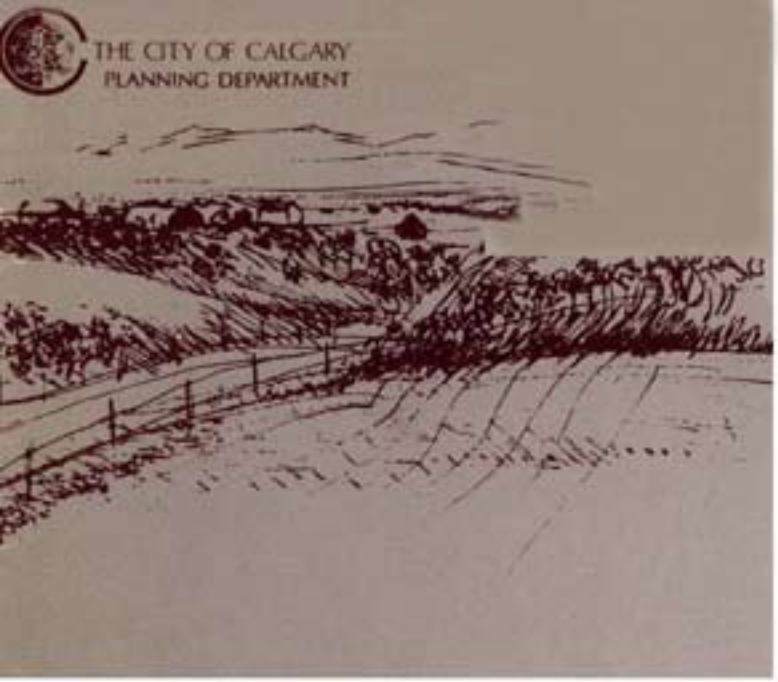
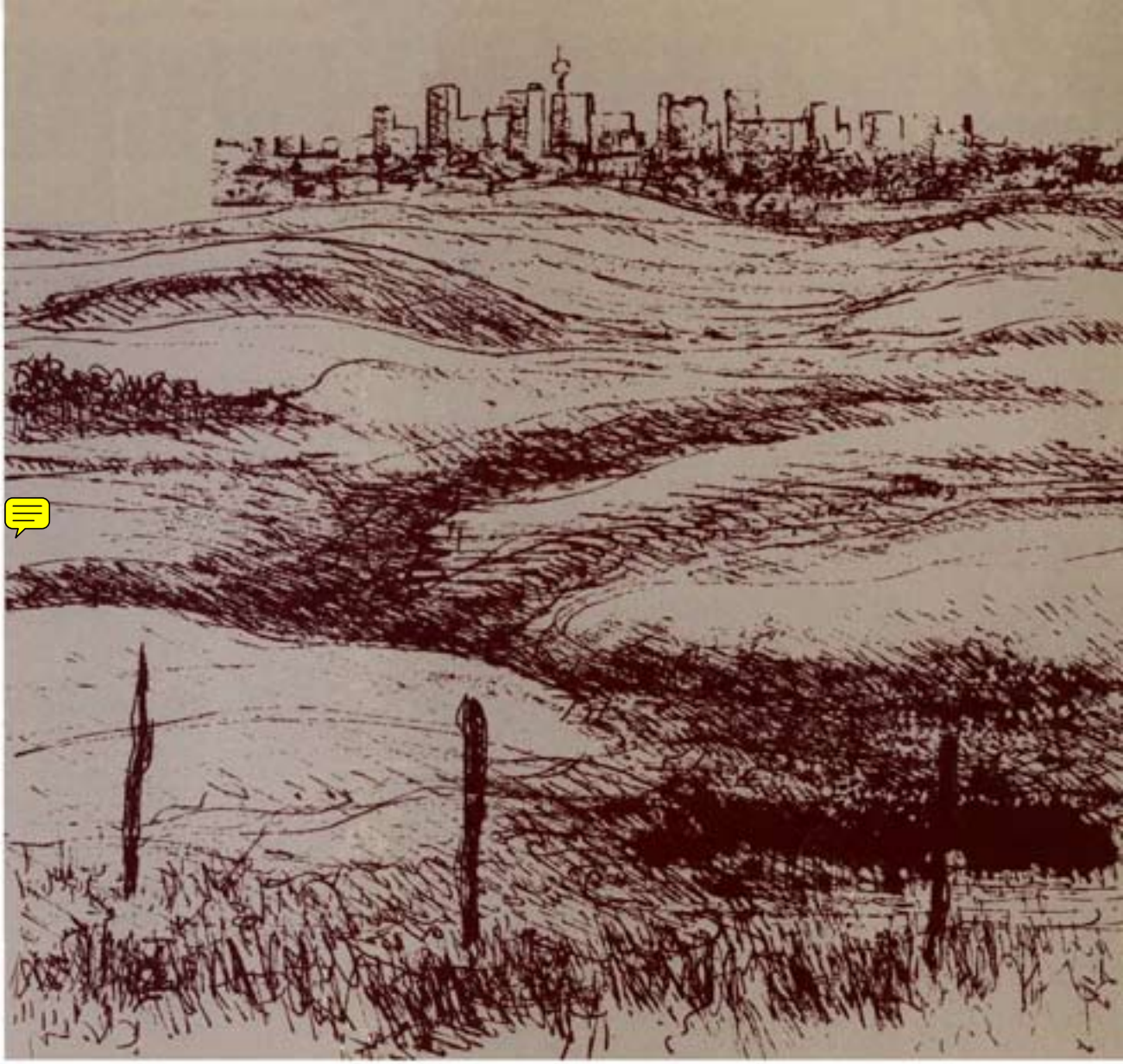
THE CITY OF CALGARY
PLANNING DEPARTMENT





CROWCHILD

Phase 3
Policy Statement & Area Structure Plan

The Policy Framework & Background Information pages of this document contain supporting information and do not form part of the bylaw.

For purposes of electronic publications they are indentified by the footers “Policy Framework & Background Information”.

Office Consolidation
2016 March

2016-0990

Crowchild
Policy Statement & Area Structure Plan
Phase 3

Approved by City Council
September 1979
Bylaw 10P79

THE CITY OF CALGARY
PLANNING & BUILDING DEPARTMENT

Note: This office consolidation includes the following amending Bylaws:

Amendment	Bylaw	Description	Date
1	11P81	a. Section 2.2.1.2 – Revise wording of Cell C b. Section 2.2.7 – Revise wording of Cell C	1981 Arpil 16
2	21P81	a. Table 2.2.7 – Revise number b. Section 2.3.2.1 – Add new sentence c. Section 2.4.1 – Amend first sentence d. Section 2.5 – Add new paragraph (superceded by 21P89) e. Map 7 – Replace (superceded by 21P89)	1981 December 7
3	21P89	a. Section 2.5 – Delete paragraph	1989 April 11
4	20P90	b. Map 7 – Replace c. Map 8 – Replace	1990 December 10
5	10P2016	a. Map 7 – Replace	2016 March 7

Amended portions of the text are printed in *italics* and the specific amending Bylaw is noted.

Persons making use of this consolidation are reminded that it has no legislative sanction, and that amendments have been embodied for ease of reference only. The official Bylaw and amendments thereto are available from the City Clerk and should be consulted when interpreting and applying this Bylaw.

PUBLISHING INFORMATION

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OFFICE CONSOLIDATION

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Policy Framework

0.1 INTRODUCTION

On 7 December 1978, in accordance with directions from the City Council meeting of 20 November 1978, the Board of Commissioners approved the appointment of Urban Life Consultants Ltd. to undertake the preparation of the Crowchild Three Area Structure Plan.

The document is presented in three subsequent parts:

0.1.1 I. Policy Framework – to establish an adequate policy level for planning and future development.

0.1.2 II. Area Structure Plan – as defined in Section 62 of The Planning Act, 1977. Under provision of The Act, only part II – the Area Structure Plan – is to be adopted by by-law.

0.1.3 III. Appendix of Background Information – provides an analysis of natural and man-made systems which have influenced the conceptualization of the Area Structure Plan. Development and design guidelines are included for the purpose of being used as criteria in implementing the Area Structure Plan.

The guidelines are intended to be flexible and to be interpreted to fit specific cases for future development as they arise at the outline plan stage.

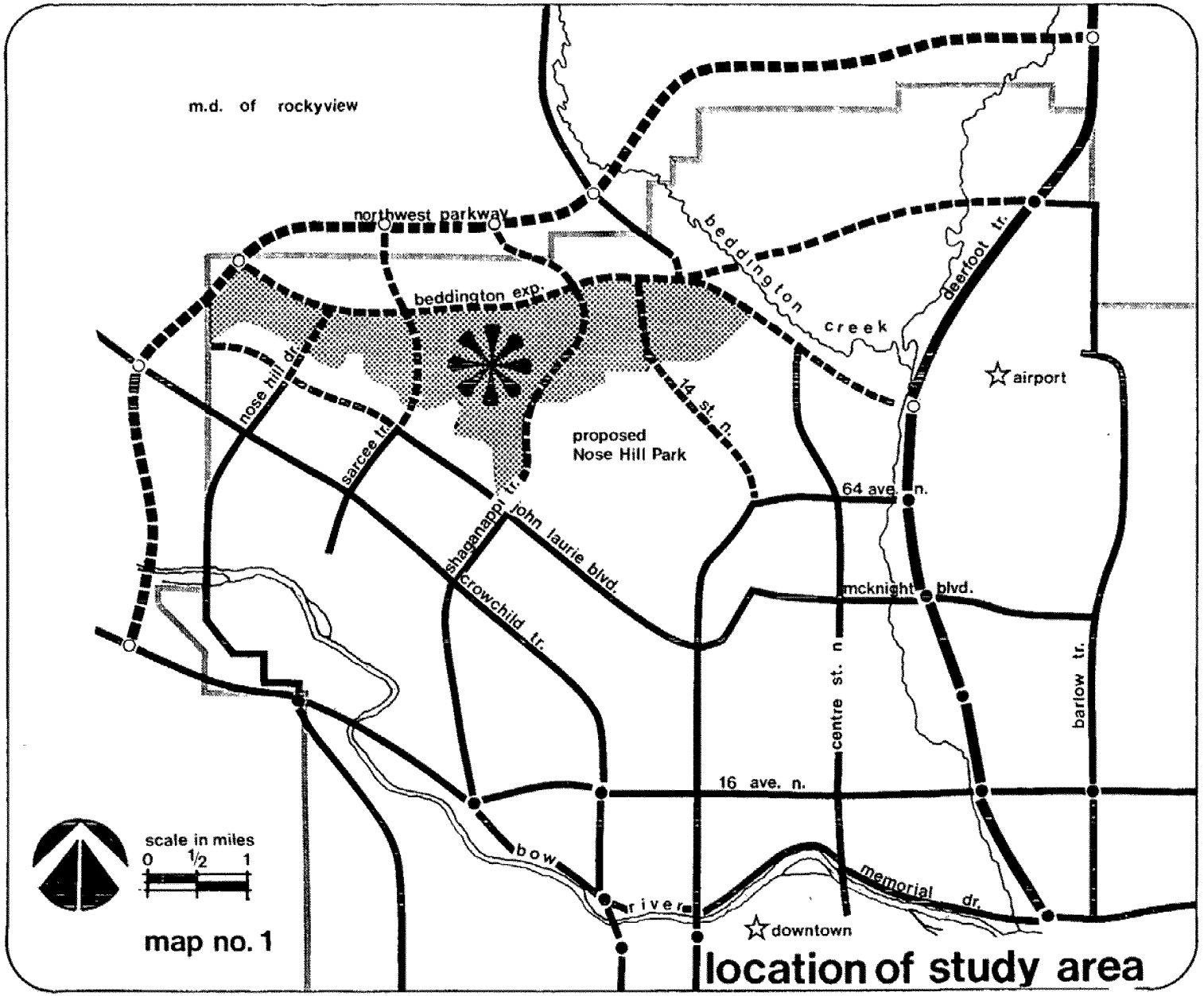
0.2 SETTING

The Area Structure Plan Study Area is generally located within the extreme northwest corner of the present city limits, north of the area covered by the Crowchild II and Beddington policy reports and design briefs. (map 1, Location of Study Area.)

Land uses within and north of the study area are generally agricultural, specifically grazing and cultivated land. To the south, adjacent land uses are (west to east) made up of the residential communities of Crowchild West, Ranchlands, Edgemont, the proposed Nose Hill Park, and the residential community Beddington Heights.

The boundaries of the Area Structure Plan study area are the Beddington Expressway to the north and east, city limits to the west, the 4,000 feet contour north of the Crowchild II lands and the community of Edgemont, the northern boundary of the proposed Nose Hill Park and Berkshire Blvd., to the south.

The total study area is approximately 3,140 gross acres. Of this, there are approximately 285 acres of proposed Environmental Reserves, 415 acres of proposed Environmentally Sensitive Areas, and 135 acres of major roadway facilities. A balance of about 2,205 gross developable acres is therefore left which would yield a projected population of 48,510 persons based on 22 persons per acre.


m.d. of rockyview
northwest parkway
beddington exp.
beddington creek
deerfoot tr.
airport
nose hill dr.
sarcee tr.
14 st. n.
proposed
Nose Hill Park
64 ave. n.
shaganappi tr.
john laurie blvd.
crowchild tr.
mcknight blvd.
centre st. n
barlow tr.
16 ave. n.
bow river
memorial dr.
downtown
scale in miles
0 1/2 1
map no. 1
location of study area

I. POLICY FRAMEWORK

1.1 EXISTING POLICY

1.1.1 The Regional Plan

Prior to the 1 January 1979 annexation, a portion of the study area north of Edgemont and Nose Hill was outside the city limits. The entire study area is now within the city limits as the 1 January 1979 annexation approval. As a result of annexation the Regional Plan will require an amendment to designate the recently annexed portion of the study area to a high density district to allow urban development at appropriate densities.

1.1.2 Calgary General Municipal Plan

Under provision of the Planning Act the Calgary General Municipal Plan was adopted by by-law 12 March 1979. As required in the Planning Act 1977, section 4.1.41 of the Calgary General Municipal Plan designates Crowchild III as an area suitable for an area structure plan.

