity in Castle Downs in terms of soft services and infrastructure (schools, district park, town centre, LRT, fire and police protection services).

2. It is intended that serviced lots be made available for housing construction at the earliest date possible, within a portion of the Plan Area. This will assist the City in meeting the stated objective of maintaining an adequate supply of residential lots and homes at competitive cost.

3. The proposed residential land use is consistent with recommendations of the Urban Growth Strategy report approved by Council. Residential use is identified as the most appropriate land use in the Long Term Strategy Generalized Land Use.[66]

4. Small neighbourhood commercial sites are to be made available for the convenience of local residents.

[6] City of Edmonton Planning Department, Urban Growth Strategy, Phase I Final Report, December, 1981, P.13-15, Drawing B.

5. Church sites are being provided in accordance with acceptable neighbourhood standards and similar to guidelines utilized in other developing neighbourhoods.

4.3 Design Objectives

Objectives for design have been formulated based on relevant General Municipal Plan policies (Section 5.0 to 5.H), an analysis of the surrounding community structure, and current residential trends. The design objectives of the General Municipal Plan are as follows:

- Suburban Areas (5.C): To increase the permitted density of single-family development in the suburbs and to improve the distribution of medium and high density housing in those areas which have been newly annexed to the City.

- Innovation/Flexibility (5.D): To provide the development industry with flexibility and opportunity for innovation.

- Housing Costs (5.E): To undertake changes in City action policies to slow down the rate of increase in housing costs.

- Servicing Efficiency (5.F): To explore means of increasing the efficiency of servicing through staging at a broad level.

- Community Housing (5.H): To provide housing assistance for low income singles, families and senior citizens.

Special objectives of the Castle Downs Area Structure Plan are as follows:

Objective 1 - Compatibility of the Plan Area with the existing residential character of Castle Downs.

The location of low density housing adjacent to built up areas is intended to achieve this objective. Higher density housing will be situated within the neighbourhood in accordance with Policy 5.C.4 of the General Municipal Plan; Design and Distribution of Density in New Neighbourhoods.

Objective 2 - Create planning units which have the essential elements for a neighbourhood focus.

This is to be achieved through the inclusion of schools, park areas, commercial areas and church sites within neighbourhoods. Some neighbourhood edges, while not defined by distinct natural boundaries such as ravines, transmission line rights-ofway, or major roadways, will be delineated by land uses, and housing types.

Objective 3 - To provide an adequate supply of affordable housing.

Affordable housing and possibly community housing will be accomplished through the provision of a wide range of dwelling types. Overall density of the residential area will be in general conformance with housing mix guidelines set forth in the "General Municipal Plan", and "Guidelines for the Distribution and Design of Neighbourhood" reports.

Objective 4 - To retain site features and vegetation where feasible for park areas, visual buffers, noise attenuation and aesthetic purposes.

The lands in question are generally flat with sparse vegetation cover. Care will be taken at the detailed planning stages to ensure incorporation of as many of the site's natural features as feasible. An on-site investigation of the lands indicate that there are some desirable mature wooded areas which may be incorporated into the design of the neighbourhood structure plan and subdivision plans.

Objective 5 - To develop a plan which is cost efficient in design.

Consideration of energy conservation will be a component to the Plan and a number of the guidelines described in Section 19 of the General Municipal Plan will be encouraged at the neighbourhood plan stage. It is proposed that the Plan will establish the framework for energy efficient planning through the reduction in length of collector roadways, east-west orientation of roadways to maximize the number of north-south building lots created, and land use optimization of residential types through decreased lot dimensions. Although the following considerations may be addressed in greater detail at the Neighbourhood Structure Plan stage, they do present some planning guidelines for energy efficient planning at the Area Structure Plan scale.

Intensify Land Use:	Encourage compact development, utilize smaller lot sizes, use of narrower lot frontages where possible, minimize single-loaded lots.
Location:	Design in consideration of site topography and micro climate.
Human Services Delivery System:	In order to realize full utilization of services already in existence in Castle Downs, it is proposed that a number of these services will be available to the Castle Downs Extension area neighbourhoods. They include the fire and police sub-stations, medical and dental clinics, branch library and district park.
Design Streets Appropriately:	Maximize the number of streets that run east-west. Shape streets to conform to orientation and solar access envelopes; possible variable setbacks will result in curved streets.
Relate Homes to Available Open Space:	It is desirable to locate plantings perpendicular to the direction of winter storms to provide a windbreak in winter, but which allow penetration of cooling breezes in summer.

Objective 6 - To create a pedestrian and street system environment which is both attractive and functional.

This will be encouraged through the development of a walkway and open space system which fosters strong linkages to the school and park areas, and neighbourhood commercial facilities. Use of sidewalks and walkways with direct access to these activity areas will be incorporated where possible during neighbourhood design. The central location of school and park areas within each neighbourhood will ensure a convenient walking distance for the majority of residents.

Objective 7 - To establish a stormwater management system which provides natural amenities while serving the storm water retention, needs of the community.

The effectiveness of retaining stormwater within a residential area through stormwater management has been proven in Edmonton. The Castle Downs Extension area will benefit directly through the inclusion of four stormwater lakes within the Plan Area.

Objective 8 - To provide a road linkage with negligable impact on the existing Castle Downs community.

The Plan Area, while being physically linked to some roadways of existing Castle Downs, is designed to minimize traffic flows into the neighbouring residential district. This is to be achieved by minimizing access into neighbouring residential areas and directing 167th Avenue traffic out to 127th Street. To the east, much of the traffic from neighbourhoods 1 and 2 will be directed toward 97th Street.

