

## A G E N D A

FOR THE *REGULAR MEETING OF RED DEER CITY COUNCIL*

TO BE HELD IN THE COUNCIL CHAMBERS, CITY HALL

*MONDAY, NOVEMBER 18, 2002*

COMMENCING AT *4:30 P.M.*

- (1) Confirmation of the Minutes of the regular meeting of Monday, November 4, 2002.
- (2) **UNFINISHED BUSINESS**
- (3) **PUBLIC HEARINGS**
- (4) **REPORTS**
  1. Parkland Community Planning Services – Re: *Red Deer Growing Smarter: Design Elements and Ideas for New Residential Neighbourhoods* . .1
  2. City Clerk – Re: *Red Deer Downtown Business Association / Appointment of New Directors to the Board* . .5
  3. Land & Economic Development Manager – Re: *Advancing Capital Budget for Engineering Design / Lancaster Green PH. 4A, 5, 6, 7, 22<sup>nd</sup> Street and Kidd Close in Kentwood West* . .7

4. Parkland Community Planning Services – Re: *Land Use Bylaw Amendment 3156/BBB-2002 / Call Centre at Bower Place Shopping Centre / Ivanhoe Cambridge*  
(Consideration of 1<sup>st</sup> Reading of the Bylaw) . .11
5. Recreation, Parks & Culture Manager & Bid Red Deer – Re:  
*2007 Western Canada Summer Games* . .19
- (5) **CORRESPONDENCE**
  1. Concerned Citizens Group – Re: *Kyoto Agreement* . .22
- (6) **PETITIONS AND DELEGATIONS**
- (7) **NOTICES OF MOTION**
- (8) **WRITTEN INQUIRIES**
- (9) **BYLAWS**
  1. *3156/BBB-2002* – Land Use Bylaw Amendment / Addition of  
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PARKLAND  
COMMUNITY  
PLANNING  
SERVICES

1

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TO: CITY CLERK

FROM: BILL SHAW, DIRECTOR

DATE: NOVEMBER 8, 2002

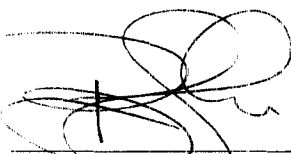
RE: **RED DEER GROWING SMARTER:  
Design Elements and Ideas for New Residential Neighbourhoods**

In the Spring of 2001 Council approved the undertaking of a study to examine Red Deer's neighbourhood development practices with regard to principles of sustainability. On behalf of the Steering Committee I am forwarding the result of that study, this being the report: *Red Deer Growing Smarter: Design Elements and Ideas for New Residential Neighbourhoods*. Because of the size of the report, also being supplied is an *Executive Summary*. These were prepared by Parkland Community Planning Services with the assistance of the Steering Committee and important input from stakeholders and the general community.

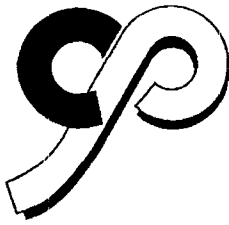
Upon the advice of Councillor Larry Pimm, who chaired the Steering Committee, in recognizing the size of the report and the volume of information contained therein, the following schedule is suggested:

- November 18 Presentation to Council by PCPS
- December 2 Council to consider motion to 'adopt' the report.

The report will be presented to the Municipal Planning Commission on November 18. It is anticipated that MPC at its meeting on November 25 will make a recommendation to Council regarding the implementation of the report. The recommendation will be forwarded to Council prior to the December 2 Council meeting.

  
\_\_\_\_\_  
Bill Shaw, ACP, MCIP

cc. Councillor Larry Pimm, Steering Committee Chairman  
Councillor Morris Flewelling, Steering Committee Vice-Chairman



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**MEMORANDUM**

TO: CITY CLERK

FROM: BILL SHAW

DATE: NOVEMBER 12, 2002

RE: **REFERRAL OF GROWING SMARTER REPORT**

In response to the enquiry this morning from the Mayor and City Manager, I advise that the Growing Smarter Report was circulated for comments to City committees, boards, department managers and selected stakeholder groups. These were referred by means of a memorandum dated September 13, 2002.

The following is a list of the recipients of the report. Responses were received from the ones that are underlined. Their responses were considered by the Steering Committee at its last meeting, resulting in changes to the report prior to its final printing. The Boards, etc. that are represented on the Steering Committee, and therefore had input throughout the process, are shown by \*\*\*\*\*.

City Boards and Committees

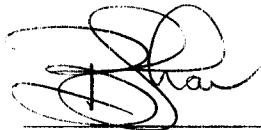
- Environmental Advisory Board \*\*\*\* (meeting notes)
- Recreation, Parks and Culture Board \*\*\*\*
- Intermunicipal Affairs Committee (discussed at Sept. 24 meeting)
- Joint Use Board (discussed at meeting last week in September)
- Policing Committee
- Transportation Advisory Board
- Family and Community Support Services Board \*\*\*\*
- Normandeau Cultural and Natural History Society

Stakeholders

- Urban Development Institute \*\*\*\*
- Central Alberta Homebuilders
- Red Deer and District Real Estate Board
- Chamber of Commerce
- Red Deer River Naturalists
- ATCO Gas
- ATCO Pipelines
- Telus
- Shaw Cable Systems

## City Departments

- Recreation, Parks and Culture Manager/Coordinator
- Social Planning Manager
- Engineering Services Manager
- Land and Economic Development Manager
- Inspection and Licensing Manager
- Emergency Services Manager (Fire Chief)
- Transit Manager
- RCMP Superintendent \*\*\*\*
- Director of Development Services Division \*\*\*\* (input throughout process)
- Director of Community Services Division \*\*\*\* (input throughout process)
- Parkland Community Planning Services \*\*\*\* (input throughout process).




---

Bill Shaw, ACP, MCIP

cc. Mayor Gail Surkan  
 City Manager, Norbert Van Wyk  
 Larry Pimm, Chairman of the Steering Committee  
 Morris Flewelling, Vice- Chairman of the Steering Committee  
 Colleen Jensen  
 Bryon Jeffers  
 Tony Lindhout

*Comments:*

We agree with the process identified by Parkland Community Planning Services. The report and executive summary are provided as attachments. Please retain these documents and bring them to the December 2, 2002 Council meeting.

"G.D. Surkan"  
Mayor

"N. Van Wyk"  
City Manager

# **COUNCIL MEETING OF NOVEMBER 18<sup>TH</sup> , 2002**

## **ATTACHMENT**

**DOCUMENT STATUS:        PUBLIC**

**REFERS TO:                RED DEER GROWING SMARTER:  
DESIGN ELEMENTS AND IDEAS  
FOR NEW RESIDENTIAL  
NEIGHBOURHOODS**

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RED DEER GROWING SMARTER:  
DESIGN ELEMENTS AND IDEAS  
FOR NEW RESIDENTIAL NEIGHBOURHOODS



*Parkland Community Planning Services*

*November 2002*

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**RED DEER GROWING SMARTER:  
DESIGN ELEMENTS AND IDEAS  
FOR NEW RESIDENTIAL NEIGHBOURHOODS**



**Steering Committee**

Larry Pimm (City of Red Deer Councillor) Chairman  
Morris Flewelling (City of Red Deer Councillor) Vice-Chairman  
Colleen Jensen (City of Red Deer Director of Community Services)  
Bryon Jeffers (City of Red Deer Director of Development Services)  
Gord Bontje (Urban Development Institute)  
Trent Harder (Urban Development Institute)  
Phil Hyde (Recreation, Parks and Culture Board)  
Tony Lindhout (Parkland Community Planning Services)  
Dave Lock (RCMP)  
Paolo Mancuso (Red Deer and District FCSS Board)  
Guy Pelletier (Urban Development Institute)  
Vic Walls (Environmental Advisory Board)

**Prepared by**

**Parkland Community Planning Services**

Bill Shaw, ACP, MCIP  
Craig Teal, ACP, MCIP  
Johan van der Bank

November 2002

# RED DEER GROWING SMARTER: DESIGN ELEMENTS AND IDEAS FOR DEVELOPING AND NEW RESIDENTIAL NEIGHBOURHOODS

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5. Social Aspects Compendium of Ideas and Practices (Chapter 8 of Background Report No. 5)
6. Circulation/Connections Compendium of Ideas and Practices (Chapter 3 of Background Report No. 5)
7. Utility Services Compendium of Ideas and Practices (Chapter 7 of Background Report No. 5)
8. Fiscal Considerations (Chapter 9 of Background Report No. 5)

## 1. INTRODUCTION

### 1.1 Initiative

The City of Red Deer Municipal Development Plan (1998) directs the City to “apply the principles of sustainability to managing growth and resources so that fiscal, social and environmental initiatives occur in a manner capable of being sustained in the future” (Section 5 Objective 1).



Pursuant to this fundamental objective of City planning, in the Spring of 2001 Council approved the undertaking of a study to examine Red Deer’s neighbourhood development practices with regard to principles of sustainability.

### 1.2 Study Purpose and Objectives

The purpose of the study, originally called the Red Deer Sustainable Community Study, was to evaluate Red Deer’s existing neighbourhood planning and development practices against the concept of sustainability. This was to be done with the view of advising changes and modifications to Red Deer’s policies, standards and practices so residential growth is fiscally, environmentally and socially responsible.

The Terms of Reference identified three main areas, or objectives, to be investigated:

1. Review of current approaches
  - Review current procedures, policies, methods and approaches in use by the related to planning new residential areas
  - Review actions in other municipalities
2. Outcome of current practices
  - Investigate, discuss and forecast the consequences of current practices
  - Identify alternate development options
  - How to determine/measure social impact of new development
3. Recommend changes
  - Recommend the types of changes that could be made to existing residential area planning practices to best meet the ideals of fiscally, environmentally and socially responsible growth.

This resulting report from the study, entitled *Growing Smarter: Design Elements and Ideas for New Neighbourhoods*, focuses on residential development and forms of Red Deer’s suburban residential growth. However, a number of this reports findings and recommendations may be applicable to infill and redevelopment sites in ‘older’ City neighbourhoods.

### 1.3 Background

Planning for Red Deer's expanding and new neighbourhoods is directed in general terms by the City's vision statement and strategic plan. Red Deer's Vision 2020 proclaims:

*Red Deer is a city of opportunity with a strong emphasis on the quality of life in the community. It is:*

- *a community with a unique natural environment preserved and enhanced by careful community planning*
- *a community which reflects high standards in terms of quality of life*
- *a caring community with a strong volunteer ethic*
- *a community which offers a wide range of opportunities for employment, education and leisure.*

Of the seven guiding principles in Vision 2020, the one most related to neighbourhood planning is:

- the development of a well-planned and healthy community based upon the protection and enhancement of the residential neighbourhood unit . . . .

The City of Red Deer Strategic Plan (July 1999), which was in place at the commencement of this study, also addressed planning goals. The 1999 Strategic Plan indicated the City has four roles in land use planning and development, each being relevant to sustainable community development. These roles are:

- to ensure neighbourhoods are planned to provide a range of housing, recreation and park amenities
- to preserve the natural environment and beauty of the city, in doing so utilizing a long-range vision focused on quality of life and growth management
- to sustain the city's economic base and to enhance opportunities for social growth and interaction
- to use coordinated and cooperative planning approaches with neighbouring municipalities.

In the updated Red Deer Strategic City Plan 2002 the long-term goal for community and land use planning is:

- to ensure that land use planning policies, development guidelines and procedures support sustainability and a vision focused on quality of life.

In the Strategic Plan 2002, the three most related strategies for community and land use planning are to:

- conduct land use planning that considers fiscal, environmental and social sustainability
- plan for an appropriate mix of parks, natural areas, residential, commercial, industrial and institutional land uses
- plan for community growth while providing a balance of preserving and maintaining environmentally sensitive areas, historic resources and other significant features.

It is within this context that Council requested a 'sustainable community study' that evaluates Red Deer's existing neighbourhood planning and development practices against the concept of sustainability.

## 1.4 Terminology

The term “neighbourhood” has both a physical (area – size) and social context. From a social sense, the physical boundaries of a neighbourhood vary depending on the perspective of the individual or family. To some, a neighbourhood is 12 to 15 homes located within a cul-de-sac. To others it is a number of adjacent blocks perhaps with 75 to 100 homes, while to others it is the 160 acre neighbourhood containing hundreds of dwellings.

However, as used most frequently in this report, it is the physical area planning context that applies, such that:

*neighbourhood means a predominantly residential area which is usually one quarter section (64.75 ha [160 acres]) in size.*

Within the context of planning for residential growth, this report advocates that more detailed residential area planning not be based on a single quarter section, or neighbourhood, but on an inter-related set of adjacent neighbourhoods, or neighbourhood cluster that forms a multi-neighbourhood community. Within the context of this report, these are called multi-neighbourhoods, such that:

*multi-neighbourhood means a predominantly residential area generally comprising of two to four neighbourhoods ranging between two to four quarter sections (129.5 to 259 ha [320 to 640 acres]) in size.*

## 1.5 Why the Study is Important

Although Red Deer has established goals in the Municipal Development Plan to embrace the principles of sustainability, many of Red Deer’s growth related policies have not been assessed since the 1970s. While the appearance of neighbourhoods have changed, most often due to trends in housing and the addition of entry features, the basic design of new neighbourhoods today varies little from the neighbourhoods created up to 30 years ago in Red Deer.

It is important that new neighbourhoods - those being created now and those to come in the future - best serve the social, fiscal and environmental needs of the community (i.e. both the neighbourhood ‘community’ and Red Deer as a corporate and social entity) well into the future. Over the next thirty years it is anticipated that Red Deer’s population could increase by 30% and reach 90,000 people. This growth will require approximately 765 hectares (1,893 acres or 12 quarter sections) of land for residential development alone.

Obviously, infrastructure costs to provide major trunk lines, arterial roads, sports and cultural facilities will be very considerable. The ability to pay for, and thereafter sustain utility, transportation and social infrastructure, as well as to maintain the environmental quality of air, the river and natural spaces is extremely important. Therefore, it is timely to review Red Deer’s current neighbourhood development policies and practices with the view of making appropriate modifications and changes to promote development that is more clearly fiscally, socially and environmentally sustainable.

## **1.6 Contents of this Report**

Part One forms the background of the report on Growing Smarter: Design Principles and Ideas for Developing and New Neighbourhoods by providing the study purposes, strategic City of Red Deer planning framework and an overview of the study process leading to the preparation of this report.

Part Two provides an overview of Red Deer's current neighbourhood planning policies and standards. As well, the evolution of neighbourhood form in Red Deer is reviewed, with reference to the city's first neighbourhoods (the early 1900s), but more to neighbourhood design in the 1960's to today.

Part Three explores contemporary neighbourhood planning across North America. It outlines the planning principles of major planning movements (Sustainable Communities, Smart Growth, New Urbanism, and Traditional Neighbourhood Development) and provides a compendium of neighbourhood planning ideas and practices in numerous American and Canadian communities.

Part Four provides the vision for sustainable neighbourhoods, which was formulated through two workshops attended by community members who were representative of social, environmental, infrastructure and general design interests. A set of 50 design elements for Red Deer's developing and new neighbourhoods are outlined. Suggested actions to implement the vision, design elements and compendium of ideas conclude the report.

## **1.7 Use this Report**

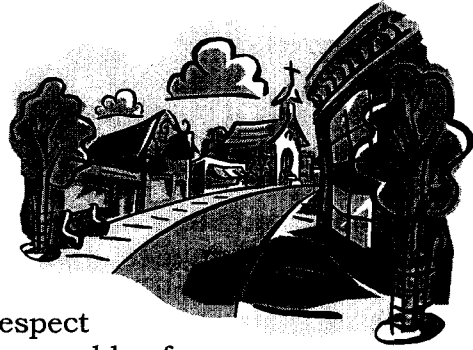
One of the main findings of the 'Growing Smarter Study' is that Red Deer's present, developing neighbourhoods exhibit many aspects of sustainability. This suggests that neighbourhood planning in Red Deer is 'on the right track.'

Nonetheless, the report identifies aspects where Red Deer's approaches could be improved to further enhance the fiscal, social and environmental sustainability of Red Deer's developing and future neighbourhoods and multi-neighbourhood communities. The essence of this report is the 50 design elements for Red Deer's expanding and new residential areas, including the related series of 'practices' that provide neighbourhood planning ideas. These respond to the third objective of this study, being to recommend the types of changes that could be made to existing residential area planning practices to best meet the ideals of fiscally, environmentally and socially responsible growth.

Section 9 outlines a series of actions to implement the design elements and related practices. Some of these are through new and revised policies advised for the Municipal Development Plan and major area structure plans, as well as guidelines in the Neighbourhood Development Standards and Guidelines (2002). Other actions are provided as ideas to be considered by the residential land development sector and their site designers. It is very important to note that progress toward achieving 'smarter growth' will only come through collaboration and consultation among the City, the development sector and the community.

### 2.1 Phases

The 'Growing Smarter' Study was undertaken in a series of phases. Phase One reviewed planning principles from community planning movements, identified focus topics and, through a community workshop, identified a draft 'sustainable neighbourhood vision' (see Section 7).



Phase Two identified where Red Deer is now with respect to neighbourhood planning, primarily through the assembly of present City policies and standards applicable to residential areas. This was followed by interviews with City administration and residential development sector representatives regarding how these policies and standards are working and where shifts or new approaches may be appropriate.

Phase Three examined the 'achievements' of other Alberta and Canadian municipalities in the development of neighbourhoods. This led to a comparison of Red Deer's neighbourhood planning practices and achievements with those of other municipalities.

Phase Four researched 'best and new' neighbourhood development practices in numerous Canadian and the American cities. One purpose was to provide a compendium of ideas and practices to compare to Red Deer's current approaches to neighbourhood development. The second, and more important purpose, was to identify ideas and practices from which Red Deer could learn with the view of altering its planning policies and procedures in order to create and maintain more sustainable and livable residential neighbourhoods and multi-neighbourhood communities.

In Phase Five a second community workshop reviewed, and refined, the 'sustainable neighbourhood vision'. The draft design elements to guide land use planning and development practices for Red Deer's expanding and new neighbourhoods were also reviewed at the community workshop, and subsequently refined for inclusion in this report. This report, which concludes the 'Growing Smarter' study, draws together the pertinent background information, sustainable neighbourhood vision and neighbourhood design elements and ideas.

### 2.2 Background Reports

Leading to this final report a series of study reports were produced. They included:

- Report No. 1: Study Framework (September 2001)
- Report No. 2: Initial Community Vision and Background (September 2001)
- Report No. 3: Red Deer's Neighbourhoods: Policy Framework and Current Form (January 2002)
- Report No. 3 Supplementary Report (January 2002)
- Report No. 4: Neighbourhood Planning in Other Communities (March 2002)
- Report No. 5: Compendium of Ideas and Practices (May-June 2002)
- Executive Summary (September 2002).



### 3.0 RED DEER'S CURRENT NEIGHBOURHOOD PLANNING POLICIES

#### 3.1 Introduction

This section outlines Red Deer's present residential areas planning policies, standards and guidelines as contained in a number of statutory plans and other documents. The statutory plans (i.e. municipal development plan, area structure plans) and Land Use Bylaw contain policies, standards and regulations adopted by by-law by Council. Other documents are generally approved or accepted by resolution of Council but, as with statutory plans, are used by the City to provide a framework, both general and specific, for planning the expansion of existing neighbourhoods and the creation of new ones.



The neighbourhood planning and development policy framework outlined below is not an exhaustive list of policies, standards and guidelines. What is presented serves as a key overview of planning and development directions that are related to planning Red Deer's neighbourhoods. Readers are cautioned that the information presented below may be in summary form or only a part of policy, guideline or standard. Source materials – bylaws, plans and manuals – should be referenced for all details related to neighbourhood planning and development.

#### 3.2 Sources

The sources for Red Deer's residential area policies, standards and guidelines are:

##### City – comprehensive

Vision 20/20

Strategic Plan 2002 (updates Strategic Plan July 1999)

##### Statutory plans

Municipal Development Plan

Intermunicipal Development Plan

Land Use Bylaw

Northwest Major Area Structure Plan

East Hill Major Area Structure Plan

Neighbourhood Area Structure Plans and Outline Plans (21 of these)

##### Non-Statutory Planning Documents

Growth Study

Subdivision & Development Guidelines (updated to January 2002)

##### Parks and Environmental Policies and Studies

Community Services Master Plan (1996)

Landfill Reclamation Plan

Ecological Profiles

REACT - Environmental Action Plan

Engineering Policies and Studies

Design Guidelines 2001  
Standard Development Agreement  
Transportation Master Plan  
Transit Business Plan  
1989 Transit Study  
Bike Master Plan  
Off-site Levy Report  
Solid Waste Master Plan

Social policies and Studies

Community Services Master Plan (1996)  
Cultural Policy  
Emergency Services Master Plan  
Joint Use Agreements with the School Boards (3)  
“The Journey Home” A Community Housing Plan.

**3.3 Policies, Guidelines and Standards**

The following twelve sub-sections list policies, guidelines and standards for neighbourhood planning under the following subjects:

1. General form
2. Land use mix
3. Housing mix
4. Density
5. Open space and facilities
6. Gathering places
7. Roads and lanes
8. Transit
9. Trails
10. Utilities
11. Natural areas
12. Heritage resources.

For reference purposes, each policy, guideline or standard has a policy, map or page number and is listed under a source document.

**3.3.1 General Form**

These policies, guidelines and standards address:

- The need for residential development in new neighbourhoods to be in accordance with an area structure plan
- The design of neighbourhoods for 2,500 to 3,000 people on a quarter section basis
- residential access via internal roads only, with no direct access from the one or two arterial roads that form boundaries of the neighbourhood

### Intermunicipal Development Plan

Policy 10.2.1 No new multi-lot residential subdivision . . . shall be allowed in the plan area outside an adopted area structure plan.

### East Hill Major Area Structure Plan

All residential development must be preceded by, and be in accordance with, an approved Neighbourhood Area Structure Plan . . . These guidelines dictate that most new residential neighbourhoods will be designed on a quarter section by quarter section basis (p. 7)

Most quarter sections abut an arterial roadway on one side and contain an internal major collector road system that will link with existing collector roadways in adjoining neighbourhoods (p. 7)

No direct access is permitted to individual residential parcels from arterial roadways. (p. 7)

The majority of residential development will be located on local roads, and to a lesser degree on collector roads. (p. 7)

### Planning and Subdivision Guidelines (updated to January 2002)

A Neighbourhood Structure Plan generally encompasses approximately 60 hectares in size and may involve more than one landowner. (p. 5)

### Community Services Master Plan (1996)

The City should plan new neighbourhood level facilities based on neighbourhood units of one quarter section with a population of 2,500 to 3,000 persons. (p. 16)

### **3.3.2 Land Use Mix**

These policies, guidelines and standards address:

- The requirement that neighbourhoods be primarily residential areas which contain a variety of housing types
- The provision of parks, recreation and leisure facilities
- The provision of social facilities and land uses in neighbourhood plans
- Opportunities for commercial land uses
- Home businesses as a land use option.

### Strategic Plan (1999)

The City has four roles in land use planning and development. The first role is to ensure neighbourhoods are planned to provide for a range of housing, recreation and park amenities and in some areas, neighbourhood commercial and office use. (p. 11)

## Municipal Development Plan

Policy 11.5 The City shall continue to support the requirement of a social care facility site in all new residential neighbourhoods. . . . the social care facility can be used for a day care, as well as any other form of social facility.

Policy 11.9 The City shall strive to continually update its land use strategy to provide the opportunity for new commercial trends . . . . The City will establish new principles and standards for locating, sizing and integrating community commercial sites in new residential growth areas . . .

Policy 11.8 The City shall continue to support home business as a viable lifestyle and land use option, recognizing that the home business must remain the secondary use . . . .

## East Hill Major Area Structure Plan

Each neighbourhood, in addition to residential uses, will be required to provide public facilities such as church and social care sites, and park and recreation areas that may require combination with school facilities. (p. 7)

Commercial C2 (District) location criteria (pp.9 – 11)

- Separation (approx. 2.0 km)
- Preferably not adjacent to schools, including future planned sites
- May be desirable to locate in proximity to community facilities (ice arenas, libraries, pools, sports fields, etc.) as well as employment centres
- Adjacent to residential presents actual or perceived negative externalities
- Vehicle access – for maximum visibility and access, best located at intersection of major roadways, preferably at the intersection of a divided and undivided arterial

Commercial C3 (Neighbourhood) location site criteria (p. 16)

- To permit the development of a convenience commercial sites that provide for the day-to-day local needs of the adjacent residential neighbourhood
- Service approximately a 1 km area

## Northwest Area Structure Plan

C3 (Neighbourhood) (p. 4)

- Two local commercial sites intended each to serve approximately two quarter sections of development
- Intended to provide neighbourhood conveniences (store/gas bar, doctors office, hairdressing, pharmacy, videos, etc)

## Growth Study

There is a lifestyle preference for services within walking distances and thus appreciation for mixed use development. Traditionally this is reflective of downtown living. (p. 3.6)

### Community Services Master Plan (1996)

The outline plan for a neighbourhood unit shall make provision for: (p. 17)

- Social care residence site of 0.12 ha (0.3 ac) – two sites
- Day care facility of 0.12 ha (0.3 ac)

### Planning and Subdivision Guidelines (updated to January 2002)

Each neighborhood ASP shall provide for residences, public facilities (including school site if required) and parks, social facilities

#### **3.3.3 Housing Mix**

These policies, guidelines and standards address:

- The requirement for a diversity of housing types to accommodate a wide range of income levels
- A limit for land areas for narrow lot housing.

### Municipal Development Plan

Policy 11.4 Innovative comprehensive residential projects shall be encouraged . . .  
For example, single detached dwellings comprised of main floor commercial . . . .

### East Hill Major Area Structure Plan and Northwest Major Area Structure Plan

Residential development should be diversified providing a variety of housing types  
(p. 7)

### Planning and Subdivision Guidelines (updated to January 2002)

An objective should be a mixture of housing types including single family, semi-detached and multiple family; these should be designed to appeal to a wide range of income levels (p. 5) No more than 33% of the developable area in a neighbourhood area structure plan shall be developed for single family narrow lot housing

#### **3.3.4 Density**

These policies, guidelines and standards address:

- The design limitation of a maximum of 45 persons per gross hectare
- The need for a minimum residential design density

### Municipal Development Plan

Policy 11.2 The residential density for new neighbourhoods shall be a maximum of 45 persons per gross hectare, but further adds that:

- the City will investigate a suitable minimum residential density for new neighbourhoods and amend the Planning and Subdivision Guidelines accordingly.

### East Hill Major Area Structure Plan

Residential development should be diversified providing a variety of housing types and densities. The overall density cannot exceed 45 persons per gross hectare as stated in the City's Planning and Subdivision Guidelines, or as amended. (p. 7)

### Northwest Area Structure Plan

The overall density cannot exceed 45 persons per gross hectare (p. 3)

Residential development should be diversified providing a range of housing types and densities designed to suit the needs of the community (p. 3)

### Planning and Subdivision Guidelines (updated to January 2002)

The plan should include the proposed zoning of the site and include an overall density calculation, which does not exceed 45 persons per gross hectare. (p. 6)

### Growth Study

Development trends most likely to increase density in Red Deer include (pp.3.21 – 3.22)

- Smaller lot housing increase in multi-family and duplex developments
- Gated communities with smaller lots and more 'common space'
- Secondary suites
- Mixed use development
- Some neo-traditional development

### **3.3.5 Open Space and Facilities**

These policies, guidelines and standards address:

- The provision of a variety of open space in each neighbourhood
- The conservation of the natural environment
- The dedication of environmental reserves
- The dedication of a minimum of 10% of gross developable land as municipal reserves park and/or school purposes
- The provision of a major sports field complex (normally in a centralized location) for each neighbourhood
- Consideration be given to the provision of parkettes

### Strategic Plan (1999)

To ensure that Red Deer develops and maintains an attractive, clean and ecologically sound natural and built environment (p. 10)

The second role (in City land use planning and development) is to ensure that city-wide planning emphasizes the preservation of the natural environment, the beauty of the City . . . (p. 11)

Ensure that environmentally significant areas, historic resources and other significant features are preserved and maintained for future generations. (p. 12)

## Municipal Development Plan

Policy 6.11 The City shall require that a minimum of 10% of the gross developable area of land to be subdivided be dedicated for the purpose of providing municipal reserve, school reserve and/or municipal and school reserve. Where deemed appropriate, cash-in-lieu or a combination of cash-in-lieu and land may be provided.

Policy 6.12 Municipal Reserve lands, or cash-in-lieu, may be used for school sites, parks and recreation facilities

Policy 7.4 The City shall continue to require that all escarpments, ravines, creeks, riverbank lands, wetlands along with setbacks appropriate for preserving these features . . . be dedicated as environmental reserve.

## East Hill Major Area Structure Plan

Neighbourhood Level Facilities (p. 20)

- community neighbourhood park and recreation facilities to be located on the large central park found within each quarter section neighbourhood
- each park site to include play fields, various hard surface play areas, playgrounds and a community shelter
- as an alternative to central parks, the concept of linear neighbourhood parks will be explored in the review of the Community Services Master Plan

As an alternative to central parks, the concept of linear neighbourhood parks will be explored in the review of the Community Services Master Plan

## Northwest Area Structure Plan

Neighbourhood Level Facilities (p. 5)

- each park site to include play fields, various hard surface play areas, playgrounds and a community shelter

Map 3 . . . Ecospace Management Plan identifies vegetation and wetlands in the area. Many of these significant features will be preserved through the allocation of municipal reserve.

## Community Services Master Plan (1996)

The City should provide open space at the neighbourhood level through municipal reserve dedication at the time of subdivision (p. 5)

Neighbourhood units shall normally include a minimum 10% MR dedication. (p. 16)

The City should plan new neighbourhood level facilities based on neighbourhood units of one quarter section with a population of 2,500 to 3,000 persons. (p. 16)

In general, the 10% MR . . . should be allocated as follows: (pp. 77 – 78)

- |                                  |   |               |
|----------------------------------|---|---------------|
| • neighbourhood school/park site | - | 5.1 ha        |
| • neighbourhood linkages         | - | 0.4 ha        |
| • passive parkettes              | - | <u>1.0 ha</u> |
| total                            | - | 6.5 ha        |

The MR shall provide for conveniently located neighbourhood school/park space of a minimum size of 5.1 ha (12.5 ac), open space linkage and parkettes. (p. 16 – 17)

#### Strategic Plan (2002)

Plan for an appropriate mix of parks . . . . (Strategy 1.5.3)

#### Design Guidelines 2001

In general, neighbourhood park site	-	3.9 ha	
Elementary school site	-	<u>1.2 ha</u>	
Total	-	5.1 ha	(Section 2, p. 15)

In general, neighbourhood park site	-	3.9 ha	
Middle/Junior school site	-	<u>1.4 ha</u>	
Total	-	5.3 ha	(Section 2, p. 15)

Neighbourhood School/Park site may include a stormwater detention pond as an amenity to be incorporated into the overall design; A maximum of 1 ha of MR may be utilized for stormwater storage during minor storm events (1:5 year frequency) (Section 2, p. 14)

#### Planning and Subdivision Guidelines (updated to January 2002)

A Neighbourhood Park Plan shall be included in any proposed Neighbourhood Area Structure Plan. (p. 8) (note: basically the same provisions are in the Community Services Master Plan (pp. 78 – 79)

The specific requirements for the development of a school/park plan are as outlined in the Community Services Master Plan. The City will develop all facilities on the central neighbourhood school and park site, unless otherwise noted in this document or through a development agreement, using recreation levy funds. (pp. 12 – 14)

- (a) 1-School Building Site – The designated school building site shall be 1.2 ha (3 acres) in size to accommodate an elementary school or 1.4 ha (3.5 acres) to accommodate a middle or junior high school. The Major Area Structure Plan determines the type of school on the site.
- (b) 1-Soccer Field – On elementary school sites, one soccer field 100m X 60m (110yds. X 65yds.) with soccer goal posts will be developed. On junior high and middle school sites, a combined soccer/football field 100 m X 60m (110yds. X 65yds.) complete with 20-yard end zones and combination goal posts will be developed. A 20-metre setback between sports fields and residential properties or roads is required for all fields. In some locations as determined by topography, existing vegetation or special restraints, a modified “A” soccer field 100m X 55m (110yds. X 60yds.) will be considered.
- (c) 1-Ball Diamond – one ball diamond with an outfield distance of 300 feet is required. A setback of approximately 20 metres should be provided along the diamond perimeter.



- (d) – A community shelter approximately 93 m<sup>2</sup> in size will be constructed by the City to accommodate rink/skate change in the winter and playground activity in summer. Enhanced or larger shelters would be the sole responsibility of the community association.
- (e) 1- Multi-Purpose (Asphalt Pad) – Space will be allocated for a multi-purpose pad which may be developed by the community for any variety of recreation uses including: tennis, basketball, volleyball, skate boarding, street hockey, lacrosse and in-line skating. These sites will be designated for an outdoor, boarded hockey rink in the winter.
- (f) Basketball Court – On sites where no school is planned, an asphalt basketball court will be provided as part of the site development. Sites that have a school will make provision for a basketball court on the school building asphalt play area and/or on the multi-purpose pad if developed by the respective community association.
- (g) 2- Playgrounds – One pre-school and one elementary playground are to be developed per neighbourhood. Both playgrounds should be located in appropriate locations on the central school and park site.
- (h) 1- Sliding Hill – A sliding hill will be developed, by the City, in accordance with the district development plan and the approved site plan.
- (i) 1- Skating Rink with Lighting – One skating rink (non-boarded) will be erected annually and will be maintained during the winter in conjunction with the boarded hockey rink. Both rinks will have lighting and light timers.
- (j) 1- Parking – Parking should be shared with the school or, where no school is planned, a 16 stall paved parking lot should be developed.
- (k) Natural Preservation/Tree Planting – Natural treed areas will be preserved in school/park sites, where possible. Trees located directly adjacent to school locations are not acceptable; an appropriate grass buffer is required. If a natural treed area does not exist, extensive cluster tree/shrub planning inside the park area will create a planted landscape area for picnicking and other leisure activities.
- (l) Critical Natural Areas - Notwithstanding the foregoing, where there are critical natural areas, which area identified in the ecospace, inventory, the City may waive the requirements for the facilities identified in 3.3.1.1(a)-(j) in order that the natural area can be preserved.
- (m) Perimeter and Site Berming – Low undulating and well-spaced berms containing some landscaping will be graded into the site design along the street frontage and within the neighbourhood park sites. The neighbourhood school and park site should be a functional and regular shaped configuration, necessary to accommodate the required recreational amenities;  $\pm$  50% of the site perimeter should have street frontage.

Any small parkettes as well as pedestrian/bicycle trails and buffer reserves are required to be shown on the Neighbourhood Area Structure Plan.

### **3.3.6 Gathering Places**

These policies, guidelines and standards address:

- The potential integration of commercial sites in neighbourhoods
- The allocation of school sites, community and social facilities
- Accommodating a day care or social care residence site and one church site per neighbourhood.

## Municipal Development Plan

Policy 11.2.1 The City shall strive to continually update its land use strategy to provide the opportunity for new commercial trends . . . .

- \* The City will establish new principles and standards for locating, sizing and integrating community commercial sites in new residential growth areas which ensure that these centres can function as community focal points, provide some local employment and reduce cross city traffic.

Policy 6.10 The City shall continue to work with both school boards to optimize the delivery of education services and the joint use of school and community facilities...

## East Hill Major Area Structure Plan

Neighbourhood Level Facilities (p. 20)

- community neighbourhood park and recreation facilities to be located on the large central park found within each quarter section neighbourhood

Schools (p. 21)

- where a school site is designated in a neighbourhood asp, the school site is combined with the large central community park to form a joint use site

## Northwest Area Structure Plan

Schools (p. 4)

- five schools, three new sites provided through MR dedication
- each school located within a large central park site

## Planning and Subdivision Guidelines (updated to January 2002)

3.1.1.5 The Neighbourhood Area Structure Plan shall include the location of community facilities such as schools and parks (p. 6), including (pp. 12 – 13)

- school building site (if required)
- sports fields and hard playing surfaces
- playgrounds (2)
- community shelter

The specific requirements for the development of a school/park plan are as outlined in the Community Services Master Plan. The City will develop all facilities on the central neighbourhood school and park site, unless otherwise noted or through a development agreement, using recreation levy funds. (pp. 12 – 14)

- (a) 1-School Building Site – The designated school building site shall be 1.2 ha (3 acres) in size to accommodate an elementary school or 1.4 ha (3.5 acres) to accommodate a middle or junior high school. The Major Area Structure Plan determines the type of school on the site.

3.1.1.7 One day care or social care residence site and one church site shall be identified in the Neighbourhood Area Structure Plan.

### **3.3.7 Roads and Lanes**

These policies, guidelines and standards address:

- The need for neighbourhood plans to follow the general network of collector roads outlined in the major neighbourhood plans
- The system of roads to serve a neighbourhood
- Road design standards and intersection spacing
- The city's preference for laned subdivisions and curvilinear street patterns

#### Strategic Plan (2002)

Provide roadway, trail and other systems that address the need for safe transportation in our city (Strategy 1.6.1)

#### East Hill Major Area Structure Plan

Road system consists of local roads, major collector roads, divided arterials, undivided arterials, and expressways (pp. 18 – 19)

- Local roads – direct access to abutting land uses; network to be evaluated and approved at Neighbourhood ASP level
- Major collector Roads – designed to distribute traffic between arterial and local roads; circuitous pattern throughout each quarter section enables convenient access to the adjoining neighbourhood and provides the ability to funnel motorists to the arterials
- Neighbourhood plans should make every effort to follow the network of major collectors shown on Map 4

#### Northwest Area Structure Plan

Road system consists of local roads, major collector roads, arterials (pp. 5 - 6)

- Local roads are intended to supply direct access to abutting land uses only and are not intended to provide routes through the neighbourhood; local roads should be designed to prevent their use as a short cuts
- Collectors roads are intended to distribute traffic between arterial and local roads; designed to provide quick access to arterial roads; a circuitous design is often used to prevent their use for inter-neighbourhood traffic

#### Planning and Subdivision Guidelines (updated to January 2002)

The plan shall include all proposed lanes and roads and specifically identify collector or arterial roads. Collector and arterial roads shall be consistent with the Major Area Structure Plan. (p. 6)

#### Design Guidelines 2001

Street system includes: (Section 2 p. 3):

- Urban Arterial Roadways with a 60 m right-of-way and a 21.8 m carriageway.
- Residential Collector Streets with a 20 m right-of-way and a 12 m carriageway.

- Residential Local Streets with a 15 m right-of-way and a 10 m carriageway for low density development and a 16 m right-of-way and an 11 m carriageway for streets adjacent to multiple family housing.
- Lanes.

The City is in favour of subdivisions that have rear lanes. Servicing should be routed within lanes or public utility lots to avoid disturbing the subsurface soils beneath the street pavement. Laneless subdivisions are acceptable in specific circumstances, e.g. lots backing onto park, parks or school sites or major arterial roadways. In these instances service mains should still be routed along the rear of the lots in public utility lots or other public space (Section 2 p. 2).

The City uses curvilinear road designs effectively to integrate the street infrastructure with the existing topography and other subdivision features to promote slower traffic speeds, and to enhance aesthetics (Section 2 p. 5).

The minimum distance between opposing intersections along collector and local streets is 45 m measured from centre to centre of the respective intersections, however spacing of less than 80 m should be avoided. Cross intersections (four-legged) on local roadways should be avoided (Section 2 p. 6).

Collector and local roadways should not generally be divided by a median, except where required to separate traffic streams such as at an intersection with an arterial roadway or large P-loop (Section 2 p. 8).

Unless otherwise specified the City applies the Transportation Association of Canada's manual and guidelines for setting design standards such as right-of-way width, horizontal alignment, minimum curve radii, daily service volumes, street intersection spacing, etc for all types of roadways, including collector and local roadways (Section 9 p. 1).

### **3.3.8 Transit**

These policies, guidelines and standards address:

- The provision of transit services to residential areas
- Walking distances to the nearest transit stop mostly to be within 450 m

#### Strategic Plan (2002)

Maintain a safe and effective public transit system and promote its benefits to citizens. (Strategy 1.6.3)

#### Municipal Development Plan

Policy 13.8 The City shall continue to apply its mandate to:

- supply transit service to all sectors of the community when 80% occupancy is achieved and roadways provide access and exits in subdivisions
- ensure adequate bus bays and sidewalks are available at all bus stops
- residential walking distances no greater than 400 m to the nearest bus stop

Policy 13.9 The City shall provide a transit system, which serves all neighbourhoods . . . .

#### Design Guidelines 2001

In accordance with current Transit Policy, 95% of all residences should be within 400 m walking distance of an existing or proposed bus stop (Section 2 p. 17).

#### Transit Department Business Plan (2001 – 2003)

Coverage and walking distance

- 90% of all residences should be within 400 m walking distance of a bus stop.

Spacing and location of bus stops

- Along any route, the average bus stop spacing should be no less than 500 m and bus stops should be at least 300 m apart, except where there are a significant number of major ridership generators.
- Where possible, locate bus stops at signalized intersections or at stop signs.
- Locate bus stops on the far side of the intersection (i.e. the bus stops after crossing the intersection). Nearside stops should be considered where there is not an appropriate amount of space on the far side for a stop or other zone amenities or considerations cannot be met.
- On arterial roads, avoid mid-block bus stops at non-signalized locations unless to do so would result in excessive bus stop spacing. On all streets, traffic speeds and night illumination should be considered in locating mid-block stops.

### **3.3.9 Trails**

These policies, guidelines and standards address:

- Trails being an integral part of the transportation system
- Support in plans for a comprehensive trail system
- The provision of sidewalks along roads.

#### Municipal Development Plan

Policy 13.12 The City shall continue to consider new bicycle and pedestrian routes:

- i. as integral components of the transportation system
- ii. to serve recreation and transportation needs
- iii. to link existing parks, recreation and education facilities to form an integrated open space network

Policy 13.13: The City shall attempt to partner with other local government and community groups to develop a regional trail network.

#### Intermunicipal Development Plan

Policy 6.2.2 A regional trail network may be developed to link points of interest in the city and the County . . .

## East Hill Major Area Structure Plan

### Major Trail System (pp. 21 – 22)

- comprehensive trail/path system designed for the East Hill (Map 4 in plan)
- non-motorized trail/path network is to link residential neighbourhoods with each other, with parks, recreation and school facilities and to provide walking and biking linkages to the Waskasoo Park trail system , downtown and other places of employment
- as new neighbourhoods are developed, all planned trail/pathways are to be constructed to City Engineering and Design standards to ensure a fully integrated, consistent and safe pedestrian environment

## Northwest Area Structure Plan

### Trail System (p. 5)

- identifies a comprehensive trail system (Map 4 in plan)
- laid out to provide pedestrian and cycle access to park and school sites throughout the area
- all future development should be cognizant of the planned trail system and be planned and designed to allow for the safe and convenient movement of the pedestrian and cycle traffic

## Bicycle Master Plan Update

Every reasonable opportunity to provide connections into the adjacent community (from Waskasoo Park and creek trails) should be taken . . . . Opportunities to provide strong connections to other destinations such as schools, recreation facilities, employment areas and retail developments should be incorporated into the plan (p. 3-15)

Bicycle-pedestrian conflict not a major issue at this time (on Class 1 trails) . . . . It is important every effort be made to minimize conflicts through physical design, rather than regulation (p. 3-15)

### Design standards for trails:

- Class 1 – 3m wide – generally those along arterials; these wide sidewalks/paths are good for multi-modal movement – walking, biking, in-line skating, etc. – should be as continuous as possible (p. 3-6)
- Collector roadway sidewalks – 1.5 m or 2.5 m. The carriageway width and collector roadway traffic volumes are typically more than adequate to safely accommodate bike traffic, and therefore wide sidewalks along collector roads are usually not appropriate. They are appropriate when they connect a significant destination (e.g. school) (p. 3-6)
- Designating collector roads in residential areas that are used as bicycle routes to neighbourhood destinations (e.g. schools) as Class “3” on-street bicycle routes would raise awareness of motor vehicles to the presence of bicycles . . . . It may also assist in encouraging the use of the bicycle for short, intra-neighbourhood trips for other purposes (p. 3-14)

The City of Red Deer should require the construction of a 3.0 m wide boulevard sidewalk (a “Class 1” bikeway) on one side of all arterial roads, to be designated for use by bicyclists, in-line skaters and pedestrians (p. 5-1)

The City of Red Deer should require the construction of a 3.0 m wide boulevard sidewalk (a “Class 1” bikeway) on collector roads in locations where this provides a direct and continuous connection from the arterial bikeway to a neighbourhood destination (p. 5-1)

The City of Red Deer should adopt new standard cross-sections for arterial roadways, with a 4.3 m wide curb lane, measured from lip of gutter (p. 5-2).

The City of Red Deer should plan and implement a system of “Class 3” designated on-street bicycle routes along collector roadways in residential areas (p. 5-4).

The City of Red Deer should continue to require that neighbourhood area structure plans identify all bicycle, pedestrian and trail facilities (p. 5-4).

### Design Guidelines 2001

#### Sidewalks:

- Arterial Roadways – 3.0 m wide separate sidewalk on one side of the road
- Residential Collector Roadways – 1.5 m monolithic or separate sidewalk is normally required on both sides of the collector, but should be increased to 2.5 m (monolithic or separate) on one side of collector roadway if designated as part of the bicycle path system
- Residential Local Roadways – 1.5 m monolithic or separate sidewalk normally required on both sides of the local road, but may be waived where pedestrian traffic is expected to be low (e.g. cul-de-sacs, no frontage)

Where the ecological profile of a neighbourhood has identified a unique or sensitive natural area which is to be incorporated in the development, wood mulch may be used as the walkway surface material when approved by the Recreation, Parks & Culture Department (Section 10 p. 4).

### **3.3.10 Utilities**

These policies, guidelines and standards address:

- Stormwater management design guidelines
- Location of utility services with respect to laned and laneless parcels

### Strategic Plan (2002)

Goal 1.3 To provide safe, adequate and reliable utility systems to meet ongoing community needs, while exploring environmentally sound alternatives

Strategy 1.3.1 Provide a safe and adequate water supply to meet the needs of the community as it grows

## Municipal Development Plan

Policy 13.14: The City shall continue to provide high quality utility services to Red Deer residents and businesses.

Policy 13.15: The City shall design and implement programs, which promote the principles of reducing, reusing and recycling of materials.

Policy 13.16: The City shall undertake long term waste management plans compatible with the environmental goals of the community.

Policy 13.17: The City shall work to promote efficient use of energy by City businesses and households.

## Design Guidelines 2001

The City's Design Guidelines 2001 require utility servicing from lanes at the rear of parcels, unless otherwise approved by the City. The services are located in a lane or public utility lot. However, a lane or public utility lot may not be provided for lots backing onto a municipal reserve parcel or for lots that are designed back-to-back. In these instances an easement will be provided for the installation of the services.

The Design Guidelines provides sketches of the location and alignment of utilities in typical front servicing in road rights-of-way and typical rear servicing alignments in lanes and in public utility lots.

The design of the storm sewer system should conform to the 'Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems in Alberta' as published by Alberta Environmental Protection Services and as amended by the City's Design Guidelines. Detailed storm water management standards and guidelines are described in the Alberta Environmental protection publication entitled 'Stormwater management Guidelines for the Province of Alberta' (Section 6 p. 1). For laneless subdivisions a concrete swale is to be constructed (for back to back lots) or a grass swale is to be provided (for lots backing onto a park or reserve area). (Section 6 p. 6).

The use of stormwater storage facilities may be required to reduce peak flow rates to downstream sewer systems and/or water courses, or to provide a temporary receiving area for peak major drainage flows. Their approximate location and size must be shown on area structure plans to avoid conflicts with adjacent land uses (Section 6 p. 11).

### Storage alternatives (Section 6 p. 12)

- Dry pond (detention) storage is a method whereby the storm runoff is collected and the excess runoff is temporarily detained for a short period of time, and released after storm runoff from the contributing area has ended. Generally low flows do not enter the pond.
- Wet pond (retention) storage functions the same as dry pond detention except that a portion of the stormwater is permanently retained.



Dry detention ponds should be associated with municipal reserve areas to take advantage of the joint use ability of the facilities (e.g. sports fields or passive park). Active park uses should not be located adjacent to the inlet/outlet facilities nor in areas that flood frequently (more than twice per year on average) (Section 6 p. 14).

Wet detention ponds may be approved by Council as an exception to the Stormwater Management Policy. If approved the developer will be responsible for all construction costs in excess of the cost to construct the original dry pond facility. The developer will also be required to establish a maintenance fund for the perpetual maintenance of the pond. (Section 6 p. 15).

#### Planning and Subdivision Guidelines (updated to January 2002)

The City uses a series of detention ponds for storm water management. Up to 1.0 hectare (2.5 acres) of a neighbourhood park could be used for detention ponds, subject to an acceptable layout and design, as part of the MR dedication. The remaining area would generally be designated as public utility lot. The need for a detention pond should not result in an inconvenient location for a park (Section 3.1.1.12 p. 8) and Stormwater Management Policy 4310 p. 2 paragraph D1 and D2).

#### East Hill Major Area Structure Plan

Storm water management (p. 22) - The City has adopted a policy of restricting direct storm water discharges into the creeks and river in order to limit potential damage associated with increased rates of runoff from urban developments. These restrictions are imposed through the use of a storm water collection system that incorporates water retention and detention facilities for the area. A number of dry ponds are designated for the East Hill area and are designed so that they may also serve as neighbourhood play fields and open spaces. The City will give consideration to alternative methods of storm water management, including the creation of permanent man-made storm water ponds and the incorporation of natural marshes and wetlands into the overall storm water system (Map 6 in plan).

#### Northwest Area Structure Plan

Storm water management (p. 6 and Map 6 in plan) - In order to limit the impact of discharges into the river, the City uses storm water detention ponds within the plan area. These ponds are used to temporarily hold water after a heavy storm and to slowly discharge the water into the storm sewer system. Alternative methods of managing storm water such as storm water retention ponds and naturalized marsh areas may be given consideration by the City, although the storm drainage system shown on Map 6 does not anticipate these alternative methods.

### **3.3.11 Natural Areas**

These policies, guidelines and standards address:

- Preserving natural areas, including escarpments, ravines, creeks, river shorelands and significant wooded areas
- Maintaining the river bank escarpment in its natural state
- Using the ecospace management plan to identify and conserve significant natural features

## Strategic Plan (2002)

Preserve escarpments and natural areas to ensure that green space and community linkages extend into new areas (Strategy 1.2.2)

Plan for community and economic growth, while providing a balance in preserving and maintaining environmental sensitive areas, historic resources and other significant features (Strategy 1.5.6)

## Municipal Development Plan

Policy 7.1 The Natural Area/Ecospace Classification and Prioritization System shall be used as a basis for land use planning in the City (see also Map 2 Ecological Profile)

Policy 7.4 The City shall continue to require that all escarpments, ravines, creeks, riverbank lands, wetlands along with setbacks appropriate for preserving these features . . . be dedicated as environmental reserve.

Policy 5.6 The City shall continue to maintain its leading role as an aesthetically pleasing City through initiatives such as . . . preservation of natural areas

Policy 5.5 The City shall continue, and strive to improve upon, it's present commitment and approaches to encouraging environmental sustainability as defined by Strategic Plan 98

## Intermunicipal Development Plan

Policy 6.2.1 The natural features identified on Map 2 . . . shall be used as a guide for reviewing subdivision development proposals in the area.

Policy 6.2.3 The river valley escarpment shall be maintained in its natural state except for those measures that may be required to preserve the escarpment or provide public access to the river valley or for utility corridors.

Policy 6.2.6 The consideration of developing additional lands as natural areas and sensitive lands may be pursued.

## Northwest Area Structure Plan

Map 3 . . . Ecospace Management Plan identifies vegetation and wetlands in the area. Many of these significant features will be preserved through the allocation of municipal reserve.

## East Hill Major Area Structure Plan

Map 2 is a reproduction of the City's Ecospace Management Plan that identifies wetlands, treed areas, vegetation growth and other natural areas. This Major Area Structure Plan, along with the ecological profile for each undeveloped quarter section, need to be given consideration during the more detailed design process related to the preparation of neighbourhood area structure plans.

## Planning and Subdivision Guidelines (updated to January 2002)

The following overall objectives should be achieved through a Neighbourhood Area Structure Plan:

- Preservation of the unique natural features on the site (p.5)

The plan shall identify and indicate efforts to preserve the natural and cultural heritage on the site; the natural and cultural heritage includes tree stands, ground water recharge areas, wetlands, natural grasslands, watercourses, lakes, historical structures and historical sites. In order to assist the developer, the City will endeavor to supply an Ecological Profile, which will list the environmental features of the site. It shall be an objective of the plan to preserve unique environmental areas on a site. (p. 6)

### **3.3.12 Heritage Resources**

These policies, guidelines and standards address:

- The identification of cultural and heritage sites and resources
- Provisions to conserve cultural and heritage sites and resources

## Strategic Plan (2002)

Plan for community and economic growth, while providing a balance in preserving . . . historic resources and other significant features (Strategy 1.5.6)

## Planning and Subdivision Guidelines (updated to January 2002)

The plan shall identify and indicate efforts to preserve the natural and cultural heritage on the site; the . . . cultural heritage . . . historical structures and historical sites. (p.6)

## Land Use Bylaw

### HP Historical Preservation District

- General purpose of this district is to maintain the historical character of an area (or building) in the terms of building appearance, and to ensure the degree of activity and other aspects of the action would not be incompatible with such district . . . .
- 13 buildings/sites are so districted, either with a Provincial or Municipal Designation
- these 13 buildings/sites are shown on the Land Use District Maps

### HS Historic Significance District

- Intended to promote community awareness of actual or potential heritage and historically significant sites or buildings, and to provide a means whereby identified sites or buildings may be preserved with available and practical means from time to time. The district will provide that an identified site or building of potential historical significance shall not be demolished, or

in the case of sites disturbed, until such time as an evaluation of the heritage or historical significance of the site or building has been carried out . . . .

- 90 buildings/sites are so designated
- these 90 buildings/sites are shown on the Land Use District Maps

### **3.4 Summary of Present Neighbourhood Planning Directions**

As listed in the above twelve subsections, the general thrust of Red Deer's neighbourhood planning directions address:

- The need for residential development in new neighbourhoods to be in accordance with an area structure plan
- The design of neighbourhoods for 2,500 to 3,000 people on a quarter section basis
- Residential access via internal roads only, with no direct access from the one or two arterial roads that form boundaries of the neighbourhood
- The requirement that neighbourhoods be primarily residential areas which contain a variety of housing types
- The requirement for a diversity of housing types to accommodate a wide range of income levels
- A limit for land areas for narrow lot housing.
- The design limitation of a maximum of 45 persons per gross hectare
- The need for a minimum residential design density
- The provision of a variety of parks and sports facilities in each neighbourhood
- The provision of a major sports field complex (normally in a centralized location) for each neighbourhood
- The conservation of the natural environment
- Preserving natural areas, including escarpments, ravines, creeks, river shorelands and significant wooded areas
- Maintaining the river bank escarpment in its natural state
- Using the ecospace management plan to identify and conserve significant natural features
- The dedication of environmental reserves
- The dedication of a minimum of 10% of gross developable land as municipal reserves park and/or school purposes
- Consideration be given to the provision of parkettes
- Opportunities for commercial land uses
- Home businesses as a land use option
- The potential integration of commercial sites in neighbourhoods
- The allocation of school sites, community and social facilities
- Accommodating a day care or social care residence site and one church site per neighbourhood.
- The need for neighbourhood plans to follow the general network of collector roads outlined in the major neighbourhood plans
- The system of roads to serve a neighbourhood
- Road design standards and intersection spacing
- The city's preference for laned subdivisions and curvilinear street patterns
- The provision of transit services to residential areas
- Walking distances to the nearest transit stop mostly to be within 450 m

- Trails being an integral part of the transportation system
- Support in plans for a comprehensive trail system
- The provision of sidewalks along roads.
- Stormwater management design guidelines
- Location of utility services with respect to laned and laneless parcels
- The identification of cultural and heritage sites and resources
- Provisions to conserve cultural and heritage sites and resources.

These neighbourhood planning directives are the basis the current form of neighbourhood design in Red Deer, which is depicted in Section 4.4.

## 4.0 RED DEER'S EVOLVING NEIGHBOURHOOD FORM

### 4.1 Evolution of Form

The general form of Red Deer's neighbourhoods is depicted on sketches 4.1 to 4.9. The form of one of the earliest residential areas is shown on Sketch 4.1 (Waskasoo) while three neighbourhoods developed between the 1950's and 1980's are shown on Sketches 4.2 to 4.4 (Eastview, Oriole Park and Clearview Meadows). Examples of contemporary forms of multi-neighbourhoods are depicted in Sketches 4.5 to 4.9, being the Rosedale, Kentwood, Anders, Deer Park and Lancaster neighbourhoods.



Red Deer's original residential areas were designed on the grid street system (e.g. the downtown area, portions of Riverside Meadows, Woodlea). However, even in early times in Red Deer the traditional residential street grid was modified where site circumstances provided opportunity to do so. This is shown on Sketch 4, being the Waskasoo neighbourhood. Although dominated by the grid pattern, two crescents reflect the configuration of Waskasoo Creek, and in doing so forecasted curvilinear street patterns which would come to prominence in the 1960's and 1970's. One road serves as a collector, but unlike more recent collector roads its corner are right angles. The one small park is in the centre of the neighbourhood is augmented by linear open space along the west side of the neighbourhood, the majority being natural areas along the creek. A convenience store is located at the south entrance to the neighbourhood, while a school is on the eastern edge. Over time, a number of apartments have been developed near the arterial road at south end of the neighbourhood.

The street pattern for the Eastview (Sketch 4.2) integrates the traditional grid and curvilinear street patterns. The older (pre-1960s) residential areas in the northwest corner have the grid pattern, while southeast portion developed in the 1960s and 1970s has the curvilinear street pattern. The neighbourhood is bound on three sides by arterial roads from which ten local roads access the neighbourhood. As well, one collector road provides a continual link from north to south through the neighbourhood. In total there are twelve accesses into Eastview. There is a small commercial strip mall at the north end of the collector. In addition to the junior high school site in the southwest corner, there is a 'central' elementary school and park site. A major townhouse development is located in the northeast corner, each with a small 'internal' public park area. There are two small apartments are near the southwest corner.

Oriole Park is shown on Sketch 4.3, being representative of neighbourhood planning in the late 1960s and 1970s. Local streets are dominated by single and double P-loops which contain parkettes, while a number of collectors cut through directly through the neighborhood from the arterial which forms the east boundary to the circumferential collector around the west side of the neighbourhood. The school site is located near the middle of the neighbourhood, but on the eastern edge. There is a multi-family housing cluster adjoining one of the larger 'local' parks north of school site. There is no commercial site. With its location abutting, at the

time of neighbourhood development, the major rail line on the west side of the City, and there being no distinguishing road pattern as part of the prairie township system, Oriole Park was not confined to a quarter section like many of the neighbourhoods developed since the 1950's.

Clearview Meadows (Sketch 4.4) was developed mostly in the 1980s, but was only recently built-out with the development of a significant multi-family complex in the southeast corner. Slightly larger than a quarter section in size, its south and east boundaries are arterial roads. Clearview Meadows was chosen for depiction since it remains one of the highest density neighbourhoods in Red Deer and its design was the first to restrict primary access to two points via a circular, major collector road. A third access point is in the north from an extension of the cemetery road. There is a large central park site and a number of small parkettes throughout the neighbourhood. Townhouses and apartments dominate the eastern edge, although there are a number of other multi-family sites in the neighbourhood. There is no commercial site, and no school has been developed.

## **4.2 Contemporary Form**

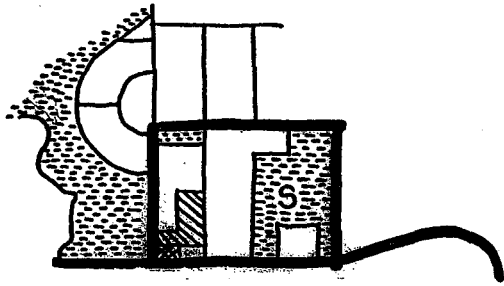
Contemporary neighbourhood design is portrayed by five multi-neighbourhoods (Sketches 4.5 to 4.9). Four are in the southeast residential growth area (Rosedale, Anders, Deer Park and Lancaster) while one is in the northwest (Kentwood). These are planned as multi-neighbourhood communities containing two or four neighbourhoods.

In the 1970's and 1980's most of the neighbourhood concepts and developments were based on the quarter section, including Clearview as discussed above. Others, such as Eastview Estates and Morrisroe (Extension) doubled in size by adding an adjacent quarter section. However, other than being connected by one or two local roads, the extensions for the most part are 'stand alone' neighbourhoods.

While based on two quarter sections and bounded by arterial roads on all four sides (just like the Eastview and Morrisroe 'expanded' neighbourhoods) the Rosedale neighbourhood (see Sketch 4.5) has two distinct and important design differences. These serve to 'unify' the two quarter sections into a multi-neighbourhood. One of these two design elements is the collector road system which internally links the multi-neighbourhood. This is now a common neighbourhood design element. Like the earlier Clearview Meadows neighbourhood, access into the neighbourhood is limited to one per external side of a quarter section. The second design element is unique to date, it being the single, larger shared park and school site. Another new element is the linear, linked park space, which in the newer east portion is much more continuous, while the west portion is more interrupted by roads and lanes. A small commercial site is located at the northeast entrance. Multi-family housing is minimal and, as usual, located on the edges near an intersection of an arterial and collector road.

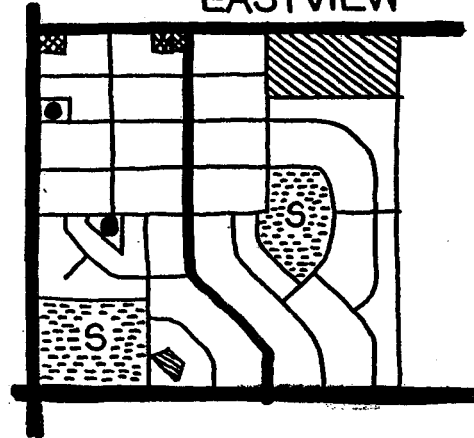
While arterial roads define the west and south boundaries of the new Kentwood multi-neighbourhood (Sketch 4.6), its size is limited by the rail line on the north and arterial commercial land uses (present and future) on the north and east. While large compared to older neighbourhoods, it is not quite as large as the other new multi-neighbourhoods discussed below. Kentwood has a series of collector roads

## WASKASOO



SKETCH 4.1

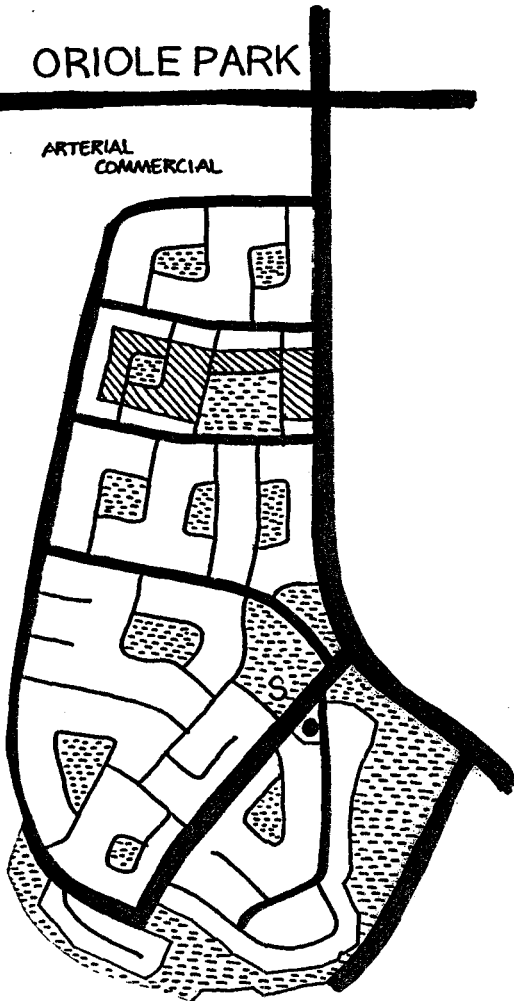
## EASTVIEW



SKETCH 4.2

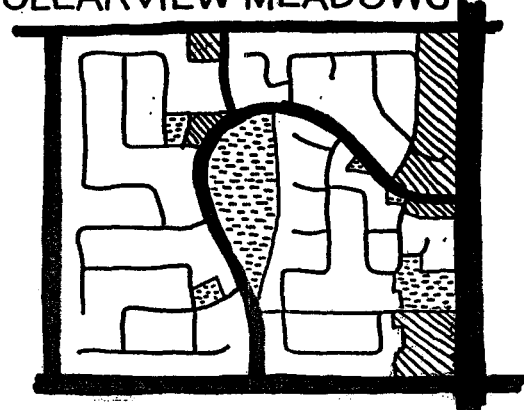
## ORIOLE PARK

ARTERIAL  
COMMERCIAL



SKETCH 4.3

## CLEARVIEW MEADOWS

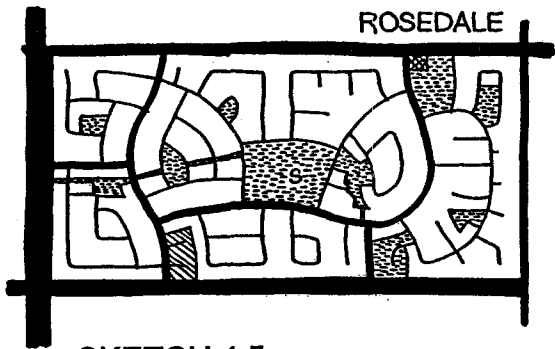


SKETCH 4.4

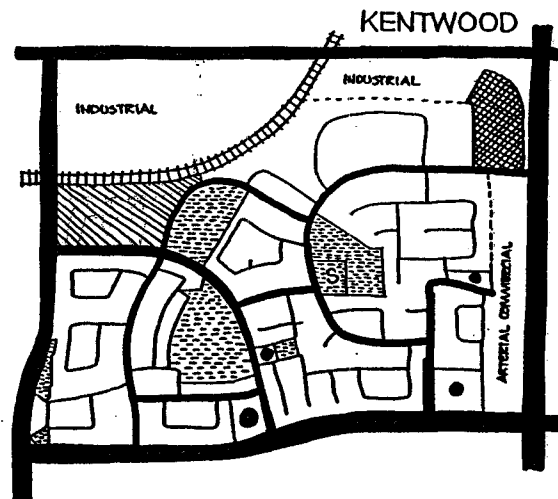
### LEGEND:

-  ARTERIAL ROADS
-  COLLECTOR ROADS
-  LOCAL ROADS
-  OPEN SPACE
-  MULTI-FAMILY
-  SCHOOL SITE
-  CHURCH SITE
-  COMMERCIAL SITE

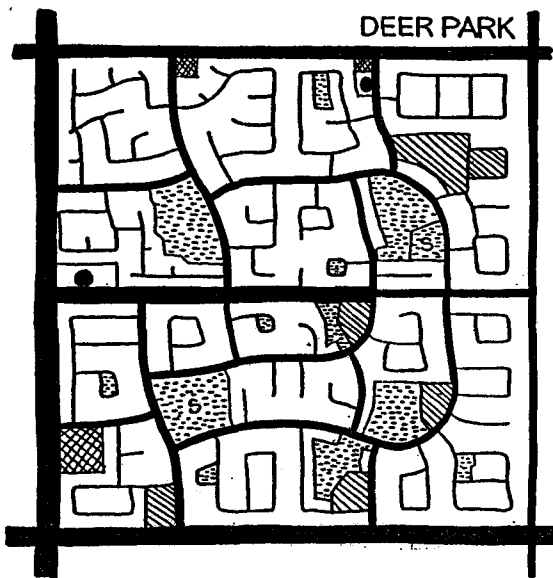




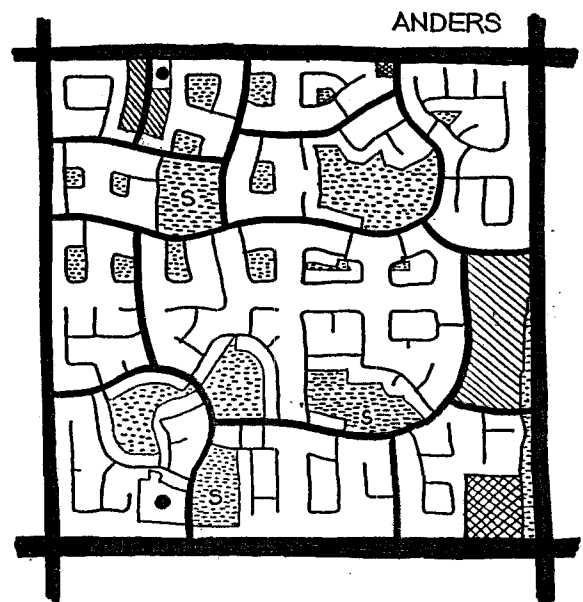
SKETCH 4.5



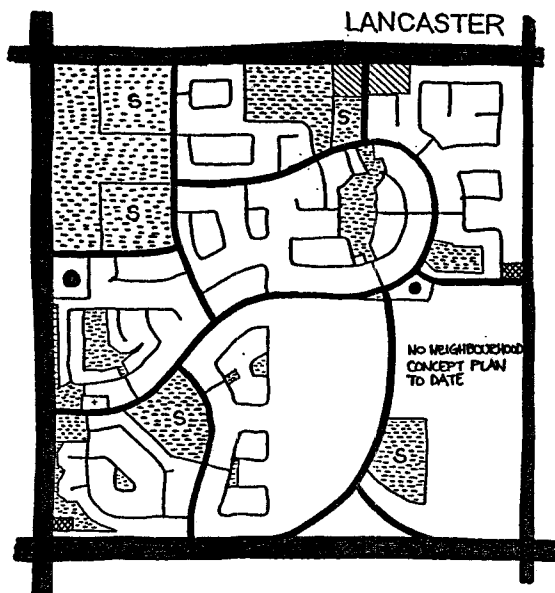
SKETCH 4.6



SKETCH 4.7



SKETCH 4.8



SKETCH 4.9

**LEGEND:**

-  ARTERIAL ROADS
-  COLLECTOR ROADS
-  LOCAL ROADS
-  OPEN SPACE
-  MULTI-FAMILY
-  SCHOOL SITE
-  CHURCH SITE
-  COMMERCIAL SITE

that integrate the neighbourhoods and a central school site linked to a close-by natural treed park. A second school site, with sports fields is located in the eastern portion. A small commercial site is planned on the western edge adjacent to a large multi-family housing area along the railroad. Smaller multi-family sites are planned for the eastern portion of the multi-neighbourhood.

The Deer Park (Sketch 4.7), Anders (Sketch 4.8) and Lancaster (Sketch 4.9) multi-neighbourhoods currently are being developed in Red Deer's southeast growth quadrant. Each contains a section of land (i.e. four quarter sections) and therefore is twice the size as 'expanded' neighbourhoods such as Morrisroe and Eastview. Each have their boundaries totally defined by arterials, although Deer Park has an arterial/collector road combination penetrating the middle of the multi-neighbourhood. The newer quadrants of these multi-neighbourhoods have access limited to one collector road per external side a quarter section, therefore normally eight per multi-neighbourhood. However, the earlier developed portions of Anders (Anders Park) and Deer Park (southwest) have two local roads which also provide access into the residential areas. The collector road pattern follows that outlined in the East Hill Major Area Structure Plan such that in each multi-neighbourhood is designed to internally connect all four neighbourhoods. Road access to the adjacent multi-neighbourhood is convenient since the collector entrances are aligned to form four-way intersections.

Deer Park has three commercial sites, two being in internal locations. Anders has two commercial sites, both at entrances and one being planned as a district centre. Lancaster has two planned neighbourhood commercial sites.

The amount of multi-family housing varies in the three multi-neighbourhoods. The Aspen Ridge neighbourhood has one of the highest percentages of multi-family residential units. Multi-family housing locations are common, being on the outer edges of the neighbourhoods adjacent to or near an entry.

The details of park and school space concepts vary, although a central park/school site per neighbourhood is generally common, thus making four 'central' park sites per multi-neighbourhood. The plans for the newer neighbourhoods often provide more decorative entry spaces, local parks and linear parks for pathways.

### **4.3 Characteristics of Red Deer's Current Neighbourhoods**

#### **4.3.1 Land Use Mix**

Table 4.1 provides a summary of land uses in eleven new (being developed) and future neighbourhoods.

As expected, residential land uses are the major land uses. As a percentage of gross developable area, the amount of residential land ranges from lows of 45% (Kentwood West) and 49% (Oriole Park West) to highs of 63% (Devonshire, Aspen Ridge) and 64% (West Park Extension). The area allocated to municipal reserve for parks and school sites range from a low of 10% to 10.25% (Davenport, Devonshire, Inglewood, West Park Extension) to highs of 18% (Oriole Park West, Anders on the Lake, Kingsgate) and as much as 23% (Kentwood West). Roads and lanes also take an appreciable amount of land, ranging from lows of 19.4% (Davenport) and 19.9%

(Kentwood West) to highs of 27.4% (Lancaster Green) and 24.3% (Lonsdale, Inglewood).

Table 4.2 summarizes the land uses in new and future neighbourhoods, while also comparing the two neighbourhoods being developed by the city with the nine private sector neighbourhood developments.

In averaging the land use allocations for all eleven neighbourhoods, a picture of a 'typical' new neighbourhood is generated. Residential land uses comprise 57.5% of the gross developable area, while municipal reserves (parks and school sites) comprise 14.0%, roads and lanes 22.4%, and other uses (commercial, church, social care, utility lots) 6.1%. Land for detached housing represents 44.7%, or 3.5 times more than land for all other forms of housing (12.8%).

The two City neighbourhoods (Lancaster Green and Kentwood West) have considerably less residential land (49.6%) than the nine private sector neighbourhoods (58.7%). The private sector neighbourhoods include 10.6% for semi-detached and multi-unit housing, while the City neighbourhood portion is 10.0%. The only manufactured home community is on privately developed land, it representing only 2.3% of the gross developable land in private sector neighbourhoods.

Conversely, the allocation of land for roads and lanes in City developed neighbourhoods is higher (City 23.8%; private 22.1%) as is the amount of land dedicated to municipal reserves for parks and school sites (City 18.2%; private 13.1%).

#### **4.3.2 Housing Mix**

The housing mix in ten new and developing neighbourhoods is shown in Table 4.3. Most neighbourhoods offer three housing options, i.e. detached, semi-detached and multiple family. Aspen Ridge has an appreciable percentage of its housing stock comprised of multiple family dwellings (38%), while Oriole Park West is noticeably low in this regard (12%). Kensington does not offer multiple family housing. Conversely 25% of Kensington's housing stock is semi-detached dwellings, while Davenport has only 1% of its housing stock available as semi-detached dwellings. Since only Davenport accommodates manufactured homes (21% of its housing units), it is the only new neighbourhood that offers the full range of available housing options.

Of the neighbourhoods listed in Table 4.3, Aspen Ridge, Kentwood West and Davenport seem to be some of the more mixed housing areas. This is particularly evident when comparing their statistics to the "All Neighbourhoods" column in Table 4.4, which summarizes the housing mix statistics in new and future neighbourhoods, while also comparing the City neighbourhoods with the private sector neighbourhoods. The City neighbourhoods (22.4%) offer more opportunities in multiple family housing than the private neighbourhoods (19.3%). It is noteworthy that 71.7% of all the in the ten neighbourhoods is single family detached dwellings, whether it is a private development or a City subdivision. Detached and semi-detached represent 74.3%, while multiple family is 19.8% and manufactured homes only 2.6%.