1.1.3 Policy of the Crowchild II and Beddington Policy Reports

The areas covered in part by the Crowchild II and Beddington Policy Reports designate respective areas of Crowchild III lands as urban reserve/future residential.

1.1.4 City Council Policy to Preserve 2,600 acre Nose Hill Park

On 27 February 1978 a decision of City Council affirmed the boundary of Nose Hill Park as comprising approximately 2,600 acres. As per Council decision of 26 January 1976, this area be bounded by the proposed northerly alignment of 14th Street on the east, by John Laurie Blvd. on the south, by the proposed Shaganappi Trail alignment on the west and on the north by the north boundary of certificates of title no 75-1081-481, 75-1080-480 and 75-1081-478.

1.2 LAND USE

The Crowchild II and Beddington Policy Reports and Design Briefs have jointly studied the feasibility of future urban residential development in the greater portion of the Crowchild III Area Structure Plan study area. These two Council approved documents designate respective lands in the Crowchild III study area as urban reserve/future residential. Subsequent to the Crowchild II Design Brief and prior to the completion of the study to develop the Crowchild III Area Structure Plan, Council approved, with clauses, the concept plan for 740 acres of land, which overlaps area covered by Crowchild II and area covered by Crowchild III.

Based on present policy outlined and the precedent of approving a residential concept plan for lands within the Crowchild III study area, it is a logical conclusion that the 3,140 acre study area for the Crowchild III Area Structure Plan develop as an extension of existing and developing residential communities.

As previously noted there are 2,205 gross developable acres within the study area. Residential development at 22 persons per acre would generate a projected population of 48,510 persons.

The study area has been broken down into four development cells to facilitate logical community planning. (map 2, Study Area and Cell Boundaries).

1.3 UTILITY SERVICING

Water, natural gas, electricity, storm sewer and sanitary sewer services will be available through extension of existing facilities and local improvements to allow full development. Details of locations, sizing and phasing area given in part II, the Area Structure Plan.

1.4 TRANSPORTATION

1.4.1 Transportation Improvements

Development at the Crowchild III area is contingent upon improvements to the following transportation corridors.

1.4.1.1 Crowchild Trail Corridor

Development in the northwest sector of the city is dependent on improvements to the Crowchild Trail Corridor, including NW LRT (Cells B, C, and D) and construction of the Beddington Expressway (Cell A). The network analysis done as part of the 1979 T.I.P.S. Update envisions of a total population of some 139,000 persons in the northwest sector, assuming construction of the transportation improvements outlined in T.I.P.S. (See Appendix). This would allow a population increase by about 49,000 persons over and above the 1978 population of 90,200 for the northwest sector. Although contiguous development would better facilitate phasing of the transportation system, population constraints will not be allocated to specific areas within the northwest. Development will be monitored at the "Outline Plan" stage to ensure that the total population constraint of 139,000 is not exceeded. T.I.P.S. will be updated regularly (approximately every three years) at which time transportation improvements can be identified which would accommodate future development in the northwest sector. Such improvements and development would be subject to future decisions of City Council.

1.4.1.2 Beddington Expressway/Deerfoot Corridor

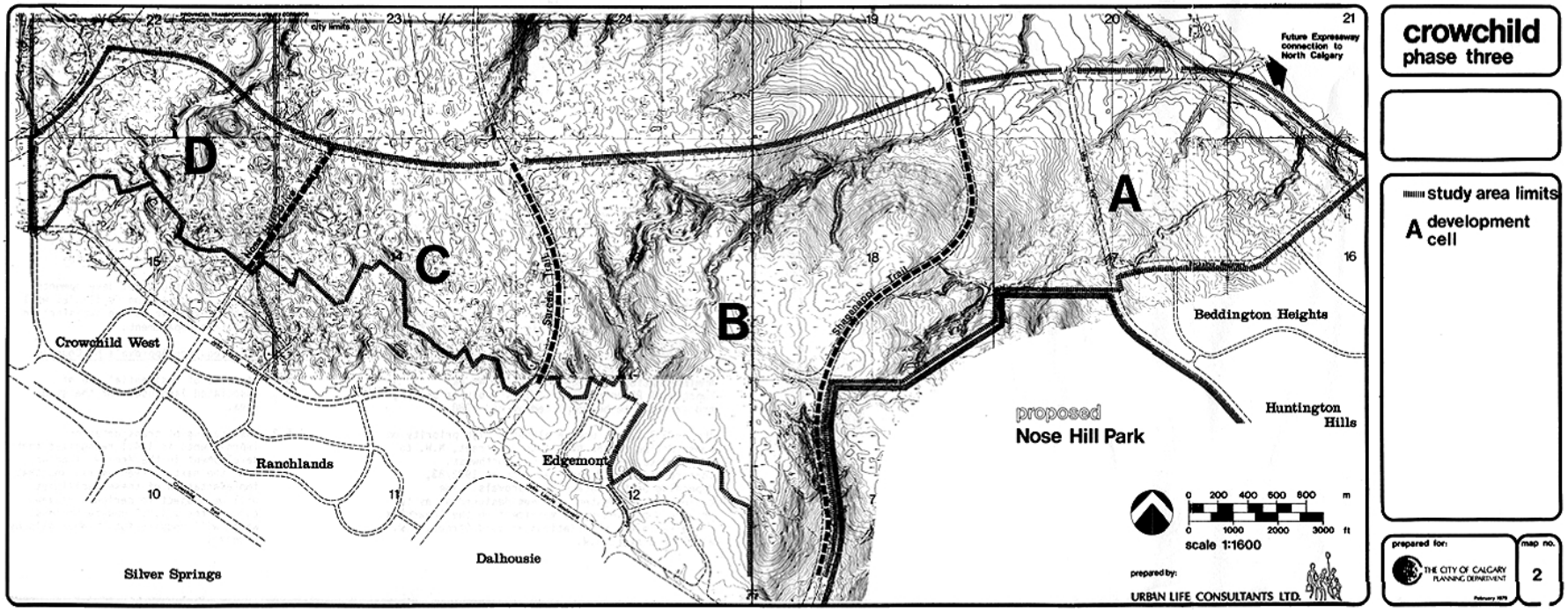
The connection of Beddington Expressway from 14th Street to the Deerfoot Trail interchange will accommodate development in Cell A to a population of 15,000.

Details of location, sizing, and phasing are given in part II, the Area Structure Plan.

1.4.2 Public Transit

1.4.2.1 Bus Service

Transit service will be extended into the Crowchild III area as warranted by development. The collector road system constructed concurrent with development transit, using the standard 1,500 foot maximum walking distance to a station.


crowchild
phase three
study area limits
A development cell
D
C
B
A
Crowchild West
Ranchlands
Edgemont
Dalhousie
Silver Springs
Beddington Heights
Huntington Hills
proposed
Nose Hill Park
Future Expressway connection to North Calgary
city limits
Shaganappi Trail
Sarcee Trail
0 200 400 600 800 m
0 1000 2000 3000 ft
scale 1:1600
prepared by:
URBAN LIFE CONSULTANTS LTD.
prepared for:
THE CITY OF CALGARY PLANNING DEPARTMENT
map no.
2

1.4.2.2 Northwest L.R.T.

Construction of the NW LRT is a significant factor in the development of Crowchild III. On February 22, 1979 City Council approved the NW LRT corridor Study (as amended) and instructed the Administration to proceed with the NW LRT Functional Planning Study. This study is ongoing and expected to be completed by mid-1980.

The 1979 T.I.P.S. update places a high priority on construction of the NW LRT to 53 Street, N.W. to accommodate development in the northwest. Construction could begin as soon as 1982/83, depending on the necessary approvals. The collector road system has been designed so as to provide good feeder bus service from the Crowchild III area to the LRT stations at 53rd Street, N.W. and 85th Street, N.W.

1.4.3 Transportation Noise Attenuation

Noise attenuation for residential developments adjacent to major transportation facilities will be provided by the developer to the satisfaction of the Transportation Department.

1.5 CONCLUSION: Required Approval of Council

1.5.1 Approval of residential and of associated land uses for the study area.

1.5.2 The phasing transportation improvements in 1.4.1 recognizes that development in the area will occur over the next fifteen years, and that implementation of these facilities will be subject to periodic review through the T.I.P.S. update process which will require future approvals by Council.

PART 2

Area Structure Plan

II. AREA STRUCTURE PLAN

2.1 INTRODUCTION

The purpose of an area structure plan as stated in Section 62 of the Planning Act, 1977 is

"62(1) For the purpose of providing a framework for subsequent subdivision and development of an area of land in a municipality, a council may, by by-law passed in accordance with Part 6, adopt a plan to be known as the '(name) Area Structure Plan'.

(2) An area structure plan shall

(a) conform to any general municipal plan in existence and affecting the area that is the subject of the area structure plan;

(b) describe

(i) the sequence of development proposed for the area.

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

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

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

(c) contain such other matters as the council considers necessary."

2.2 SEQUENCE OF DEVELOPMENT

2.2.1 Transportation

2.2.1.1 Phasing of Corridor Improvements

The sequence of development of the study area is dependent on transportation and utility constraints. In the following sections the improvements required for development will be identified and a recommended phasing priority for development given.

Development in the northwest sector of the city is dependent on improvements to the Crowchild Trail corridor, including NW LRT (Cells B, C, and D) and construction of the Beddington Expressway (Cell A). The network analysis done as part of the T.I.P.S. update (1979) envisions a total population of some 139,000 persons in the northwest sector, assuming construction of the transportation improvements outlined in T.I.P.S. This would allow a population increase by about 49,000 above the 1978 population of 90,200 for the northwest sector. Although contiguous development would better facilitate phasing of the transportation system, population constraints will not be allocated to specific areas within the NW. Development will be monitored at the outline plan stage to ensure that the total population constraint of 139,000 persons in not exceeded. T.I.P.S. will be updated regularly (approx. every three years) at which time transportation improvements can be identified which would accommodate future development in the northwest sector. Such improvements and developments would be subject to future decisions of City Council.

Development in the eastern end, Cell A, could proceed to a population of 15,000 with connection of the Beddington Expressway from the 14th Street to the Deerfoot Trail interchange.

There may be other modification to these requirements for development as a result of the current T.I.P.S. update.

2.2.1.2 Specific Phasing – Development Cells

The phasing of the development cells can occur independently. The requirements for development of each cell are given below.

Cell A

Facilities Required for Full Development

- construction of the Beddington Expressway from Deerfoot Trail to 14th Street.
- construction of 14th Street from 48th Avenue to the Beddington Expressway.

Phasing

- construction of 14th Street to Berkshire Boulevard will allow 2,500 persons.
- construction of Beddington Expressway from 14th Street to Deerfoot Trail and of the interchange with Deerfoot Trail will allow full development.

Cell B

Facilities Required for Full Development

- construction of Shaganappi Trail from John Laurie Blvd. to the Beddington Expressway.
- construction of Sarcee Trail from John Laurie Blvd. to the Beddington Expressway.
- construction of John Laurie Blvd. from Shaganappi Trail to Sarcee Trail.
- construction of the Beddington Expressway from Sarcee Trail to 14th Street.

Phasing

- development of north of the 4,000 foot contour, particularly in the northwest corner of the cell, will require extension of Shaganappi Trail from John Laurie Blvd. to the Beddington Expressway.
- development could be phased north of the 4,000 foot contour with the major east-west roadway, linking Edgemont Blvd. to Shaganappi Trail in place.

Cell C

Facilities Required for Full Development

- construction of John Laurie Blvd. from Sarcee Trail to Nose Hill Drive (85th Street)
- construction of the Beddington Expressway from Sarcee Trail to Nose Hill Drive
- construction of Sarcee Trail from John Laurie Blvd. to the Beddington Expressway
- construction of Nose Hill Drive from John Laurie Blvd. to the Beddington Expressway.

Phasing

- *development north of the 4,000 foot contour should be staged to coincide with the phased construction of the Beddington Expressway from Sarcee Trail to Nose Hill Drive and Sarcee Trail from John Laurie Boulevard to the Beddington Expressway.* **11P81**

Cell D

Facilities Required for Full Development

- construction of John Laurie Blvd. west of Nose Hill Drive.
- construction of Nose Hill Drive to the Beddington Expressway.
- construction of the Beddington Expressway west of Nose Hill Drive.

Phasing

- all the above improvements are major standard roadways and are to be constructed as development occurs.

From a transportation point of view, it would be most appropriate in terms of facilities and road improvement for development to be phased from east to west with Cell D being the final phase of development.

2.2.2 Water Servicing

All lands contained within the Area Structure Plan boundaries are serviceable with water, subject to construction of specific facilities which are provided for in the current tentative 5-year capital budget. However, the timing of development in individual cells may influence the sequence of development for these facilities as indicated below.

CELL A

This cell can be developed almost entirely with services being extended directly from the existing feeder and distribution main in the Beddington area (refer to Map 3: Water Servicing). Two exceptions are:

i) the southwest corner of the cell which is covered by the Nose Hill and Top Hill pressure zones (This area is proposed to be acquired by the City for the proposed East Big Hill reservoir and an extension to the proposed Nose Hill Park.);

ii) development above a population of 9,000 in the entire East Big Hill zone will require construction of the East Big Hill reservoir. However, construction of this reservoir may have to be advanced to service developments in North Calgary.

CELL B

Two pressure zones – Nose Hill and Top Hill – cover all of this cell with the exception of the northeast corner. This corner is a continuation of the East Big Hill zone and can be serviced in the same manner as Cell A. Because of the topographic configuration of Cell B, it is probably most feasible to service the portion covered by the Nose Hill pressure zone by pressure reducing from the Top Hill zone lands. Such development would initially be served from the existing West Big Hill pumping station in Edgemont. This facility will accommodate a population of 10,000 in the Top Hill zone before the Top Hill reservoir is required. A main from the existing 36 inch feeder main into the cell, if development precedes Cells C and D.

CELL C

Cell C falls almost entirely within the Top Hill zone with only the southern boundary in the Nose Hill zone. Development may precede Cells B and D if the existing 36 inch feeder main on Edgemont Boulevard is extended across to Sarcee Trail and then along the Beddington Expressway for the Top Hill zone. The portion within the Nose Hill zone can be serviced by extending the 16 inch feeder main from Edgemont in the east.