4.4 Development Concept

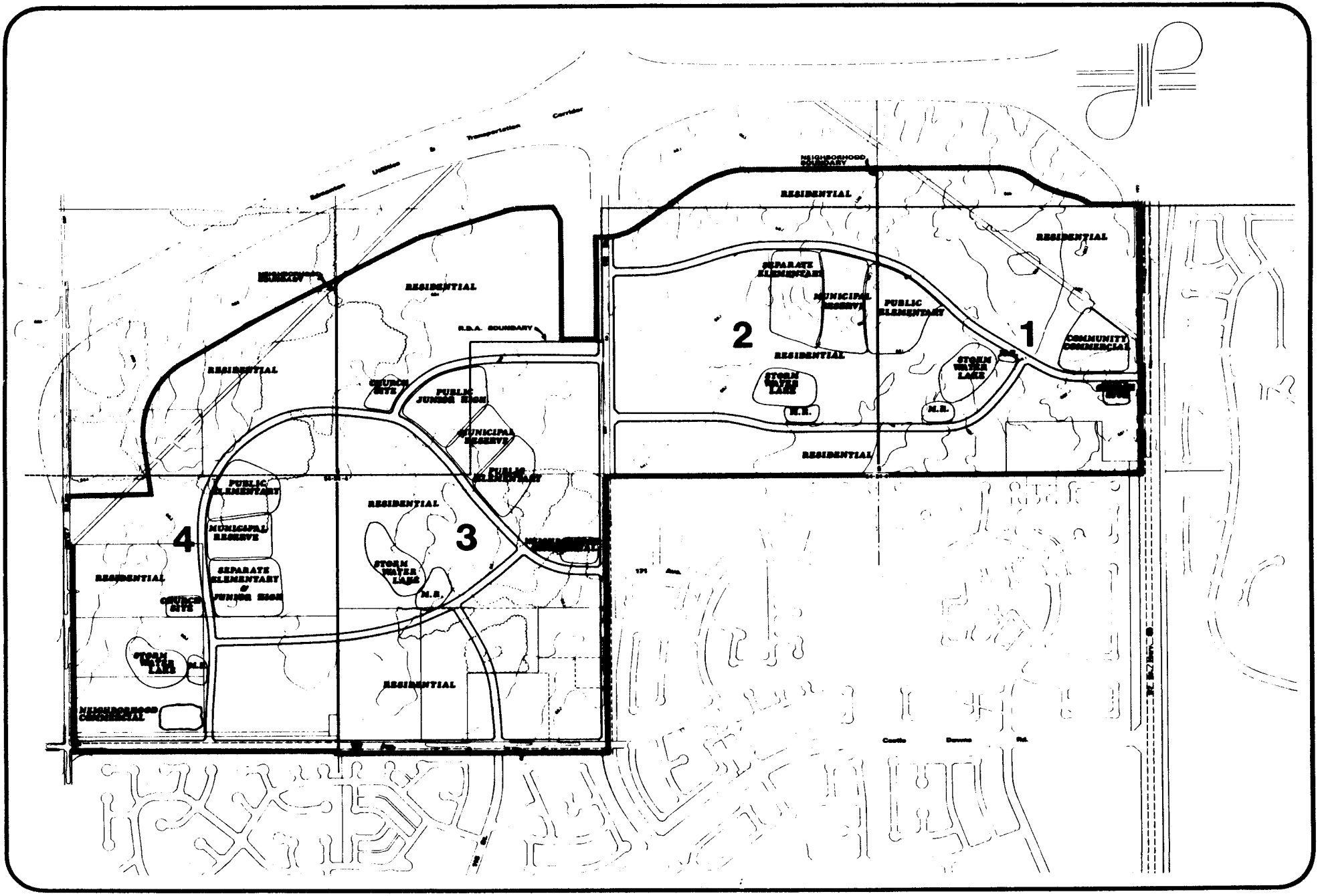
The Development Concept, based on the preferred medium growth scenario proposes a residential population of approximately 20,900 persons. A variety of dwelling types based on an overall density of 60.7 persons/gross hectare is presented. The Development Concept is shown in Figure 7.

1. Residential

The majority of the Plan Area (279.37 ha) will be utilized for residential development; reinforcing the intent that the primary purpose of the Plan is to provide residential and associated land uses (municipal reserve, schools, neighbourhood commercial sites, church site, and stormwater management lakes).

Four neighbourhoods are proposed ranging in size from 69.32 ha to 119.30 ha. Further area breakdowns are illustrated in Appendices, Tables V to VII. The neighbourhoods will vary in population from 4250 to 7125 persons. Each neighbourhood will focus on a public school and park, both of which will be served by a collector roadway.

Lands east of 112th Street are proposed to be incorporated into two neighbourhoods (neighbourhood 1 and 2). A more distinct identity can be developed for each neighbourhood through alignment of roads and land use boundaries. These identities will be established at the neighbourhood structure plan stage.



CASTLE DOWNS EXTENSION AREA STRUCTURE PLAN

DEVELOPMENT CONCEPT

JULY 83
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7

Variations in the size and location of each neighbourhood within the Plan Area, will offer future residents a choice of housing types and densities.

It is generally proposed to locate lower density residential development adjacent to the existing single-family housing in Castle Downs. Other guidelines reflected in Policy 5.C.4 of the General Municipal Plan, which will be adhered to are as follows:

Policy 5.C.4

The City will ensure compatible relationships or integration between different housing densities and forms in suburban growth areas by:

a) avoiding the juxtaposition of residential developments with significant differences in density by using a gradual transition in housing form or open space;

b) creating homogeneous sub-neighbourhood units;

c) limiting the size of parcels and the length of street frontage used for multiple unit residential developments;

d) limiting the concentration of multiple unit developments adjacent to the central school/park site;

e) limiting the concentration of multiple unit developments adjacent to neighbourhood entrance ways; and,

f) encouraging higher density multiple development to locate near the periphery of neighbourhoods and in close proximity to transit routes.

g) The preceding guidelines will be implemented at the neighbourhood structure plan stage.

2. Commercial

Two neighbourhood commercial sites and one community commercial site are included in the Plan. The neighbourhood sites will be a maximum 2 ha (4.9 ac) and with a building coverage of about 30%, a maximum ground floor building area would not exceed .6 ha (64500 sq. ft). This would generally allow adequate provision for parking and setbacks.

An estimate of the number of employees could range from 30 to 85 for each neighbourhood site depending upon the number and types of shops. Initially, a threshold population of 1000 families will be required to support the development of each site[7]. The rate of development of the neighbourhood centres will be dependent upon the rate of neighbourhood growth and market conditions.

As illustrated on the Development Concept, neighbourhood sites are located along collector roadways to minimize internal traffic movement through the neighbourhoods and to provide exposure, convenience and access. A more precise location for each neighbourhood commercial site will be determined at the Neighbourhood Structure Plan stage.

A Community Commercial Centre site is proposed for the junction of 97 Street and the new collector.

The community shopping centre generally offers a range of goods and services that are often required on a convenience and weekly or twice weekly basis. The size range of this centre is usually 60-100,000 square feet (assuming a 90,000 sq. ft. centre at 30% coverage, the acreage requirement would be in the order of 9.0 acres) and is often anchored by a 10-20,000 square foot food store. Other uses could include a butcher shop, bakery, fresh fruit and vegetable store, delicatessen, travel agency, restaurant and lounge, gas bar and service station facilities, bank and miscellaneous retail stores. The community centre generally needs a market population ranging from 10-20,000 people to support these various businesses.

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[7] Urban Planning and Design Criteria
J. DeChiara & L. Koppelman, 1978, P.444.

Justification

- The centre is located adjacent to 97th Street, a major arterial roadway for the area and a major collector roadway serving Neighbourhoods 1 and 2, and a large part of the Lake District area indirectly.

- The north-west corner of 97th Street and the collector affords safe and convenient access on the "home-bound" side of the work to home trip.

  With regards to trip frequencies and the generalized range of goods and services obtained during these trips, typical shopping patterns can be summarized as follows:

  a) Daily trips to obtain products that often require daily replenishing such as milk, bread and associated sundry items.

  b) Trips made once or twice a week for such goods and services as banking, dry cleaning, home hardware, health care, auto supplies and fuel, dining out, minor and possibly major food purchases and limited consumer durables.

- Castle Downs Extension is not served by any Community Commercial Centres, and a centre in this location is convenient to both the Lake District, and the Castle Downs extension area.

- The eastern sector of the Castle Downs Extension area will accommodate approximately 10,000 to 12,000 persons when totally built-out, the catchment area of the 97th Street Centre could include approximately 30,000 persons. However, this commercial site is not intended to serve the Lake District and a capture of population from this area would be a bonus to the site. As well, existing development to the south in Castle Downs could be served by the proposed centre, and to a lesser extent, the traveling public

on 97 Street. It is of course realized that this is a shared catchment area forecast, but it still illustrates the need for a highly accessible Community Commercial Centre midway between these two areas.

- Based on the Community Commerical Centre site area/population ratio of .75 acres/1,000 people[8], the site in question could be 2.5 ha in size alone to serve the captive population of neighbourhood 1 and 2.

- The range of goods and provided by this centre would complement the range of goods offered by other commercial centres that are proposed for the area.

- It is understood that the provision of retail opportunities in the Castle Downs Extension Area Structure Plan area, will be in no way interfere with the Lakc District Town Centre of Castle Downs Town Centre.