# LAND USE MIX - NEW AND PLANNED NEIGHBOURHOODS

TABLE 4.1

LAND USE	Anders on the Lake		Aspen Ridge		Davenport		Devonshire		Inglewood		Kensington (Kingsgate NE)		Kentwood West (City)		Lancaster East (Lonsdale)		Lancaster Green (City)		Oriole P. West		West Park Ext.	
	Ha.	%	Ha.	%	Ha.	%	Ha.	%	Ha.	%	Ha.	%	Ha.	%	Ha.	%	Ha.	%	Ha.	%	Ha.	%
Detached	27.51	47.27	23.59	41.50	24.79	40.66	31.37	52.71	27.40	47.83	19.18	46.78	18.18	32.06	27.28	44.80	28.60	46.43	24.81	35.72	33.60	57.23
Manufactured Home					11.84	19.42																
Semi-Detached	0.60	1.03	5.38	9.47	0.49	0.80	1.31	2.20	1.10	1.92	3.52	8.58	1.93	3.40	5.15	8.46	1.09	1.77	7.76	11.17		
Multiple Family	5.12	8.80	6.69	11.77	3.94	6.46	4.62	7.76	4.59	8.01			5.75	10.14	3.20	5.25	3.15	5.11	1.27	1.83	3.92	6.68
Commercial				0.00	0.25	0.41		0.00	0.26	0.45			0.24	0.42	0.17	0.27	0.25	0.41				
Social Care			0.24	0.42	0.12	0.20	0.25	0.42	0.17	0.30	0.12	0.29	0.16	0.28	0.10	0.17	0.13	0.21	0.24	0.35	0.12	0.20
Church Site			0.81	1.43	0.49	0.80	0.19	0.32	0.83	1.45	0.59	1.44	2.88	5.08	0.71	1.17	0.24	0.39		0.00	0.40	0.68
Schools/Central Park; Local Parks/Walkways	10.67	18.33	6.14	10.80	6.24	10.24	6.05	10.17	5.73	10.00	7.27	17.73	13.11	23.12	7.49	12.30	8.44	13.70	12.90	18.57	5.87	10.00
PUL/Detention Pond	2.01	3.45	1.27	2.24	0.97	1.60	1.81	3.04	3.29	5.74	1.75	4.27	3.18	5.61	1.98	3.25	2.80	4.55	7.13	10.26	2.66	4.53
Roads/Lanes	12.29	21.12	12.72	22.38	11.83	19.41	13.91	23.37	13.92	24.30	8.57	20.91	11.27	19.88	14.82	24.34	16.90	27.44	15.35	22.10	12.14	20.68
<b>% of Net Developable Area</b>	<b>58.20</b>	<b>100.00</b>	<b>56.85</b>	<b>87.62</b>	<b>60.97</b>	<b>100.00</b>	<b>59.51</b>	<b>100.00</b>	<b>57.29</b>	<b>100.00</b>	<b>40.99</b>	<b>100.00</b>	<b>56.70</b>	<b>100.00</b>	<b>60.90</b>	<b>100.00</b>	<b>61.60</b>	<b>100.00</b>	<b>69.46</b>	<b>100.00</b>	<b>58.71</b>	<b>100.00</b>
Road Widening			4.63		4.03		3.92		3.18						4.02		1.70					
<i>Shop Centre, Other</i>			3.00								4.30								9.21			
E.R.											0.62										4.53	
TransAlta/Other							0.82		4.93													
Special Use			0.40																			
<b>Total Area</b>	<b>58.20</b>		<b>64.88</b>		<b>65.00</b>		<b>64.25</b>		<b>65.40</b>		<b>45.91</b>		<b>56.70</b>		<b>64.92</b>		<b>63.30</b>		<b>78.67</b>		<b>63.24</b>	

Sources: Neighbourhood Area Structure Plans

## LAND USE MIX – PRIVATE SECTOR AND CITY NEIGHBOURHOOD COMPARISON

TABLE 4.2

LAND USE	All Neighbourhoods		Private Sector Neighbourhoods		City Neighbourhoods	
	Ha.	%	Ha.	%	Ha.	%
Detached	286.3	44.7%	239.5	45.8%	46.8	39.6%
Manufactured Home	11.8	1.8%	11.8	2.3%	0.0	0.0%
Semi-Detached	28.3	4.4%	25.3	4.8%	3.0	2.5%
Multiple Family	42.2	6.6%	30.1	5.8%	8.9	7.5%
<b>Subtotal of Residential</b>	<b>368.7</b>	<b>57.5%</b>	<b>306.7</b>	<b>58.7%</b>	<b>58.7</b>	<b>49.6%</b>
Commercial	1.2	0.2%	0.7	0.1%	0.5	0.4%
Social Care	1.7	0.3%	1.4	0.3%	0.3	0.3%
Church Site	7.1	1.1%	4.0	0.8%	3.1	2.6%
<b>Subtotal of Other</b>	<b>10.0</b>	<b>1.6%</b>	<b>6.1</b>	<b>1.2%</b>	<b>3.9</b>	<b>3.3%</b>
Schools/Central Park; Local Parks/Walkways	89.9	14.0%	68.4	13.1%	21.5	18.2%
PUL/Detention	28.9	4.5%	22.9	4.4%	6.0	5.1%
Roads/Lanes	143.7	22.4%	115.5	22.1%	28.2	23.8%
<b>Gross Developable Area</b>	<b>641.2</b>	<b>100.0%</b>	<b>522.9</b>	<b>100.0%</b>	<b>118.3</b>	<b>100.0%</b>

## HOUSING MIX – NEW AND PLANNED NEIGHBOURHOODS

TABLE 4.3

LAND USE	Anders on the Lake		Aspen Ridge		Davenport		Devonshire		Inglewood		Kensington (Kingsgate NE)		Kentwood West		Lancaster Green		Oriole P. West		West Park Ext.		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Detached	403	78%	390	52%	469	58%	678	75%	559	69%	368	75%	315	61%	539	79%	441	88%	640	89%	4802	72%
Manufactured Home					172	21%															172	3%
Semi-Detached	28	5%	76	10%	10	1%	44	5%	38	5%	124	25%	50	10%	28	4%					398	6%
Multiple Family	87	17%	290	38%	158	20%	184	20%	206	26%			150	29%	119	17%	58	12%	78	11%	1330	20%
<b>Total Number of Units</b>	<b>518</b>	<b>100%</b>	<b>756</b>	<b>100%</b>	<b>809</b>	<b>100%</b>	<b>906</b>	<b>100%</b>	<b>803</b>	<b>100%</b>	<b>492</b>	<b>100%</b>	<b>515</b>	<b>100%</b>	<b>686</b>	<b>100%</b>	<b>499</b>	<b>100%</b>	<b>718</b>	<b>100%</b>	<b>6702</b>	<b>100%</b>

## HOUSING MIX – PRIVATE SECTOR AND CITY NEIGHBOURHOOD COMPARISON

TABLE 4.4

LAND USE	All Neighbourhoods		Private Sector Neighbourhoods		City Neighbourhoods	
	Units	%	Units	%	Units	%
Detached	4802	71.7%	3948	71.8%	854	71.1%
Manufactured Home	172	2.6%	172	3.1%	0	0.0%
Semi-Detached	398	5.9%	320	5.8%	78	6.5%
Multiple Family	1330	19.8%	1061	19.3%	269	22.4%
<b>Total Units</b>	<b>6702</b>	<b>100%</b>	<b>5501</b>	<b>100%</b>	<b>1201</b>	<b>100%</b>

## HOUSING MIX – NEW AND EXISTING NEIGHBOURHOOD COMPARISON

TABLE 4.5

NEIGHBOURHOOD	% Single Family (R-1; R-1N)	% Duplex (R1A)	% Multiple (R2-R3)	% Man. Home
Anders On The Lake	78	5	17	
Aspen Ridge	52	10	38	
Davenport	58	1	20	21
Devonshire	75	5	20	
Inglewood	69	5	26	
Kensington	75	25		
Kentwood	61	10	29	
Lancaster Green	79	4	17	
Oriole Park West	88		12	
West Park Extension	89		11	
<b>Average of New/Planned Neighbourhoods</b>	<b>71.70</b>	<b>5.90</b>	<b>18.90</b>	<b>2.60</b>
Woodlea	64	3	33	
Eastview	59	5	36	
Clearview Meadows	53	8	39	
Anders Park	72	12	16	
West Park	61	8	30	
Oriole Park	61	15	24	
Glendale	39	9	33	19
Normandeau	35	9	20	37
<b>Average of Established Neighbourhoods</b>	<b>55.50</b>	<b>8.63</b>	<b>28.88</b>	<b>7.00</b>

Table 4.5 compares the housing mix in the new/planned neighbourhoods and the mix in established neighbourhoods. With the emphasis on single family dwellings since the 1970s, there is a greater housing mix available in the older neighbourhoods. In the newer neighbourhoods nearly 72% of homes are detached residences, while in the older neighbourhoods they represent only 55.5%. As such the proportion of non-detached and manufactured homes is much higher in older neighbourhoods. Regarding multiple family dwellings, their proportion in older neighbourhoods is 28.9% but only 18.9% in newer neighbourhoods. There is also a considerable difference in semi-detached dwellings, there being 8.6% in older neighbourhoods and only 5.9% in new neighbourhoods, as well in manufactured homes (older neighbourhoods – 7.0%; newer neighbourhoods – 2.6%).

### **4.3.3 Density**

Table 4.6 shows the housing density of the newer and future neighbourhoods. Density is stated as total dwelling units per hectare of gross developable land (du/ha). Gross developable land includes land allocated to the full range of land uses in a neighbourhood, including the roads and lanes, public utility lots and municipal reserve for school sites and parks, but excludes environmental reserves, land for arterial road widening and land for district shopping centres and special uses (e.g. Collicutt Centre, additional land for high school).

The average density of the newer and planned neighbourhoods is 11.74 dwelling units per gross developable hectare. Seven of the eleven neighbourhoods surpass this density. The highest is Devonshire (15.21 du/ha), followed by Inglewood (14.02 du/ha), Lonsdale (13.55 du/ha), Aspen Ridge (13.30 du/ha) and Davenport (13.26 du/ha). Significantly lower densities are recorded in Oriole Park West (7.18 du/ha), Anders on the Lake (8.9 du/ha) and Kentwood West (9.08 du/ha).

Table 4.7 provides the housing densities for more established neighbourhoods. The average density of 10.92 dwelling units per hectare is 7% lower than the 11.74 du/ha in newer neighbourhoods. This lower density is mostly due to more land allocated to open space in the older areas as well as the change from the traditional grid pattern road layout to the conventional curvilinear design. While densities in established neighbourhoods may have thought to be lower due to generous lot sizes and the amount of open space, the higher percentage of multiple family dwellings counter-balanced these aspects of established neighbourhoods.

### **4.3.4 Open Space and Facilities**

Figures 4.1 to 4.4 are the central park/school site designs for the proposed Inglewood, Lancaster South, Kentwood (central) and Johnstone Park neighbourhoods. These are representative of designs for new neighbourhoods and generally follow the City central park guidelines in place up to the summer of 2002. The design for each central park varies due to differences in topography, site grading, parcel shape, the additional use of dry storm ponds, etc.

Table 4.8 shows the allocation of open space between central park/school sites and local parks/walkways for four new neighbourhoods (Davenport, Inglewood, Kensington, and Lonsdale). Central parks comprise 75% of the open space in these four neighbourhoods.

#### **4.3.5 Gathering Places**

A gathering place is considered any area where residents of a neighbourhood can meet one another or come together. These features facilitate both casual and formal interaction between residents such as chance meetings while taking a walk or attending a meeting or event. A variety of gathering places exist in Red Deer's existing neighbourhoods. These include central parks containing a range of sports fields parks, smaller local parks that often contain playground equipment, schools, community shelters, churches and halls, trails and, in some neighbourhoods, commercial areas.

Table 4.9 provides an inventory of the existing and planned gathering places within five of Red Deer's newer neighbourhoods. Some gathering places are common to all neighbourhoods, these being the central park and the local park/playgrounds. Less frequent features include churches and commercial centres.

The Lancaster multi-neighbourhood has more schools (5) than others due to the presence of two high schools. The number of local parks tends to be fewer in the newer, developing quadrants of the Anders, Deer Park and Oriole Park multi-neighbourhoods than the initial portions. For instance, of the 15 local parks and playgrounds listed for the Anders neighbourhood ten are located within the northwest quarter section that developed prior to 1977.

Community shelters represent a significant aspect of efforts to create gathering places within neighbourhoods, there being one to three in each of the multi-neighbourhoods summarized in Table 4.9. The design and role of the community shelter varies between neighbourhoods as the City provides three basic "templates" from which the community may choose for their central park area. While shelters originally were provided as skate change facilities, now more emphasis is placed on meeting rooms and space for other activities, at times including a kitchen. In the Lancaster multi-neighbourhood, community shelters are being incorporated into two of the schools planned for the area. This recent evolution in neighbourhood planning will provide in Lancaster better opportunities to share resources and provide more functional, multi-use space for community members to gather.

#### **4.3.6 Roads and Lanes**

Contemporary Red Deer multi-neighbourhood road hierarchies and patterns are shown on Sketches 4.5 to 4.9. These reflect a street layout with a functional hierarchy of lanes and local access streets feeding onto collectors that in turn provide access onto arterial roads. The collector streets of the newer subdivisions are typically curvilinear in design, while local access streets take a variety of design forms - crescent, close, P-loop and keystone.

Table 4.10 shows the range of land dedicated to roads and lanes ranges between 19.4 to 27.4 percent, with the average being 22.4 percent. It is interesting to also note the range in dwelling unit density per hectare of road and lane (Table 4.10). While the average is 52.4 (dwelling units per hectare of road and lane), lows include 32.5 (Oriole Park West) and 40.6 (Lancaster Green) and highs 68.4 (Davenport) and 65.1 (Devonshire).



## HOUSING DENSITY – NEW AND PLANNED NEIGHBOURHOODS

TABLE 4.6

NEIGHBOURHOOD	NUMBER OF HOUSING UNITS	GROSS DEVELOPABLE AREA (ha)	DENSITY (du/ha)
Anders On The Lake	518	58.20	8.90
Aspen Ridge	756	56.85	13.30
Davenport	809	61.00	13.26
Devonshire	906	59.56	15.21
Inglewood	803	57.29	14.02
Kingsgate	492	40.99	12.00
Kentwood West	515	56.70	9.08
Lonsdale	825	60.88	13.55
Lancaster Green	686	61.60	11.14
Oriole Park West	499	69.46	7.18
West Park Extension	718	58.71	12.23
<b>Total of New Neighbourhoods</b>	<b>7527</b>	<b>641.24</b>	
<b>Average of New Neighbourhoods (Gross Developable Area)</b>			<b>11.74</b>
<b>Average of New Neighbourhoods (Gross Area)</b>		<b>690.23</b>	<b>10.91</b>

## HOUSING DENSITY – EXISTING NEIGHBOURHOODS

TABLE 4.7

NEIGHBOURHOOD	NUMBER OF HOUSING UNITS	GROSS DEVELOPABLE AREA (ha)	DENSITY (du/ha)
Woodlea	317	38	8.34
Eastview	768	65	11.82
Clearview Meadows	1001	71	14.10
Anders Park	522	65	8.03
West Park	1504	145	10.37
Oriole Park	1144	134	8.54
Glendale	1692	133	12.72
Normandeau	1497	122	12.27
<b>Total of above Neighbourhoods</b>	<b>8445</b>	<b>773</b>	
<b>Average of Established Neighbourhoods</b>			<b>10.92</b>

## OPEN SPACE ALLOCATION

**TABLE 4.8**

NEIGHBOURHOOD	CENTRAL PARK (ha)	LOCAL PARKS & WALKWAYS (ha)	TOTAL (ha)	% of Gross Developable Area
Davenport	4.99	1.25	6.24	10.0
Inglewood	4.1	1.63	5.73	10.0
Kensington	5.34	1.93	7.27	16.0
Lonsdale	5.57	1.92	7.49	12.0
TOTAL	20	6.73	26.73	48.0

Source: Neighbourhood Area Structure Plans

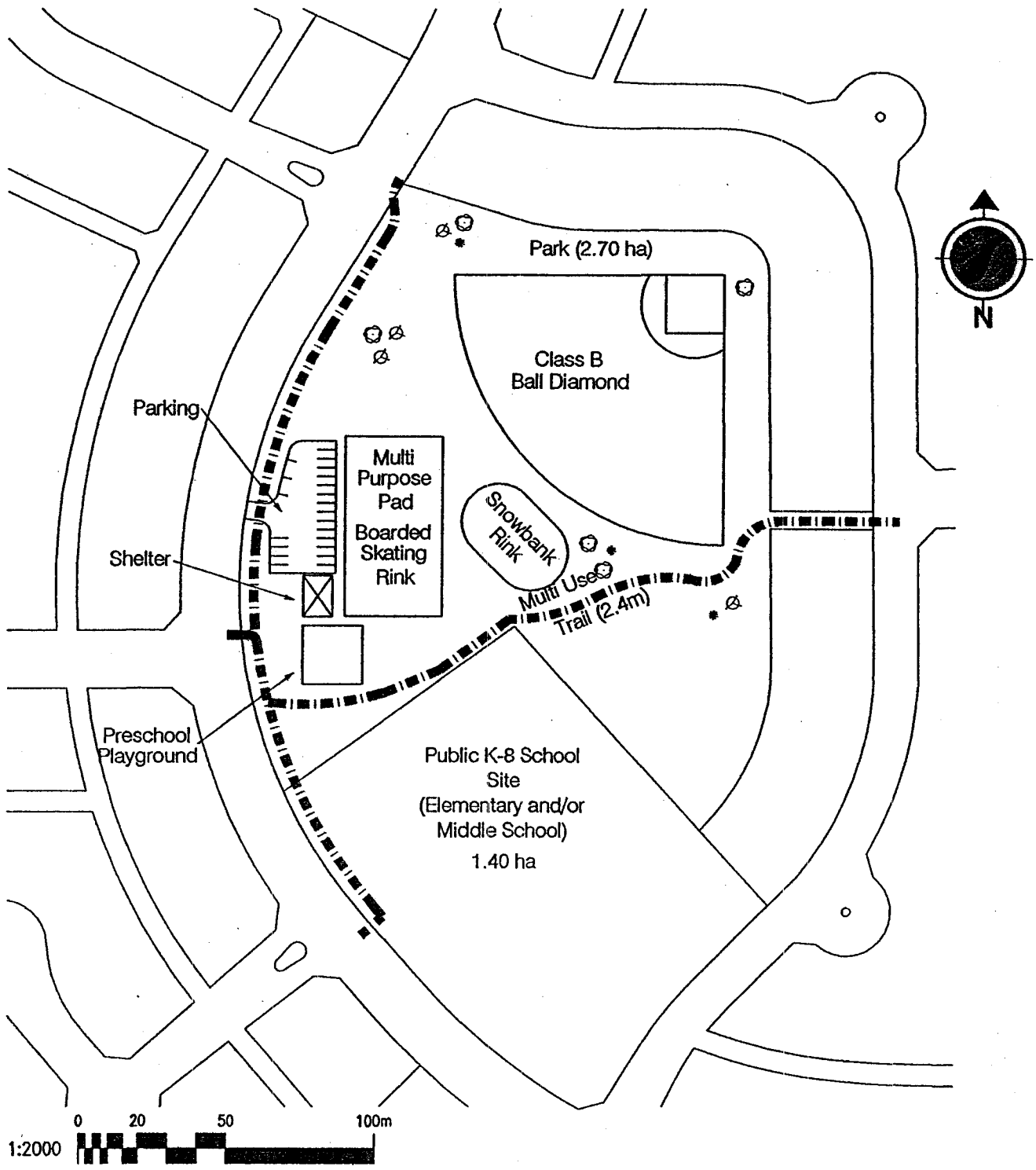
## GATHERING PLACES

**TABLE 4.9**

GATHERING PLACES	ANDERS		DEER PARK		LANCASTER		ORIOLE PARK		KENTWOOD	
Central Park	5	3 - E	5	2 - E	3	3 - E	5	4 - E	3	2 - E
		2 - P		3 - P				1 - P		1 - P
Local Park/Playground	15	15 - E	10	5 - E	9	6 - E	11	10 - E	3	2 - E
				5 - P		3 - P		1 - P		1 - P
Community Building/ Shelter	1	1 - P	2	2 - P	3	1 - E	1	1 - E	2	2 - P
						2 - P				
School	1	1 - P	2	1 - E	5	2 - E	2	1 - E	2	2 - P
				1 - P		3 - P				
Church/ Religious Assembly	0		3	3 - E	3	3 - P	1	1 - E	1	1 - E
Local Commercial	1	1 - P	2	2 - E	1	1 - E	0		0	
Neighbourhood Commercial	1	1 - P	1	1 - E	1	1 - E	0		0	

P- Planned

E- Existing



Legend  
 ■■■■■ 2.4m MULTI-USE TRAIL

Client/Project  
 RED DEER  
 INGLEWOOD  
 NEIGHBOURHOOD AREA STRUCTURE PLAN

Figure No.  
**ILLUSTRATION 2.0**

Title  
**CENTRAL SCHOOL / PARK SITE**

September, 2001  
 125 70620



**Stantec**

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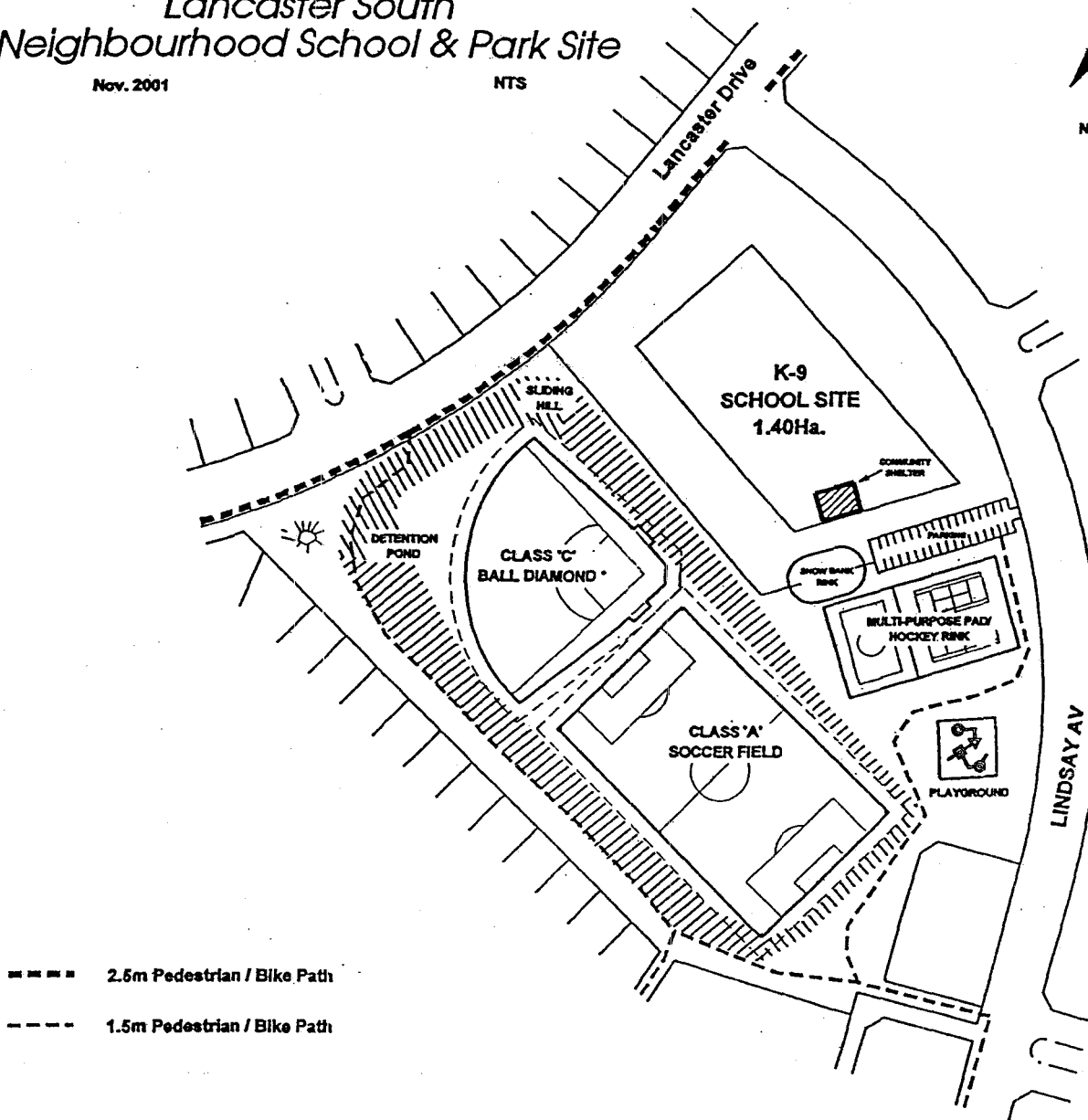
2001-09-18 01:58PM By: Ruppel

**FIGURE 4.1**

# Lancaster South Neighbourhood School & Park Site

Nov. 2001

NTS



----- 2.5m Pedestrian / Bike Path

..... 1.5m Pedestrian / Bike Path

Prepared by:  
The City of Red Deer Engineering Department

FIGURE 4.2

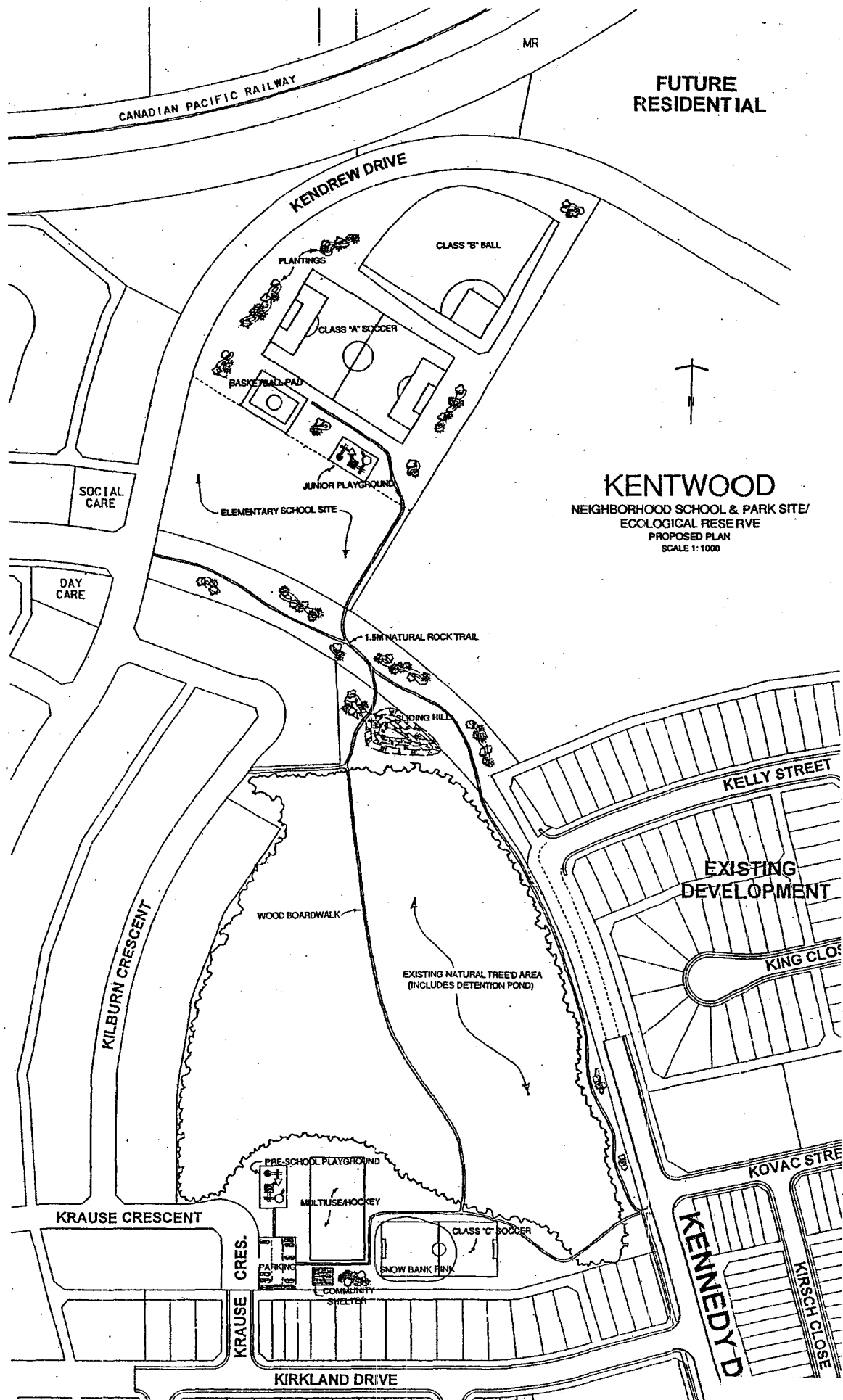
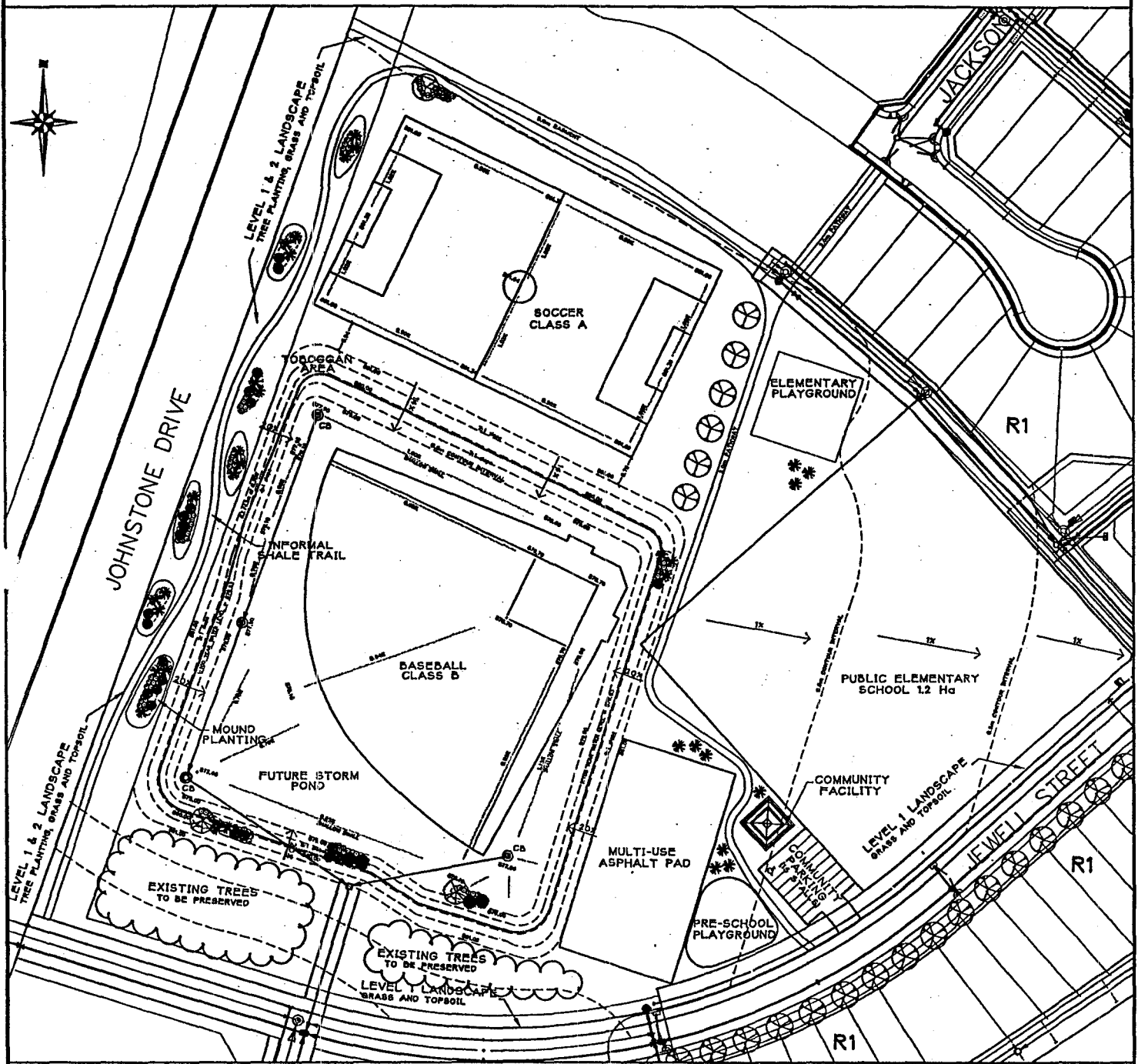


FIGURE 4.3

# GENCAN DEVELOPMENT LTD. NEIGHBOURHOOD AREA STRUCTURE PLAN



PREPARED BY:  
IBI GROUP

SCALE: N.T.S.  
PREPARED FEBRUARY 2000

## SCHOOL/RECREATION SITE CONCEPTUAL LAYOUT

FIGURE 4.4

Table 4.11 compares the area and lengths of roads and lanes in Davenport, Lonsdale and Inglewood. Table 4.11 also indicates the typical right-of way widths of various classes of road. Figures 4.5 and 4.6 show the typical cross sections of divided and undivided residential collector roads in Lonsdale and Aspen Ridge. The variations are mainly in the location and width of the sidewalk. Figure 4.7 shows the typical cross sections of divided and undivided residential roadways in Davenport while Figure 4.8 shows a cross section for a local/collector road in Anders on the Lake. Figure 4.9 shows city standards for typical cross sections for paved and graveled lanes.

#### **4.3.7 Transit**

Figure 4.10 illustrates that a typical newer neighbourhood such as Deer Park is served by two internal bus routes (Routes 5 and 6). The bus routes follow collector roadways into the neighbourhood along an alignment that minimizes the number of turns and aims to bring 90% of residences within 400 m walking distance from a bus stop. The Deer Park neighbourhood bus routes have sixteen bus stops, three transfer connections and one transfer connection/shared bus stop. As well, two bus stops on the Clearview Route 2 are accessible to residents who reside in the west part of Deer Park. Most residences in the built-out areas of Deer Park are generally within 400 m walking distance of a bus stop, while the areas to the east where development is still taking place are less accessible to the bus service. The bus service will be extended to these areas at 80% occupancy.

#### **4.3.8 Trails**

Sketches 4.10 to 4.13 illustrate the pedestrian and bike pathway system in newer subdivisions. The trailways in Lonsdale and Oriole Park West are examples of the effective use of linear parks for trailways, offering the advantage of continuous pathways with few street crossings. Although not located in a linear park, the trail system in Anders on the Lake is continuous around the lake and across the school site. This is an example where a wet detention pond has been utilized as a community attribute and focal point for leisure activities. The planned West Park Extension residential area incorporates trails around a natural wetland and through a natural treed area. The Kentwood neighbourhood (Sketch 4.6) also has a trail system which partly utilizes the natural tree open space area.

Where it is not feasible to align pathways across school sites, through public utility lots or in designed linear parks, trails usually align along collector roadways on the 2.5 m sidewalk. Sections of the pathways in Lonsdale, Anders on the Lake and Lancaster Green are aligned in roadways along school and park sites, areas where lots back onto the collector street or areas where semi-detached and narrow lot housing with no front access occur, which, although not necessarily located in a linear park, offer the advantage that front driveways do not interrupt the pathway.

The examples of Lancaster Green and Anders on the Lake illustrate how the internal neighbourhood pathways can be designed to provide linkages to the City-wide pathway system that runs along arterial roadways (22 Street and 40 Avenue in Anders on the Lake and 22 Street and 30 Avenue in Lancaster South).

#### **4.3.9 Utilities**

Stormwater is typically handled in Red Deer neighbourhoods in the following manner. For the major storm sewer system the water flows overland along the curb and gutter of streets, in lanes and along grassed or concrete swales, which run across public utility lots, toward catch basins located in streets or toward dry (detention) ponds or wet (retention) ponds located in public utility lots. From the catch basins and detention ponds the stormwater is transported along the sub-surface pipes that make up the minor drainage system toward stormwater trunks which form part of the minor system and carry the water away to outfalls at receiving water bodies.

As illustrated in Figures 4.11 and 4.12, both dry and wet ponds can successfully be incorporated into the open space system of neighbourhoods with a joint use arrangement. In Lancaster Green (Figure 4.11) the sports fields will be extended onto the dry pond and in Anders on the Lake (Figure 4.12) the wet pond as an aesthetic design element with a pathway system and associated facilities functions as a focal point for residential development and recreational activities (e.g. walking, picnicking and skating).

Typically, water mains are located in the lanes. Situations where short sections of these services are in fact located in the streets are necessitated by specific layout considerations or to provide connections to fire hydrants, which must be located in the street to enhance fire truck access.

#### **4.4 Red Deer's Neighbourhoods Today**

The design of Red Deer's newer, developing neighbourhoods is a product of City policies and changing trends in the housing market. While some of the policy influences have been consistent over the last 20 or so years, neighbourhood design details have continued to evolve as new ideas are incorporated on either a 'pilot' or permanent basis.

Under the guidance of the City's major area structure plans, new residential areas have generally been planned on the basis of four individual quarter sections forming a multi-neighbourhood approximately one square mile in size. Occasionally, a community consists of only two quarter sections. Each quarter section generally is considered a separate neighbourhood and planned under a neighbourhood area structure plan. Arterial roads usually define the boundaries of these multi-neighbourhood residential communities.

Some of the most common design elements of Red Deer's newer residential multi-neighbourhoods are shown on Sketch 4.14. These include:

- Size: one mile square containing approximately 259 hectares (640 acres) consisting of four 'separate' neighbourhoods
- Boundaries: usually arterial roads, but natural areas in places
- Edges: usually defined by landscaped berms
- Access: limited to collector roads, with 7 or 8 entries per multi-neighbourhood and 2 entries per neighbourhood
- Road pattern: generally curvilinear; the four quadrants are linked by the collector roads and some local roads



## ROADS AND LANES – NEW AND PLANNED NEIGHBOURHOODS

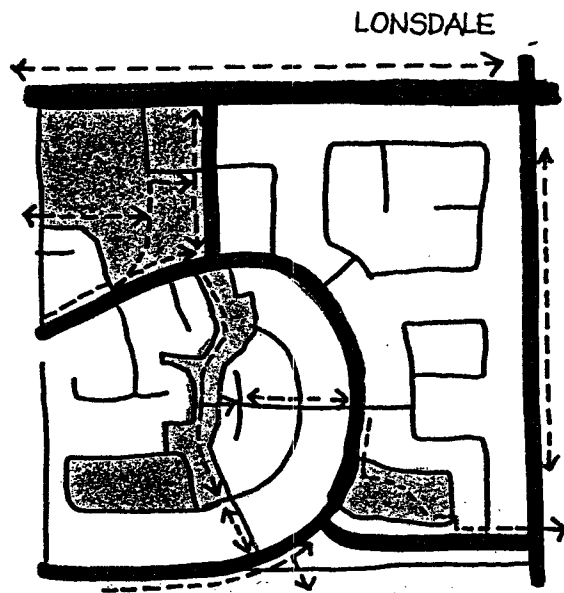
**TABLE 4.10**

	Area (ha)	% of Gross Developable Area
Anders on the Lake	12.29	21.1
Aspen Ridge	12.72	22.4
Davenport	11.83	19.4
Devonshire	13.91	23.4
Inglewood	13.92	24.3
Kensington	8.57	20.9
Kentwood West	11.27	19.9
Lonsdale	14.82	24.3
Lancaster Green	16.9	27.4
Oriole Park West	15.35	22.1
West Park Extension	12.11	20.7
<b>Total</b>	<b>143.7</b>	<b>22.4</b>

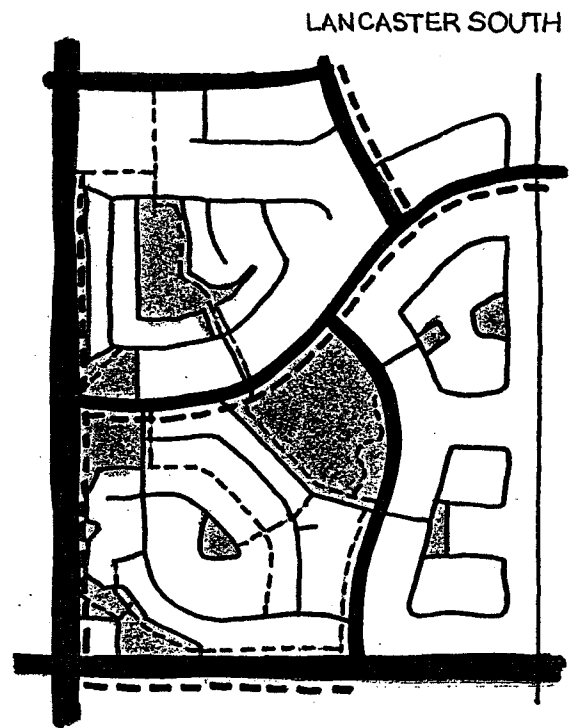
## AREA AND LENGTH OF ROADS (BY CLASS) AND LANES

**TABLE 4.11**

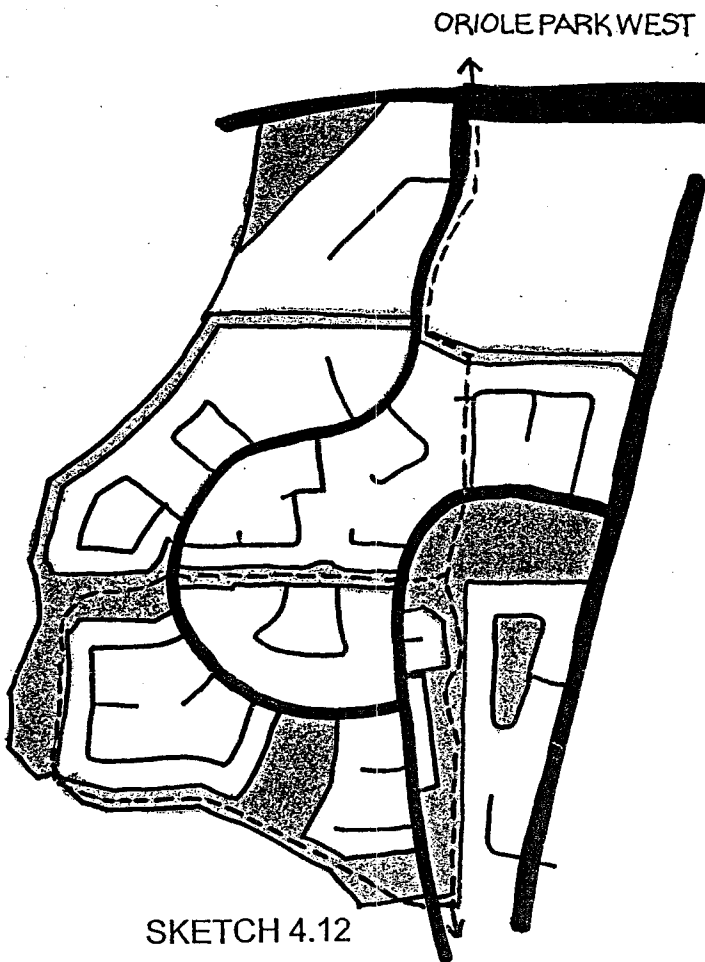
CLASS OF ROAD (The first number in brackets refers to Davenport and Lonsdale; the second number to Inglewood)	DAVENPORT		LONSDALE		INGLEWOOD	
	Area (ha)	Approx. length (km)	Area (ha)	Approx. length (km)	Area (ha)	Approx. length (km)
Divided collector (28 m; 22 m)	0	0	0.56	0.2	0.43	0.19
Undivided collector (20 m)	3.27	1.64	3.85	1.92	3.11	1.56
Total collector streets	3.27	1.64	4.41	2.12	3.54	1.75
Divided local (22 m; 17 m)	0.88	0.4	0.75	0.34	0.85	0.5
Undivided local (15 m)	4.97	3.31	6.43	4.29	5.79	3.86
Total local streets	5.85	3.71	7.18	4.63	6.64	4.36
Lane (6 m; 7 m)	2.54	4.23	3.22	5.37	3.74	5.36
Total roads and lanes	11.66	9.58	14.81	12.12	13.92	11.47
<b>% of Gross Developable Area</b>	<b>19.1</b>		<b>24.3</b>		<b>24.3</b>	



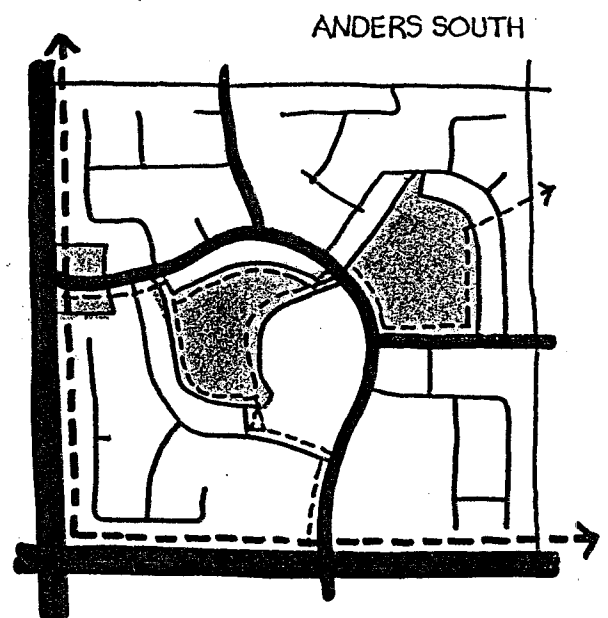
SKETCH 4.10



SKETCH 4.11







SKETCH 4.12



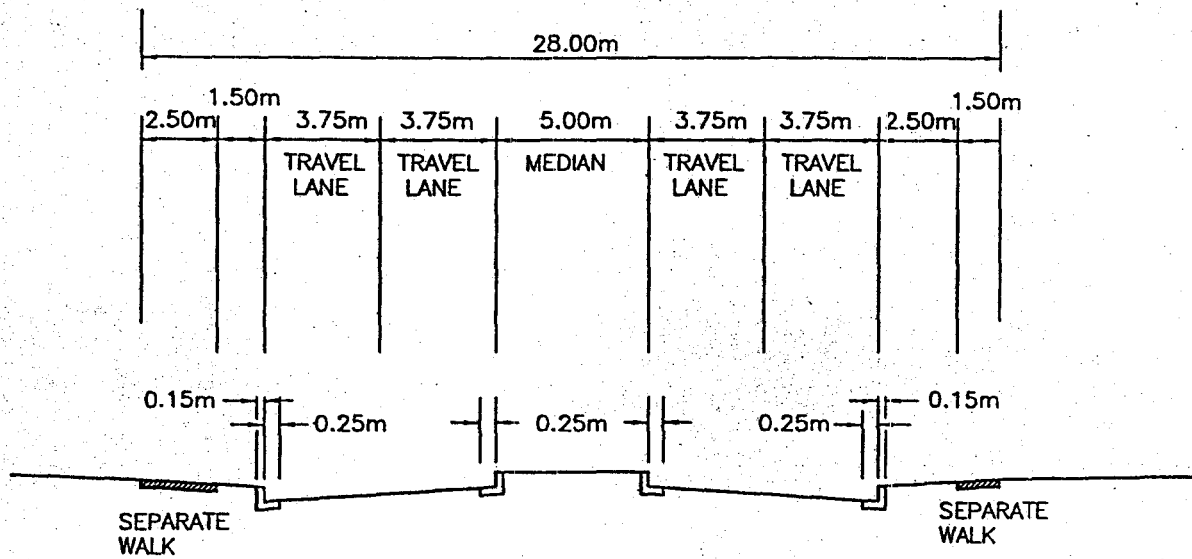
SKETCH 4.13

LEGEND:

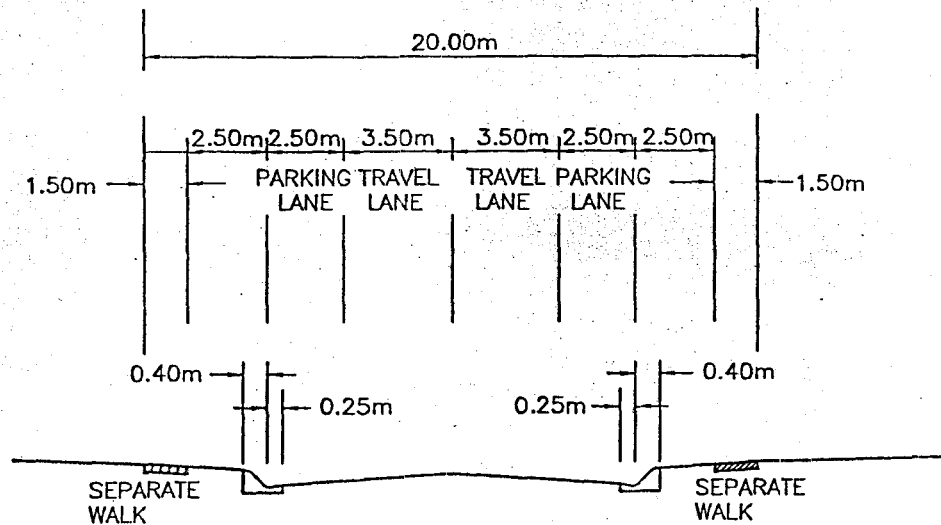
-  1.5 m PEDESTRIAN / BIKE PATH
-  2.5 m PEDESTRIAN / BIKE PATH
-  OPEN SPACE
-  ROADS

# Lancaster East (Lonsdale) Area Structure Plan

## DIVIDED RESIDENTIAL COLLECTOR



## UNDIVIDED RESIDENTIAL COLLECTOR



## DIVIDED AND UNDIVIDED RESIDENTIAL COLLECTOR ROADWAY DETAIL

REVISED: JUNE 04/98  
REVISED: FEB. 16/00

PREPARED BY:

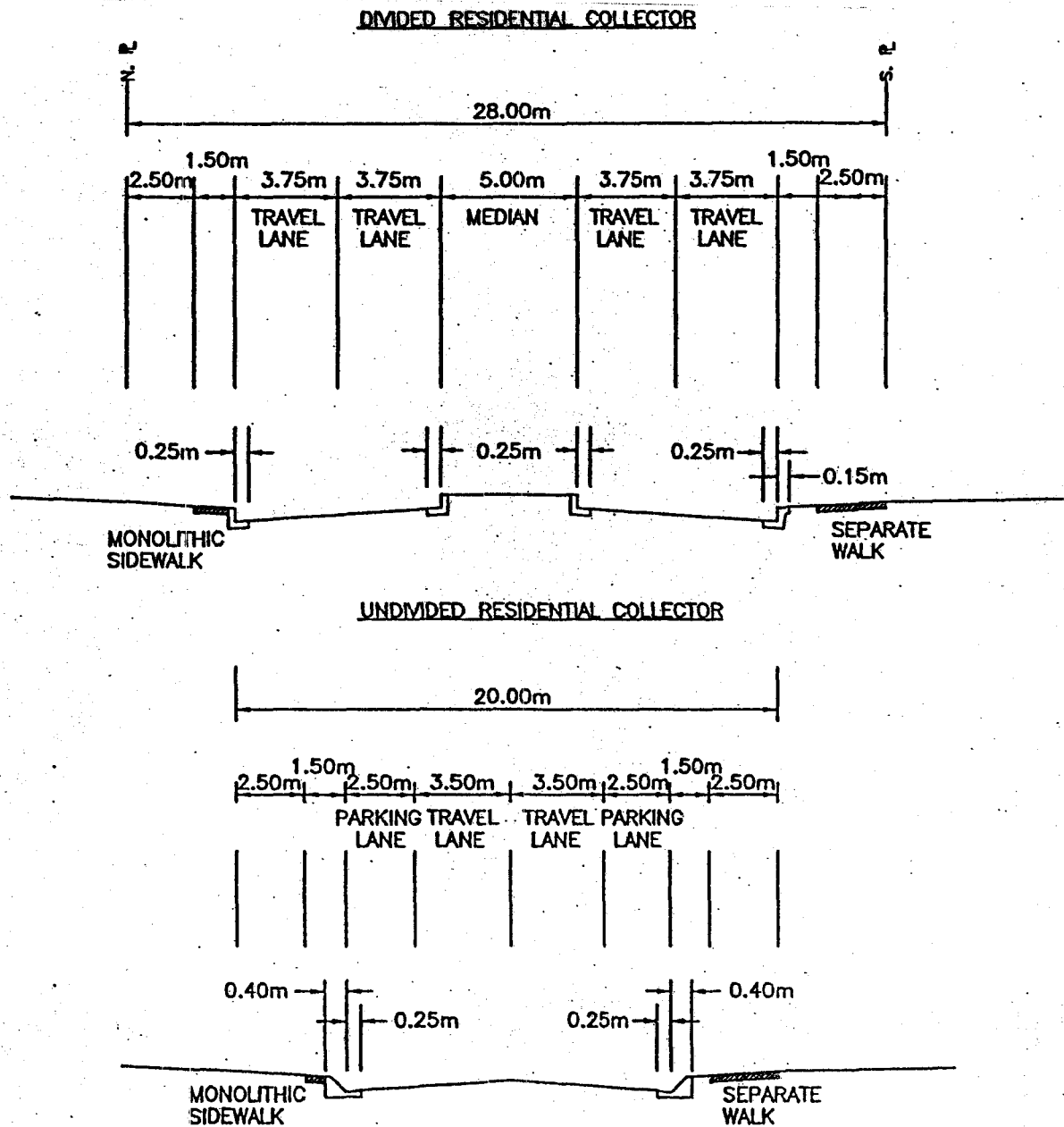
**AL-TERRA**

ENGINEERING LTD.

EDMONTON

**FIGURE 4.5**

# Aspen Ridge Area Structure Plan



**NOTE:** THE 2.5m SEPARATE SIDEWALK WILL BE LOCATED ALONG THE EAST AND SOUTH SIDES OF ADDINGTON DRIVE, ALONG THE SOUTH SIDE OF THE COLLECTOR ROAD TO 30th AVENUE, AND ALONG THE EAST SIDE OF THE COLLECTOR ROAD TO 22nd STREET.

## DIVIDED AND UNDIVIDED RESIDENTIAL COLLECTOR ROADWAY DETAIL

REVISED: MAR 13/2001

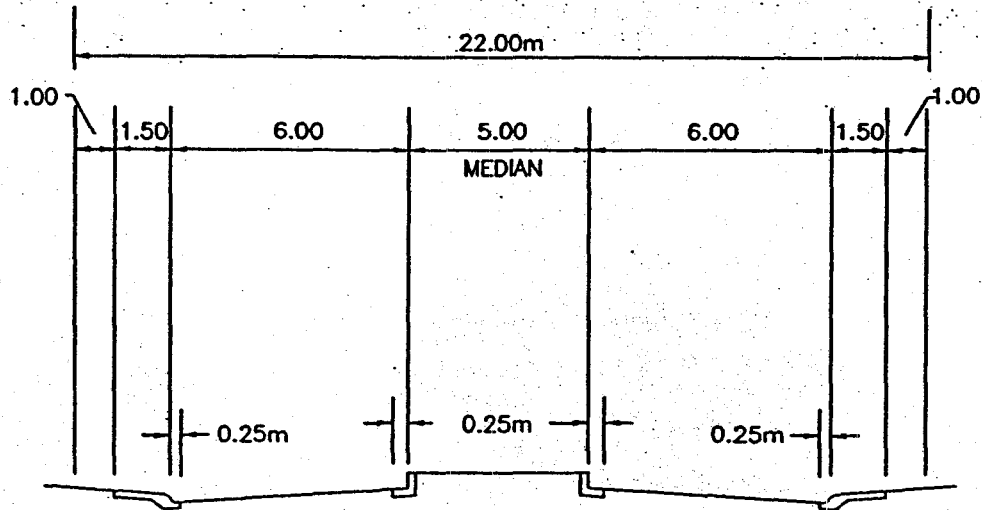
PREPARED BY:

**AL-TERRA**  
ENGINEERING LTD.

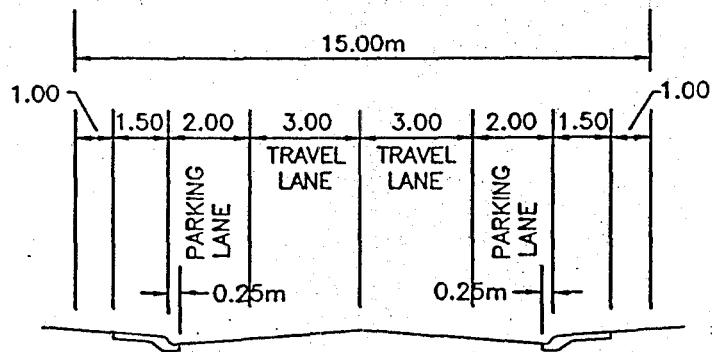
FIGURE 4.6

# Davenport Area Structure Plan

## DIVIDED RESIDENTIAL ROADWAY



## UNDIVIDED RESIDENTIAL ROADWAY



## DIVIDED AND UNDIVIDED RESIDENTIAL LOCAL ROADWAY DETAIL

PREPARED BY:

**AL-TERRA**

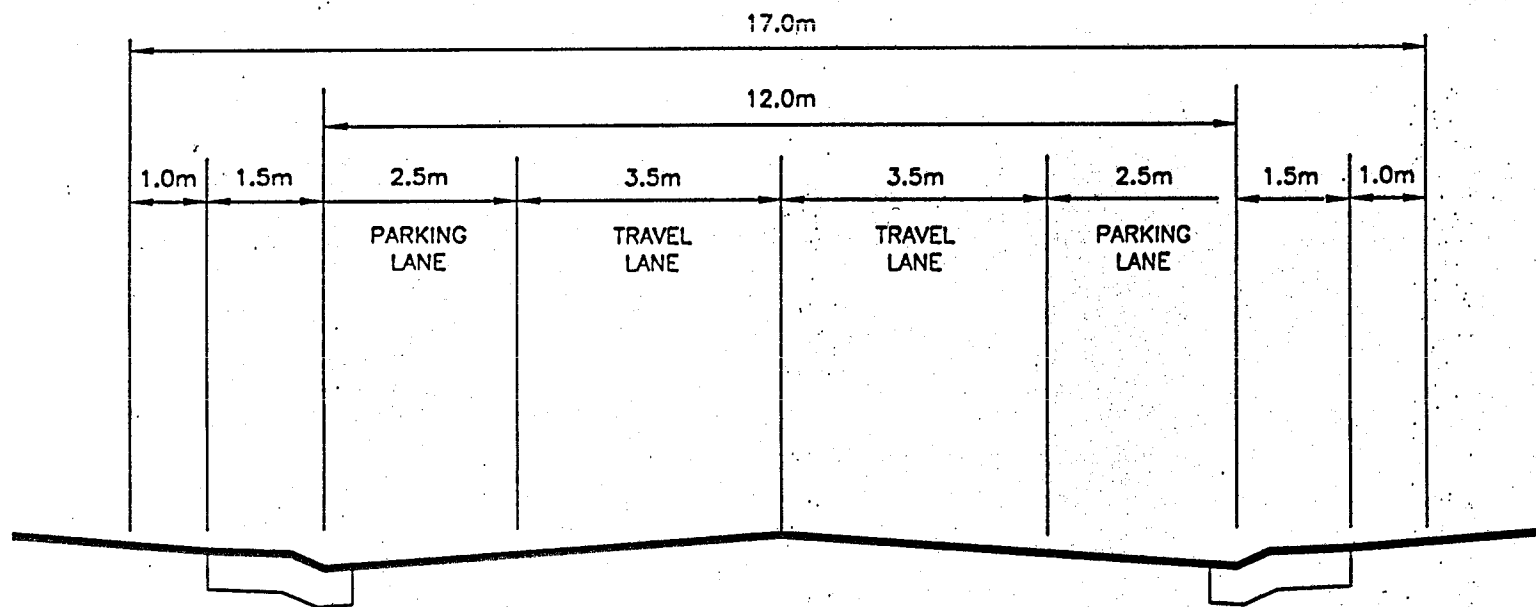
ENGINEERING LTD.

EDMONTON

RED DEER

REVISED SEPT 22/98

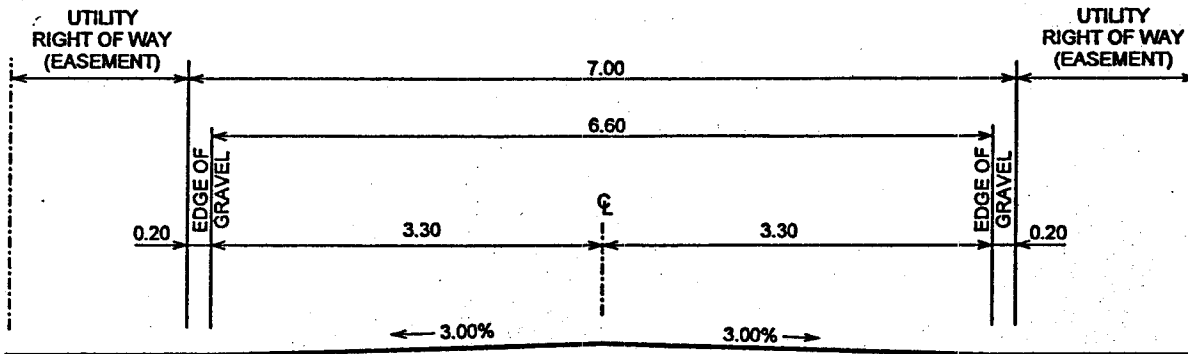
FIGURE 4.7



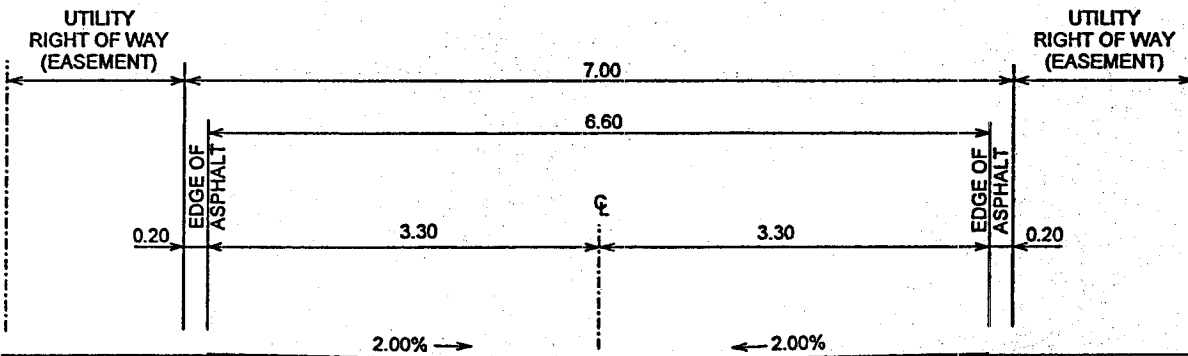
**uma**

**PROPOSED CROSS-SECTION FOR LOCAL/COLLECTOR ROAD  
ANDERS ON THE LAKE (ANDERS SOUTH)**

**FIGURE 4.8**




### GRAVEL LANE



### PAVED LANE

#### NOTE :

- MINIMUM 2.00m WIDE EASEMENT REQUIRED ON BOTH SIDES OF LANE FOR REAR SERVICING.
- LANE TO BE PAVED ADJACENT TO MULTI-FAMILY AND COMMERCIAL DEVELOPMENTS WHERE LANE ACCESS IS PROVIDED.

			THE CITY OF RED DEER			ENGINEERING DEPARTMENT		
			DRAWN BY: D.W.K.		DESIGN GUIDELINE DRAWINGS Roadway Design			APPROVED BY: 
			DATE: JAN 10, 2001		GRAVEL & PAVED LANES			STREETS-UTILITIES ENGINEER
			SCALE: N.T.S.					
NO.	DATE	REVISION	FIGURE 4					

# DEER PARK BUS TRANSIT NETWORK

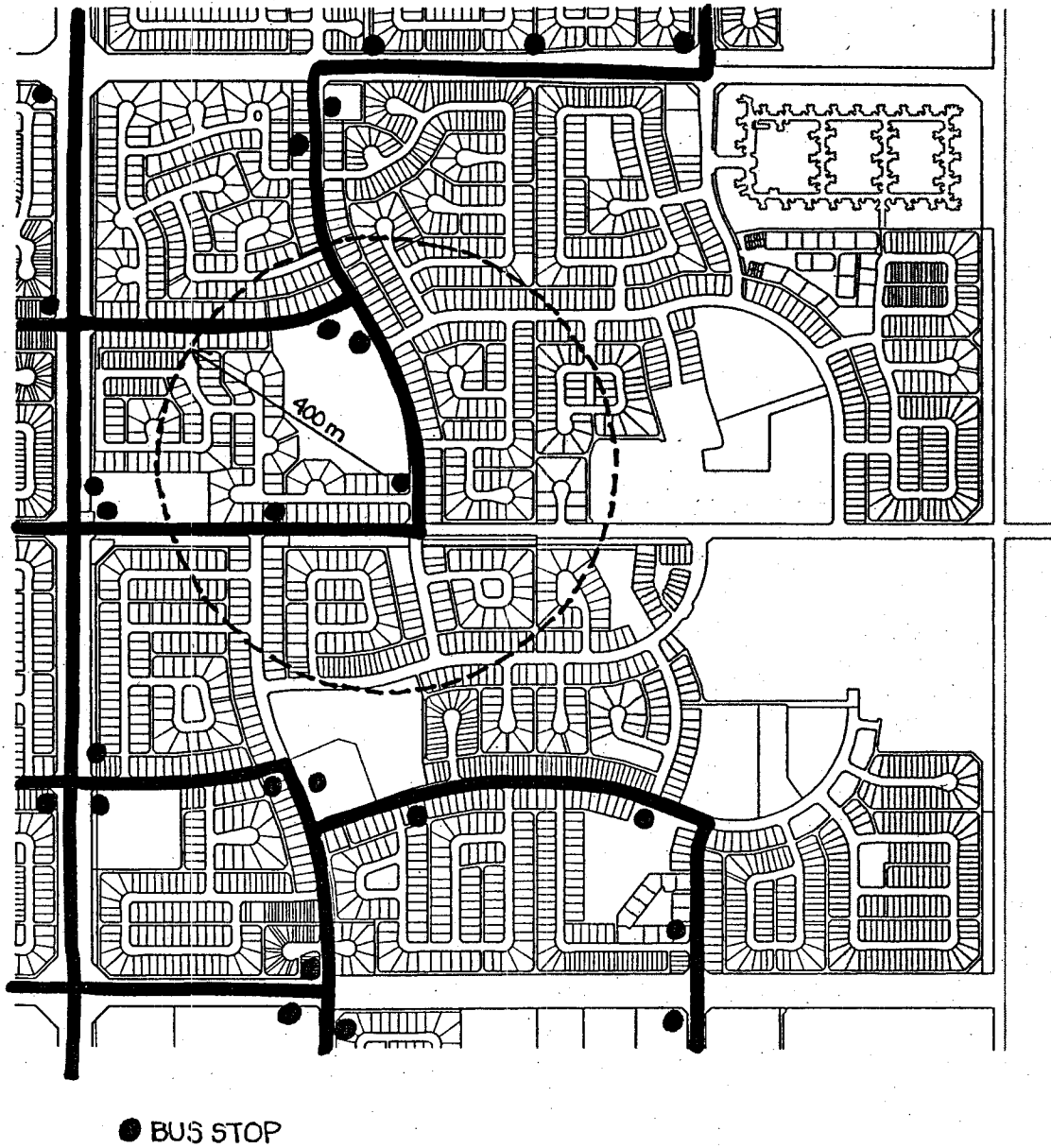


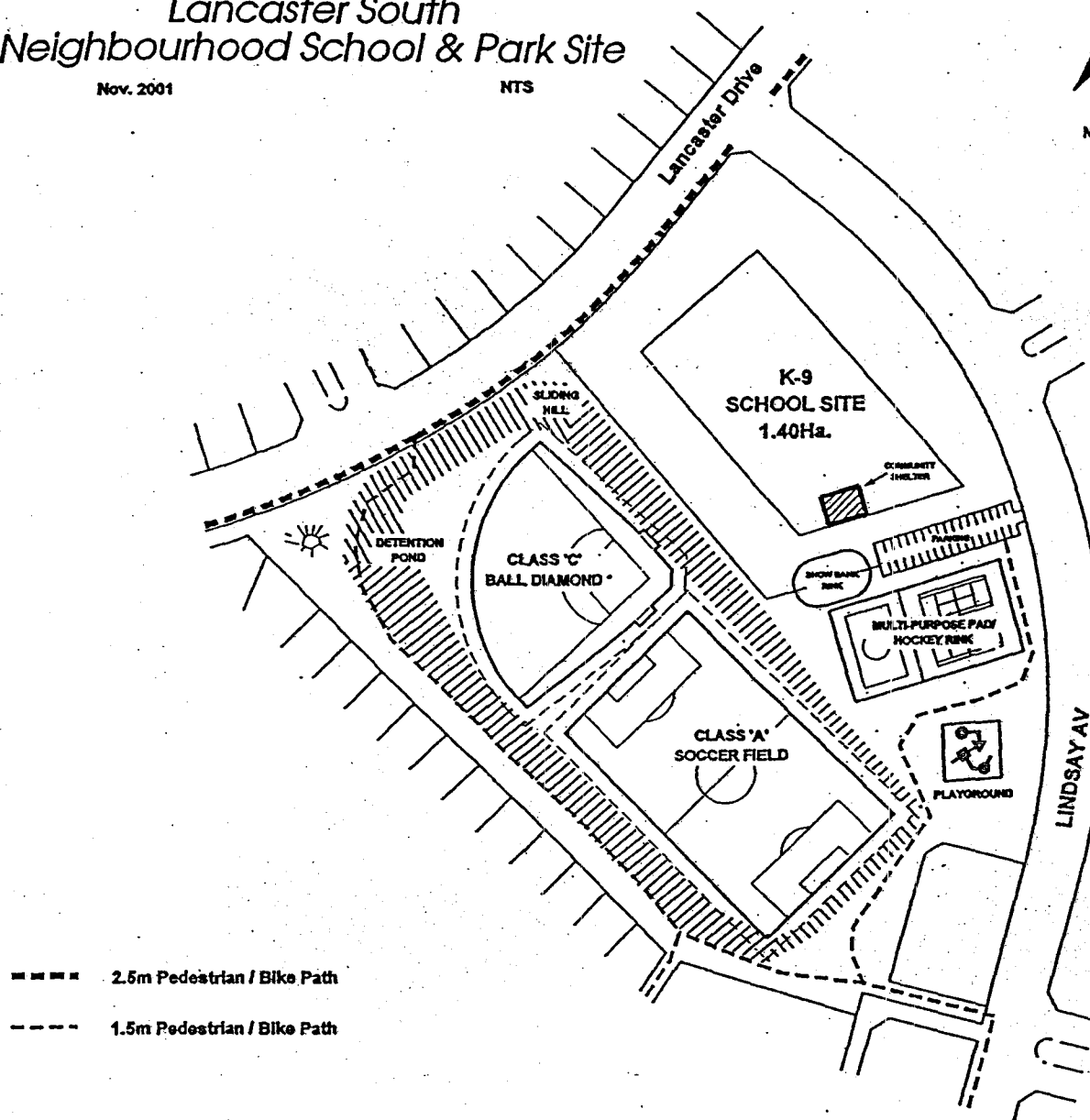
FIGURE 4.10



# Lancaster South Neighbourhood School & Park Site

Nov. 2001

NTS



— — — — — 2.5m Pedestrian / Bike Path

- - - - - 1.5m Pedestrian / Bike Path

Prepared by:  
The City of Fort St. John Engineering Department

FIGURE 4.11



- Central park/school sites: usually one per neighbourhood (i.e. four per multi-neighbourhood)
- Local and linear parks: generally minimal, although recently more parkettes and linear parks have been provided
- Multi-family housing: located on external edges near entry points
- Commercial: two commercial sites per community, usually at entry points.

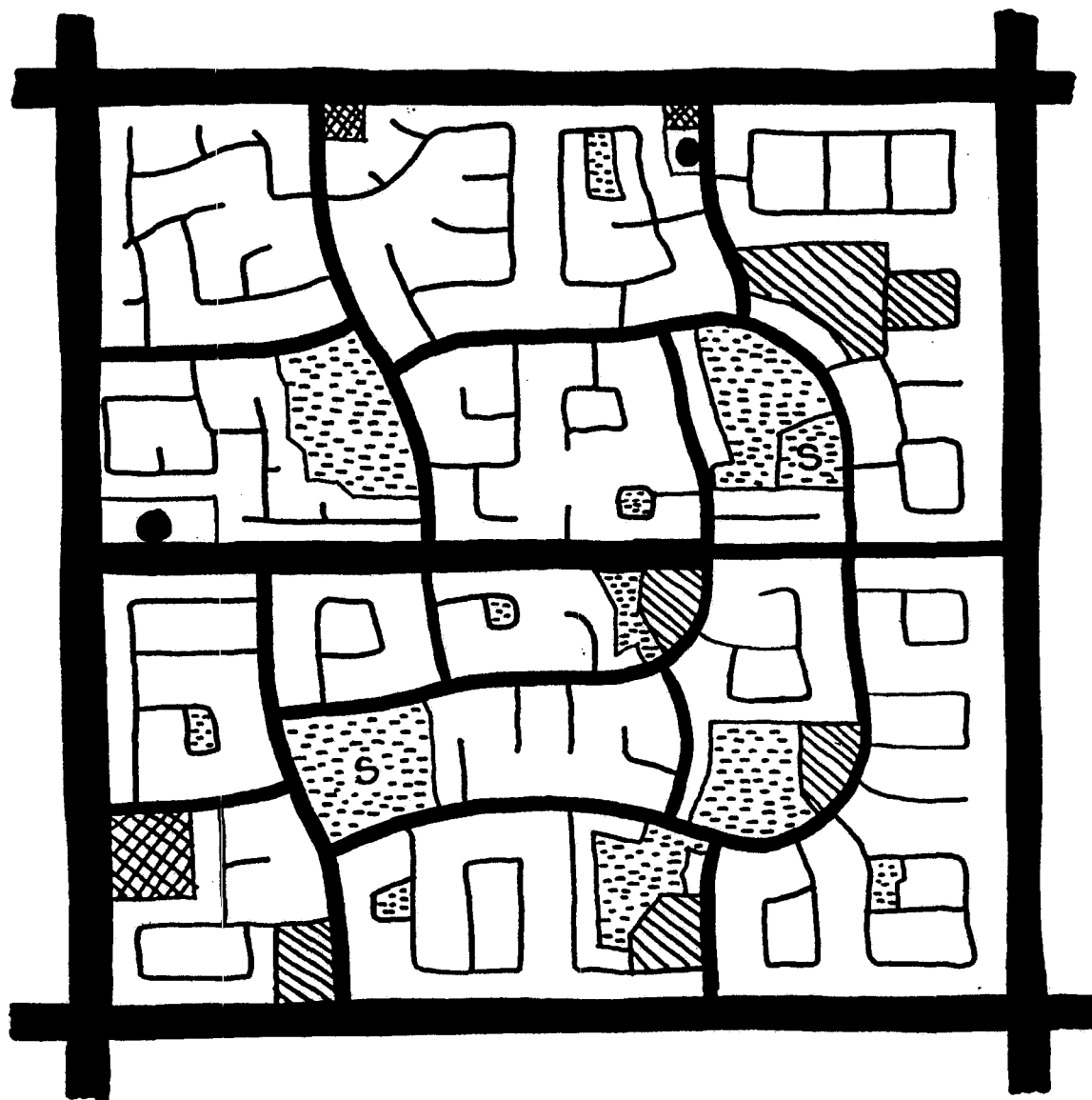
While there is variation between Red Deer's individual neighbourhoods and multi-neighbourhoods, Table 4.12 provides a picture of a 'typical' neighbourhood developed in the last twenty years. Summarized is the size of the neighbourhood, types of land uses included, the mix of housing types, density of development, potential population, amount of open space and land devoted to roads.

**Table 4-12: 'Typical' Red Deer Neighbourhood**

Size of Neighbourhood (Gross Developable Area): .....	58.3 ha
Land Area for Residential Uses: .....	33.5 ha (57.5% of total area)
Land Area for Parks and School Sites:.....	8.2 ha (14.0% of total area)
Land Area for Other Uses:.....	3.6ha (Commercial, Church, Social Care and Utility Lots) (6.1% of total area)
Land Area for Roads and Lanes:.....	13.1 ha (22.4% of total area)
Land Area for Low Density Residential: .....	29.4 ha (Single detached and semi-detached housing)
Land Area for Multiple Family Residential:.....	4.1ha (Fourplex, row/town and apartment style housing)
Number of Dwelling Units: .....	684
Number of Low Density Residential Units: .....	555 (Single detached, semi-detached housing, manufactured home) (81.1%)
Number of Multiple Family Residential Units: .....	129 (Fourplex, row/town and apartment style housing) (18.9%)
Density of Residential Development (dwelling units per hectare): .....	11.74
Potential Population (based on 2.5 to 3.2 occupancy per unit):	.1,710 – 2,188

Note: based on 11 new and recently developed neighbourhoods, these being: Anders-on-the-Lake, Aspen Ridge, Davenport, Devonshire, Inglewood, Kensington/Kingsgate, Kentwood West, Lonsdale, Lancaster Green, Oriole Park West and West Park Extension)

**Sketch 4.14: 'Typical' Contemporary Red Deer Multi-Neighbourhood**



**LEGEND:**

AREA SHOWN: 1 SECTION (640 ACRES)

- |                         |                 |
|-------------------------|-----------------|
| ARTERIAL ROADS          | MULTI-FAMILY    |
| COLLECTOR ROADS         | SCHOOL SITE     |
| LOCAL ROADS             | CHURCH SITE     |
| OPEN SPACE              | COMMERCIAL SITE |
| LOW DENSITY RESIDENTIAL |                 |

## 5.0 PRINCIPLES FROM MAJOR PLANNING MOVEMENTS

### 5.1 Introduction

In the first portions of the 20<sup>th</sup> Century residential development typically consisted of compact, mixed-use neighbourhoods. Following World War II, with the growing popularity of the automobile and the emergence of shopping centres and zoning which often rigidly separated land uses, post war neighbourhoods tended to become single-use (residential) non- pedestrian areas with curvilinear streets catering primarily to the automobile. Now known as conventional suburban development (CSD) or conventional neighbourhoods, this form of residential development became the norm across North America.



Particularly since the 1980's, a number of major community planning movements have arisen to counter conventional neighbourhood design and planning, which these movements see as being less livable, lacking in focus and character, being vehicle oriented and often wasteful of land (i.e. low density). This chapter reviews a number of these planning movements in North America – sustainable communities, smart growth, Awhahnee principles, new urbanism and traditional neighbourhood development. For sake of completeness, the components of the planning movements that address planning for areas larger than the neighbourhood (i.e. the city, the region) are provided. However, the focus of the chapter is on the planning and design principles for neighbourhood and sub-neighbourhood (e.g. the district, the block) planning.