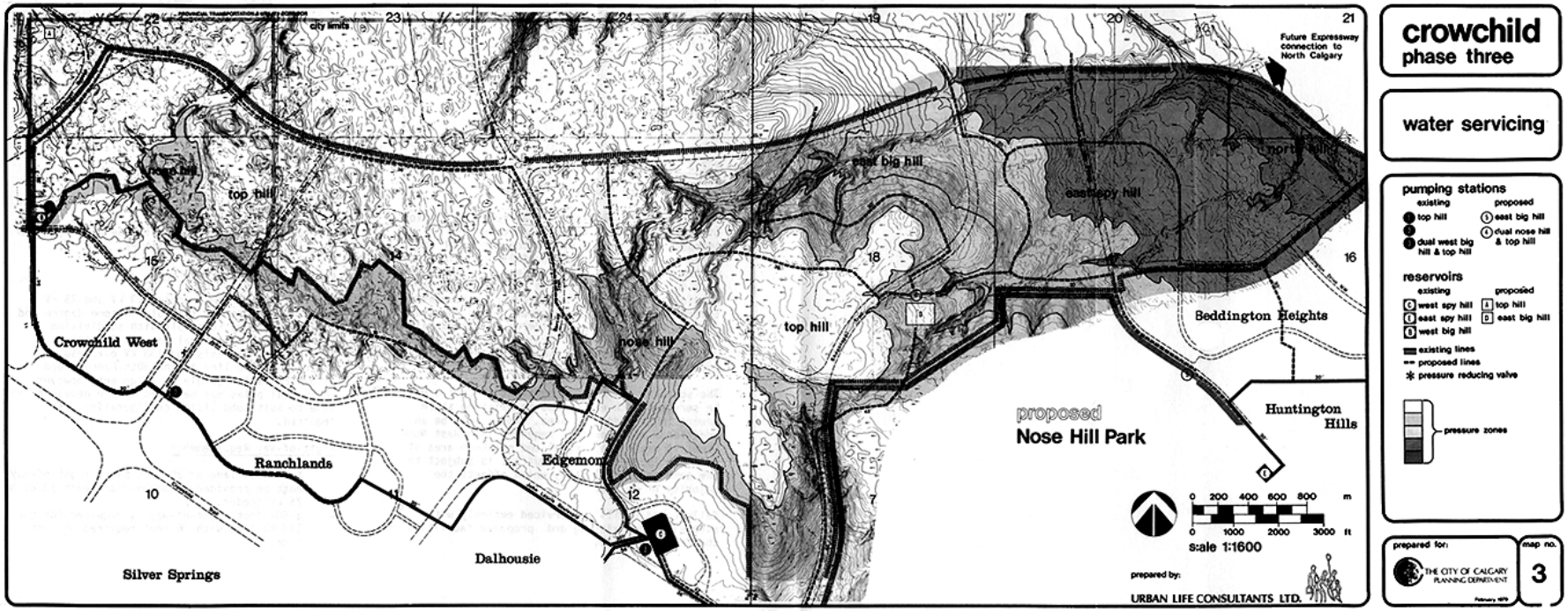
CELL D

This cell also falls almost entirely within a single pressure zone, the Top Hill. A small portion along the south is within the Nose Hill zone, which can be serviced directly by extending the 24 inch feeder main on Nose Hill Drive. The Top Hill portion of Cell D can be developed prior to Cells B and C by construction of a pump station at the existing West Big Hill reservoir site and extending a feeder main into the cell.

If Cell D is constructed after Cell C then the Top Hill reservoir may be constructed and the feeder main on Beddington Expressway extended to connect to it. If Cell B is developed after Cell C but before Cell D, then it will be necessary to construct the Top Hill reservoir and connect the feedermain to it (this will require a right-of-way for the feeder main through Cell D, and westward to the Top Hill Reservoir Site.) or to construct a pump station at the East Big Hill reservoir provided the latter is already in operation and that sufficient supplies are available at the time of development.

The Waterworks Division's recommended order to development within the Top Hill zone would be Cell C, Cell D, and then Cell B. However, as indicated other sequences are feasible. Some right-of-way provision may be required in advance of development under certain sequences.

It should be noted that the location of the 42 inch feedermain from the West Big Hill pump station to the East Big Hill reservoir will be required to service possible future developments in North Calgary. The invert of the main must be kept below 3,938 feet in order to operate correctly. In order to prevent the need for excessive excavation, both in the initial construction and in subsequent maintenance, it is necessary to route the main through the ravine to the southwest of the reservoir. This should be undertaken in a manner such that the ravine is restored as closely as possible to "natural" conditions to tie in with the proposed development of Nose Hill Park.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phase three
water servicing
pumping stations
existing
top hill
dual west big hill & top hill
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east big hill
dual nose hill & top hill
reservoirs
existing
west spy hill
east spy hill
west big hill
proposed
top hill
east big hill
existing lines
proposed lines
pressure reducing valve
pressure zones
prepared for:
THE CITY OF CALGARY PLANNING DEPARTMENT
map no.
3
Future Expressway connection to North Calgary
city limits
nose hill
top hill
east big hill
eastspy hill
north hill
Beddington Heights
Huntington Hills
Crowchild West
Ranchlands
Edgemont
Dalhousie
Silver Springs
proposed
Nose Hill Park
0 200 400 600 800 m
0 1000 2000 3000 ft
scale 1:1600
prepared by:
URBAN LIFE CONSULTANTS LTD.

2.2.3 Storm and Sanitary Servicing

2.2.3.1 Storm Sewers

The Storm sewer service for the southern portion of Cell A will be extended from existing infrastructure in the Beddington catchment area. There is a proposed storm outfall to drain the northern portion of Cell A. (map 4). Approval of this outfall is dependent on the results of a provincial government "Storm Water Management/ Environment" study, to be conducted in the near future, and should be considered as a constraint to development of lands within the catchment area until such time as the results of the report are known.

The southern and western portion of Cell B will be serviced with extensions to existing storm sewers in the Edgemont area. There will be an additional outfall required into West Nose Creek to drain the central and northern area of Cell B. Approval of this outfall is subject to the same provincial study which affects the majority of Cell A.

Cells C and D will be serviced entirely with extensions to existing and proposed facilities in the Crowchild area.

2.2.3.2 Sanitary Sewers

All sanitary sewer service will be extended from existing and proposed facilities.

2.2.4 Electrical Service

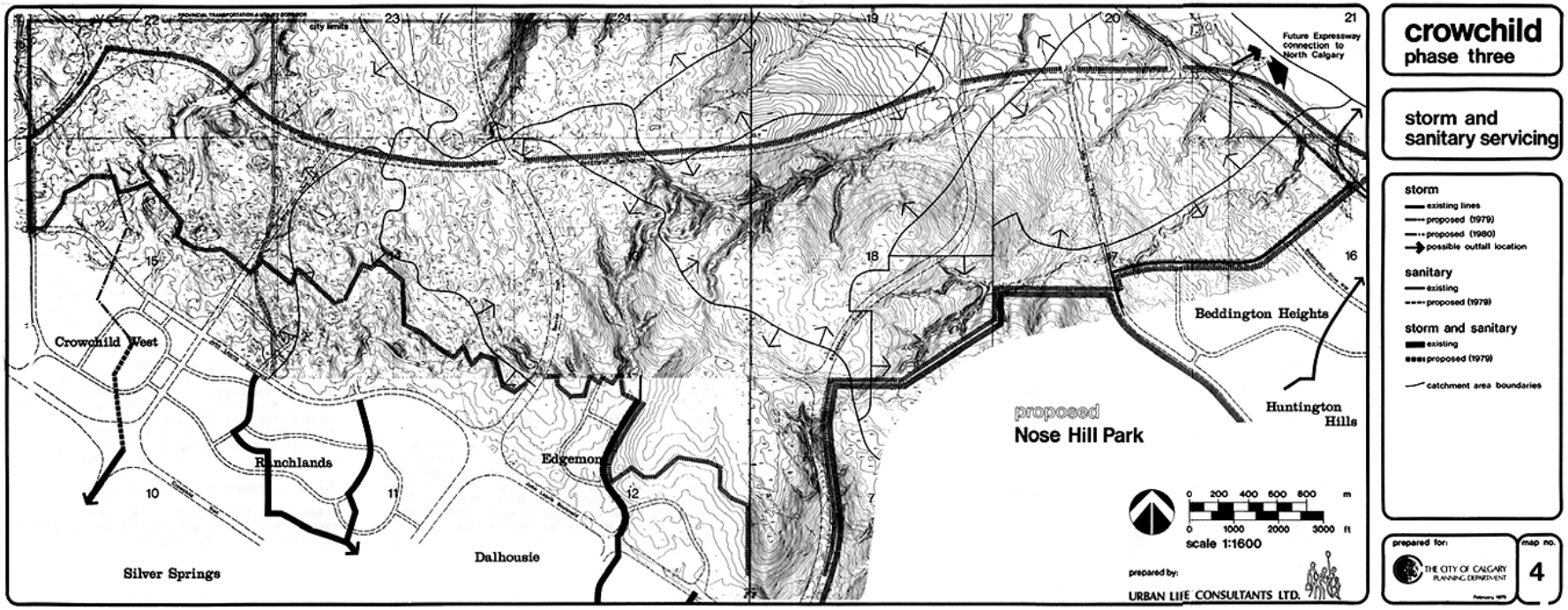
The location of the proposed 13 kV and 25 kV overhead feeders are flexible to some degree and will be adjusted to comply with subdivision layout. (map 5, Natural Gas and Electrical Servicing). The existing 138 kV overhead subtransmission line in the 80th Avenue road allowance is inflexible in alignment, however individual poles may be moved by the developer in line to suit subdivision configuration, as required.

Right-of-Way Requirements

- a 30 foot lane or 20 foot paved right-of-way must be provided to accommodate each 13 kV or 25 kV feeder.
- 1 60- foot right-of-way is required for the 138 kV line with 30 feet required on each side.
- a 20 foot aerial easement is required on the 138 kV line if the 80th Avenue road allowance remains open.

Substations

There is an existing substation at the southwest corner of section 14. A proposed substation will be located at the southeast corner of section 18. Both these locations are adjacent to the 138 kV line.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catchment area boundaries
Future Expressway
connection to
North Calgary
city limits
Crowchild West
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Edgemont
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Beddington Heights
Huntington
Hills
proposed
Nose Hill Park
0 200 400 600 800 m
0 1000 2000 3000 ft
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prepared by:
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prepared for:
THE CITY OF CALGARY
PLANNING DEPARTMENT
map no.
4

2.2.5 Natural Gas Service

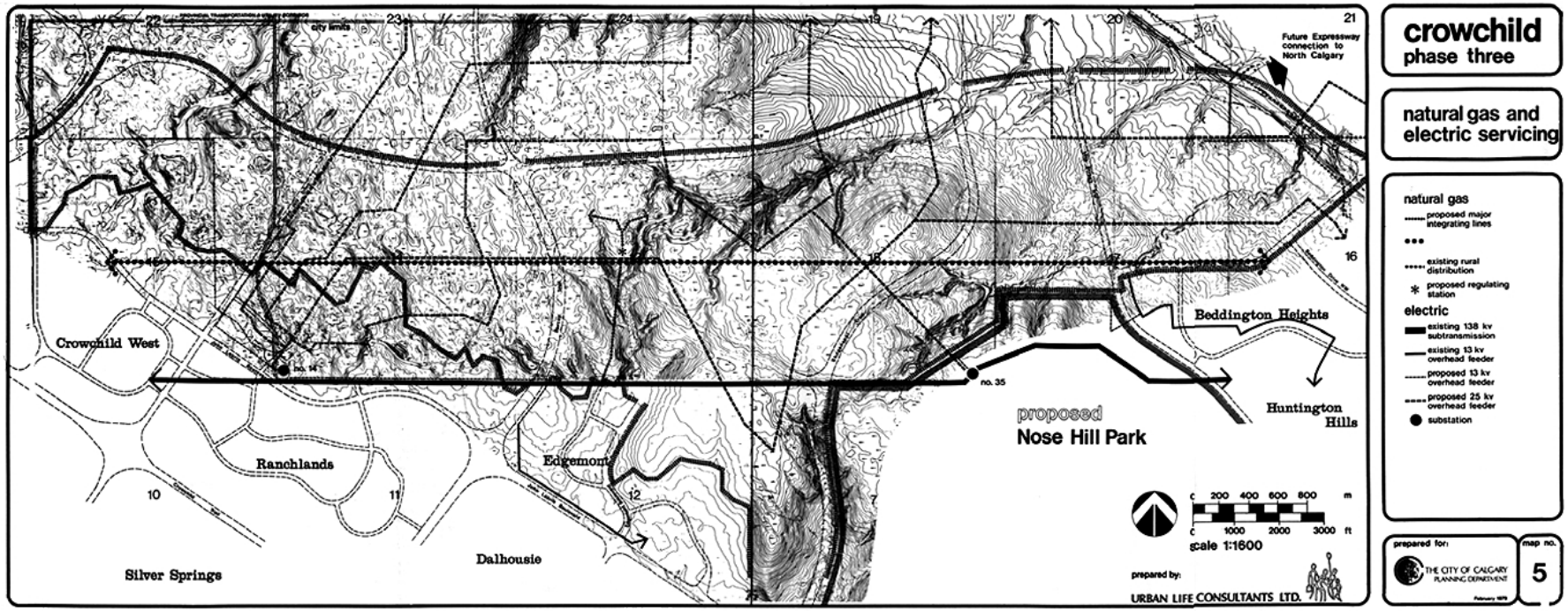
An existing 16 inch high pressure transmission line runs through the Crowchild III area within a 50 foot right-of-way. No cover may be added to or removed from the easement without permission from CWNG. City of Calgary regulations require a 50 foot setback for buildings on either side of the line. (map 5, Natural Gas and Electric Servicing).

Relocation of the high pressure line is possible, at the developer's expense. Any portion of the pipeline which will be under roadways must be replaced by a heavier wall thickness pipe, also at the developer's expense. Relocations can only be done during the summer months with a minimum of three months notice.

The proposed distribution regulator station and integrating pipelines are shown in concept only. The exact locations will depend on subdivision layout. Subdivision development should progress outward from existing development to prevent difficulties in natural gas servicing. "Satellite" type development may necessitate financial contributions by the developer.