3. Schools

Separate elementary and combined elementary and junior high school sites are to be located central to their catchment area. The location, number and size of school sites have been discussed with both the Public and Separate School Boards and in conjunction with the *Community Services Department.*

Amended by Editor

Based on these discussions, and on the projected student populations, the Plan proposes the following facilities;

Four (4) public elementary sites
One (1) public junior high site
One (1) separate elementary site
One (1) separate elementary/junior high site

[8] Urban Planning and Design Criteria, J. DeChiara & L. Koppelman, 1978, p. 479

Neighbourhoods 1 and 2 are to be served by a centrally located school and park site.

In Neighbourhood 3, the public elementary and public junior high school sites have been separated by a park area, at the request of the public school board and *Community Services Department*.

Amended by Editor

All school sites have been located on collector roadways to provide school bus access (a location criteria strongly desired by both school boards). Based on similar experience in other developing neighbourhoods it is expected that the schools will be built once 50% to 60% of the resident population is established within each neighbourhood.

Senior high school students will attend the district campus planned for development in Castle Downs, approximately 1/2 mile to the south of the Plan Area.

The number of students generated and size of school sites are appended to the Plan as statistical data, Tables 9 and 11.

4. Church Sites

Three church sites have been included in the plan on the basis of one site/6,000 population in an urban area. This standard is generally consistent with the number of church sites on a per capita basis, provided in other developing neighbourhoods in Edmonton. Site sizes are .80 hectares, which is deemed to be sufficient for both building and off-street parking.

5. Open Space and Reserve Lands

The City's open space policies contained in the Parks and Recreation Master Plan, 1979-83, have also been used as a guideline in establishing municipal reserve areas. The policies include joint-use agreements between the two School Boards and the City of Edmonton *Community Services Department*.

Amended by Editor

Municipal reserve areas are located such that residents in all four neighbourhoods will be within convenient walking distance to open space areas. Reserve lands to be provided will be in accordance with the Planning Act, 1977. Four small park areas are planned adjacent to stormwater lakes in keeping with City requirements.

A total of 34.4 hectares will be provided for municipal reserve and school use which is the required 10% of the gross developable area.

No district park facility is planned or required for the Plan Area. The existing Castle Downs district park and campus facility may be utilized by residents of the Castle Downs Extension area.

In addition, the northern portion of the Castle Downs Extension area abutts the Edmonton Utility and Transportation Corridor, which may be used for active and passive forms of recreational use (hiking, cycling, skiing, etc). At the neighbourhood plan stage, it is proposed to design linkages to provide good public access to the corridor, as envisaged by Alberta Environment. The Plan Area has incorporated their considerations namely:

(a) access for utilities
(b) access for secondary users
(c) compatibility of uses
(d) integration of "surplus lands" into the design concept. (Surplus lands refer to lands owned by the Crown for RDA purposes).

Linkages in the form of road and pedestrian will be provided for those portions of the Corridor that are likely to become surplus lands, developed for secondary land uses, or which abut subdivisions within the Plan Area. As mentioned previosuly, secondary level uses are being formulated by Alberta Environment in a land use study to be released sometime in 1983.

6. Social Impact Assessment

Similar to existing Castle Downs[9], it is anticipated that the majority of the population within the Plan Area will be in the under 35 year old age grouping. This younger family population will have an impact primarily on area facilities such as schools, day care and medical facilities, and recreational areas. The adequate provision of these services and facilities are documented elsewhere in the ASP report.

[9] City of Edmonton General Research Services, June, 1982 Census for Dunluce, Baturyn, neighbourhoods. Population, Age & Sex Structure.

TRANSPORTATION CONCEPT

SECTION V

TRANSPORTATION CONCEPT

5.1 Trip Generation

The transportation requirements for Castle Downs Extension have previously been analysed by others in the "EDMONTON NORTHWEST TRANSPORTATION STUDY - March 1982 - DELCAN, De Leuw Cather"[10]. This study will be referred to in the Castle Downs Extension ASP as: ENTS.

ENTS has subsequently been modified through discussions and correspondence with the Transportation Systems Design Department (TSD). Since ENTS has been approved, (W. Ramsbottom letter 1982.07.26-File No.: 18690 to AESL/I.G. Holmes) the Castle Downs Extension Area Plan has used it as the basis for further analysis.

ENTS recognizes neighbourhoods #1, 2 and 3 in the area now defined as Castle Downs Extension. However, Castle Downs Extension ASP is based on four neighbourhoods in the same area. The medium growth scenario for Castle Downs Extension compares with ENTS as follows:

ENTS		Castle Downs Extension		
nhbd#	pop'n	nhbd #	pop'n	diff.
1	6,800	1	4,332	
		2	4,395	+1927
2	5,000	3	7,134	+2134
3	4,900	4	5,095	+195
TOTALS	16,700		20,956	+4256

[10] Prior to the Castle Downs Extension being declared a separate ASP the area was part of the Edmonton Northwest ASP prepared by Mackenzie, Spencer & Assoc. in February, 1982. This updated transportation analysis provides revised trip generation estimates established since the original document was submitted. Due to increased projected population levels and design layout, the number of neighbourhoods has been increased from three, to four neighbourhoods.

1. Transit Trip Generation

The additional population of 4256 will generate extra transit trips (as detailed in ENTS table 3.2, P.14 etc.) as follows:

0.07 transit trips/capita x 4256 persons
= ± 300 peak hour transit trips

This will require 2-3 additional buses to be scheduled into neighbourhoods #1 and 2 during peak hour, and three to four extra bus trips to be scheduled into neighbourhoods #3 and 4 during peak hour.

2. Vehicle Trip Generation

Using the same process and assumptions as ENTS (table 3.3, p.16 etc), extra peak hour vehicles generated by the addition 4256 population will be:

2.7 daily/person trips/capita day x 4256 persons
= 11,490 daily person trips

DEDUCT daily transit trips @ 0.47 trips/capita/day
= .47 x 4256 = 2000 daily transit trips

NET daily person trips therefore is	= 11,490 - 2000 = 9490 trips
Vehicle Occupancy	= 1.25 persons/vehicle
Additional vehicle trips 9490/1.25)	= 7595 vehicles/day
Peak hour vehicle trips @ 9%	= 685 vehicles/hour
Peak hour "External" trips (90%)	= 615 vehicles/hour
INBOUND	= 495 vehicles/hour
OUTBOUND	= 125 vehicles/hour

Extra peak hour trips (vehicles/hour)	inbound	outbound
Neighbourhoods #1 and 2	225	55
Neighbourhoods #3 and 4	270	70
TOTAL EXTRA VEHICLES	495	125

5.2 Capacity

The Castle Downs Extension Plan now recommends four neighbourhoods in the area where ENTS assumed three. However, in terms of the collector street connections from the proposed development to the arterial street system, the two plans correspond very closely:

ENTS:

- 1 collector from Nhbd. #1 to 97th Street
- 2 collector from Nhbd. #1 to 112th Street
- 2 collector from Nhbd. #2 to 112th Street
- 1 collector from Nhbd. #2 to 167th Avenue
- 2 collector from Nhbd. #3 to 167th Avenue

8 collector connections.

Castle Downs Extension:

- 1 collector from Nhbd. #1 to 97th Street
- 2 collector from Nhbd. #2 to 112th Street
- 2 collector from Nhbd. #3 to 112th Street
- 1 collector from Nhbd. #3 to 167th Avenue
- 1 collector from Nhbd. #4 to 167th Avenue

7 collector connections.

Although there are some differences between the two plans in terms of the proposed internal alignment of collector roads, the access capacities correspond closely. The extra traffic generation (615 peak hour vehicle trips) resulting from the Castle Downs Extension plan will have no serious impact on the capacity of the collector street connections to arterial streets.