In reporting the neighbourhood planning principles from these planning movements, the chapter generates ideas for improvements to planning for Red Deer's neighbourhoods. However, based upon the discussions in Chapter 4 on Red Deer's neighbourhoods – especially the more recent ones, it is evident in Chapter 5 that an appreciable number of neighbourhood planning elements and principles from these movements are already embodied in neighbourhood planning in Red Deer.

### 5.2 Sustainable Communities

The concept of sustainable development within the context of communities has three equally important components: environmental, social and fiscal. These components, which are meant to be pursued simultaneously, address:

- Environmental - minimizing the consumption of natural resources
- Fiscal - the efficient use of Urban Space
- Social - multiplying Social Capital.

The concept strives to coordinate and balance the three aspects through the participation of people and their governments.

The Urban Land Institute identifies the following opportunities (principles) to put the concept of sustainable development into practice:

1. conserving natural resources by minimizing the consumption of land and maintaining and restoring existing environmental attributes of developing sites
2. developing sites and designing buildings to reduce the consumption of energy and non-renewable materials and the production of waste, toxic emissions and pollution
3. using existing and renewable urban resources and underused buildings and sites, infrastructure systems already in place, and historic neighbourhoods and structures
4. designing developments to enhance a community's sense of place, livability, and social and economic interaction
5. choosing and designing development sites in ways that increase access to jobs, affordable housing, transportation choices and recreation facilities
6. creating developments that expand the diversity, synergism and use of renewable resources in the operation and output of local economic activities

At the American Planning Association 1999 conference, the following were reported as principles of sustainable physical design:

1. locate activities and people closer together
2. redevelop vacant and abandoned parcels located within currently developed areas at moderately higher densities
3. except in the case of very densely built-out areas, limit building beyond the edges of current development
4. implement policies to make drivers pay the full cost of using personal cars
5. make neighbourhoods as pedestrian-friendly as possible
6. improve transit systems to link neighbourhoods with employment centres and other nodes
7. make transit more attractive
8. stop segregating uses
9. modify building codes to improve energy efficiency and the use of renewable resources
10. design and construct buildings to take into account recycling and water conservation.

The City of Calgary Sustainable Suburbs Study identified the following design principles for a complete neighbourhood community (note: 2.6 sq. km. or 1 sq. mile supporting approximately 8,000 people):

1. a focal point and recognizable boundaries and entrances that give the community a distinct identity
2. a public activity centre offering a variety of goods and services sufficient to meet the people's daily needs
3. a mixture of residential, public and commercial uses at or near the activity centre
4. parks, schools and shops within reasonable walking distance of homes
5. safe, pedestrian-friendly streets providing direct connections from homes to community and transit facilities
6. a wide choice of housing types and costs to meet a variety of household types and lifestyles
7. a range of employment opportunities

8. an efficient and effective public transit system that provides a viable option to the car, especially for the journey to work
9. protected natural areas and a variety of linked open spaces offering a choice of activities, connected where possible to a regional open space system.

### **5.3 Smart Growth**

The following are the principles of Smart Growth cited by the Smart Growth Network:

1. Mix land uses.
2. Take advantage of compact building design
3. Create a range of housing opportunities and choices
4. Create walk-able neighbourhoods and provide a variety of transportation choices
5. Foster distinctive, attractive communities with a strong sense of place
6. Preserve open space, farmland, natural beauty, and critical environmental areas
7. Strengthen and direct development toward existing communities
8. Make development decisions that are predictable, fair, and cost-effective
9. Encourage community and stakeholder collaboration in development decisions
10. Reuse existing buildings
11. Reflect concerns about social equity and the circumstances of low-income residents.

### **5.4 Ahwahnee Principles**

In 1991, a group of developers, architects, planners, and urban designers brought together devised key community and regional principles that outlined alternatives to sprawl. Presented at the Ahwahnee Hotel in Yosemite, the Ahwahnee Principles have become basic tenants for new urbanism. These principles are:

Community Principles: (note: community here means neighbourhood)

1. all planning should be in the form of complete and integrated communities containing housing, shops, work places, schools, parks, and civic facilities essential to the daily life of the residents.
2. community size should be designed so that housing, jobs, daily needs, and other activities are within easy walking distance of each other.
3. as many activities as possible should be located within easy walking distance of transit stops.
4. a community should contain a diversity of housing types to enable citizens from a wide range of economic levels and age groups to live within its boundaries.
5. businesses within the community should provide a range of job types for community residents.
6. the location and character of the community should be consistent with a larger transit network.
7. the community should have a centre focus that combines commercial, civic, cultural, and recreational uses.
8. the community should contain an ample supply of specialized open space in the form of squares, greens, and parks whose frequent use is encouraged through placement and design.

9. public spaces should be designed to encourage the attention and presence of people at all hours of the day and night.
10. each community or cluster of communities should have a well-defined edge, such as agricultural greenbelts or wildlife corridors, permanently protected from development.
11. streets, pedestrian paths, and bike paths should contribute to a system of fully connected and interesting routes to all destinations. Their design should encourage pedestrian and bicycle use by being small and spatially defined by buildings, trees and lighting; and by discouraging high speed traffic.
12. wherever possible, the natural terrain, drainage, and vegetation of the community should be preserved with greenbelts.
13. the community design should help conserve resources and minimize waste.
14. communities should provide for the efficient use of water through the use of natural drainage, drought tolerant landscaping, and recycling.
15. the street orientation, the placement of buildings, and the use of shading should contribute to the energy efficiency of the community.

Regional Principles:

16. the regional land-use planning structure should be integrated within a larger transportation network built around transit rather than freeways.
17. regions should be bounded by and provide a continuous system of greenbelt/wildlife corridors to be determined by natural conditions.
18. regional institutions and services (government, stadiums, museums, etc.) should be located in the urban core.
19. materials and methods of construction should be specific to the region, exhibiting continuity of history and culture and compatibility with the climate, to encourage the development of local character and community identity.

Implementation Strategy:

20. the general plan should be updated to incorporate the above principles.
21. rather than allowing developer-initiated, piecemeal development, local governments should take charge of the planning process. General plans should designate where new growth, infill, or redevelopment will be allowed.
22. prior to any development, a specific plan should be prepared based on these principles. With the adoption of these specific plans, complying projects could proceed with minimal with minimal delay.
23. plans should be developed through an open process, and participants in the process should be provided visual models of all planning proposals.

## **5.5 New Urbanism**

The Charter for the Congress for the New Urbanism states:

The Congress for the New Urbanism views disinvestment in central cities, the spread of placeless sprawl, increasing separation by race and income, environmental deterioration, loss of agricultural lands and wilderness, and the erosion of society's built heritage as one interrelated community-building challenge.



We stand for the restoration of existing urban centres and towns within coherent metropolitan regions, the reconfiguration of sprawling suburbs into communities of real neighbourhoods and diverse districts, the conservation of natural environments, and the preservation of our built legacy.

We recognize that physical solutions by themselves will not solve social and economic problems, but neither can economic vitality, community stability, and environmental health be sustained without a coherent and supportive physical framework.

We advocate the restructuring of public policy and development practice to support the following principles: neighbourhoods should be diverse in use and population; communities should be designed for the pedestrian and transit as well as the car; cities and towns should be shaped by physically defined and universally accessible public spaces and community institutions; urban places should be framed by architecture and landscape design that celebrate local history, climate, ecology, and building practice.

We represent a broad-based citizenry, composed of public and private sector leaders, community activists, and multidisciplinary professionals. We are committed to reestablishing the relationship between the art of building and making of community, through citizen-based participatory planning and design.

We dedicate ourselves to reclaiming our homes, blocks, streets, parks, neighbourhoods, districts, towns, cities, region, and environment.

The Charter for the Congress for the New Urbanism asserts the following principles to guide public policy, development, practice, urban planning and design.

*The region: the metropolis, the city, and the town*

1. The metropolitan region is a fundamental economic unit of the contemporary world. Governmental cooperation, public policy, physical planning and economic strategies must reflect this new reality.
2. Metropolitan regions are finite places with geographic boundaries derived from topography, watersheds, coastlines, farmlands, regional parks, and river basins. The metropolis is made of multiple centres that are cities, towns, and villages, each with its own identifiable centre and edges.
3. The metropolis has a necessary and fragile relationship to its agrarian hinterland and natural landscapes. The relationship is environmental, economic, and cultural. Farmland and nature are as important to the metropolis as the garden is to the house.
4. Development patterns should not blur or eradicate the edges of the metropolis. Infill development within existing urban areas conserves environmental resources, economic investment, and social fabric, while reclaiming marginal and abandoned areas. Metropolitan regions should develop strategies to encourage such infill development over peripheral expansion.

5. Where appropriate, new development contiguous to urban boundaries should be organized as neighbourhoods and districts, and be integrated with the existing urban pattern. Noncontiguous development should be organized as towns and villages with their own urban edges, and planned for a jobs/housing balance, not as bedroom suburbs.
6. The development and redevelopment of towns and cities should respect historical patterns, precedents, and boundaries.
7. Cities and towns should bring into proximity a broad spectrum of public and private uses to support a regional economy that benefits people of all incomes. Affordable housing should be distributed throughout the region to match job opportunities and to avoid concentrations of poverty.
8. The physical organization of the region should be supported by a framework of transportation alternatives. Transit, pedestrian, and bicycle systems should maximize access and mobility throughout the region while reducing dependence upon the automobile.
9. Revenues and resources can be shared more cooperatively among the municipalities and centres within regions to avoid destructive competition for tax base and to promote rational coordination of transportation, recreation, public services, housing and community institutions.

*The neighbourhood, the district, and the corridor*

10. The neighbourhood, the district, and the corridor are the essential elements of development and redevelopment in the metropolis. They form identifiable areas that encourage citizens to take responsibility for their maintenance and evolution.
11. Neighbourhoods should be compact, pedestrian-friendly, and mixed use. Districts generally emphasize a special single use, and should follow the principles of neighbourhood design when possible. Corridors are the regional connectors of neighbourhoods and districts: they range from boulevards and rail lines to rivers and parkways.
12. Many activities of daily living should occur within walking distance, allowing independence to those who do not drive especially the elderly and the young. Interconnected networks of streets should be designed to encourage walking, reduce the number and length of automobile trips, and conserve energy.
13. Within neighbourhoods, a broad range of housing types and price levels can bring people of diverse ages, races, and incomes into daily interaction, strengthening the personal and civic bonds essential to authentic community.
14. Transit corridors, when properly planned and coordinated, can help organize metropolitan structure and revitalize urban centres. In contrast, highway corridors should not displace investment from existing centres.
15. Appropriate building densities and land uses should be within walking distance of transit stops, permitting public transit to become a viable alternative to the automobile.
16. Concentrations of civic, institutional, and commercial activity should be embedded in neighbourhoods and districts, not isolated in remote, single-use complexes. Schools should be sized and located to enable children to walk or bicycle to them.

17. The economic health and harmonious evolution of neighbourhoods, districts and corridors can be improved through graphic urban design codes that serve as predicable guides for change.
18. A range of parks, from tot lots to village greens to ball fields and community gardens, should be distributed within neighbourhoods. Conservation and open lands should be used to define and connect different neighbourhoods and districts.

*The block, the street, and the building*

19. A primary task of all urban architecture and landscape design is the physical definition of streets and public spaces as places of shared use.
20. Individual architectural projects should be seamlessly linked to their surroundings. This issue transcends style.
21. The revitalization of urban places depends on safety and security. The design of streets and buildings should reinforce safe environments, but not at the expense of accessibility and openness.
22. In the contemporary metropolis, development must adequately accommodate automobiles. It should do so in ways that respect the pedestrian and the form of public space.
23. Streets and squares should be safe, comfortable, and interesting to the pedestrian. Properly configured, they encourage walking and enable neighbours to know each other and protect their communities.
24. Architecture and landscape design should grow from local climate, topography, history, and building practice.
25. Civic buildings and public gathering places require important sites to reinforce community identity and the culture of democracy. They deserve distinctive form because their role is different from that of other buildings and places that constitute the fabric of the city.
26. All buildings should provide their inhabitants with a clear sense of location, weather and time. Natural methods of heating and cooling can be more resource-efficient than mechanical systems.
27. Preservation and renewal of historical buildings, districts and landscapes affirm the continuity and evolution of urban society.

## **5.6 Traditional Neighbourhood Development (TND)**

Traditional Neighbourhood Development (TND) is essentially a form of new urbanism, or new urbanism by another name. Early proponents were the town planning firm of Duany Plater – Zyberk and Company, which enunciated the new urbanism principles for neighbourhoods into thirteen traditional neighbourhood design elements, these being:

1. the neighbourhood has a discernible centre; this is often a square or a green, and sometimes a busy or memorable street corner; a transit stop would be located at this centre
2. most of the dwellings are within a five minute walk of the centre, an average of roughly 600 m
3. there is a variety of housing types – bungalows, row houses and apartments – so that younger and older people, singles and families, the poor and the wealthy may find places to live
4. there are shops and offices at the edge of the neighbourhood, of sufficient variety to supply the weekly needs of the household

5. a small ancillary building is permitted within the backyard of each house; it may be used as a rental unit or a place of work
6. an elementary school is close enough so most children can walk from home
7. there are small playgrounds near every dwelling (no further than 160 m)
8. streets within the neighbourhood are a connected network, which disperses traffic by providing a variety of pedestrian and vehicular routes to any destination
9. the streets are relatively narrow (and shaded by rows of trees) to slow traffic and create an environment suitable for pedestrians and bicycles
10. buildings in the neighbourhood centre are placed close to the street, creating a well defined 'outdoor room'
11. parking lots and garage doors rarely front on the street; parking is relegated to the rear of lots and buildings, usually accessed by lanes
12. certain prominent sites at the termination of street vistas or within the neighbourhood centre are reserved for civic buildings to provide for community meetings, religious assembly, education or cultural activities
13. the neighbourhood is organized to be 'self-governing'; a formal association debates and decides on matters of maintenance, security and physical change (taxation is the responsibility of the city).

## 5.7 Summary

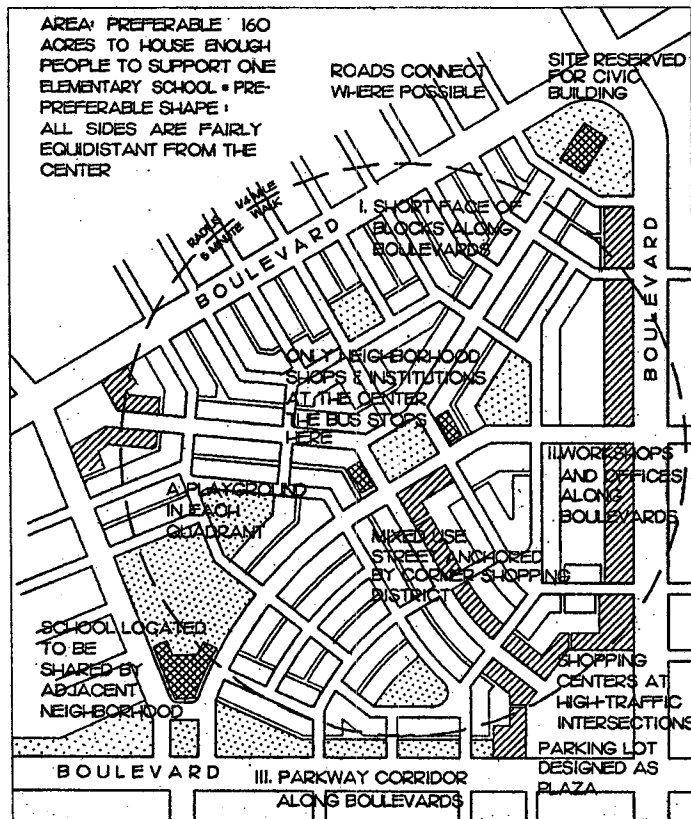
As noted by the Urban Land Institute, the proponents of smart growth, new urbanism and traditional neighbourhoods are responding to desires for the re-creation of more livable communities. While some movements may emphasize different aspects, each is interested in better development and better communities based on the notion of economic, environmental and social sustainability. To summarize the many planning principles and design elements put forward by the sustainable community, smart growth, new urbanism and traditional neighbourhood development movements, the following lists key elements in more contemporary neighbourhood planning. Sketches are included to provide a visual dimension to the elements.

From new urbanism, the key design attributes of neighbourhoods are (see Fig. 5.1):

- the neighbourhood has a centre and an edge
- the neighbourhood has a balanced mix of activities: shopping, work, schooling, recreation and all types of housing
- the ideal size of the neighbourhood is 160 acres, being generally equidistant (one quarter mile – five minute walk) from centre to edge
- neighbourhood streets are detailed to provide equally for the pedestrian, the bicycle and the car
- the neighbourhood gives priority to the creation of public space and to the appropriate location of civic buildings, with a school being at the edge so it is shared by the adjacent neighbourhood
- large open space (sports fields) associated with school, but also a playground in each quadrant.

The traditional neighbourhood design elements are similar to those of new urbanism design elements are shown in Figure 5.2, these being:

- the school is at the edge so it can be shared by several neighbourhoods and playing fields are seen as inhibitors of pedestrian access to the centre portion of the neighbourhood



DUANY PLATER-ZYBERK'S DIAGRAM OF AN URBAN NEIGHBORHOOD

FIGURE 5.1

#### TRADITIONAL NEIGHBORHOOD DEVELOPMENT

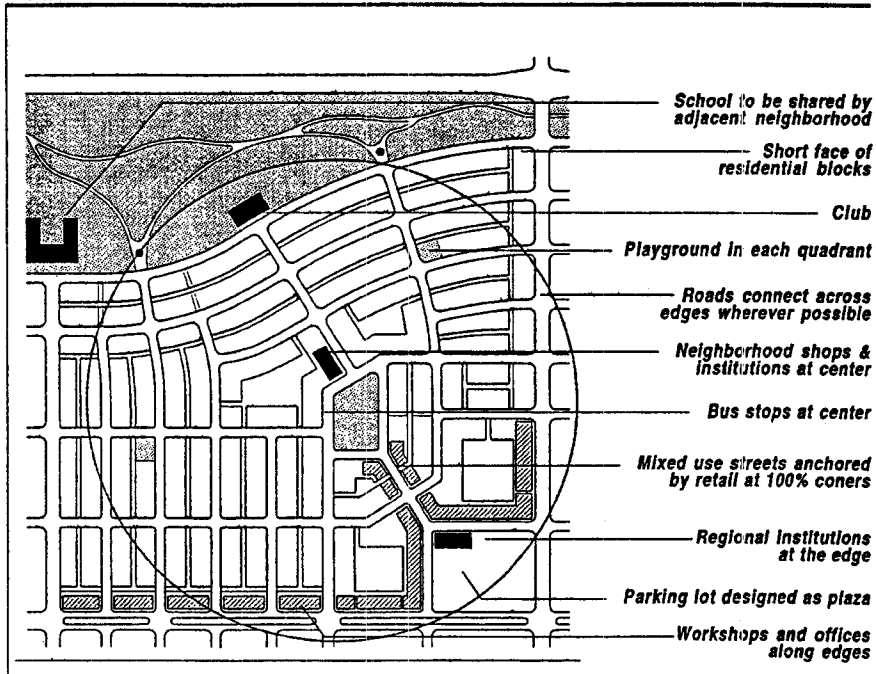


FIGURE 5.2

## 6.0 COMPENDIUM OF IDEAS AND PRACTICES

### 6.1 Introduction

The section presents a summary of neighbourhood planning ideas and practices. It does so in terms of:

- What Red Deer does pretty well
- What Red Deer can learn.



The ideas and practices have been assembled from neighbourhood plans for a multitude of communities across the United States and Canada, as reported in Background Report No. 5 – Sustainable Communities: Compendium of Ideas and Practices. This section contains only a summary of ideas for neighbourhood design, these being extracted from Report No. 5. As reference and 'learning' tools, the various chapters from Report No. 5 containing the 'details' of ideas and practices are appended to this report.

The compendium of ideas and practices are reported in terms of the following design elements:

- Neighbourhood form
- Housing
- Open space
- Gathering places
- Social aspects
- Circulation/connections
- Utility services.

### 6.2 Neighbourhood Form

The forms of neighbourhood development in the United States and Canada, including Alberta, were reported in Chapter 2 of Background Report No. 5 – Sustainable Communities: Compendium of Ideas and Practices. Appendix 1 of this 'Growing Smarter' Report is Chapter 2. The following is a summary of the general aspects of neighbourhood form in terms of seven design elements: identity, mix of land uses, housing, open space, centres, corridors and streets. Because 'form' represents the general base for neighbourhood design, many of the neighbourhood design aspects presented in Section 6.2 may be repeated or provided in greater detail in the subsequent sections of this chapter.

#### What Red Deer Does Pretty Well

Identity:

- The current practice of naming neighbourhoods after pioneer families works well; identity aided since street names commence with the same first letter
- Red Deer neighbourhoods conform to the current theory/practice that the size should be about 160 acres to provide for a five minute walk from the edge to the centre
- Collector road entrances have become more attractive
- Edges along major arterials are distinct – usually with landscaped boulevard

### Mix of Land Uses

- Reasonably 'balances' market conditions with community needs – a variety of housing types, schools, parks and playgrounds are provided; convenience shopping not always; policies provide opportunities for institutional uses within neighbourhoods

### Housing

- A variety of housing types are provided to respond to the market
- Some areas have distinct housing appearance

### Open Space

- Public open spaces are well demarcated, bordered by roads, lanes or fences
- Emphasis in the past on major central sports fields lessened the ability to dedicate more linear green spaces and parkettes
- Parkettes now more frequently provided, but not always with 'strong' locations
- Linked pathway system has become more important
- Red Deer uses the Ecospace Inventory and applies to neighbourhood design planning to conserve natural areas

### Centres

- Usually is a school with a sports field complex; recent actions to include community shelter designed for multi-purposes as part of the school
- Prominent 'civic' site is usually a school on large site to accommodate sports fields

### Corridors

- Collector roads link central park to entryways, which may have a neighbourhood or district shopping site

### Streets

- Clear street hierarchy – arterial, series of collectors, local roads and (usually) lanes to disperse and collect traffic
- Although street patterns are dominated by curvilinear patterns, there is good interconnection of neighbourhoods
- All neighbourhoods are planned to have transit service along a collector road with a bus stop within 400 m of 90% of the homes

### What Red Deer Can Learn

#### Compendium of Identity Ideas for Red Deer's Neighbourhoods

1. Design for integrated neighbourhood communities of up to four neighbourhoods (640 acres)
2. Establish attractive and vital focal point(s) or landmarks
3. Emphasize vistas
4. Create highly desirable and strategically gathering places
5. Emphasize significant buildings, especially public community buildings by placing them in prominent locations
6. Need trail entrance features (if separate from entry roads)

7. More emphasis on streetscapes (great streets don't just happen)
8. More architectural guidelines

#### Compendium of Mix of Land Uses Ideas for Red Deer's Neighbourhoods

9. Locate school on the edge to share with other neighbourhoods
10. More work places and range of employment opportunities
11. Plan a variety of parks/public open spaces
12. Ensure the provision of gathering places – a mix of commercial, public, cultural, recreational, etc
13. Promote mixed use buildings
14. Bring back the corner store and other neighbourhood shops so that people can shop without driving.

#### Compendium of Housing Ideas for Red Deer's Neighbourhoods

15. Plan for higher densities
16. Accommodate housing above ground floor commercial
17. Provide for secondary units (suites) including housing above garages
18. Emphasize porches and verandas, not front garages
19. Allow residential structures closer to the street

#### Compendium of Open Space Ideas for Red Deer's Neighbourhoods

20. Provide more parkettes – at least three per neighbourhood
21. Provide a Village Green, at least two acres in size as a social gathering area
22. Include one or more continuous greenways/pathways
23. Locate sports fields on the edge to share between neighbourhoods
24. Design for a walkable community - linked pathways, including sidewalks
25. Locate parks where people like to go; do not locate as an afterthought

#### Compendium of Neighbourhood Node Ideas for Red Deer's Neighbourhoods

26. Promote the development of a variety of identifiable neighbourhood centres, including one multi-neighbourhood centre per multi-neighbourhood
27. Facilitate at least one centre per neighbourhood so that each neighbourhood community (neighbourhood cluster) has a variety of centres, being a mix of uses
28. Direct shops and services to highly accessible 'centres' located at the entrance to the neighbourhood (i.e. at the edge of the neighbourhood)
29. Provide for mixed use centres – retail, higher density housing, parks, transit stop
30. Where appropriate, allow buildings built to front property line at centre locations

#### Compendium of Corridor Ideas for Red Deer's Neighbourhoods

31. Promote a 'main street' which has a strong pedestrian emphasis, with the main street extended to link neighbourhoods
32. Link neighbourhood centres by paths and/or street corridors
33. Provide well defined public realms

#### Compendium of Street Ideas for Red Deer's Neighbourhoods

34. Use more modified rectilinear grids which can employ a balance of curved and straight streets



35. Connect neighbourhoods not only with at least one collector road but also a number of local streets
36. Reduce the number of cul-de-sacs, and connect streets so that pedestrians, bikes and autos can travel in short, convenient routes
37. Promote tree lined streets
38. Employ traffic calming measures such as narrower streets with on-street parking, centre boulevards
39. Make front garages to be less obtrusive and build homes (where possible closer to the street) with porches or verandas to encourage social interaction.

### **6.3 Housing**

This section provides a summary of housing aspects with respect to planning for Red Deer's neighbourhoods. This summary comes from Chapter 4 of Background Report No. 5 – Sustainable Communities: Compendium of Ideas and Practices (see which Appendix 2). Reported below are the housing aspects being done generally well in Red Deer and others from which Red Deer could learn.

#### What Red Deer Does Pretty Well

Taken as a whole, housing in Red Deer's newer neighbourhoods reflects several of the general principles and suggested directions that promote more sustainable neighbourhoods. The following major observations are noted:

- Housing mix in newer neighbourhoods is fairly good (approximately 18 percent multi-family and 82 percent low density) though the multi-family share of total housing units appears to be slipping and in decline compared to historic levels. A variety of single detached dwellings serving starter, move-up and upper end markets is available in the newer neighbourhoods. Individual newer neighbourhoods, based on the current standard of a single quarter section, typically are serving at least two to three segments of the housing market.
- Integration of varying housing types is being achieved with modules of different housing forms and market segments existing in relatively close proximity. Large scale concentrations of multi-family housing are generally being avoided in favour of smaller sites dispersed throughout neighbourhoods.
- Design and architectural features that assist a variety of housing forms and types integrate into a single residential areas are being employed. Townhouse developments in the newer neighbourhoods are making use of vertical articulation techniques to create appealing street front appearances. Larger scale multi-family developments are making use of varied roof pitches, gables and both vertical and horizontal articulation techniques. Single detached dwellings are typically subject to architectural controls to establish a similar character along a street.
- Mixed use buildings in the form of residential units above commercial space are allowed though there are no examples in the newer neighbourhoods.
- Higher density housing is generally directed to locations close to transit routes and major open space areas. There are no purposefully developed neighbourhood nodes or "urban villages" for multi-family to cluster around in newer neighbourhoods.

- Lanes are provided and enable the placement of garages to the rear of houses to create a more interesting streetscape. Porches are allowed to encroach into front yards to create more intimate streetscapes and better use of required front yards.
- Opportunities for live/work areas largely through compatible home occupations in residential areas are allowed (approximately 680 presently exist throughout Red Deer).
- Work at home to reduce the number and length of work trips.

### What Can Red Deer Learn and Possibly Improve

There is a number of ways planning for housing in Red Deer could be changed to promote the development of more sustainable neighbourhoods. Seven ideas that have potential application in Red Deer are listed below.

- 1: Promote, encourage and allow the development of accessory suites throughout new residential areas.

The development of accessory suites should be promoted in the development of new residential areas as a means of achieving a greater diversity in the range of housing options available and a higher degree of housing affordability. Diversity in the range of housing is directly influenced by the provision of smaller dwelling units suitable for one or two person households. Housing affordability is influenced by the provision of a greater number of smaller rental accommodation units and generating a revenue stream for the owner of the principal dwelling unit.

- 2: Require a minimum housing mixture comprised of no less than 20 percent of the total units in a quarter section being multi-attached housing (containing three or more dwelling units) and no less than 60 percent of the total units being single detached and semi-detached dwellings.

The intent is to ensure that opportunities for multi-family housing are available in newer neighbourhoods at levels slightly higher than what is currently being achieved. This responds to the general trend in demographics towards smaller households (single seniors, empty nesters, singles, single parent households) and anticipated future need. At the same time, the intent is to avoid large concentrations of multi-family development in a single quarter section.

- 3: Not to allow very low density neighbourhoods in the future, instead requiring that the minimum neighbourhood design density to be 12.35 dwelling units per gross developable hectare (5 du/gross developable acre) if major utility infrastructure so permits (gross developable area is the total area of land in title less land for: environmental reserve; major roads (expressways and arterials); regional and district commercial sites; industrial uses; high schools and sports fields additional to municipal reserve land dedicated for these purposes and, as determined by the City, special land uses sites, constructed wetlands and retention (wet) ponds or portions thereof that have high aesthetic values.

The intent of the minimum density requirement is as follows:

- Encourage more efficient use of land to accommodate housing than is currently being experienced
- Support the public transit system by providing the minimum level of density needed to support effective bus service
- Provide a greater base of customers for local commercial areas
- Reduce per dwelling unit infrastructure costs on average
- Reinforce the intent to provide for a diverse mix of housing types, forms and sizes.

If some density latitude is to be provided by the City, the calculation of the minimum density target should be applied to a multi-neighbourhood community to allow for areas of differing density and character. Since some developers specialize in the City may wish to consider mechanisms that allow for the transfer of density and obligations from one developer to another within a multi-neighbourhood. One of the trade-offs that may be required to enable developers to meet the minimum density target is an increase in the permitted, “as of right” density of R-3 sites from its current limit of 35 units per hectare to 50-60 units per hectare.

- 4: Restrict the application of the existing maximum density cap (i.e. 45 persons per gross hectare) to residential areas where a Neighbourhood Area Structure Plan has already been approved (but, provide for amendment to a higher density if major infrastructure so permits and a development which promotes a higher density is acceptable to the neighbourhood through the public hearing process).

The rationale for this is based on the fact that restricting maximum density does not contribute towards more sustainable neighbourhoods and concerns regarding excessive concentrations of multi-family housing can be addressed through housing mix policies.

- 5: Limit the concentration of multi-family (non-apartment) and narrow lot single detached housing to modules of approximately 50 to 60 units with individual modules being separated by different housing forms or land uses.

The intent is to create a more fine-grained integration of housing types while still allowing for the creation of unique character/identity areas focused around a single street or close. For instance, a p-loop of R1N single detached dwellings may be located to the back of a tier of R1 single detached dwellings along the collector road. An example of this approach is the adopted plan for the Lonsdale area in Lancaster East where R1 single detached, R1N narrow lot single detached and R1A semi-detached are integrated on a street-by-street basis. This same plan however creates a sizeable concentration of R1N narrow lot housing that would not necessarily meet the intent of the proposed policy.

- 6: Investigate ways the City's Land Bank role could facilitate the long-term availability of multi-family sites and prevent their conversion to low density forms of housing.

The City generally has the ability to hold land over longer periods of time than the private development industry and can therefore afford to take a longer-term view to the provision of sites for multi-family development. A general trend within the housing industry is to "look 18 months out in the market" in deciding the type of lots to provide. When the market for multi-family development is "hot" there tends to be a supply of lots available to developers who specialize in multi-family developments. When the market for multi-family is "cool" or the market for low density residential housing holds the potential for higher returns there is a tendency for the supply of multi-family sites to become more constrained. Preserving sites for multi-family development that may occur after the low density residential portion of a neighbourhood has built out ensures that housing diversity will be provided over the long term.

- 7: Allow for reduced front yards and reduced lot depths for single detached dwellings.

The intent is to support the creation of more intimate and interesting streetscapes by bringing the house closer to the front of the lot. The reduced lot depth is intended to allow for some increase in density within the low density residential districts with lot depth reduced by the same amount as the front yard requirement.

Application of this idea is not new in Alberta. Consideration must be given to the nature of municipal servicing in calculating the amount the front yard may be reduced. To be most successful in influencing the character of the street, reduced front yards must be consistently applied and a mandatory "build-to" line may be necessary.

## **6.4 Open Space**

From the research of other practices and ideas regarding open spaces and 'treescaping' in other communities, a multitude of open space design ideas and practices are evident across North America. Appendix 3, being Chapter 5 from Background Report No. 5 – Sustainable Communities: Compendium of Ideas and Practices reports on open space ideas for neighbourhoods. The following synthesizes these into what Red Deer is doing pretty well and what aspects Red Deer could learn from to 'better' design new neighbourhoods.

### What Red Deer Does Pretty Well

- Requires in each neighbourhood a well-designed, multi-faceted central sports fields park
- Requires sports fields to be an integral part of school sites
- Facilities a variety of opportunities for people having different ages, interests and abilities
- Provides landscaped buffer strips along arterial roads

- Connects neighbourhoods to city-wide trail system
- Conserves natural features
- Integrates 'woodlots' into community design for passive recreation enjoyment – a path through, a stopping point for rest and quiet moments

#### What Red Deer Can Learn and Possibly Improve

1. A greater proportion of open space should be in smaller neighbourhood parks, greens and linear greenways, and less on sports fields
2. Locate sports fields near or straddling the edges of neighbourhoods (promote sharing)
3. Bring back the traditional village green ('town square') near to shops where people can socialize and kids can play
4. Provide more vicinity parks (parkettes)
5. Emphasize open space links, including continuous greenways for walking and cycling
6. Configure (including joint use sites) to form, wherever possible, a linked system of trails and greenways
7. Think about constructed wetlands for water gardens and habitat viewing
8. Utilize wet ponds as scenic amenities and winter skating areas
9. Place a higher priority on designing streetscapes, including the use of trees
10. Explore the adoption of a tree preservation bylaw.

### **6.5 Gathering Places**

Since neighbourhoods should be designed to facilitate social interaction among neighbours, an important neighbourhood design aspect is the provision of a variety of places where people, whether in small number or in large groups, can gather. Appendix 4, being Chapter 6 of Background Report No. 5 – Sustainable Communities: Compendium of Ideas and Practices, reports on the role that gathering places play in sustainable neighbourhoods and provides an overview of the attributes and forms of gathering places in new neighbourhoods across North America. These aspects and ideas are summarized below.

#### What Red Deer Does Pretty Well

The provision of gathering places in Red Deer's newer neighbourhoods embraces some of the trends and design components that encourage more sociable neighbourhoods.

- The joint use of sites for school and community purposes has been a key characteristic of new neighbourhoods for several years and is being expanded to include the joint development of school and community centre buildings
- Sites are identified in newer neighbourhoods to allow opportunities for churches and religious assemblies
- Interesting features that attract pedestrian activity are being incorporated such as the trail around the wet storm pond in Anders on the Lake
- Neighbourhood level and district level commercial areas are included in newer areas and usually have a transit stop nearby

## What Can Red Deer Learn and Possibly Improve

Planning for gathering places in Red Deer's newer neighbourhoods could do more to promote the idea of sustainability. Ideas that have potential for application are listed below.

1. Encourage the creation of gathering places through the clustering of commercial uses, public buildings, recreation amenities and open space areas
2. Enable the creation of more desirable and diverse forms of gathering places throughout new neighbourhoods in conjunction with a more flexible approach to the use and distribution of municipal reserve dedication. This includes possibilities for parkettes (where possible linked by linear parks
3. Special public 'realm' areas could be highly designed and landscaped to attract and facilitate social gatherings, both large and small
4. Place more emphasis on the creation of attractive, pedestrian-friendly streetscapes
5. Place more emphasis on the development of neighbourhood or activity nodes that include joint use sites for schools and churches where possible
6. Develop a hierarchy of gathering places serving local (small, immediate area) neighbourhood (quarter section) and community (section) needs to provide for gathering opportunities at each level and distributed opportunities throughout the community
7. Allow opportunities to cluster mailboxes as part of the central focal area for new neighbourhoods.

### **6.6 Social Aspects**

This section provides observations on how planning for Red Deer's newer neighbourhoods take into account social considerations, including suggestions of potential areas of improvement. This is a summary of Appendix 5, which is Chapter 8 from Background Report No. 5 – Sustainable Communities: Compendium of Ideas and Practices.

## What Red Deer Does Pretty Well

The design of Red Deer's newer neighbourhoods reflects some of the suggestions and trends that can contribute towards more socially sustainable and inclusive neighbourhoods. The following major observations are noted:

- Sites are identified and planned in newer neighbourhoods to allow opportunities for churches and religious assemblies which address spiritual needs and provide venues for cultural and social activities and events. Similarly, social care sites are also provided. Several of these have been developed
- Public transit is available to provide access to amenities, services and employment opportunities outside of individual neighbourhoods
- Neighbourhood level and district level commercial areas are included in and planned for newer areas and usually have a transit stop nearby
- Home occupations are allowed throughout residential districts and this option has been taken advantage of by many individuals

- The joint use of sites for school and community purposes has been a key characteristic of new neighbourhoods for several years and is being expanded to include the joint development of school and community centre buildings. This provides a venue for social, cultural and recreational activities in a location that is typically within walking distance of most neighbourhood residents
- Front porches are becoming more prominent and common place in some of the newer neighbourhoods though there remains 15 feet or more distance between the porch and the edge of the sidewalk.
- The amount of windows and entranceways oriented to the street to increase observation is higher in some newer areas (e.g. narrow lot housing area) than others
- Safety considerations are taken into account in the design of open space areas and road systems (i.e. emergency vehicle access provisions) within newer neighbourhoods. There remains some concerns with older segments of the trail system where emergency vehicle access is limited
- Opportunities for casual observation of open space areas are evident in newer neighbourhoods though many streetscapes remain dominated by front attached garages.

#### What Red Deer Can Learn and Possibly Improve

Planning for social sustainability in Red Deer's newer neighbourhoods could be enhanced. Ideas that have potential for application are listed below.

1. Place more emphasis on the creation of attractive, pedestrian-friendly streetscapes that provide high levels of natural or casual surveillance and facilitate contact between neighbours
2. Use CPTED principles of "eyes on the street" when planning open space areas, gathering places and commercial centres
3. Place more emphasis on the development of neighbourhood or activity nodes that include joint use sites for schools and churches where possible to increase opportunities for social interaction
4. Develop a tool to assess social implications in land use planning decisions and ensure that social needs are incorporated into community and neighbourhood design
5. Investigate ways to increase the amount of local employment opportunities both in terms of numbers and wage levels within multi-neighbourhoods without creating potential land use conflicts
6. Expand, where feasible, opportunities for increased commercial development and mixed use development integrated into planned community activity centres and neighbourhood nodes
7. As new multi-neighbourhoods are planned farther out from the existing edge of development, review the need to provide a new major employment area that would ensure future residential areas fall within 3-5 miles of major sources of employment
8. Work with school authorities to understand lifecycle changes in student generation within neighbourhoods based on local experience and ensure school and community facilities can adapt to changing needs over time

9. Consider lifecycle changes over the long term when planning new communities and neighbourhoods in terms of future housing, recreation and social needs. This includes ensuring sites for long term needs remain available and are not sacrificed to short term considerations.

## **6.7 Circulation/Connections**

As a summary of Appendix 6, being Chapter 3 of Background Report No. 5 – Sustainable Communities: Compendium of Ideas and Practices, this section provides an overview of neighbourhood design aspects related to roadways, lanes, trailways and transit services. Since the automobile greatly facilitates the contemporary ‘way of urban life’ neighbourhood planning must accommodate motor vehicles in a manner that promotes both convenience and safety. Nonetheless, other means of circulation are also important, they being walking (for trips within the neighbourhood) and transit (for trips outside the neighborhood).

### What Red Deer Does Pretty Well

- Well organized and interconnected major street network with arterial roads generally 1600m apart and collector roads into neighbourhoods no more than 535 m apart
- Collector roads link at least two neighbourhoods together and serve to disperse traffic to local streets
- Matches road widths to function and winter city needs for snow plowing
- Prefers laned lots, thus providing relief from on-street parking and front driveways should home owners so prefer
- Wider paths (sidewalks) required along arterial roads for walking and biking, with some connections into neighbourhoods along collector streets

### What Red Deer Can Learn and Possible Improve

1. Provide hybrid road networks within neighbourhoods to promote greater interconnection within multi-neighbourhoods, being still a functional interconnected street system with more route options for drivers; the advantages of the traditional grid system and the contemporary road network can be combined into a hybrid network, offering the mobility of the grid and the safety and topographic sensitivity of the contemporary network. If properly designed, hybrid networks offer aesthetics and variety, yet is easily perceived by travelers. Short curved streets and short loops and cul-de-sacs are appropriate as long as the higher-order street network is left intact (i.e. arterials, collectors and sub-collectors that carry through-traffic).

A neighbourhood with a system of interconnected streets and sidewalks is an ideal environment for walking, cycling and using public transit, offering a wider variety of route options to drivers and pedestrians, and more direct linkages between homes, shops, schools, parks and workplaces.

2. Be open to innovations in residential street types and approaches to parcels that would suit or promote the proposed character of part of neighbourhood. These innovations may include shared driveways, cluster garages, private parking courts, mews, minor streets, traditional streets,



major streets and grand boulevards, each serving a specific access function depending of the type and density of residential land uses.

Several neighbourhood design factors should be taken into account when applying these street types: traffic volumes, house-to-street relationships, building scale and types, lot frontages and parking treatment, on-street parking, sidewalks and rear lanes.

The major benefit of applying a variety of street types in specific neighbourhood contexts is that the street design features are appropriate to its specific function - the street is adequate for safe vehicular movement and on-street parking, while it is not overbuilt and has a functional, livable scale to it. Less land per lot is consumed for roadways, which saves rural lands and may result in lower housing unit prices. A variety of street types can be developed to create an interesting and charming streetscape, while street elements can be designed to make drivers slow down. Eventually, streets regain their lost social function, which returns the local residential street to the people.

### 3. Narrow the residential streets

“There is a growing consensus that streets, particularly local ones, are over designed, at substantial cost to society” – so say not only the ‘livable cities movement’ or the ‘sustainable development crowd’, but the American Society of Civil Engineers, the National Association of Home Builders and the Urban Land Institute (from ‘Best Development Practices’ p. 69, Reid Ewing, 1996).

Narrower streets help to create a more pedestrian friendly environment, while still accommodating vehicles at slower speeds, and thus making residential streets shared spaces used for many purposes. Narrower streets carry less traffic volumes at slower speeds, require less asphalt and energy to be constructed, save on site development costs (more lots per linear distance; street lights required on one side only) and these savings can be passed on to homebuyers and renters.

### 4. Employ traffic calming measures to control the volume of traffic, the speed of traffic or both. Traffic calming measures must be employed as part of a comprehensive strategy to visually and psychologically remind drivers to slow down, or else the measures taken may create driving hazards.

Examples of traffic volume control measures include street closures, restrictive one-way street patterns, diverters at intersections, and turn restrictions. Speed control measures include speed humps/speed tables, short streets, small setbacks, street trees, textured pavement, traffic circles, sharp bends and chicanes (S-curves), and narrowings at mid-block or at intersections.

Other devices or roadway design standards that influence traffic speeds in a wide range of applications (and tend to keep through traffic off the local streets) include:

- Reduced building setbacks
  - Intersections with reduced curb radii or tight, right-angled corners
  - Plant trees closer to the curb
  - Allow more on-street parking
  - Include centre boulevards
  - Make shorter blocks
  - Design 'bulbed' sidewalks at mid-block pedestrian crossings
  - Raised pedestrian crossings.
5. Provide more lots with only rear lane access for off-street parking
- Rear only access for off-street parking, including rear garages, means that the lot frontage as well as building setbacks in the front yard can be reduced, which helps achieve more compact development (front attached garages create multiple curb cuts which make sidewalks less safe, restrict space available for on-street parking and tree planting, require deeper front yards and have cost implications for snow plowing along collector streets).
- Rear lanes in subdivisions require the consideration of design aspects such as security and safety (allowing for views from adjacent houses), level of service expected by residents (e.g. snow removal, paving, lighting, etc) and facilitating service vehicle access (e.g. no dead end lanes or requiring turning circles).
6. Provide continuous, interconnected and direct trailways within and across neighbourhoods to key destinations

Within a neighbourhood a trail system should consist of a series of trails, including paved sidewalks, paved or shale trails across mid-block shortcuts, and greenway trails (whether paved, shale or grass) within a linear park and park nodes. The term 'greenway' encompasses the idea of a walking/cycling corridor (with due consideration for personal safety) across a neighbourhood which includes dedicated paths for various modes of movement. A greenway can be part of a storm water management facility or a linear park, but it may also include natural areas. It can be purposely designed to provide a continuous connection within and between neighbourhoods and key destinations.

## **6.8 Utility Services**

This section is a summary of Appendix 7, being Chapter 7 of Background Report No. 5 – Sustainable Communities: Compendium of Ideas and Practices. It provides an overview of sustainable ideas and practices related to solid waste management, energy consumption, water supply, wastewater discharge and stormwater management.

Many aspects of these services are often designed and provided on a scale larger than one neighbourhood or multi-neighbourhood. Often, benefits accruing from pursuing sustainable development practices are reflected at the City-wide level.

## What Red Deer Does Pretty Well

### *Waste Management*

- The City's Solid Waste Master Plan (1998) contains goals and policies which are aligned to the principles of a sustainable materials management system.
- The City's new waste management facility (opened in 2001) employs modern technology and practices, such as hazardous waste disposal measures, materials sorting facilities, recycling and education programs, and the future option to generate energy from methane gas burning
- Approximately 75% of all single family households in the City participate in the blue box recycling program. Presently all apartment buildings are provided with waste bins.

### *Energy Management*

- In administering the Alberta Building Code the City promotes energy-efficient practices to ensure that the minimum energy-efficiency standards are maintained
- Street lights in Red Deer are controlled by photocell switches to conserve energy and operating/staffing cost
- Street light bulbs that consume less energy for the same light strength are being used in new subdivisions, and in the older areas old technology bulbs are replaced with new standards as they fail over time. Almost all the City areas have been upgraded
- New technologies and innovative efficiency equipment as permitted by TAC standards and budget constraints are pursued.

### *Water Supply and Wastewater*

- The City assesses the need for watering major sports fields on the basis of recent rainfall measurements.

### *Stormwater Management*

- The City's 'Design Guidelines 2002' promotes the use of dry (detention) ponds for stormwater management, as well as wet (retention) ponds upon special approval by the City
- Detention ponds are designed to also serve as a park and/or sport field.

## What Red Deer Can Learn and Possibly Improve

### *Waste Management*

- To extend the blue box program by requiring recycling facilities at all new multifamily developments, even for small developments such as fourplexes
- The City could consider policies to encourage builders to practice on-site sustainable materials management, such as equipping all construction sites with a waste bin partitioned for the sorting of debris; collect, sort and transport all recyclable waste to identified recycling facilities, and provide a

temporary facility for storing reusable construction materials during the building phase to facilitate the exchange of materials otherwise wasted

- The City could also encourage developers to plan and design for the provision of recycling facilities at neighbourhood centres, and to equip all new multi-family buildings with bins for sorting recyclable dry waste and a permanent composter for degradable wet waste and yard waste.

### *Energy Management*

- The City could engage in an information/education program to promote the use of special insulation or light fixtures in homes and public buildings.
- The City could require of developers to provide each dwelling unit in a multiple family building with its own electricity meter – this would improve consumer awareness of their individual usage and actual costs, and could well lead to more energy efficiency.
- The City could incorporate the following facts/ideas as an appendix in the 'Planning & Subdivision Guidelines' policy document re: energy management:
  - Dwelling unit orientation – large windows should be within 15 degrees of due south to make the most use of direct solar radiation gain. At the same time, the ideal would be to orient dwelling units to avoid the full blast of winter winds
  - As a general rule streets should be oriented in an east-west direction with lots allowing the orientation of large windows within 15 degrees of due south and away from prevailing winter winds
  - Trees on the north and west boundaries of a site can screen individual lots or entire subdivisions from the prevailing winter winds
  - Use the sun for heating and lighting to reduce energy costs and air pollution
  - Use trees and community gardens for cooling to reduce energy costs and improve the pedestrian environment.

### *Water Supply and Waste Water*

- The City could educate and encourage residents and builders with regards to efficient water use principles and practices, including:
  - Encouraging and requiring the use of energy and water-saving appliances to cut water use.
  - Methods for limiting the use of water should be promoted, such as low water vegetation landscaping, which minimizes water use and slows down stormwater runoff, allowing greater absorption.
- Maximize water reuse, particularly where this can be accomplished with minimum intermediate treatment, such as grey water irrigation from rooftop run-off and household water reuse. designed on a neighbourhood-by-neighbourhood basis.

### *Stormwater Management*

- Revise the stormwater management policy to include and promote a wider range of alternative stormwater management technologies and practices where appropriate in terms of site conditions and costs (e.g. on a site specific, small scale basis), even if these are allowed only as exemptions to the policy.

- Types of on-site stormwater management systems include spray and drip irrigation systems, free water and subsurface-flow constructed wetlands, ponds and lakes, swales, protected open lands, surface and subsurface infiltration or recharge beds, reduction of impervious surfaces and solar aquatic systems.
- Investigate a policy for constructed wetlands as an acceptable standard technology for stormwater management in Red Deer.
  - The guiding principle should be to plan and design, where applicable and where site conditions allow, for on-site stormwater recharge through wetlands rather than stormwater detention, piping and discharge away from the site – to maintain the water balance and natural hydrological cycle on a particular site, and cumulatively that of the larger system.
  - To promote natural drainage systems and minimize downstream flooding, erosion and sedimentation of waterways, allowance should be made for overland flow through ground vegetation or bio-retention swales, which maximizes infiltration and aquifer recharge. In this regard:
    - plan for the provision of surface drainage easements; and
    - design to reduce the overall area of paved surfaces.
  - Avoid detention basins unless recharge is not feasible. If detention is used, provide additional NPS pollutant removal treatment processes.
- The City could consider the following aspects and best management practices for stormwater management at the neighbourhood planning and design level for incorporation into its stormwater management policy, the 'Design Guidelines' and the 'Planning & Subdivision Guidelines':
  - Public stormwater management facilities could be integrated into the overall open space system, ensuring that their location and configuration complement the open space system, reinforce views and accommodate public access for social interaction and passive recreational use.

## 6.9 Fiscal Considerations

Appendix 8 of this report is a copy of Chapter 9 of Background Report No. 5 – Compendium of Ideas and Practices. This chapter looked at the costs of various growing smarter neighbourhood planning initiatives. While often specific to particular site developments and therefore circumstances that may differ from case to case, including those in Red Deer, the general trends and findings noted in the case studies are indicative of fiscal considerations in developing more sustainable neighbourhoods. The general findings of the aforementioned Chapter 9 are:

- In developing neighbourhoods, the capital costs for all infrastructure services except stormwater facilities are highly sensitive to lot size and net density, and sensitive to gross density.
- The capital costs of linear infrastructure on a multiple neighbourhood level are highly sensitive to gross density.
- In higher density neighbourhoods, such as neo-traditional communities, the greater length of streets and lanes increases the total infrastructure cost, but the cost per unit can be lower than in 'conventional' neighbourhoods. In Red Deer where lanes are already provided, the increase in the total infrastructure costs may be less than expected.

- Infrastructure costs on a neighbourhood level are significantly reduced when only a slight increase in residential density is achieved. These savings have a much less noticeable impact at the city level.
- On a life-cycle basis the infrastructure costs of compact, denser neo-traditional community plans are about 7.5% more cost effective than conventional plans, and almost two-thirds of these savings are public savings.
- One study (St. Albert 1991) indicated that residential areas with large lots and large houses generated the most favorable net municipal revenue in relation to services required, as compared to neighbourhood scenarios with much higher densities, including large portions of small houses and multi-family dwellings; this is relevant to note with respect to the often held perception that increased density would improve a municipality's net revenue; also relevant to note is that while a neighbourhood of large lots and large homes may be favorable from a net revenue perspective, such neighborhoods are land consumptive, do not address the multiplicity of housing needs of a community, and produce homogeneous neighbourhoods
- Considering that private capital cost savings are achieved in neo-traditional community plans, these savings could possibly be passed on to consumers (home buyers).
- It is the cost of linear infrastructure services that are significantly reduced in neo-traditional community plans. Overall per unit savings are less obvious when the cost of non-linear community services infrastructure are factored in.
- Consumer preference may very well determine whether the new urbanism will become standard practice or fade away as a trend. There are suggestions in the literature that a growing market - namely the aging 'baby boomers' and the maturing generation X-ers - is emerging for sustainable neighbourhoods built on 'smart growth' principles.

## **7.0 RED DEER'S SUSTAINABLE NEIGHBOURHOOD VISION**

### **7.1 Purposes**

Establishing a sustainable neighbourhood vision was seen as an integral part of the process to evaluate the implications of the City's current neighbourhood development policies and set directions for the future. The vision statement serves as a benchmark for comparing policy outcomes to a desired end product. A vision statement also serves as a guide for developing goals and selecting course of action that will lead to the development of sustainable communities.



### **7.2 Vision Workshops**

To develop a vision of what a sustainable community may look like for Red Deer, a visioning workshop with this specific focus was held the evening of June 2001. A total of fifty-five (55) community members participated, being representatives of the local residential development industry, social service providers, community organizations, community associations, youth, seniors and City Council and Administration. A key outcome of this workshop was an initial sustainable community vision.

A follow-up workshop attended by 35 persons representing various sectors of neighbourhood life, and development, was held in June 2002. While primarily oriented to discussing design elements for neighbourhoods, a portion of the 2002 workshop was dedicated to a review of the initial sustainable community vision. The input was used to refine the Sustainable Community Vision. The revised Sustainable Neighbourhood Vision is provided in Section 7.3.

### **7.3 Sustainable Neighbourhood Vision**

Red Deer's vision of a sustainable neighbourhood consists of...

#### Major Principles

1. A diversity of housing types which provide opportunities for a diverse population in terms of age and income levels
2. A mix of uses so there is access to a broad range of recreation, education, commercial, work places, social services and amenities
3. A strong sense of community based on caring for neighbours, pride in private property and public spaces, and safe environs provided through design and the presence of emergency services
4. Priority on a diversity of open spaces that facilitate a variety of leisure activities (both active and passive) and serve to provide connections within the neighbourhood and to other neighbourhoods
5. Visually appealing neighbourhoods which include highly attractive, durable buildings and treed parks and streetscapes

6. A diverse range of transportation opportunities (roads, transit, trails) that provide connections to other neighbourhoods and to services and amenities within the City

#### Environmental Principles

7. More intense use of land and buildings providing for an increased population density and greater mix of uses and activities
8. Green space that is accessible and serves multiple purposes including natural preservation, wildlife habitat and recreational pursuits
9. Wise use of water through water retention systems and conservation
10. Reduction of solid waste and opportunities for recycling and solid waste diversion

#### Social Principles

11. Affordable and appropriate housing opportunities for all income and age groups
12. A safe community consisting of well-lit streets, highly visible sidewalks and crosswalks and served by effective community policing programs
13. Inclusive, accessible and affordable services and amenities catering to a broad range of needs and interest
14. A series of gathering places, including multi-purpose community facilities, that are within walking distance of homes
15. Identifiable neighbourhoods through distinguishing entrance features, edges, focal points, public art and other visual amenities

#### Economic/Infrastructure Principles

16. A safe, accessible transportation system that caters to several modes of transportation (auto, transit, pedestrian, bicycle) for travel within the neighbourhood, to other neighbourhoods and other parts of the city
17. Roadways designed to provide optional routings, reduce trip lengths, slow and minimize traffic on local roads and make use of alternate materials such as recycled products
18. Reduced costs through the use of energy efficient infrastructure and opportunities to convert waste products into energy
19. "Smart" infrastructure and 'wired' neighbourhoods to support home-based employment and communication.

Many of these are not unlike the principles held by major planning movements, as reported in Section 5.

Being a vision of the form of sustainable neighbourhoods desired for Red Deer, these 19 neighbourhood planning principles should form the essence of future neighbourhood and multi-neighbourhood planning and development.



## 8.0 NEIGHBOURHOOD DESIGN ELEMENTS

### 8.1 Introduction

As expressed earlier, Red Deer's contemporary neighbourhoods have many sustainable elements. However, the sustainable neighbourhood vision for Red Deer's future neighbourhoods (Section 7) calls for a new set of neighbourhood design elements. The review of practices and ideas used in neighbourhood planning and development in other communities across North America (Section 6) has led to the following series of recommended design elements.



### 8.2 Design Elements

#### General

1. Establish neighbourhood planning and development guidelines and standards
2. The basic module for neighbourhood planning usually will be one quarter section (approximately 64.75 ha or 160 acres)
3. Multi-neighbourhood communities are to be formed by integrating the plans for two to four adjacent neighbourhoods, with the size being determined by natural features and/or arterial roads; generally, multi-neighbourhoods are to be 129.5 ha (320 acres) to 259 ha (640 acres) in size

#### General Form

4. Plan for complete, higher density walkable multi-neighbourhoods that contain a mix of housing, shops and services for daily needs, work places, schools, community facilities and a variety of active and passive open spaces
5. Encourage identifiable neighbourhoods that promote a sense of place through the provision of recognizable boundaries, distinct entrances and a series of public focal points
6. Give high priority to the location, accessibility and connectivity of public spaces
7. Create multi-neighbourhoods that contain a vital mixed use multi-neighbourhood level gathering place and a series of other neighbourhood nodes, all strategically located to encourage use and access to by walking, cycling and transit
8. Enhance the aesthetics of communities with attractive streetscapes and public buildings, appealing architecture and distinctive public gathering places

#### Housing

9. Provide for a broad range of housing types and price ranges in each neighbourhood to encourage the evolution of a blended, inclusive residential neighbourhood

10. Require plans for new neighbourhoods to achieve a density between the range of 12.35 and 17.30 dwelling units per gross developable hectare (5 to 7 du/gross developable acre) if major utility infrastructure so permits; gross developable area is the total area of land in title less land for: environmental reserve; major roads (expressways and arterials); regional and district commercial sites; industrial uses; high schools and sports fields additional to municipal reserve land dedicated for these purposes and, as determined by the City, may include special land uses sites, constructed wetlands and retention (wet) ponds or portions thereof that have high aesthetic values
11. Provide for the density in existing neighbourhoods to increase to no more than 17.30 dwelling units (7 du/acre) per gross developable hectare if major utility infrastructure so permits and the applicable neighbourhood area structure is amended or, where there is no neighbourhood area structure plan, a neighbourhood area structure plan is adopted to provide for the increased density
12. Require within a new neighbourhood multi-attached housing (three or more dwelling units) to be no less than 20 percent of the total housing units while single detached and semi-detached housing is no less than 60 percent of the total housing units, but the ratio of detached housing (includes narrow lots and manufactured homes) to semi-detached housing must be at least 3:1
13. Locate higher density forms of housing in close proximity to a major open space and transit stop, but not always near the edge of a neighbourhood in order to be adjacent to community or neighbourhood gathering place; some higher density housing should be located adjacent to or in near proximity to a commercial development
14. Design a neighbourhood to consist of interconnected detached residential modules of up to 50 to 60 units. The concentration of semi-detached, multi-attached (excluding apartments) and narrow lot single detached housing are to be limited to modules of up to 50 to 60 units with individual modules being separated by different housing forms or land uses
15. Since neighbourhoods are meant to be inclusive entities, gated communities should be avoided; if permitted they should be in locations where the 'fenced surround' is least visible and the appearance of the fence surround and gate are softened by the use of a see-through design and materials and/or landscaping along the fence surround
16. Allocate parcels on which the development of an accessory suite may be developed; as part of the neighbourhood density calculation each accessory suite will count for one-half (0.5 ) a dwelling unit
17. Encourage housing designs for front and side yards facing streets to emphasize social spaces and entry features (porches, verandas, windows, front doors) and de-emphasize attached garages and driveways

#### Open Space

18. Give high priority to the provision of a diversity of parks, including large multi-purpose parks, sub-neighbourhood parks, parkettes, linear parks and natural areas that serve a broad range of ages, interests and abilities
19. Give higher priority to linear parks that serves to link open spaces within a neighbourhood and one neighbourhood to another

20. Locate at least three parkettes, or their equivalent, in each neighbourhood at locations that encourage their frequent use (e.g. all homes are within a 2 - 3 minute walk)
21. Locate larger open spaces containing sports fields so they are shared by two or more neighbourhoods, usually as a joint use site with a school; if higher density housing is not adjacent to a larger open space, the housing should have green space integrated with the development
22. Promote urban forestry through the retention of significant trees and stands of trees and the planting of trees along streets, within yards and in public open spaces

#### Gathering Places

23. Strategically distribute and locate functional, desirable gathering places within neighbourhoods; utilize where advantageous a more flexible approach to the use and distribution of municipal reserve dedication, to encourage higher levels of sustained use
24. Encourage the provision of at least one gathering place per neighbourhood designed to integrate three or more of the following land uses: commercial, educational, cultural, recreational, transit stop and clustered mailboxes, often adjacent to or close by higher density housing
25. Direct shops and services to a highly accessible 'centre' located usually at an entrance to the neighbourhood
26. Locate schools and sports fields as key functional components of joint use sites shared by two or more neighbourhoods
27. Locate and design schools and other public buildings to enhance their role as community focal points

#### Social and Cultural

28. Provide for a diversity of social interaction opportunities through the provision and design of a variety of gathering places and open spaces which serve as places to shop, learn, play, rest, contemplate, celebrate and visit
29. Design gathering places to enhance a neighbourhood's sense of place by promoting interest and functionality for social interaction, but not at the expense of personal and community safety
30. Encourage the provision of public art in gathering places or other prominent neighbourhood locations to enhance the sense of 'neighbourhood' place
31. Provide opportunities for employment within a neighbourhood
32. Integrate existing heritage resources, including where appropriate the preservation of the resource, into the design of a neighbourhood
33. Provide a range of social, education, health, recreation and cultural opportunities within a multi-neighbourhood or reasonable access to by means of affordable and efficient public transit

#### Circulation/Connections

34. Provide an internal multi-neighbourhood roadway system that facilitates the effective collection and dispersion of traffic within the multi-neighbourhood while discouraging cut-through traffic; boundary roads are

- to be expressways or arterials, while internal roads normally are to be collectors and local roads; portions of neighbourhoods may be laneless
35. Design streets to provide for the safe movement of traffic, as well as safe pedestrian and bicycle movement
  36. Implement design standards for each class of roadway to provide, without overbuilding, for the main function of the roadway
  37. Design the neighbourhood street and trail/linear park system to provide direct links between multi-neighbourhood and neighbourhood level focal points
  38. Place more emphasis on the creation of attractive, pedestrian-friendly streetscapes
  39. Design a neighbourhood that integrates a safe and convenient trailway system for non-motorized travel that links gathering places inside the neighbourhood and connects the neighbourhood with others in the multi-neighbourhood and city-level (regional) trails
  40. Integrate transit services so convenient transit stops will be available at edges of the neighbourhood and at key places along collector roads within the neighbourhood

#### Infrastructure and the Natural Environment

41. Integrate existing significant natural areas into the design of a neighbourhood in a manner that complements and links the open space system
42. Encourage energy efficiency by designing subdivisions, sites and buildings that reduce the energy needed for heating and cooling
43. Encourage neighbourhood designs and development standards that promote water conservation
44. Encourage sustaining a natural water balance, both quantitatively and qualitatively, through community design
45. Integrate stormwater management facilities into the neighbourhood open space system so their location and configuration promote public social interaction, including various forms of leisure activities
46. Encourage waste diversion (i.e. the three R's – reduce, recycle, reuse) in all aspects of community development

#### Fiscal

47. Share infrastructure, services and facilities within multi-neighbourhoods (in striving for lower infrastructural costs per housing unit)
48. Utilize shared use buildings, sites and parking areas wherever possible
49. Balance municipal services and amenities provided in neighbourhoods with the ability of the overall municipal tax base to support their provision and maintenance
50. Minimize the use of public utility lots and maximize the use of easements for underground services not located in road rights-of-way.

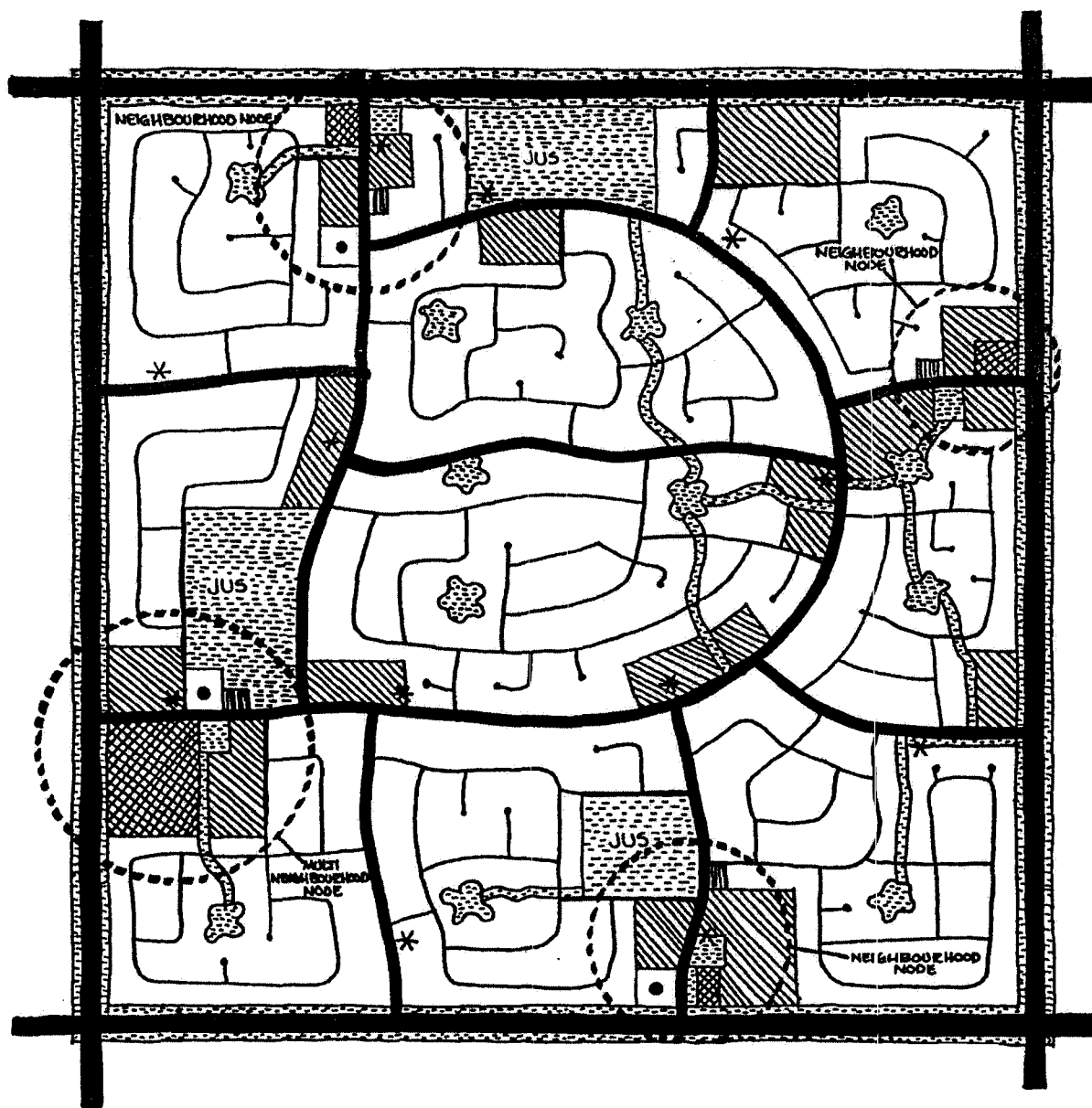
### **8.3 Conceptual Multi-Neighbourhood**

Application of the above design elements would alter the form of Red Deer's present typical neighbourhoods (shown in Section 4 on Sketch 4.14 and outlined in Table

4.12). Although many design variations are possible in the use of the above design elements, Sketch 8.1 conceptually shows what a residential community may look like based on the recommended design elements. Table 8.1 provides similar information to that in Table 4.1 to enable comparison between a future 'more sustainable' neighbourhood and what has evolved as the 'typical' Red Deer neighbourhood.

### Sketch 8.1

#### Conceptual Multi-Neighbourhood Based on Recommended Neighbourhood Design Elements



#### LEGEND:

AREA SHOWN: 1 SECTION (640 ACRES)

	ARTERIAL ROADS		JOINT USE SPACE
	COLLECTOR ROADS		CHURCH SITE
	OPEN SPACE		COMMERCIAL SITE
	LOW DENSITY RESIDENTIAL		SOCIAL CARE
	MULTI-FAMILY		TRANSIT STOP

**Table 8.1: Conceptual Neighbourhood Based on Recommended Neighbourhood Design Elements**

Size of Neighbourhood (Developable Area): .....	58.3 ha
Land Area for Residential Uses: .....	35.0 ha (60.0% of total area)
Land Area for Parks and School Sites:.....	5.83 ha (10.0% of total area)
Land Area for Other Uses:.....	4.1 ha (Commercial, Church, Social Care and Utility Lots) (7.0% of total area)
Land Area for Roads and Lanes:.....	13.4 ha (23% of total area)
Land Area for Low Density Residential: .....	29.5 ha (Single detached and semi-detached housing)
Land Area for Multiple Family Residential:.....	5.5 ha (Fourplex, row/town and apartment style housing)
Number of Dwelling Units: .....	862
Number of Low Density Residential Units: .....	646 (Single detached, semi-detached housing, manufactured home) (75%)
Number of Multiple Family Residential Units: .....	216 (Fourplex, row/town and apartment style housing) (25%)
Density of Residential Development (dwelling units per hectare): .....	14.8
Potential Population (based on 2.5 to 3.2 occupancy per unit):	2,155 – 2,758

#### **8.4 Comparison of Typical Contemporary and Conceptual New Neighbourhoods**

Table 8.2 summarizes some key differences between Red Deer's contemporary 'typical' neighbourhood and future neighbourhoods designed and developed in accordance with the design elements presented in Section 8.2.

While the land required for roads and lanes is envisioned to increase marginally from 22.4% to 23.0% of the gross developable area, the amount of land for municipal reserves (parks and schools) is likely to decrease from 14% to 10.0%, as is already being experienced in recently planned neighbourhoods (e.g. West Park Extension, Inglewood). This decrease is related to costs. As land and servicing costs increase, developers become less willing to provide open space additional to the 10% maximum municipalities are allowed by legislation to require through the

subdivision process. By keeping municipal reserve at close to 10%, more land is available for housing, thus yielding more housing units and reducing the cost per unit of development.

Even with a decrease in the proportion of low density housing from 81% to 75%, the number of these forms of housing increases from 555 to 646 dwelling units. The area of land for single detached, semi-detached and manufactured homes is increased marginally from 29.4 ha to 29.5 ha, meaning average lot sizes will decrease. Land for multi-family housing increases by 34%, from 4.1 ha to 5.5 ha, to accommodate the increase in multi-family housing from 18.9% to 25%.

It is anticipated that the average density of the new neighbourhood will increase to 14.8 dwelling units per gross developable hectare. This represents an increase of 26% from the current average of 11.74 du/ha. However, this average includes three neighbourhoods that are well below the density of other new neighbourhoods which are approaching, or have exceeded, 14.8 du/ha. The average density of Aspen Ridge, Davenport, Devonshire, Inglewood and Lonsdale neighbourhoods is 13.87 du/ha, or only 6.7% less than the future anticipated average density of 14.8 du/ha.

**Table 8.2 Comparison of Typical Contemporary and Conceptual New Neighbourhoods**

<b>Typical Contemporary Neighbourhood</b>	<b>Neighbourhood Aspect</b>	<b>Conceptual New Neighbourhood</b>
58.3 ha	Size of Neighbourhood (Developable Area)	58.3 ha
33.5 ha (57.5% of total area)	Land Area for Residential Uses	35.0 ha (60.0% of total area)
8.2 ha (14.0% of total area)	Land Area for Parks and School Sites	5.83 ha (10.0% of total area)
3.6 ha (6.1% of total area)	Land Area for Other Uses	4.1 ha (7.0% of total area)
13.1 ha (22.4% of total area)	Land Area for Roads and Lanes	13.4 ha (23.0% of total area)
29.4 ha	Land Area for Low Density Residential	29.5 ha
4.1 ha	Land Area for Multiple Family Residential	5.5 ha
684	Number of Dwelling Units	862
555 (81.1%)	Number of Low Density Residential Units (single detached and semi-detached housing)	646 (75%)
129 (18.9%)	Number of Multiple Family Residential Units	216 (25%)
11.74	Density of Residential Development (dwelling units per hectare)	14.8
1,710 – 2,188	Potential Population (based on 2.5 to 3.2 occupancy per unit)	2,155 – 2,758

The number of dwelling units increases from an average of 684 to 862, or 26% likely bringing about a similar increase in the population of each neighbourhood from an average of 1949 to 2457). As such, when compared to the 'typical' neighbourhood created in Red Deer over the last twenty years, the density of new neighbourhoods may decrease Red Deer's rate of consumption of surrounding agricultural lands for residential development by up to 26%.

Other changes in neighbourhood form are evident from a comparison of Sketch 4.14 and Sketch 8.1. These include:

- The change in location of joint use sites to the edges of the multi-neighbourhood or to a site straddling two neighbourhoods (in contemporary neighbourhoods the sites are central within a neighbourhood)
- More linear park space, including a 'central greenway' 'spine'
- More parkettes, which are often linked by linear green space to collector roads, joint use sites, multi-family sites or the or central greenway
- A street pattern that is a hybrid of curvilinear and modified grid patterns
- Focal points, including significant buildings at key road intersections or entry points
- Multi-use nodes, often at the entrance to neighbourhoods
- Multi-family housing dispersed throughout the multi-neighbourhood, including central locations along transit routes
- More multi-family (three or more units) area.

One of the chief implications of the recommended neighbourhood design elements is that major area structure plans provide more attention to neighbourhood planning at the multi-neighbourhood level.



### 9.1 Introduction and Report Overview

The purpose of the Red Deer Growing Smarter Study was to evaluate Red Deer's existing neighbourhood planning and development practices against the concept of sustainability. This was to be done with the view of advising changes and modifications to Red Deer's policies, standards and practices so residential growth is fiscally, environmentally and socially responsible.



The Terms of Reference identified three main areas to be investigated:

1. Review of current approaches to neighbourhood planning in Red Deer and other communities
2. Outcome of Red Deer's current neighbourhood planning practices
3. Recommend changes to Red Deer's existing residential area planning practices, including how to determine/measure the social impacts of new development.

Red Deer's current approaches are reported in Section 3, which includes a comprehensive summary of strategies, policies, guidelines and standards currently applicable to planning neighbourhoods in Red Deer.

The outcome of these practices is reported in Sections 4 and 6. Section 4 provides a concise overview of the evolution of neighbourhood form in Red Deer. A summary of the present characteristics of Red Deer neighbourhoods is included in the section. The outcome of Red Deer's current neighbourhood planning practices is summarized through a depiction of the 'typical' multi-neighbourhood in Sketch 4.14 and Table 4.12.

Section 6 provides an evaluation of Red Deer's performance in creating sustainable neighbourhoods in terms of 'what Red Deer does pretty well' and 'what Red Deer could learn and possibly improve'. These observations are made based upon a comparison of Red Deer's practices with a compendium of 'best ideas and practices' in neighbourhood planning and development in other Alberta, Canadian and American communities. The list of 'actions' that Red Deer does pretty well is indicative that *Red Deer's present, developing neighbourhoods exhibit many aspects of sustainability. This suggests that neighbourhood planning in Red Deer is 'on the right track'.* Nonetheless, there are opportunities to pursue 'smarter growth'.

Sections 7 and 8 outline revised and new directions by which to pursue 'smarter growth' neighbourhood planning in Red Deer. Section 7 provides a vision for sustainable neighbourhoods based on 19 neighbourhood characteristics. These are not unlike the principles of a number of community planning movements across North America, as reported in Section 5. Section 8 presents 50 design elements as a base for neighbourhood planning.

## 9.2 Implementation Overview

The concluding sections of this report outline actions to implement the sustainable neighbourhood vision and neighbourhood design elements and ideas through changes to the Municipal Development Plan, major area structure plans, the land use bylaw and pertinent guideline documents. The implementation of the design elements and ideas for smarter growth neighbourhoods will require a number of actions by the City of Red Deer to revise statutory plans, the Land Use Bylaw and other documents that guide the design and development of neighbourhoods. As a functional part of these actions it will be important to continue to consult the neighbourhood development sector and community groups.

This report brings together a series of ideas for smarter, more sustainable growth through neighbourhood planning and development. These are ideas and suggestions. It remains with the City's community, social and park planners and engineers to determine the specifics of changes to neighbourhood planning practices, whether they are policies, standards or guidelines.