2.2.6 Recommended Phasing Priority

Based on the foregoing policy analysis it is recommended that the priority for cell development be in the order of A,C, B, D.


crowchild
phase three
natural gas and electric servicing
natural gas
proposed major integrating lines
existing rural distribution
proposed regulating station
electric
existing 138 kv subtransmission
existing 13 kv overhead feeder
proposed 13 kv overhead feeder
proposed 25 kv overhead feeder
substation
Future Expressway connection to North Calgary
city limits
Crowchild West
Ranchlands
Edgemont
Dalhousie
Silver Springs
Beddington Heights
Huntington Hills
proposed
Nose Hill Park
no. 35
scale 1:1600
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5

2.2.7 Summary of Sequence of Development Priority

* NOTE: For details refer to text

Development Cell	Gross Developable Area	Population	P.P.A.	Transportation Requirements	Water Servicing Requirements	Storm & Sanitary Requirements
A	793 Acres **21P81**	15,840	22	• 14 St. to Berkshire Blvd. will accommodate 2,500 population. • full development with: (a) Beddington Ex. from 14 St. to Deerfoot Tr. (b) 14 St. to Beddington Expressway.	• extension from Beddington except into the SW corner. • limit of 9,000population in East Big Hill zone, then East Big Hill Reservoir required.	• extension from Beddington. • proposed storm outfall required for full development.
B	790 Acres	17,380	22	• Development phased with Crowchild Corridor improvements. • all peripheral roads required for full development. • max. 5,000 population below 4,000 feet with John Laurie Blvd. connections. • development north of 4,000 feet with Shaganappi Trail and 2 lanes of the Beddington Expressway.	NOSE HILL ZONE – (below 4,000 feet). • pressure reduce from Top Hill. TOP HILL ZONE – (above 4,000 feet). • servicing possible with extension up to 10,000 population for all of Top Hill zone. Then Top Hill Reservoir is required. EAST BIG HILL – northeast corner. • same as Cell A	• extension from Edgemont • additional storm outfall required
C	435 Acres	9,570	22	• development phased with Crowchild Corridor improvements • all peripheral roads required for full development. • 6,500 population allowed south of 4,000 feet with John Laurie Blvd. and Nose Hill Dr. • *development north of 4,000 feet to be staged in accordance with phasing with Beddington Expressway and Sarcee Trail.* **11P81**	NOSE HILL ZONE – • extension from Nose Hill Dr. TOP HILL ZONE – • see Cell B.	• extension from Crowchild I.
D	260 Acres	5,720	22	• development phased with Crowchild Corridor improvements. • John Laurie Blvd. west of Nose Hill Dr. • Nose Hill Dr. to Beddington Ex. • Beddington Ex. west of Nose Hill Dr. • Construction as development occurs.	NOSE HILL ZONE – • extension from Nose Hill Dr. TOP HILL ZONE – • see Cell B.	• extension from Crowchild I.
Total	2,205 Acres	48,510 population				

2.3 TRANSPORTATION

2.3.1 Area Transportation System

The principal east-west roadway directly serving the study area is the Beddington Expressway (proposed). East-west traffic movement will also be supplemented by the proposed extension of John Laurie Boulevard as an expressway east of Sarcee Trail and as a major west of it. The Beddington Expressway alignment forms the northern boundary of the Area Structure Plan area. It serves as a link from the proposed Northwest By-pass in the west to proposed extensions of Nose Hill Drive, Sarcee Trail, Shaganappi Trail, 14 Street, and to the existing Berkshire Boulevard, eventually connecting with Deerfoot Trail to the east (Map 6).

The Beddington Expressway is to be built to expressway standard from Deerfoot Trail to Shaganappi Trail. West of the Shaganappi Trail, it will be built to major standards.

The primary movement of traffic from the Area Structure Plan area will be in a north-south direction, as reflected in the road improvement pattern which includes northerly extensions to Nose Hill Drive, Sarcee Trail, Shaganappi Trail, and 14 Street. Proposed roadway standards are as follows:

Nose Hill Dr. extension – major
Sarcee Tr. extension – expressway
Shaganappi Tr. extension – expressway
14 Street extension – major.

Cell A will also have a significant east orientation towards the Deerfoot Trail.

The development of Cell A is largely dependent on the construction of the Beddington Expressway from 14 Street to Deerfoot Trail. The T.I.P.S. review has scheduled the construction of this facility (including the interchange at Deerfoot Trail) for 1989. If landowners in Cell A choose to develop their lands in the near future, the Transportation Department is prepared to review the phasing of the Beddington Expressway to facilitate development. The actual phasing plan, level of development in Cell A, and cost will be subject to further negotiations between the landowners and the City.

The total land area required for the aforementioned road improvements which are to be built within the Area Structure Plan boundaries is estimated as approximately 135 acres.

2.3.2 Internal Transportation System

The internal roadway system is designed to complement the area transportation system through a network of collector and primary collector streets, which are subject to refinement at the outline plan stage.

2.3.2.1 Cell A

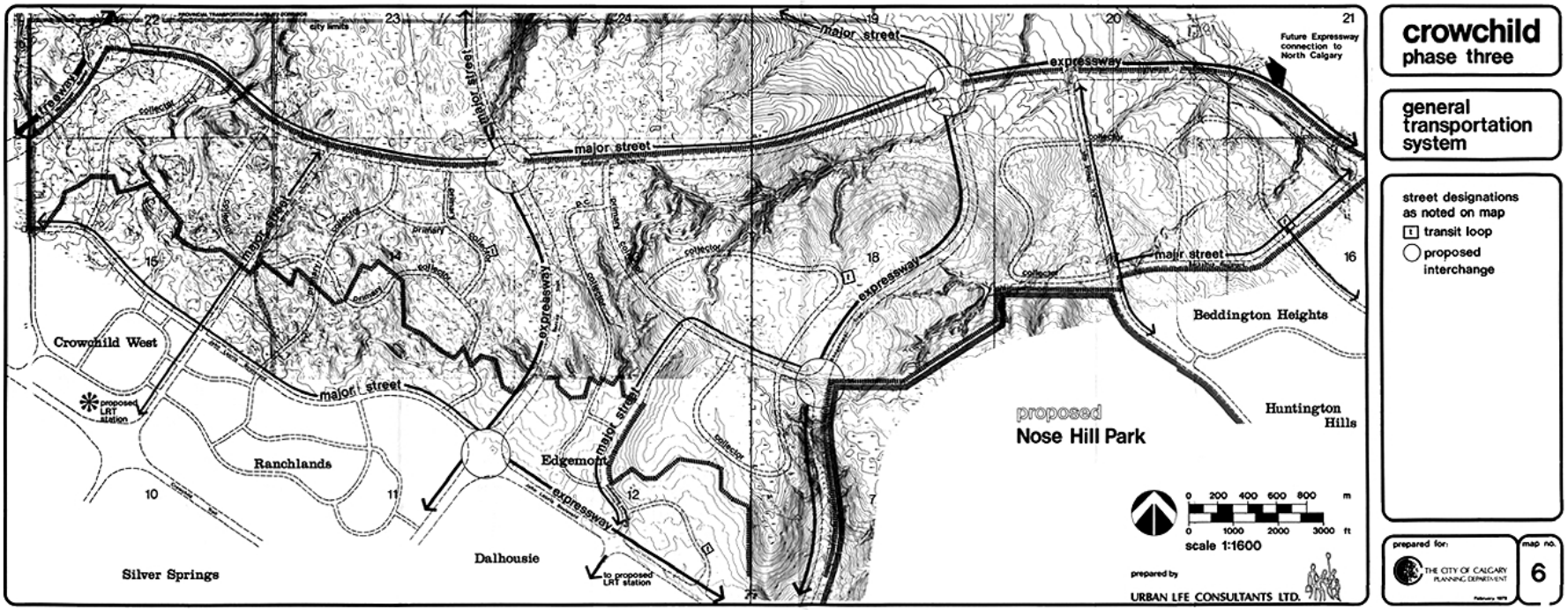
Internal collector roadways in Cell A are designed to move traffic onto 14 Street and Berkshire Boulevard and eventually onto the Beddington Expressway, Deerfoot Trail, or areas directly south of the development cell. *The portion of Cell A between the Beddington Expressway and West Nose Creek will be accessed primarily from Berkshire Boulevard.* **21P81**

2.3.2.2 Cell B

The internal roadway system in Cell B. is comprised of a major street, a primary collector and a collector system, and is designed to move traffic south to John Laurie Blvd., north to the Beddington Expressway or east to Shaganappi Trail. Edgemont Blvd. is a major standard street. The north to east roadway linking the Beddington Expressway to Shaganappi Trail is primary collector street standard from the Beddington Expressway to its intersection with Edgemont Blvd., and major street standard east to Shaganappi Trail.

2.3.2.3 Cell C

The internal roadway system in Cell C includes primary collectors which are designed to provide access north to the Beddington Expressway, west to Nose Hill Drive and Cell D, and south to John Laurie Boulevard.


crowchild
phase three
general transportation system
street designations as noted on map
transit loop
proposed interchange
Crowchild West
Ranchlands
Edgemont
Dalhousie
Silver Springs
Beddington Heights
Huntington Hills
proposed
Nose Hill Park
Future Expressway connection to North Calgary
major street
expressway
collector
proposed LRT station
to proposed LRT station
scale 1:1600
prepared by
URBAN LFE CONSULTANTS LTD.
prepared for:
THE CITY OF CALGARY PLANNING DEPARTMENT
map no.
6

2.3.2.4 Cell D

The internal roadway system to Cell D is made up of two collector roads either side of the major north-south open space system. The collectors link the residential areas to the Beddington Expressway to the north, Nose Hill Drive to east and John Laurie Blvd. to the south.

Due to the small size of the cell and its division by the major open space system, the internal roadway system does not provide direct linkage to all areas within the cell.

2.3.3 Public Transit

Transit service will be extended to Crowchild III as warranted by development. The collector system has been designed such that the area will be well-served by transit and should be in place concurrent with development to ensure that transit service can be provided in conjunction with development.

2.3.3.1 Cell A

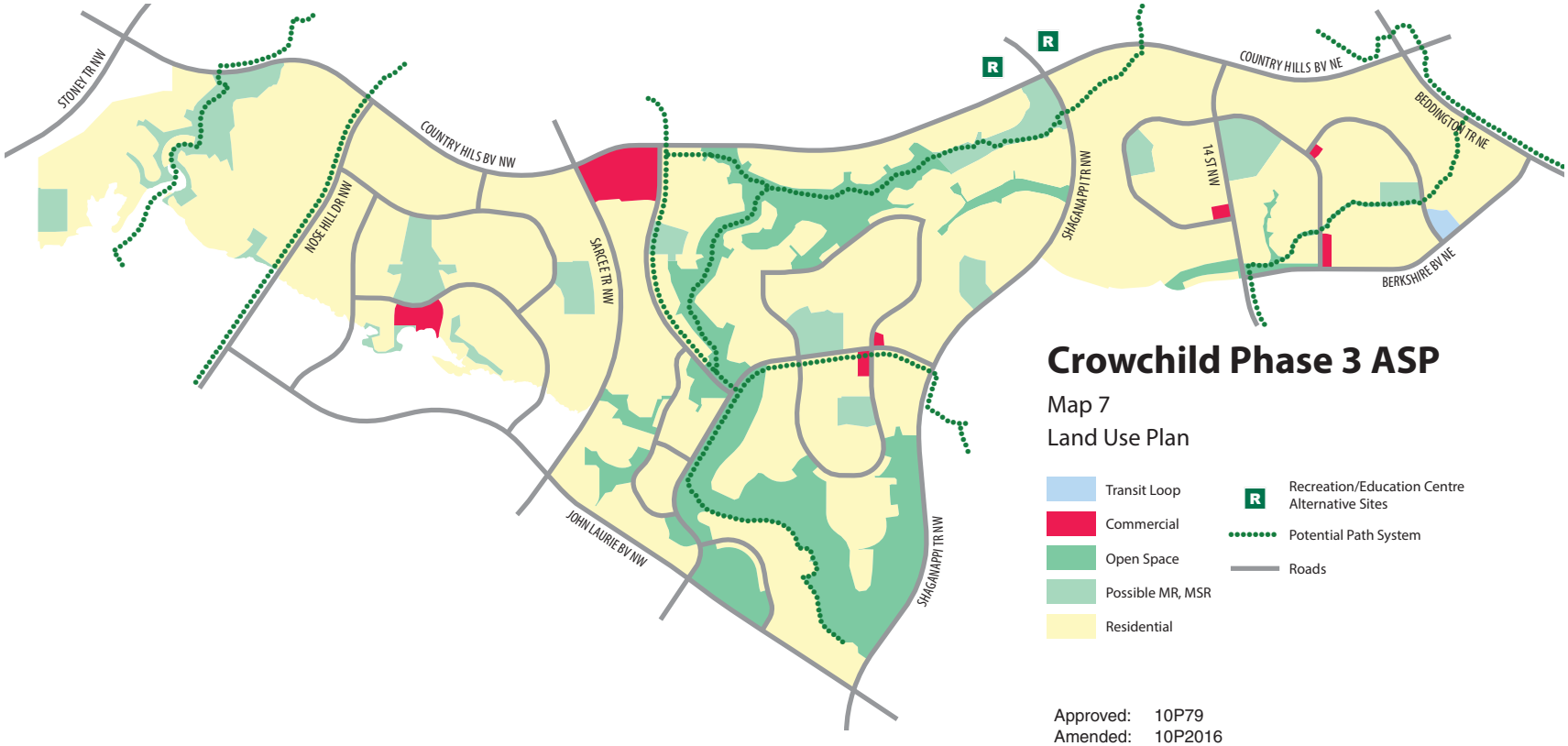
A main downtown bus route will terminate at a transit loop, designated in the Beddington Design Brief, at the northeast corner of the intersection of Berkshire Boulevard and Beddington Boulevard.

2.3.3.2 Cell B

A transit loop will be provided on the collector road in the northeast corner of the cell to service two bus routes connecting to the proposed LRT station at 53 Street and Crowchild Trail.

2.3.3.3 Cell C

A transit loop will be provided on the primary collector in the northeast corner of the cell to service two bus routes which will connect to the proposed LRT station at 85 Street and Crowchild Trail.