The collector street access from Neighbourhood #1 to 97th Street is shown approximately 300 m from the south boundary of the Plan. This location can be adjusted at the neighbourhood structure plan

stage, if necessary to accommodate the proposed interchange between 97th Street and the Outer Ring Road.

The collector street access from Neighbourhood #3 to 167th Avenue has been aligned with 115th Street to facilitate the extension of bus routes from the developed area to the south.

5.3 External Impact

1. Existing Roads

The north boundary of Castle Downs Extension is the Restricted Development Area. The Outer Ring Road will eventually be built within this Area.

On the south, Neighbourhoods 3 and 4 abutt 167th Avenue.

The east and west boundaries of the Plan are 97th Street and 127th Street respectively. 112th Street (formerly referred to as 113A Street) is in the centre of the Plan Area separating Neighbourhoods 2 and 3.

The Plan provides for these existing roads to be retained in their present locations with widening and improvement being allowed for as traffic warrants.

2. Traffic Distribution

In general, traffic distribution is expected to be as indicated in ENTS. The majority of the extra 615 peak hour vehicle trips which will be generated by the increased population are expected to be oriented to and from downtown Edmonton, with some to the northwest industrial area.

Figure 8 shows the p.m. peak hour site generated traffic volumes as predicted by ENTS (Exhibit 3.3 and supplementary data).

Figure 9 shows the extra p.m. peak hour traffic generated by the additional population anticipated in the Plan Area.

3. Arterial Road Requirements

The analysis of the Castle Downs Extension ASP confirms the arterial road cross sections as previously established in ENTS:

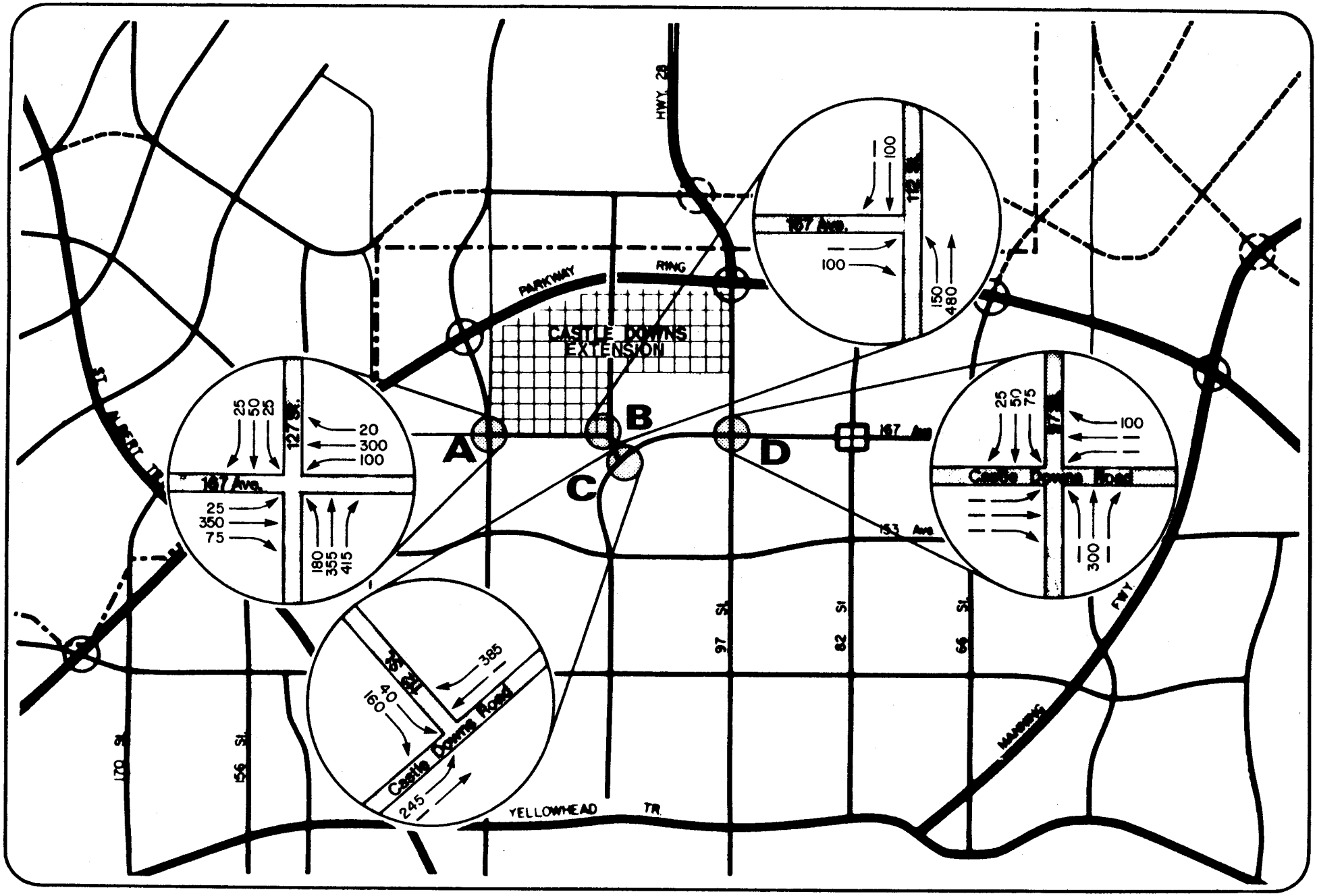
97th Street should be a 6-lane divided arterial (6UAD).

112th Street and 127th Street should be 4-lane divided arterials (4UAD).

112th Street between Castle Downs Road and 167th Avenue will be a 6-lane divided arterial (6UAD).

167th Avenue will be developed as a 4-lane arterial roadway. The west half of 167th Avenue, from approximately the quarter section line at 121st Street shall be realigned north to about the 12.2 m Northwestern Utilities easement. The carriageway within the proposed 167th Avenue shall be realigned north within the future 37 m road right-of-way. The precise carriageway alignment will depend on the ability of the utility departments to safely place their services underground in the realigned carriageway.

Noise attenuation measures shall be provided along designated truck routes by adjacent developers/property owners.



CASTLE DOWNS EXTENSION AREA STRUCTURE PLAN

SITE GENERATED TRAFFIC
(p.m peak hour)
(— per ENTS figure 3.3 and supplementary data)