### Challenges and Obstacles Involved in Implementation

Implementation of the numerous ideas, suggestions and design elements identified in this report will face obstacles and challenges. These include individual and organizational attitudes towards change and broad societal and regional forces that influence the way Red Deer will develop. Some of the challenges and obstacles likely to be encountered in implementing the design elements include:

1. Achieving consensus and collaboration among four or more landowners in developing a multi-neighbourhood, especially the timing of roads and infrastructure, the provision of open space sites and corridors and the location of multi-attached housing sites. More detailed planning directions within major area structure plans will be required, which may take time for land developers to adjust to.
2. Retaining innovation in neighbourhood design and flexibility in the implementation of the design elements while still following the principles and desires of the new design guidelines. Achieving the development of diverse and interesting neighbourhoods will require cooperation and, possibly, trade-offs between the City (as approving authority) and developers.
3. Organizational and professional biases. The numerous professions and parties involved in neighbourhood design have their own sets of standards and expectations that have developed through years of practice and implementation. There may be reluctance to consider new approaches.
4. Individual preferences and market acceptability. People's housing preferences and needs may not match with all of the suggestions on how to develop more sustainable neighbourhoods. Standards and design elements (e.g. architectural controls) should not increase costs beyond the price people are willing to pay.
5. Public understanding and support for decisions leading to the creation of more sustainable neighbourhoods. The degree of public (i.e. local home owners)

tolerance for different land uses (i.e. commercial mixed and residential) and housing forms (i.e. multi-family housing, affordable housing) in proximity to their own residences and property needs to increase to fully implement the ideals of more sustainable neighbourhoods. Continued improvements in site design and building appearances will increase the acceptability of different land uses.

6. Different motivations between the City and Developers must be acknowledged and both must be respected in the development of neighbourhoods. This involves balancing the Developer's ability to achieve a return on their investment with the longer-term operational and maintenance costs faced by the City.
7. Provincial and Federal legislation and requirements that apply to the development of neighbourhoods and are generally difficult for a local community to change. This includes a broad range of topics and areas such as legislation relating to land use planning, issues of liability, and the way the City obtains revenues to offset the costs of providing services to residents and properties.

### **9.3 Statutory Plan Amendments of Existing Provisions**

The following are a series of amendments to be considered to the Municipal Development Plan and the East Hill Major Area Structure Plan and the Northwest Area Structure Plan. These are not necessarily all the amendments that would be necessary to implement the provisions of this report.

#### **9.3.1 Municipal Development Plan**

##### Existing Provision

##### Change to Consider

Policy 5.5 The City shall continue . . . it's present commitment and approaches to encouraging environmental sustainability . . . Strategic Plan 98

Update to 2002 Strategic Plan and broaden to environmental, social and fiscal sustainability

Policy 6.11 . . . Where deemed appropriate, cash-in-lieu or a combination of cash-in-lieu and land may be provided.

Cash-in-lieu or a combination of cash-in-lieu and land shall not be an option for residential areas

Policy 7.1 The Natural Area/Ecospace Classification and Prioritization System shall be used as a basis for land use planning in the City (see also Map 2 Ecological Profile)

Ensure use of common terminology; change to indicate that that the Ecospace Map is one, albeit vital, component to be used as a basis for neighbourhood planning

Policy 11.2 The residential density for new neighbourhoods shall be a maximum of 45 persons per gross hectare . . . but will investigate a suitable minimum residential density for new neighbourhoods

Delete any reference to a maximum density and insert the requirement for the design density of a neighbourhood to fall within the range of 12.35 and 17.30 dwelling units per gross developable hectare

(5 to 7 du/gross developable acre) if major utility infrastructure so permits

Policy 11.3 . . . The Planning and Subdivision Guidelines will be updated to provide housing mix guidelines . . .

The Planning and Subdivision Guidelines should be replaced by a more up-to-date document; require within a new neighbourhood that multi-attached housing (three or more dwelling units) be no less than 20 percent of the total housing units while single detached and semi-detached housing is no less than 60 percent of the total housing units, but the ratio of detached housing (including narrow lots and manufactured homes) to semi-detached housing must be at least 3:1

Policy 11.4 Innovative comprehensive residential projects shall be encouraged . . . investigate secondary suites

Provide for accessory suites; as part of a neighbourhood density calculation each accessory suite shall count as one-half (0.5) a dwelling unit

Policy 11.5 The City shall continue to support the requirement of a social care facility site in all new residential neighbourhoods. . . . the social care facility can be used for a day care, as well as any other form of social facility.

Update to reflect that one day care, social care residence or retirement home site and one place of worship site shall be identified in a neighbourhood area structure plan

Policy 11.9 . . . The City will establish new principles and standards for locating, sizing and integrating community commercial sites in new residential growth areas which ensure that these centres can function as community focal points . . .

Direct shops and services to a highly accessible 'centre' located at an entrance to the neighbourhood (i.e. at the edge of the neighbourhood); at least one gathering place should be a mixed use 'centre' consisting of a cluster of commercial uses, leisure amenities and/or open space areas, transit stop and buildings that provide for meeting space or assemblies

Policy 13.8 The City shall continue to apply its mandate to supply transit service to all sectors of the community when 80% occupancy is achieved and roadways provide access and exits in subdivisions

Encourage the provision of transit services to each new neighbourhood as soon as possible in order to establish travel patterns (i.e. use of transit) early in the creation of a neighbourhood

Policy 13.12 The City shall continue to consider new bicycle and pedestrian routes as integral components of the transportation system . . . to link existing parks, recreation and education facilities to form an integrated open space network

Incorporate into the design of a neighbourhood a safe and convenient trailway system for non-motorized travel that links gathering places inside the community and connects the community with adjacent neighbourhoods and city-level (regional) trails

### **9.3.2 East Hill Major Area Structure Plan**

These guidelines dictate that most new residential neighbourhoods will be designed on a quarter section by quarter section basis (p. 7)

Multi-neighbourhood communities are to be formed by integrating the plans for two to four adjacent neighbourhoods, with the size determined by natural features and/or arterial roads, but generally being 129.5 ha (320 acres) or 259 ha (640 acres)

Residential development should be diversified providing a variety of housing types (p.7)

Require within a new neighbourhood that multi-attached housing (three or more dwelling units) be no less than 20 percent of the total housing units while single detached and semi-detached housing is no less than 60 percent of the total units, but the ratio of detached housing (including narrow lots and manufactured homes) to semi-detached housing must be at least 3:1

The overall density cannot exceed 45 persons per gross hectare as stated in the City's Planning and Subdivision Guidelines, or as amended. (p. 7)

Apply this policy only to neighbourhood area structure plans adopted prior to November 2002, but in doing so provide for plan amendments to allow for higher densities (no more than 17.30 dwelling units per gross developable hectare (7 du/gross developable acre) if capacities of major utility infrastructure so permit;

For neighbourhood area structure plans (after November 2002) require the design density to fall within the range of 12.35 and 17.30 dwelling units per gross developable hectare (5 to 7 du/gross developable acre) if major utility infrastructure so permit

Commercial C2 (District) location criteria (pp.9 – 11)

Direct shops and services to a highly accessible 'centre' located at an entrance to the neighbourhood (i.e. at the edge of the neighbourhood); and at least one gathering place should be a mixed use 'centre' consisting of a cluster of commercial uses, leisure amenities and/or open space areas, transit stop and buildings that provide for meeting space or assemblies

Commercial C3 (Neighbourhood) location site criteria (p. 16)

Should be at least one per multi-neighbourhood, depending on location in adjacent multi-neighbourhoods

Neighbourhood Level Facilities (p. 20). . . to be located on the large central park found within each quarter section neighbourhood and each to include play fields, various hard surface play areas, playgrounds and a community shelter

Promote that larger parks with sports fields be located at the edge of a neighbourhood or to straddle two neighbourhood boundaries to promote sharing; change the idea of 'central' parks

As an alternative to central parks, the concept of linear neighbourhood parks will be explored in the review of the Community Services Master Plan (p. 20)

Promote the provision of linear parks

Schools (p. 21) - where a school site is designated it is to be combined with the large central community park to form a joint use site

Direct new schools to edges of neighbourhoods or to straddle two neighbourhoods

Storm water management (p. 22)  
Alternative methods of managing storm water such as storm water retention ponds and naturalized marsh areas may be given consideration by the City

Be more proactive in the use of storm water retention ponds and constructed wetlands

### **9.3.3 Northwest Major Area Structure Plan**

The overall density cannot exceed 45 persons per gross hectare (p. 3)

Apply this policy to only to neighbourhood area structure plans adopted prior to November 2002, but in doing so provide for plan amendments to allow for higher densities (no more than 17.30 dwelling units per gross developable hectare (7 du/gross developable

acre) if capacities of major utility infrastructure so permit

For neighbourhood area structure plans (after November 2002) require the design density to fall within the range of 12.35 and 17.30 dwelling units (5 to 7 du/gross developable acre) per gross developable hectare if major utility infrastructure so permit

Residential development should be diversified providing a range of housing types and densities designed to suit the needs of the community (p. 3)

Provide more detail: require within a new neighbourhood that multi-family housing (three or more dwelling units) to be no less than 20 percent of the total housing units while single detached and semi-detached housing is no less than 60 percent of the total housing units, but the ratio of detached housing (including narrow lots and manufactured homes) to semi-detached housing must be at least 3:1

Schools (p. 4) - five schools, three new sites provided through MR dedication; each school located within a large central park site

Direct new schools to edges of neighbourhoods or to straddle two neighbourhoods; revise number of schools

Neighbourhood Level Facilities (p. 5) - each park site to include play fields, various hard surface play areas, playgrounds and a community shelter

Revise in accordance with new standards and guidelines

Trail System (p. 5) - identifies a comprehensive trail system (Map 4 in plan) laid out to provide pedestrian and cycle access to park and school sites throughout the area; all future development should be cognizant of the planned trail system . . . .

Incorporate into the design of a neighbourhood a safe and convenient railway system for non-motorized travel that links gathering places inside the neighbourhood and connects the neighbourhood with adjacent neighbourhoods and city-level (regional) trails

Road system consists of local roads, major collector roads, arterials (pp. 5 - 6) . . . collector roads are intended to distribute traffic between arterial and local roads; designed to provide quick access to arterial roads; a circuitous design is often used to prevent their use for inter-neighbourhood traffic

The routing of a collector road should link two or more neighbourhoods within a multi-neighbourhood and their entrances along the arterial aligned to form cross intersections

Storm water management (p. 6)  
Alternative methods of managing storm  
water such as storm water retention  
ponds and naturalized marsh areas may  
be given consideration by the City . . . .

Be more proactive in the use of  
storm water retention ponds and  
constructed wetlands

### **9.3.4 Existing Neighbourhood Area Structure Plans**

Existing neighbourhood area structure plans (i.e. those adopted prior to November 2002) have been adopted in accordance with the policies in guidelines in place at the time. Therefore, they are not required to comply with the provisions of this report. The major area structure plans should note these exemptions.

## **9.4 Additions to Statutory Plans to Consider**

### **9.4.1 Municipal Development Plan**

The following provides a series of provisions to consider for addition to the Municipal Development Plan with regard to the planning and development of neighbourhoods and multi-neighbourhoods. A number of these provisions may also be applicable to major neighbourhood area structure plans, and are not necessarily listed in Sections 9.4.2 and 9.4.3.

1. integrate the principles of the vision for sustainable neighbourhoods in Red Deer
2. ensure policies in major area structure plans provide sufficient direction for the planning for multi-neighbourhoods, including the coordination of neighbourhood area structure plans to achieve a desired form of the multi-neighbourhood
3. provide a checklist for evaluating neighbourhood plans and plan amendments relative to sustainable community objectives
4. include provisions to allow the density in existing and developing neighbourhoods (i.e. area structure plans adopted prior to November 2002) to increase to no more than 17.30 dwelling units per gross developable hectare (7 du/gross developable acre) if major utility infrastructure so permits and the applicable neighbourhood area structure plan is so amended to provide for the increased density
5. provide a definition for gross development area – the total area of land in title less land for: environmental reserve; major roads (expressways and arterials); regional and district commercial sites; industrial uses; high schools and sports fields additional to municipal reserve land dedicated for these purposes and, as determined by the City, may include special land uses sites, constructed wetlands and retention (wet) ponds or portions thereof that have high aesthetic values
6. provide general policies regarding the allocation of municipal reserve dedication to guide the types and distribution of open spaces and the variety of recreation facilities to be included therein
7. provide policies that requires the City to identify heritage (natural and cultural) resources and to integrate them into the design of neighbourhoods wherever possible



8. encourage the adoption of a tree preservation bylaw
9. promote further liaison with school authorities to understand lifecycle changes in student generation within neighbourhoods based on local experience, and ensure school and community facilities can adapt to changing needs over time
10. provide for more routing flexibility within multi-neighbourhoods through the layout of the road network, including hybrid patterns which combine a modified grid system and a curvilinear pattern to offer the mobility of the grid and the safety and topographic sensitivity of the curvilinear pattern
11. provide a list of social implication considerations for the City to use as part of its assessment of proposed neighbourhood plans and other major developments. While not being bound or limited to the following, the social assessment could address:
  - a. Safety: how are the needs for personal safety and perception of safety addressed?
  - b. Social Inclusion: how does this development contribute to opportunities for citizens to get to know their neighbours?
  - c. Sense of Community: how are citizens' opportunities enhanced to volunteer and contribute to community life through formal and informal activities?
  - d. Transportation: in what ways are citizens able to use a broad range of safe and convenient transportation modes to access employment, social supports, commercial services and other destinations?
  - e. Learning Development: what opportunities will there be in the neighbourhood to participate in formal and informal learning, leisure, social and spiritual experiences?
  - f. Diversity: how does this development encourage opportunities for culturally and economically diverse lifestyles and family life phases?
  - g. Housing: How does this neighbourhood development incorporate housing variety, including adequate affordable accommodation?
12. provide directions to monitor progress towards more sustainable practices, including consistent measurements for key aspects such as density and developable area
13. include policies to extend recycling programs, including equipping all new multi-family buildings, even for small developments such as fourplexes, with bins for sorting recyclable dry waste.

The following design elements and related ideas need to be considered for integration into the Municipal Development Plan.

1. The basic module for neighbourhood planning usually will be 64.75 ha (160 acres)
2. Multi-neighbourhood communities are to be formed by integrating the plans for two to four adjacent neighbourhoods, with the size being determined by natural features and/or arterial roads; generally multi-neighbourhoods are to be 129.5 ha (320 acres) to 259 ha (640 acres) in size
3. Plan for complete, higher density walkable multi-neighbourhoods that contain a mix of housing, shops and services for daily needs, work places, schools, civic facilities and a variety of active and passive open spaces.

### **9.4.2 Major Neighbourhood Area Structure Plans**

The following provides a series of provisions to consider for addition to major neighbourhood area structure plans with regard to the planning and development of neighbourhoods and multi-neighbourhoods. A number of these may also be applicable to the Municipal Development Plan. One of the key aspects of major neighbourhood area structure plans should be to provide basic design elements for neighbourhoods and their aggregation into a multi-neighbourhood. These design elements include:

#### General

1. Follow the City's neighbourhood planning and development guidelines and standards
2. The basic module for neighbourhood planning usually will be one quarter section (approximately 64.75 ha or 160 acres)
3. Multi-neighbourhood communities are to be formed by integrating the plans for two to four adjacent neighbourhoods, with the size being determined by natural features and/or arterial roads; generally multi-neighbourhoods are to be 129.5 ha (320 acres) to 259 ha (640 acres) in size

#### General Form

4. Plan for complete, higher density walkable multi-neighbourhoods that contain a mix of housing, shops and services for daily needs, work places, schools, community facilities and a variety of active and passive open spaces
5. Encourage identifiable neighbourhoods that promote a sense of place through the provision of recognizable boundaries, distinct entrances and a series of public focal points
6. Give high priority to the location, accessibility and connectivity of public spaces
7. Create multi-neighbourhoods that contain a vital mixed use multi-neighbourhood level gathering place and a series of other neighbourhood nodes, all strategically located to encourage use and access to by walking, cycling and transit
8. Enhance the aesthetics of communities with attractive streetscapes and public buildings, appealing architecture and distinctive public gathering places

#### Housing

9. Provide for a broad range of housing types and price ranges in each neighbourhood to encourage the evolution of a blended, inclusive residential neighbourhood
10. Require plans for new neighbourhoods to achieve a density between the range of 12.35 and 17.30 dwelling units per gross developable hectare (5 to 7 du/gross developable acre) if major utility infrastructure so permits; gross developable area is the total area of land in title less land for: environmental reserve; major roads (expressways and arterials); regional and district commercial sites; industrial uses; high schools and sports

fields additional to municipal reserve land dedicated for these purposes and, as determined by the City, may include special land uses sites, constructed wetlands and retention (wet) ponds or portions thereof that have high aesthetic values

11. Provide for the density in existing neighbourhoods to increase to no more than 17.30 dwelling units (7 du/acre) per gross developable hectare if major utility infrastructure so permits and the applicable neighbourhood area structure is amended or, where there is no neighbourhood area structure plan, a neighbourhood area structure plan is adopted to provide for the increased density
12. Require within a new neighbourhood multi-attached housing (three or more dwelling units) to be no less than 20 percent of the total housing units while single detached and semi-detached housing is no less than 60 percent of the total housing units, but the ratio of detached housing (includes narrow lots and manufactured homes) to semi-detached housing must be at least 3:1
13. Locate higher density forms of housing in close proximity to a major open space and transit stop, but not always near the edge of a neighbourhood in order to be adjacent to community or neighbourhood gathering place; some higher density housing should be located adjacent to or in near proximity to a commercial development
14. Design a neighbourhood to consist of interconnected detached residential modules of up to 50 to 60 units. The concentration of semi-detached, multi-attached (excluding apartments) and narrow lot single detached housing are to be limited to modules of up to 50 to 60 units with individual modules being separated by different housing forms or land uses
15. Since neighbourhoods are meant to be inclusive entities, gated communities should be avoided; if permitted they should be in locations where the 'fenced surround' is least visible and the appearance of the fence surround and gate are softened by the use of a see-through design and materials and/or landscaping along the fence surround
16. Allocate parcels on which the development of an accessory suite may be developed; as part of the neighbourhood density calculation each accessory suite will count for one-half (0.5) a dwelling unit
17. Encourage housing designs for front and side yards facing streets to emphasize social spaces and entry features (porches, verandas, windows, front doors) and de-emphasize attached garages and driveways

#### Open Space

18. Give high priority to the provision of a diversity of parks, including large multi-purpose parks, sub-neighbourhood parks, parkettes, linear parks and natural areas that serve a broad range of ages, interests and abilities
19. Give higher priority to linear parks that serves to link open spaces within a neighbourhood and one neighbourhood to another
20. Locate at least three parkettes, or their equivalent, in each neighbourhood at locations that encourage their frequent use (e.g. all homes are within a 2 - 3 minute walk)
21. Locate larger open spaces containing sports fields so they are shared by two or more neighbourhoods, usually as a joint use site with a school; if

- higher density housing is not adjacent to a larger open space, the housing should have green space integrated with the development
22. Promote urban forestry through the retention of significant trees and stands of trees and the planting of trees along streets, within yards and in public open spaces

#### Gathering Places

23. Strategically distribute and locate functional, desirable gathering places within neighbourhoods; utilize where advantageous a more flexible approach to the use and distribution of municipal reserve dedication, to encourage higher levels of sustained use
24. Encourage the provision of at least one gathering place per neighbourhood designed to integrate three or more of the following land uses: commercial, educational, cultural, recreational, transit stop and clustered mailboxes, often adjacent to or close by higher density housing
25. Direct shops and services to a highly accessible 'centre' located usually at an entrance to the neighbourhood
26. Locate schools and sports fields as key functional components of joint use sites shared by two or more neighbourhoods
27. Locate and design schools and other public buildings to enhance their role as community focal points

#### Social and Cultural

28. Provide for a diversity of social interaction opportunities through the provision and design of a variety of gathering places and open spaces which serve as places to shop, learn, play, rest, contemplate, celebrate and visit
29. Design gathering places to enhance a neighbourhood's sense of place by promoting interest and functionality for social interaction, but not at the expense of personal and community safety
30. Encourage the provision of public art in gathering places or other prominent neighbourhood locations to enhance the sense of 'neighbourhood' place
31. Provide opportunities for employment within a neighbourhood
32. Integrate existing heritage resources, including where appropriate the preservation of the resource, into the design of a neighbourhood
33. Provide a range of social, education, health, recreation and cultural opportunities within a multi-neighbourhood or reasonable access to by means of affordable and efficient public transit

#### Circulation/Connections

34. Provide an internal multi-neighbourhood roadway system that facilitates the effective collection and dispersion of traffic within the multi-neighbourhood while discouraging cut-through traffic; boundary roads are to be expressways or arterials, while internal roads normally are to be collectors and local roads; portions of neighbourhoods may be laneless
35. Design streets to provide for the safe movement of traffic, as well as safe pedestrian and bicycle movement

36. Implement design standards for each class of roadway to provide, without overbuilding, for the main function of the roadway
37. Design the neighbourhood street and trail/linear park system to provide direct links between multi-neighbourhood and neighbourhood level focal points
38. Place more emphasis on the creation of attractive, pedestrian-friendly streetscapes
39. Design a neighbourhood that integrates a safe and convenient trailway system for non-motorized travel that links gathering places inside the neighbourhood and connects the neighbourhood with others in the multi-neighbourhood and city-level (regional) trails
40. Integrate transit services so convenient transit stops will be available at edges of the neighbourhood and at key places along collector roads within the neighbourhood

#### Infrastructure and the Natural Environment

41. Integrate existing significant natural areas into the design of a neighbourhood in a manner that complements and links the open space system
42. Encourage energy efficiency by designing subdivisions, sites and buildings that reduce the energy needed for heating and cooling
43. Encourage neighbourhood designs and development standards that promote water conservation
44. Encourage sustaining a natural water balance, both quantitatively and qualitatively, through community design
45. Integrate stormwater management facilities into the neighbourhood open space system so their location and configuration promote public social interaction, including various forms of leisure activities
46. Encourage waste diversion (i.e. the three R's – reduce, recycle, reuse) in all aspects of community development

#### Fiscal

47. Share infrastructure, services and facilities within multi-neighbourhoods (in striving for lower infrastructural costs per housing unit)
48. Utilize shared use buildings, sites and parking areas wherever possible
49. Balance municipal services and amenities provided in neighbourhoods with the ability of the overall municipal tax base to support their provision and maintenance
50. Minimize the use of public utility lots and maximize the use of easements for underground services not located in road rights-of-way.

The following are ideas as matters of policy or appended guidelines. These complement many of the above design guidelines by providing more detailed ideas.

1. Establish attractive and vital focal point(s) or landmarks
2. Emphasize vistas
3. Emphasize significant buildings, especially public community buildings by placing them in prominent locations

4. Provide well defined public realms; special public 'realm' areas could be highly designed and landscaped to attract and facilitate social gatherings, both large and small
5. Encourage more architectural guidelines
6. Promote mixed use buildings, including housing above ground floor commercial uses
7. Provide for the corner store and other neighbourhood shops so people can do daily shopping without needing to drive
8. Include one or more continuous greenways/pathways
9. Locate parks where people like to go; do not locate parks as an afterthought
10. Provide for mixed use centres – retail, higher density housing, park, transit stop, community mail box cluster
11. Bring back the traditional village green ('town square') near to shops where people can socialize and kids can play
12. Promote a 'main street' which has a strong pedestrian emphasis, with the main street extended to link neighbourhoods
13. Connect neighbourhoods not only with at least one collector road but also a number of local streets
14. Be open to innovations in residential street types and approaches to parcels that would promote the proposed character of that part of neighbourhood
15. Employ traffic calming measures to control the volume of traffic, the speed of traffic or both
16. Promote tree lined streets and place more emphasis on the creation of attractive, pedestrian-friendly streetscapes and facilitate contact between neighbours (great streets don't just happen)
17. Use CPTED principles of "eyes on the street" when planning open space areas, gathering places, streetscapes and commercial centres
18. Use street lights that focus the light onto the street (not into the sky)
19. More utilization of solar power throughout the community (e.g. lighting at bus stops, etc.)
20. Design homes so front garages are less obtrusive
21. Allow homes (where possible) closer to the street; encourage designs with porches or verandas to promote social interaction
22. Allow reduced front yards setbacks where appropriate in housing areas (e.g. where front garages and driveways are not permitted, but excluding apartments unless specifically designed as 'brownstones' or similar), and in higher density mixed use centres (e.g. mixed use buildings)
23. Allow reduced lot depths for single detached dwellings
24. A greater proportion of open space should be in smaller neighbourhood parks, greens and linear greenways, and less on sports fields
25. Provide continuous, interconnected trailways within and across neighbourhoods to link key destinations
26. Encourage the provision of constructed wetlands for water 'gardens' and habitat viewing
27. Utilize wet ponds as scenic amenities and winter skating areas
28. Place more emphasis on the development of neighbourhood or activity nodes that include joint use sites for schools and churches, where possible, to increase opportunities for social interaction
29. Promote the inclusion of cluster mailboxes as part of a focal area for new neighbourhoods

30. Encourage the use of in-home sprinklers to suppress fires
31. Provide flexibility for ways to increase the amount of local employment opportunities both in terms of numbers and wage levels within multi-neighbourhoods without creating potential land use conflicts
32. Consider lifecycle changes over the long term when planning new neighbourhoods in terms of future housing, leisure and social needs. This includes ensuring sites for long term needs remain available and are not sacrificed to short term considerations.

## **9.5 Land Use Bylaw Changes**

The following provides a series of potential changes to the City's Land Use Bylaw with a view to enabling implementation of the ideas coming out of this study. Specific changes are not identified and will require further review by City departments and consultation with the development community and the public. Some of the suggested changes may require supporting amendments to applicable area structure plans and the Municipal Development Plan.

1. Introduce a general regulation that allows reduction of the front yard setback for single detached, semi-detached and row housing for all lots on a block face where identified in a neighbourhood area structure plan (e.g. along streets where no front driveways and front attached garages are permitted). The amount of the allowable reduction should be determined in consideration of utility services that may be present in the front yard/street and the ability to provide space for the growth of boulevard trees. The reduction in front yard requirement can be transferred to the rear yard or result in a decrease in lot depth.
2. Modify the allowable building projections into front, side and rear yards for lots accommodating single detached and semi-detached housing. The intent is to make more efficient use of individual lots. This change may include allowing cantilevered portions of the main building to project into the side yards (i.e. box window, china cabinet niche).
3. Review the maximum size of the "C3" neighbourhood convenience sites and consider increasing the maximum allowable size to provide for more on-site parking; in order to better integrate with adjacent residential properties, allow flexibility in site design and/or provide for innovative designs to accommodate commercial/office uses adjacent to a "C3" site on parcels developed to appear 'residential'.
4. Review the maximum size of the "C2" district commercial centre sites and consider increasing the maximum allowable size to accommodate the idea of mixed used development (i.e. residential above commercial) and their combined parking requirements.
5. Introduce a new land use district that allows for the development of secondary suites within low density residential areas.

## **9.6 Other Changes**

### **9.6.1 Design Guidelines 2001**

The City's Engineering Services Department staff administers and regularly reviews the 'Design Guidelines'. The current version of this document is the 2002 updated

edition. During the next review of the 'Design Guidelines', the following suggestions should be considered for study or incorporation.

1. A greater range of local residential street types in appropriate locations for special application (e.g. narrower rights of way for short streets or cul-de-sacs). In this regard consideration should be given to reviewing design standards such as curb radii, visibility triangles, sidewalk widths/requirements, road cross section profiles and landscaping.
2. Encourage the design of a subdivision to have lots backing onto a collector road (i.e. no lane) that is to accommodate a trailway.
3. Revisit the standards and policies regarding the provision of sidewalks re: are they required in cul-de-sacs; can they be only on one side of short local streets are not required at all; sidewalks being required on both sides of the street along transit routes and local streets leading to transit routes.
4. Provisions for raised crosswalks and or sidewalk 'bump-outs in certain locations (e.g. trail crossings of collector streets) with a view of enhancing pedestrian and cyclist safety.
5. Alternative stormwater management systems/facilities (e.g. constructed wetlands) in addition to the existing options of dry (detention) and wet (retention) ponds.
6. Possible solutions to the problem of the impact of zoning/MR dedication/PUL classification on the application of alternative stormwater management facilities.
7. Allowance of on-site sewage treatment plants in appropriate applications (e.g. a multiple school site or a self-contained multi-family project).
8. The reduction of the required water system pressure and possible ways to reducing the treatment of water used for fire-fighting purposes (or using grey water for this purpose), with a view to achieving cost savings.
9. Require all multi-attached and multiple family buildings to provide separate water meters for each dwelling unit.

### **9.6.2 Neighbourhood Development Standards and Guidelines**

The City's Community Services Division staff administers the 'Neighbourhood Development Standards and Guidelines'. This is a new document (2002) which incorporates many smart growth principles and ideas. The following additional ideas could be considered for study or incorporation:

1. Energy efficient subdivision, site and building design principles.
2. Provide a recycling depot at the community activity centre.
3. Cluster public, service and commercial uses at the community activity centre and sharing, where possible, facilities, infrastructure and services.
4. Neighbourhood area structure plan to identify and indicate efforts to preserve the natural and cultural heritage within the neighbourhood development site.

### **9.7 Working with the Development Community**

Successful implementation of the suggested design elements and changes identified through the study will require cooperation among several parties, stakeholders and groups. Important among these is the development community. Highlighted below



are four critical aspects that must be taken into account in working with the development community to achieve more sustainable neighbourhoods.

1. A common vocabulary and consensus on the meaning of key words and notions can contribute to strengthened partnerships and help reduce misunderstandings. Currently there is no single, comprehensive glossary of the key terms used throughout the City's statutory planning documents. For example, the definition of gross developable area is used in several documents yet remains undefined.
2. Continued consultation and regular communication with the development community has contributed towards a strong working partnership. Consultation on proposed changes in policy, including the implementation of the ideas coming out of this study, should continue to be a regular element of the City's approach to neighbourhood planning.
3. As pointed out in the discussion of obstacles (Section 9.2), the perspective of the development community at times is different than the perspective of the City and others. Acknowledgement and understanding of different perspectives and motivations is a critical first step in any working relationship. Ongoing communication among the development community, the City and other stakeholders is a means of building understanding of various perspectives.
4. Being open to dialogue and new ideas is important in working with the development community to build desirable neighbourhoods. Within the guiding context of new or revised major area structure plans, this includes consultations with landowners and land developers regarding the distribution of key land uses and infrastructure.

'Smarter growth' can only come through collaboration and cooperation among the city, the residential development industry and the general community. Progress and success will depend on the ability of all stakeholders to cooperatively address these challenges, including working together to address the obstacles in Section 9.2.

## **9.8 Public Education and Awareness**

The City should actively engage all its departments to educate and inform the public and the development industry on smart growth principles and development practices. The actions, and the tools used in these actions, should be simple, yet innovative and affordable.

To assist in making the public aware of smart growth, the following guidelines should serve as a reference for the City:

- (a) Focus on those aspects that make communities great places to live.
- (b) Stress the human dimension of smarter growth and sustainable communities, including the potential personal benefits that resonate most strongly with consumers, e.g. community interaction; dialogue with neighbours; accessibility and convenience; safety; affordability; options for life cycles and life styles; a variety of leisure time (sports, walking, arts, cultural) opportunities; etc.
- (c) Interweave the theme of environmental and cultural heritage resources stewardship into the overall message of great livability.

- (d) Create political and public will for action and support by addressing identified problems and shortcomings through possible solutions.
- (e) Continue to act as a convener by bringing together stakeholders on growth and development through constructive dialogue.
- (f) Review proposed area structure plans, outline plans, subdivisions plans and development plans with a view of identifying aspects that hinder sustainable development practices and encourage changes that promote smarter growth.

City Council leadership needs to be expressed through effective public policy decisions and endorsements of appropriate guidelines and regulations that encourage smart growth. There are many opportunities for City Council to pursue this goal, including:

- (a) Provide appropriate and effective policy directions that determines where and how the community should invest in growth, through:
  - i) New and updated statutory plans (Municipal Development Plan, major area structure plans) and the Land Use Bylaw;
  - ii) Building and maintaining municipal infrastructure;
  - iii) Purchasing, managing and selling land;
  - iv) Setting standards, regulations and fees;
  - v) Providing social, engineering and planning services in response to community needs and in manners that assist smarter growth.
- (b) Continue to cooperate with Red Deer County in intermunicipal planning which does not encourage urban and suburban sprawl.

## **Appendix 1**

**Community Form Compendium of Ideas and Practices  
(Chapter 2 of Background Report No. 5)**

## 2. COMMUNITY FORM

### 2.1 Introduction

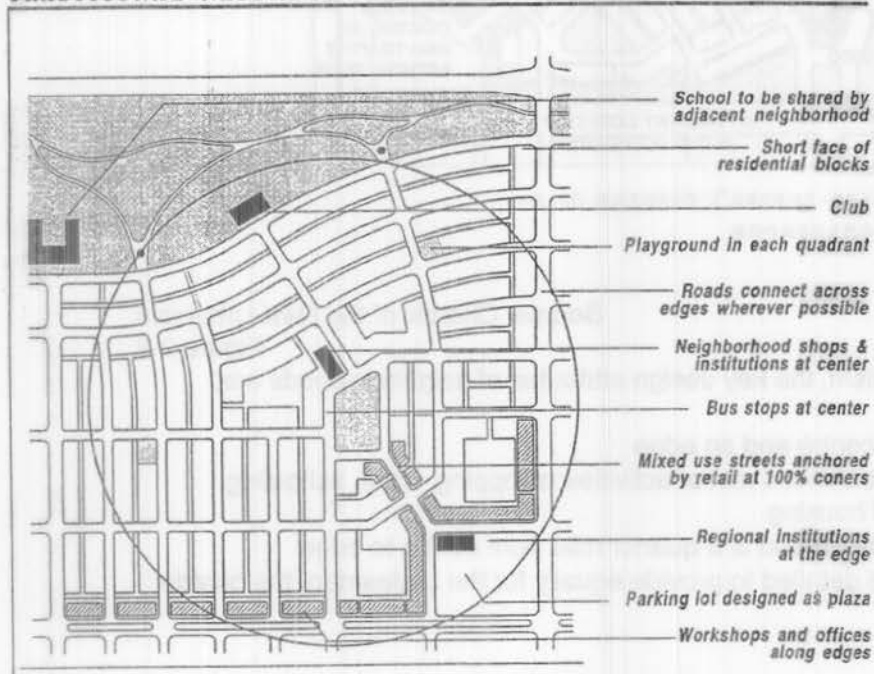
This section provides an overview of the 'design' of new neighbourhoods and communities. To help orientate the reader, the section begins with a quick summary of neighbourhood design elements from newer community planning movements. It then provides a series of community designs examples, and their related principles, key elements or features, from across the United States and Canada.

### 2.2 Design Elements from Planning Movements

Traditional Neighbourhood Development (TND) design elements are shown in Figure 2-1. As presented in *New Urbanism: Comprehensive Report and Best Practices Guide*, the design elements are explained as follows:

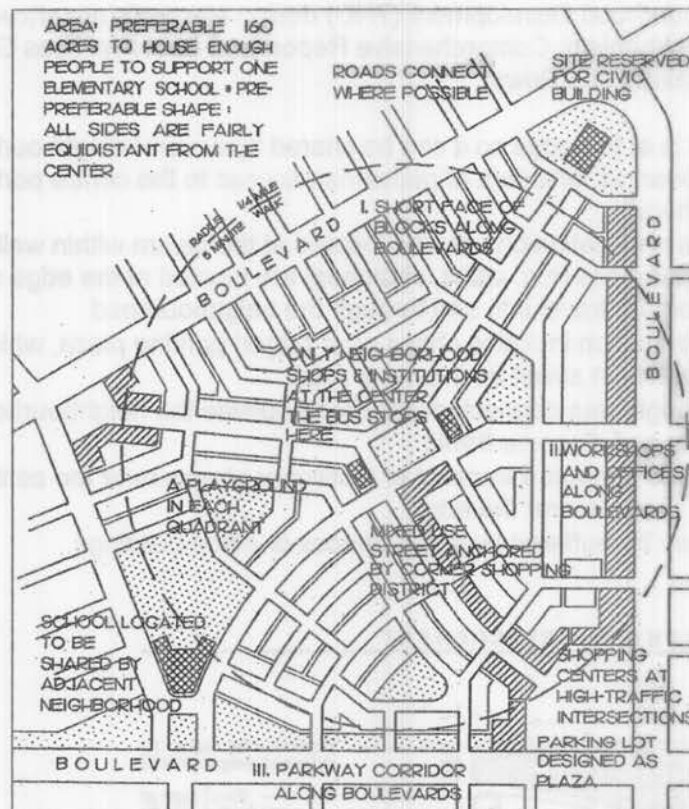
- the school is at the edge so it can be shared by several neighbourhoods and playing fields are seen as inhibitors of pedestrian access to the centre portion of the neighbourhood
- local shops and institutions can be located at the centre within walking distance; regional institutions (e.g. clubs, churches) are located at the edge so access by car does not require travel into and through the neighbourhood
- busiest intersection includes shops on a 'larger' parking plaza, which is extended by an 'attached' main street for live-work retail
- minor thoroughfares connected with those outside the neighbourhood to increase permeability and disperse traffic
- thoroughfares support a transect of rectilinear streets near the centre to more curvilinear roads nearer the edge
- arterials may be buffered by green spaces or office buildings.

#### TRADITIONAL NEIGHBORHOOD DEVELOPMENT



Source: *New Urbanism: Comprehensive Report and Best Practices Guide*  
Figure 2-1

This concept also is depicted in the Charter of New Urbanism, although with some modifications and elaborations (Figure 2-2). Curiously, it indicates an 'ideal' neighbourhood size is 160 acres, this being the size of an Alberta quarter section and a 'typical Red Deer neighbourhood'. However, the neighbourhood is shaped so that all sides are nearly equidistant from the centre and generally walkable within five minutes. It provides for a playground in each quadrant with the school located at an edge for sharing with an adjacent neighbourhood. Neighbourhood shops and institutions are located at the centre, where the bus stops, but major institutional buildings are on the edge at a prominent intersection. Work places are located along an edge (long face of blocks) while a shopping centre is at the high traffic intersection, with a mixed use street extending toward the centre of the neighbourhood.



DUANY PLATER-ZYBERK'S DIAGRAM OF AN URBAN NEIGHBORHOOD

Source: Charter of the New Urbanism  
Figure 2-2

In The Charter for the New Urbanism, the key design attributes of neighbourhoods are:

- the neighbourhood has a centre and an edge
- the neighbourhood has a balanced mix of activities: shopping, work, schooling, recreation and all types of housing
- the ideal size of the neighbourhood is a quarter mile from centre to edge
- neighbourhood streets are detailed to provide equally for the pedestrian, the bicycle and the car

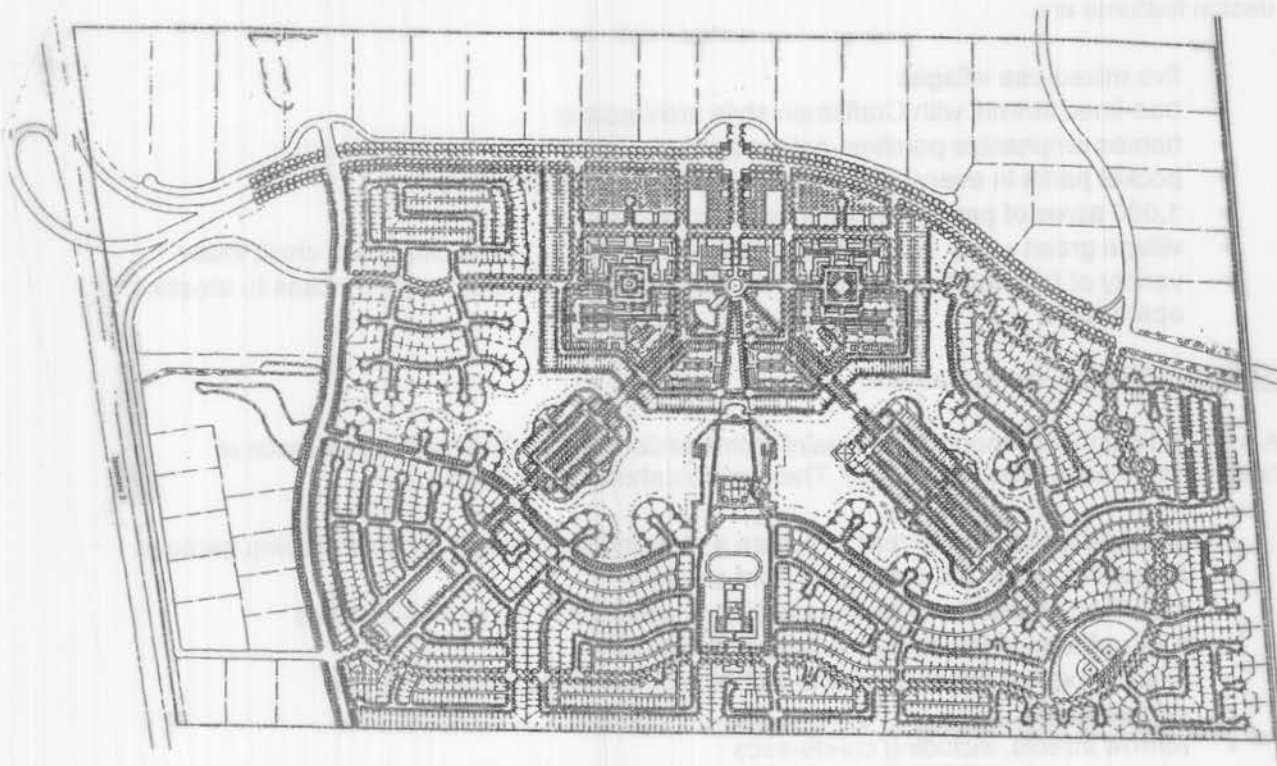
- the neighbourhood gives priority to the creation of public space and to the appropriate location of civic buildings.

### 2.3 Practices in the United States

#### Laguna West, California

A pedestrian pocket community for over 3,000 homes on 1,045 acres and includes areas for office, retail and industrial development (see Figure 2-3). Some key design elements are:

- primary emphasis on transit oriented development (each pocket intended to be at one mile intervals along a transit line)
- all homes within walking distance of the transit node
- mixture of curved and straight streets, and includes cul-de-sacs
- strong radial design element
- walkable to schools, shops, recreation areas and daycares
- variety of open spaces
- mixed uses
- narrow building setbacks



*Plan for Laguna West, Sacramento, California*

Source: Site Planning and community Design for Great Neighbourhoods  
Figure 2-3



### Kentlands and Lakelands, Maryland

These are adjoining developments that form a larger community. Some of the main features include (see Figure 2-4):

- planned for 3,000 housing units on 695 acres
- includes office and retail area (600,000 sq. ft.)
- includes schools, civic buildings, neighbourhood parks, natural open space
- emphasis on attractive streetscapes
- strong architectural guidelines to promote the aesthetics of an older town
- share a 'downtown' Market Square, which is mostly single story, single use buildings with buildings built to the sidewalk; is a community focal point
- balance of curved and straight streets
- mix of homes with deep and shallow front yard setbacks
- walkable to key destinations (transit stop, shops)

### Northwest Landing, Washington

A 2,800 acre project with plans for over 4,000 residential units, 150 acres of office development and two "main street" retail areas (see Figure 2-5). A number of the basic design features are:

- five mixed-use villages
- tree-lined streets with Craftsman style architecture
- homes emphasize porches, not garages
- pocket parks in every neighbourhood "just steps" from homes
- 1,000 acres of parks with ten miles of trails
- village green – two acre 'central park' with Craftsman-style clapboard clock tower
- variety of housing types ranging from single family homes, to townhouses to six-plex apartments

### Southern Village, North Carolina

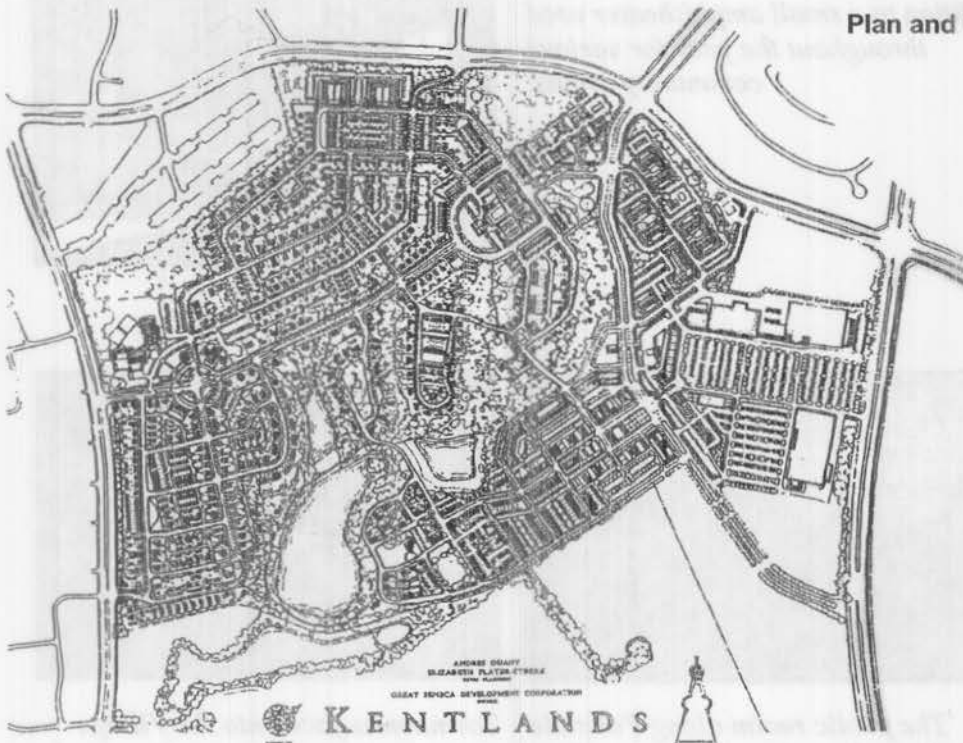
A new, old neighbourhood with a 'quaint' commercial centre within walking distance of nearby residences (see Figure 2-6). The neighbourhoods emphasize:

- garages tucked to the rear to assure a pleasing streetscape by downplaying garages
- houses closer to the street with front porches
- tree-lined sidewalks inviting walking to schools, café, recreation facilities
- a mix of turn-of-the century architectural styles
- well-connected street grids with a choice of routes from place to place
- corner stores
- narrow streets, including cul-de-sacs

The Market Street includes:

- two and three story buildings created to look like the classic Main Street
- an adjacent Village Green

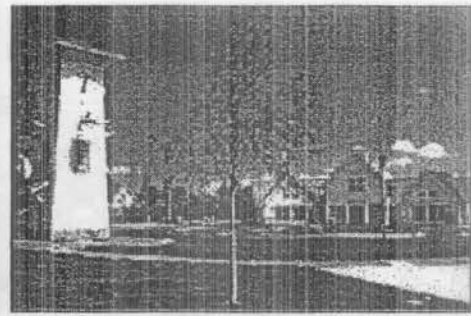
Plan and View of Kentlands



Source: Site Planning and community Design for Great Neighbourhoods  
Figure 2-4



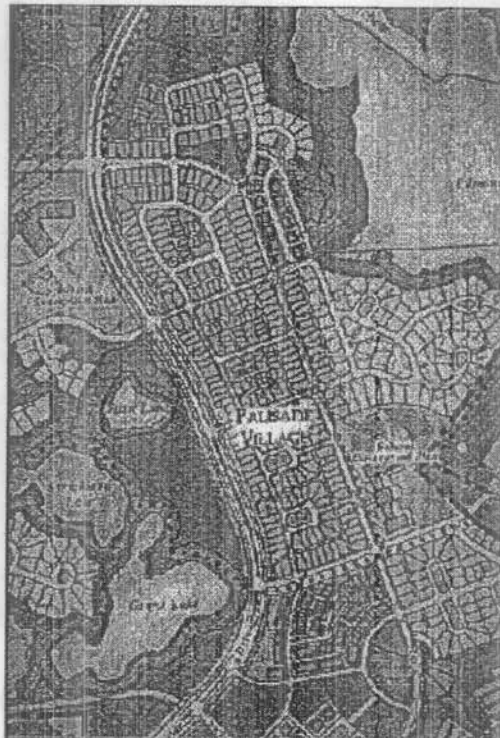
*contains passive recreation space in addition to a small amphitheater used throughout the year for various community events.*



*The public realm along Palisade Boulevard is enhanced by the alley-served homes, which require fewer curb cuts and help maintain the walkable character of the street.*



*Townhomes face onto the Village Green and exhibit an architectural character reminiscent of pre-WWII bungalow homes found throughout the region.*



*The multi-family housing at Northwest Landing employs human-scale street facades similar to that of the single-family homes, maintaining a pedestrian-friendly environment throughout the project.*

**Dupont Landing, Washington**

Source: [www.Calthorpe.com](http://www.Calthorpe.com)  
Figure 2-5

## Southern Village, North Carolina



Source: [www.southernvillage.com](http://www.southernvillage.com)  
Figure 2-6

### Vermillion, North Carolina

A historic neighbourhood in the making, designed foremost for people and not solely for cars. Features narrow, low speed streets where cars and pedestrians peacefully co-exist (see Figure 2-7).

- mixed use neighbourhood, includes a variety of homes, shops, workplaces and parks
- range of housing options to accommodate all stages of family life
- has corner stores
- tree-shaded sidewalks
- parks and nature trail

Designed according to the Thirteen Points of Traditional Neighbourhood Development:

- the neighbourhood has a discernible centre
- most dwellings are within a five minute walk of the centre
- there is a variety of dwelling types
- a small ancillary building is permitted in the back yard
- there is an elementary school close enough for most children to walk
- there is a small playground near every dwelling
- there is a connected street network
- the streets are relatively narrow and shaded by trees
- buildings at the neighbourhood centre are placed close to the road
- parking lots and garages rarely face the street
- certain prominent sites are set aside for civic buildings
- the neighbourhood is organized to be self-governing.



The Master Plan for Vermillion Phase 4



Vermillion Parkway

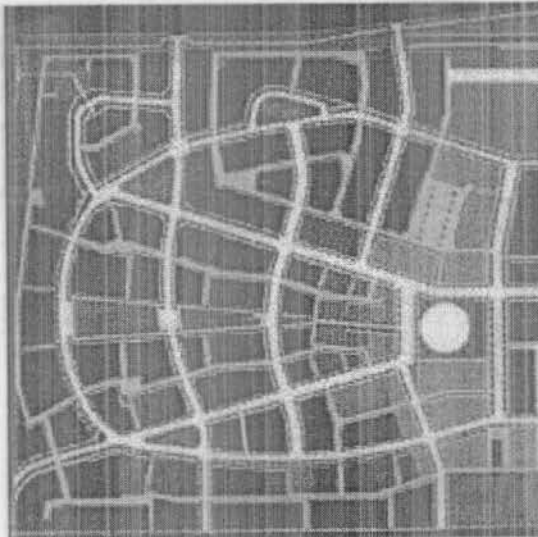
Source: [www.vermillion-tnd.com](http://www.vermillion-tnd.com)

Figure 2-7

### Prospect, Colorado

An 80 acre tree farm is being developed to contain 585 housing units on 340 lots. Some of the features include (see Figure 2-8):

- mixed land use to include homes, shops, offices and parks
- narrow streets lined with trees to promote shade and privacy
- streets laid out in a compact, interconnected network, and link with external roads
- variety of housing types including detached, townhouses, courtyard houses, apartments and live/work lofts
- accessory units above detached garages are encouraged for guest or rental housing or for office space
- broad range of architectural styles
- variety of parks and public amenities, including tot lot, dog park, swimming pool, farmers market
- town centre with shops, restaurants, offices and skating rink within a five minute walk of all homes



**Site Plan and Aerial View  
Prospect, Colorado**

Figure 2-8  
Source: [www.prospectnewtown.com](http://www.prospectnewtown.com)

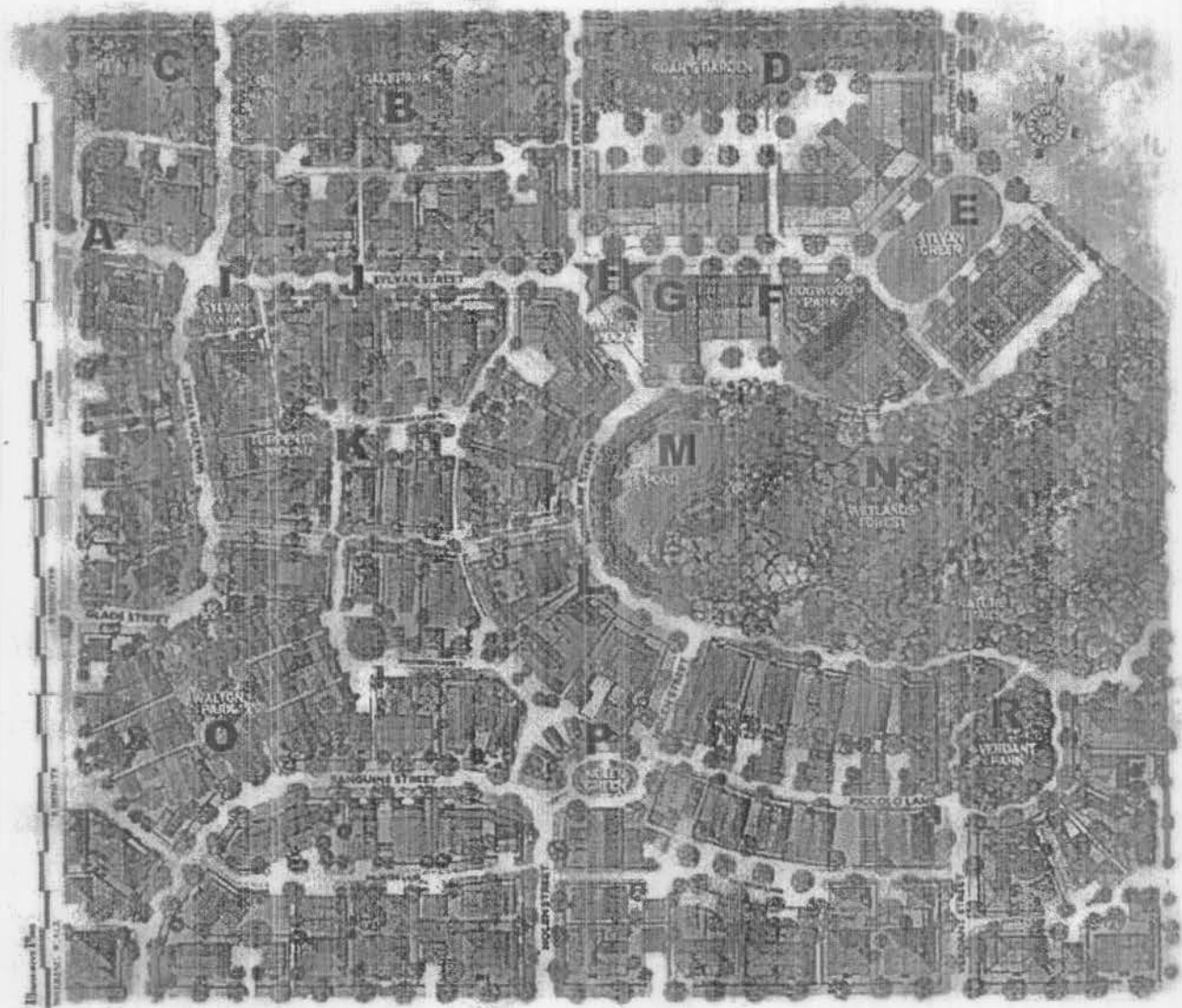
### Woodson, North Carolina

Some of the design features (see Figures 2-9 and 2-10) include:

- variety of housing and workplaces
- coastal architectural tradition
- front porches line the streets
- rear lanes encourage accessory buildings for garages and home occupations
- walkable to a school, library, shopping centre and parks
- natural areas contain a children's park, neighbourhood green, intimate vicinity parks
- constructed wetland water garden
- sanctuary of a preserved wetland forest
- a defined mix of public and private spaces (see Figure 2-10)



## Site Plan of Woodsong, North Carolina



A – Entry Gazebo

B – Park

C – Nature trails

D – Community gardens

E – Community Green

F – Pocket park

G – Shops

H – Market plaza

I – Park

J – Tree lined street

K – Play ground

L – Two level veranda, tree lined street

M – Pond

N – Wetland forest

O – Park

P – Green

R – Park

Source: [www.villageof woodsong.com](http://www.villageof woodsong.com)

Figure 2-9

Land Use Maps of Woodsong, North Carolina  
Civic/Public Use Space and Private Space



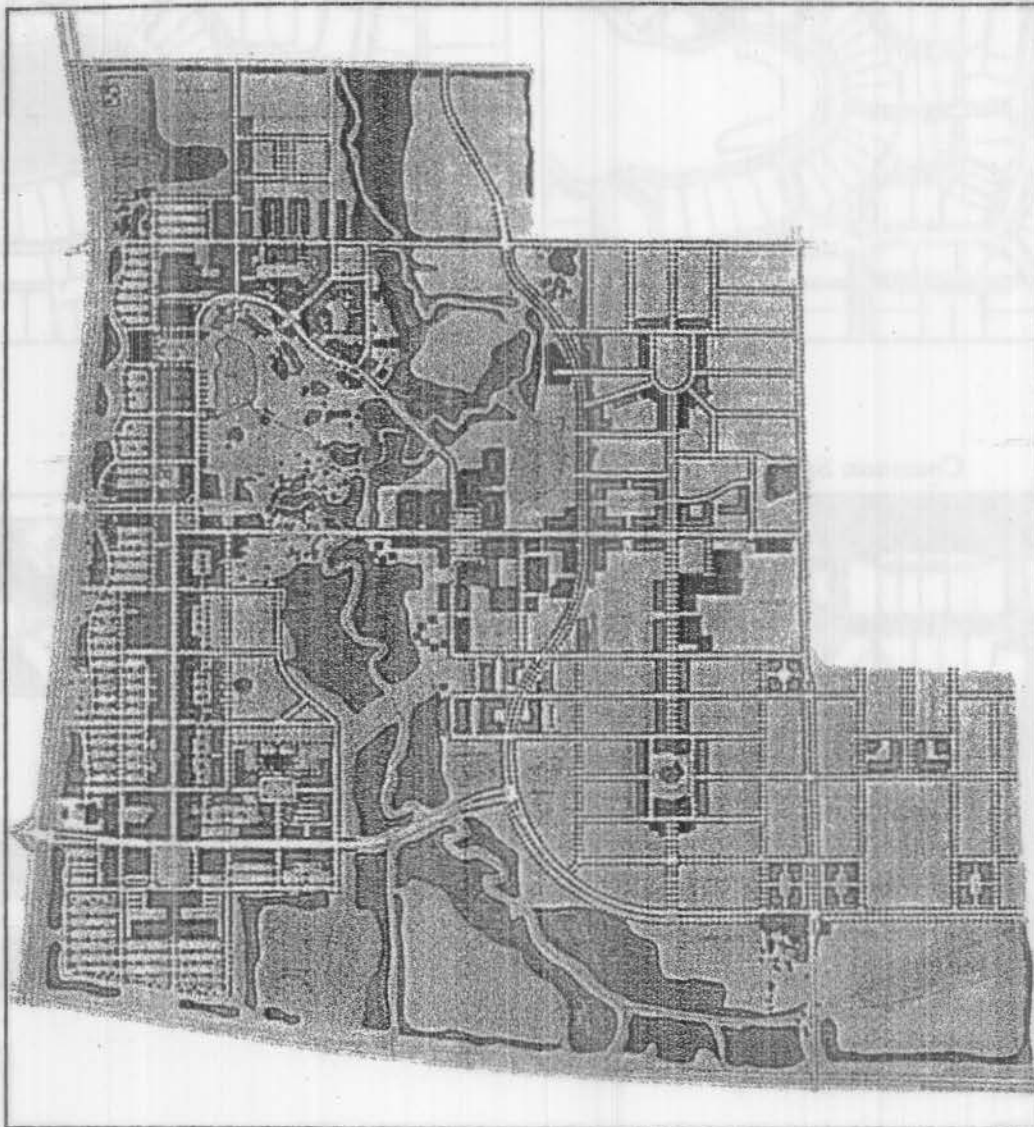
Source: [www.villageof woodsong.com](http://www.villageofwoodsong.com)  
Figure 2-10

### Coffee Creek, Indiana

A 640 acre site proposed to contain 1,200 residences and at least one million square feet of office and retail space. Features include (see Figure 2-11):

- modified grid street system
- mixed use town centre and employment district
- neighbourhood greens
- 240 acre parkland along a creek, with existing and constructed wetlands, restored prairie lands, cycle and walking paths

Coffee Creek, Indiana



Source: The Practice of Sustainable Development  
Figure 2-11

## 2.4 Practices in Canada

### Cornell (Markham, Ontario)

Cornell is the largest Traditional Neighbourhood Development in Markham. It contains 1,544 acres and is proposed to contain approximately 10,360 housing units for a population of 27,000. Its features (see Figure 2-12) include:

- six neighbourhoods form the community
- neighbourhoods are self contained with a mix of uses and activities
- employment/service uses at the neighbourhood centre
- mixed use district centres, each with a dominant specialized activity (e.g. hospital, automotive service)
- corridors provide linkage and help to define patterns of activities at the boundaries of some neighbourhoods and districts
- central Core and Central Corridor provides community and regional services, including the 'main street' shopping area for the community
- well defined public areas
- preservation of natural environment
- transit supportive but pedestrian-oriented
- range of housing types

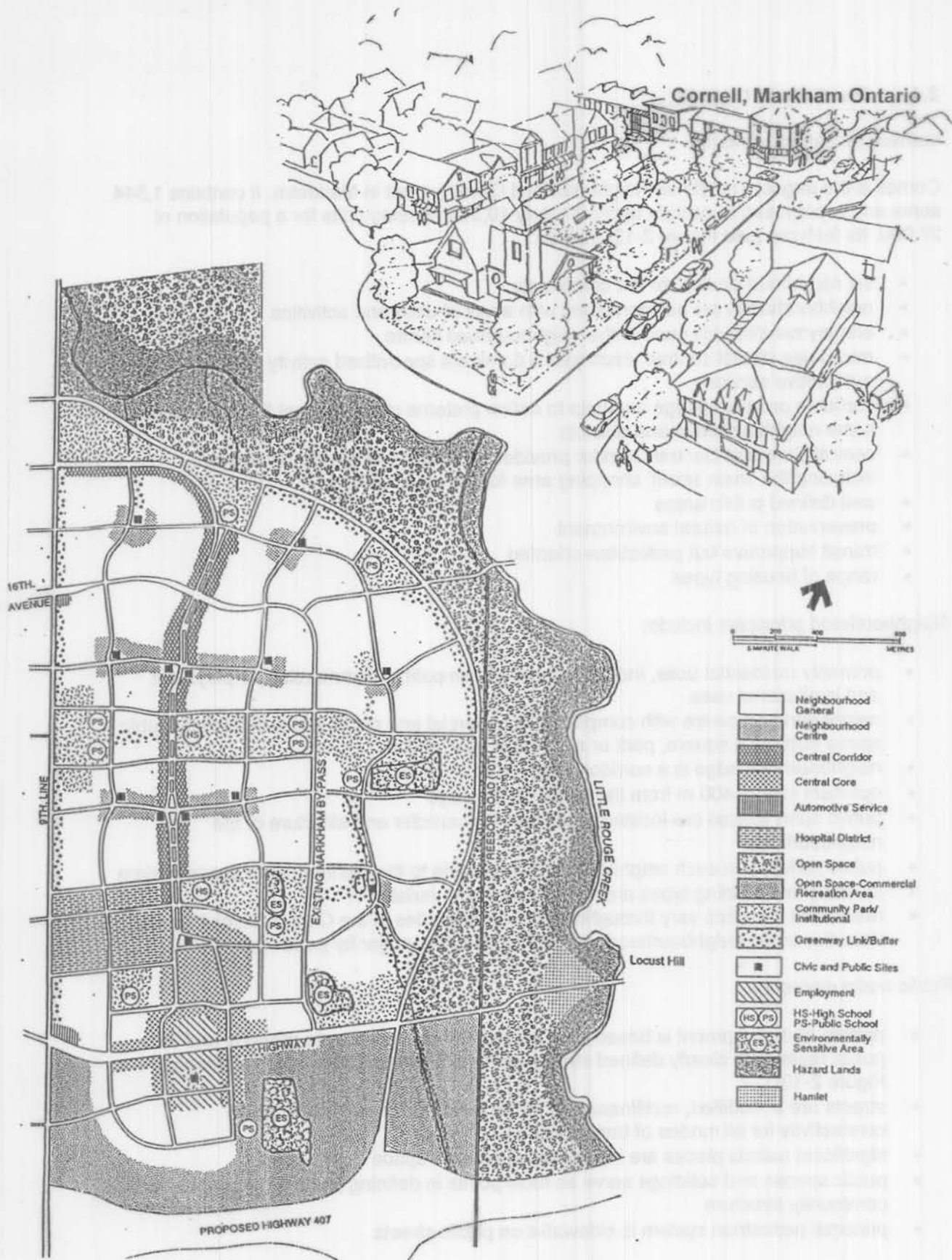
Neighbourhood principles include:

- primarily residential uses, including a mix of compatible commercial, employment and institutional uses
- neighbourhood centre with compatible commercial and public uses; defined by public space such as a square, park or significant intersection
- neighbourhood edge is a corridor, major road or district
- optimum size of 400 m from the centre to the edge
- public open spaces are located to define the character and structure of the neighbourhood
- public parkland in each neighbourhood accessible to the planned open space system
- lot sizes and building types are mixed to achieve variety
- residential densities vary throughout; highest densities in the Central District; lowest densities in the neighbourhoods adjoining the future major by-pass road

Public realm elements:

- pattern of development is based on a distinction between private property and the public realm with clearly defined streets and open spaces ( see also Woodsong; Figure 2-10)
- streets are a modified, rectilinear grid which provides for permeability and connectivity for all modes of transportation
- significant natural places are incorporated as open space
- public spaces and buildings serve as focal points in defining patterns of land use and community structure
- principal pedestrian system is sidewalks on public streets





Source: Changing Values Changing Communities  
Figure 2-12

### **Angus Glen** (Markham, Ontario)

The development company plans for 1,500 housing units on 321 acres. The site design (see Figure 2-13) features include:

- more diverse mix of dwelling types, including garden suites
- higher densities with more compact development
- higher density housing – smaller single lots and townhouses (35% are medium and high density) close to village centres to create a 'street wall' and define edges of crescents, squares and parks
- narrower lots (8.2 m) with laneways reduced front yard setbacks and rights-of-way to bring houses closer to the street and improve the sense of neighbourhood
- reduced front yard setbacks (3.0 to 4.5 m) with townhouses allowed to build along front property line
- pedestrian friendly streetscape by de-emphasizing the importance of the car (e.g. garages in the rear, rights-of-way reduced)
- well defined rectilinear and modified curvilinear street hierarchy (collectors, local, intersection 'chokers' and traffic circles on minor collectors to calm traffic and provide transit operating priority)
- well defined street hierarchy (minor collectors, local roads and lanes) to ensure efficient traffic movement
- park and school sites located to minimize land waste and achieve carefully designed public spaces
- public buildings designed to reinforce the streetscape

### **Montgomery Village** (Orangeville, Ontario)

Under construction is a compact and varied pedestrian-oriented development on 250 acres planned for up to 750 housing units as well as considerable natural open space (28% of the site) and employment areas. Features include (see Figure 2-14):

- neotraditional plan based on elongated blocks and a grid road system
- mostly low-rise residential detached, semi-detached and townhouse units with provisions for garden flats
- all houses have garages located at the rear
- narrower frontage for townhouses (6 m) and detached units (9 m)
- reduced front yard setbacks to 3 m
- public safety enhanced through 'eyes on the street' accomplished by bringing houses with front porches closer to the street
- mixed residential and neighbourhood commercial along a central boulevard
- larger commercial and industrial uses along a boundary road
- state of the art telecommunications systems connecting the community with the electronic superhighway
- An Existing Natural Features Inventory defined priority features and lands to be protected in the open space system - 28% of the site is natural open space, including 80 m setback from creek
- Stormwater collected through 'swales' and channels and directed to temporary ponding areas for storage and purification

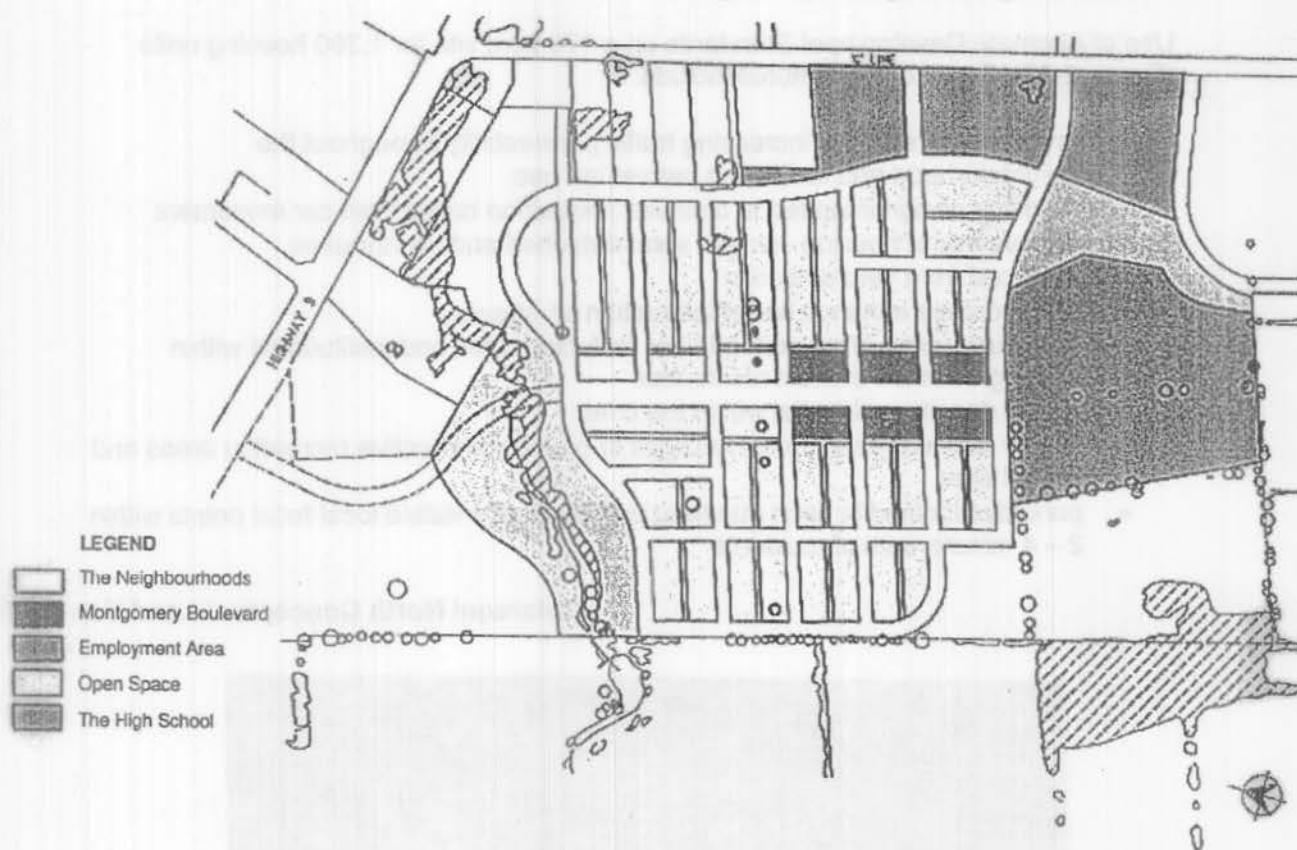
## Angus Glen East and West Neighbourhoods Markham, Ontario



Source: Breaking Ground  
Figure 2-13



# Montgomery Village, Orangeville Ontario



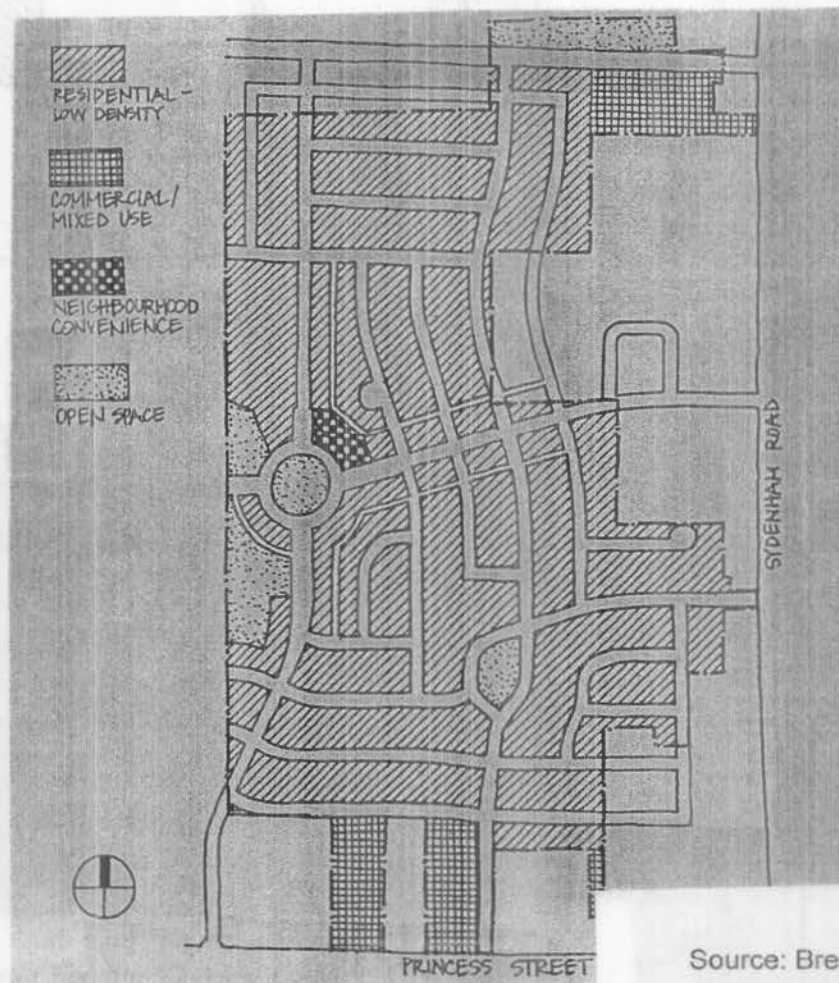
Source: Changing Values Changing Communities  
Figure 2-14

### Cataraqui North (Kingston County, Ontario)

Use of Alternate Development Standards on a 170 acre site for 1,300 housing units (Figure 2-15). Some of the features include:

- grid street system for increasing traffic permeability throughout the neighbourhood and facilitating pedestrian use
- roadway design intended to optimize pedestrian rather than car movement
- diverse mix of housing –single, semi-detached and townhouses
- Reduced front yard setbacks
- front porches enhance social interaction on streets
- community core of mixed land uses including retail and institutional within walking distance of most residences
- higher density residential within the core
- clearly defined green space linkages to passive and active recreation areas and school sites
- parkettes located in each quadrant provide highly visible local focal points within 2 – 4 minute walk of residents

**Cataraqui North Conceptual Land Use**

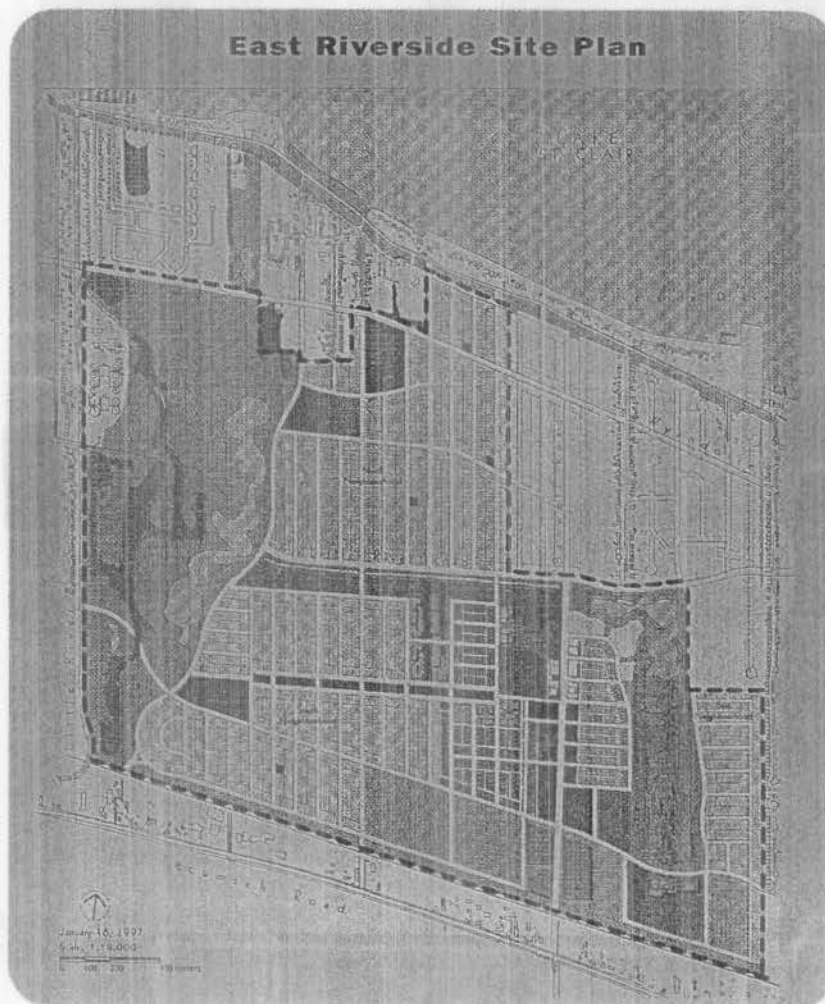


Source: Breaking Ground  
Figure 2-15

### East Riverside (Windsor, Ontario)

A 1,183 acre site consisting of original French Canadian long, narrow lots along Lake St. Clair and the Detroit River. Planned to accommodate 3,300 to 4,400 housing units. Due to a flat topography and poor natural drainage, in areas development may only occur if adequate flood proofing measures are provided. The site plan is shown on Figure 2-16.