Crowchild Phase 3 ASP

Map 7

Land Use Plan

- Transit Loop
- Commercial
- Open Space
- Possible MR, MSR
- Residential
- Recreation/Education Centre Alternative Sites
- Potential Path System
- Roads

Approved: 10P79
Amended: 10P2016

2.3.3.4 Cell D

Two bus routes will provide service to the proposed LRT station at 85 Street and Crowchild Trail.

2.4 RESIDENTIAL

The study area of the Area Structure Plan, when completely developed, should contain a population of some 48,510 based on an average outfall density of 22 persons per gross developable acre, over 2,205 acres. This acreage and estimated population potential is dependent upon the finalized acreage for environmental reserve (to be done at the outline plan stage) and the figure may therefore vary. (Map 7, Land Use Plan)

Land uses to be provided from the gross developable acreage includes residential development, joint use sites, commercial areas and internal roadways up to and including major streets.

2.4.1 Cell A

Cell A totals approximately 720 gross developable acres recommended for residential and related uses and approximately 70 gross developable acres recommended for non-residential uses. **21P81**
Due to the relative uniformity in landscape character in this cell it is anticipated that the more conventional forms of housing will be developed in the cell.

2.4.2 Cell B

Cell B totals approximately 790 gross developable acres for a design population of 17,380 persons. Some of the most dramatic landscape in the City of Calgary is contained within the cell. As a result it is anticipated that the delineated design opportunity areas will promote innovation in site planning and unit design.

The majority of the site on the plateau area may be more conventionally developed to include single family, small single family and duplex development. The area near the sector shopping centre and major access to the Beddington Expressway should be developed as a high density node providing for a range of medium density units and apartment development.

2.4.3. Cell C

Cell C totals approximately 435 gross developable acres, above the 4,000 foot contour, for a design population of 9,570 persons. The landscape character in the cell, while not as dramatic as Cell B, still provides enough variation to provide some opportunity for unique design and planning innovation. The majority of the cell should be conventionally developed but areas of viewshed should be maximized and protected through innovative site planning and unit design.

2.4.4 Cell D

Cell D totals approximately 260 gross developable acres, above the 4,000 foot contour, for a design population of 5,720 persons. As with Cell B the landscape character of Cell D is unique providing extensive opportunity for innovation in site planning and design; especially in the designated design opportunity areas. The upland plateau areas may be more conventionally developed to include single family, small lot single family and duplex development.

2.5 COMMERCIAL CENTRES

To meet the shopping needs in Crowchild III, a sector shopping centre, two neighbourhood shopping centres and six local commercial outlets are illustrated (Map 7, Land Use Plan).

Higher level goods and services will be available at existing and proposed regional shopping centres located in adjacent areas.

Paragraph added **21P81***, deleted* **12P89**

Details of these facilities are given in Appendix 3.2, Summary of Need Study for Commercial Centres.

The sector centre is centrally located at the intersection of Beddington Expressway and a primary collector in Cell B on an 18 acre site. The primary trade area will cover Cells B and C and the secondary trade area will cover the entire Crowchild III area.

A neighbourhood centre of about 8 acres is located in Cell A at the intersection of Berkshire Blvd. and a primary collector. This will serve the daily shopping needs in this cell. Cell C also contains a proposed neighbourhood commercial centre of about 4 acres in size located on a primary collector.

The six local commercial outlets are distributed throughout the study area on two to three acre sites.

2.6 RESERVE LAND – Open Space and Joint Use Sites

The purpose of reserve land is to preserve and maintain natural scenic or environmentally significant areas, to provide suitably appropriate sites for joint-use facilities, and to provide a system of linkages between natural areas and activity focal points in an overall open space system (Map 7, Land Use Plan).

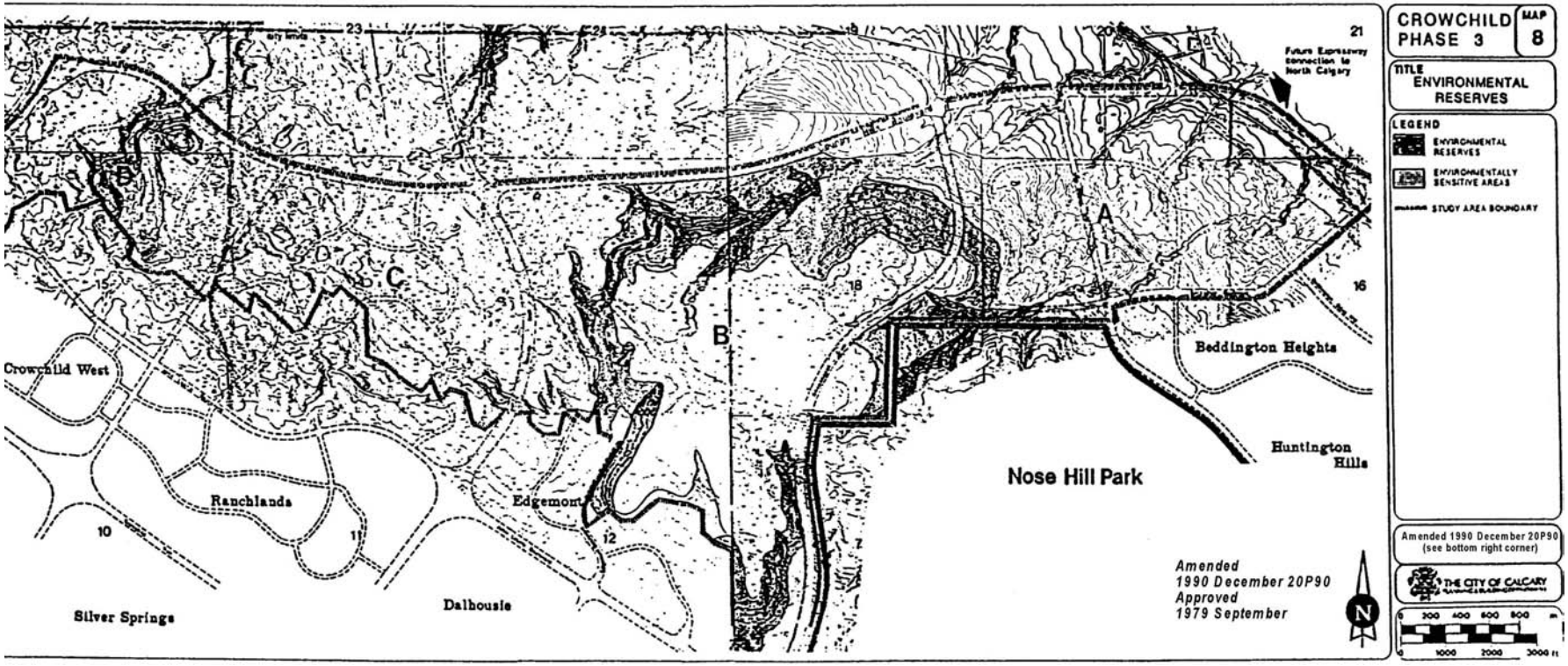
2.6.1 Environmental Reserve (ER)

As per section 95 of the Planning Act 1977:

> "Subject to section 94, a subdivision approving authority may require the registered owner of land that is subject of a proposed subdivision to provide as environmental reserve all or any of the following:
>
> (a) a swamp, gully, ravine, coulee, natural drainage course or creek bed, or
>
> (b) land that is subject to flooding or is in the opinion of the subdivision approving authority, unstable, or
>
> (c) land that is, in the opinion of the subdivision approving authority, unsuitable in its natural state for development, or
>
> (d) a strip of land, not less than 20 feet in width, abutting the bed and shore any lake, river, stream or other body of water for the purpose of
>
> (i) preventing pollution, or
>
> (ii) providing public access to and beside the bed and shore."

The Environmental Reserves as recommended on Map 8 were identified using the guidelines set out in Section 3.1.3 of this document. The precise boundaries of the Environment Reserves are to be determined at the outline plan stage under the provisions of Section 95 of The Act.

The Environmentally Sensitive Areas (ESA) shown on Map 8 form areas of major topographic or ecological significance, elements of which may meet Environmental Reserve criteria as set out in Section 3.1.3 of this document. The future use of these areas shall be determined at the outline plan stage, subject to criteria 1 of that section.


CROWCHILD PHASE 3
MAP 8
TITLE
ENVIRONMENTAL RESERVES
LEGEND
ENVIRONMENTAL RESERVES
ENVIRONMENTALLY SENSITIVE AREAS
STUDY AREA BOUNDARY
Amended 1990 December 20P90 (see bottom right corner)
THE CITY OF CALGARY
Crowchild West
Ranchlands
Edgemont
Dalhousie
Silver Springs
Nose Hill Park
Beddington Heights
Huntington Hills
Future Expressway connection to North Calgary
Amended
1990 December 20P90
Approved
1979 September
A
B
C
D
10
11
12
15
16
18
21
23
24

Environmental Reserves are to be dedicated from the gross area of a proposed subdivision prior to calculation of other reserve dedications.

Environmental Reserves and Environmentally Sensitive Areas shown on Map 8 total approximately 285 and 415 acres respectively. The approximate acreage in each cell is as follows:

	ER	ESA
Cell A	45	90
Cell B	195	275
Cell C	0	0
Cell D	45	50

CELL A

Two areas of Environmental Reserves are designated on Map 8 for Cell A. The largest is located in the southwest corner and is a component of a major natural drainage system. It is also located within an area exceeding 15% slope. A much smaller area of proposed Environmental Reserve is located in the northwest corner and is also a component of a major natural drainage system.

Areas of slope generally in excess of 15% which complement the Environmental Reserve in the southwest corner of Cell A have been recommended as an Environmentally Sensitive Area. This area is part of a prominent escarpment face and also supports the viability of the proposed Environmental Reserve area as an ecological habitat.

CELL B

This cell contains the majority of recommended Environmental Reserves and Environmentally Sensitive Areas for this Area Structure Plan, both because of the comparative size of the cell and because of its natural topographic characteristics. Two predominant Environmental Reserve components are found here. One crosses the north end of the cell from west to east as a major natural drainage channel with associated feeder channels and is characterized by slopes well in excess of 15%. It forms a natural environment for wildlife habitat and movement. The second component is the east, south, and west faces of a promontory of land with major visual significance and slopes generally well in excess of 15%.

Recommended Environmentally Sensitive Areas complement these Environmental Reserve features. Areas indicated adjacent to the north drainage channel provide ecological habitat support and generally have slopes exceeding 15%. The large Environmentally Sensitive Area designated in the northeast corner of the cell forms part of a significant escarpment face as does the proposed Environmentally Sensitive Area in the south part of the cell. An additional Environmentally Sensitive Area has been indicated close to the western edge of Cell B. This area is part of a less-significant drainage system but has substantial elements of slope exceeding 15% and also preserves a larger ecological habitat area.

CELL C

No environmental Reserve or Environmentally Sensitive Area is indicated for Cell C. However, it should be realized that the area shown as Cell C in this Area Structure Plan is in reality only part of a larger planning entity which includes much of the Crowchild 2 Design Brief area. Comparable reserve requirements have already been made for the planning area in this earlier document.

CELL D

A major drainage channel crosses this cell from north to south It is an important natural environmental feature, particularly in context of additional lands to both the north and south beyond the Area Structure Plan boundaries. Both the proposed Environmental reserve and the proposed Environmentally Sensitive Area in Cell D have also been based on general slope conditions, visual significance, and ecological habitat importance.

2.6.2 Municipal Reserve (MR) and Municipal School Reserve (MSR)

MR and MSR lands are normally taken as part of the 10% reserve dedication, based on the creditable gross developable area subject to subdivision. MR and MSR reserve lands are further referred to as joint use sites for the purpose of providing recreation and school facilities. Actual land take for the 10% MR, MSR dedication shall be determined at the outline plan stage of development.

2.6.3 Other Reserve

Other (normally non-credit) reserve components of the open space system include the 50 foot C.W.N.G. pipeline right-of-way, the City of Calgary 138 kV 60 feet right-of-way, and other rights-of-way required for utility servicing. These rights-of-way have been illustrated for integration into the pedestrian and bicycle system where practicable.

2.6.4 Joint Use Sites

The school boards have not specifically allocated uses to the illustrated joint use sites, although tentative site locations and requirements are indicated. As well there is a need for tot lots, based on the standard of one tot lot per 40 acres of developable land, which are to be spatially distributed throughout the residential areas. The exact location of the half-acre tot lots should be determined at the outline plan stage. Tot lots should be located within reasonable walking distance to all residences and, if possible, be linked to the pedestrian walkway system.

Should the total lands needed for joint use and recreation facilities exceed the normal 10% reserve dedication, the cost and method of acquisition of additional land will be subject to negotiation.

2.6.5 Cell A

The open space system in Cell A provides pedestrian bicycle path linkage from the proposed Nose Hill Park to the West Nose Creek valley along the course of an intermittent drainage channel.

An area of some 140 acres is intended for acquisition by the City, to be added to the proposed Nose Hill Park to the northwest of the present park boundary in the south half of Section 18. Some of this land is designated as proposed Environmental Reserve or as Environmentally Sensitive Areas in this document. Up to approximately 70 acres of the area may be developable; however, the proposed East Big Hill reservoir is intended for location in this area, thereby reducing the potentially developable area to about 50 to 55 acres. Access problems to the developable area may be overcome technically, but any residential development on residual lands would be isolated. The proposed electric substation and the proposed pump station and reservoir should be located westward outside the park area, if possible, and/or placed underground so as to minimize the impact on environmentally sensitive areas of the proposed Nose Hill Park.

Joint use sites in the cell total 48 acres in three locations and will potentially serve public and separate elementary and junior high school requirements, as well as many recreational needs.

Public School
2 – 9 acre sites
1 – 12 acre site

Separate School Board
1 – 6 acre site
1 – 9 acre site

Community Centre
1 – 3 acre site

The need for a regional educational/recreational centre has been indicated in the Beddington Design Brief. This Area Structure Plan does not include such a site as it is considered to be best accommodated in a future development area outside the Plan boundaries.

2.6.6 Cell B

Cell B contains some of the most unique landscape in the study area. The coulee traversed by Shaganappi Trail and the coulee systems leading up from Edgemont and the Beddington Valley provide potential for about 590 acres of ER as a component to the overall open space system. Optional use for part of the area, particularly and lands adjacent to the coulee leading to the Beddington Valley could reduce long term maintenance obligations.