Freeway / Expressway
Minor Arterial
Major Arterial
Interchange

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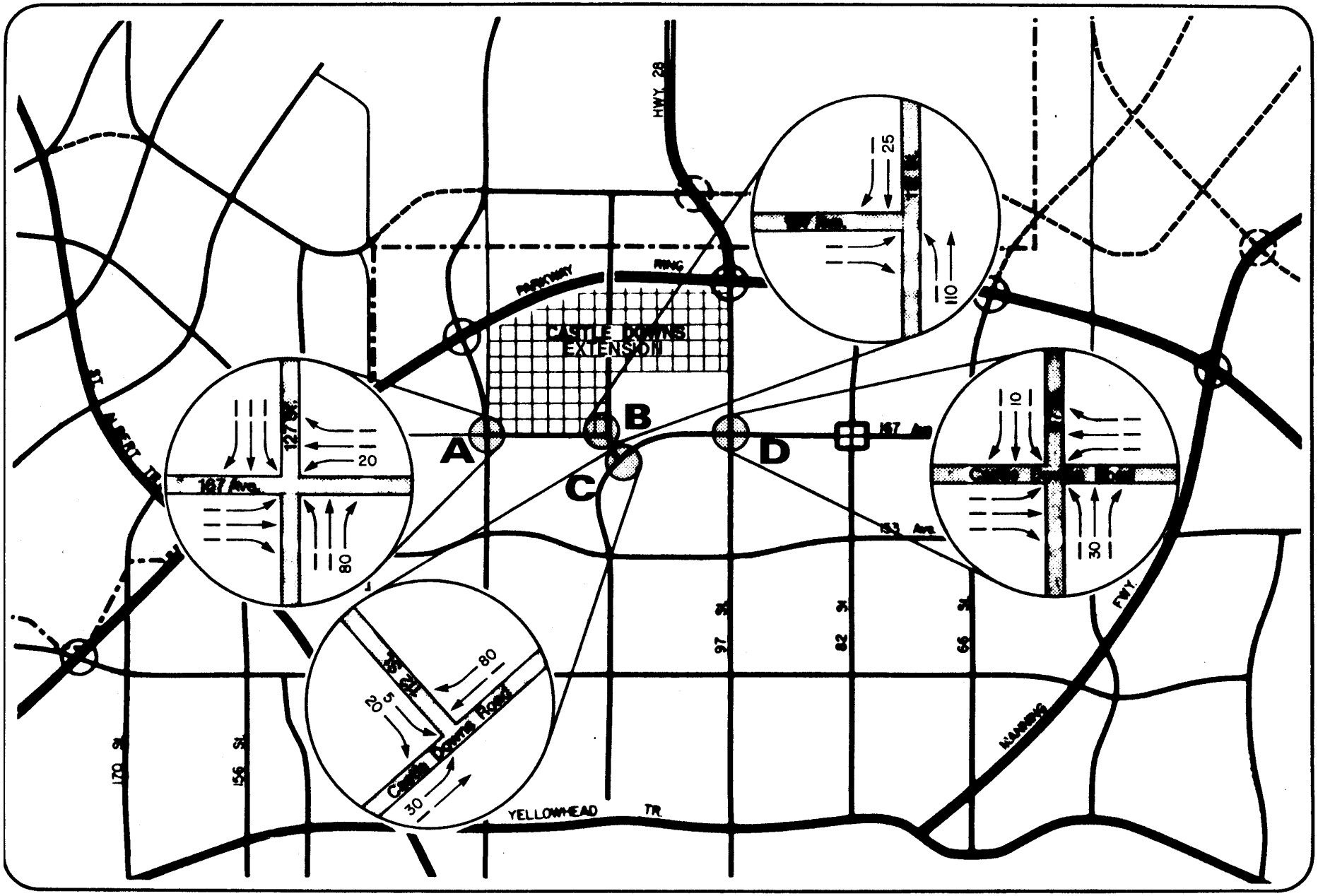

CASTLE DOWNS EXTENSION AREA STRUCTURE PLAN

EXTRA SITE GENERATED TRAFFIC (pm peak hour)
From increased population of 'Castle Downs Extension'

Freeway / Expressway
Minor Arterial
Major Arterial
Interchange

APR.83
AA83

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0m 135 1000 1675

AESL

5.4 Staging

The staging for construction and reconstruction of the arterial streets adjacent to Castle Downs Extension will largely be determined by traffic growth beyond the influence of this Plan. The collector streets will be constructed as required by the development of the adjacent neighbourhoods which in turn may be influenced by the availability of other services.

In general, it is intended that construction will begin immediately north of 167th Avenue and be staged to proceed systematically north from there.

5.5 Transit Routes

Existing transit routing may be extended from Castle Downs Road or 172nd Avenue and 171st Avenue into the Plan Area. The major transfer point at 153rd Avenue and Castle Downs Road will provide connections to other parts of Edmonton.

Tentative bus routings to serve the Castle Downs Extension Area have been agreed to in the context of ENTS. It is not considered necessary to revise these at the Area Structure Plan stage.

As indicated in the earlier discussion of trip generation, the additional population proposed for this plan will generate approximately 300 extra peak hour transit trips which may require some slight adjustment in the number of buses scheduled to service a given route. Such operational considerations can best be dealt with after the physical development is in place.

5.6 Environmental Considerations

It is recognized that noise protection will be required at the edges of the Castle Downs Extension Plan area where it flanks 97th Street and 127th Street. The precise dimensions of the noise protection will need to be determined through consideration of the traffic and truck volume forecasts prepared for these streets, which in turn depend on analysis of traffic demands and road network connections beyond the range of the current study area.

At this time the developers have indicated their intention to provide noise attenuation measures along truck routes and detailed work including design options will be conducted during the Neighbourhood Structure Plan stage of the planning process.

VI

SERVICING AND UTILITIES

SECTION VI

SERVICING AND UTILITIES

Development of the area for urban land use requires three major servicing components. These three components include sanitary sewage collection and disposal, water supply and distribution, and stormwater drainage.

6. 1 Sanitary Sewage Collection and Disposal

Sanitary sewage from the Plan Area can be collected and disposed of as discussed in Engineering Services (Section III). Sufficient sanitary capacity to service the area is available in existing sanitary trunk sewers south of 137 Avenue. This extra capacity has been determined by Edmonton Water and Sanitation based on total sanitary system capacity studies. Final sanitary servicing details for the Plan Area will be generated at the Neighbourhood Plan stage.

Initial phases of development in Neighbourhoods 1 and 3 are proposed to be serviced by separate temporary sanitary sewers connecting to existing sanitary sewer mains in Castle Downs.

6.2 Water Supply and Distribution

The provision of adequate water supply to this development is confirmed by the water supply capabilities of the E.L. Smith water treatment plant under construction. The water distribution system is projected for completion in 1984. This includes completion of a 1,050 mm diameter pipe to a connection point with the St. Albert waterline and a 1,050 mm diameter pipe extended from there to the existing Castle Downs reservoir. A 450 mm diameter pipe will also be constructed from the 1,050 mm diameter pipe to the east boundary of the Plan Area.

Based on construction staging for the major water distribution system, it is proposed that the water distribution for servicing initial stages of the Plan area would tie into existing water mains at the boundaries of the developed areas in Castle Downs. Depending upon the timing and completion of the major water distribution lines, the existing Castle Downs reservoir can be expended to its ultimate capacity to accommodate the timing and schedules for development of the entire Plan Area.

6.3 Stormwater Drainage

The stormwater management system proposed for the Plan Area includes four stormwater retention lakes with downstream connections to existing storm sewers. The easterly area, comprising Neighbourhoods 1 and 2, will include one stormwater management lake in each neighbourhood with a common downstream connection into the existing storm sewer system in Castle Downs. The westerly area will feature one stormwater management lake in each of Neighbourhoods 3 and 4 with a common downstream connection into the existing storm sewer system in Castle Downs.

Downstream outlets for the easterly area exist in the vicinity of 174 Avenue and 105 Street. The downstream outlet for the westerly area exists in the vicinity of 167 Avenue and 115 Street. The lake sizes would be approximately 2.0 hectares at normal water level.

6.4 Franchise Utilities

Gas, power and telephone utility services are readily available to be extended into the Plan Area.

6.5 Conclusion

The planning rationale and design principles embodied in the Castle Downs Extension Area Structure Plan clearly demonstrate that the Plan Area can be considered a completion of the existing Castle Downs community. This Plan has been prepared in

conformance with statutory documents and development guidelines, while satisfying both planning and engineering principles.