- comprehensive greenway system to be the community's major structural element
- high quality mixed use core area containing retail, commercial, community and residential uses
- transit supportive street system conserves historic lotting pattern
- traffic calming measures include centre boulevards, roundabouts, reduced rights-of-way, on-street parking and curb geometrics
- design and amenity of streetscapes is a crucial to encourage social interaction
- pedestrian-oriented neighbourhoods focused around a mixed use village centre
- distinct public areas defined and delimited by streets, sidewalks, street furniture, open spaces and buildings
- sidewalks on both sides of arterial and collector roads, and where multiple family housing is located; detached housing area to have a sidewalk on one side
- mix of housing forms with densities ranging up to 40 units per hectare; core residential area can accommodate up to 110 units per hectare



Source:  
Breaking Ground  
Figure 2-16

### Oak Park/Uptown Core (Oakville Ontario)

The Oak Park/Uptown Core is a high density development covering 247 acres for up to 4600 housing units. The site plan is shown on Figure 2-17. Some of the planning features include:

- mixed residential community and business centre
- highly developed pedestrian orientated development
- mixed residential areas (detached, semi-detached, townhouses and apartments)
- convenience stores permitted and are to be incorporated within residential buildings
- diverse park system with focus on the Town Centre
- radial grid street pattern, with sidewalks on both sides that form an interconnected pedestrian system
- several major streets leading to the Town Centre are boulevard routes, with a greater pedestrian orientation

Oak Park/Uptown Core, Oakville Ontario

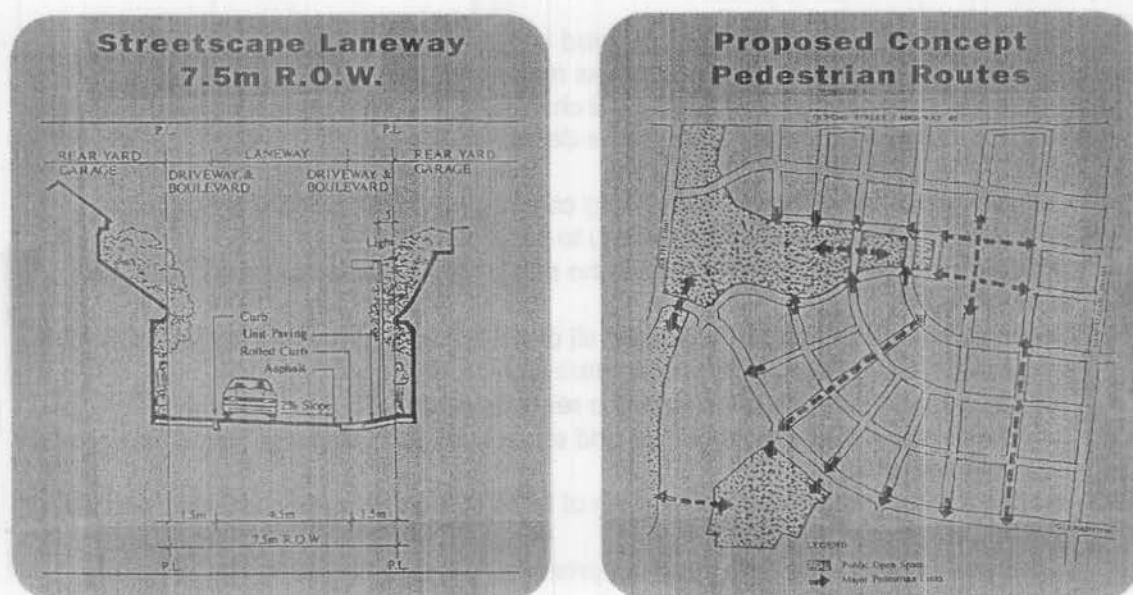


Source: Breaking Ground  
Figure 2-17



- defined standards of landscaped areas, paving, street trees and street furniture to make sidewalks a more comfortable public environment
- clear hierarchy of major and secondary streets (seven different types ranging from 18 m to 30 m) and laneways; minor residential streets are 16 m
- no front driveways – all garages need to be at the rear
- laneways have 7.5 m right-of-way; garages have varying setbacks and use different colours and materials to avoid a 'barracks' look; safety enhanced by laneway lighting (see Figure 18)
- reduced lot frontages of 7.5 m to 8 m with front setbacks are 3 m from street line
- water mains placed under pavement of boulevard
- transformers and mail kiosks placed on wider streets
- Uptown Core has a defined grid street pattern with street-related buildings (i.e. not the 'conventional' retail strip mall)
- Uptown Core will contain higher density residential development (137 units per site hectare) with incorporated public spaces
- pedestrian network encourages walking on a variety of streets and is well connected to an adjoining major open space system (see Figure 2-18)

#### Oak Park/Uptown Core, Oakville Ontario



Source: Breaking Ground  
Figure 2-18

#### New Amherst (Cobourg, Ontario)

A master plan community of 1600 -1900 residential units on 271 acres based on new urbanism principles:

- built environment that is diverse in use and population
- scaled for pedestrians
- able to accommodate cars and public transit
- well defined public realm



Some of the features of the community include:

- three self-contained neighbourhoods, each having a balanced mix of dwellings, workplaces, shops, civic buildings and parks
- each neighbourhood designed to be within a five minute walking distance of various services
- compact urban form and transit supportive densities
- opportunities for walking, biking and use of public transit are particularly enhanced; automobiles are provided for, but not given unqualified precedence
- mix of residential, business and civic uses
- social interaction encouraged since streets are designed as public places with reduced front setback requirements (use of front porches and balconies) and rear parking/garages
- stormwater management designed to use natural features to allow stormwater to percolate through natural surfaces to reduce the quantity of piped and treated stormwater
- architectural, urban, streetscape and landscape codes to promote high visual amenities

#### **East Clayton** (Surrey, British Columbia)

East Clayton contains 617 acres and is bordered on two sides by Agricultural Land Reserves. Its low net densities, narrow curbless roads and views of expansive agricultural lowlands give the community a distinctive rural character. The land use plan (see Figure 2-19) is based on seven principles of sustainable development:

- conserve land and energy by designing compact walkable neighbourhoods and encourage walking (five to six minutes) to basic services
- provide a mix of housing types within the same neighbourhood and even on the same street
- communities are designed for people; all dwellings should present a friendly face to the street in order to promote social interaction
- car parking and services to be from the rear of properties
- provide an interconnected, modified grid street system to disperse traffic; and provide for public transit
- provide narrow streets shaded by rows of trees in order to save costs and provide a greener environment
- preserve the natural environment and promote natural drainage systems (use of storm water ponds)

Some design features include:

- fine-grained modified grid street system with block dimensions not exceeding 160 m by 80 m (525 ft by 250 ft)
- two major schools/parks are to be centrally located
- each smaller neighbourhood area to contain a central neighbourhood green
- diversity of housing types to promote an integration and symbiosis between different family types and ages
- second dwelling units within single family homes to provide 'mortgage' aid' and affordable housing units
- narrower lots with lanes not for front driveways and garages (see Figure 2-20)

- some wider, shallow lots have no lanes and provide for front garages beside or behind the principle façade
- street widths for local and collector streets range between 6 and 11.3 m, in rights-of-way ranging between 17 and 22 m (see Figure 20)
- Main Street commercial area (larger area draw), but also neighbourhood commercial areas for working and shopping places
- Mixed use commercial core (commercial/residential buildings; live/work buildings; ground oriented town homes)
- Urban landmarks and gateway features

#### East Clayton Concept Plan

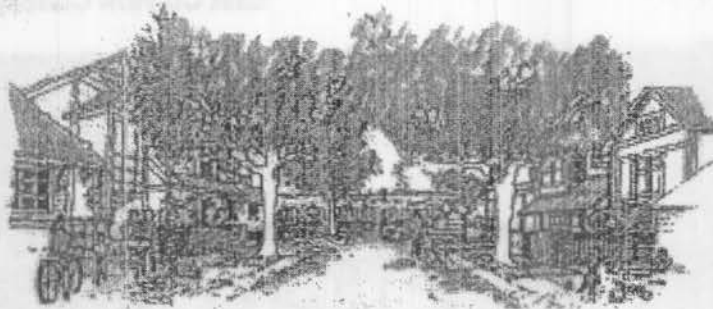


Source: East Clayton Concept Plan  
Figure 2-19

### East Clayton, Surrey (B.C.)

Small front setbacks ensure more "eyes on the street" and create a larger back-yard area for private outdoor space. Low front-yard fences clearly distinguish between private and public space. Street trees, boulevard infiltration strips and on-street parking create a pleasant envelope for pedestrians and buffer the effects of passing traffic.

Narrow, curbless streets save money, cause fewer ecological impacts and are more easily shaded by street trees.



Source: East Clayton Concept Plan  
Figure 2-20

### Red Willow (St. Albert, Alberta)

This new neighbourhood in the northwest quadrant of the city covers 510 acres and is intended to accommodate 2,840 housing units. The design (see Figure 2-21) provides for:

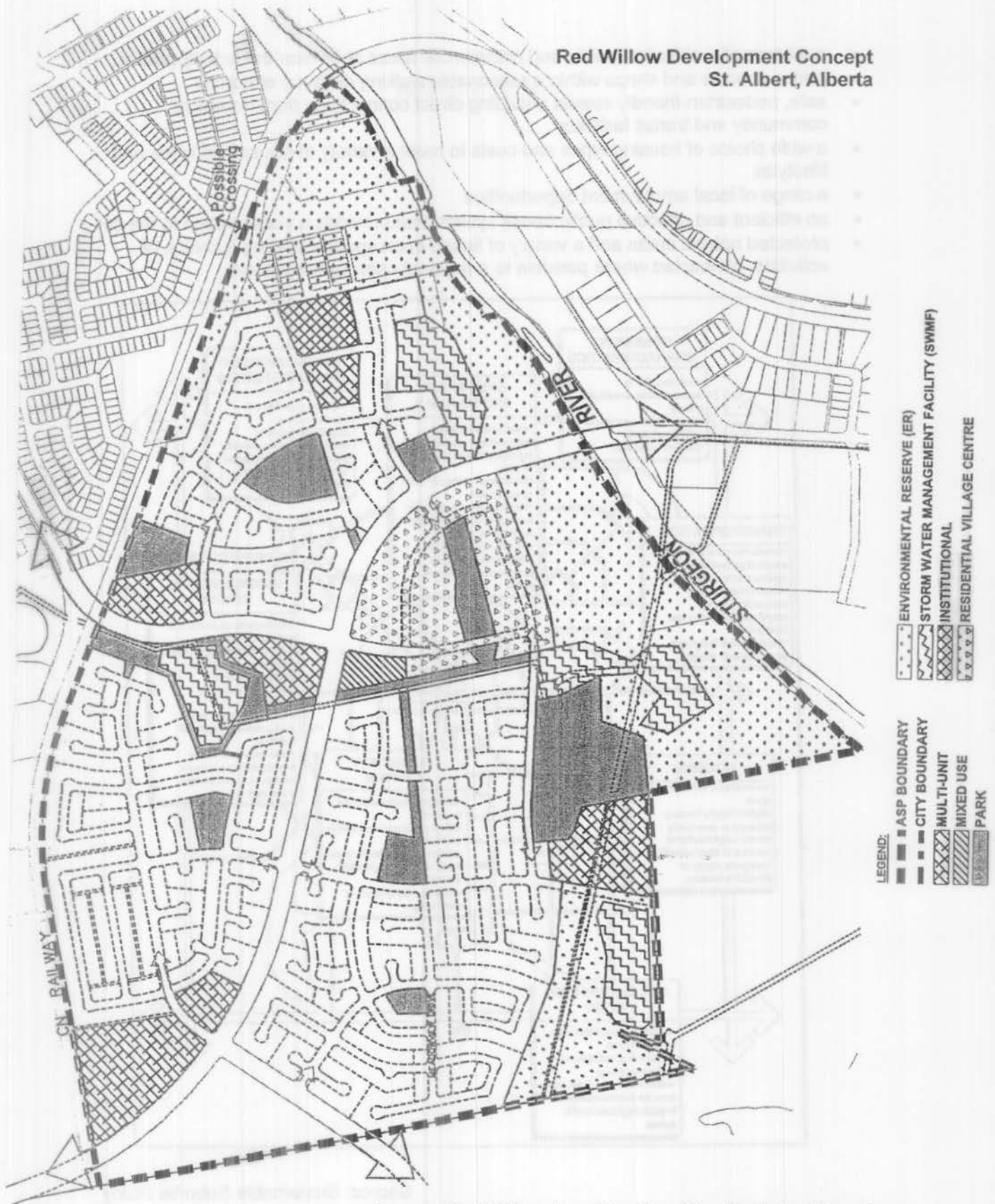
- a wide range of housing choices, with 35% being multiple dwelling units
- a strong pedestrian orientation with linked walkways and trails
- a neighbourhood node providing mixed uses and public transit orientation
- interface with the river valley urban park
- additional parks distributed throughout the area
- a neighbourhood node for mixed land uses which is public transit oriented

### Sustainable Community Guidelines (City of Calgary)

The City of Calgary's sustainable communities guidelines outline the following and are generally intended to provide for a 'complete community' of around 8,000 people housed in an area of 640 acres (one section). While the study indicates that not achieving certain key elements may compromise how well a community functions, it is recognized that community plans may be required for smaller areas. For smaller areas, development should be at 17.3 units per gross ha (7 units per gross acre) or it may not be possible to achieve all the elements. Key elements, as shown in Figure 2-22, include:

- a focal point and recognizable boundaries and entrances that give the community a distinct identity
- a public activity centre offering a variety of goods and services sufficient to meet the people's daily needs

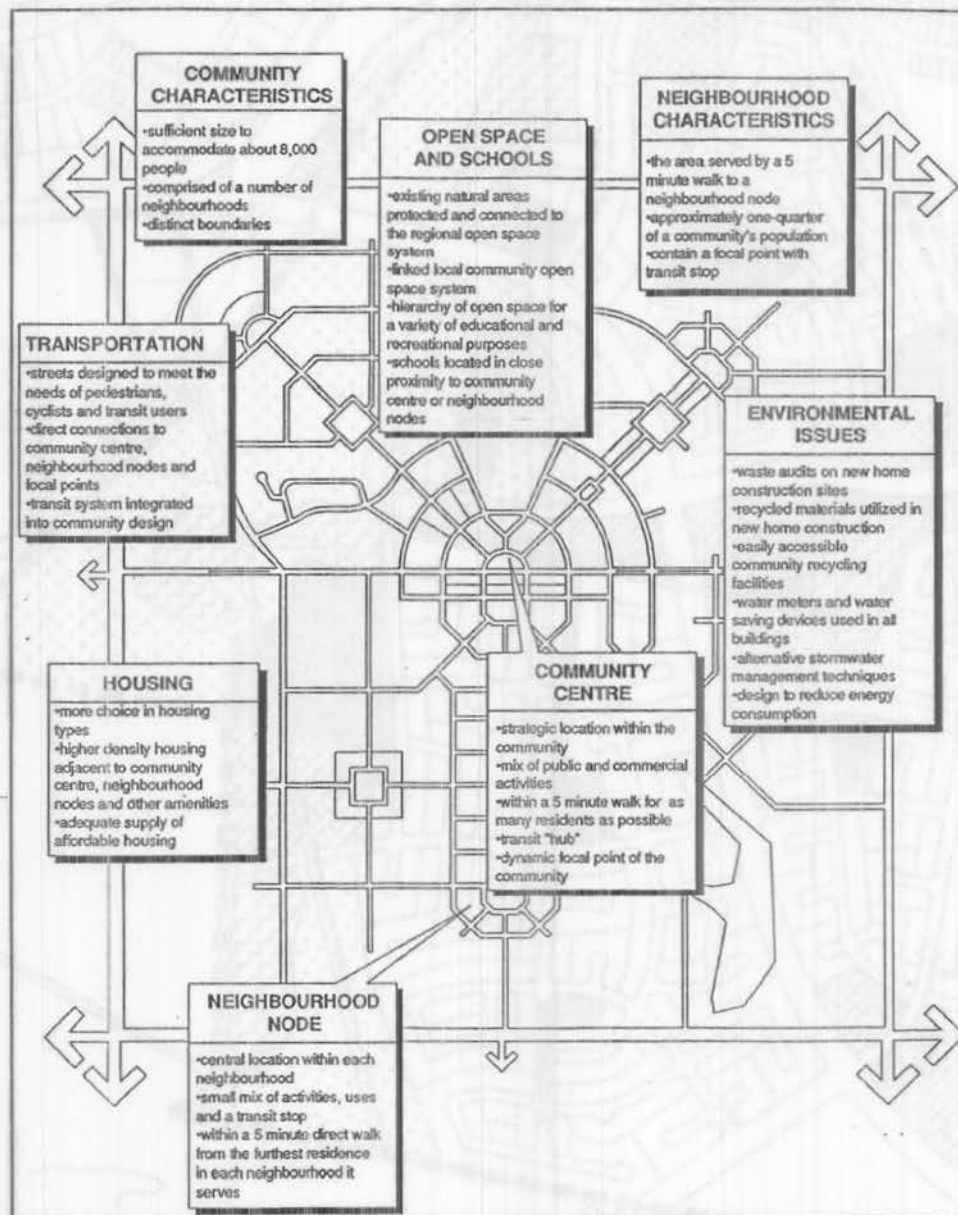
Red Willow Development Concept  
St. Albert, Alberta



Source: Red Willow Area Structure Plan Technical Report  
Figure 2-21



- a mixture of residential, public and commercial areas at or near the activity centre
- parks, schools and shops within a reasonable walking distance of homes
- safe, pedestrian-friendly streets providing direct connections from homes to community and transit facilities
- a wide choice of housing types and costs to meet a variety of household types and lifestyles
- a range of local employment opportunities
- an efficient and effective public transit system that provides a viable option to the car
- protected natural areas and a variety of linked open spaces offering a choice of activities, connected where possible to a regional open space system.



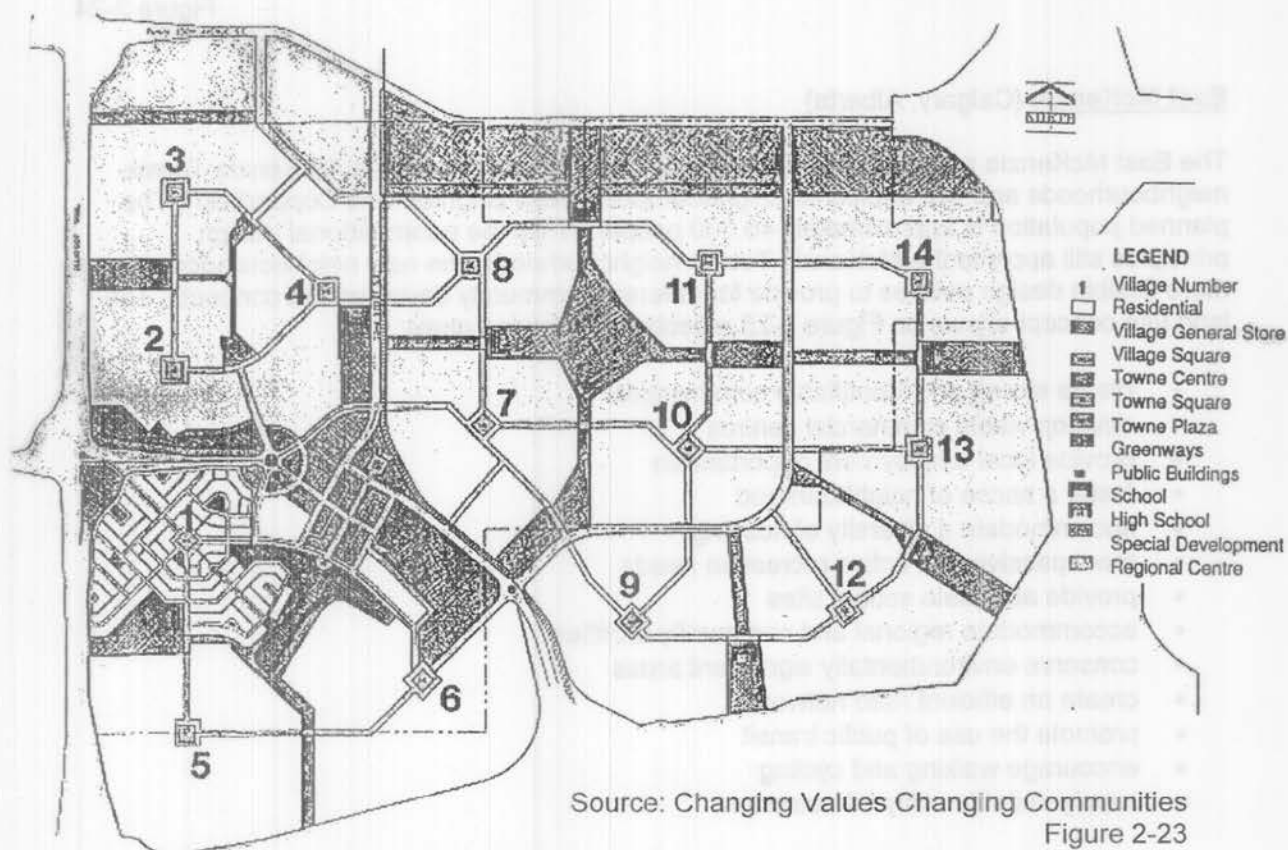
Source: Sustainable Suburbs Study  
Figure 2-22

### McKenzie Towne (Calgary, Alberta)

The neotraditional community of McKenzie Towne was initially envisioned to embrace 2,400 acres and provide housing for 28,000 people. It was to contain 13 neighbourhoods containing a mixture of housing, workplaces, shops, education facilities and civic institutions. Some of the key design elements included (see Figures 2-23 and 2-24):

- a range of housing types – principally single family, but also including townhouses, apartment flats, studio units and above ground apartments
- studio (garden) units accommodated
- each neighbourhood to have a 450 m (5 minute walking) radius
- each neighbourhood with a mixed-use neighbourhood square – church, day care, convenience store, restaurant, bus stop at the geographic centre
- high density Town Centre served by light rail transit (see Figure 24)
- provisions for easy walking access to bus stops
- pedestrian and bicycle friendly
- variety of street types and lane widths
- greenway system links neighbourhoods
- houses closer to street, with porches and verandas with parking at the rear
- shorter blocks

Due to slow marketing and higher costs, the developer has abandoned the true 'neotraditional' design and has changed for the design elements for the last 11 neighbourhoods, as discussed in the following section.



- main shopping street (High Street) is a mixture of shop front, retail and commercial buildings, being a pedestrian scaled downtown
- visually and functionally anchors the Towne Square, which has formal landscaping, paving patterns and treatment of surrounding buildings



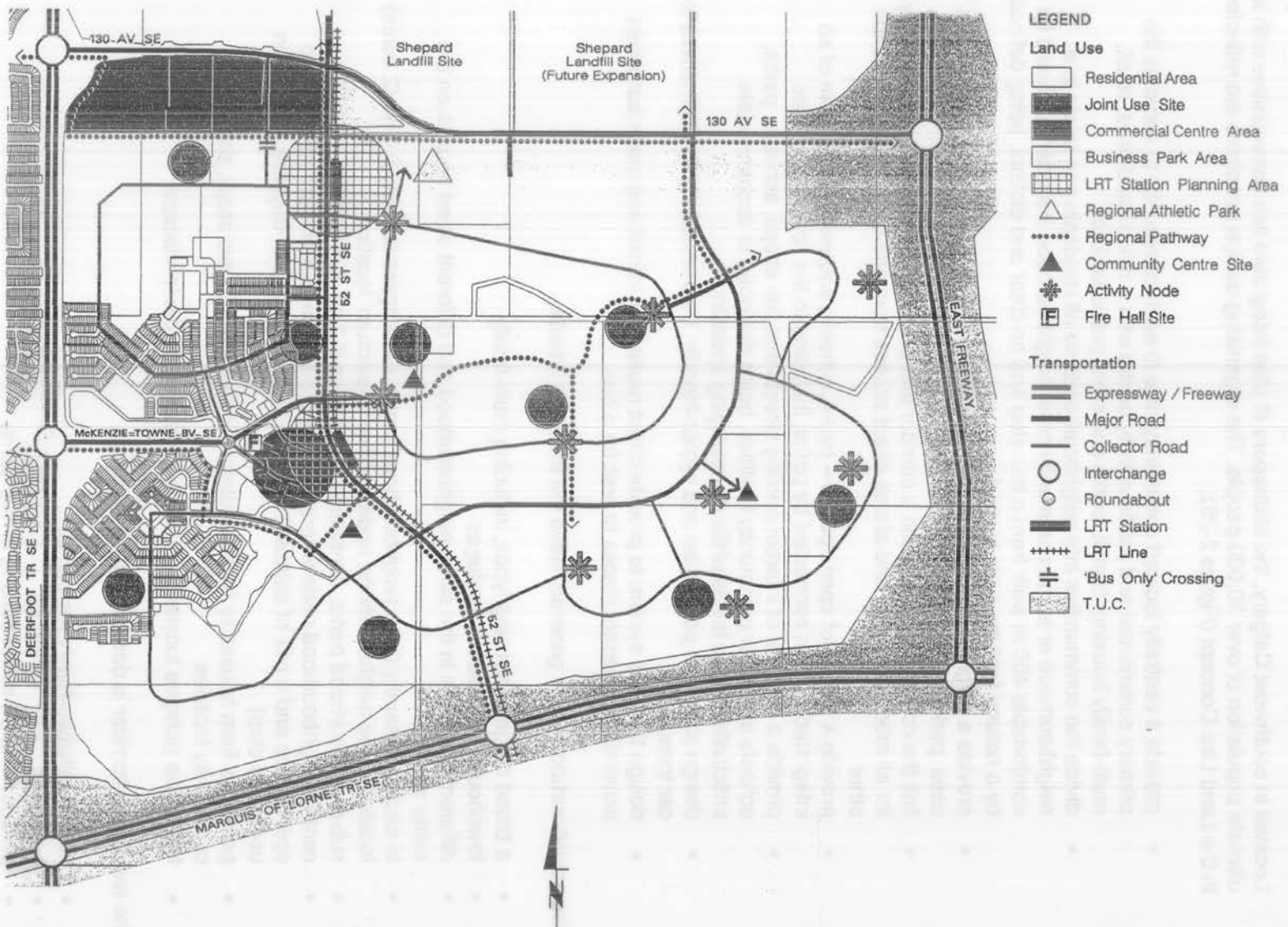
Source: McKenzie Towne  
Figure 2-24

### East McKenzie (Calgary, Alberta)

The East McKenzie area contains 2,424 acres and includes the original McKenzie Towne neighbourhoods and two additional neighbourhoods (New Brighton and Copperfield). The planned population is approximately 46,000 people. While the neotraditional design principles still apply to the McKenzie Towne neighbourhoods, the new neighbourhoods have more flexible design policies to provide for different community development concepts. The land use concept shown on Figure 2-25 reflects the following goals:

- create strong and identifiable communities
- develop viable commercial centres
- provide local employment opportunities
- foster a sense of neighbourhood
- accommodate a diversity of housing
- meet passive and active recreation needs
- provide adequate school sites
- accommodate regional and community facilities
- conserve environmentally significant areas
- create an efficient road network
- promote the use of public transit
- encourage walking and cycling
- supply suitable utility infrastructure

# East McKenzie Land Use Concept



Source: East McKenzie Area Structure Plan  
Figure 2-25



### Midnapore III (Calgary, Alberta)

Located in southwest Calgary, the Midnapore III plan integrated two communities with an ultimate population of over 30,000 people. The organizing design principles are reflected in the Land Use Concept (Figure 2-26):

- provide a centrally located community core in each community to serve as the primary commercial and public activity centre with a mix of land uses: retail, multi-family housing, transit, parks and other public facilities
- divide the communities into neighbourhoods so all residents can relate to a neighbourhood or to the community core; neighbourhood boundaries should be a comfortable 400 m walk from a bus stop and be clear and distinct, being defined by a natural feature, park or road
- provide a neighbourhood node at the centre of each neighbourhood with mixed uses, park and bus stop
- link the community cores with a corridor that provides an attractive entranceway for all modes of travel and allows direct access from one community core to the other
- provide a variety of open spaces – parks, schools, squares – in the form of an integrated system connected by paths, including to the regional facilities
- provide a network of interconnecting streets that link shops, services, parks, schools and other community facilities, being designed to accommodate anticipated traffic levels while discouraging speeding
- design streets to pedestrian and cyclist-friendly, thus encouraging alternatives to car travel
- design the road system to provide direct routing for transit and make bus stops accessible, pleasant places to wait for a bus.

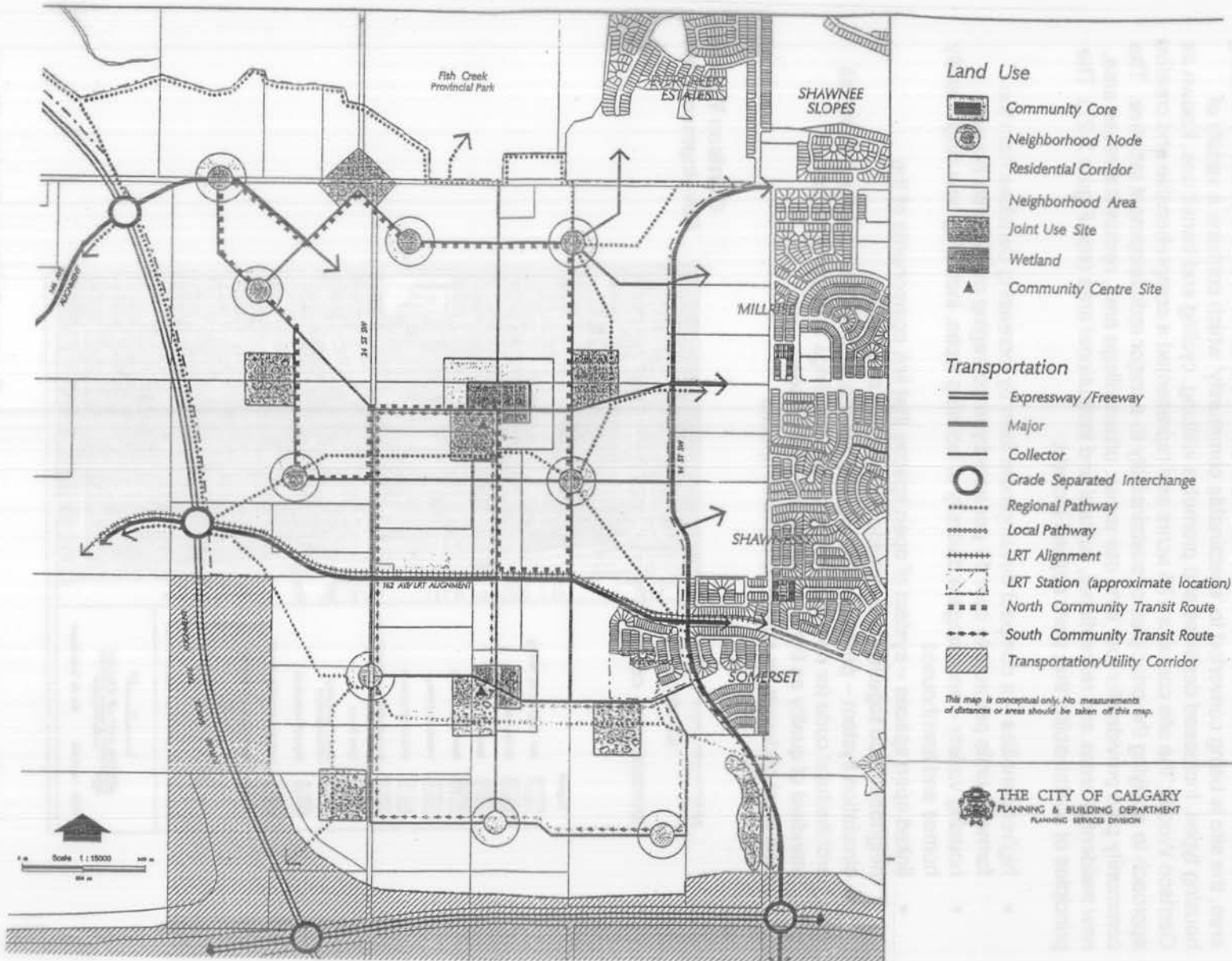
The neighbourhood areas generally have the following intents:

- a broad range of housing types, including multi-family
- townhouses with street frontages
- different sized lots in the same neighbourhood and different sized houses on the same street
- in each community three neighbourhood parks, each approximately 0.8 ha (2 acres) located at the neighbourhood node or other 'maximum' location
- sub-neighbourhood parks, containing a minimum 0.2 ha (0.5 acres)
- central neighbourhood node where roads and paths converge – attractive public open space and a mix of adjacent uses (multi-family housing, daycare, recreation uses, bus stop)
- pathways from houses to facilitate direct public access to bus stops, parks and community facilities
- front drive garages located so they do not dominate the landscape

The residential corridor is designed to provide for:

- multi-family/two-family residential
- bus stops
- garages and off-street parking in rear yards
- townhouses with street frontage

# Midnapore III Community Plan Land Use Concept



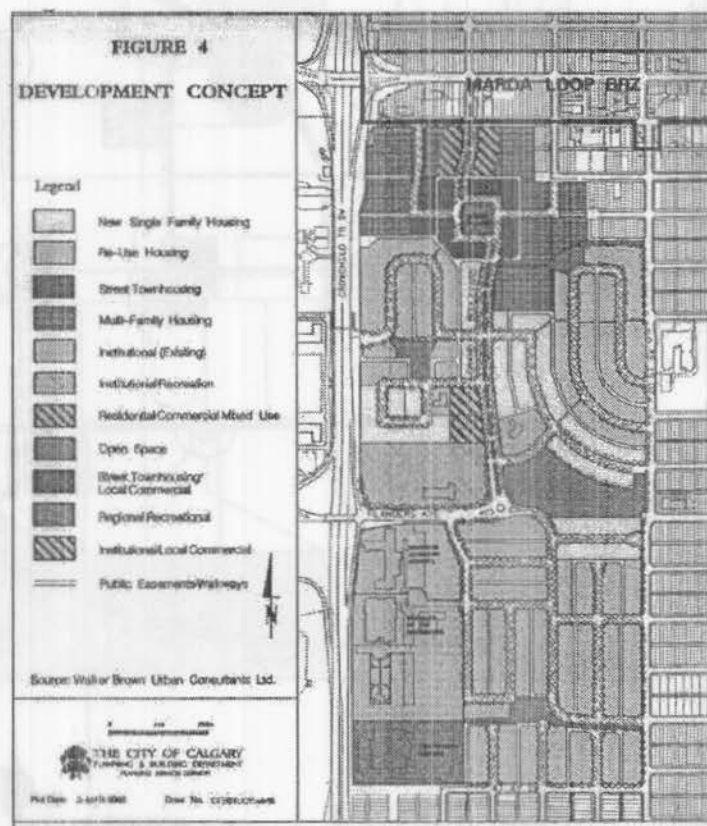
Source: Midnapore III Community Plan  
Figure 2-26

## CFB East (Calgary, Alberta)

On the portion of the closed Canadian forces Base (CFB) that contained the military housing area, the site is being converted to 'sustainable community' which contains a variety of housing types, increased densities and promotes walking, cycling and transit use. Known as Garrison Woods, the site contains 176 acres and represented a comprehensive and creative approach to applying the principles of sustainability to a major redevelopment initiative. The community plan provides for four land use areas: urban village area, residential reuse area, new residential areas and recreational, cultural and institutional area (see Figure 2-27). The principles of sustainability that were applied include:

- higher densities – a compact development form by increasing densities from the former 3 units per acre to over 10 per acre by encouraging multi-family housing
- housing variety – encourage a diversity of housing types, including new single family homes and townhouses
- linked open spaces – system of open spaces that link components of the neighbourhood together and provide for a variety of activities
- circulation system – promotes walking and cycling, and accommodates bus transit
- architectural code for new and reconstructed buildings in order to maintain a standard of quality as the community is built in stages
- high level of design for streets and public spaces

Garrison Woods  
Development Plan



Source: Calgary's Garrison Woods  
Figure 2-27

### **CFB West (Calgary, Alberta)**

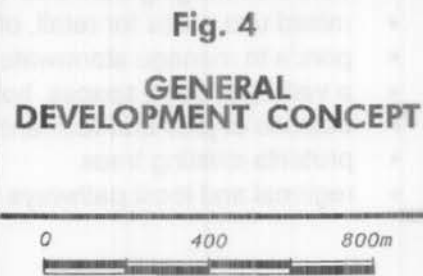
The planning for the western portion of the former Canadian Forces Base, which contains 774 acres, was with the vision of a transit oriented, mixed use urban community. The community is planned to contain a minimum of 6,630 residents in up to 3,410 dwelling units as well as provide for up to 11,600 jobs (note: the community plan includes Mount Royal College and an existing industrial park). The following are some of the principles that served as the foundation for the development concept (Figure 2-28):

- provide a range of activities that contribute to the cultural, recreational and institutional life of the community
- provide a rich mix of complementary land uses and development densities to create a diverse, vital urban environment
- design the roadway network to encourage greater use of bus, walking and bicycling
- facilitate the use public transit
- create a strong sense of place by establishing unique and distinct character areas with strong linkages to create a cohesive community
- encourage high quality innovative design for streets public spaces and private development areas
- interconnect and coordinate well-designed, high quality and accessible open spaces, streets, sidewalks and pathways
- increase population densities to support the elements of the community and make more efficient use of land and infrastructure
- provide attractive and vital community focal points and gathering spaces
- provide for a variety of housing to address life-cycle changes, to respond to different income levels and to meet the needs of the marketplace
- provide places for people to work in businesses that are compatible with the neighbourhood
- link the neighbourhood with surrounding communities and regional facilities.

Some of the key elements of the community plan are:

- a 'Main Street' that anchors the major entrance into the new community with a mix of shops, restaurants, offices and suites (see Figure 2-29)
- pedestrian oriented main street
- buildings located close to tree-lined streets that are designed to create a pleasant pedestrian environment and interesting streetscapes
- encourages rear lanes, but where there are front driveways they should lead to non-obtrusive garage entrances
- a variety of houses ranging from single family through townhouses and apartments
- densities ranging from 9 to 16 units per acre
- mixed use areas for retail, office, recreational, institutional and residential uses
- ponds to manage stormwater
- a variety of open spaces, both for active and passive activities
- balance of jobs and residents in the same community
- protects existing trees
- regional and local pathways accommodated





Report No. 5 – Sustainable Communities: Compendium of Ideas and Practices – Section 2-34



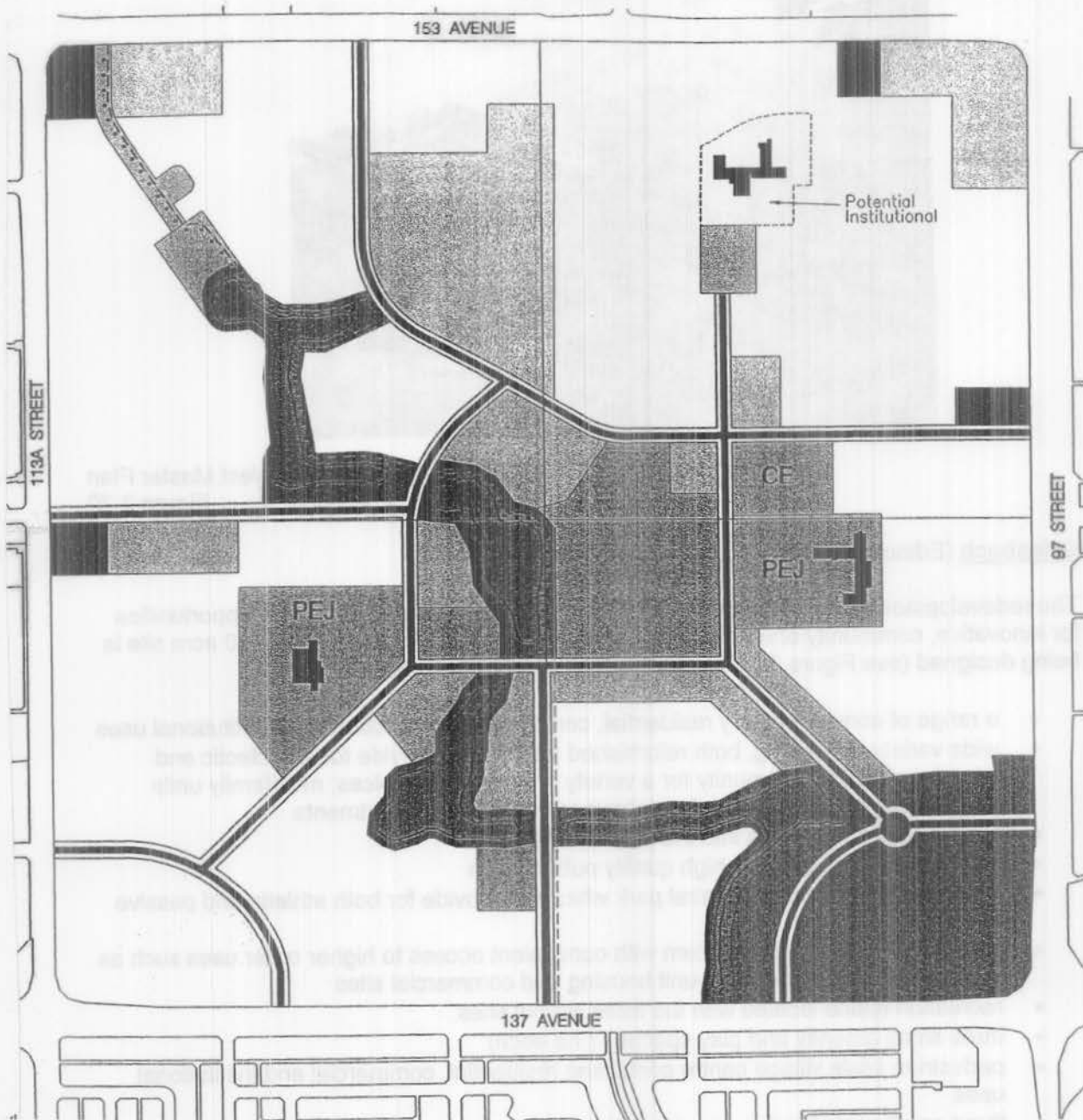
Source: CFB West Master Plan  
Figure 2-29

### **Griesbach** (Edmonton, Alberta)



The redevelopment of the Griesbach Canadian Forces Base provides unique opportunities for innovative, community orientated and environmental friendly design. The 640 acre site is being designed (see Figure 30) to include the following elements:

- a range of complementary residential, commercial, recreational and institutional uses
- wide variety of housing, both refurbished and new to provide for an eclectic and mixed residential community for a variety of consumer choices; multifamily units include townhouses, stacked townhouses and low-rise apartments
- integrates existing trees into the urban pattern
- provides safe streets and high quality public realm
- axial roads focus on the central park which will provide for both athletic and passive uses
- road system to be a grid pattern with convenient access to higher order uses such as schools, recreation, multiple-unit housing and commercial sites
- recreation space located with the three school sites
- three small amenity and play spaces (1 ha each)
- pedestrian scale village centre containing residential, commercial and institutional uses
- three small scale local commercial sites
- a major, centrally located park (9.5 ha) will be the focus of recreation and pathway systems, including paths along the drainage course
- integrate the neighbourhood with surrounding communities through the roadway system, public transit, pathway connections and bike routes
- road network that provides optional routes
- potential mixed-use business 'campus' included

## Griesbach Development Concept



### Legend:

	Low Density Residential		Local Commercial		Multi-use Route
	Medium Density Residential		Waterway / Open Space		Pedestrian Route
	Village Centre		Schools / Recreation		Catholic Elementary
	Mixed Use				Public Elementary/Junior

Source: Griesbach Neighbourhood Area Structure Plan  
Figure 2-30

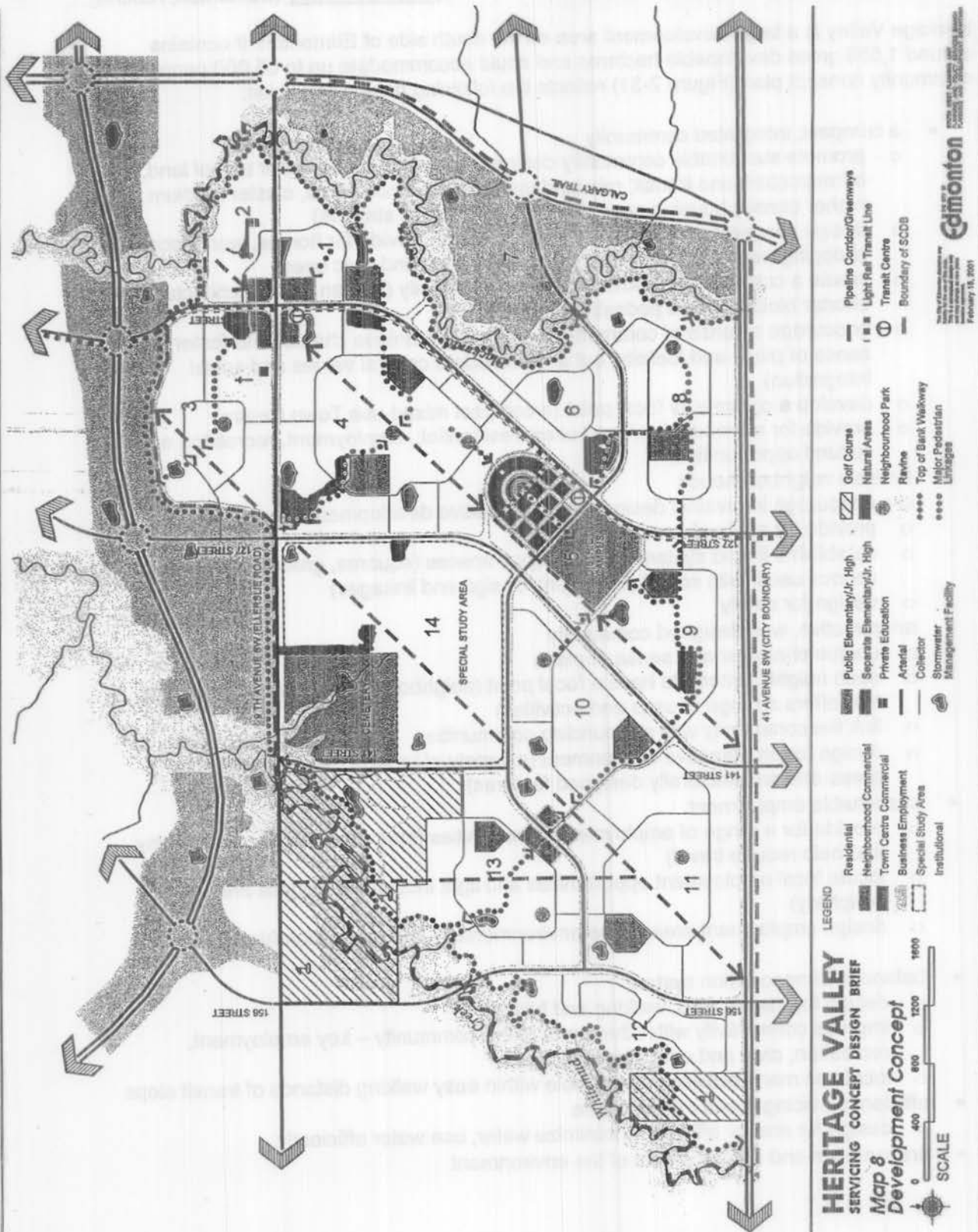
## Heritage Valley (Edmonton, Alberta)

Heritage Valley is a large development area on the south side of Edmonton. It contains around 1,558 gross developable hectares and could accommodate up to 65,000 people. The community concept plan (Figure 2-31) reflects the following design principles:

- a compact, integrated community
  - promote sustainable community design (intensify to make better use of land, infrastructure and transit; mix land uses, create smaller lots, cluster medium higher density housing near amenities and transit stations)
  - design complete and integrated communities (provide for homes, workplaces, shopping, recreation facilities, parks, education and civic uses)
  - create a compact, pedestrian-oriented community (human scale architecture, shorter blocks, linked pedestrian routes)
  - encourage a sense of community ( design for a unique character to foster a sense of place and identity, but accommodate cultural values and social integration)
  - develop a community focal point (a compact mixed-use Town Centre)
  - provide for a broad mix of land uses (residential, employment, recreation and cultural opportunities)
- liveable neighbourhoods
  - encourage innovative designs (e.g. alternative development standards)
  - provide for a mix of uses and activities
  - establish a linked system of public open spaces (squares, greens and parks for various uses, with sound placement, design and linkages)
  - design for safety
- an attractive, well designed community
  - unique character and sense of place
  - each neighbourhood to have a focal point (neighbourhood centre, school, park that offers a range of uses and activities)
  - link the community with surrounding communities
  - design for an attractive environment (a variety of urban spaces, landscaped areas and architecturally designed features)
- sustainable employment
  - provide for a range of employment opportunities (strengthen the local economy and help reduce travel)
  - locate local employment opportunities and light industrial business area at the periphery)
  - design employment areas to be environmentally and pedestrian friendly
- balanced transportation system
  - design for transit, cars, walking and biking
  - improve connectivity with other parts of the community – key employment, recreation, civic and educational facilities
  - locate as many activities as possible within easy walking distance of transit stops
- efficient servicing/green infrastructure
  - design for energy efficiency, minimize water, use water efficiently
- preservation and enhancement of the environment



# Heritage Valley Development Concept



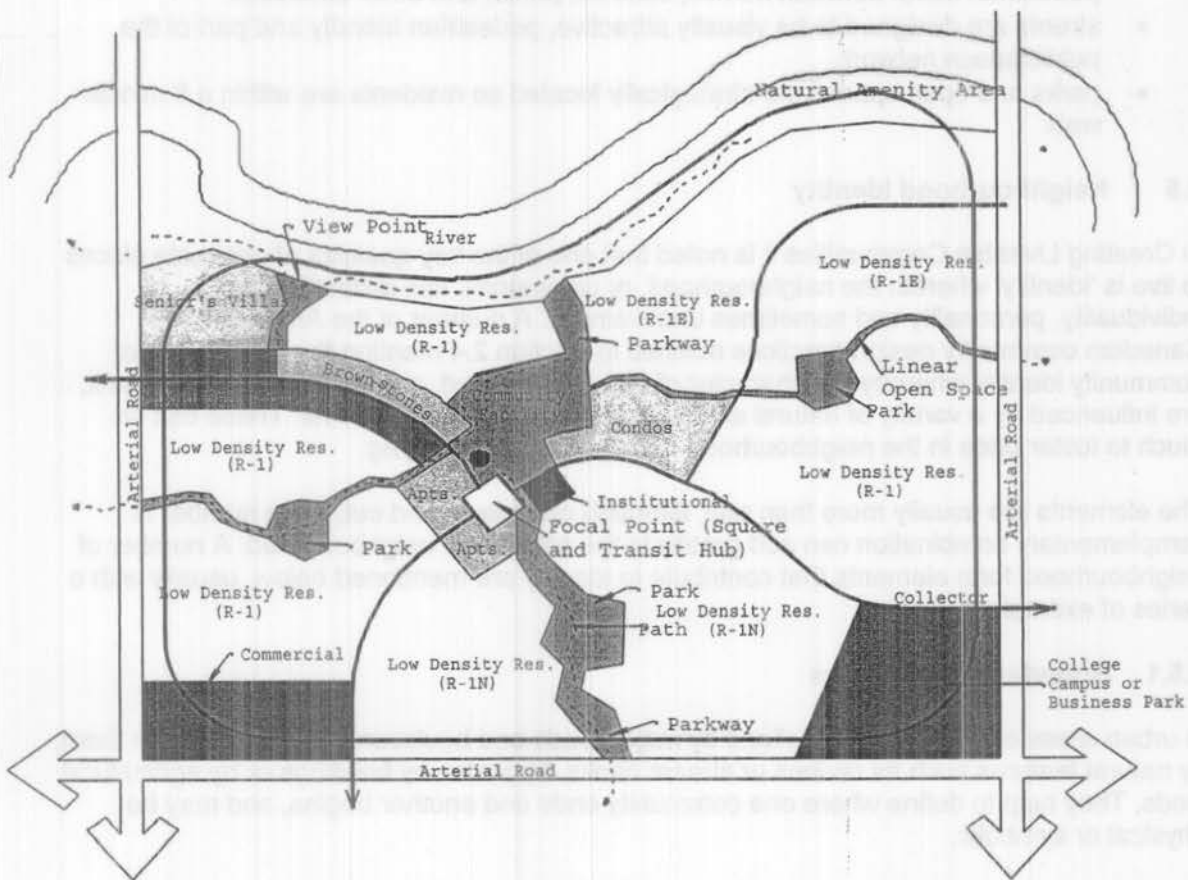
Source: Heritage Valley Servicing Concept Design Brief  
Figure 2-31

### Sustainable Neighbourhood Design Principles (Okotoks, Alberta)

Okotok's Municipal Development Plan provides a series of neighbourhood design principles, as reflected in Figure 2-32, which include:

- creation of mixed land uses – neighbourhoods should be as self-sufficient as possible so there are opportunities to live, work, play and socialize
- most daily needs should be within a 15 minute walking distance
- variety of housing – types, sizes, shapes and prices
- incorporate a number of higher density housing nodes, including around green space
- integrate design of roads, open space and facilities
- higher density central node to contain a school, other public buildings and higher density housing; should be a visual and functional community focal point
- overall housing density not to exceed 11.5 units per gross hectare
- plan for the pedestrian – linked paths, visually interesting architecture, great streetscapes (garages in the rear), landmarks
- separate playfield and other (passive) green spaces
- maximize use of schools sites to minimize waste green space
- prefer a modified grid road system and plan for public transit

### Okotoks Neighbourhood Design Principles



Source: Okotoks Municipal Development Plan  
Figure 2-32

### **Burnside Estates** (Medicine Hat, Alberta)

This neighbourhood plan area is located in the northwest sector of the city and contains 260 ha (643 acres) and is bordered by the south Saskatchewan River, a 30 m high escarpment and the Trans Canada Highway.

The City identified that the neighbourhood will be a uniquely planned and designed community that:

- is visually appealing with an abundance of trees and open spaces
- has a "village" feel with an identified centre and a variety of building styles and residential densities
- is not dominated by cars but has a pedestrian scale that promotes walking and cycling

The urban design principles used in the Land Use Concept (see Figure 2-33) include:

- a mixed use neighbourhood core to provide a focus to the community and create opportunities for social interaction; public amenities and services concentrated therein; located within a 10 minute walk of most homes
- a connected street system and short residential blocks provide opportunities for pedestrian travel between homes, schools, parks, and other amenities
- streets are designed to be visually attractive, pedestrian friendly and part of the public space network
- parks and open spaces are strategically located so residents are within a 5 minute walk

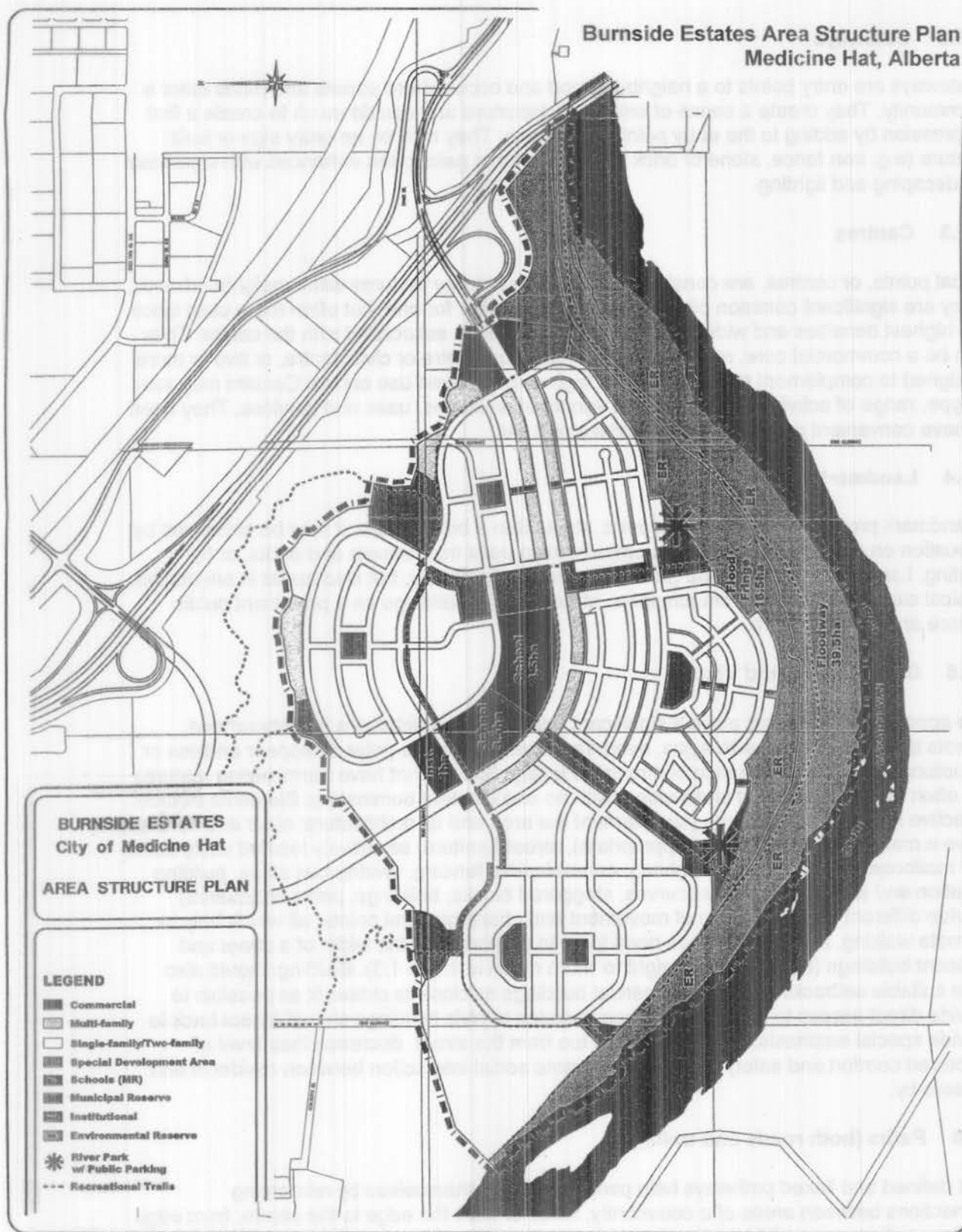
## **2.5 Neighbourhood Identity**

In *Creating Liveable Communities* it is noted that one of the key qualities of desirable places to live is 'identity' wherein the neighbourhood, or community, has distinctiveness, individuality, personality and sometimes unusualness. A number of the American and Canadian community design practices outlined in Section 2.4 mention the importance of community identity whereby the character of a neighbourhood, and people's response to it, are influenced by a variety of natural and built environments and patterns. These can do much to foster pride in the neighbourhood and a sense of belonging.

The elements are usually more than one, although one may stand out, but a number in complementary combination can add greatly to the sense of a neighbourhood. A number of neighbourhood form elements that contribute to identity are mentioned below, usually with a series of examples.

### **2.5.1 Boundaries and Edges**

In urban areas edges are often defined by major roads and boulevards associated with them, by natural features such as ravines or stream banks, by parks, by buildings or by agricultural lands. They help to define where one community ends and another begins, and may be physical or symbolic.



Source: Burnside Estates Area Structure Plan  
Figure 2-33



### **2.5.2 Gateways**

Gateways are entry points to a neighbourhood and occur where streets and paths enter a community. They create a sense of entry and departure and can do much to create a first impression by adding to the entry point streetscape. They may be an entry sign or built feature (e.g. iron fence, stone or brick wall, archway or gate, often enhanced with significant landscaping and lighting).

### **2.5.3 Centres**

Focal points, or centres, are consistently mentioned as key features within neighbourhoods. They are significant common places for people to gather for one, but often more uses since the highest densities and widest variety of uses are often associated with the centre. They can be a commercial core, recreation core, education centre or civic centre, or two or more designed to complement one another in a high activity mixed use centre. Centres may vary in type, range of activities, densities and variety of amenities, uses and services. They need to have convenient access both by foot/bike and car.

### **2.5.4 Landmarks**

A landmark provides a distinct focal point. Most often a built feature, it may be enhanced by a location on a higher point or at a prominent vista point from streets and parks, or by lighting. Landmarks not only add greatly to community identity, but also assist in orientation. Typical examples include a church spire, 'strong' public buildings on a prominent public square and a civic square.

### **2.5.5 Streetscapes and Vistas**

The appearance of streets plays a significant role in the character of a neighbourhood. Streets that are cluttered with signs, overhead wires, telephone poles or appear endless or monotonous do little to enhance community identity. Streets that have harmonizing features are often the most pleasant and inviting, with no one element dominating. Elements include: attractive landscaping, signage (complement the area and its architecture; clear and concise; serve a marketing image, where appropriate), street furniture, sensitively located utility boxes and mailboxes, aesthetic street lighting, non-obtrusive fencing, inviting bus stops, building variation and termination points (curves, staggered blocks, buildings, parks or squares) provide different views, a sense of movement and changing focal points, all which help to promote walking. As well, buildings need to be in proportion to the width of a street and adjacent buildings (e.g. optimum height to width ratio is 1:1 to 1:3). Building should also have suitable setbacks – place commercial buildings as close to sidewalk as possible to provide direct access to shops and offices; facades of civic buildings should be set back to provide special emphasis; houses set back too from the street decrease their level of perceived comfort and safety and do not promote social interaction between residents and passers-by.

### **2.5.6 Paths (both roads and trails)**

Well defined and linked pathways help people orientate themselves by reinforcing connections between areas of a community, whether from the edge to the centre, from edge to edge, or from one neighbourhood node to another. The character and appearance of a path is important, and influenced by the shape and scale of buildings or vegetation along it, the quality of adjacent structures and natural or built landscapes, the beginning and

destination points, as well as intermediate destination. Variations add interest and encourage use.

### **2.5.7 Public Open Spaces**

Open spaces, including plazas, playfields, playgrounds and natural areas contribute significantly to the social vitality and health of a community. They offer places for social gatherings, cultural events, active and passive recreation, vigorous activities and quiet reflection. Often they are attractive destinations, at times by car but more effective when they encourage walking. They provide variety to a community and serve to separate 'built-up' areas. To be truly effective, public open spaces cannot be afterthoughts, but need to be strategically located within the community so their features and roles are integrated with the community. Public open spaces may include: wild areas, woodlands, wetlands, playgrounds, playfields, parks, parkways, squares, plazas, village greens, streets and boulevards and transit stops. The most successful public spaces concentrate (in large or small numbers) people at a certain place for certain activities. Parks located where people do not walk by or wish to go to are waste space. Parks should invite internal circulation, and be strategically linked to the community and, where possible, regional facilities. Encouraging people to stop and enjoy is also important and can be accomplished through alternate seating locations which give people a choice of views, sun or shade locations and more or less solitude.

### **2.5.8 Significant Buildings**

Buildings often are a focal point within a community. Centrally locating key buildings, or placing them at highly visible and accessible intersections in conjunction with complementary uses can enhance community identity. Attractively designed significant buildings not only enhance a sense of community, but also promote social interaction. When strategically located, they promote walking and cycling. Special architecture accentuates their presence, can convey a sense of importance and permanence.

### **2.5.9 Themes**

One way of embellishing a sense of community is to create a development theme. In Central Alberta, likely the best example is the Marina Bay residential development in Sylvan Lake. Other places in Alberta promote certain architectural styles (e.g. Craftsman, Victorian) or link the community to prominent natural or built features such as lakes, woodlands, highland vistas, waterways and stone outcroppings.

## **2.6 Mixed Land Uses**

An integral part of the form of a community is the land uses contained within the neighbourhoods. Since the 1950's too often throughout North America, including Canada and Alberta, urban expansion has been based on the segregation of land uses based upon the fundamental premise of individual and family mobility by means of the family car, or now more accurately –cars. Urban design based upon the 'complete' segregation of land uses makes it very difficult to go anywhere (work, shopping, etc.) without the use of a car, or public transit in communities with convenient and effective transit services (see Figure 2-34 left diagram).

An extension of the segregation of land uses has been one dimensional neighbourhoods that concentrate on residential areas (often of one form of housing – the detached home) with associated park spaces and schools. Convenience shops and workplaces were not in the limited mix of land uses. Neighbourhoods 'empty out' during the day when residents go to

work and school. Conversely, business areas clear out in evening and on weekends. Because neighbourhoods are often one-dimensional, they do not contain a dynamic mix of land uses that promote continuous activity that may support other viable uses, such as restaurants, specialty shops, and small financial outlets.

Mixing land uses is a clear community design principle in a number of planning movements and organizations:

- Smart Growth: mix land uses
- Urban Land Institute: design developments in ways that increase access to jobs, recreation facilities, transportation choices and affordable housing
- New Urbanism: neighbourhoods should be compact, pedestrian-friendly and mixed use
- Ahwahnee Principles: all planning should be in the form of complete and integrated communities containing housing, shops, work places, schools, parks, civic facilities essentially to the daily life of the residents
- American Planning Association: stop segregating uses
- City of Calgary (Sustainable Suburbs): a mixture of residential, public and commercial uses at or near the activity centre; a range of employment opportunities.

As reported in Best Development Practices, the advantages of mixed-use development (communities) are:

- More destinations are within walking distance
- Less traffic required to use major external roads
- Greater sense of community
- Greater street security because more activity throughout the entire day and evening
- Positive impact on property values when commercial and civic facilities are close by.

The Urban Land Institute advises to mix land uses at the finest grain the market will bear, and include civic uses in the mix. A large grain mix of land uses within communities is accomplished by providing for homes, shops, schools, open spaces, churches, civic facilities and work places, but may still be segregated by 'clustering' each use in different spots of the community. Finer grained mixes are accomplished by integrating a variety of land uses within a block or blocks or other form of mixed use centre.

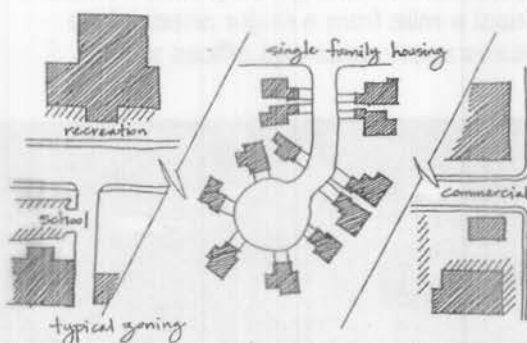
The remainder of this section will address various means, ideas and practices to mix land uses on a 'smaller grain' basis.

### **2.6.1 Mixed Use Areas and Centres**

Mixed use areas provide for the placement of a number of complementary land uses within a cluster of blocks. The schematic plan in Figure 2-34 (right sketch) shows the proximity of homes to work and service places, thus providing for walkable destinations, greater participation and social interaction, and increased support for local services. A mix of private (homes, shops) uses and civic (school, recreation, natural areas) uses increases the blend.

## Mixed Land Uses – Not This - This

**NOT this:** Isolation of home from work and services by exclusive zoning



### WHY NOT:

- Excessive commuting requirements; increases automobile dependency
- Empty residential areas in daytime and commercial areas at night; encourages crime
- Decreases contact among people; does not build community or support services
- High commuting costs and traffic congestion

**THIS:** Proximity of home to work and services by mixed-use zoning



### HOW:

- Design neighborhood centers within walking distance
- Flexible, mixed use zoning encourages participation in the community
- Increased hours of occupancy supports local services
- Design for local and in-home employment

Source: Toward Sustainable Communities  
Figure 2-34

A second set of sketches from Toward Sustainable Communities (see Figure 35 right sketch) visualizes another form of mixed land uses in a focal area of a neighbourhood, this being based more on a cluster of meeting places (community centre, commons, school and shopping area)

**NOT this:** Subdivision of entire parcels into individual lots



### WHY NOT:

- Lack of common space impairs community self-image
- Residents isolated behind fences and in automobiles do not meet or watch out for their neighbors
- Heavy emphasis on the private domain does not encourage participation
- Utilities are widely extended and services dispersed

## Mixed Land Uses: Why Not? How?

**THIS:** Cluster designs with commons



### HOW:

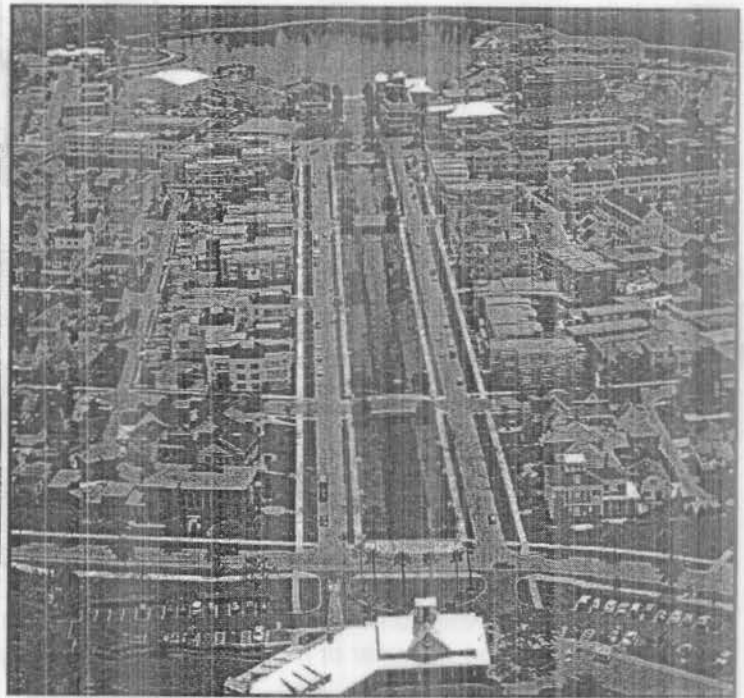
- Thoughtful public and semi-public space integrated with private lots
- Design for meeting places and good visual supervision
- Provide small neighborhood parks, community gardens and playgrounds
- Cluster designs allow compact utility networks and concentrated services

Source: Toward Sustainable Communities  
Figure 2-35



Celebration, the Disney Corporation's neotraditional town in Florida is the largest, comprehensive attempt at a traditional neighbourhood development. It is planned to be the home of 20,000 people and contain a multi-use 'downtown' area which is to contain 77,000 sq. ft. of retail space for 24 stores, a movie theatre, restaurants and grocery store. Unlike many developments, the 'downtown' is located at least a mile from a major arterial (see Figure 2-36) and grouped adjacent to a lake. It features apartments and offices above ground floor retail outlets.

#### Views of Celebration, Florida

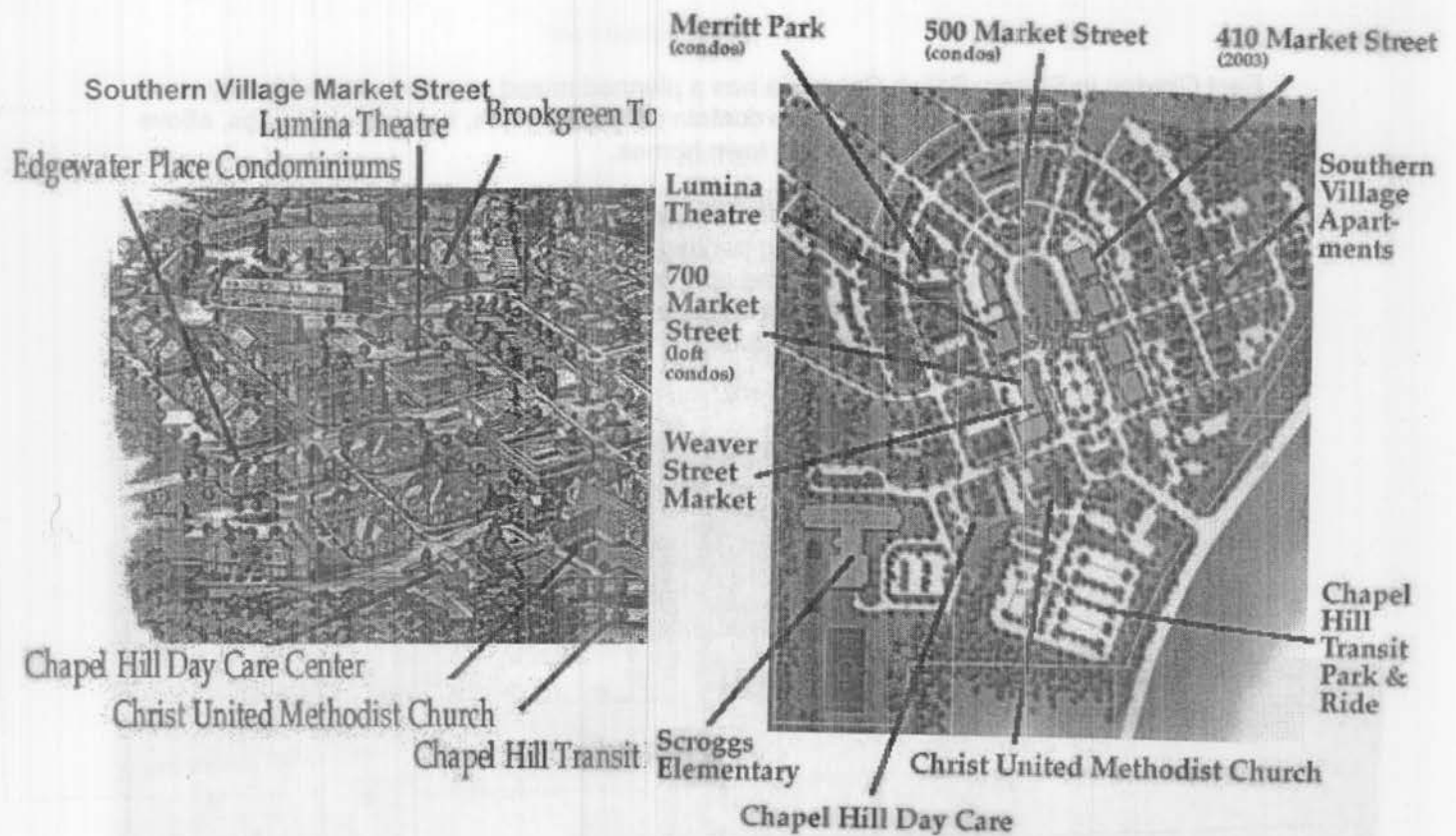


Source: New Urbanism: Comprehensive Report and Best Practices Guide  
Figure 2-36

The new community neighbourhood of Southern Village in Chapel Hill, North Carolina contains a quaint commercial centre within easy walking distance of residences. On a prominent hilltop, it features two and three story buildings surrounding a Village Green (see Figure 2-37). The mixed use development is called Market Street, and contains shops, movie theatre, restaurants, offices, day care, adjacent school site, townhouses and loft condominiums.

Cornell, in Markham Ontario, has a central core which is a mixed use area of retail, office and residential development and is intended to serve as the 'main street' shopping area for the community, as well as provide some regional level services. The plan also accommodates a series of neighbourhood centres (see Figure 2-38) generally located at the centre of each neighbourhood. These are to contain a limited amount of retail, personal service and business activity intended to serve the neighbourhood residents, as well as medium density housing.

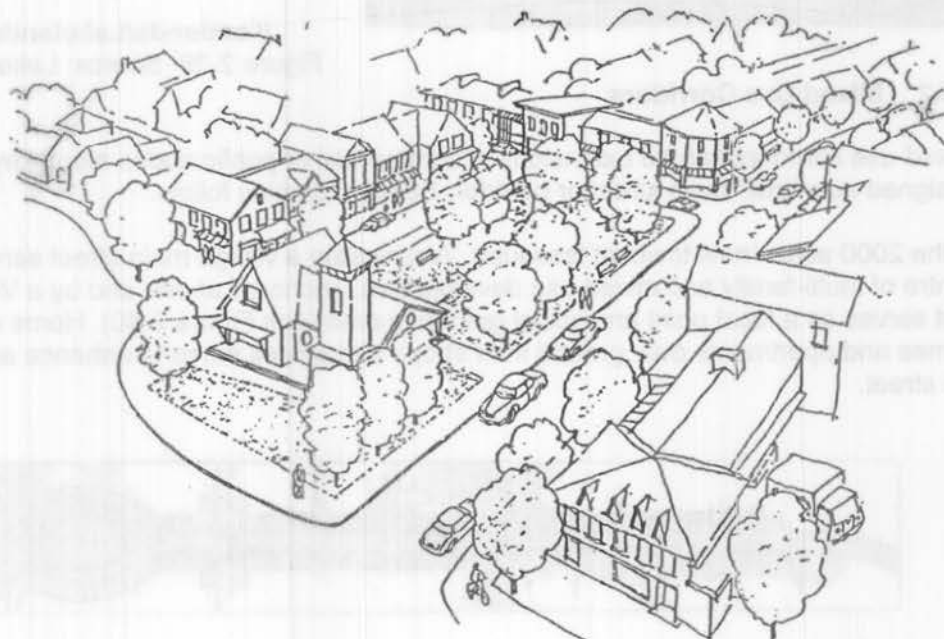
Griesbach in Edmonton and CFB West in Calgary both contain pedestrian scale village centres. These 'anchor' the major entrances to the neighbourhoods and are to contain a mix of shops, restaurants, offices and above ground suites (see Figure 2-29).