Joint use sites in the cell total 55 acres on four sites to provide potential locations for public and separate elementary and junior high school, and recreation requirements.

Public School
3 – 9 acre sites
1 – 12 acre site

Separate School Board
1 – 12 acre site

Community Centre
1 – 4 acre site

2.6.7 Cell C

Cell C is predominantly plateau land. The land below the 4,000 foot contour is covered by the Crowchild II Design Brief. There are approximately 8 acres of potential environmental reserve about the 4,000 foot contour. Joint use sites are providing some 38 acres of land on three sites for public and separate elementary and junior high school requirements, and recreation requirements.

Public School
1 – 9 acre site
1 – 15 acre site
5 acres of 15 acre site

Separate School Board
1 – 9 acre site

2.6.8 Cell D

Cell D, similar to Cell B, contains some of the most unique landscape within the study area. The major open space feature, a unique natural valley system, meanders in a north-south orientation bisecting the development cell. The valley lands are potential ER, and due to the large size of the reserve area, the opportunity of providing optional uses could reduce long term maintenance obligations.

Joint use sites are provided with 26 acres on two sites for public and separate elementary and junior high school requirements.

Public School Board
1 – 9 acre site

Note: there are 24 acres remaining within the cell and 8 acres adjoining in the Crowchild II area for a total of 32 acres. Of this, 9 acres are allotted to the public school board, 12 acres to the separate school board, 4 acres to a community centre, and the balance is available for local parks.

PART 3

Appendix on

Background Information

III APPENDIX ON BACKGROUND INFORMATION

3.1 DEVELOPMENT AND DESIGN GUIDELINES

3.1.1 Municipal Reserve (MR)

1. Develop parks and recreation areas as a continuous system of playing fields, footpaths, bicycle trails, ornamental areas, sports facilities, picnic areas, tot lots, etc.

2. Retain and expand major recreation parks, preserving ownership of all City land suitable for parks' purposes and acquire further suitable lands as opportunities arise. Provide a variety of facilities for active and passive recreation: picnic areas, tennis courts, playfields and decorative areas.

3. Provide major athletic parks (1 acre per 1,000 population) in a usual association with a senior high school, intensively developed with playing fields of regulation size, properly laid out, adequate facilities for both players and spectators. Indoor swimming pools and ice arenas should be associated with athletic parks.

4. Community parks for recreation, ornamental and athletic facilities should be dedicated reserve adjacent to schools related to reasonable walking distance. Community association structures should be integrated with school buildings where design considerations permit.

5. Acquire and develop land in or adjacent to coulee areas for municipal golf courses or other recreational uses, if practicable, to remove any deficiencies which may arise.

6. Bicycle path systems should be part of the public reserve or roadway dedications.

7. Bicycle paths are to be discouraged along major and collector streets, if no other alternative is possible the path will be accommodated within the existing road right-of-way. It may take the form of a joint pedestrian/cycle path (8 feet wide) instead of a conventional sidewalk.

8. Bicycle paths should follow a linked system of residential streets. Use of laneways will not be acceptable.

9. No pedestrian/cycle path crossings will be permitted mid-block. All crossings are to be at intersections.

10. Walkways and paths should follow natural and/or manmade edges and linear elements. Normally these pathways would be located in a cross-slope situation to reduce the walking grade.

11. When a pedestrian or bicycle system link is required on private land, it will be through an appropriate easement.

12. Existing tree stands in healthy condition can only be preserved if the integrity of the stand is maintained. This is only possible through incorporation into the open space system.

13. All viable tress removed during construction or dying as a result of construction will be replaced according to guidelines from the Parks Department.

14. There should be one tot lot of 0.5 acres per 40 acres of development.

15. Tot lots of approximately 0.5 acres will be located within reasonable walking distance of all residences in cells defined by collector roads, and, if possible, linked to the walkway/ bicycle path system.

16. Tot lots should be located away from any major or high volume roadways.

17. Appropriate pedestrian crossings of the future expressways will be determined at the time of expressway construction.

18. In situations where over or under-dedication of reserves in any outline plan or ownership area occurs, suitable arrangements to ensure the provision of the reserves in an appropriate location shall be made to the satisfaction of the C.P.C. prior to approval of any outline plans involved.

3.1.2 Municipal School Reserve (MSR)

1. Elementary schools should be centralized within the catchment area with a maximum walking distance of one half to three quarters of a mile and located wherever possible so that children do not have to cross major streets or high grade arterials.

2. Junior high schools, because of their large catchment areas, require to be well served by transit.

3. High schools serve a regional function, normally the area of two to three junior high schools. Siting should allow for convenient transit access.

4. As high schools are strong community focal point for social and recreational purposes, there should be continued programs for integrating a multiple use concept of further education and major recreation facilities such as swimming pools, ice rinks and sports stadiums.

5. Public junior high schools and separate elementary schools should be located on combined sites when catchment areas coincide.

6. The 10% reserve dedication should be consolidated into large parcels, where possible, to provide maximum flexibility for future school and park planning.

7. Site locations should maximize use of flat ground to minimize grading for playfields.

8. Definitions:

   A. Neighbourhood – an area of approximately 5,000 persons relates to the majority of the existing community associations and elementary school catchment area.

   B. Community – an area of approximately 15,000 persons usually contains one or more community associations and a junior high school.

   C. District – an area of approximately 45,000 persons usually contains three districts and will support a senior high school, an indoor swimming pool and artificial ice arena.

9. As per the Beddington Design Brief, there is a need for a regional recreational/education centre. The precise location of the required 20-acre site is presently undetermined. The desired location is in the vicinity of the intersection of the Beddington Expressway and Shaganappi Trail, with the northwest corner being recommended on the basis of present road alignments. Such a location would facilitate more direct physical linkage to the overall open space system as well as create a node of open space which would present a positive visual and psychological image upon entering this area of future development.

3.1.3 Environmental Reserve (ER)

Criteria for identifying Environmental Reserves in the Crowchild area are as follows:

1. Major sloped areas generally in excess of 15% shall be dedicated as Environmental Reserve unless the applicant can prove to the satisfaction of the City Engineer and the Calgary Planning Commission that such area is capable of being developed in a safe, efficient and economical manner having regard to:

   (a) slope stability
   (b) degree of alteration of the landform required to meet the Engineering Subdivision standards
   (c) impact of alteration of the landform on any adjacent lands
   (d) the relationship of the land to an open space

   with a view to retaining the natural features of the landform.

2. All land lying between the stability limit as determined by the soils report and the top of slope shall be dedicated as Environmental Reserve.

3. Visually prominent and/or historically-recognized geological features such as glacial erratics or bedrock outcrops and the land on which it is located shall be dedicated as Environmental Reserve.

4. The floodway district of any river or creek as determined by hydrological tests shall be dedicated as Environmental Reserve.

5. A strip of land abutting the bed and shore of any lake, river, stream, or other body of water from the high water level to the top of the bank plus 10 feet thereafter shall be dedicated as Environmental Reserve.

6. Where, in the opinion of the Calgary Planning Commission, a greater distance from a river or creek than outlined above is required to protect the hydrological feature or to provide reasonable public access to it, a wider strip of land may be required as Environmental Reserve.

7. Ravines, natural drainage ways, coulees, and gullies regarded as significant in hydrological functions – i.e. – carrying storm water runoff, reducing erosion on adjacent areas, contributing to groundwater recharge, etc., - shall be dedicated as Environmental Reserve.

8. An average setback of 20 feet from the top of the ravine, natural drainageways, coulees, and gullies shall be provided which shall be considered part of the Environmental Reserve area. The exact setback shall be determined on the basis of:

   (a) required public access
   (b) stability limits of the slope
   (c) the relationship of the proposed subdivision to adjacent lands
   (d) any other matters considered of relevance to the particular site.

9. Major natural ponds, sloughs, and swamps that are capable of retaining water most of the year shall be dedicated as Environmental Reserve.

The following biological and functional criteria should also be considered when identifying Reserve areas:

10. Areas of significant waterfowl or wildlife habitation which have the potential of continuing such use after development of the balance of the area should be retained as natural areas.

11. Relatively undisturbed areas that contain unique tree cover, shrubs, or grassland; a high diversity of plant species; or provide important wildlife habitat should be retained as natural areas.

12. Areas which strengthen the City's major open space system, enhance the view available from within the site, enhance the natural heritage of the city and reduce the visual impact of development from the outside should be retained as natural areas.

It is recommended that when development is proposed adjacent to an Environmental Reserve area where a significant impact is anticipated and the preservation of the area may be threatened, environmental impact guidelines should be prepared. The applicant for the subdivision should, in the outline plan application:

   (i) describe the nature and extent of the environmental area
   (ii) describe the extent of the proposed development and its relationship to the area
   (iii) discuss the possible effects of the development on the environmental area, and
   (iv) propose means by which the negative effects on the area from the development will be avoided or minimized.

3.1.4 Residential

3.1.4.1 General Residential Areas

1. The natural landform characteristics should be preserved and maximized by maintaining natural contours where practicable.

2. Positive visual impacts and views should be maximized, particularly adjacent to edges of escarpments.

3. All areas identified as potential environmental reserve or design areas shall be examined by qualified experts to determine merit of developability or preservation as well as the relevant programming required for future use and maintenance.

4. An optimum overall density of 22 persons per gross developable acre should be sought.

5. Roads should follow natural patterns and avoid traversing prominent natural physical features.

6. Frontage roads should be considered adjacent to major streets so as to minimize views of rear lots and visual upgrading of the right-of-way.

7. A 50 foot building setback is required from the C.W.N.G. high pressure line.

8. A 30 foot easement is required each side of the 138 kV electric power line.

9. A 60 foot setback is required along the top of major escarpments with a minimum of 20 feet nearest the escarpment to be environmental reserve for the purpose of protecting slope stability.

10. Multiple family units should be located along collector streets with direct access to major streets to avoid infiltration of traffic through low density residential areas.

11. Multiple family units should be located adjacent to neighbourhood or sector commercial sites, transit facilities, and the major open space system. Such units should be limited in height and varied in setback so as to eliminate any possible dominating wall effect, particularly adjacent to open space.

12. Large medium density developments should not dominate any portion of the study area. The density requirement should be met on an evenly distributed basis such as with cluster development.

13. Increased density implies greater design control and an examination must be made of the compatibility of architectural designs and the effects of scale and massing.

14. The use of zero sideyard, cluster housing and laneless subdivisions should be maximized.

15. Residential development should be designed as cellular development of the collector road system.

16. Cluster developments should be maximized along escarpments and valley edges.

17. Housing units should consider variable slope conditions such as:

    - steep downslope
    - gentle downslope
    - upslope and steep cross-slope
    - level and gentle cross-slope
    - upslope and gentle cross-slope

18. Development in slope areas must follow the natural contours which in turn maximizes visual opportunities and minimizes regrading.

19. View should be maximized through sensitive site planning and massing. Downslope units should not block views from units above.

20. Site development including replanting and units design should capture the landscape character through use of line, form, colour and texture.

21. Consideration is to be given to limiting the aprons of driveways to some reasonable degree of slope.

22. Pedestrian access from street level to the entrance of buildings is to be achieved without an unreasonable degree of slope or elevation change.

3.1.4.2 Design Opportunity Areas

1. Design opportunity areas are generally characterized as those areas affording the greatest potential for views or areas which will be viewed from outside the study area.

2. Design opportunity areas are generally linked directly to the major open space system.

3. Density in the design opportunity areas should be flexible and take into consideration maximizing the local amenities. The density should be variable between 5 and 15 units per acre depending on local site conditions.

3.1.5 Commercial

1. Sector and neighbourhood commercial centres are closely associated with surrounding residential uses and therefore require careful integration into the community.

2. Compatibility of commercial development in residential areas should be assured through control of access, adequate buffering and landscaping of the perimeter and open areas of the site.

3. The pedestrian/bicycle path system should link commercial areas to residential areas and the open space system.

4. The development should provide for efficient traffic circulation with adequate loading and waste removal facilities separate from on-site pedestrian ways.

5. Sector centres should be located near the junction of two major streets, or the junction of a major street and an expressway.

6. Neighbourhood centres should be located at the junction of a major street and a collector or at the junction of two major streets.

7. The development should be compatible in design, and scale with the surrounding residential area.

8. Commercial sites should be designated “DC” Direct Control with appropriate commercial guidelines.

9. The location of possible future commercial sites as indicated on the Land Use Plan, Map 7, should be regarded as having some degree of flexibility, such that the sites could be moved to any corner of the same intersection at the outline plan stage should such be deemed more desirable.

3.1.6 Land Use Interface

1. Wherever land uses are adjoining either directly or are separated by a roadway or right-of-way, the interfacing areas should not detract from each other.

2. Careful consideration should be given to edge treatments in regard to landscaping, buffering, scale, mass, materials and colours and how these elements of one area impact or harmonize with the adjacent area.

3. Wherever practicable complementary land uses should be linked by roadways and/or pedestrian and bike paths.

3.1.7 Noise

1. Areas of potential noise intrusion along expressways should be identified and associated dBA levels predicted prior to development of these roadways.

2. Noise barriers required to attain the specified degree of attenuation should be constructed concurrent to development of freeways and expressways in accordance with measures outlined in the Discussion Paper Noise Control through Land Use Planning and Related Administrative Techniques, Alberta Transportation, July 1977.

3.2 SUMMARY OF NEED STUDY FOR COMMERCIAL CENTRES

The proposal for the Crowchild III area includes:

one sector centre
two neighbourhood centres and
six convenience store outlets.

In the northwest area of the city, north of 16 Avenue and west of Deerfoot Trail, there are two existing regional shopping centres and proposals for two additional regional centres, one on each of Crowchild and Deerfoot Trails. These centres will serve the existing population of 130,000 and the expected population increase of 120,000 to 170,000, to ultimately service 250,000 to 300,000 persons in this quadrant of the city. Therefore, there is no further requirement for a regional shopping centre foreseen for the Crowchild III area.