VII

PLAN IMPLEMENTATION

SECTION VII

PLAN IMPLEMENTATION

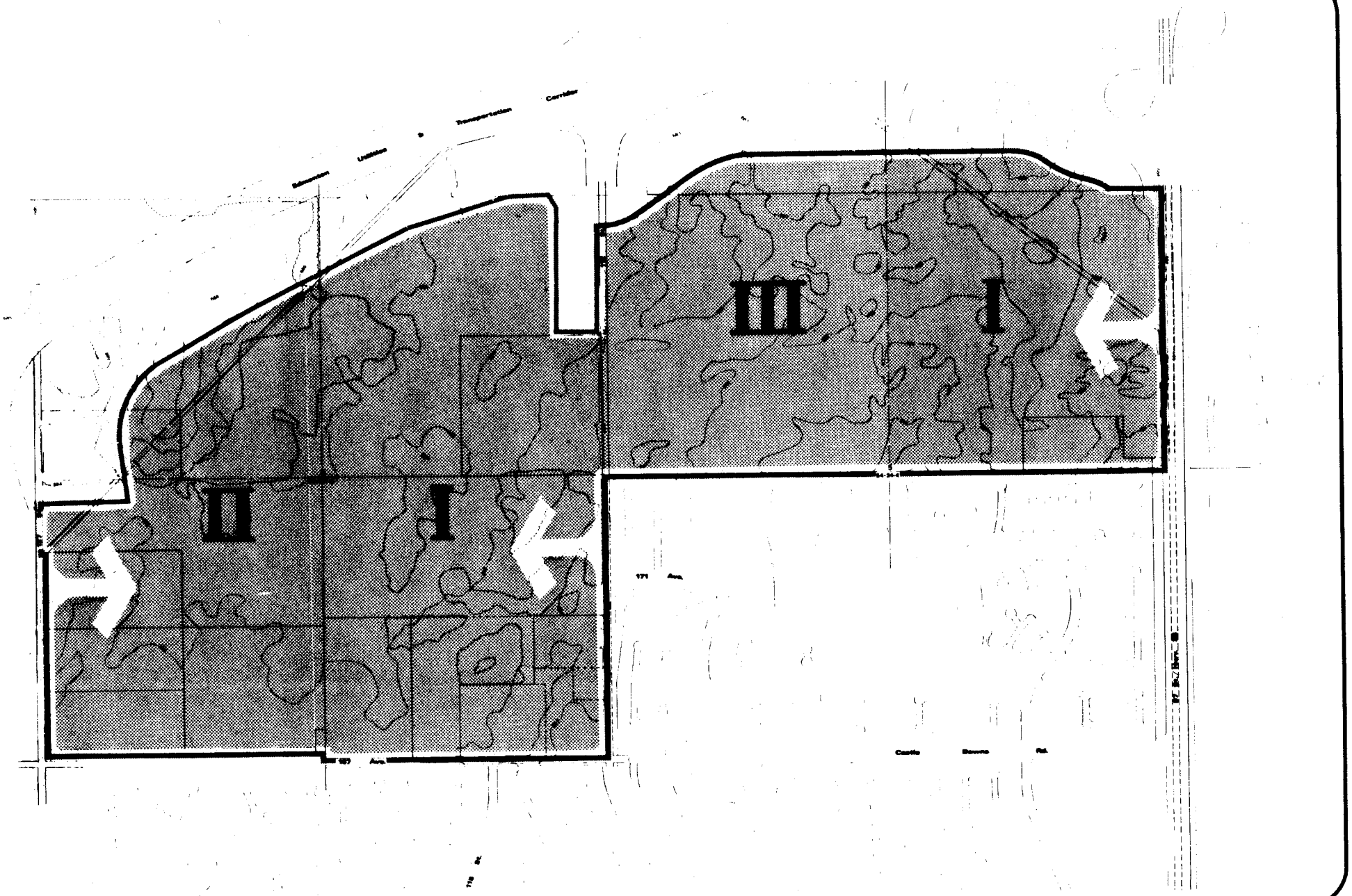
7.1 Staging of Development

The Castle Downs Extension area will be developed in accordance with the approval process pertaining to Neighbourhood Structure Plans, Subdivision Approval and Re-districting (Land Use By-Law) and execution of appropriate Development and Servicing Agreements. The proposed staging of development is shown in Figure 10.

Given the preceeding planning and engineering criteria, initial development will occur commencing with Neighbourhoods 1 and 3, to be followed by Neighbourhood 4 as area servicing becomes available (Fig. 8). The development of Neighbourhood 2 may overlap with Neighbourhood 1 and 3, but will be dependent on overall market conditions. With regard to timing of development it is expected that initial housing units may come on stream in 1984, with a build-out period of 10-15 years. With recent fluctuations in the housing market only a general estimate can be given at this time.

To ensure expeditious development, the following factors must be addressed as part of the staging and implementation process;

1. Master drainage plans for the four neighbourhoods will be formulated at the Neighbourhood Structure Plan Stage, which will define more precisely the size, shape, and location of the four stormwater management lakes and the drainage area



CASTLE DOWNS EXTENSION AREA STRUCTURE PLAN

STAGING

Direction of Development

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which each serves. These plans will assist in defining the final grading required within the Plan Area to ensure that the stormwater management system will operate at the highest level of efficiency.

2. An overall sanitary servicing plan will be required at the neighbourhood structure plan stage to define the sanitary trunk sewer sizes, locations and disposal/connection points including contributing sanitary catchment areas.

7.2 Implementation Process

The Castle Downs Extension Area Structure Plan provides a suitable guideline and framework upon which further detailed plans may be prepared. Therefore the Development Concept must be considered in this context. It is important now to obtain public support and commitment to the objectives and conclusions presented in this report. Briefly the implementation process to adopt the Plan is as follows:

1. Regional Plan Amendment

   The Plan Area is now within the City's new corporate limits. The City initiated an amendment to the P.R.P.-Metro Part from Low Density Agricultural (AG-UR) to General Urban (AG-U). This amendment has now been adopted by the EMRPC and ratified by the Provincial Planning Board.

2. Urban Growth Strategy and General Municipal Plan

   The Urban Growth Strategy report, which indicated that area structure plan preparation could proceed in 1982, supports the contention that this area is most appropriate for future residential use. Accordingly, the General Municipal Plan was amended for General Urban use in November, 1982 (Bylaw #6904).

3. Area Structure Plan

A recommendation to approve the Castle Downs Extension Area Structure Plan, by the Municipal Planning Commission is required. City Council would subsequently be requested to adopt this document as an ASP bylaw.

4. Neighbourhood Structure Plans

The four neighbourhoods will require neighbourhood structure plan preparation prior to subdivision approval.

The neighbourhood plans will address a number of planning and engineering issues in greater detail in terms of the dwelling types and mix, location of schools, neighbourhood parks, commercial areas, collector and local roadway patterns. The reports will be prepared in accordance with the Terms of Reference for Neighbourhood Structure Plans which the City has adopted and a policy report on the distribution and design of neighbourhood density.

5. Subdivision and Land Use By-Law (Re-districting) Approval

Following the approvals mentioned above, a plan of subdivision, development and servicing agreements, and re-districting amendments in conformance with the City's Land Use By-Law, can proceed.

Appendices

STATISTICAL DATA

TABLE I
CASTLE DOWNS EXTENSION AREA
STRUCTURE PLAN
LAND USE BREAKDOWN

LAND USE	PRIVATE OWNERS HECTARES	RDA HECTARES	TOTAL HECTARES
Residential*	212.85	66.52	279.37
Neighbourhood Commercial	1.69	--	1.69
Community Commericial	2.98	--	2.98
Institutional	1.34	.76	2.10
Reserve:			
Municipal	9.73	.60	10.53
Schools	18.42	4.27	22.69
Storm Lakes	8.22	--	8.22
Collector Circulation	14.30	2.71	17.01
TOTAL GROSS DEVELOPABLE AREA	269.73	74.86	344.59 (851.13 ac)

*NOTE: Residential includes local circulation.
Calculations derived by planimeter and are therefore approximate.