Source: [www.southernvillage.com](http://www.southernvillage.com)

Figure 2-37

### Cornell Neighbourhood Centre



Source: Cornell Official Plan

Figure 2-38

East Clayton in Surrey, British Columbia has a planned mixed use pedestrian-friendly commercial core. It is being designed to contain shops, services, live/work buildings, above ground floor suites and ground oriented town homes.

The Kentlands/Lakelands new communities in Gaithersburg, Maryland share a 'downtown'. Although it includes big box stores facing parking lots, it also has shops lining internal streets and recreation uses, with town homes and apartments nearby (see Figure 2-39). Unlike other new urbanism communities, the commercial area is largely comprised of single story buildings, but the area is pedestrian orientated.



**Kentlands/Lakelands 'Downtown'**  
Figure 2-39 Source: Lakelandsusa.com

## 2.6.2 Mixed Use Corridors

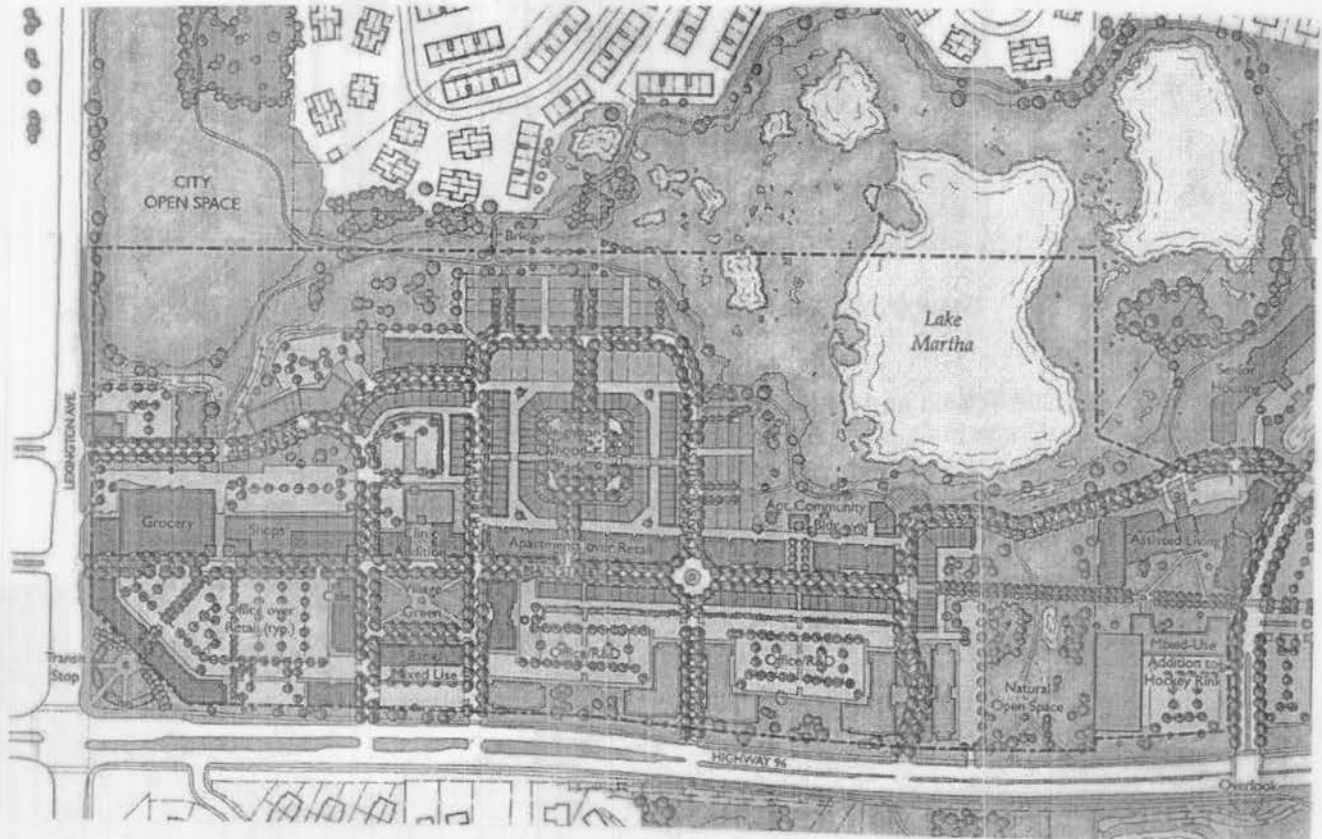
Mixed-use corridors can be extensions of commercial or public nodes along key streets or designed as a 'true' main street or corridor. Some examples follow.

In the 2000 acres 'new town' of Issaquah, Washington a village main street serves as a centre of multi-family and mixed-use development, anchored at one end by a Village Green that serves as a focal point and social gathering area (see Figure 2-40). Home office town homes and apartments over ground floor shops and offices serve to enhance activity along the street.



Source: www.Calthorpe.com  
Figure 2-40

The Town Centre for Shoreview, Minnesota lies within a medium density residential neighbourhood. It is a 'Main Street', which is retail core focused with shops and offices extending linearly from a village green (see Figure 2-41) with flexible live/work housing. Pedestrian have easy access to and through the site, as well as linkages with surrounding natural areas and adjacent neighbourhoods.



Source: [www.Calthorpe.com](http://www.Calthorpe.com)  
Figure 2-41

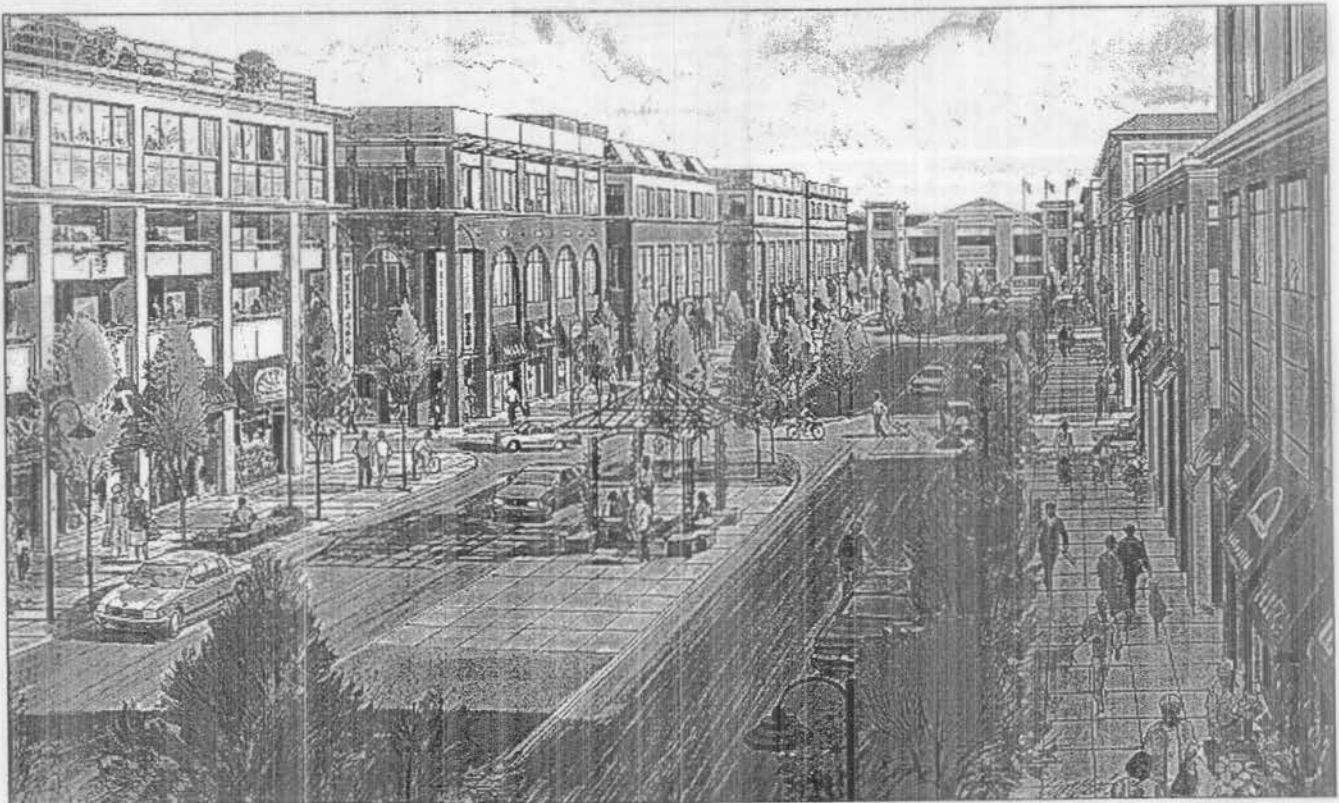
The "High Street" Towne Centre (see Figure 2-24) in Calgary's McKenzie Towne is lined with single story buildings (see Figure 2-42) containing various retail businesses, offices, financial institutions and small restaurants. There is on-street diagonal parking, as well as in the interior of the blocks. For marketing purposes, the developer chose not to develop loft units or apartments over the shops because of perceived parking conflicts between residents and businesses.





Source: New Urbanism: Comprehensive Report and Best Practices Guide  
Figure 2-42

Unlike McKenzie Towne and Kentlands/Lakelands, the three block main commercial street at Montgomery Village in Orangeville, Ontario is lined with four story mixed use buildings. Located along one-way streets separated by a central boulevard (see Figure 2-43), it provides a community focus although it is more transit oriented. Streetscapes are designed to enhance the enjoyment of walking, although there are no strong pedestrian linkages.



Source: Changing Values Changing Communities  
Figure 2-43

## 2.7 How is Red Deer Doing and What Can Red Deer Learn?

The following serves as a summary of Section 2 – Community Form. Within seven categories of sustainable urban form elements, 35 sustainable elements are reviewed.

### 2.7.1 Identity

Element	How is Red Deer Doing?	What can Red Deer Learn?
Name of neighbourhood	The current practice of naming neighbourhoods after pioneer families works well; identity aided since street names commence with the same first letter	
Neighbourhood Size – 160 acres	Red Deer neighbourhoods conform to the current theory/practice that the size should be about 160 acres to provide for a five minute walk from the edge to the centre	To build integrated communities 640 acres in size, with four 'partnering' neighbourhoods that share a common identity, facilities, infrastructure, etc and promote social interaction among the complete community
Entrance treatment	Collector road entrances have become more attractive	Examples from elsewhere to assure variety to assist a distinctive 'feel' while keeping low maintenance costs
Edge - discernible	Edges along major arterials are distinct – usually with landscaped boulevard; but internal edges of each quarter section neighbourhood are often not distinct	Not to be concerned about the 'internal' edges between quarter sections if full section (640 acre) communities are to be pursued
Centre	Usually one only - a major open space with playfields and often a school – but too similar; use not as sustained as more multi-faceted centres	Need centres to be more mixed use and/or varied; based upon 640 acre communities can have a number of centres with different combinations of uses
Focal point(s) Landmarks	Usually the central park, but these are often not community identifiers; the lake and gazebo at Anders on the Lake is a refreshing exception	Need to emphasize in community planning – 'strong' public buildings strategically locate (e.g. anchors a street); church spire; major square/park, etc.
Streetscape detail	Collector streets receive more attention than local streets; but streetscape too often is a consequence and not a design element	Street landscape, lighting, furniture standards; more trees (think Spruce Drive and parts of 43 Avenue); more boulevards with integrated building setbacks, etc.
Vistas	Streets are often curvilinear; while they provide 'flow' and 'changing views' they provide too few 'strong' vistas and little sense of belonging	Anchor key streets with strong vistas – centred on a distinct building (public or private), fountain, landscaped square, etc.

## 2.7.2 Mix of Land Uses

Element	How is Red Deer Doing?	What can Red Deer Learn?
Mix of land uses	Red Deer, including the development sector, reasonably 'balances' market conditions with community needs – a variety of housing types, schools, parks and playgrounds are provided; convenience shopping not always; institutional uses provisions are in place but often not used; work places are generally lacking	To provide more local business and workplace opportunities, a greater mix of housing within smaller areas, mixed land use centres and streets
Mixed use buildings	It is not; other than home based businesses; even the creation of bed and breakfasts is a struggle	Work/live buildings; lofts and apartments above ground floor retail; schools that have a broader community focus – libraries, community meeting rooms

## 2.7.3 Housing

Element	How is Red Deer Doing?	What can Red Deer Learn?
Diversity of dwelling types	Responds to the market	To increase neighbourhood densities need to attractively package more multi-family homes and narrow lot detached homes; but also provide a broad variety in appearance and costs; ways to provide greater numbers of affordable housing;
Diversity of appearance	While some market areas have distinct housing, others have a feeling of sameness that do not instill a sense of community; Adult housing complexes often look the same	In more neighbourhoods, establish architectural guidelines (need not be higher cost) to encourage housing that is distinct to that community (albeit, some neighbourhoods without guidelines gain 'distinct' mix); strongly discourage similarity – elevations, colours, roof lines, etc.

#### 2.7.4 Open Space

Element	How is Red Deer Doing?	What can Red Deer Learn?
Well defined public areas	Public open spaces are generally distinct; bordered by roads, lanes or fences	
Variety of open spaces	Emphasis on major central sports fields detracts from the provision of linear green spaces and more informal pocket parks	In planning for 640 acre communities, reduce the total size of major central parks and provide more linear greenways and small, informal parks; think about formal squares, village greens, etc. Provide more variety in form and appearance
Pocket parks (or parkettes)	Now more frequently provided, but not always with 'strong' locations	Make a key design element – location and site design to encourage gathering and social interaction, but not all the same
Linked open space system	Linked pathway system has become more important, but in places is still disjointed	Make a key design element – perhaps even a 'green spine' linking a number of centres in the community with homes and the neighbourhood edges (City-wide trail system)
Natural space incorporated	Red Deer uses the Ecospace Inventory and applies to neighbourhood design planning	

#### 2.7.5 Centre(s)

Element	How is Red Deer Doing?	What can Red Deer Learn?
Mixed use core	Usually is a school with a sports field complex; recent moves to include community shelter designed for multi-purposes as part of the school	Greater mix of commercial, housing, public, recreation uses
Village Green	No 'formal' provisions	Site dedicated and designed to encourage social gatherings for various functions for all seasons – more social and cultural than recreational Make a higher priority design element
Prominent civic sites	Usually a school on large site to accommodate sports fields; no presence in commercial areas; fire halls located to maximize effective response times to emergencies	
Significant Buildings	Schools, churches and/or commercial complexes	Need to be located on prominent sites and sited and designed to maximize visual effects and attractiveness to add to the sense of community



## 2.7.6 Street Corridors

Element	How is Red Deer Doing?	What can Red Deer Learn?
Main Street	None – collectors are traffic arteries with no or little sense of 'mainness'	Plan for at least one main street which has a strong pedestrian orientation for higher density housing and/or mixed land uses, perhaps anchored at each end by significant buildings, park squares or other features; discernible public elements – walkways
Link Centres	Collectors link central park to entryways, which may have a neighbourhood or district shopping site	Some local or 'short' collector road could serve as a main street street (see above); could also be a pathway

## 2.7.7 Streets

Element	How is Red Deer Doing?	What can Red Deer Learn?
Hierarchy of streets	From arterial there is a series of collectors, local roads and (usually) lanes to disperse and collect traffic	
Mix of street patterns	Dominated by curvilinear, often with 'closed pockets' but some modified grids	More modified rectilinear pattern, or at least a better balance; create flow between pockets, not isolation
Transit supportive	All neighbourhoods are planned to have transit service along a collector road with a bus stop within 400 m of 90% of the homes	More attractive and 'friendly' bus stops
Pedestrian oriented	Front setbacks - Generally provides for front drive parking – 6 m or greater; most streets dominated by driveways and protruding garages	To encourage use of rear parking and bring homes with porches or verandas closer to the street to encourage social interaction; make front garages to be less obtrusive – set back from the main façade or at least a minimum protrusion from the main front elevation

## 2.8 A Compendium of Ideas

### Identity

- A community (640 acres) of four neighbourhoods
- More architectural guidelines
- Establish attractive and vital focal point(s) or landmarks
- Emphasize vistas
- Create desirable gathering places
- Significant buildings, especially public community buildings
- Trail entrance features (if separate from entry roads)
- More emphasis on streetscapes (great streets don't just happen)

### Mix of Land Uses

- Housing variety
- Schools, but located on the edge to share with other neighbourhoods
- More work places and range of employment opportunities
- Corner stores
- Variety of parks/public open spaces
- Gathering places – commercial, public, cultural, recreational, etc
- Mixed use buildings

### Housing

- greater variety of housing types
- higher densities
- housing above ground floor commercial
- housing above garages
- Emphasize porches and verandas, not garages
- Residential buildings closer to the street

### Open Space

- more pocket parks (parkettes) – at least three per neighbourhood
- Village Green, at least two acres in size as a social gathering area
- One or more (near) continuous greenways/pathways
- Sports fields on the edge to share between neighbourhoods
- Linked pathways (a walkable community, including sidewalks)
- Parks where people like to go

### Centres

- A discernible community centre
- A centre per neighbourhood – can have different mix of uses
- Neighbourhood shops and services at the centre of the neighbourhood
- Mixed use centre – retail, higher density housing, parks, transit stop
- Buildings built to front property line
- Boulevards

## Corridors

- Market street to share among neighbourhoods
- Link neighbourhood centres
- Well defined public elements

## Streets

- Thoroughfares with a transect of rectilinear streets
- Balance of curved and straight streets
- Modified rectilinear grid
- Tree lined streets
- Traffic calming measures – roundabouts, narrower streets with on-street parking, centre boulevards

## **2.9 Vision Elements and Study Questions**

As a part of the Sustainable Community Study process, to develop a vision of what a sustainable community may look like for Red Deer a visioning workshop with this specific focus was held the evening of June 6, 2001 at the Harvest Centre. A total of fifty-five (55) community members participated, being representatives of the local development industry, social service providers, community organizations, community associations, youth, seniors and City Council and Administration.

The portions of the initial vision that prepared subsequent to the visioning workshop that are applicable to Community Form are:

*Central focal point that serves as an identifying feature and gathering point for the community*

*Architecturally appealing neighbourhoods comprised of high quality, durable buildings and long-lasting public infrastructure*

*A mix of uses providing local access to a broad r*

*More intense use of land and buildings with increased population density and greater mix of uses and activities*

These certainly address a number of sustainable community form elements 'practiced' in new development across North America, as presented in Section 2.

The Terms of Reference for the Sustainable Community Study listed a series of questions. While many generally are applicable to Section 2, they are more specific to the following sections and therefore they are recited in those sections.

## **Appendix 2**

**Housing Compendium of Ideas and Practices  
(Chapter 4 of Background Report No. 5)**

## 4. HOUSING

### 4.1 Introduction

This section provides an overview of the role that housing plays in the creation of more sustainable neighbourhoods and communities. The section begins with a summary of design elements and principles that contribute to sustainability and then provides some examples from Canada and the United States. Key aspects of housing and its contribution to sustainable communities are also discussed. The section concludes with observations on how well Red Deer's newer neighbourhoods are advancing the principles of sustainable communities and ideas for improvement.

The initial sustainable community vision outlined in Report No.2 contained several aspects relating directly to the issue of housing and how housing should be approached in the context of a sustainable community. Specifically, the preliminary vision identified the following:

- *A mixture of diverse, affordable housing types and opportunities leading to a diverse population in terms of age and income levels*
- *More intense use of land and buildings with increased population density and greater mix of uses and activities*
- *Affordable and appropriate housing opportunities for all income and age groups*

### 4.2 Design Elements from Planning movements

The various planning movements including sustainable development, smart growth and the new urbanism all have a common approach when it comes to the issue of housing. All of the movements suggest that a more sustainable or smarter community is generally one that provides a greater range of housing choice and options and has a focus on a rich and diverse community life. Housing choice focuses on the types, size and price of housing units available so that people of different household types, income levels and age groups can find accommodation that best suits their needs. The mixture of housing is intended to provide options for a varied population in recognition that a broad range of housing types and price levels can bring people of diverse ages, ethnicity and income levels into daily interaction thereby strengthening the personal and civic bonds essential to authentic community. A rich and diverse community life focuses on opportunities for interaction between neighbours, friends, local business, and services within the community.

The varied planning movements emphasises the following elements in providing a guide towards the creation of more sustainable neighbourhoods:

- Providing a wide choice of housing types to meet the needs of diverse groups, minimize life cycle swings, and provide a balance of socio-economic groups throughout the larger community
- Designing and positioning housing to enhance streetscapes and provide compatibility in architectural style and finishing
- Achieving a housing density that makes better use of land, reduces per unit service costs and provides a sufficient base to support local commercial facilities and services
- Providing an adequate choice of low and medium income housing to satisfy the basic need of shelter and prevent social problems related to a lack of adequate housing

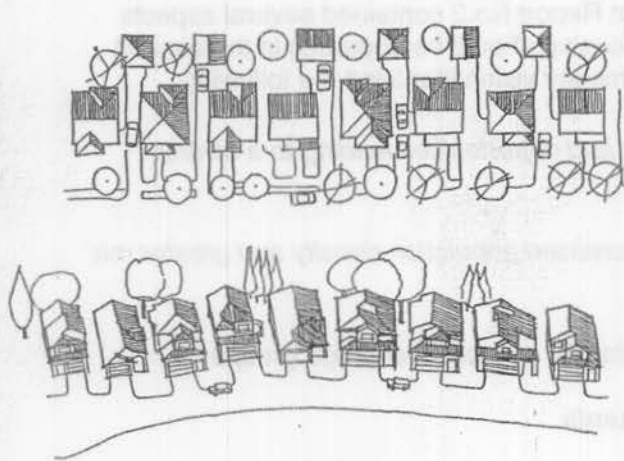


- Directing multi-family housing to locations near community centers/nodes, recreation and open space areas and transit routes to improve marketability, support public transit and local commercial facilities and reduce the need for car ownership

Figure 4-1 provides both a graphic and text depiction of how housing contributes to the creation of more sustainable communities.

**Figure 4-1: Housing Types**

**NOT this:** Limited housing types: single family detached

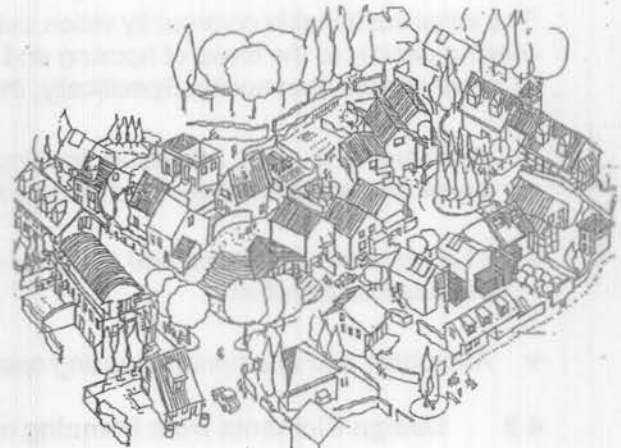


**WHY NOT:**

- Poor range of affordability
- Leads to limited social and economic mix among residents; ghettoization
- Inappropriate to aging residents and community-minded people
- Has highest individual land requirements
- Financially unstable due to dependence on only one market sector

*"Everyone wants to live in a suburban home and can afford it."*

**THIS:** Many housing types



**HOW:**

- Provide apartment and townhouses as a more affordable option
- Design mixed single-family and multi-family neighborhoods for diversity and social enrichment; healthier communities
- Provide supported seniors housing, co-housing and other options
- Design for mini-lots and strata lots to conserve common land
- Better financial stability by serving several market sectors

*"Many people prefer townhouses, apartments and collective housing, particularly at some stage of their life."*

### 4.3 Practices in the United States

#### Middleton Hills (Middleton, Wisconsin)

Middleton Hills is an example of a traditional neighbourhood development (TND) that exhibits some traits of a more sustainable community. The housing component includes a mixture of single family dwellings, townhouses, live/work units and apartments. Of the total 635 housing units planned, 325 are single detached, 30 are townhouses, 30 are live/work units and 250 are apartment units. This provides a housing mix of 51 percent single detached and 49 percent multi-attached housing. Within the single detached housing units there is considerable variation in lot size and floor area with lot sizes ranging from 2,800 to 8,800 square feet and floor area ranging from 900 to 3,900 square feet.

Figure 4-2 shows the development concept for Middleton Hills and the integration of housing, open space and commercial development within the overall development site of 160 acres.

Of the total area, approximately 80 acres is available as housing sites giving the project a net residential density of 7.9 units per acre.

**Figure 4-2: Middleton Hills Development Concept**

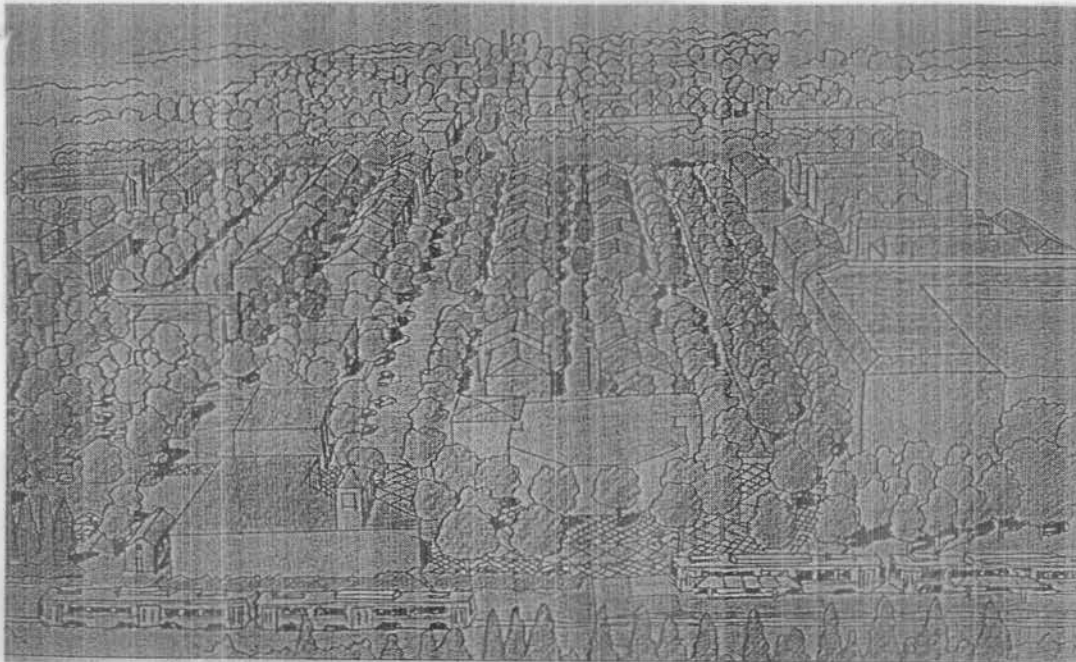


A notable feature of Middleton Hills is the mandatory "build-to" line and the close relationship between the front of residential buildings and the front lot line. To promote a sense of intimacy and enhance the social nature of the area, houses are setback no more and no less than 8 feet from the front property line. Porches may be set forward of this line. In combination with the separate sidewalk and 8 foot wide boulevard strip the reduced setback is intended to encourage pedestrian activity through an attractive and intimate streetscape. The relationship between the various elements is shown in the inset of Figure 4-2.

#### **Orenco Station (Hillsboro, Oregon)**

Orenco Station is a 190 acre new community located in suburban Portland that has been designed as a mixed use, transit-oriented development. A wide range of housing opportunities are provided within a compact design and includes single detached houses, accessory units over garages, live/work lofts and residences over retail shops. Figure 4-3 below conceptually illustrates the integration of Orenco Station's 1,834 housing units of varying types. The gross residential density within Orenco Station is approximately 9.7 units per acre and the overall housing mix is predominantly multi-family at 76.7 percent of the total units planned.

**Figure 4-3: Concept from Orenco Station Master Plan**

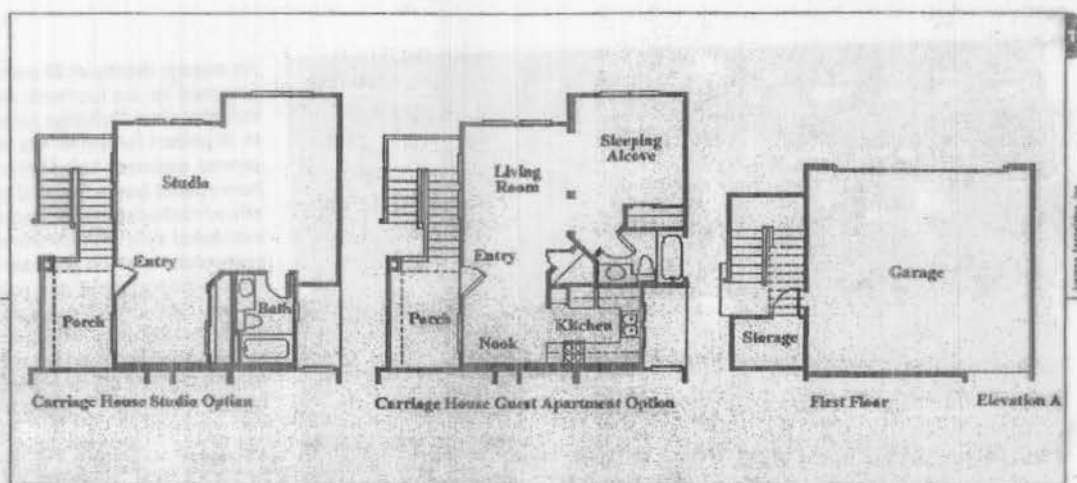


Single detached lots in Orenco Station are relatively small, ranging from 3,680 to 4,500 square feet, with the smallest lots being typically 40 feet wide. Dwelling units are positioned five feet from the side lot line on one side with an easement to use the five foot yard granted to the abutting lot. The result is a usable side yard up to 15 feet wide running the length of the house similar to a zero-lot line concept.

Opportunities for the development of accessory dwellings is one notable feature of Orenco Station. Carriage homes, approximately 514 square feet in size, is available as a buyers' option with two basic floor plans as shown in Figure 4-4. About one in three buyers opted for the accessory space and the use has varied considerably with some using it as a guest suites or office space.



Figure 4-4: Accessory Suite Floor Plans in Orenco Station



#### 4.4 Practices in Canada

##### East Clayton (Surrey, British Columbia)

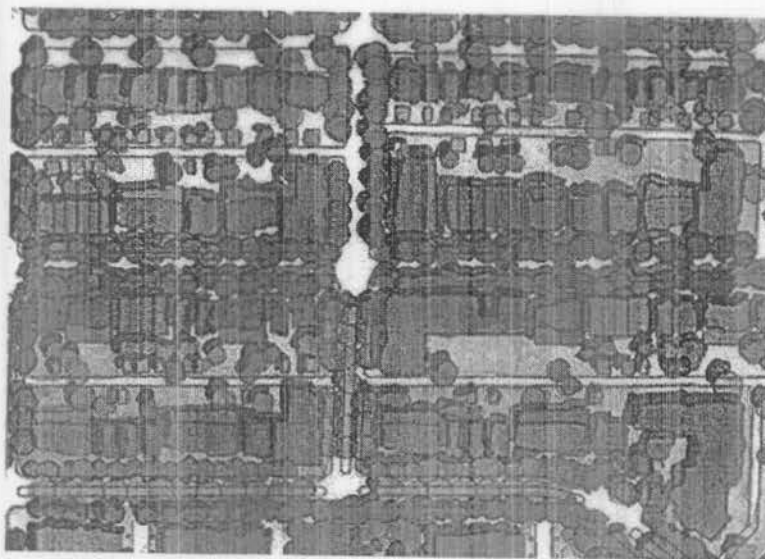
Plan for a community containing 4,600 to 6,400 dwelling units within a 533 acre site located in the Greater Vancouver area. The gross residential density for the neighbourhood concept ranges from 8.6 units per acre to 12 units per acre. Housing types and forms include a wide variety: single detached on varying lot sizes, accessory suites, live/work lofts, townhouses and apartment style buildings.

A key element of the East Clayton Neighbourhood Concept Plan is the inclusion of live/work areas and work/live areas. These mixed use areas are intended to provide transition from business industrial areas to the residential area and achieve the following objectives:

- To provide a diversity of housing types and tenures in order to accommodate a wide range of households and family types
- To provide housing/business accommodation in order to foster the development of small businesses and artisans
- To provide more job opportunities thus reducing work trips and automobile usage
- To provide an innovative form of affordable housing by allowing homeowners to live and work at home
- To provide the opportunity for homeowners to increase their quality of life by eliminating commuting times and possibly child care costs

Figure 4-5 and Figure 4-6 illustrate the two forms of mixed use areas contained in the neighbourhood concept. The density of development in these areas is anticipated to range between 15 and 25 units per acre. The live/work areas include ground level commercial (office, retail, studio) and residential accommodation for the operator of the commercial use on upper floors. The work/live areas are similar though ground level areas may include light industrial and the upper level residential units are available for use by other households.

Figure 4-5: Plan View and Photo of Live/Work Area



An average density of 20 units per acre is proposed for the live/work area, shown in this plan view. Buildings accommodate up to 70 percent residential use with up to 30 percent accommodating opportunities for home-based businesses and ground floor office/studio/retail use. Residences associated with ground-floor retail/commercial uses are provided either behind the residential unit or in upper storeys. Sixty-Eighth Avenue is envisioned as pedestrian-oriented street with parking pockets for on-street parking, street trees, and business on the ground-floor.



Image of a live/work streetscape. Limited retail and offices occupy ground-floor units with associated residential units above or behind these spaces. The massing, roof forms, and window proportions reflect a residential character. At the ground level, recessed entries, generous glazing, awnings, and signage animate the streetscape and identify ground-floor uses. On-street parking is used for commercial/office use while street trees and wide sidewalks enhance the pedestrian scale of the street.

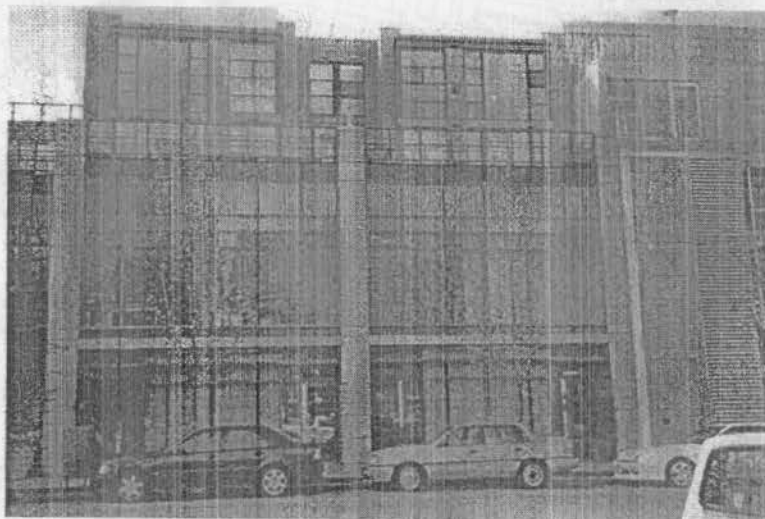
Another distinction between the live/work and work/live areas is the amount of the total building devoted to either residential or work-related use. Live/work limits the work-related use to 30 percent of the floor area while work/live allows up to 70 percent of the floor area to be occupied by work-related use. Work-related uses envisioned for live/work areas include independent professional offices, artist/craft studios, groceries, cafes, restaurants, small scale printing, and desk-top publishing. In work/live areas light manufacturing, assembling and finishing, and small scale wholesale uses are allowed.

**Figure 4-6: Plan View and Photo of Work/Live Area**

An average density of 20 units per acre is proposed for the Work/Live area. Up to 70 percent of floor area can be used for office/commercial/light industrial (i.e., high-tech) or other compatible uses. Residences associated with these ground-floor uses are provided either behind the business unit or in upper storeys.



Work/live buildings are to accommodate ground-level retail/commercial/office spaces with residences above. Façades are articulated with a high proportion of windows, both to allow maximum light into each unit and to provide visual access into street level shops and businesses. Materials and massing are to be complementary with the adjacent Business Park while also being compatible in scale and character with the adjoining live/work area.



### **Red Willow (St. Albert, Alberta)**

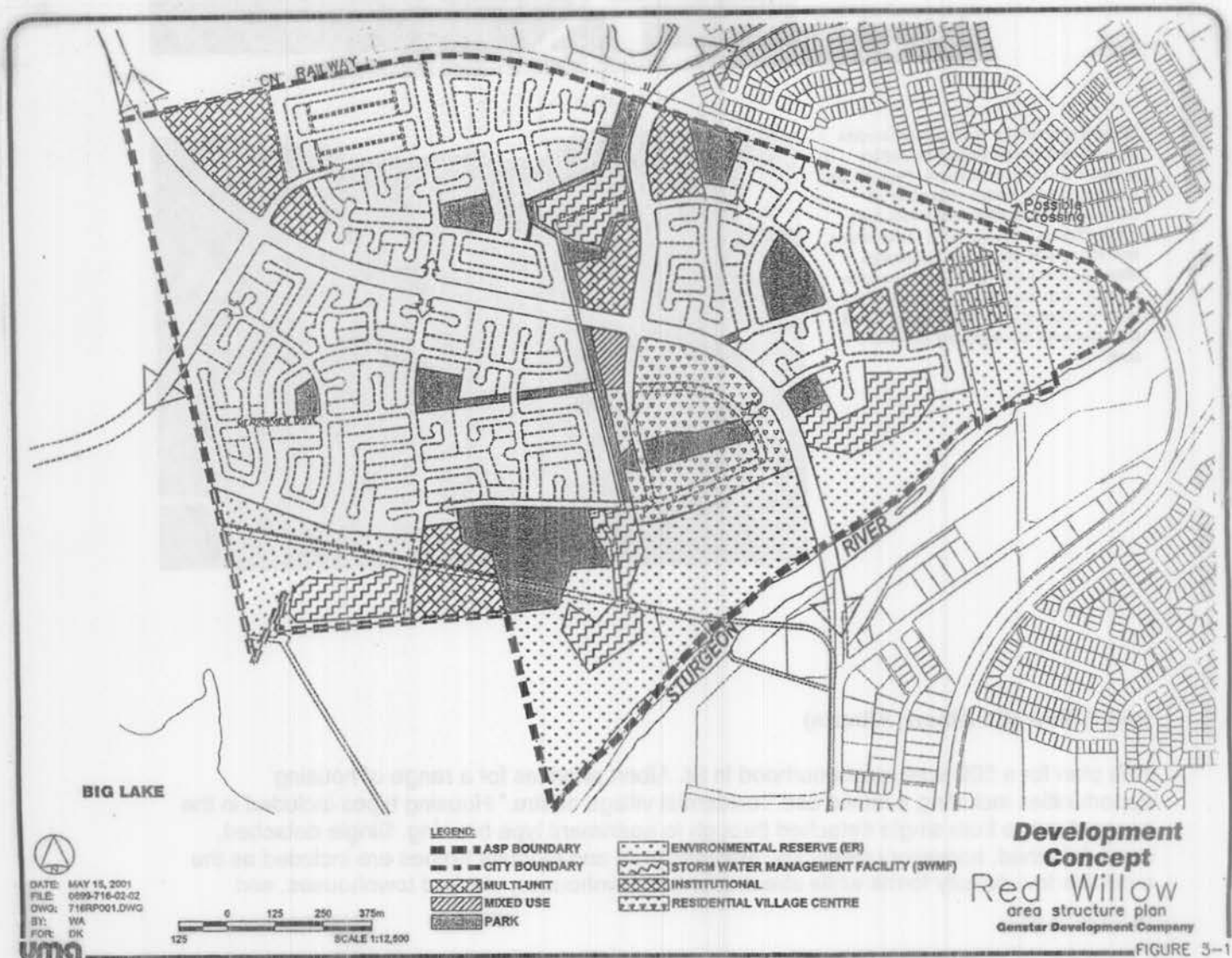
This plan for a 509 acre neighbourhood in St. Albert provides for a range of housing opportunities including a mixed use "residential village centre." Housing types included in the concept range from single detached through to apartment type housing. Single detached, semi-detached, accessory dwellings, manufactured and modular homes are included as the available low density forms while street-oriented townhouses, stacked townhouses, and

apartment type buildings are envisioned as the high density housing forms. Single detached dwellings are expected to comprise 65 percent of the total number of housing units.

Residential densities contemplated in the neighbourhood concept vary. Overall the 2,840 housing units produce a gross residential density of 5.6 units per acre. Within the single detached residential areas the density is approximately 7.7 units per acre and within the multi-family sites the average density is expected to be 10.1 units per acre. The highest residential densities are envisioned in the village center - to support the anticipated commercial uses in this area - at an average of 12.1 units per acre.

As shown in Figure 4-7 below, multi-family opportunities are distributed throughout the neighbourhood and take advantage of locations close to parks and open space and accessible to collector roads and future transit routes. Easy walking distance from multi-family sites to the village centre provides support for some of the commercial activities that may develop.

**Figure 4-7: Development Concept for Red Willow**





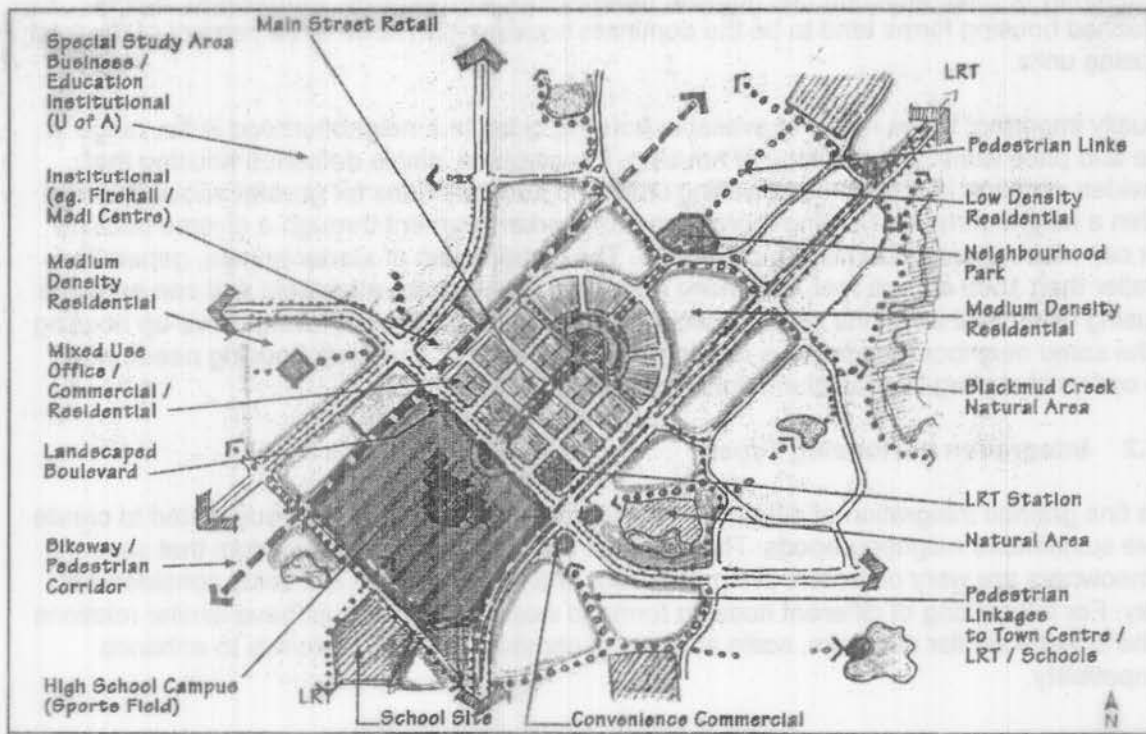
## Heritage Valley (Edmonton, Alberta)

The concept for this future community of 65,000 in a 1,558 hectare area includes the creation of sustainable neighbourhoods characterized by a range of housing types and densities. Integration of residential forms and densities within each of the fourteen neighbourhood cells is a central aspect of the concept. The housing objectives are as follows:

- To develop liveable residential environments and memorable places throughout the community.
- To provide the opportunity for a diversity of housing types to accommodate various income levels, market preferences and intensification policies
- To promote neighbourliness, street life and walking through building design, site planning and pedestrian-friendly streets.
- To encourage environmentally responsible development throughout the community in support of resident and ecosystem health.
- To design a safe, aesthetically pleasing and integrated residential environment.

Diverse housing forms ranging from single detached to apartments are envisioned in the concept with the expectation that densities will be higher than conventional suburban areas. The majority of the housing is expected to take the form of low density residential which includes single detached, semi-detached, townhouses and accessory dwellings. Low density residential is expected to have a density range between 12 and 32 units per gross hectare. Medium density housing forms and high density housing forms are expected to account for a maximum of 35 percent of the total housing units at densities of 32 to 50 units per gross hectare.

Figure 4-8: Heritage Valley Town Centre Concept



The town centre concept, shown in Figure 4-8, provides an opportunity for a mixture of housing types at higher densities than other portions of the community. Figure V also shows how housing densities are expected to gradually decrease as one moves farther from the town centre. This enables the concentration of population to support the commercial activities of the town centre and provides transition to the lower density neighbourhood cells.

#### **4.5 Housing in a Sustainable Community**

As can be seen from the discussion of design elements and the examples of practices in the United States and Canada, housing plays a significant role in the development of more sustainable communities. The discussion that follows focuses on some of the more critical aspects.

##### **4.5.1 Housing Mix**

The range of housing opportunities provided in a neighbourhood determines how well the area will adapt to changing demographics and housing preferences. Those neighbourhoods with a variety in housing types respond well to demographic change and enable households whose housing needs change over time to relocate within the same neighbourhood. Good housing mix also allows for social interaction and intermingling of individuals from differing socio-economic groups. A mixture of housing sizes and types can meet the needs of a variety of different household configurations and permit young people, their parents, elderly singles, couples and families with children to live side by side. On a community-wide basis, neighbourhoods with a variety of housing types reduce the likelihood of social segregation and exclusivity.

The degree of mix between conventional low density residential forms and medium to high density residential forms varies between one sustainable community to the next. A common range appears to be between 20 to 35 percent of the total housing units taking the form of multi-family or multi-attached unit housing (apartments, townhouses, fourplexes). Single detached housing forms tend to be the dominate housing form at 65 to 80 percent of the total housing units.

Equally important to the range of available housing types in a neighbourhood is the range in size and price within a single type of housing. For instance, single detached housing that provides variation in size of lots, dwelling units and price provides for greater social diversity within a neighbourhood. Serving more than one market segment through a diverse housing mix can make a neighbourhood more stable. The construction of starter homes, generally smaller than 1500 square feet, can make home ownership more attainable and can enhance housing diversity if additions can be accommodated at later stages. Having move-up housing in the same neighbourhood allows residents to address their changing housing needs with the option of staying in a familiar neighbourhood.

##### **4.5.2 Integration of Housing Types**

The fine grained integration of different housing forms is one of the ways suggested to create more sustainable neighbourhoods. This conflicts with the conventional wisdom that says homeowners are wary of renters living next door and this sentiment still holds considerable sway. For intermixing of different housing forms to work, buildings must have similar relations to the street – similar setbacks, scale and use of common building materials to enhance compatibility.

Attention to design and character of buildings and maintaining a "human scale" can assist with integration of varying housing forms. Larger buildings, such as apartment buildings or townhouses, can be made to appear more human-scaled through the use of architectural elements or features that break up the building mass. Vertical or horizontal building articulation helps reduce the scale of a structure and provide a visually interesting streetscape. By designing multi-family buildings to be complementary and compatible with the character of surrounding single detached houses, a more unified environment can be created.

Suggested ways to use building articulation and architectural elements to blend varying forms of housing together include:

- Stepping back or extending forward a portion of the façade
- Repeating window patterns at intervals
- Providing a porch, patio, deck or covered entry for each interval
- Providing a balcony or bay window for each interval
- Changing the roofline by alternating dormers, stepped roofs, gables or other roof elements to reinforce the articulation interval
- Changing materials with the change in the building plan and use of complementary materials and colors
- Providing a light fixture, trellis, tree or other landscaping feature with each interval
- Using similar building height, scale and proportions
- Using similar building details, fence patterns, landscaping treatment

The most common approach to integrating various housing types is to have differing housing forms back onto one another, often across a lane. Side to side or side to back mixes are also possible and more closely approximate traditional town planning. For example, some TND communities mix townhouses with single detached housing on the same block with townhouses "capping" the end of blocks.

#### **4.5.3 Density**

One of the key elements of the various planning movements involves developing communities with sufficient residential density to support and make public transit and local commercial services more viable. Density also has a bearing on affordability with site development costs per unit generally decreasing as density increases due to less land needed per unit, less site preparation costs and less construction costs of the housing itself.

There is a strong relationship between having a high concentration of people and a broad range of social and economic opportunities. Creating more compact residential areas and reducing the distance between different land uses makes it easier to walk or bicycle between daily destinations. This pedestrian activity can add interest to the street and increases the likelihood of social interaction.

Public acceptance, or lack thereof, is often a barrier to increased density due to perception that density equates to crowding. Overcoming concerns about crowding can be accomplished through building and site design to address needs for privacy, quiet and outdoor space. Placing higher density developments close to open space can help generate a sense of openness as can human scale or low scale buildings.

While all of the planning movements reviewed suggest that the emphasis should be placed on minimum target densities to achieve sustainability objectives there is no special formula

for the optimum density that a community should seek. Different places and activities need different concentrations of people in order to function properly.

One method of determining the minimum target is based on the level of population to support public transit. New Urbanism suggests a minimum density of five to seven units per acre for the area within a quarter mile of transit route should be the minimum target while 12 units per acre is a more reasonable density target. The ideal would be 18 or more units per acre within a half mile of a transit station or stop. Figure 4-9 below describes the relationship between residential and commercial densities and level of transit service possible. From the sample of plans and communities reviewed in Report No.4, an overall density of 12 units per gross developable hectare is considered low while those above 20 units per gross developable hectare are considered high.

**Figure 4-9: Relationship Between Density and Transit Service**

<i>Density and Transit Service</i>		
<i>Residential Density</i>	<i>Commercial Density</i>	<i>Transit Service Supported</i>
< 6 du*/acre		park-and-ride service, demand response
6 to 7 du/acre		minimum threshold for effective bus service
7 to 8 du/acre	50 to 60 employees per acre	bus service every 30 minutes
9 to 12 du/acre		minimum threshold for light rail transit service
15 to 20 du/acre	75+ employees per acre	bus service every 15-20 minutes, light rail transit service
24 du/acre		minimum threshold for express bus service and rail transit service
30 du/acre	150+ employees per acre	bus service every 10 minutes, rapid transit service
60 du/acre		more than 50% of trips made by transit
*du = dwelling units		
- Center for Livable Communities, 1996		

In addition to determining what is an appropriate minimum density level, setting a target for new residential areas must take into account the desire and ability to provide variation within a single neighbourhood. Accommodating low density residential areas such as urban estate lots and medium density housing means that one area may be below the minimum target and one area may be significantly above. Averaging across a larger area offers a means of addressing this variation without sacrificing the ability to provide a variety of housing forms.



Having a density gradient within a neighbourhood is not contrary to sustainability and reflects the fact that people vary in their desire to be close to shops, services and other amenities. Some prefer to live close to active, busy areas while others chose to locate their homes in quiet areas away from any centre of activity. These different views and desires can be accommodated within the same neighbourhood. Typically this means focusing higher density residential and development around shopping areas, transit stops and major activity nodes.

#### 4.5.4 Making Better Use of Sites

Several of the examples of sustainable communities suggest variations in the way individual building sites are developed in an effort to create more functional areas on the sites, make more efficient use of land, and achieve more appealing streetscapes. Most often this involves the placement of the principal building on the site relative to property lines and buildings on abutting properties. This includes:

- Reducing front yard setback requirements
- Introducing mandatory "build to" lines
- Provision of use and maintenance easements on side yards
- Clustering of driveways and detached garages
- Pulling attached garages back from the front or locating in rear yard

Figure 4-10 and Figure 4-11 show some of the items listed above. The main building is generally closer to the front property line than the typical 6m – 7m front yard and front garages are pulled back enough for a vehicle to be stored behind the front edge of the building façade. Driveways and rear garage placements are mirrored to provide fewer breaks in sidewalks, enable on-street parking and provide planting areas for street trees.

**Figure 4-10: Example of Building Placements – Front Attached Garages**

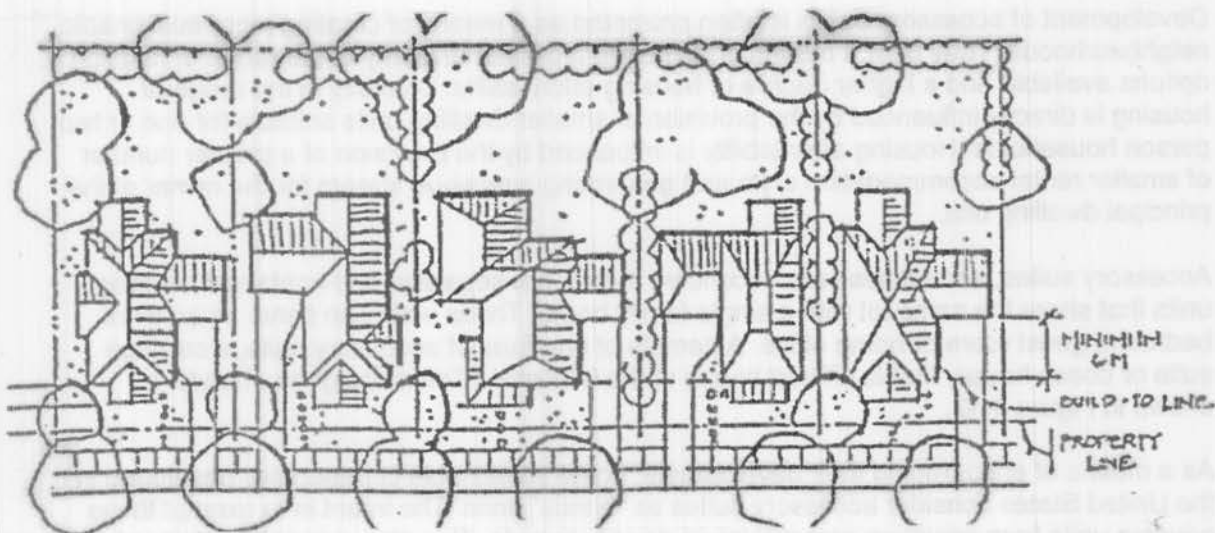
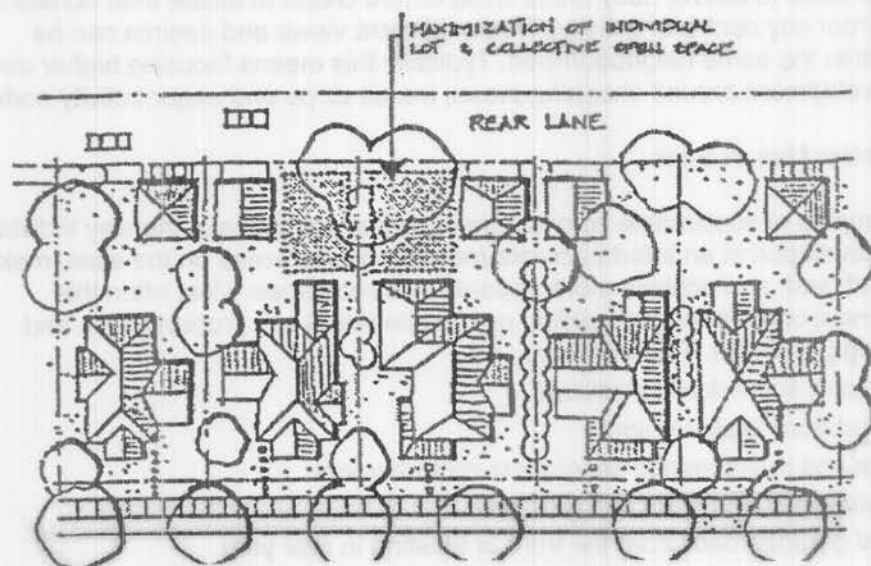


Figure 4-11: Example of Building Placements – Rear Detached Garages



Some of the expected benefits from these approaches include:

- Creation of more functional private space for residents typically in back yard or side yard areas.
- Opportunities for increased on-street parking and tree planting in boulevards.
- Opportunities to reduce lot depths while maintaining available private amenity space.

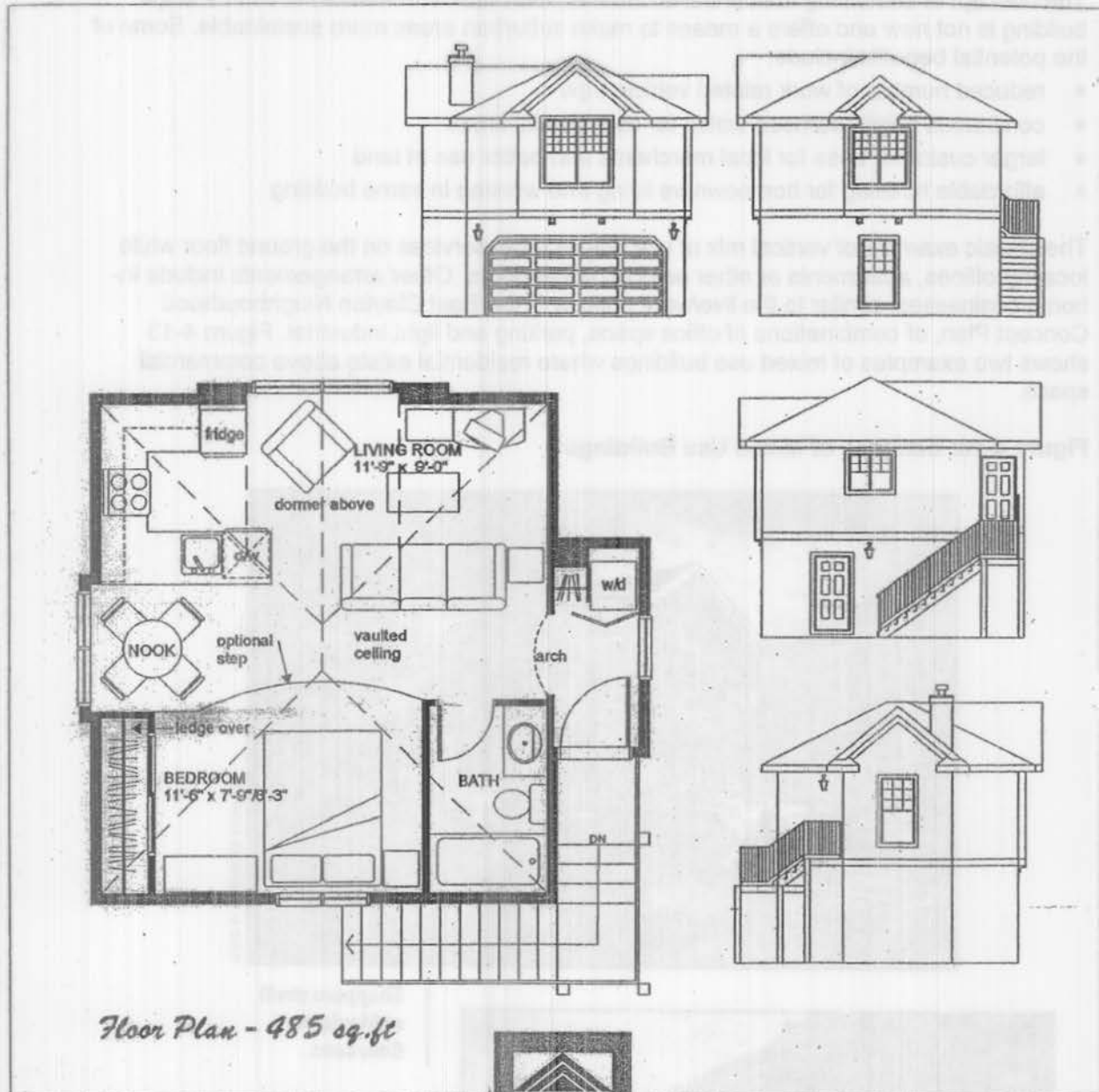
#### 4.5.5 Accessory Suites

Development of accessory suites is often promoted as a means of creating more sustainable neighbourhoods. They offer a means of achieving a greater diversity in the range of housing options available and a higher degree of housing affordability. Diversity in the range of housing is directly influenced by the provision of smaller dwelling units suitable for one or two person households. Housing affordability is influenced by the provision of a greater number of smaller rental accommodation units and generating a revenue stream for the owner of the principal dwelling unit.

Accessory suites, sometimes called secondary suites, are separate, self-contained dwelling units that share the same lot with a single family home. These units can serve as an extra bedroom, guest room or home office. A sample of one form of accessory suite, a carriage suite or coach house, that is offered in one of the McKenzie Towne neighbourhoods is shown in Figure 4-12.

As a means of encouraging their development, some sustainable communities developed in the United States consider accessory suites as "bonus" units. The intent is to exempt these housing units from minimum and maximum density targets. This also recognizes that not all accessory suite options will likely be taken up and not all accessory suites will be used as dwelling units as was found to be the case in Orenco Station.

Figure 4-12: Carriage or Coach House Available in McKenzie Towne



### *The* **COACH MODEL B**

- This studio style coach house is suitable for the grown teenager or student.
- Nook area for table and chairs near large window is great place to study.
- The one room feel is accentuated by the vaulted ceiling making for a large dramatic space.
- Dormer window in living room allows plenty of natural light.
- In suite stacked washer and dryer.
- Large closet in bedroom and another entry closet.
- Double garage below.

#### 4.5.6 Mixed Use Buildings

The concept of combining residential accommodation with work-related uses in a single building is not new and offers a means to make suburban areas more sustainable. Some of the potential benefits include:

- reduced number of work related vehicle trips
- continuous neighbourhood watch for commercial areas
- larger customer base for local merchants and better use of land
- affordable housing for homeowners living and working in same building

The classic example of vertical mix of use places retail services on the ground floor while locating offices, apartments or other uses on upper floors. Other arrangements include in-home businesses, similar to the live/work options of the East Clayton Neighbourhood Concept Plan, of combinations of office space, parking and light industrial. Figure 4-13 shows two examples of mixed use buildings where residential exists above commercial space.

**Figure 4-13: Samples of Mixed Use Buildings**



**Shoppers stroll  
at Mashpee  
Commons.**



**Cornell's  
commercial center  
includes apartments  
above retail.**

#### **4.5.7 Location of Multi-Family Housing**

A common theme throughout the planning movements reviewed is the emphasis on the strategic placement of multi-family projects to achieve the objectives of creating a sustainable community. As the most dense concentration of residents, multi-family development is typically directed to neighbourhood edges and nodes. Proximity to open space and recreational amenities is also suggested. Directing multi-family residential to specific locations within a neighbourhood is intended to accomplish the following:

- Reinforce the public transit system by placing potential users in close proximity to transit routes along collector roadways and near transit stops.
- Support clustering of recreational amenities and commercial services and build up the critical mass for a neighbourhood node or focal point in the form of a neighbourhood village.
- Provide residents of multi-family housing access to recreational amenities and open space to enhance the marketability of projects and decrease perceptions of over-crowding.

#### **4.5.8 Affordable Housing**

The issue of affordable housing is in many ways broader than the issue of sustainable communities but it is not possible to address the two issues in isolation. A core aspect of sustainable communities is social inclusiveness. This means households of diverse income levels should be able to reside in the same neighbourhood rather than being segregated on the basis of household income. Sustainable neighbourhoods must embrace diversity rather than exclusiveness. Communities that cannot house their own police and fire forces, teachers and secretaries, waitresses and busboys, and trash collectors are incomplete. Exclusive neighbourhoods shunt the burden of affordable housing to other neighbourhoods and reap the benefit of hidden subsidies that support their privilege.

Promoting affordable housing in the context of a sustainable community means providing the diversity of housing types described in earlier sections. A range of housing types, sizes and price ranges increases the likelihood that households of varied incomes can find affordable accommodation within a neighbourhood. Accessory suites is one particular form of housing option that addresses affordability on two front: provision of an affordable rental unit and income flow for the owner of the principal residence. Increased densities and the tendency to provide more multi-family housing forms also impacts on the affordability issue by increasing the potential supply of this form of housing. Increased density also holds the possibility of reduced costs per dwelling unit which assists with lowering the cost of obtaining home ownership. Providing opportunities for housing units to be in close proximity to employment, basic services and transit also assists with affordable housing based on the ability of the household to get by with one rather than two private vehicles and the associated \$8,000 annual cost.



#### **4.6 What Red Deer Does Pretty Well**

Taken as a whole, the housing being provided in Red Deer's newer neighbourhoods reflects several of the general principles and suggested directions that promote the development of more sustainable communities. The following major observations are noted:

- Housing mix in newer neighbourhoods is fairly good (approximately 18 percent multi-family and 82 percent low density) though the multi-family share of total housing units appears to be slipping and in decline compared to historic levels. A variety of single detached dwellings serving starter, move-up and upper end markets is available in the newer neighbourhoods. Individual newer neighbourhoods, based on the current standard of a single quarter section, typically are serving at least two to three segments of the housing market.
- Integration of varying housing types is being achieved with modules of different housing forms and market segments existing in relatively close proximity. Large scale concentrations of multi-family housing is generally being avoided in favour of smaller sites dispersed throughout neighbourhoods.
- Design and architectural features that assist a variety of housing forms and types integrate into a single residential areas are being employed. Townhouse developments in the newer neighbourhoods are making use of vertical articulation techniques to create appealing street front appearances. Larger scale multi-family developments are making use of varied roof pitches, gables and both vertical and horizontal articulation techniques. Single detached dwellings are typically subject to architectural controls to establish a similar character along a street.
- Mixed use buildings in the form of residential units above commercial space are allowed though there are no examples in the newer neighbourhoods.
- The location of multi-family housing reflects some of the principles of sustainable communities in that higher density housing is generally directed to locations close to transit routes and major open space areas. There are no purposefully developed neighbourhood nodes or "urban villages" for multi-family to cluster around in newer neighbourhoods.
- Lanes are provided and enable the placement of garages to the rear of houses to create a more interesting streetscape. Porches are allowed to encroach into front yards to create more intimate streetscapes and better use of required front yards.
- Opportunities for live/work areas largely through compatible home occupations in residential areas are allowed with approximately 680 existing throughout Red Deer.

#### 4.7 What Can Red Deer Learn and Possibly Improve

There are a number of ways planning for housing in Red Deer could be changed to promote the development of more sustainable communities. Ideas that have potential application in Red Deer are listed below.

*Idea 1: Promote, encourage and allow the development of accessory suites throughout new residential areas.*

The development of accessory suites should be promoted in the development of new residential areas as a means of achieving a greater diversity in the range of housing options available and a higher degree of housing affordability. Diversity in the range of housing is directly influenced by the provision of smaller dwelling units suitable for one or two person households. Housing affordability is influenced by the provision of a greater number of smaller rental accommodation units and generating a revenue stream for the owner of the principal dwelling unit.

Implementation of this idea may take the form of accessory suites as a discretionary use in low density residential districts or as a separate Land Use Bylaw District.

*Idea 2: Require a minimum housing mixture comprised of no less than 20 percent of the total units in a quarter section being multi-attached housing (containing three or more dwelling units) and no less than 60 percent of the total units being single detached dwellings.*

The intent is to ensure that opportunities for multi-family housing are available in newer neighbourhoods at levels slightly higher than what is currently being achieved. This responds to the general trend in demographics towards smaller households (single seniors, empty nesters, singles, single parent households) and anticipated future need. At the same time, the intent is to avoid large concentrations of multi-family development in a single quarter section.

Implementation of this idea should continue to take place through the preparation of Neighbourhood Area Structure Plans. This may involve adding the guideline on required minimum housing mixture to the Planning and Subdivision Guidelines.

*Idea 3: Set a minimum density target of 15 units per gross developable hectare (total area in title less environmental reserve areas) in new residential areas.*

The intent of the minimum density requirement is as follows:

- Encourage more efficient use of land to accommodate housing than is currently being experienced
- Support the public transit system by providing the minimum level of density needed to support effective bus service
- Provide a greater base of customers for local commercial areas
- Reduce per dwelling unit infrastructure costs on average
- Reinforce the intent to provide for a diverse mix of housing types, forms and sizes



The calculation of the minimum density targets should be applied across an entire section-size neighbourhood/community to allow for areas of differing density and character. Recognizing that some developers specialize in the multi-family market and some specialize in low density form of housing, mechanisms that allow for the transfer of density rights and obligations from one developer to another within a single section-sized neighbourhood should be included with the minimum density target. One of the trade-offs that may be required to enable developers to meet the minimum density target is an increase in the permitted, "as of right" density of R-3 sites from its current limit of 35 units per hectare to 50-60 units per hectare.

Implementation of a minimum density target should occur through statutory plans with the details on application and calculation left to the Planning and Subdivision Guidelines.

*Idea 4: Restrict the future application of the existing maximum density cap to new residential areas where a Neighbourhood Area Structure Plan has already been approved.*

The rationale for this is based on the fact that restricting maximum density does not contribute towards more sustainable neighbourhoods and concerns regarding excessive concentrations of multi-family housing can be addressed through housing mix policies.

Implementation would occur through an amendment to statutory plans and the Planning and Subdivision Guidelines.

*Idea 5: Limit the concentration of multi-family and narrow lot single detached housing to modules of 50 to 60 units with individual modules being separated by different housing forms or land uses.*

The intent is to create a more fine-grained integration of housing types while still allowing for the creation of unique character/identity areas focused around a single street or close. For instance, a p-loop of R1N single detached dwellings may be located to the back of a tier of R1 single detached dwellings along the collector road. An example of this approach is the adopted plan for the Lonsdale area in Lancaster East where R1 single detached, R1N narrow lot single detached and R1A semi-detached are integrated on a street-by-street basis. This same plan however creates a sizeable concentration of R1N narrow lot housing that would not necessarily meet the intent of the proposed policy.

Implementation of this idea could take place through the Planning and Subdivision Guidelines and Neighbourhood Area Structure Plans.

*Idea 6: Investigate ways the City's Land Bank role could facilitate the long-term availability of multi-family sites and prevent their conversion to low density forms of housing.*

The City generally has the ability to hold land over longer periods of time than the private development industry and can therefore afford to take a longer-term view to the provision of sites for multi-family development. A general trend within the housing industry is to "look 18 months out in the market" in deciding the type of lots

to provide. When the market for multi-family development is “hot” there tends to be a supply of lots available to developers who specialize in multi-family developments. When the market for multi-family is “cool” or the market for low density residential housing holds the potential for higher returns there is a tendency for the supply of multi-family sites to become more constrained. Preserving sites for multi-family development that may occur after the low density residential portion of a neighbourhood has built out ensures that housing diversity will be provided over the long term.

*Idea 7: Allow for reduced front yards and reduced lot depths for single detached dwellings.*

The intent is to support the creation of more intimate and interesting streetscapes by bringing the house closer to the front of the lot. The reduced lot depth is intended to allow for some increase in density within the low density residential districts with lot depth reduced by the same amount as the front yard requirement.

Application of this idea is not new in Alberta. Consideration must be given to the nature of municipal servicing in calculating the amount the front yard may be reduced. To be most successful in influencing the character of the street, reduced front yards must be consistently applied and a mandatory “build-to” line may be necessary.

Implementation of reduced front yard requirements should be pursued through Neighbourhood Area Structure Plans (similar to areas for walk-out basements) and the Land Use Bylaw.

**Appendix 3**

**Open Space Compendium of Ideas and Practices  
(Chapter 5 of Background Report No. 5)**

## **5. OPEN SPACE AND CONSERVATION**

### **5.1 Introduction**

In the June 2001 Red Deer sustainable community vision workshop it was obvious that open space, recreation facilities and the conservation of natural spaces was important. The following were identified as elements of a sustainable community:

- *Use of green space to provide connections to other neighbourhoods and opportunities for neighbours to connect*
- *Green space that is accessible and serves multiple purposes including natural preservation, wildlife habitat and corridors, and recreational pursuits.*

The terms of reference for this Sustainable Community Study provided a series of questions to help focus the study on open spaces and the conservation of the natural environment. The questions are:

- How should open spaces be designed and distributed within neighbourhoods?
- Should these design guidelines vary from neighbourhood to neighbourhood?
- What criteria are used to identify and protect natural, cultural, and heritage resources? Are developers aware of these resources? How is protection prioritized?
- What other options are there that may assist in protection/preservation?
- Could natural areas be better utilized for parks, trails and nature scaping rather than deny public access to these areas?
- What measures can be instituted that would assist/encourage private developers to preserve natural features (e.g. wetlands)? How could these measures be implemented (e.g. incentives, reserve credits, density bonus) and enforced (e.g. no ASP approvals, development penalties and/or restrictions)? Will regional environmental issues be identified?
- Should there be regulations/permits for grading, filling and tree removal?

Open space is important for a variety of reasons. They provide visual relief from the built environment and contribute significantly to the attractiveness and livability of communities. Open spaces bring structure and visual order to a neighbourhood and serve as places to gather and as connecting corridors. Open spaces preserve natural features, but well designed built-open spaces serve can be places to play and to rest, and places to socialize and contemplate. A system of diverse open spaces within a community adds character and interest while promoting play activities and socializing.

### **5.2 Principles from Planning Movements**

The following are open space principles, elements and key directions from a number of planning movements and 'community' planning directions.

From the Charter for the Congress for New Urbanism:

- A range of parks, from tot lots to village greens to ballfields and community gardens, should be distributed within neighbourhoods. Conservation and open lands should be used to define and connect different neighbourhoods and districts.

From the Ahwahnee Principles:

- The community should contain an ample supply of specialized open space in the form of squares, greens, and parks whose frequent use is encouraged through placement and design.
- Public spaces should be designed to encourage the attention and presence of people at all hours of the day and night.
- Wherever possible, the natural terrain, drainage, and vegetation of the community should be preserved with greenbelts.

From the City of Calgary's Sustainable Suburbs Study:

- Protected natural areas and a variety of linked open spaces offering a choice of activities, connected where possible to a regional open space system.
- Existing natural systems (including significant environmentally sensitive areas) must be integrated into new communities and will form part of a comprehensive and contiguous regional open space system.
- Built open space (including joint use sites) must be located, sized and configured to create places that are functional, safe, flexible and form a linked open space system.
- Local open space must provide a variety of opportunities for people of all ages, interest and abilities.

From the City of Edmonton's Neighbourhood Design Principles:

- Explore opportunities to provide smaller, dispersed open space and parks in a neighbourhood to provide for localized needs while meeting the recreational needs of residents of the catchment area.
- Create a linked open space system through open spaces created by storm water management facilities, some utility rights-of-way, preservation of appropriate natural areas and drainage courses, and school and park open spaces.
- At the area and neighbourhood planning stage, plan the location of school/park facilities relative to neighbourhood staging such that they can be consolidated, serviced and available early in the development of a neighbourhood or catchment area.

From Smart Growth:

- Preserve open space, farmland, natural beauty, and critical environmental areas.

In Smart Growth: Creating Communities for People: it states:

"Communities often make the mistake of placing parks and plazas in unsuitable locations . . . will be poorly used because they are away from centres of activity. The most successful open spaces concentrate people at a particular location in order to create a certain level of excitement and interest. Smaller open spaces can easily accommodate a wide variety of different activities and are best located in the centre of residential neighbourhoods, commercial areas or even in the middle of downtown. Larger parks and playing fields can serve more than one neighbourhood and can be located in areas where they are accessible to all surrounding communities." (p. 43)

### 5.3 Practices in the United States

In Chapel Hill, North Carolina the new community of Woodsong features a system of parks and greenways (see Figure 2-6). Marketed as a new urbanism community, two of its design principles are:

- A village centre where people can not only shop, but also socialize (at the Village Green)
- A Village Green, parks and playgrounds where kids can meet and play.

Connecting with adjacent communities, a ten-foot wide (see Figure 5-1) greenway path runs through the community (forest and creekside) and connects to an elementary school and an adjacent 75 acre community park. Eight residential parks feature a variety of landscapes and activities, including:

- two acres – forested; gravel paths with picnic table and a small cemetery
- formal garden park
- kids play park
- open grassy space; for picnic and casual activities
- forested pocket park surrounded by a stonewall
- wooded park with facilities for relaxation and for kids to play
- wooded park with paths
- kids play park with lots of sand (see Figure 5-1).