A sector centre of 15 to 18 acres is located in Cell B on the Beddington Expressway and the primary collector east of Sarcee Trail. The primary trade area will be the central portion of the study area and adjacent areas to the north of Beddington Expressway. This will serve a population of 55,000 to 60,000. The secondary trade area of the sector centre will cover the entire Crowchild III area.

Two neighbourhood centres and six local commercial sites are located in the study area. One neighbourhood center, in Cell A, isolated at the junction of a major road and a primary collector and is about 8 acres in size. A second neighbourhood centre is located in Cell C on a primary collector and is about 4 acres in size.

A possible third neighbourhood centre could be located to the west of the study area within future development.

The six local commercial sites are located throughout the study area on collector or primary collector roads. These sites are two to three acres in size.

The neighbourhood and local commercial centres are located to be within about ½ mile walking distance of development and will serve about 5,000 persons each.

3.3 NATURAL ENVIRONMENT

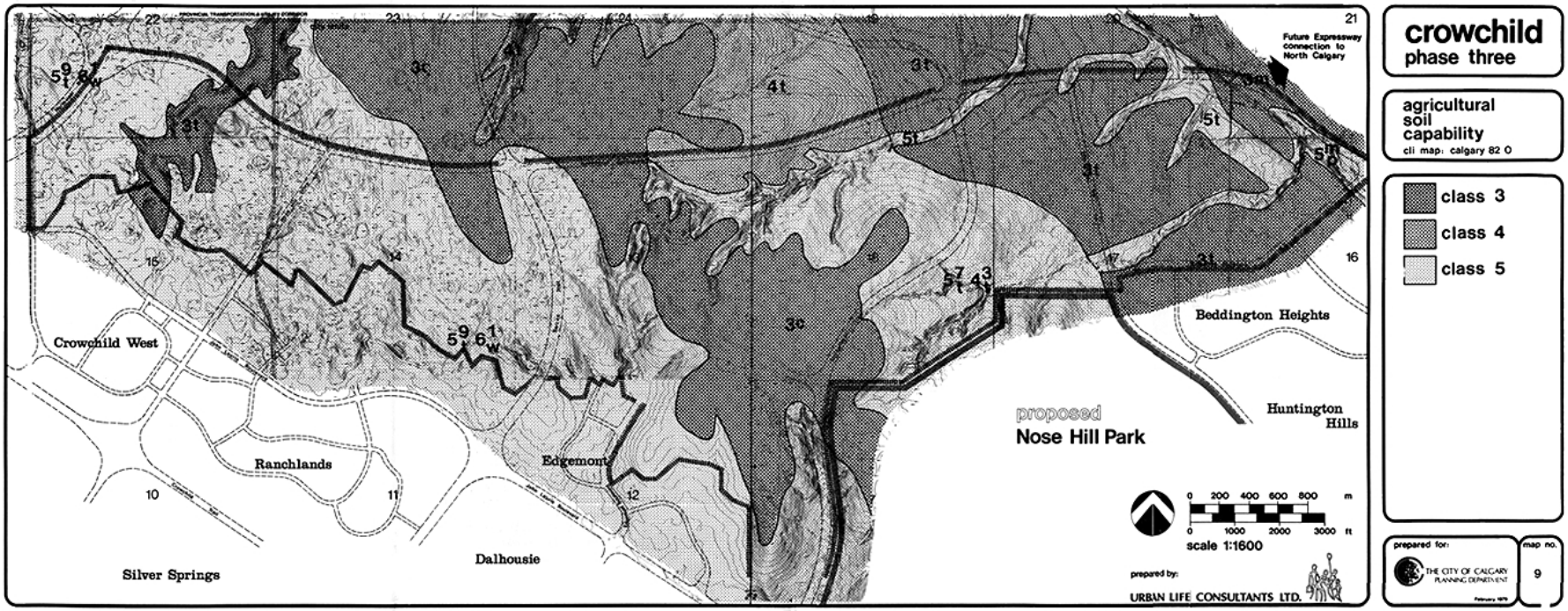
3.3.1 Agriculture

Because of climatic conditions, an abundance of coulees and ravines, steep slopes or "knob-and-kettle" topography, and in some areas inaccessibility, the capability of lands within the Area Structure Plan boundaries to sustain conventional agricultural uses is limited. The capability is generally substantially lower than that found in most other areas of the city currently being developed or under consideration for future development.

The three main categories of agricultural soil capability found in this Area Structure Plan area represent a range from moderately severe to very severe limitations (refer to Map 9, Agricultural Soil Capability). Class 3 denotes areas with moderately severe limitations. In class 3+ areas the limitations are due to topography – either steepness or the pattern slopes. Adverse climate is the limiting factor in area 3C. In area 3M a low moisture holding capacity results in moderately severe limitations.

Class 4 areas have severe limitations resulting from adverse topography.

Class 5 areas have very severe limitations resulting from adverse topography. In the south and west class 5 area there are some spots where excess water further limits soil capability. The two conditions are found in the proportion of 9:1. A more central class 5 area has very severe and severe topographical constraints in a proportion 7:3. A small area on the eastern edge is very severely limited by a low moisture holding capacity and stoniness.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phase three
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class 3
class 4
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Future Expressway
connection to
North Calgary
Crowchild West
Ranchlands
Edgemont
Dalhousie
Silver Springs
Beddington Heights
Huntington
Hills
proposed
Nose Hill Park
scale 1:1600
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map no.
9

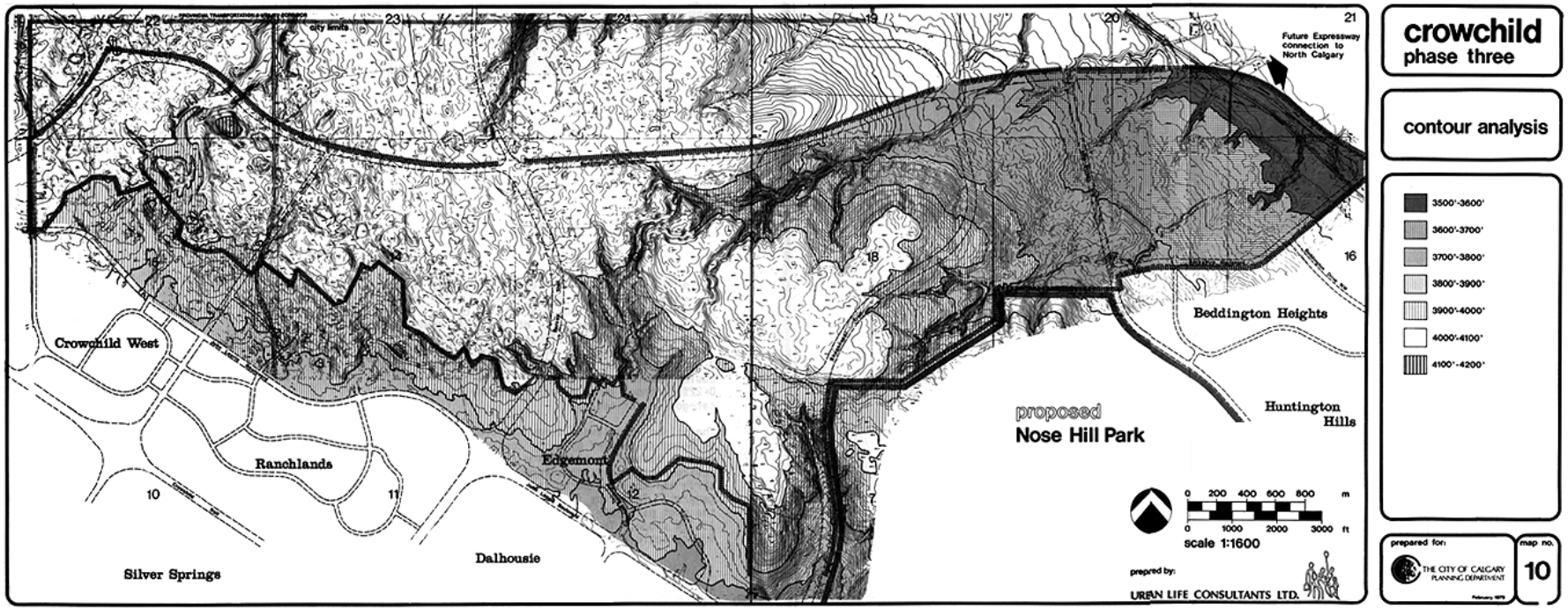
3.3.2 Topography – Slope and Contour Analysis

The topography of the study area may generally be described as an upland plateau surrounded by gradually sloping land except for significant coulees which provide for intermittent natural drainage.

Elevation on the plateau is generally 4,000 – 4,100 feet A.S.L., (Map 10, Contour Analysis). The plateau is the major landform in the west half of the study area except for a unique valley system near the west end. The central portion of the study area is traversed by major coulee systems leaving a near island area of upland plateau. East of the plateau island the landform descends gradually from 4,000 – 4,100 feet A.S.L. to 3,500 – 3,600 feet A.S.L. in the Beddington Creek Valley.

Slope Analysis (Map 11) of the study area illustrates three slope categories:

(a) 0-15% generally developable
(b) 15-22% study areas to determine developability
(c) 22% + potential Environmental Reserve generally undevelopable


crowchild
phase three
contour analysis
3500'-3600'
3600'-3700'
3700'-3800'
3800'-3900'
3900'-4000'
4000'-4100'
4100'-4200'
Future Expressway connection to North Calgary
Crowchild West
Ranchlands
Edgemont
Dalhousie
Silver Springs
Beddington Heights
Huntington Hills
proposed
Nose Hill Park
scale 1:1600
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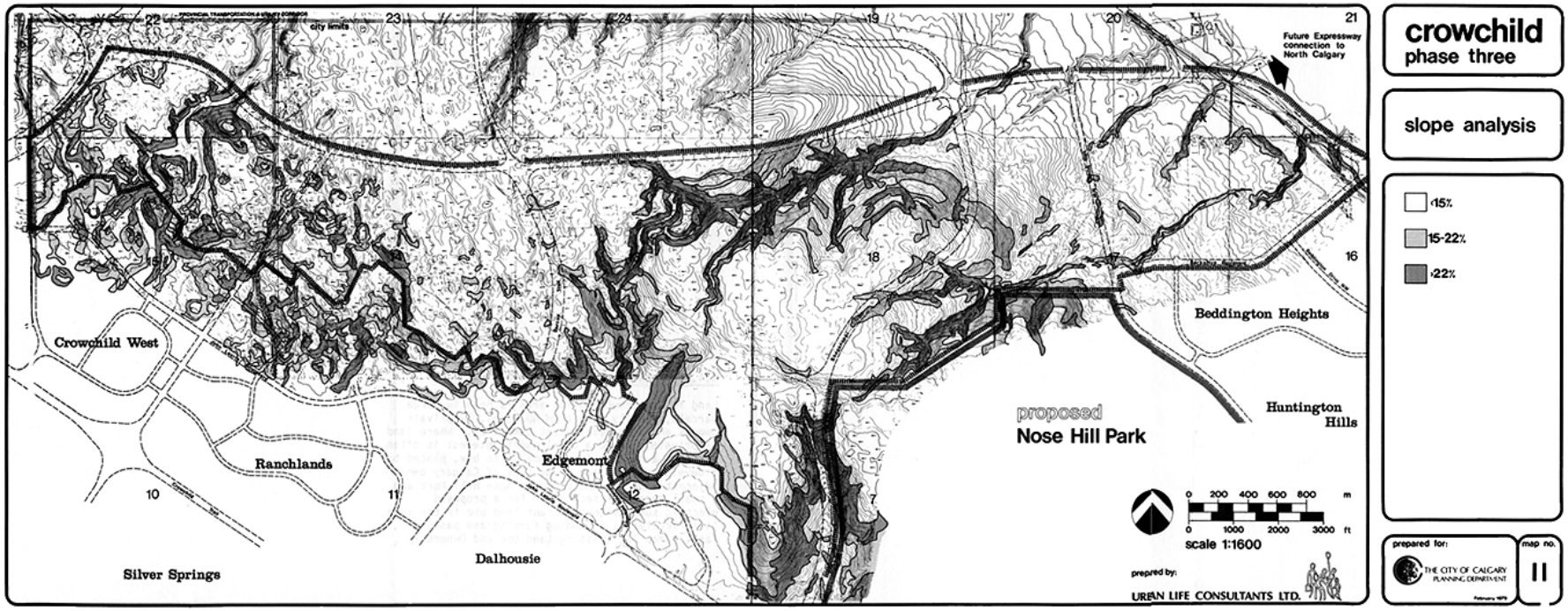
10

The gradually sloping east end of the study area is predominantly 0-15% slope with one major and a few minor coulee systems draining to the northeast. The upland area of the major coulee is predominantly 22%+ with large adjacent areas of 15%-22% slopes. As the elevation descends from 3,700 feet A.S.L. the definitive form of the coulee weakens and slopes are intermittent from 0-22%+ without large areas of any one of the categories defined.

The island of upland plateau has been identified as being surrounded by major coulees which provide natural intermittent drainage channels and environmental conditions conducive to growth of shrub and trees on north facing slopes in general. The slope in the coulee area is, for the most part 22%+, with adjacent large areas of 15-22%+ slope. The coulee systems are readily identifiable and unique within the study area.