TABLE II
LAND USE ANALYSIS BY NEIGHBOURHOOD
(Amended by Editor)

P.O. - Private Owners
RDA - RDA Surplus Lands

	NH'D 1			NH'D 2			NH'D 3			NH'D 4		
	P.O.	R.D.A.	TOTAL	P.O.	R.D.A.	TOTAL	P.O.	R.D.A.	TOTAL	P.O.	R.D.A.	TOTAL
Residential	32.79	3.90	36.69	36.00	4.41	40.41	49.77	23.62	73.39	33.66	16.43	50.01
Church	.52	--	.52	--	--	--	--	.76	.76	.82	--	.82
Reserve . Municipal	.50	--	.50	4.15	--	4.15	2.68	.60	3.28	2.60	--	2.60
. School Sites	5.26	--	5.26	2.67	--	2.67	3.71	3.37	7.08	6.78	.90	7.68
. Lake	2.07	--	2.07	2.00	--	2.00	2.15	--	2.15	2.00	--	2.00
Neighbourhood Commercial	--	--	--	--	--	--	.85	--	.85	.84	--	.84
Community Commercial	2.98	--	2.98	--	--	--	--	--	--	--	--	--
Circulation	19.13	1.67	21.30	19.21	1.98	21.10	21.57	10.22	31.79	14.60	7.08	21.68
Total Hectares	63.75	5.57	69.32	64.03	6.30	70. 33	80.74	38.56	119.30	61.25	24.38	85.63

Gross Developable Area = 344.58ha which excludes N.U.L. gate and R.O.W. and *a private corporations gas* R.O.W
Discrepancies between Table II and Table I due to rounding of numbers.

TABLE III
POPULATION GENERATION FACTORS (1)
(Amended by Editor)

DWELLING TYPE	UNITS/ NET HECTARE	UNITS/ NET ACRE(1)	PERSONS/ DWELLING UNIT(2)
Single-Detached/RF1	20	8	3.46
Semi-Detached/RF4	30	12	3.32
Residential Planned Lot/RPL	30	12	3.10
Row Housing/RF5	42	17	2.98
Stacked Row Housing/RF6	70	28	2.48
Low Rise Apartment/RA7	100	51	2.04

(1) Maximum densities specified under the City's land use bylaw were not used in all cases. The units per net hectare/acre factor utilized here is based upon both a logical and reasonable assumption of the type of yield which has actually occurred throughout the City of Edmonton.

(2) These factors are based on household sizes established by the *Planning and Development Department* in May, 1983.

TABLE IV
POPULATION & DENSITY

(The following projections are only a representation of what is intended in each neighbourhood and are subject to revision at the NSP stage)

GROSS DEVELOPABLE AREA (G.D.A.)

NEIGHBOURHOOD	PRIVATE OWNERS (ha)	R.D.A. (ha)	TOTAL	DENSITY RANGE PERSONS/HECTARES
1	63.75	5.57	69.32	59 - 64
2	64.03	6.30	70.33	59 - 64
3	80.74	38.56	119.30	57 - 62
4	61.25	24.38	85.63	57 - 62
	269.77	74.81	344.58	

POPULATION

	PRIVATE OWNERS			R.D.A.			TOTAL		
NEIGHBOURHOOD	LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
1	3761	3984	4080	329	348	356	4090	4332	4436
2	3777	4001	4098	372	394	403	4149	4395	4501
3	4636	4840	5043	2197	2294	2391	6833	7134	7434
4	3491	3644	3798	1390	1451	1512	4881	5095	5310
TOTAL PERSONS	15,665	16,469	17,019	4,288	4,487	4,662	19,953	20,956	21,681
Density/Gross/Ha	57.93	60.91	62.95	57.32	59.98	62.32	57.80	60.71	62.81

TABLE V
NEIGHBOURHOOD 1 - HOUSING MIX

(The following mix is an example of what could occur in a neighbourhood plan)

P.O. - Private Owners RDA
- RDA Surplus Lands

HOUSING TYPE	AREA (ha)			UNITS			POPULATION		
	P.O.	RDA	TOTAL	P.O.	RDA	TOTAL	P.O.	RDA	TOTAL
Single-Detached (RF-1)	8.54	1.64	10.18	171	33	204	592	114	706
Semi-Detached (RF-4)	4.31	--	4.31	129	--	129	428	--	428
Residential Planned Lot (RPL)	5.76	.84	6.60	173	25	198	536	78	614
Row Housing (RF-5)	6.48	--	6.48	272	--	272	810	--	810
Stacked Row Housing (RF-6)	5.76	--	5.76	403	--	403	999	--	999
Low Rise Apartment (RA-7)	1.96	1.40	3.36	196	140	336	400	286	686
TOTAL	32.81	3.88	36.69	1344	198	1542	3765	478	4243

Projected Population Based on Development of Net Residential Area = 4628
Total Area of Neighbourhood = 7033 ha
Projected Density = $\frac{4628}{70.33}$ = 65.80 per hectare

TABLE VI
NEIGHBOURHOOD 2 - HOUSING MIX

(The following mix is an example of what could occur in a neighbourhood plan).

P.O. - Private Owners
RDA - RDA Surplus Lands

HOUSING TYPE	P.O.	RDA	TOTAL	UNITS P.O.	UNITS RDA	UNITS TOTAL	POPULATION P.O.	POPULATION RDA	POPULATION TOTAL
Single-Detached (RF-1)	9.75	2.23	11.98	195	45	240	675	156	830
Semi-Detached (RF-4)	4.04	.82	4.86	121	25	146	402	83	485
Residential Planned Lot (RPL)	5.52	1.36	6.88	166	41	207	515	127	642
Row Housing (RF-5)	6.88	--	6.88	289	-	289	861	-	861
Stacked Row Housing (RF-6)	6.27	--	6.27	439	-	439	1089	-	1089
Low rise Apartment (RA-7)	3.53	--	3.53	353	-	353	720	-	720
TOTAL	36.00	4.41	40.41	1563	111	1674	4262	366	4628

Projected Population Based on Development of Net Residential Area = 4628
Total Area of Neighbourhood = 70.33 ha.
Projected Density = $\frac{4628}{70.33}$ = 65.80 per hectare

TABLE VII
NEIGHBOURHOOD 3 - HOUSING MIX

(The following mix is an example of what could occur in a neighbourhood plan).

P.O. - Private Owners
RDA - RDA Surplus Lands

HOUSING TYPE	AREA (ha)			UNITS			POPULATION		
	P.O.	RDA	TOTAL	P.O.	RDA	TOTAL	P.O.	RDA	TOTAL
Single-Detached (RE-1)	21.03	10.17	31.20	420	203	623	1453	702	2155
Semi-Detached (RF-4)	3.12	.83	3.95	94	25	119	312	83	395
Residential Planned Lot (RPL)	15.62	8.40	24.02	469	252	721	1454	781	2235
Row Housing (RF-5)	3.12	1.67	4.79	131	70	201	390	207	599
Stacked Row Housing (RF-6)	4.68	1.26	5.94	328	88	416	813	218	1031
Low rise Apartment (RA-7)	2.30	1.19	3.49	230	119	349	469	243	718
TOTAL	49.87	23.42	73.39	1672	757	2429	4891	2234	7125

Projected Total Area Population Based on Development of Net Residential Area of Neighbourhood = 119.3 ha. = 7125

Projected Density = $\frac{7125}{119.3}$ = 59.72 persons per hectare

TABLE VIII
NEIGHBOURHOOD 4 - HOUSING MIX

(The following mix is an example of what could occur in a neighbourhood plan).