In or near the village centre are:

- in the heart of Market Street, a Village Green suitable for community picnics and other social gatherings
- pocket play park near stores.

**Southern Village – Pathway and Play Park**



Source: [www.southernvillage.com](http://www.southernvillage.com)

Figure 5-1

At Northwest Landing (Washington), a major part of the community master plan is a series of parks and trails (Figure 5-2). Connecting and loop trails have a total length of ten miles and are designed to be easy to navigate and connect places to live, work, play, worship, learn and shop. As well as major community parks, there are pocket parks in every neighbourhood. A two acre Village Green serves as a community gathering area.

#### Northwest Landing Trail System and Village Green



Source: [www.nwlanding.com](http://www.nwlanding.com)  
Figure 5-2

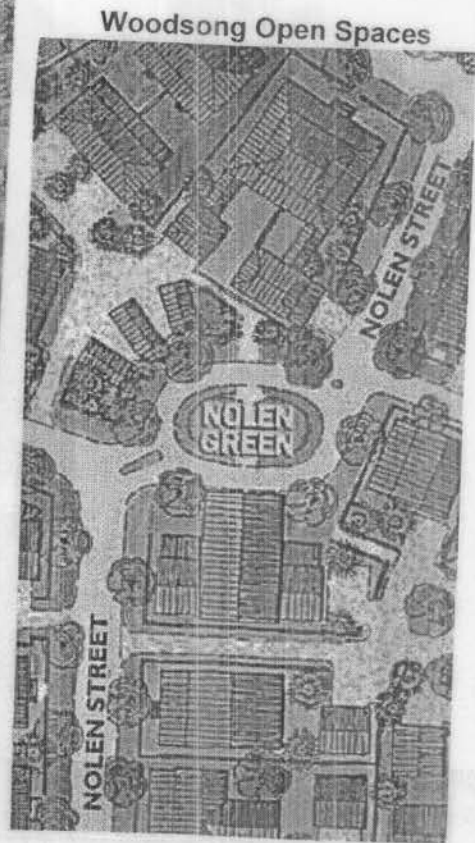
At Woodsong in Shallotte, North Carolina a system of open spaces is a very significant design element within the community plan (see Figure 2-9). Natural areas preserve the sanctuary of a wetland forest. There are also intimate vicinity parks, a neighbourhood green, children's parks and a constructed wetland water garden. Figure 5-3 displays a number of the individual park spaces at Woodsong, which concentrate mostly on intimate social and gathering spaces.

The Newmarket neighbourhood in Pittsfield Township, Maryland has as one of its key design elements a hamlet centre that contains a central village green which is connected in three directions into residential neighbourhoods by linear greenways (see Figure 5-4).

The 360 acre master planned 'village' of Centennial north of Indianapolis, Indiana contains nearly 100 acres of open space. An elongated central green/park includes a ball diamond, soccer fields, tennis courts, kids play area, sledding hill, water feature/skating pond and a church (see Figure 5-5). Connecting to the centre of the park from both sides are greenways that extend into the residential areas.

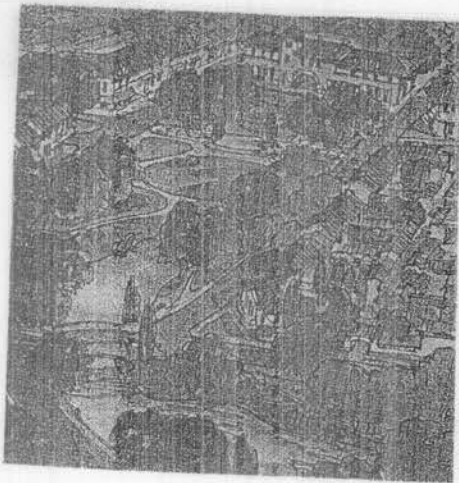
In Winston-Salem, North Carolina a new linear park was created for the Kimberly Park Hope VI redevelopment (see Figure 5-7)





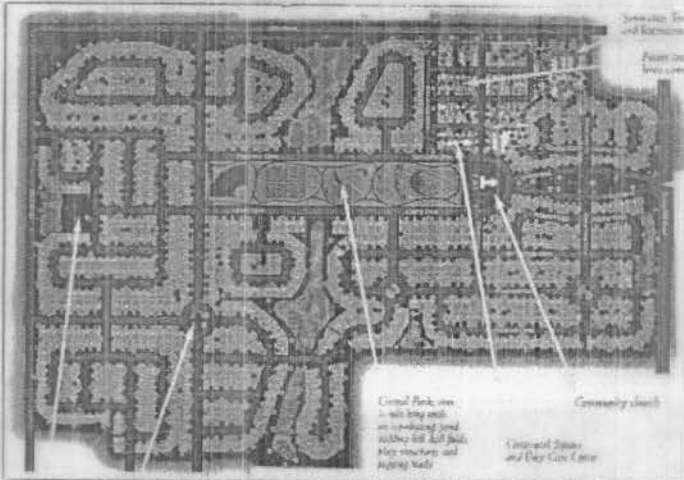
Source: [www.villageofwoodsong.com](http://www.villageofwoodsong.com)  
Figure 5-3

Hamlet Centre Green and Linkages  
Newmarket



Source: Duany Plater-Zyberk & Company  
Figure 5-4

## Centennial Central Green



Source: [www.estridge.com](http://www.estridge.com)  
Figure 5-5

The master plan for Harbor Town (Memphis, Tennessee) uses the 'old urbanism' with an interwoven grid of narrow streets leading to a traditional town square. It also contains a greenway boulevard and a series of squares and greens throughout the community (See Figure 5-6).

## Harbor Town Squares



Source: [www2.dcci.com/frontporch](http://www2.dcci.com/frontporch)  
Figure 5-6



**Linear Park , Winston-Salem**

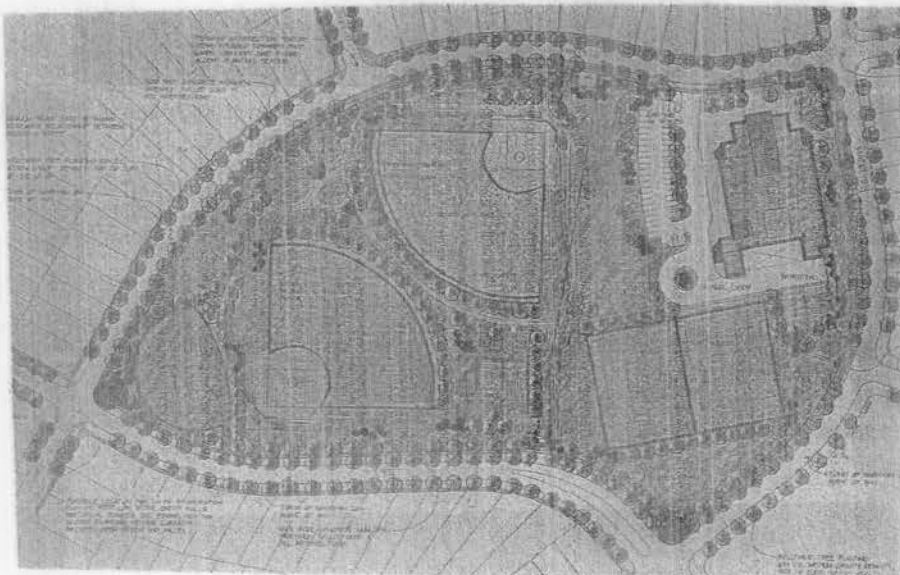
Source:  
Charter of the New Urbanism  
Figure 5-7

The above examples from the United States have primarily concentrated on smaller, more intricate open spaces and linkages. These are special features of communities designed as 'new urbanism' communities.

#### **5.4 Practices in Canada**

One of the new communities in Markham, Ontario is Legacy. While much of the green space has been preserved in its natural state (a ravine), one of the open spaces features is a school/park site (see Figure 5-8), not unlike the design of Red Deer's combination sites.

**Park/School Site  
Legacy in Markham, Ontario**

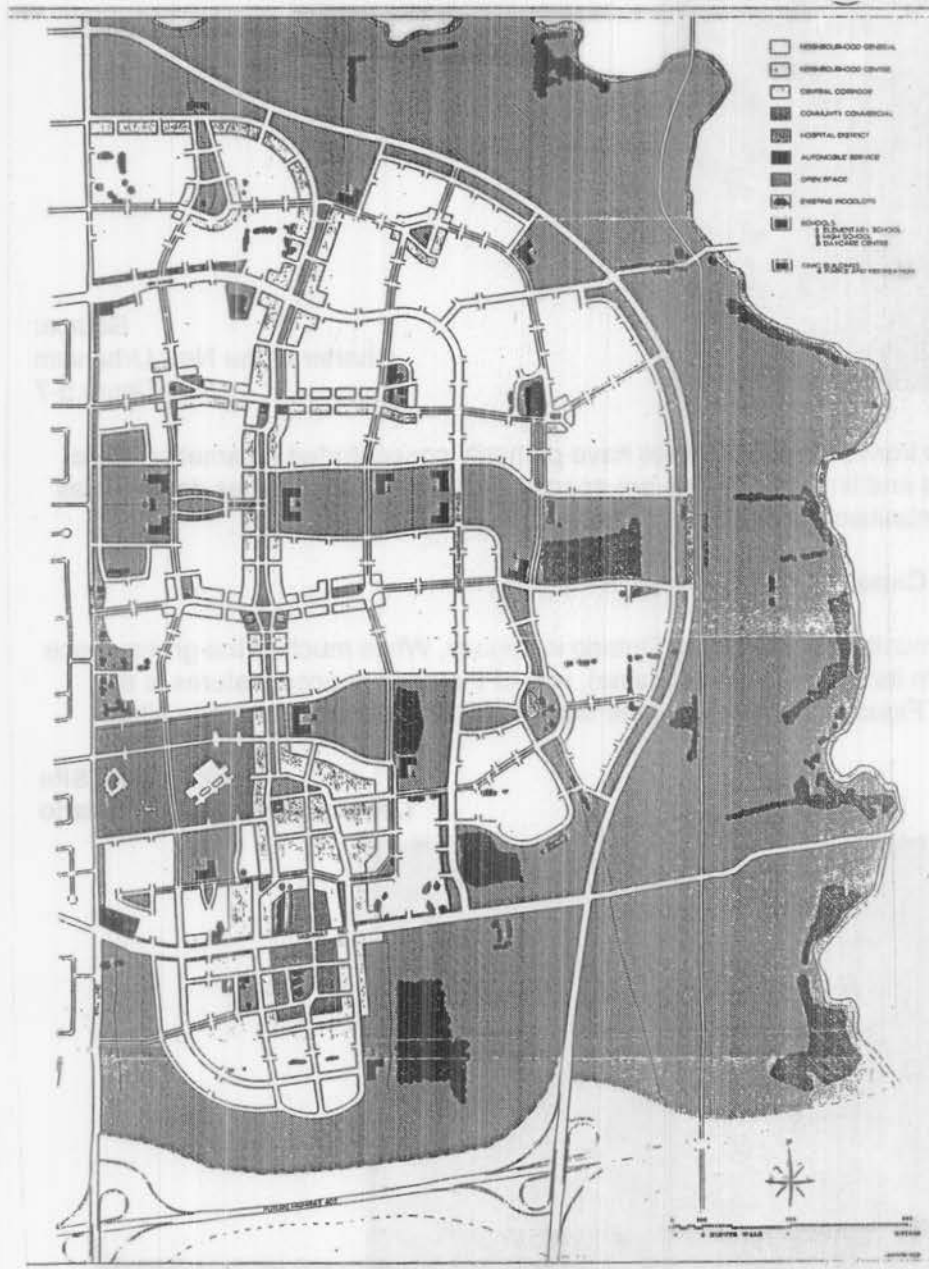


Source: Breaking Ground  
Figure 5-8



The Cornell Master Plan addresses at length open spaces, which include: open space reserves, town parks, community parks, neighbourhood parks, environmentally significant areas and greenways. The integrated system is shown on Figure 5-9. The plan incorporates over 50 parks, both large and small. Neighbourhood parks are integrated with schools to allow recreation programs to complement one another. Green spaces are located at the centre of each neighbourhood, many interconnected with greenways. Open space reserve lands are those along the freeways, bypass roads and the ravine. The environmentally significant features are 'hazard' lands along the creek bottom and existing woodlots. Town parks are larger 'open area' with civic buildings.

Open Spaces at Cornell



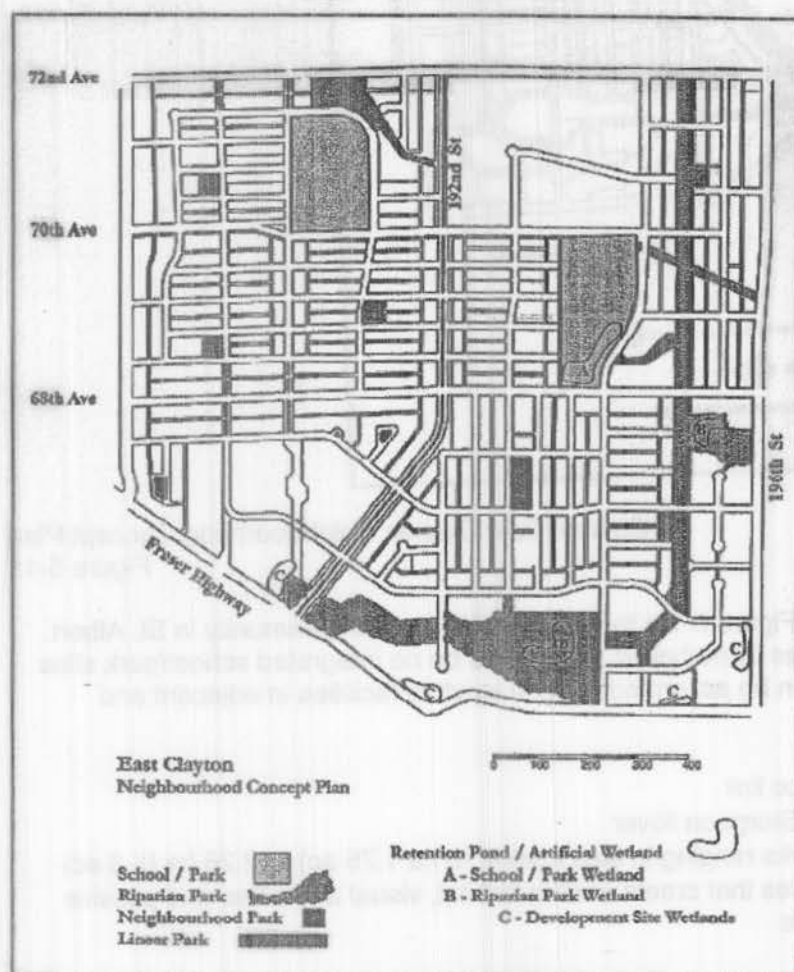
Source: Cornell Secondary Plan  
Figure 5-9

The plan for Surrey's East Clayton targets a total of 4.2 ha (10.4 ha) per 1000 residents made up as follows:

- City parks - 2.0 ha (5.2 acres) per 1000 residents
- Community Parks – 0.8 ha (2 acres) per 1000 residents
- Neighbourhood parks – 0.6 ha (1.5 acres) per 1000 residents
- Nature preserves and linkages – 0.8 ha (2 acres) per 1000 residents.

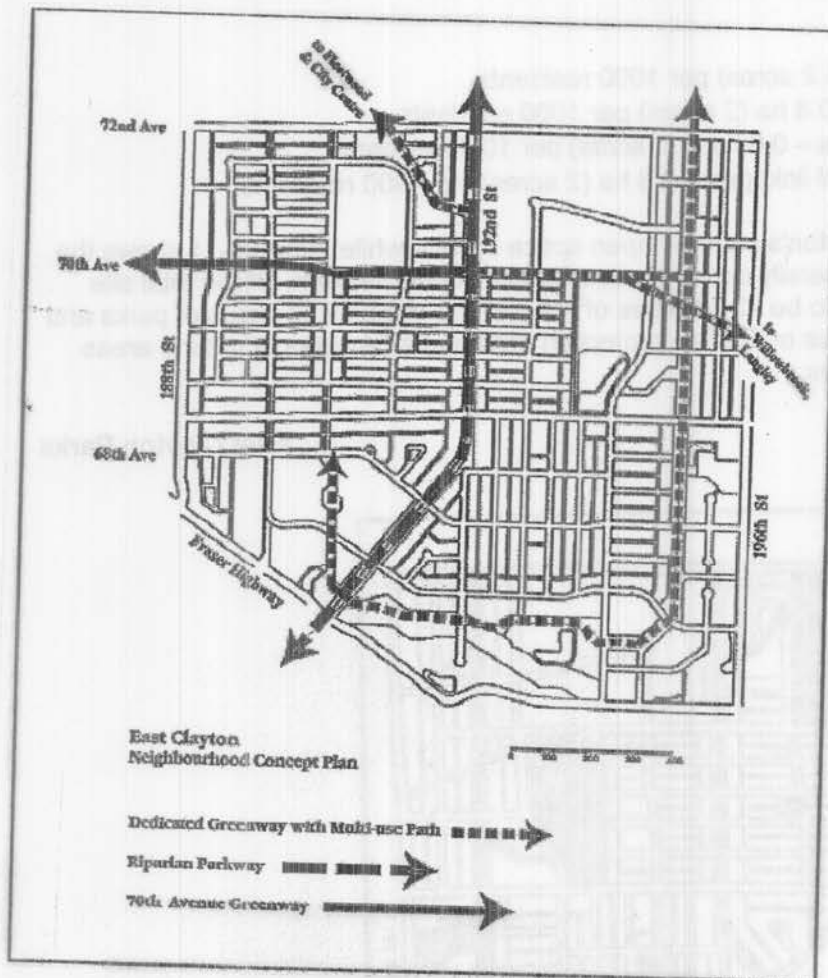
Figure 5-10 shows East Clayton's planned open space system while Figure 5-11 shows the greenway system, which generally corresponds with the bicycle network. Of the total site area of 553 acres, there are to be 23.54 acres of school/park sites, 35.71 acres of parks and linear open space, 16.55 acres of riparian protection area and 4.54 acres of natural areas adjacent to riparian greenways.

### East Clayton Parks



Source: East Clayton Neighbourhood Concept Plan  
Figure 5-10

## East Clayton Greenways



Source: East Clayton Neighbourhood Concept Plan  
Figure 5-11

The open space system (see Figure 5-13) for the Red Willow new community in St. Albert consists of four components, as listed below. There is to be no integrated school/park sites since it is likely all students can be accommodated in existing facilities in adjacent and nearby neighbourhoods.

- North-south open space link
- Urban Park along the Sturgeon River
- Six neighbourhood parks ranging in size from 0.70 ha (1.75 ac) to 2.26 ha (5.6 ac)
- Four stormwater facilities that create wildlife habitat, visual amenities and passive recreation opportunities

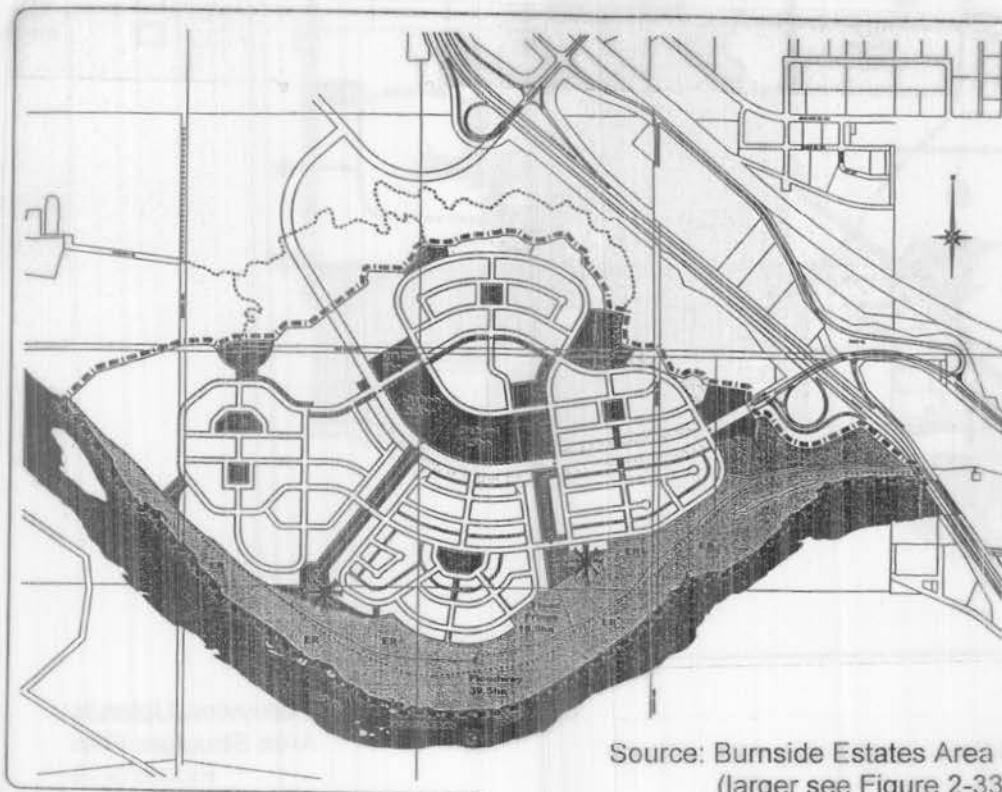
In the Burnside Estates neighbourhood being developed in the northwest corner of Medicine Hat, open spaces and parks are a primary consideration. Neighbourhood parks, which must contain a minimum of 0.5 ha (1.25 acres) are established first, prior to layout of roads and residential blocks. The two school sites (central boomerang shape) and parks are to be focal points (Figure 5-14) and serve to enhance the site's natural features. Greenway corridors and recreation trails link schools and parks with the adjacent environmental reserve lands along the South Saskatchewan River, which will become two riverfront parks.

## Red Willow Development Concept



Source: Red Willow Area Structure Plan  
 (larger see Figure 2-21) Figure 5-13

## Burnside Estates Land Use Concept



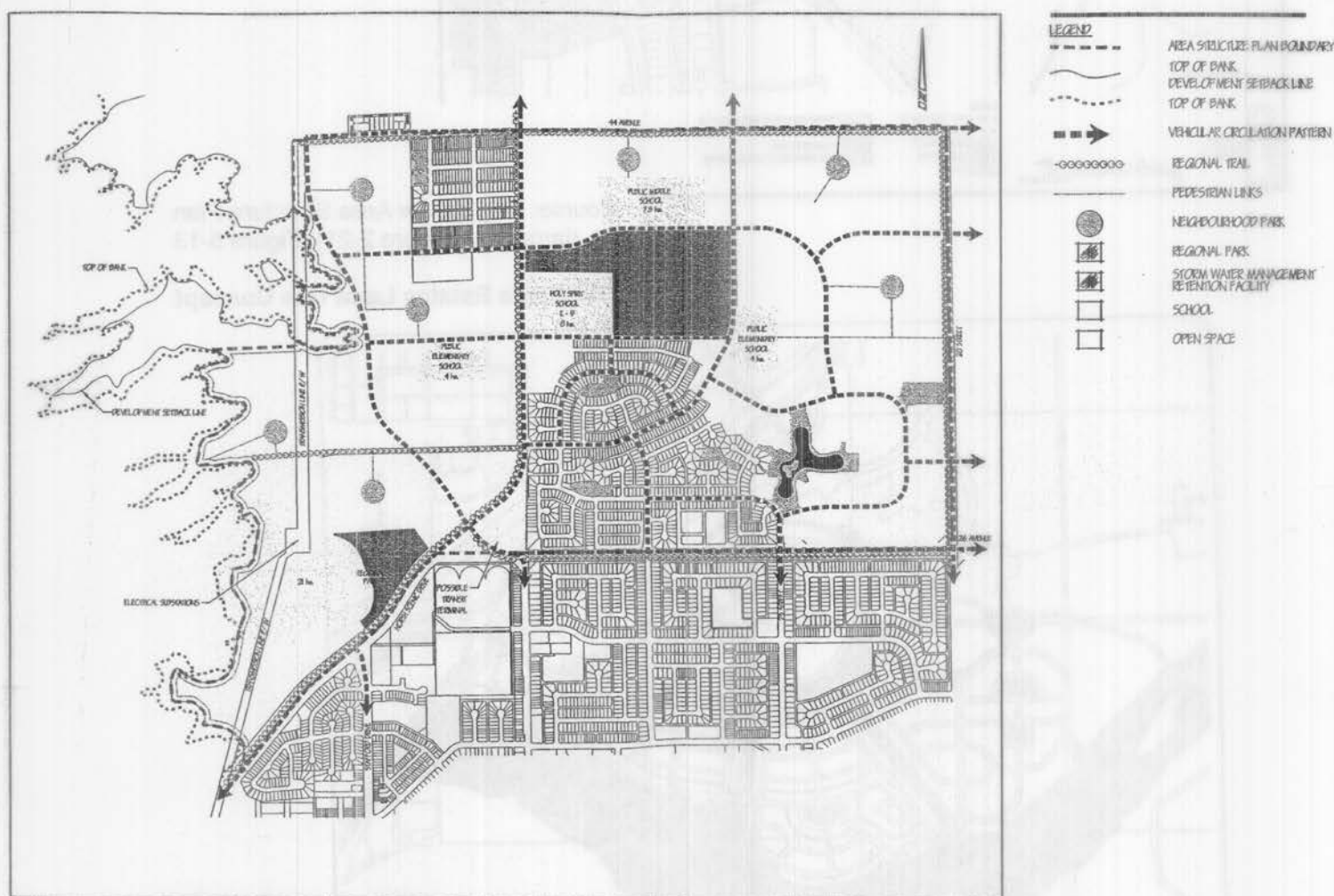
Source: Burnside Estates Area Structure Plan  
 (larger see Figure 2-33) Figure 5-14



As shown in Figure 5-15, the park system in Lethbridge's Hardierville/Valleyview/Uplands neighbourhoods includes:

- Regional parks, one being a central park of 22 ha (54 acres) that will be a community focal point and contain a variety of city level recreation facilities and open areas; three of the areas four school sites are adjacent; the second is the site of the formal landfill which will be for visual amenities and hiking
- Neighbourhood parks, being up to 13, will range in size from 0.6 ha to 2.8 ha (1.5 to 7 acres), will provide a combination of playground, informal play and passive recreation opportunities
- Open space – combined with old landfill site for nature preservation and hiking
- Regional trails and pedestrian links – regional pathways will link into the regional trails and be along major roads; pedestrian links will provide connector routes between neighbourhoods, parks and the river valley escarpment

### Lethbridge North Open Space System



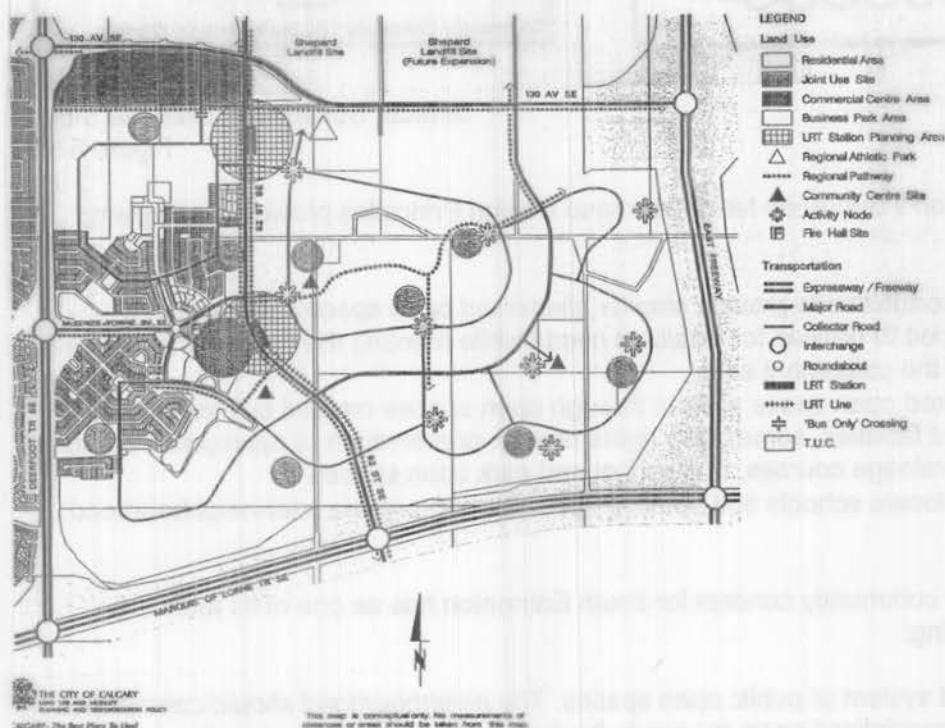
Source: Hardierville/Valleyview/Uplands  
Area Structure Plan  
Figure 5-15

Calgary's McKenzie Towne (see Figure 2-23) was conceptualized with four types of specialized open spaces. They included:

- Landscaped spaces within the Towne Centre (see Figure 2-24) – a series of formal, landscaped open spaces with civic and cultural buildings, a plaza and town square
- Neighbourhood squares – at the geographic centre of each neighbourhood being formal open spaces with orderly tree plantings, paved areas and peripheral definition by stores, public buildings and homes
- Playgrounds – smaller areas specialized for informal recreation activities, including court games and children's sand areas
- Greenways – continuous areas of natural or 'manicured' landscapes. Schools and other large playing areas are confined to greenways to avoid the pedestrian discontinuities caused by their placement in neighbourhoods.

The Land Use Concept for Calgary's East McKenzie area provides for joint use sites, a regional athletic park, community centres, activity nodes and public parks (see Figure 5-16). The regional athletic park must be at least 16.2 ha (40 acres) in size. Community centre/park sites will be sized to contain a building envelope for a community building and an active recreation area for outdoor rinks, basketball courts, playgrounds, etc. The joint use sites for combined school and recreation facilities will be sized as follows: elementary between 2.8 and 4.1 ha (7 – 10 acres), elementary - junior high are 4.9 ha (12 acres), junior high site is 6.1 ha (15 acres). Local parks are to be planned in later detailed site designs and provide for playgrounds and passive recreation.

#### East McKenzie Land Use Concept

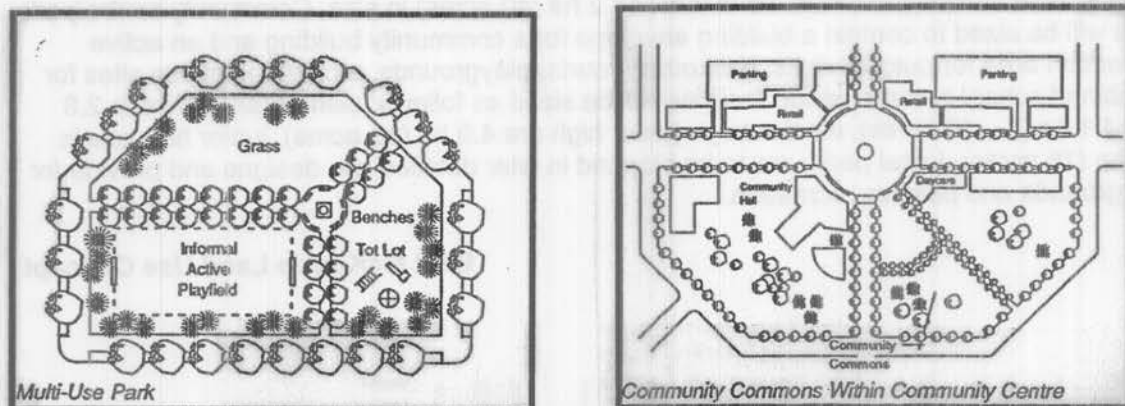


Source: East McKenzie Area Structure Plan  
Figure 5-16

Calgary's Sustainable Suburbs Study outlines a number of policies/principles for open spaces within neighbourhoods. As partly shown in Figure 5-17, these include:

- built open space (including joint use sites) must be located, sized and configured to create places that are functional, safe, flexible and form a linked open space system
- local open space must provide a variety of opportunities for people of all ages, interests and abilities
- joint use sites (schools and playfields) should be located in proximity to the community centre or neighbourhood nodes, on the transit route and close to daycare and other services
- the community centre must accommodate community facilities and contain functional open space

#### Some Calgary Sustainable Suburbs Principles



Source: Sustainable Suburbs Study  
Figure 5-17

The City of Edmonton's Suburban Neighbourhood Design Principles provide the following directions:

- Explore opportunities to provide smaller, dispersed open space and parks in a neighbourhood to provide for localized needs while meeting the recreational needs of residents of the catchment area
- Create a linked open space system through open spaces created by storm water management facilities, some utility rights-of-way, preservation of appropriate natural areas and drainage courses, and school and park open spaces
- Design and locate schools and community facilities to provide inter-neighbourhood focal points

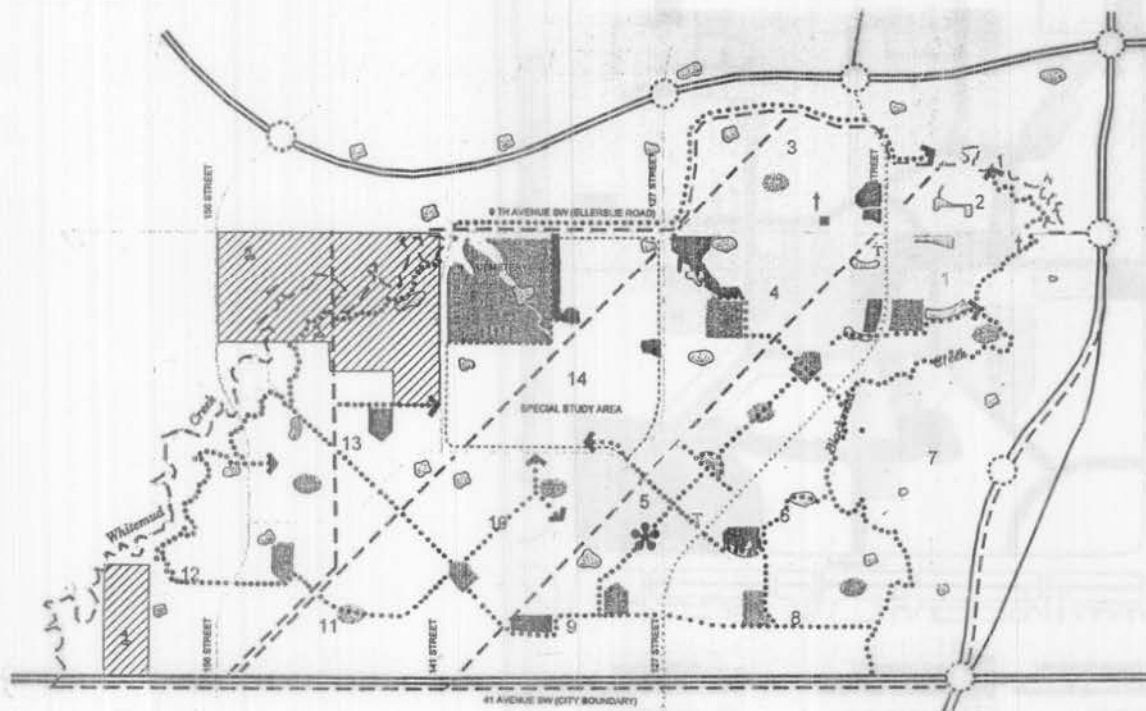
The Heritage Valley community concept for south Edmonton has as one of its founding principles the following:

Establish a linked system of public open spaces. *The neighbourhood should contain an ample supply of specialized open spaces in the form of squares, greens and parks whose frequent use is amplified as a result of their placement, design and linkages to other facilities.*

The intent for green spaces and recreation within Heritage Valley is to add to the existing two ravines, natural areas, golf courses and rugby club a system of passive parks, school sites and plazas. A system of multi-use trails is to provide for an interconnected green space network (see Figure 5-18). Green space and greenway policies include:

- A variety of green spaces – active playing fields, playgrounds, ornamental parks, urban squares, village greens, community gardens, naturalized open spaces, etc should be provided; citizens of all ages and abilities should find green spaces to care to their needs; differentiating green spaces will help to foster sense of place
- Green spaces should be naturalized wherever possible to minimize the environmental and economic costs associated with their maintenance
- Green spaces should be within easy walking distances of homes and businesses
- Green spaces should be designed to foster public safety
- Greenways should thread through the community, linking green spaces, residential areas, commercial centres institutions and stormwater facilities (see Figure 5-19)
- Greenways should be designed to provide ecological corridors for native flora and fauna and for walking, jogging, bicycling and cross-county skiing
- Greenways should connect the urban fabric to major natural areas (i.e. the ravines)
- Municipal reserves should not be used to provide greenways (use utility lots and pipeline corridors) – narrow access walkways should be provided as part of the subdivision agreement
- Use green spaces to protect the natural environment

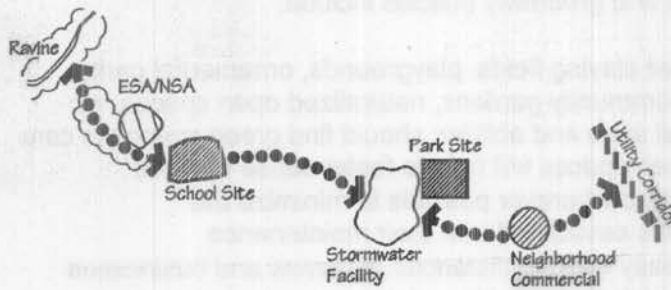
#### Heritage Valley Schools, Parks and Open Space Network



Source: Heritage Valley Servicing Concept Design Brief  
Figure 5-18



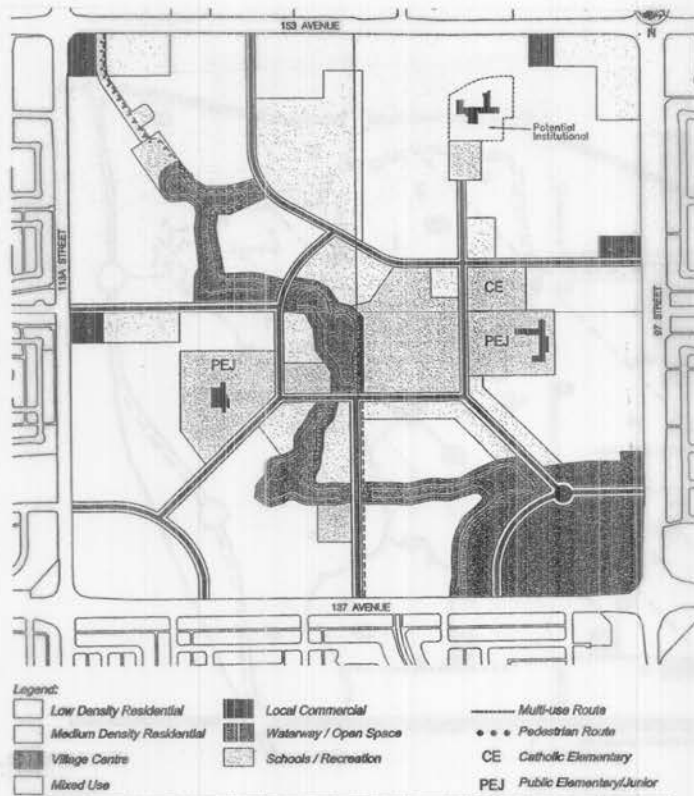
## Heritage Valley Greenway Linkages Concept



Source: Heritage Valley Servicing Concept Design Brief  
Figure 5-19

For the redevelopment of Edmonton's Griesbach site (see Figure 5-20), a 9.5 ha (23.5 acre) central park will be a focal point for the community. It is to contain a stormwater lake as an aesthetic amenity, athletic playing fields, a large man-made hill, passive recreation sites. Other open space is located in association with schools and at three small (1.0 ha/2.5 acre) local parks that will provide for amenity and play space for the three quadrants of the community more removed from the schools sites and community park.

## Griesbach Development Concept



Source: Greisbach Neighbourhood Area Structure Plan  
Figure 5-20

## 5.5 Conservation and the Natural Environment

While not always protected through urbanization, natural systems and areas have long been recognized as desirable features within built environments. Present planning movements and municipal strategies wisely continue to employ opportunities to diversify the fabric of communities by recognizing natural spaces as an integral part of the system of open spaces. For example:

- Conservation and open lands should be used to define and connect different neighbourhoods and districts. (Charter for the Congress for New Urbanism)
- Wherever possible, the natural terrain, drainage, and vegetation of the community should be preserved with greenbelts. (Ahwahnee Principles)
- Preserve open space, farmland, natural beauty, and critical environmental areas. (Smart Growth)
- Existing natural systems (including significant environmentally sensitive areas) must be integrated into new communities and will form part of a comprehensive and contiguous regional open space system. (Calgary's Sustainable Suburbs Study)
- Create a linked open space system through open spaces . . . preservation of appropriate natural areas and drainage courses, and school and park open spaces. (Edmonton's Neighbourhood Design Principles)

The City of Red Deer's program to preserve natural spaces (habitat) is on the leading edge of municipal natural space conservation action in Canada. With direction from the Red Deer Environmental Action Plan and assisted by considerable public input and consultation with the development community, the City undertook an Ecospace Evaluation Process for all habitat sites within the City and surrounding area. The Environmental Action Plan now identifies ecospace management areas (existing natural areas/biodiversity ecospace inventory) for (194 square kilometers/75 square miles). Twenty factors - nine ecological and 11 developmental - were established to help evaluate and prioritize habitat sites as a part of subsequent detailed site analysis and planning.

To assist the preparation of a neighbourhood area structure plan for a proposed residential area, the City prepares an *Ecological Profile*. This is a detailed site inventory and analysis of the identified natural habitat areas within the proposed development area. By using the twenty factors to evaluate the habitats, the Ecological Profile recommends priority conservation habitats. This is supplied to landowners and land developers as basic input into their site analysis and design process.

The Ecospace Evaluation Process and ecological profile initiative received the 2000 Alberta Recreation and Parks Association Parks Excellence Award. In 2001 the Federation of Canadian Communities awarded the City a Sustainable Community Award for the evaluation process. The program won a Sustainable Community Award from the Federation of Canadian Municipalities in 2001.

Other communities also undertake an inventory of natural systems as basic information for planning new communities. Some examples include:

- Montgomery Village in Orangeville, Ontario: the municipality and developer identified the creek and related shorelands, woodlots and hedgerows to be set aside for preservation and incorporated, wherever possible, into the urban design

- Cornell (Markham, Ontario): a Natural Features Study locates significant natural features and recommends those to be integrated as neighbourhood community and town parkland into the design of the community; these include ravine lands, woodlots and wetlands; site plans are to provide for the incorporation of environmentally significant areas into parklands and identify opportunities and appropriate measures for the enhancement of existing woodlots as ecological features (see Figure 5-9)
- East Clayton (Surrey, British Columbia): natural areas are to be an integral component of the green space network and will function for ecological and social purposes by supporting the surface drainage system, providing sufficient avian and aquatic habitat, maintain base flows in streams, and providing areas for both passive and active recreation (see Figure 5-10)
- Heritage Valley (Edmonton): will integrate the natural environment into the community (see Figure 2-31), allowing residents to take advantage of the natural amenities, by:
  - Supporting and restoring the unique urban ecology: connection of the urban fabric to the two ravine systems will promote balance between urban and natural systems
  - Protecting and enhancing the natural features of the community when designing and planning neighbourhoods, facilities and services – natural features such as riparian areas, woodlots, old growth forests and windbreaks should be protected and enhanced, where feasible and where economically viable and sustainable
  - Incorporate existing natural features in the design of the neighbourhood – planning with nature saves money, energy, materials and maintenance requirements while enhancing site amenities; minimizing the amount of vegetation to be cleared, keeping vistas in mind, adds to the aesthetic quality of the area
  - Use natural features, where possible, to provide linkages between and within neighbourhoods – by design pedestrian paths and bikeways lead into and through natural features to assist in the building an appreciation for these areas and reinforce their need for protection
- Vermillion (North Carolina): maintains the creek and adjacent woodlands as a natural system and provides nature trails (see Figure 2-7)
- Coffee Creek (Indiana): the community straddles a 240 acre parkland along a creek with associated constructed wetlands, restored prairie lands and cycling and walking paths (see Figure 2-11)
- Southern Village (North Carolina): maintains natural wooded areas to separate neighbourhoods and provide linear linkages through the community (see Figure 2-6)
- Woodsong (North Carolina): a wetland forest and an associated constructed pond add visual diversity to the community and provides for nature walks and interpretation; natural treed areas are also designed with integrated constructed children's play areas, intimate vicinity parks and neighbourhood greens (see Figure 2-9)

While guided by provincial and state legislation, municipal policies and principles it is important for municipalities to work with the developers of communities to identify and integrate natural areas into the design of communities. With increased amounts of natural open spaces, often densities increase in the developed area, but it is important to maintain a balance. Natural open spaces are most frequently used as passive parks and for walking and cycling linkages, but may also include children's play areas, constructed wetlands and nature interpretation.



## 5.6 Tree Protection and Urban Forestry

Trees bring a natural richness and diversity to a community, as well as provide a range of environmental and social benefits. In *Practices for Sustainable Communities*, CMHC reports that trees contribute to the health and livability of a site, neighbourhood and community by:

- Defining and ordering space by adding colour, texture, contrast and interest
- Providing unity and scale
- Creating a sense of enclosure and privacy
- Improving air quality and moderating the microclimate by providing shade, cooling and windbreaks
- Acting as buffers between buildings and land uses
- Providing erosion control
- Creating wildlife (including avian) habitat.

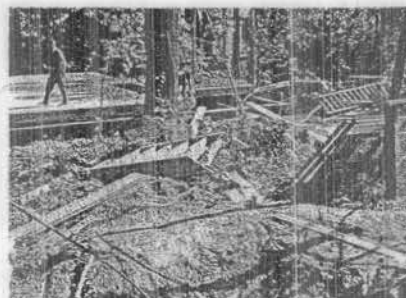
For new development sites, a tree preservation plan should include the following steps (*Practices for Sustainable Communities*, CMHC and *Site Planning and Community Design*, Jarvis - see Figure 5-21):

1. make an inventory of existing trees – species, size, health and tolerance to disturbance; used to determine which trees and wooded areas should be preserved; for larger wooded areas, an inventory of groups of trees rather than individual trees is sufficient and more cost effective; recommend ways to improve and retain their health, such as pruning, deep-root fertilizing, deep-root watering and cabling
2. design roads, services and building sites to make the least impact on woodlands and stands of trees
3. protect trees before site construction (snow fences, sign, tagged tree) and limit grading beyond the drip line to one to two metres
4. carefully monitor contractors – activities prohibited in tree preservation areas should include filling, construction and pedestrian traffic, storage of materials, physical damage to trees, including by the felling of trees, burning nearby, changing drainage so water impounds in the tree-save areas, service trenches
5. clean up after construction –remove fences and debris; put down seed and mulch on disturbed areas as soon as possible.

### Preserving Trees



*Examples of good tree preservation practices*



*Bad tree preservation practices*

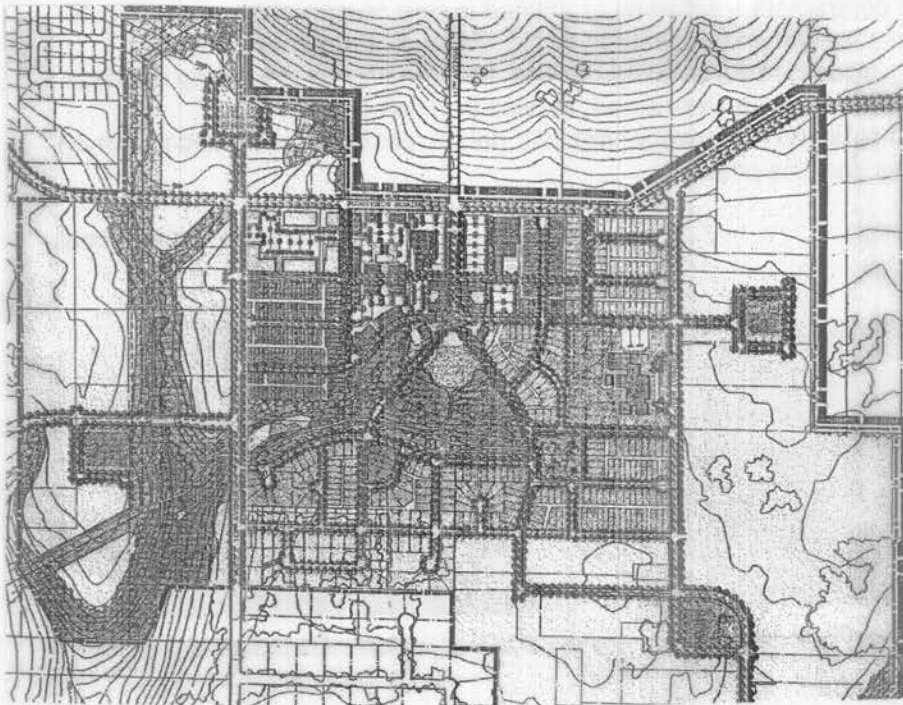
Source: *Site Planning and Community Design*  
Figure 5-21

The redevelopment of the Griesbach and CFB bases in Edmonton and Calgary essentially follow the above steps to preserve existing trees and wooded areas.

The City of Vancouver, after spirited public debate about the rate of tree removal, amended the Zoning and Development Bylaw in April of 1991 by adding provisions for the replacement of larger trees removed from private property as a result of development. Regulations became part of the Private Property Tree Bylaw (No. 7347) which adopted in 1994 and later amended. A later amendment limits tree removal on all properties and mandates replacement trees whenever trees are removed. While still providing for some flexibility for tree removal for property maintenance and development, the bylaw helps to protect and strengthen Vancouver's urban forest. Single tree removal is normally limited to one tree (minimum diameter of 20 cm/8 inches or 1.4 m/4.5 ft high) per 12 month period and the property owner must provide a replacement tree. The removal of multiple trees may be permitted if a tree is located on the building envelope, is diseased, or interferes with utility wires, sewer or water systems. Development must try to retain trees outside the building envelope. A surveyor must locate the building envelope and location of trees in and adjacent to the development site, including city boulevards. To receive a demolition or building permit, trees to be retained, including street and adjacent property trees, are required to pass a tree and root inspection undertaken by the City. The relocation of a tree is an option if retention is not practical.

Tree plantings, both on private and public 'realms' are very important to add diversity to a community, visual amenities and greatly enhance and soften built environments. Figure 5-22 shows the emphasis placed on treed streetscapes in the East Sunnyside Village Plan (Clackmas County, Oregon).

#### Community Plan with Tree-lined Streets

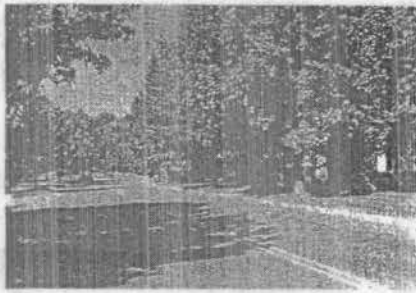


Source: [www.calthorpe.com](http://www.calthorpe.com)

Figure 5-22

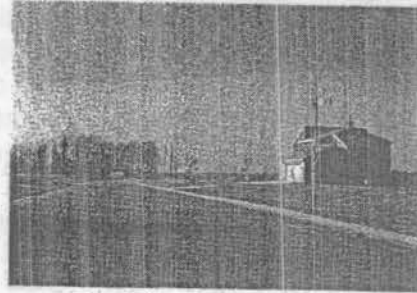
One of the design principles for Vermillion is 'the streets are narrow and shaded by rows of trees'. Southern Village new urbanism design principles include 'Street trees – use maples, oaks and other large trees to provide natural beauty and shade for walkers'.

A key design element of attractive streetscapes and neighbourhood parks are trees. While newly constructed sites may initially look barren, in time the amenities of a 'designed' urban forest will greatly enhance a community (see Figure 5-23). Barrett Park in Red Deer is an example of a once generally featureless site (notwithstanding the adjacent wooded slopes and old neighbourhood) that is now a diversity of vistas and places defined and bordered by trees and shrubs. Figure 24 shows a number of urban environments that greatly benefit from tree plantings.



*Same view, 12 years later*

#### **Designed Urban Forest along a Street**



*Newly installed street trees, Columbia, Maryland neighborhood, 1973*

Source: Site Planning and Community Design  
Figure 5-23

#### **Various 'Treescapes'**



Sources: Various  
Figure 5-24

## 5.7 Ideas for Red Deer's Neighbourhoods

From the research of other practices and ideas regarding open spaces and 'treescaping' in other communities, the following are list of new, and not so new, ideas for Red Deer to consider in designing and developing new communities:

- Explore opportunities to provide smaller, dispersed open space and parks in a neighbourhood to provide for localized needs while meeting the recreational needs of residents of the catchment area.
- Built open space (including joint use sites) must be located, sized and configured to create places that are functional, safe, flexible and form a linked open space system.
- Local open space must provide a variety of opportunities for people of all ages, interest and abilities.
- Create Village Greens (in association with Village Centres) where people can socialize and kids can play, as well as shop nearby
- Design Village Green serves as a community gathering area
- Provide more intimate vicinity parks (parkettes)
- Bring back the traditional town square and provide a series of neighbourhood squares and greens
- Emphasize continuous, as possible, greenways for pedestrian and bicycle linkages
- Locate sportsfields near to schools and the edges of neighbourhoods (promote sharing)
- A greater proportion of open space should be in smaller neighbourhood parks, greens and linear greenways, and less on sportsfields
- Integrate 'woodlots' into community design for passive recreation enjoyment – a path through, a stopping point for rest and quiet moments
- Think about constructed wetlands for water gardens and habitat viewing
- Utilize wet ponds as scenic amenities and winter skating areas
- Place a higher priority on designing streetscapes, including the use of trees
- Special public 'realm' areas could be highly designed and landscaped 'link streets'
- Explore the adoption of a tree preservation bylaw

**Appendix 4**

**Gathering Spaces Compendium of Ideas and Practices  
(Chapter 6 of Background Report No. 5)**



## 6. GATHERING PLACES

### 6.1 Introduction

This section provides an overview of the role that gathering spaces play in the establishment of more sustainable communities. It begins with a summary of the design elements drawn from various planning movements' suggestions on how to plan for more sustainable urban neighbourhoods. This is followed by a discussion of examples from the United States and Canada. Key attributes of successful gathering spaces and the variety of forms that gathering spaces may take are then presented. The section concludes with observations on how well planning for Red Deer's newer neighbourhoods provides opportunities for gathering spaces and ideas for improvement.

The initial sustainable community vision outlined in Report No.2 placed emphasis on the provision of gathering spaces in a sustainable neighbourhood. This entails the creation of:

*Community facilities that are multi-purpose, highly used and serve as gathering spots to bring neighbours together*

Gathering spaces are a significant element of a sustainable community. Properly designed and integrated into a new neighbourhood, gathering spaces have the potential to influence:

- Social sustainability in their ability to draw people together and facilitate social interaction
- Design characteristics relating to community form and neighbourhood identity
- Fiscal elements relating to the efficient use of resources

### 6.2 Design Elements from Planning Movements

All of the planning movements, covering sustainable development, smart growth and new urbanism, place emphasis on the design and integration of functional gathering spaces. Generally, this aspect is advanced to help define the character of an area and foster a unique sense of place and promote a higher degree of social interaction than may be achieved in more conventionally design neighbourhoods. Efficient use of land and mutually supportive use of resources (i.e. cooperation between service providers) is also a theme throughout the discussion of gathering spaces. The creation of space or areas for public use where residents may gather in large or small groups, indoors and outdoors, is the main thrust of the suggestions. Most of the planning movements acknowledge that neighbourhood design may be able to provide opportunities for, but cannot guarantee, social interaction among residents.

In describing the role of gathering spaces in sustainable neighbourhoods, the various planning movements put forward the following list of elements:

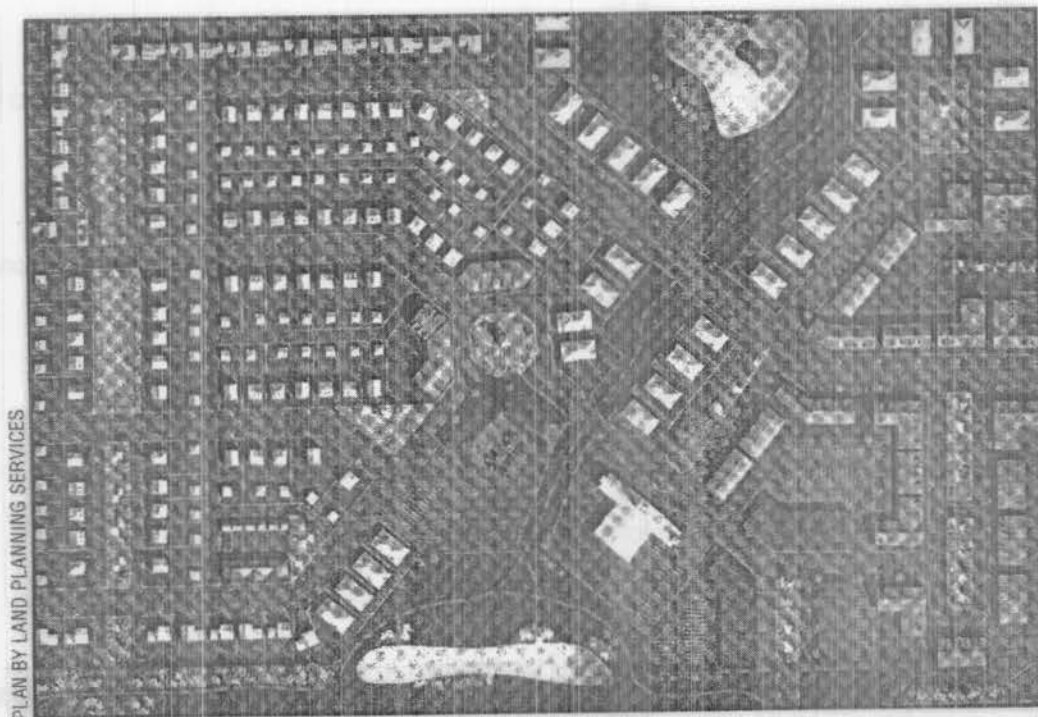
- Schools that are sized and located to enable children to walk or bicycle to them
- A community centre strategically located within the community with a mix of public and commercial activities; within 5 min. walk from as many residents as possible; serves as a transit hub; dynamic focal point of community
- Design that enhances a community's sense of place, livability, and social and economic interaction
- Opportunities for joint or dual purpose use of space and clustering of activities
- An attractive and pedestrian-friendly public realm encompassing parks and streetscapes

### 6.3 Practices in the United States

#### Providence (Sun Prairie, Wisconsin)

This new TND is in the process of being considered for approval and illustrates a number of ways the physical design of a neighbourhood can enhance social interaction. Figure 6-1 contains the town center concept and some of the surrounding residential and open space areas. The overall development occupies an 80 acre area with 420 residential units.

Figure 6-1: Town Centre in Providence



Some of the key attributes shown in Figure 6-1 include:

- The commercial portion of the town center (lower right of figure) at an entrance to the development and organized around a central boulevard area
- Trail and linear open space linkage from the commercial area to the residential areas and major open spaces
- A central focal point in the form of a square creating a vista or point of interest for roads leading out of the commercial area and along other main streets
- Placement of the school at the south portion of the square to give prominence to a civic building and a central location enabling children to walk to school
- Clustering of civic uses, open space and commercial along a single axis between the commercial area and square



### **Celebration (Florida)**

The example streetscape shown in Figure 6-2 below shows how front porches in this new urbanism community relate to the sidewalk and street. The intent in Celebration was to foster pedestrian friendly and interesting views from sidewalks and streets in front of individual lots. This involves windows, porches with entrances and avoiding blank walls facing public areas. Porches in Celebration are credited with fostering a strong sense of neighbourliness and regular interaction between residents. Walks along streets lined with porches often turn into unplanned visits and conversations with neighbours.

**Figure 6-2: Streetscape in Celebration**



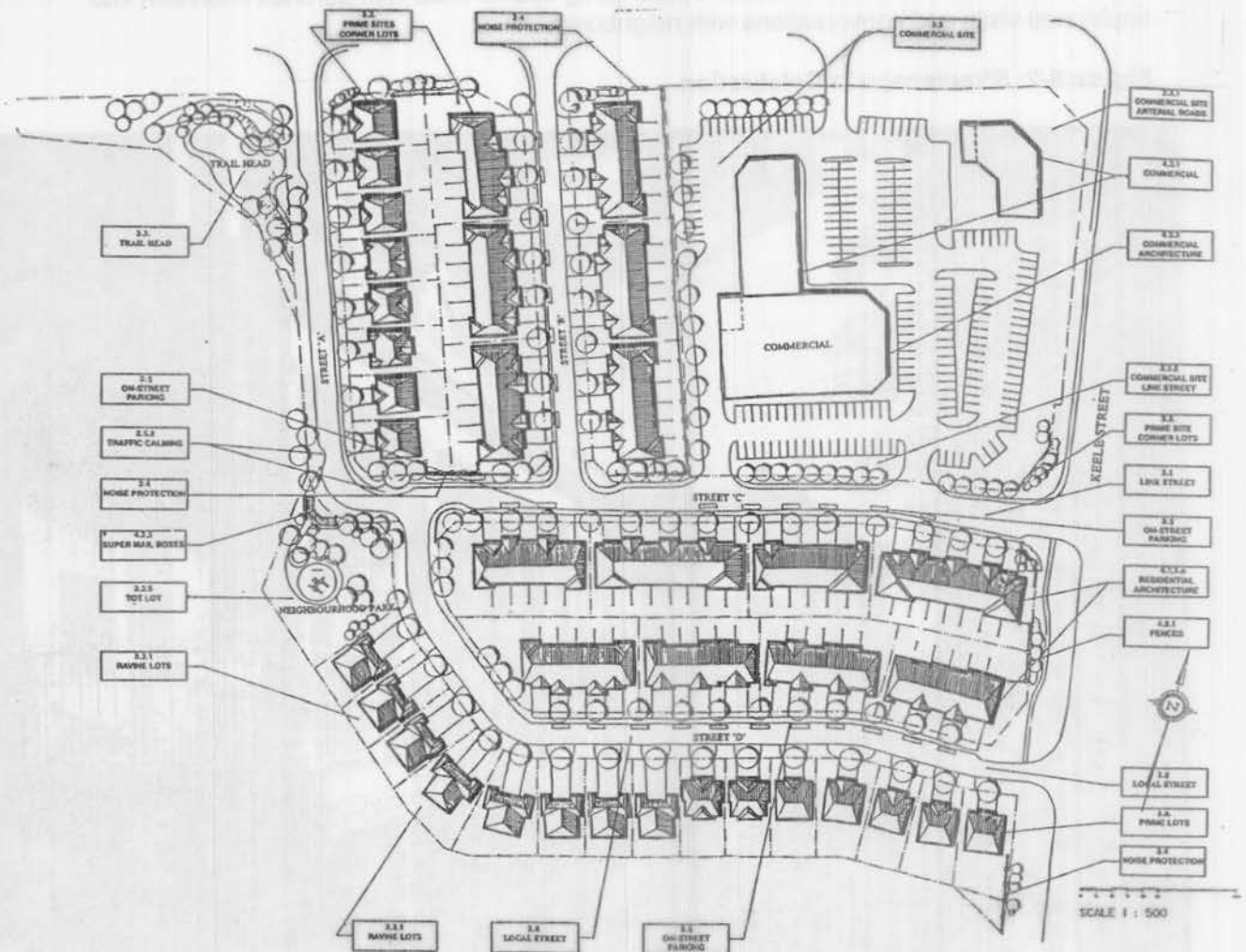
### **6.4 Practices in Canada**

#### **The Village of Sherwood (Vaughn, Ontario)**

This residential and commercial project demonstrates how gathering spaces can be incorporated into the design of a relatively small area. The 15 acre site, containing 134 housing units, incorporates two significant features that can enhance social interaction amongst residents. First, the commercial area is integrated with the residential to allow for pedestrian flow and traffic between the two areas. In so far as the commercial area will provide for daily needs in the form of convenience or grocery retail and other services such as coffee shops, this provides an area for neighbours to interact. Second, the project

includes a neighbourhood park close to but separated from the commercial area. This serves a 'dual purpose' as playground and focal point for the community and the location for the community's "super" mailboxes. Traffic patterns and a pedestrian friendly environment between the playground and commercial area also provides opportunity for social interaction.

Figure 6-3: Overall Plan for The Village of Sherwood



### East McKenzie Area Structure Plan (Calgary, Alberta)

This revised area structure plan for the McKenzie Towne area in Calgary envisions three major forms of community gathering spaces: activity nodes, community centre sites and joint use sites.

The purpose of an activity node in the East McKenzie ASP is to provide small scale social and transit hubs distributed throughout a larger community. Each node has two functions: a transit function with emphasis on making use of transit more viable and attractive and a

social function with emphasis on providing opportunities for social contact among residents. Their composition includes:

- A school (private, public or separate)
- A multi-family residential development
- A local commercial development
- An institutional use such as a church
- A recreational use
- A transit stop with lighted shelter
- Other uses that support the social or transit function of the node
- Direct and convenient connections to roads and pedestrian routes from the surrounding residential area

Community centre sites are intended as centrally located area that is to be developed by the community association and generally includes a community centre building and recreational facilities and amenities. These sites are larger than the activity nodes and distributed to serve a large segment of the neighbourhood population. Their main purpose is to provide opportunities for community members to meet either for social or recreational activities. Some of the community centre sites are integrated with nearby commercial centres or storm water management areas.

Joint use sites accommodate public and separate schools in addition to recreational amenities for the neighbourhood. The size of these sites vary based largely on the anticipated space needs of the school authorities. Where possible, the ASP calls for joint use sites to be combined with community centre sites and/or an activity node.

### **Heritage Valley (Edmonton, AB)**

The concept for the Heritage Valley area relies on a hierarchy of gathering spaces to encourage social interaction among residents. Figure 6-4 shows the potential design of the town centre which is intended as the highest order gathering space serving the entire community of 60,000+. A central green or common is bordered by key civic buildings, commercial buildings and multi-family residential buildings. Objectives of the town centre concept include:

- Developing a dynamic, mixed-use, transit-oriented area that functions as the social and economic heart of the Heritage Valley community
- Supporting economic activities through the incorporation of higher density housing as an integral component in the land use mix
- Focusing the retail activity on a pedestrian-oriented "main street" featuring small shops and other uses at grade and housing on upper floors
- Ensuring the town centre is highly accessible and well integrated with surrounding neighbourhoods
- Designing an attractive, safe and function town centre that serves as a setting for social interaction

Each of the fourteen neighbourhoods within Heritage Valley is expected to provide a "lower order" gathering space in the form of a neighbourhood centre. These areas comprise commercial, civic, institutional, recreational and multi-family residential buildings and uses. Neighbourhood centres may cluster to serve more than one neighbourhood and may be placed along arterial roads. Each neighbourhood centre is envisioned to be a compact, pedestrian-oriented area with an attractive public realm intended to support their primary purpose of promoting community identify, interaction and neighbourliness between residents.

**Figure 6-4: Heritage Valley Town Centre Design Potential**



## **6.5 Gathering Spaces in a Sustainable Community**

Four main elements related to the provision of gathering spaces in a more sustainable neighbourhood are discussed below. Some of their common attributes include:

- Clustering of activities to share space, provide mutual support and generate diverse and interesting areas that attract people
- Providing easily accessible areas to pedestrians and connections to the rest of the neighbourhood
- Creating areas that enable casual, incidental interaction and formal, organized gathering

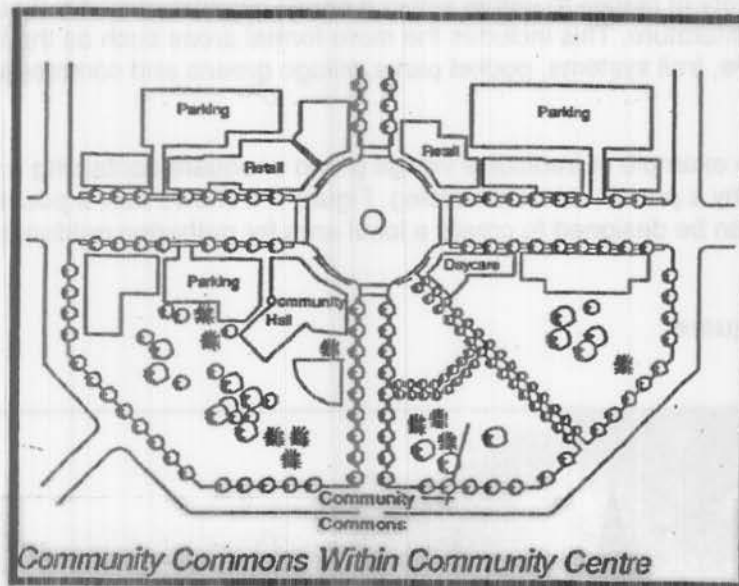
### **6.5.1 Neighbourhood and Community Centres**

A neighbourhood or community centre is one of the most identifiable design elements that can contribute to social gathering within a neighbourhood (see examples in Section 2.6.1). Combinations of uses that attract area residents to a central location (i.e. convenience store) and uses that encourage people to linger (i.e. coffee shop, patio) can contribute to both planned and unplanned visits with neighbours. In Middleton Hills, a TND neighbourhood in Wisconsin, the mixed use neighbourhood centre is designed to encourage interaction between area residents. Commercial activity includes a convenience store and coffee shop with a plaza for people to sit and chat.

Figure 6-5 provides a schematic of a community centre containing a range of uses. This includes a community hall for indoor gathering possibilities and outdoor space.

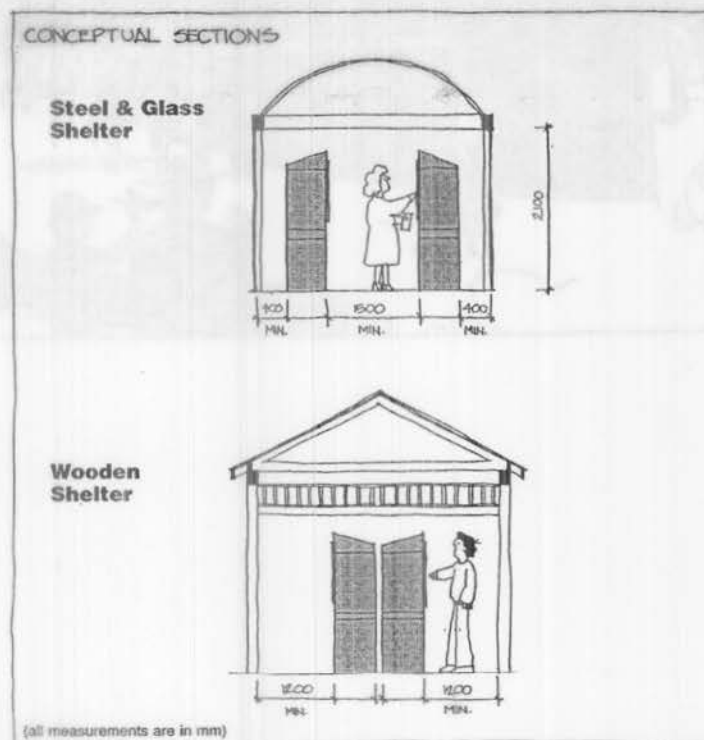


Figure 6-5: Schematic of Community Centre



In addition to commercial and recreational activities, one of the functions that could be allocated to a neighbourhood centre is mail pick-up. Concentrating the neighbourhood's "super" mailboxes into one or two mini-parks is a concept that Canada Post identifies in its design materials and could create another reason for area residents to come into social contact with one another.

Figure 6-6: Centralized Mail Options



### 6.5.2 Variety of Places to Gather

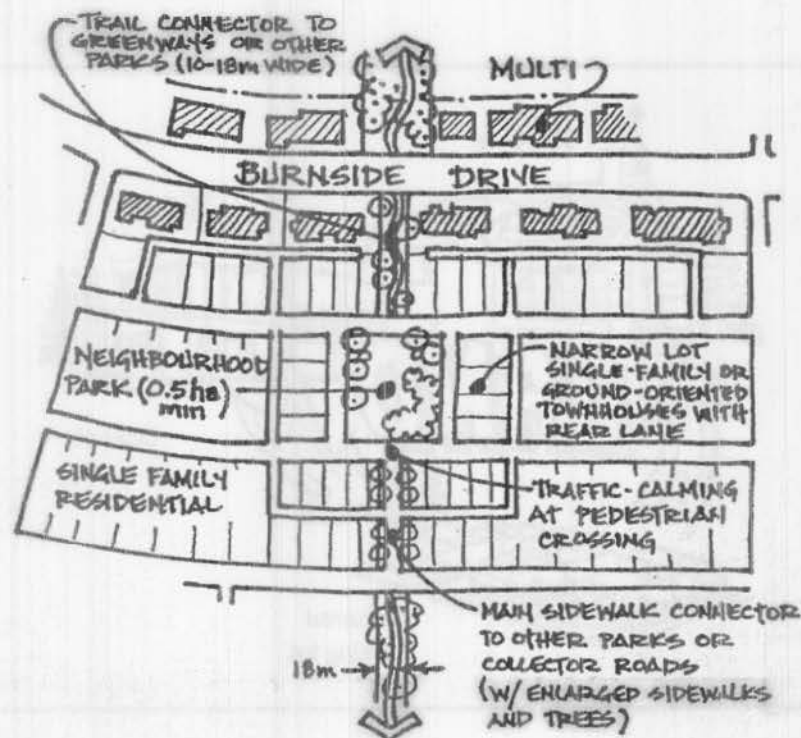
The provision of a variety of places to gather within a single neighbourhood is a common theme in the planning literature. This includes the more formal areas such as the community centre discussed above, trail systems, pocket parks, village greens and commons, and squares.

Figure 6-7 provides an example of traditional village green or square containing a central gazebo and bordered by a prominent civic building. Figure 6-8 shows how a pocket or small neighbourhood park can be designed to create a local area for gathering outdoors connected to a trail system.

**Figure 6-7: Village Square**



Figure 6-8: Neighbourhood Park



Encouraging the use of public areas as gathering spaces is dependent on the provision of high quality public spaces rather than sheer quantity. Important quality features for public space that make them conducive to use by residents include:

- Accessibility, visibility, safety, comfort, complexity and linkage
- Bordered by building entrances or windows or local roads for natural surveillance and avoid perceptions of the space as leftover areas
- Offer comfortable microclimates and seating arrangements and clearly defined borders
- Have direct physical and visual connection to other public spaces

### 6.5.3 Joint Use Areas

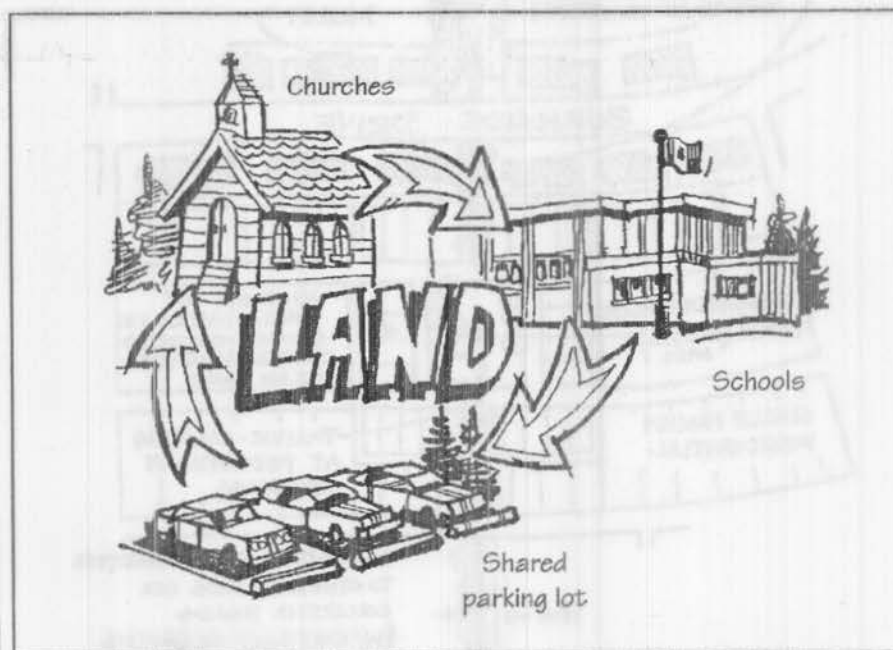
The concept of providing gathering spaces in a neighbourhood includes both outdoor and indoor facilities. The chief indoor opportunities include schools – both public and separate – churches and religious assemblies, and community halls or shelters. Providing these facilities requires significant public resources in the form of initial construction costs, land and ongoing maintenance and operating costs. While these facilities are required in a sustainable community, clustering them on joint use sites enables their social function to be met in a more economically sustainable fashion.

The concept of joint use and shared facilities is neither new nor unique. Figure 6-9 illustrates the basics behind the joint use of sites for schools and churches. Some of the specific advantages include:

- Share parking between churches, schools, community associations and playing fields
- Provide schools and community association facilities under one roof to save land and reduce operating costs
- Share play fields for schools, churches and community needs to save land



Figure 6-9: Joint Use Concept



Clustering these types of facilities and uses on a single site also makes it possible for multiple groups of users to come into contact more frequently than would otherwise be the case. In combination with a neighbourhood node or activity area, the joint use site can assist in providing an attractive, vibrant and interesting area that draws neighbours together.