Generally the west end of the study area is of developable slope condition except for edges of the aforementioned valley system where much of the landform is 22%+. It is assumed that the small isolated areas of +15% slope will be graded to suitable developable slope conditions unless their size, uniqueness and/or association with other unique features warrants their preservation as environmental reserves.


crowchild
phase three
slope analysis
<15%
15-22%
>22%
Future Expressway connection to North Calgary
city limits
Crowchild West
Ranchlands
Edgemont
Dalhousie
Silver Springs
Beddington Heights
Huntington Hills
proposed
Nose Hill Park
0 200 400 600 800 m
0 1000 2000 3000 ft
scale 1:1600
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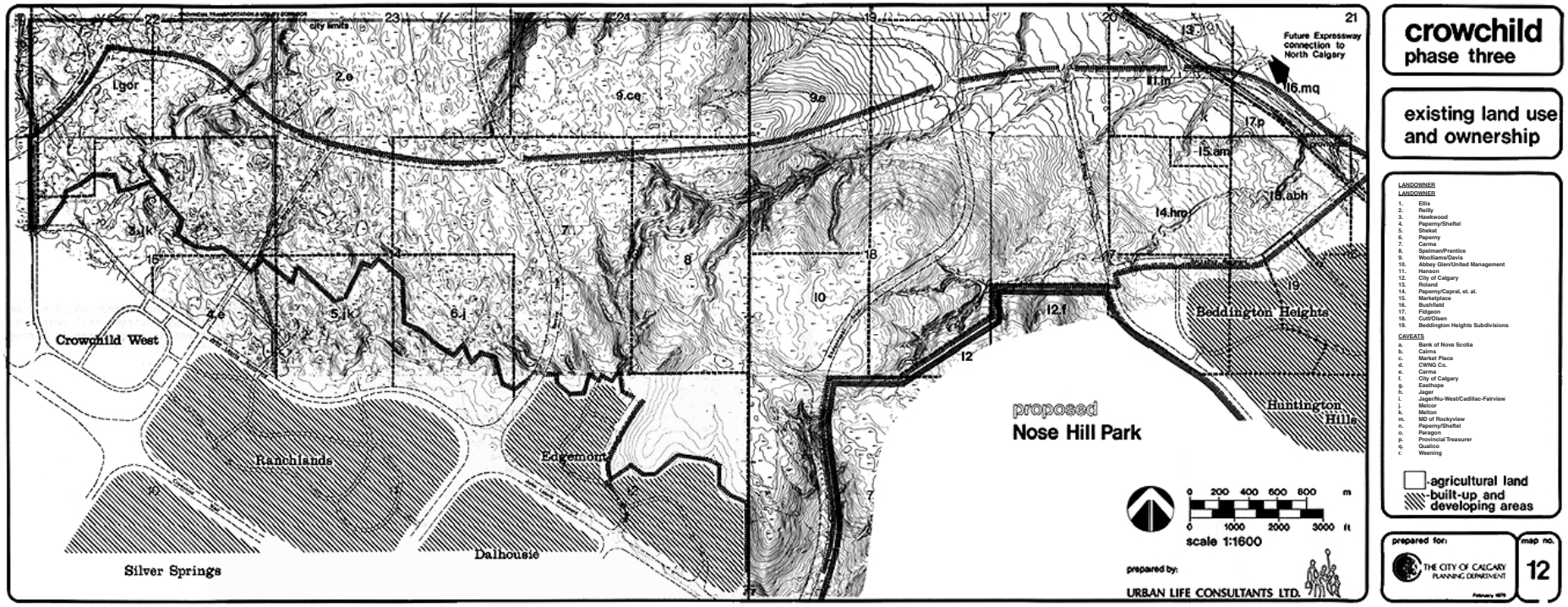
map no.
II

3.4 MANMADE ENVIRONMENT

3.4.1 Ownership and Land Use

Land in the Crowchild III area is held in large parcels, usually more than 40 acres, by private owners and some development companies. Where land is privately owned a development interest is often shown by a caveat, for an option to buy, placed by a development company. The City of Calgary owns adjacent land for the proposed Nose Hill Park and a small corner of section 18 for a proposed electric substation. Current land use in the area is agricultural, including farming and pasture land. (Map 12, Existing Land Use and Ownership)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existing land use and ownership
Future Expressway connection to North Calgary
proposed
Nose Hill Park
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Ranchlands
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Dalhousie
Silver Springs
Beddington Heights
Huntington Hills
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map no.
12
agricultural land
built-up and developing areas

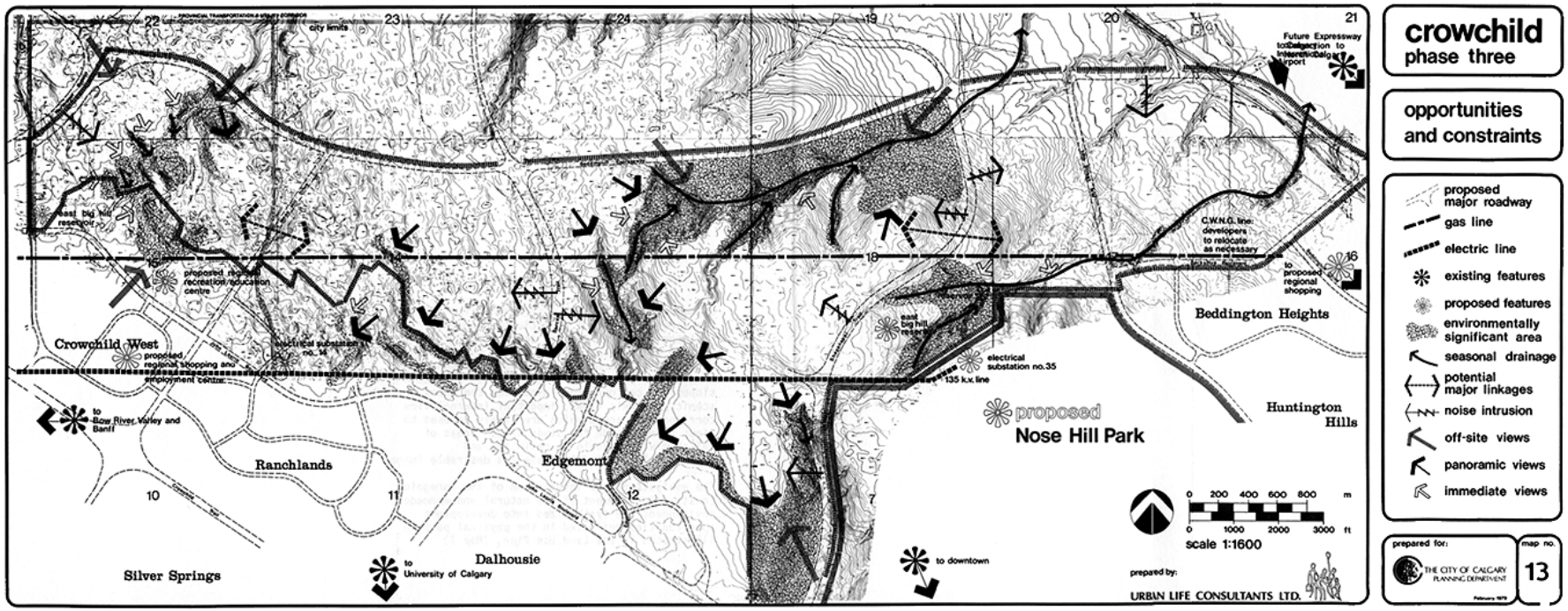
3.4.2 Opportunities and Constraints

Elements of the natural and manmade environment within and near the study area define constraints which in turn define opportunities that influence the physical scale and arrangement of land uses within the study area. (Map 13, Opportunities and Constraints)

Manmade elements include the basic major roadway system, major gas and power lines, proposed electrical substations and reservoirs. Other tangible manmade elements include existing developments and attraction features which future residents will naturally gravitate to, such as regional shopping centres, regional recreation centres, Banff and the mountains, and the Bow River Valley, Nose Hill Park, downtown Calgary and the International Airport. Other manmade elements are predictable such as areas of noise intrusion, or potential linkage of parts of the study area to one another and/or to adjacent developments.

Natural features include those areas which may be worthy of preservation as environmental reserves such as the intermittent drainage channels through coulees, areas of steep slope, areas of major views, internal views or areas viewed from outside the study area.

As illustrated the manmade elements of roads and utility lines define major cells of the study area and how these cells are to, or could, be linked to each other and to adjacent developments. Attraction features and major roadways aid in defining concentrations of future development and desire lines within the potential development cells, i.e. higher density development may be found in association with major shopping recreation facilities along arterial traffic routes.


crowchild
phase three
opportunities
and constraints
proposed major roadway
gas line
electric line
existing features
proposed features
environmentally significant area
seasonal drainage
potential major linkages
noise intrusion
off-site views
panoramic views
immediate views
Crowchild West
proposed regional shopping and employment centre
proposed regional recreation/education centre
Ranchlands
Edgemont
Dalhousie
Silver Springs
Beddington Heights
Huntington Hills
proposed
Nose Hill Park
electrical substation no.35
135 k.v. line
C.W.N.G. line: developers to relocate as necessary
Future Expressway to Deerfoot Trail Interchange to Calgary International Airport
to proposed regional shopping
to Bow River Valley and Banff
to University of Calgary
to downtown
scale 1:1600
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map no.
13

Elements of the natural environment also influence the form and scale of potential development. Drainage channels, coulees and steep slopes form a pattern of open space which may in turn be linked with utility easements to define development areas. The analysis of the composite buildable slopes and contour maps identifies the areas of scenic panoramic views, important internal view corridors and areas which are highly exposed to views from outside the study area. Areas of valuable views should be maximized and thematically treated to present a desirable image.

The analysis of the interaction of the foregoing constraining element of the natural and manmade environment are synthesized into development opportunities reflected in the physical pattern illustrated in the Land Use Plan. (Map 7)

3.5 DECENTRALIZED SERVICES

3.5.1. Health Department Services

Community health services will be initially provided by the following existing clinics:

- Thornhill Health Centre, located at Simon's Valley Road and 14 Street N.W.
- Bowness Health Centre, located at 63 Street and 35 Avenue N.W.
- North Hill Health Centre, located at 19 Street and 14 Avenue N.W.

The Health Department anticipates the construction of an additional health centre in the extreme northwest of the city within four years.

3.5.2 Fire Department Services

Fire Department service will be provided from the following existing stations:

- No. 18, located on Silver Grove Drive in Silver Springs
- No. 21, located at 68 Avenue and 4 Street N.W.

A future fire station is proposed to be built in Edgemont at 80 Avenue and 53 Street in 1984. Further stations will be built as required.

3.5.3 Police Department Services

Initial police services will be provided by the "A" District office, 4304 – 14 Street N.W. This office was built in 1974 for a minimum of 10 years service. "A" District office expansion is projected to be built on a 2 acre site near Crowchild Trail and 85 Street N.W. Timing and precise location of construction has not been finalized.

3.5.4 Library Services

Library services will initially be provided from the following existing branches:

- Varsity Branch, 4616 Varsity Drive N.W.
- Thornhill Branch, 6617 Simon's Valley Drive N.W.

A new branch library is proposed to be built in the Crowchild III area; location and timing of construction are undetermined at this time.

3.5.5 Social Services

The Social Service Department recommends that space is required in each residential phase to accommodate social service programs. School buildings and community facilities are considered suitable sites for these programs and in the event that the construction of schools is to be delayed, the existence of community facilities is considered a priority. In the event that school sites are unsuitable, alternative locations may be in larger shopping areas adjacent to the open space system.

The Crowchild III area lacks adequate social service programs to accommodate new residential development. It is anticipated that this area like most new subdivisions will be made up of young families, consequently pre-school and teen programs will be required first.

Pre-school

Existing social services in the area for pre-school children are limited to a nursery school catering to children 3 – 4 ½ years of age with a private day care centre being organized.

School and Teenage Programs

Recreational programs geared to children and teens i.e. scouts and guides, be provided within the educational facilities.

3.6 OUTLINE PLAN REQUIREMENTS

Outline plans must include the following information:

1. Compass direction.

2. Scale (no greater than 1 inch to 200 feet, or metric equivalent).

3. Existing contours (minimum 5 feet interval or metric equivalent) for all of the plan area; preliminary grading plan with similar contour interval showing anticipated grades for all areas in or adjacent to designated Environmental Reserves and Environmentally Sensitive Areas.

4. Key plan showing relationship of outline plan to Crowchild III Area Structure Plan, and previous phases; including details of density.

5. Entire road system showing category and carriage way/right-of-way dimension.

6. Identify land purchase option agreement areas.

7. All reserves and identification as to type (e.g. MR, MSR, SR, and ER. Relevant school boards having an interest in MSR and SR sites, where this information is known). Also identify location of any proposed community association facility.

8. Gross developable area of outline plan in imperial and metric units; areas, percentages of public dedication based upon area after any ER and Land Purchase deductions to be shown on the plan.

9. Proposed utility layout and any existing utility lines including gas lines, pipelines and overhead power lines, etc.

10. Proposed land uses including densities in p.p.a. for residential areas.

11. Pedestrian/bicycle path systems.

12. Identify areas having specific features, including structures, that may require individual attention in site design.

13. A comprehensive report indicating the treatment of unique design features; justification for specific land uses; and explanation of the subdivision concept and any other aspects requiring explanation. On DC sites, an indication of reasons for DC and specific guidelines proposed.

14. Data sheet separate from statistics which must be shown ON THE PLAN.

15. Identify stands of trees; water bodies and other unique features e.g. unstable land.

16. Public facilities as identified in Appendix 3.5, Decentralized Services.

17. Existing edge conditions/uses having an influence on the subdivision; include distance from features such as sewage treatment plants, feedlots, etc. if such are within ½ mile of the design area.

18. Demonstration of the possible future subdivision of abutting lands, if required (the need for this should be discussed with the Planning Department).

19. Identify ownership on boundaries and identify.

REFERENCES

1. Beddington Policy Report and Design Brief, City of Calgary, 1977

2. Canada Land Inventory maps – Calgary 820 Soil Capability for Agriculture, Wildlife-Ungulate, Wildlife Waterfowl, Recreation

3. Crowchild Annexation Proposal, The Lombard North Group Ltd. for Carma Developers Ltd. and Melton Real Estates Ltd. 1974

4. Crowchild II Policy Report and Design Brief, City of Calgary 1977

5. Crowchild II, Concept Plan Report, IBI Group for Carma Developers Ltd., and Melcor Developments Ltd., 1978

6. Crowchild Employment Center, Underwood McLelland (1977) Ltd. for Melcor Developments Ltd. 1978

7. Discussion Paper, Noise Control through Land Use Planning and Related Administrative Techniques, Alberta Transportation, 1977

8. Environmental Study, Alison Schneeberger for the City of Calgary, 1978

9. Historical Resources Impact Assessment; Beddington Lands Northwest Calgary, Lifeway of Canada Ltd., for Cohos, Evamy and Partners, 1978

10. Northwest Roads Study, City of Calgary, 1976

11. Simon's Valley Annexation Proposal, the Lombard North Group Ltd. for Carma Developers Ltd., 1977

12. Strathcona Design Brief, City of Calgary, 1978

13. The Calgary Plan, City of Calgary, 1973

14. The Calgary Plan, City of Calgary, 1977, approved, 1979