P.O. - Private Owners RDA - RDA
Surplus Lands

HOUSING TYPE	AREA (ha)			UNITS			POPULATION		
	P.O.	RDA	TOTAL	P.O.	RDA	TOTAL	P.O.	RDA	TOTAL
Single-Detached (RF-1)	8.87	5.67	14.54	177	113	290	612	391	1003
Semi-Detached (RF-4)	1.82	.79	2.61	55	24	79	183	80	263
Residential Planned Lot (RPL)	4.60	5.97	10.57	138	197	317	428	611	1039
Row Housing (RF-5)	7.80	1.99	9.79	328	84	412	977	250	1227
Stacked Row Housing (RF-6)	5.04	.79	5.83	353	55	408	875	136	1011
Low rise Apartment (RA-7)	5.67	1.05	6.73	567	10	672	1157	214	1371
TOTAL	33.80	16.26	50.06	1618	578	2196	4232	1682	5914

Projected Population Based on Development of Net Residential Area = 5914
Total Area of Neighbourhood = 85.63 ha
Projected Density = $\frac{5914}{85.63}$ = 69.06 persons per hectare

TABLE IX
MUNICIPAL RESERVE DEDICATION

	NH'D 1 (ha)			NH'D 2 (ha)			NH'D 3 (ha)			NH'D 4 (ha)		
	P.O.	R.D.A.	TOTAL	P.O.	R.D.A.	TOTAL	P.O.	R.D.A.	TOTAL	P.O.	R.D.A.	TOTAL
Park	--	--	--	3.65	--	3.65	2.18	.60	2.7	2.10	--	2.10
Park Area Adjacent to Storm Lake	.50	--	.50	.50	--	.50	.50	--	.50	.50	--	.50
Public School Sites	5.26	--	5.26	--	--	--	3.71	3.37	7.08	2.33	.90	3.23
Separate School Sites	--	--	--	2.67	--	2.67	--	--	--	4.45	--	4.45
Total Dedication	5.76	--	5.76	6.82	--	6.82	6.39	3.97	10.36	9.38	.90	10.28

Dedication by P.O. = 28.35 ha
Dedication by R.D.A. = 4.87 ha

Total Dedication = 33.22 ha
Total Dedication required in accordance with Planning Act is 34.5 ha.

TABLE XI
STUDENT GENERATION SUMMARY(1)

NEIGHBOURHOOD	PUBLIC SCHOOL SYSTEM									SEPARATE SCHOOL SYSTEM								
	PUBLIC ELEMENTARY			PUBLC JUNOIR HIGH			PUBLIC SENIOR HIGH			SEPARATE ELEMENTARY			SEPARATE JUNIOR HIGH			SEPARATE SENIOR HIGH		
	P.O.	RDA	TOTAL	P.O.	RDA	TOTAL	P.O.	RDA	TOTAL	P.O.	RDA	TOTAL	P.O.	RDA	TOTAL	P.O.	R D A	TOTAL
1	312	31	342	115	16	142	82	9	91	251	29	280	94	13	107	63	7	70
2	331	33	364	124	12	136	86	9	95	266	27	293	106	8	114	64	6	70
3	433	207	640	164	77	241	119	57	176	342	164	506	132	63	195	95	46	141
4	316	148	464	123	54	177	84	38	122	249	120	369	96	44	140	63	31	94
TOTAL STUDENTS	1392	419	1811	526	159	685	371	113	484	1108	340	1448	428	128	556	285	90	375

(1) The student population was based on the housing mix breakdown utilized in Tables V through VIII. It is only a representation of what may occur at the neighbourhood plan stage but is subject to revision at the time more detailed planning is undertaken.

TABLE XII OWNERSHIP
(Amended by Editor)

NO.	LEGAL DESCRIPTION	REGISTERED OWNER	CAVEATS	C. OF T. NO.	*LAND AREA	
1	S.W. 1/4-8-54-24-4	*Private Owner*	Minister of the Environment	221-W-149	160 Ac.	(14.79)
2	S.E. 1/4-8-54-24-4	Her Majesty the Queen	Minister of the Environment	812024410	160 Ac.	(14.04)
				TOTAL	320 Ac.	(28.83)
3	N. 1/2-5-54-24-4	*3 Private Owners*	*Private Corporation*	7-Q-242	305.07 Ac.	(302.6)
4	N.E. 1/4-5-54-24-4 Plan 7821490 Block 1, Lot 1	*3 Private Owners*		78210800	11.36 Ac.	(11.36)
				TOTAL	316.43 Ac.	(313.96)
5	N.E. 1/4-6-54-24-4 LSD 10, 15, 16	Her Majesty the Queen	Minister of the Environment	762194721	120.0 Ac.	(98.1)
6	N.E. 1/4-6-54-24-4	*Private Owner* *Private Owner*		78214494	40.0 Ac.	(40.0)
7	N.W. 1/4-6-54-24-4 Lot A PLan 7720643	*Private Owner*	Minister of the Environment	772051329	19.73 Ac.	(18.51)
8	N.W. 1/4-6-54-24-4	Her Majesty the Queen	Minister of the Environment	772037122	140.0 Ac.	(64.13)
				TOTAL	319.73 Ac.	(220.74)

NO.	LEGAL DESCRIPTION	REGISTERED OWNER	CAVEATS	C. OF T. NO.	*LAND AREA	
9	S.E. 1/4-6-54-24-4	*Private Owner*		199-T-208	7.5 Ac.	(7.50)
10	S.E. 1/4-6-54-24-4	*Private Owner*		17-Y-127	25.0 Ac.	(25.0)
11	S.E. 1/4-6-54-24-4	*Private Owner*		195-J-132	23.17 Ac.	(23.17)
12	S.E. 1/4-6-54-24-4	*Private Owner*	*Private Corporation*	63-V-273	80.0 Ac.	(80.0)
13	S.E. 1/4-6-54-24-4	*Private Corporation*	*Private Corporation*	812252602	24.33 Ac.	(24.33)
14	S.W. 1/4-6-54-24-4 Plan 1494 N.Y. Block B	*Private Owner* *Private Owner*	*Private Corporation*	119-8-211	18.0 Ac.	(18.0)
15	S.W. 1/4-6-54-24-4 Plan 1494 N.Y. Block C	*2 Private Owners*	*Private Corporation*	158-P-210	18.0 Ac.	(18.0)
16	S.W. 1/4-6-54-24-4 Plan 491 MC Lot A	*Private Corporation*	*Private Corporation*	782032546	35.36 Ac.	(35.36)
17	S.W. 1/4-6-54-24-4	*4 Private Owners*		812265945 (A) (B) (C)	62.01 Ac.	(62.01)
18	S.W. 1/4-6-54-24-4	*4 Private Owner*		772041024	22.0 Ac.	(22.0)
19	S.W. 1/4-6-54-24-4 Plan 491 M.C. Lot A	*Private Corporation*		752074760	0.44 Ac.	(0.44)
				TOTAL	315.81 Ac.	(315.81)

*NOTE: Land area of total parcel as per certificates of title (land area within plan boundary/as calculated by planimeter).
Also, areas a, b and c registered in the name of the City of Edmonton for road widening requirements.