#### 6.5.4 Streetscapes

Well designed streetscapes that encourage pedestrian activity is another form of gathering space within a sustainable community. Streetscape design covers all of the space between building faces on opposite sides of a transportation route. The physical design of this space influences how people use or view a particular neighbourhood. Streets that are human scale and attractive are more likely to provide settings for social activities and encourage walking or bicycling.

Factors that are important to pedestrians on a street include the presence of shade or sun, level surfaces for walking, crossable streets, security, visual diversity and lots of activity. Unlike motorists, people traveling on foot are in direct contact with the built environment and enjoy visual stimulation and detail. Items that make a street more "human scale" include:

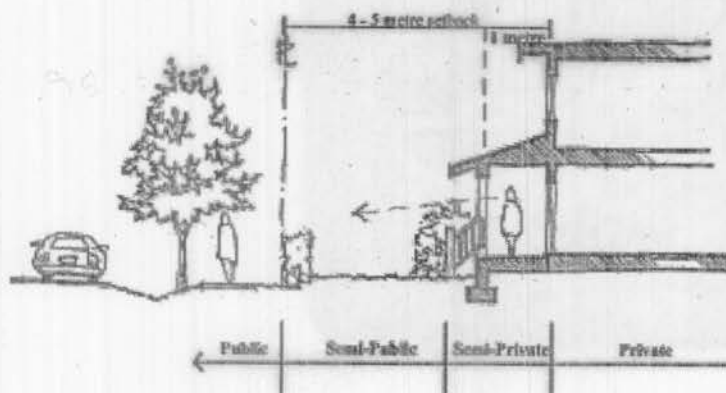
- Objects and spaces design to fit the dimensions and proportions of the human body
- Windows, balconies, doors, tables, chairs, awnings, porches and stairways
- Well developed tree canopies and landscaping

Streetscapes dominated by garage doors and small portions of front elevations devoted to entrances and windows do not result in an interesting pedestrian environment. Given the 20 to 25 percent of land in a new neighbourhood devoted to roads, the streetscape represents the single largest potential gathering space element.

Surveys of residents in US examples of sustainable or TND neighbourhoods indicate that one of the primary means of meeting neighbours is crossing paths on walks through the neighbourhood either along a path system or along the street. The influence of front porches is also cited as one of the design elements that enables social interaction. This largely stems from the relationship of the porch to the sidewalk and works best where people sitting on the front porch are close enough to the sidewalk to be within hearing distance – thereby allowing for conversation. This distance tends to range from 5 to 10 feet from the edge of the sidewalk.

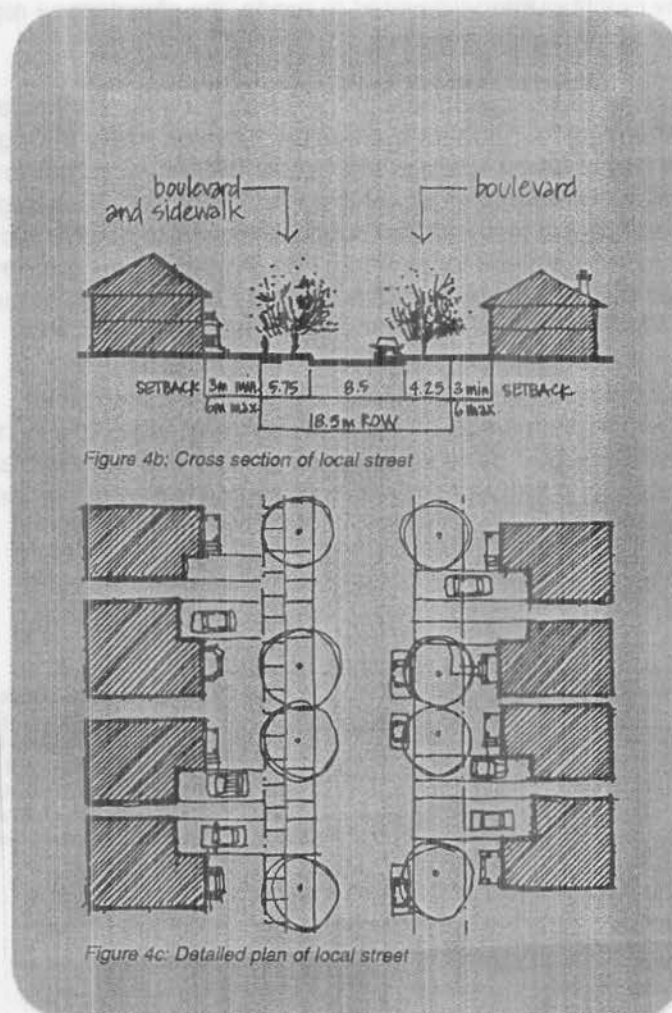
Figure 6-10 and Figure 6-11 show cross-sectional views and a bird's eye view of streetscapes. Figure 6-10 shows how a person on the sidewalk may relate to a person on a porch and the delineation between public, semi-public, semi-private and private areas. Figure 6-11 shows how the height and setback of buildings relate to the width of the street to create an area that is human scale.

**Figure 6-10: Front Property Setbacks**



An appropriate relationship between private single-family residence and public street. The front porch is allowed to extend a maximum of 1 metre (3.3 feet) into the front setback. Low shrubs along the property line make a clear distinction between the private front yard and the public street.

**Figure 6-11: Height to Street Width Relationship**



## 6.6 What Red Deer Does Pretty Well

The provision of gathering spaces in Red Deer's newer neighbourhoods embraces some of the suggestions and trends towards the creation of more sustainable communities. For the most part, actual use and amount of "gathering" that is occurring is not known but physical attributes that contribute to or afford opportunities for social interaction are being provided. The following major observations are noted:

- Sites are identified in newer neighbourhoods to allow opportunities for churches and religious assemblies.
- Interesting features that attract pedestrian activity are being incorporated such as the trail around the wet storm pond in Anders on the Lake.
- Neighbourhood level and district level commercial areas are included in newer areas and usually have a transit stop nearby.

- The joint use of sites for school and community purposes has been a key characteristic of new neighbourhoods for several years and is being expanded to include the joint development of school and community centre buildings.
- Front porches are becoming more prominent and common place in some of the newer neighbourhoods though there remains 15 feet or more distance between the porch and the edge of the sidewalk.

## **6.7 What Can Red Deer Learn and Possibly Improve**

Planning for gathering spaces in Red Deer's newer neighbourhoods could do more to promote the idea of sustainability. Ideas that have potential for application are listed below.

- Enable the creation of more desirable and diverse forms of gathering spaces throughout new neighbourhoods in conjunction with a more flexible approach to the use and distribution of municipal reserve dedications. This includes possibilities for pockets parks at the local level and connecting linear parks.
- Encourage the creation of gathering spaces through the clustering of commercial uses, public buildings, recreation amenities and open space areas.
- Allow opportunities to cluster mailboxes as part of the central focal area for new neighbourhoods.
- Place more emphasis on the creation of attractive, pedestrian-friendly streetscapes.
- Place more emphasis on the development of neighbourhood or activity nodes that include joint use sites for schools and churches where possible.
- Develop a hierarchy of gathering spaces serving local (small, immediate area) neighbourhood (quarter section) and community (section) needs to provide for gathering opportunities at each level and distributed opportunities throughout the community.

## **Appendix 5**

**Social Aspects Compendium of Ideas and Practices  
(Chapter 8 of Background Report No. 5)**

## **8. SOCIAL ASPECTS**

### **8.1 Introduction**

This section provides an overview of the social aspects of sustainable communities. It begins with a discussion of various elements based on a review of the literature of planning movements associated with sustainability. The section concludes with observations on how well planning for Red Deer's newer neighbourhoods takes into account social considerations and potential areas of improvement.

The initial sustainable community vision outlined in Report No.2 placed emphasis on the following social aspects:

*A strong sense of community based on caring for our neighbours and pride in our private property and public spaces (Red Deer Sustainable Community vision)*

*Inclusive, accessible and affordable services and amenities catering to a broad range of needs and interests (Red Deer Sustainable Community vision)*

*A safe community consisting of well-lit streets, highly visible sidewalks and crosswalks and well policed (Red Deer Sustainable Community vision)*

### **8.2 Social Aspects in a Sustainable Community**

A community is composed of people as well as the places where they live; it is as much a social environment as a physical environment. Social sustainability cannot be created simply through the physical design of the community which is the primary focus of the discussion in this section. However, physical design of a neighbourhood can make it either easier or more difficult for communities to be socially sustainable.

The notion of a socially sustainable neighbourhood is interwoven throughout the earlier sections of this report. Key elements that are considered characteristic of a socially sustainable community include:

- Design that allows for social diversity.
- Adaptability to changing lifestyles.
- Design that results in a safe community and promotes a sense of security.
- Access to affordable housing, education, health care, essential goods, public amenities and services to satisfy basic needs.

By far, the issue of housing (discussed in section 4) is the largest single aspect influencing the design and character of new residential areas. The way a community plans for new housing development can either bring the diverse populations of a community together or segregate these populations by socio-economic status, ethnicity, housing preferences, household composition or other characteristics. To ensure a healthy community over the long term, the housing needs of a diverse range of residents must be sensitively integrated into new neighbourhoods. Social sustainability can only be achieved if barriers between differing socio-economic groups are eliminated. Integration of housing on a neighbourhood basis is often viewed as the most effective means of achieving this objective.

### **8.2.1 Increasing Social Interaction and Diversity**

Several of the earlier sections of this report mention or reference increasing social interaction among neighbourhood residents as a goal or potential benefit of various design elements. Section 4 dealing with the mix of housing and household types relates predominantly to potential interaction between diverse population groups by making it possible for these differing groups to live in proximity to one another. Section 6 dealing with gathering spaces focuses on ways to ensure the physical environment of the neighbourhood, from the nature of streets to the provision of key community buildings, facilitates social contact. Increased social interaction can be facilitated through the following:

- meeting other residents through the use of walking, bicycling and public transit as alternatives to the private automobile,
- engaging passers-by in conversation from front porches and on sidewalks along streets,
- greeting neighbours at shared facilities such as mail pick-up areas, local convenience stores and services,
- meeting others in open space areas such as local playgrounds, sports fields, squares and trail systems, and
- participating in programs or events held at local facilities such as community halls, schools and religious assemblies.

Increasing the social diversity and inclusiveness of neighbourhoods largely depends on the provision of uses and facilities that serve as broad a range of the population as possible.

This involves:

- providing a range of housing opportunities that cater to singles, unmarried couples, families, and low, middle and upper income groups,
- providing transportation services that serve those who do not drive due to age, physical impairment or other restrictions, and
- ensuring reasonable access to key services and amenities.

### **8.2.2 Planning for the Neighbourhood Lifecycle**

A neighbourhood is a dynamic entity that changes or evolves over time with changes in the demographic composition of residents, housing styles and preferences.

Life cycle housing is identified as a “best practice” in the design of sustainable neighbourhoods. It serves a useful social purpose recognizing that some families wish to move within the same housing development or neighbourhood when their space needs change. With life cycle housing available, social networks can remain intact, children need not be uprooted from familiar schools and friends and elderly persons can remain near friends, families and familiar surroundings.

The general pattern of initial development or build out of residential areas starts with single detached dwelling or semi-detached dwelling housing forms in early phases with medium density housing forms like townhouses or four-plexes following in later phases. Oftentimes, the amount of low density residential land uses developed before multi-family sites represents a substantial portion of overall development. The implications of this for the demographic composition of new neighbourhoods is that households that prefer low density residential housing forms, such as households with children or husband/wife households without children, tend to be over-represented compared to their community-wide average in the early development of new residential areas. Household types that tend towards multi-family forms of housing, such as singles, non-family households and single parent households, appear under-represented in the early phases of new neighbourhoods. This tendency is also influenced by the type of low density housing being provided and whether the target market is the move up buyer or the first time homeowner.



Once a neighbourhood is fully built out or developed for the first time, the demographics of the neighbourhood continue to change. Over time, the housing needs of the population change as the household itself goes through a lifecycle. At one point, a large house with ample space for a family may be required and in later years a smaller house with reduced maintenance responsibilities may be desirable. The process of redevelopment, renovation and infill within a neighbourhood is a response to the changing housing needs of residents.

Planning new neighbourhoods so they one day may achieve similar or greater levels of socio-economic diversity relative to the community as a whole is not an unrealistic expectation and is key to achieving social sustainability in the long term. Ensuring future residential areas are capable of responding to the future housing needs of Red Deer residents is a critical ingredient. For the most part, planning for neighbourhood lifecycle changes affects the housing stock of a neighbourhood and involves opportunities for diverse housing forms and sizes. It can also affect the nature of gathering spaces provided (i.e. mixture of passive and active areas) and the design of key community facilities such as schools and community halls to respond to changing social needs over time (i.e. flexible programming of building space, building for multi-purpose, change in number of students).

### **8.2.3 Safety and Security**

The ability to feel safe and secure both when using public spaces or enjoying the privacy of home is another key ingredient of a sustainable community. Creating physical environments that maximize the number of “eyes on the street” is the basic and very common principle advanced in most of the writings on sustainable communities. This involves making it possible for all public areas, such as streetscapes, parks, trail corridors, plazas and school yards, to be viewed from adjacent properties and buildings. In the case of streetscapes this is accomplished through the use of porches, entranceways and windows that have direct view of the street and, in several cases, buildings are pulled forward as close to the street as possible. For public places like parks and plazas, visibility from adjacent buildings and streets allow for natural surveillance.

The use of Crime Prevention Through Environmental Design (CPTED) principles is one of the means of addressing safety in neighbourhoods. The prime emphasis is on building natural surveillance possibilities into subdivision designs. The CPTED principles that chiefly apply to residential areas include:

- Orienting the maximum number of dwelling units possible onto greenways and neighbourhood parks.
- Designing homes so that the primary living areas have a clear view of the street or park.
- Positioning garages so that they do not block the view of the street or lane.
- Using carriage houses (a form of accessory suite) for surveillance in lanes.
- Ensuring windows from primary living areas in the house directly overlook rear yards and lanes.
- Provide adequate lighting on streets and in lanes.
- Use functional porches on the street facing elevation of residences.
- On principal residences, the first floor elevation is to be set high enough to offer a commanding view of the street.

In commercial or mixed use areas, a high level of safety and sense of security are important to encouraging their use by area residents. The CPTED principles that can contribute to safety and security in these areas include:

- Provide residential units above commercial ground floor units to instill a feeling of security by providing “eyes on the street” and “round the clock” surveillance opportunities.
- Public, private and semi-private areas are to be clearly defined with public and semi-private areas designed so as to maximize surveillance.
- Buildings should provide maximum opportunity for surveillance of sidewalks, entries, circulation routes, semi-private areas, children's play areas and parking entrances.
- Any recessed entries and/or blind corners are to be avoided. It should be possible to see stairwells and halls. Servicing, amenity and storage rooms should be grouped together in a visible locale for ease of surveillance.
- Residential lighting in mixed-use commercial areas is to ensure the clear visibility (day and night) of access routes and landscaped areas without excessive lighting levels or glare.
- Adequate pedestrian-oriented lighting is to be provided on all streets and in lanes.

Another aspect of safety in a sustainable neighbourhood that does not appear to garner as much attention as the design aspects promoting natural surveillance is the ability of emergency service providers to access all areas of the neighbourhood. For some uses where there may be higher concern for emergency service access, placement along major roadways is recommended. An example is a school or building used for public assembly. Other uses like linear trail systems require consideration be given to opportunities to access the area with emergency service vehicles.

#### **8.2.4 Commercial Services and Amenities**

One of the best practices cited throughout the literature on sustainable communities relates to the location or design of communities so that there is as much access as possible to a range of commercial services and amenities that satisfy residents' basic needs. Ideally, access to commercial areas occurs as much as possible at the local level and includes the option of using non-motorized modes of transportation. It is suggested that these areas contain uses that satisfy 'basic needs' such as convenience retail, groceries, hair care, health clinics, gas bars and more common amenities such as restaurants and coffee shops.

There is no set formula for the size of commercial sites required to promote a more sustainable community. For instance, the Heritage Valley plan for Edmonton classifies local, neighbourhood oriented commercial sites to be one hectare or less in size and community oriented commercial sites (serving 3-4 neighbourhoods) to be greater than one hectare but less than twelve (12) hectares in size. The approach in the East McKenzie plan in Calgary differs in that neighbourhood oriented commercial sites are allowed to be up to 2.4 hectares in size and community commercial sites are greater than 2.4 hectares.

The range, type and amount of commercial services that can be supported at either the neighbourhood or community scale depends on several factors including the supporting population, amount of passing vehicle traffic, and proximity to nearest competitors. Throughout the planning movements, the link between available population/client base is mentioned with the general direction being to increase residential densities to support as much commercial as the market will bear. Reliance on passing vehicle traffic as a source of customers tends to draw commercial sites to intersections of major roads (i.e. arterials and collectors).

Commercial uses and sites in sustainable communities are also candidate sites for mixed use development whereby either a site, individual buildings or both incorporate more than one type of use. For instance, the East Clayton plan envisions a “main street” mixed use area comprising commercial uses in lower floors and residential uses in upper floors in a location central to the community. Commercial sites should be of sufficient size to accommodate possibilities for mixed use development.

### **8.2.5 Accessibility of Services**

Access to a range of services and social, education, health, recreation and cultural opportunities contributes to more sustainable communities. Designing neighbourhoods that work well requires taking these needs of residents into account. Most of the planning movements reviewed touch briefly on the types of services that should be accessible within the local community or within walking distance. Services that are targeted for inclusion in neighbourhoods to provide as much local access as possible include:

- primary education opportunities focusing on children (i.e. neighbourhood elementary schools) with higher levels of education provided where possible,
- child care and adult care opportunities,
- local health clinics and medical services and personal care services (i.e. hair dressers),
- cultural and spiritual opportunities in the form of local religious assemblies and indoor and outdoor venues to provide programs and events,
- recreational opportunities such as trails, sports fields, indoor recreation facilities (i.e. community accessible gym).

It is recognized throughout the literature that not all services can be delivered at the local level. There remains a reliance on larger scale facilities that serve several communities such as community theatres, community colleges, hospitals, major indoor recreation facilities like swimming pools and skating arenas. The ability to access these ‘higher order’ services and amenities is still important. It is no coincidence that all of the examples of sustainable communities reviewed in earlier sections of this report emphasize the role of public transit. Some planning movements such as TOD (transit oriented development) have the use and availability of public transit and its ability to connect a neighbourhood and residents to the larger community, and its associated amenities and services, at the core of their designs.

### **8.2.6 Jobs-Housing Balance**

Another suggested “best practice” in planning sustainable neighbourhoods involves how well a new neighbourhood contributes to the jobs-housing balance in the area in which the new neighbourhood is located. This does not mean having employment opportunities available on a large scale within individual neighbourhoods. Balance must be achieved on a sub-regional basis. The potential benefits sought include the ability to keep some work related trips within the immediate vicinity of the neighbourhood rather than lengthy commutes on the arterial roadway system, encourage walking or cycling to work, and making jobs more accessible to those who cannot afford high transportation costs.

How close major employment areas should be to major residential areas is debatable; some literature suggests within 3 miles while other literature suggests within 20 miles. Placing emphasis on smaller distances of 3-5 miles is recommended as a “best practice” in achieving a balance between where people work and where they might choose to live. Equally important is the ability of the transit system to provide affordable and efficient access to major employment areas.

Suggestions and recommendations relating to balancing housing and employment opportunities from both the literature and examples of other planned sustainable communities include the following:

- Proximity to major employment centres and access through transit on a sub-regional basis
- Local employment opportunities within communities and neighbourhoods (i.e. neighbourhood commercial, schools)
- Home-based business opportunities in the form of home occupations or “live-work” areas

Local commercial areas and some of the institutional uses found in neighbourhoods can provide a small core of local employment opportunities. For instance, in Red Deer’s newer developing neighbourhoods local schools and district shopping centres provide both full-time and part-time employment opportunities. Commercial sites provide between 86 and 124 part-time and full-time jobs per hectare.

### **8.3 What Red Deer Does Pretty Well**

The design of Red Deer’s newer neighbourhoods reflects some of the suggestions and trends that can contribute towards more socially sustainable and inclusive neighbourhoods. The following major observations are noted:

- Sites are identified and planned in newer neighbourhoods to allow opportunities for churches and religious assemblies which address spiritual needs and provide venues for cultural and social activities and events. Several of these have been developed.
- Public transit is available to provide access to amenities, services and employment opportunities outside of individual neighbourhoods.
- Neighbourhood level and district level commercial areas are included in and planned for newer areas and usually have a transit stop nearby.
- Home occupations are allowed throughout residential districts and this option has been taken advantage of by many individuals.
- The joint use of sites for school and community purposes has been a key characteristic of new neighbourhoods for several years and is being expanded to include the joint development of school and community centre buildings. This provides a venue for social, cultural and recreational activities in a location that is typically within walking distance of most neighbourhood residents.
- Front porches are becoming more prominent and common place in some of the newer neighbourhoods though there remains 15 feet or more distance between the porch and the edge of the sidewalk. The amount of windows and entrances oriented to the street to increase observation is higher in some newer areas than others.
- Overall planning efforts seek to balancing residential development north and south of the Red Deer River to in part address the jobs-housing balance. Newer areas fall within the 3-5 mile distance from major employment areas (Gaetz Avenue, north end industrial).

- Safety considerations are taken into account in the design of open space areas and road systems (i.e. emergency vehicle access provisions) within newer neighbourhoods. There remains some concerns with older segments of the trail system where emergency vehicle access is limited.
- Opportunities for casual observation of open space areas is evident in newer neighbourhoods though many streetscapes remain dominated by front attached garages.

#### **8.4 What Can Red Deer Learn and Possibly Improve**

Planning for social sustainability in Red Deer's newer neighbourhoods could be enhanced. Ideas that have potential for application are listed below.

- Place more emphasis on the creation of attractive, pedestrian-friendly streetscapes that provide high levels of natural or casual surveillance and facilitate contact between neighbours.
- Use CPTED principles of "eyes on the street" when planning open space areas, gathering spaces and commercial centres.
- Place more emphasis on the development of neighbourhood or activity nodes that include joint use sites for schools and churches where possible to increase opportunities for social interaction.
- Develop a tool to assess social implications in land use planning decisions and ensure that social needs are incorporated into community and neighbourhood design.
- Investigate ways to increase the amount of local employment opportunities both in terms of numbers and wage levels within new communities and neighbourhoods without creating potential land use conflicts.
- As new communities and neighbourhoods are planned farther out from the existing edge of development, review the need to provide a new major employment area that would ensure future residential areas fall within 3-5 miles of major sources of employment.
- Work with school authorities to understand lifecycle changes in student generation within neighbourhoods based on local experience and ensure school and community facilities can adapt to changing needs over time.
- Expand, where feasible, opportunities for increased commercial development and mixed use development integrated into planned community activity centres and neighbourhood nodes.
- Consider lifecycle changes over the long term when planning new communities and neighbourhoods in terms of future housing, recreation and social needs. This includes ensuring sites for long term needs remain available and are not sacrificed to short term considerations.

**Appendix 6**

**Circulation/Connections Compendium of Ideas and Practices  
(Chapter 3 of Background Report No. 5)**

### 3. CIRCULATION AND CONNECTIONS

#### 3.1 Introduction

Transportation is seen by some authors as one of the most controversial elements in community development. In the 'new urbanist movement' transportation planning focuses on reducing dependence on the automobile, increasing public transit use (which may involve ancillary actions such as car pooling, park-n-ride, walking and cycling), and developing a more flexible roadway system. These efforts help reduce local traffic problems, conserve energy, improve air quality and encourage people to walk or bike for shorter trips, or take the bus to get around within their neighbourhood, district or community.

Automobiles are a fact of life and they are not going away. Walking and cycling as a means of getting around (as opposed to walking or cycling for leisure), on the other hand, are becoming secondary options in most places built since the last world war. These places were designed to be most convenient for the use of cars, and such places are hostile to pedestrians and cyclists. Where people don't walk or cycle public transport is not very well used either.

Reducing the use of automobiles is best pursued through a combination of transportation demand management and transportation system (or supply) management strategies at a City-wide level. Appendix 3-A contains useful information and insights into the nature, advantages and disadvantages of a wide range of these strategies. The effect of transportation control measures, other than land use planning principles, on the reduction of automobile use is shown in Appendix 3-B.

This section of the report attempts to highlight some of the key principles and standards for planning and design at the neighbourhood level to provide residents more movement options than just the car and to bring the local street back to life as a community oriented element of our neighbourhoods, while still accommodating the automobile as the primary means of movement for many people.

#### ***Purpose***

Within this background, innovative ideas, guidelines and standards are put forward from the North American reference material on the subject generally referred to as 'sustainable communities', the 'new urbanist movement' and communities based on 'neo-traditional design' principles, relating to the following elements of circulation and connection at the neighbourhood level:

- roadways and lanes;
- pathways, which includes sidewalks and multi-purpose paths, and are connected to the system of roadways; and
- transit, directly affected by the presence and design of roadways and pathways.

Often these 'innovative ideas' or the 'alternative development standards' on which they rest are not new at all and essentially represent a move 'back to basics'. The ideas and alternative development standards are as diverse as the communities which employ them. 'There is no single, universal list of alternative development standards, just as there is no single, agreed-on conventional standard. What is defined as conventional in one area may be unconventional in another. Many development concepts called alternative are different from the current norm, but not new. They are a re-emergence of old, or timeless, community design approaches' ('Practices for Sustainable Communities' p. 76, CMHC, 2000).



From the information put forward in this section it is hoped that a selection may be made of those ideas, standards or guidelines that are applicable or adaptable to practices and circumstances in the City of Red Deer. At the very least this section seeks to remind everyone involved in the planning and building of the City of the fact that there is always room for improvement in the way we do things and to encourage people to always keep looking for ways to do things better and more efficiently in the interest of the community.

### **Community Vision**

The ideas put forward in this section seek to address the following principles of sustainable circulation and movement within new neighbourhoods, developed from the input into the 'Red Deer Sustainable Community Vision':

- *A diverse range of transportation alternatives providing access to other neighbourhoods, services and amenities of the larger community.*
- *Roadways designed to reduce trip lengths, slow and minimize traffic on local roads and make use of alternate materials such as recycled products.*
- *A safe, accessible transportation system that caters to several modes of transportation (auto, transit, pedestrian, bicycle).*
- *Use of green space to provide connections to other neighbourhoods and opportunities for neighbours to connect.*

Throughout the discussion of elements and ideas the questions from the 'study Terms of Reference' that are relevant to transportation should be considered. These are:

- a. What land use policies and standards would encourage broader use of alternate transportation forms?
- b. Can we design to reduce dependence on the automobile and increase use of alternate transportation? If so, how?
- c. Should the City continue to focus on meeting automobile needs or focus on other forms of transportation?
- d. Should suburban streetscapes be more people friendly?
- e. What is the rationale for current development standards in Red Deer (relates to affordability), how do those standards compare and contrast with other cities in Alberta?
- f. What alternatives to reduce capital, operating, and maintenance costs could be considered and what are the positive and negative spin-offs associated with each change? Consider the following:
  - design roadways to facilitate snow plowing to sides rather than removal;
  - reduce number of residential front driveways - creates snow plowing problems.
- g. What are the transportation standards for suburban roadways? Given the concept of sustainability, are these feasible? Consider the following:
  - paved lanes, no dead-end lanes; and
  - deeper road cross sections/reinforced sidewalks.
- h. Are the parking standards applied in new suburbs to residential and commercial development suitable?
- i. How can bus stops, bicycle pathways, and the future transit terminal be made safer, most convenient, and more attractive?

### 3.2 Roadways and Lanes

'We are coming to the realization that making the traffic work well is one of the prime contributors to much of what we now see and don't like in our new suburban growth; namely loss of community, absence of a walking atmosphere, boredom, bleakness, .... One goal of these best practices is to keep traffic flowing smoothly within the community, minimizing traveller delay and other adverse impacts of stop-and-go driving. Slow and steady is the goal, not fast, since high speed traffic detracts from the sense of community. Another goal is to preserve options to the automobile for those who might want or need to exercise them. Diversity is valued here as in other best practices.' ('Best Development Practices', p. 54, Reid Ewing, 1996).

**Idea 1:** Space through-roads not more than 800 m apart

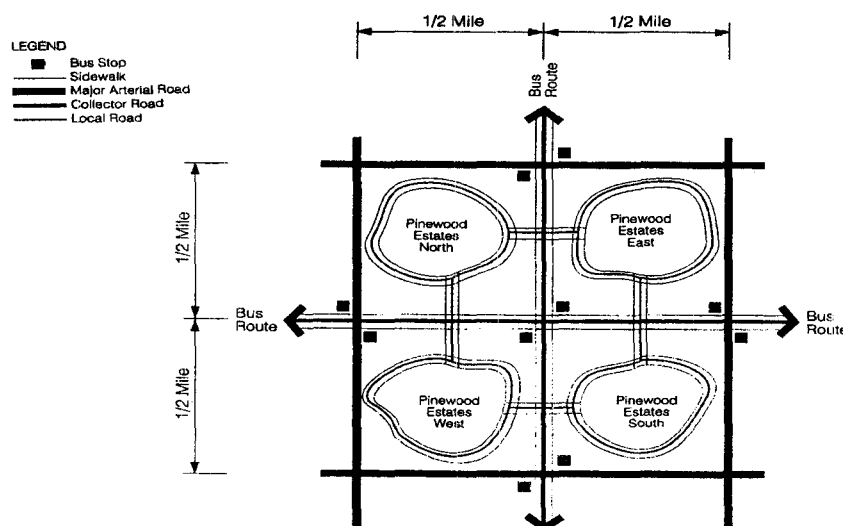
#### Rationale

- The concept of preferred arterial and collector spacing is illustrated in Figure 3-1.
- Arterials and collectors that are spaced too far apart generate long access trips and require multi-lane street cross-sections to handle traffic.
- Residential traffic safety experts suggest that an access trip should be no longer than two minutes at restrained speeds before a motorist reaches a higher-order street. If the access trip is much longer than that the motorist will be tempted to speed through neighbourhood streets.
- Transit operators advocate closely spaced arterials and collectors, to keep transit routes within walking distance.

#### City of Red Deer Comparison

- The City's 'Design Guidelines 2001' provides for a desirable distance between arterial and collector roads of between 400 m and 800 m. This makes for a well organized and interconnected major street network.

**FIGURE 3-1** (Source: 'Best development Practices', p. 60, Reid Ewing, 1996)  
SPACING OF ARTERIAL AND COLLECTORS

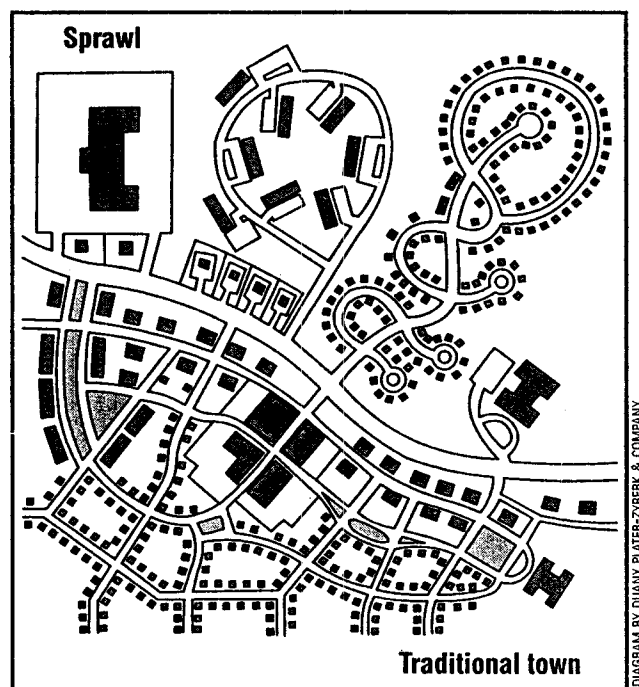


**Idea 2:** Ensure an interconnected street system, providing relatively direct routes with multiple options

**Rationale**

- The advantages of the traditional grid system and the contemporary road network can be combined into a hybrid network, offering the mobility of the grid and the safety and topographic sensitivity of the contemporary network. If properly designed, hybrid networks have a complex order that offers aesthetics and variety, yet is easily perceived by travellers. Short curved streets and short loops and cul-de-sacs are appropriate as long as the higher-order street network is left intact (i.e. arterials, collectors and sub-collectors that carry through-traffic).
- A neighbourhood with a system of interconnected streets and sidewalks is an ideal environment for walking, cycling and using public transit, offering a wider variety of route options to drivers and pedestrians, and more direct linkages between homes, shops, schools, parks and workplaces. Figure 3-2 illustrates the differences between an interconnected or 'traditional' street system and a contemporary or 'urban sprawl' street system.
- An interconnected street system generates fewer vehicle miles of travel than do contemporary networks, they encourage walking and biking with their more direct routing and their options to travel along high-volume streets and they are more transit-friendly, allowing transit vehicles to avoid backtracking and frequent turns, and offering transit users relatively direct access to transit stops.
- An interconnected street system can reduce average vehicle trip lengths and increase the overall efficiency of the arterial street system by dispersing local traffic and thereby relieving intersection congestion at arterial roadways.
- Through-streets and easily understood street patterns make neighbourhoods more accessible to buses and emergency vehicles.

**FIGURE 3-2** (Source: 'New Urbanism: Comprehensive Report & Best Practices Guide' p. 1-3, *New Urban News*, 2001) - CONTEMPORARY AND TRADITIONAL STREET DESIGN



### ***City of Red Deer Comparison***

- The City's 'Planning & Subdivision Guidelines' requires that major area structure plans are prepared for large sections of the City, including several neighbourhoods into one plan. These area structure plans incorporate among other elements the continuity of arterial and collector roads and pathways. This principle is also presented in the City's 'Community Services Master Plan' and the 'Design Guidelines 2001'.
- From the area structure plans for new neighbourhoods it appears that the City's subdivision streets are relatively accessible and interconnected to the collector and arterial roadway system.

***Idea 3: Provide for a variety of residential street types based on the proposed character of that part of the neighbourhood into which a street is designed to fit***

### ***Rationale***

- A revised street hierarchy consists of a variety of street types such as shared driveways, cluster garages, private parking courts, mews, minor streets, traditional streets, major streets and grand boulevards, each serving a specific access function depending of the type and density of residential land uses. Examples of conceptual innovative street types and their functional characteristics are shown in Figures 3-3 through 3-7.
- Several urban design factors should be taken into account when applying these street types: traffic volumes, house-to-street relationships, building scale and types, lot frontages and parking treatment, on-street parking, sidewalks and rear lanes.
- The major benefit of applying a variety of street types in specific neighbourhood contexts is that the street design features are appropriate to its specific function - the street is adequate for safe vehicular movement and on-street parking, while it is not overbuilt and has a functional, livable scale to it. Less land per lot is consumed for roadways, which saves rural lands and may result in lower housing unit prices.
- A variety of street types can be developed to create an interesting and charming streetscape, while street elements can be designed to make drivers slow down. Eventually, streets regain their lost social function, which returns the local residential street to the people.

### ***City of Red Deer Comparison***

- The City's 'Design Guidelines 2001' provides for the following types of residential roadways, of which there are minor variations in respect of the location of trees and sidewalks and the provision of parking and travelling lanes:
  - Residential local street (divided for major entries)
  - Residential local street (multifamily)
  - Residential collector street (divided for major entries)
- These street types are designed to daily service volumes measured in vehicles per day, street elements such as trees and sidewalks, and on-street parking. The differentiation between the various types of streets seems to be based on the environmental capacity of the street rather than on the character of the adjacent land uses (except perhaps in the case of the multifamily residential local street).
- The most obvious difference is that Red Deer's street hierarchy only extends down to the standard local street, whereas the 'innovative and sustainable' street hierarchy includes street types one, two or three levels lower than the standard local street, e.g. the minor street and alley in Cornell (see Table 3-A on p. 3-12) and the mews, ways, courts etc. that appear in the literature.

- The 'alternative street' standards seem to be applied in limited situations, such as a very short street that serves exclusively local traffic and where the architectural style of houses would be complemented by specific types of street design detail.
- There may be an opportunity for the City to investigate where and how some of these 'alternative street' design standards could be suitable for local application (including aspects such as road hierarchy, pavement and right-of-way width, and boulevard and intersection design), so that developers have more options for local residential street design.

**FIGURE 3-3** (Source: 'Making Choices' p. 50 – 51, Queen's Printer for Ontario, 1995)  
ALTERNATIVE STREET STANDARDS: LESS URBAN NEIGHBOURHOOD

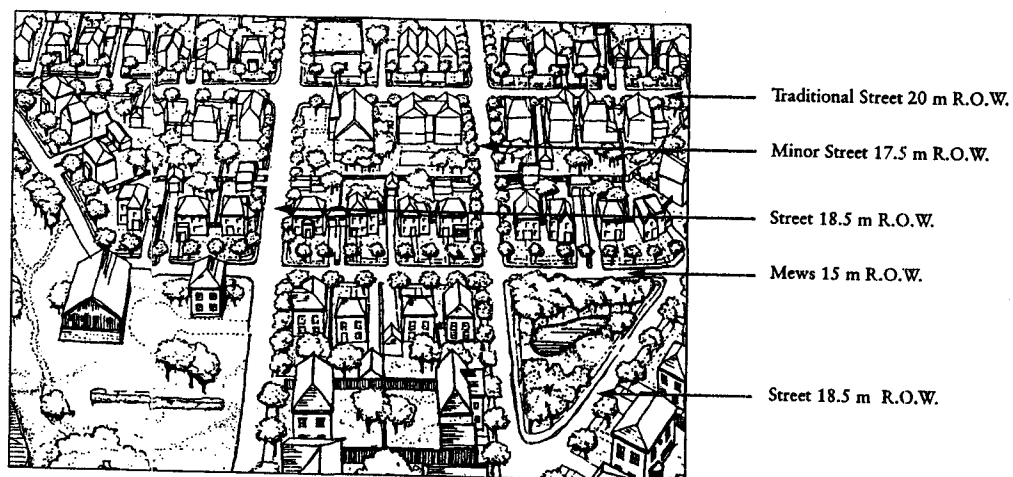
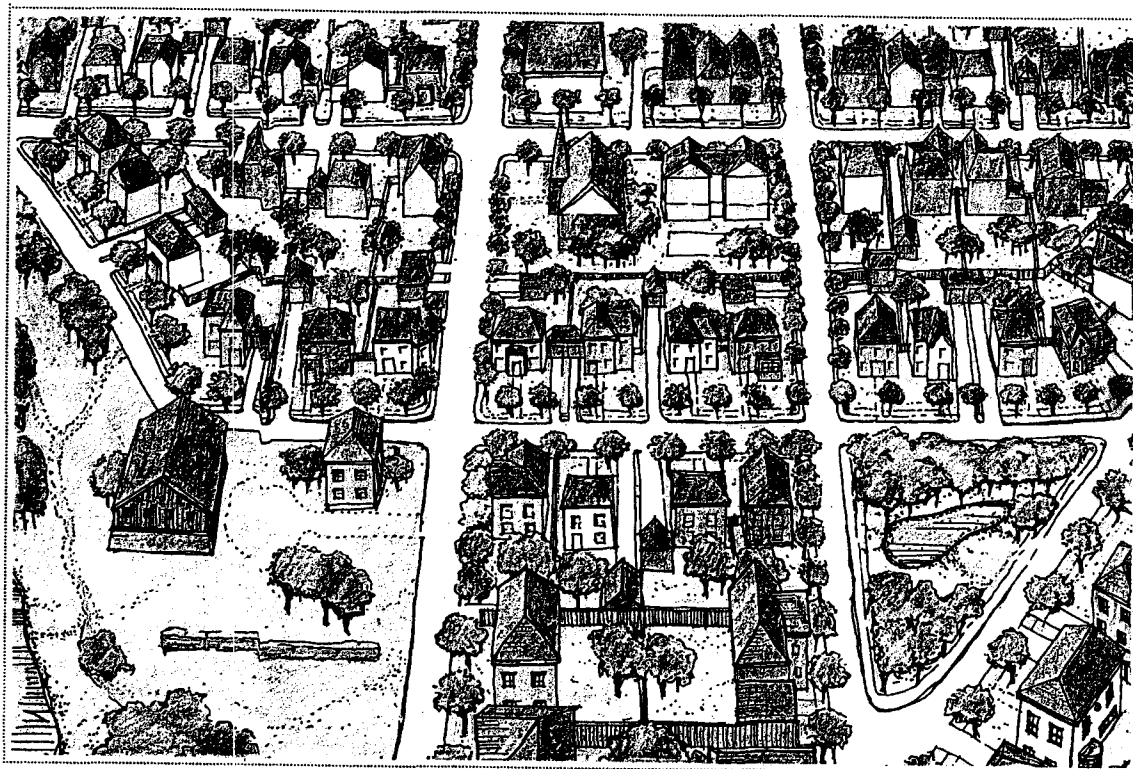
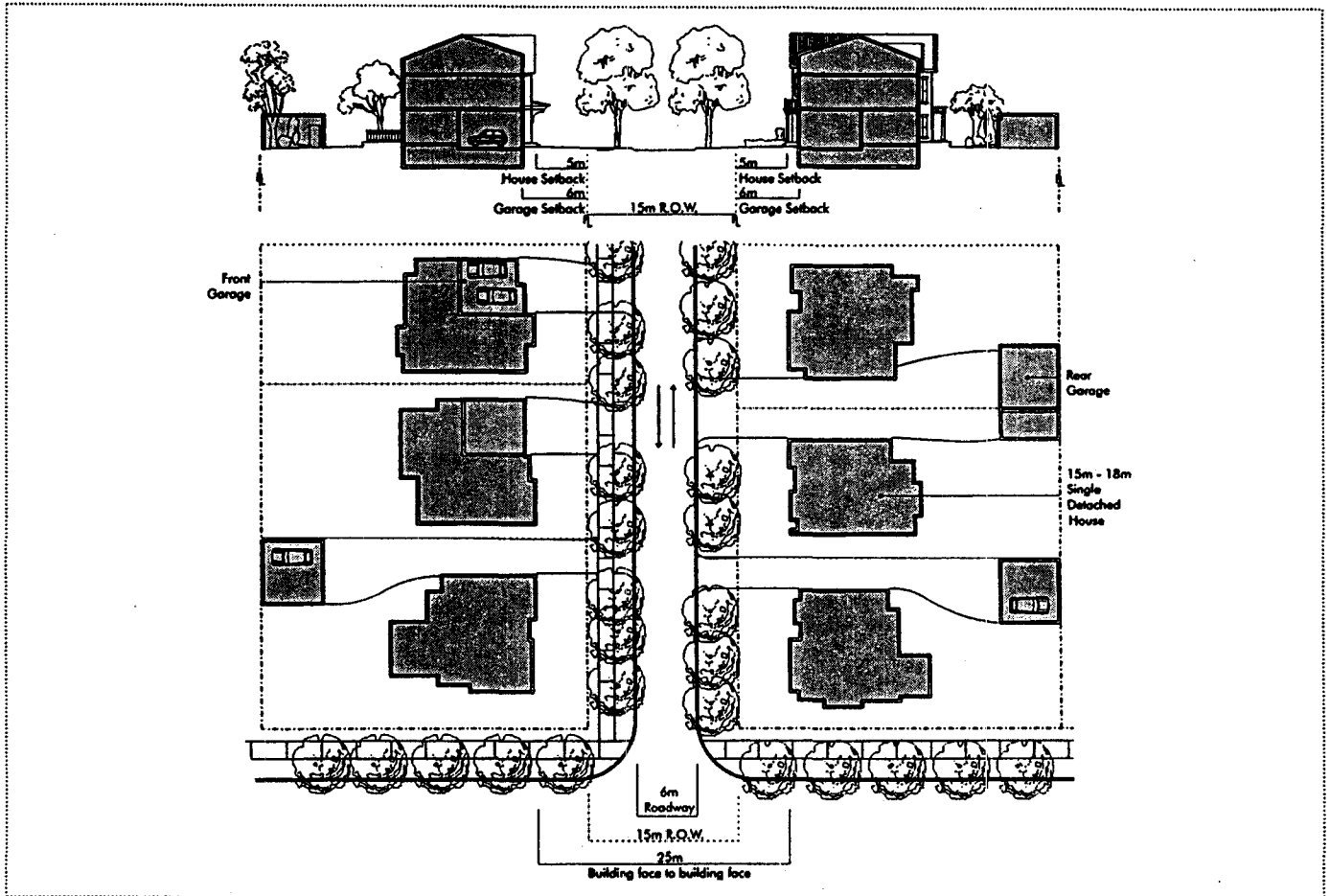


FIGURE 3-4 (Source: 'Making Choices' p. 52, 54, Queen's Printer for Ontario, 1995)  
ALTERNATIVE STREET STANDARDS: THE MEW

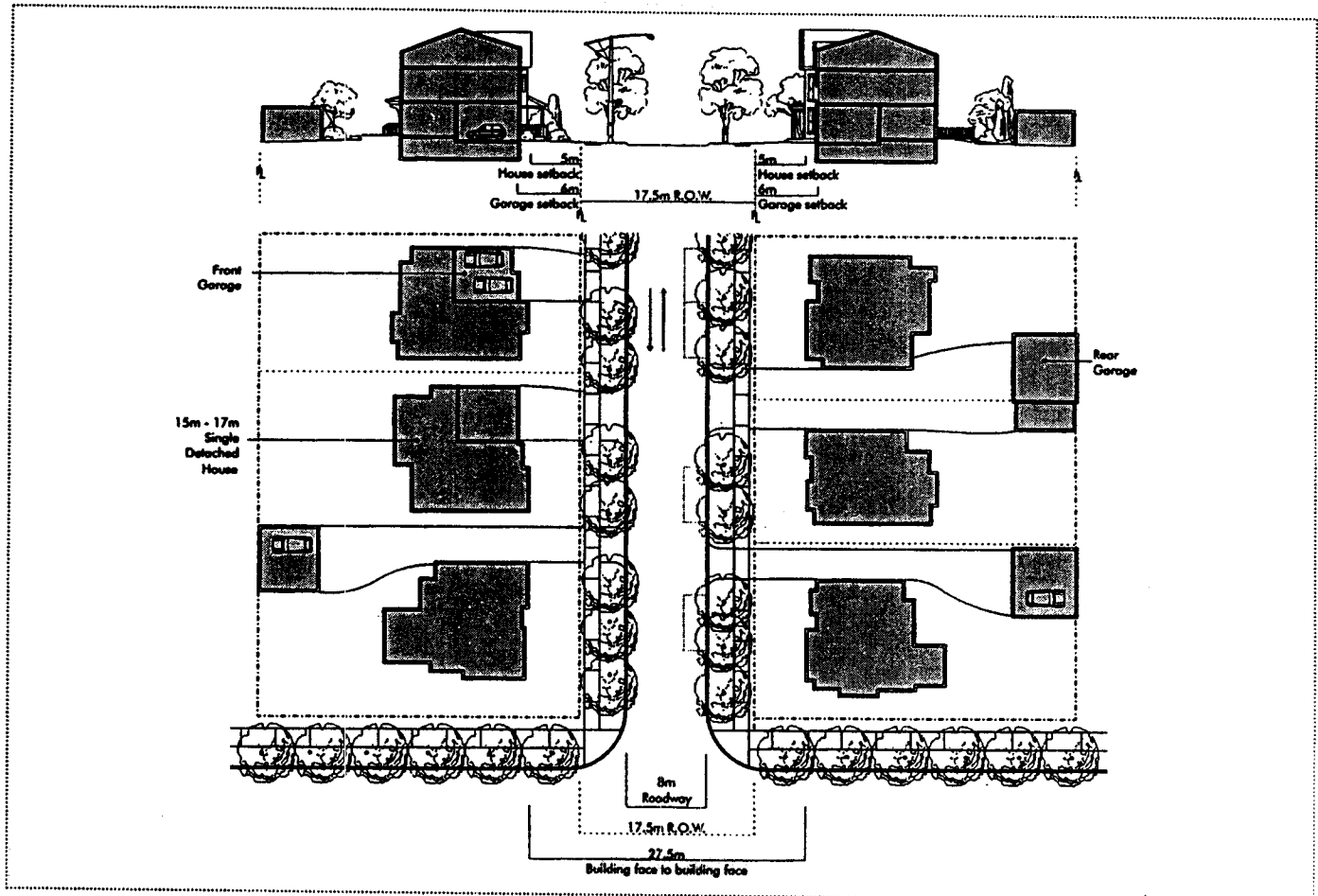
### Mews - 15.0 m Right-of-Way (Less Urban)



- A small-scale street whose primary function is to provide access to the front of individual dwellings rather than to serve through traffic.
- Can work with one or two sidewalks (one is shown here).
- The sidewalk is set back from the curb in accordance with the less urban environment.
- Front-yard setbacks are greater than in the more urban mews.
- A variety of on-lot parking options are shown on the plan view.
- Additional parking can be accommodated on the 6 m street pavement if it is one-way.
- Alternatively, the street can accommodate two-way traffic without parking.
- Rear lanes are an option, but not required given the lot widths shown in this example.

FIGURE 3-5 (Source: 'Making Choices' p. 56, 58, Queen's Printer for Ontario, 1995)  
ALTERNATIVE STREET STANDARDS: THE MINOR STREET

### Minor Street - 17.5 m Right-of-Way (Less Urban)

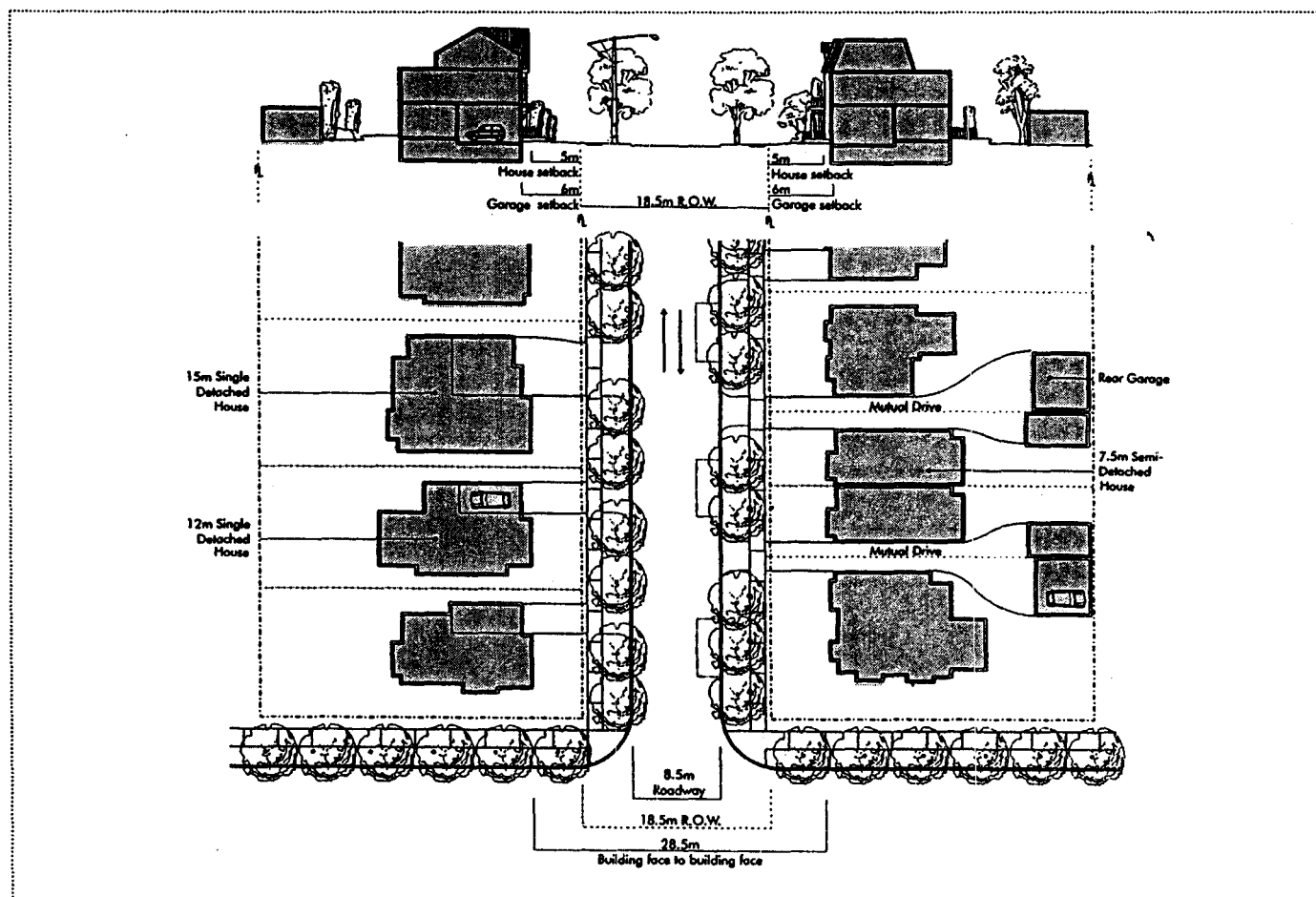


- A small-scale, generally short internal local street serving a local neighbourhood.
- The 8 m pavement can accommodate occasional on-street parking, even with two-way traffic.
- Can work with one or two sidewalks (two are shown here).
- The sidewalks are set back from the curb in accordance with the less urban environment.
- Front-yard setbacks are greater than in the more urban minor street.
- A variety of on-lot parking options are shown on the plan view.
- Detached houses on 13 to 15 m wide lots are shown by way of illustration, but virtually any low-rise housing type would be appropriate, subject to parking requirements being addressed.



FIGURE 3-6 (Source: 'Making Choices' p. 60, 62, Queen's Printer for Ontario, 1995)  
ALTERNATIVE STREET STANDARDS: THE STREET

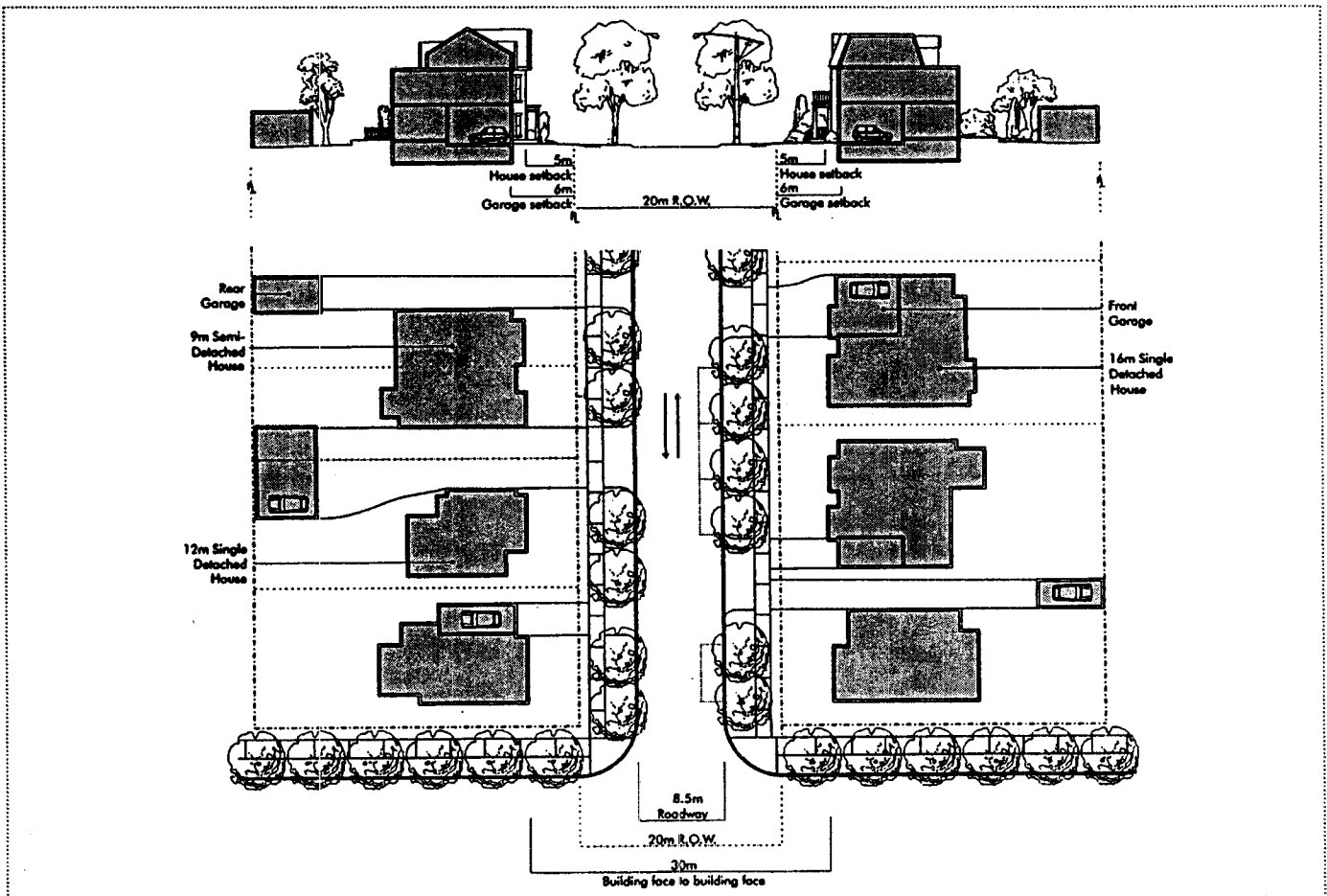
### Street - 18.5 m Right-of-Way (Less Urban)



- A medium-scale, local street that is interlinked to the neighbourhood network.
- The 8.5 m pavement can accommodate 24-hour parking.
- Can work with one or two sidewalks (two are shown here).
- The sidewalks are set back from the curb in accordance with the less urban environment.
- Front-yard setbacks are greater than in the more urban street.
- Detached houses on 12 to 15 m wide lots and semi-detached houses on 7.5 m lots are shown by way of illustration, but virtually any low-rise housing type would be appropriate, subject to parking requirements being addressed.

**FIGURE 3-7** (Source: 'Making Choices' p. 64, 66, Queen's Printer for Ontario, 1995)  
**ALTERNATIVE STREET STANDARDS: THE TRADITIONAL STREET**

**Traditional Street - 20.0 m Right-of-Way (Less Urban)**



- A locally oriented street that may, however, play a more important role than the less urban Minor Street or Street. For example, it could be a perimeter road providing access to streets within the local neighbourhood.
- This is basically a conventional right-of-way width, but with a different character (building setbacks, parking treatment, etc.).
- The 8.5 m pavement can accommodate on-street parking.
- The street can be built with one or two sidewalks (two are shown here).
- Detached houses on 12 to 16 m wide lots and semi-detached houses on 9 m lots are shown by way of illustration, but virtually any low-rise housing type would be appropriate, subject to parking requirements being addressed.

#### *Idea 4: Narrow the residential streets*

##### **Rationale**

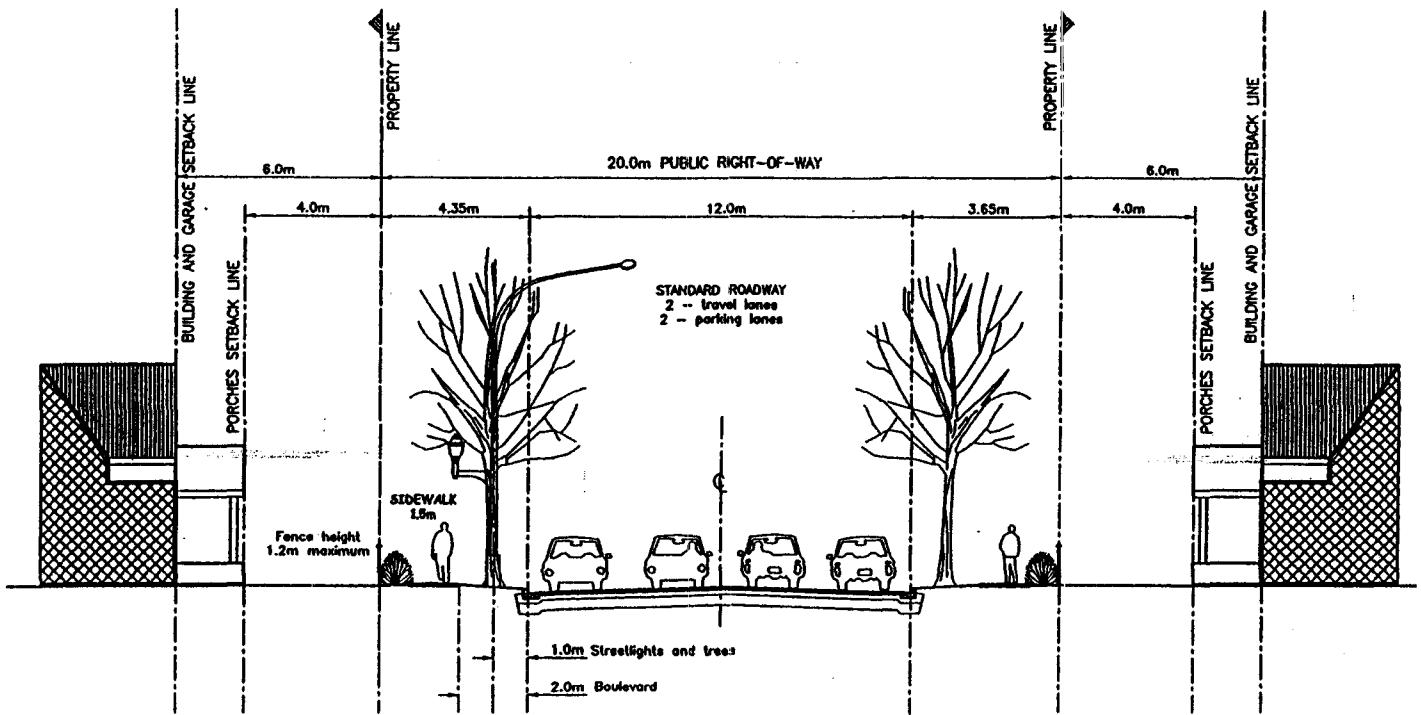
- “There is a growing consensus that streets, particularly local ones, are overdesigned, at substantial cost to society” – so say not the ‘livable cities movement’ or the ‘sustainable development crowd’, but the American Society of Civil Engineers, the National Association of Home Builders and the Urban Land Institute (from ‘Best Development Practices’ p. 69, Reid Ewing, 1996).
- Minor streets carry less traffic volumes at slower speeds.
- Narrower streets require less asphalt and energy to be constructed.
- Narrower streets save on site development costs (more lots per linear distance; street lights required on one side only) and these savings can be passed on to homebuyers and renters.
- Narrower streets help to create a more pedestrian friendly environment, while still accommodating vehicles at slower speeds, and thus making residential streets shared spaces used for many purposes.
- Narrower streets reduce storm water runoff (less impervious surfaces), cut down on traffic noise and are cheaper to build and maintain.
- Less land dedicated to paved street surfaces means more efficient land consumption, and may free up some land for other uses.
- Table 3-1 illustrates the alternative development standards and roadway classifications applied in the community of Cornell, Ontario. Note the differences in the terminology and design standards of the standard roadway classifications in the Official Plan and those in the Secondary Plan.
- Alternative development standards for narrower streets applied in the City of Medicine Hat are shown in Figures 3-8 through 3-12. Note the reduced porch and building setbacks and narrower pavement width in Figure 3-11. Combined with street furniture and architectural design features these road standards could create special streetscapes.
- Most of the examples are for front serving.
- Figure 3-13 shows that streets with pavements as narrow as 5.50 m (18 feet) can accommodate service and emergency vehicles, even with a parking lane on one side. The point is that streets do not have to be designed for the extreme scenarios, but for day to day use, while still innovatively accommodating the extreme possibilities.
- More alternative development standards for lower order ‘narrow streets’ are shown in Table 3-2. These are actual examples from Lake County in Illinois, where local circumstances and factors might be quite different from Red Deer, but nevertheless these examples do indicate that narrower pavement widths are feasible. Also note the drastically reduced design speeds (maximum 40 km/h).

**TABLE 3-1 ROAD CLASSIFICATION**

(Source: 'Official Plan Amendment: Cornell Community', July 1994, Town of Markham, Ontario)

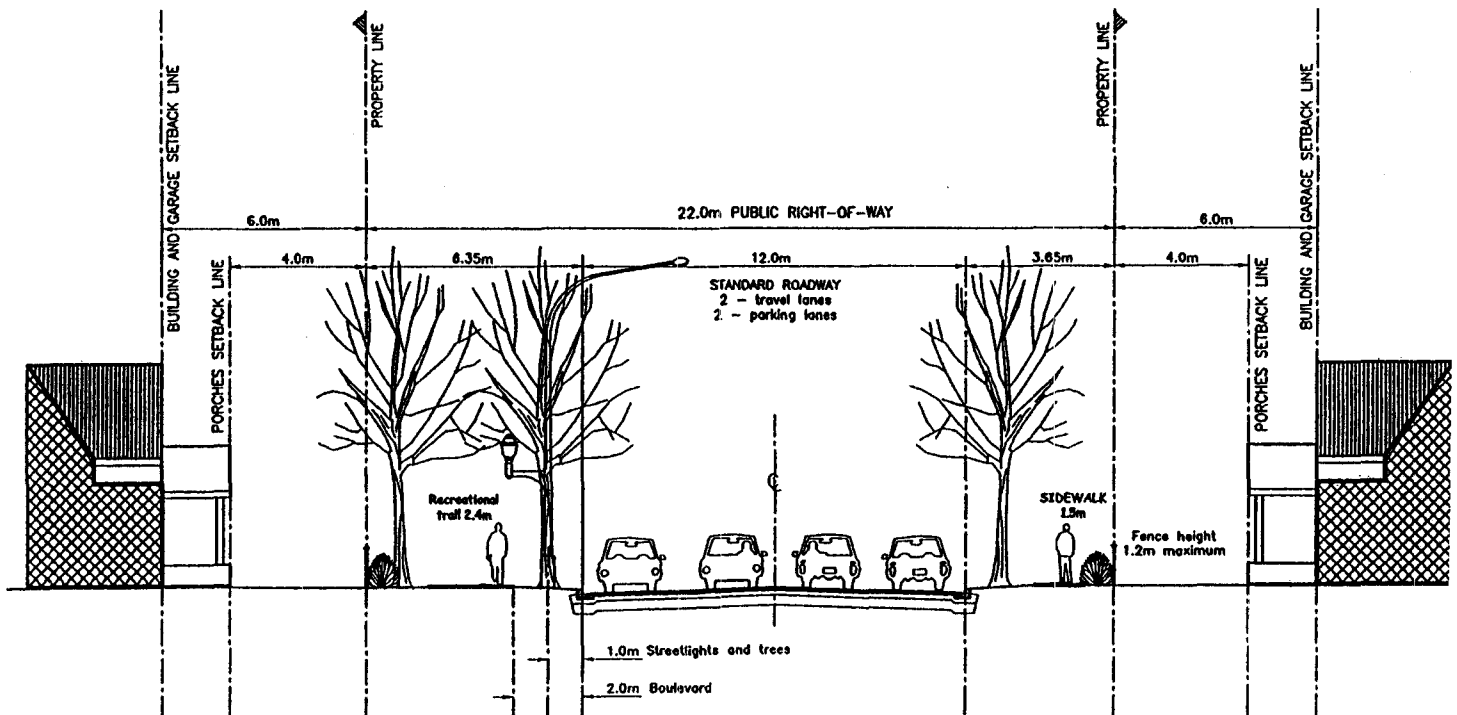
OFFICIAL PLAN		SECONDARY PLAN		
Road Classification	Right-of Way	Possible Road Classification	Possible Right-of-Way To be assessed	Possible Road Function, Design and Access Control Features
Major Arterial Road	36.5-45.7M	Parkway		Applies to a route around the community; provides for 3.75 m lane in each direction which may be separated by a 7.5 m wide median with provision for a left turn lane and no parking permitted
Major Arterial Road	36.5-45.7M	Corridor	40.0-42.0M	Applies to the main road or "spine" in the central corridor which runs through the centre of the community and which will have exclusive bus lanes; provision for a centre median with dedicated transit lanes and on-street parking
Major Collector Road	20.0-26.2M	Boulevard	26.0	Applies to a route through the community, typically between neighbourhoods; may include provision for on-street parking; and two travel lanes in each direction (existing By-pass )
Major Collector Road	20.0-26.2M	Major Entry	22.0-26.0M	Applies to major entry points into the community; two lanes in each direction which can be separated by 4.0 metre wide parking
Minor Collector	20.0-26.0	Main Street	22.0	To run through Neighbourhood Centres as well as other key streets; provides for two wide travel lanes plus on-street parking along both sides of the street; provides up to 12 metres of pavement
Minor Collector Road	20.0-26.2 m	Avenue	22.0	Continuation of main street as it leaves the neighbourhood centres; provides for two travel lanes plus on-street parking along both sides of the street; provides two 6 metre widths of pavement separated by a landscaped boulevard
Local Road	20.0m	Street	18.0m	Provides 11.0 metres of pavement (two lanes) including parking along both sides, low travel speeds permitted
Local Road	20.0m	Minor Street	15.5m	Forms fabric of neighbourhood general designation; 8.5 metre pavement allows for two traveled lanes plus parking along one side of the street
Local Road	Policy needed	Alley	9.0m	Used for access in the central core and central corridor; provides for two lanes in 6 metres of pavement; no parking permitted at any time; intended to provide access for automobile and truck traffic in intensive areas of development
Local Road	Policy needed	Lane	7.2m	Intended to serve the lower density areas such as in the neighbourhood general designation; provides two narrow lanes with pavement width of 5.5 metres with no parking permitted at any time
N/A	N/A	Busway	15.0	Exclusive transit route

**FIGURE 3-8** (Source: 'Burnside Estates Area Structure Plan', 2000, the City of Medicine Hat)  
STANDARD COLLECTOR ROAD



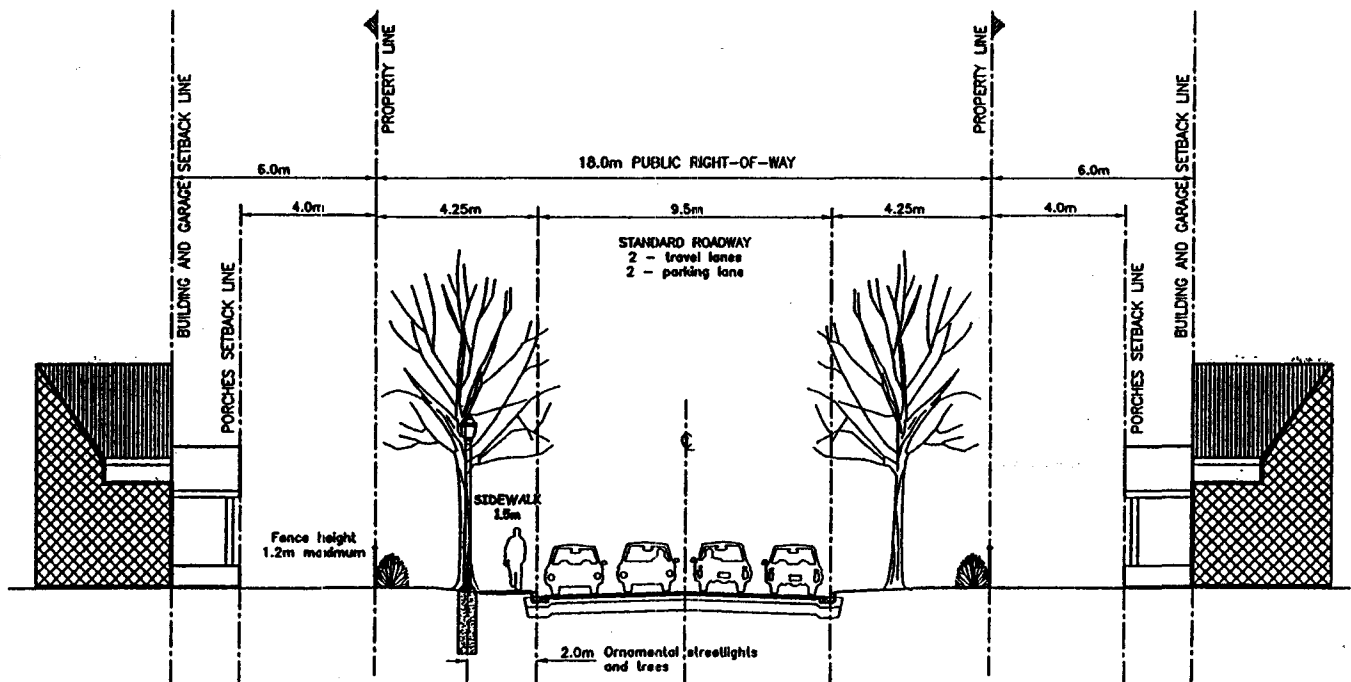
**FIGURE 3-9** (Source: 'Burnside Estates Area Structure Plan', 2000, THE City of Medicine Hat)

COLLECTOR ROAD WITH RECREATIONAL TRAIL



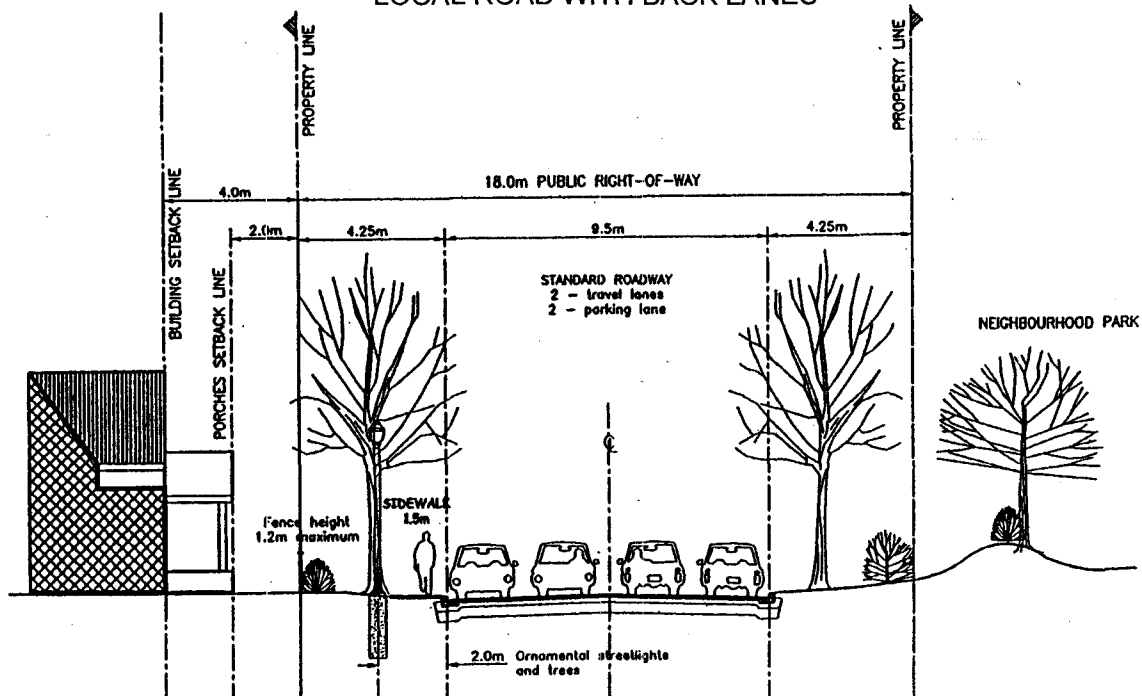
**FIGURE 3-10** (Source: 'Burnside Estates Area Structure Plan', 2000, the City of Medicine Hat)

### STANDARD LOCAL ROAD



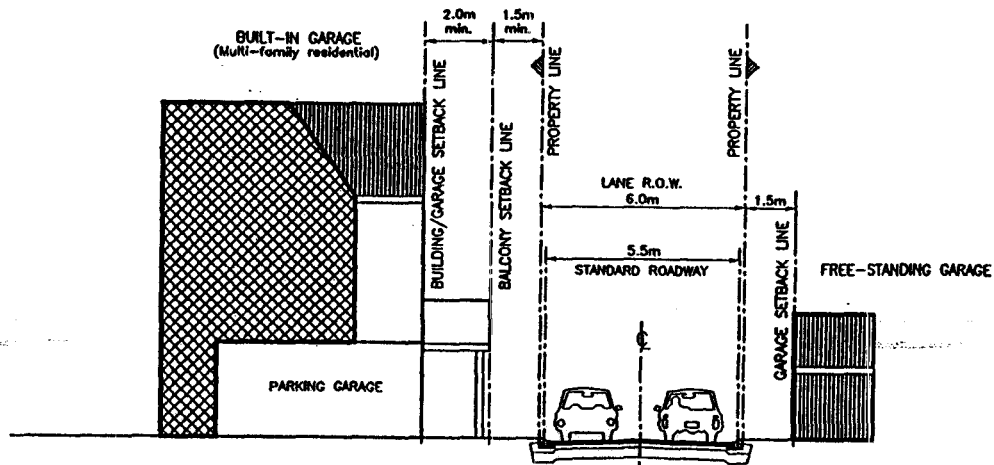
**FIGURE 3-11** (Source: 'Burnside Estates Area Structure Plan', 2000, the City of Medicine Hat)

### LOCAL ROAD WITH BACK LANES

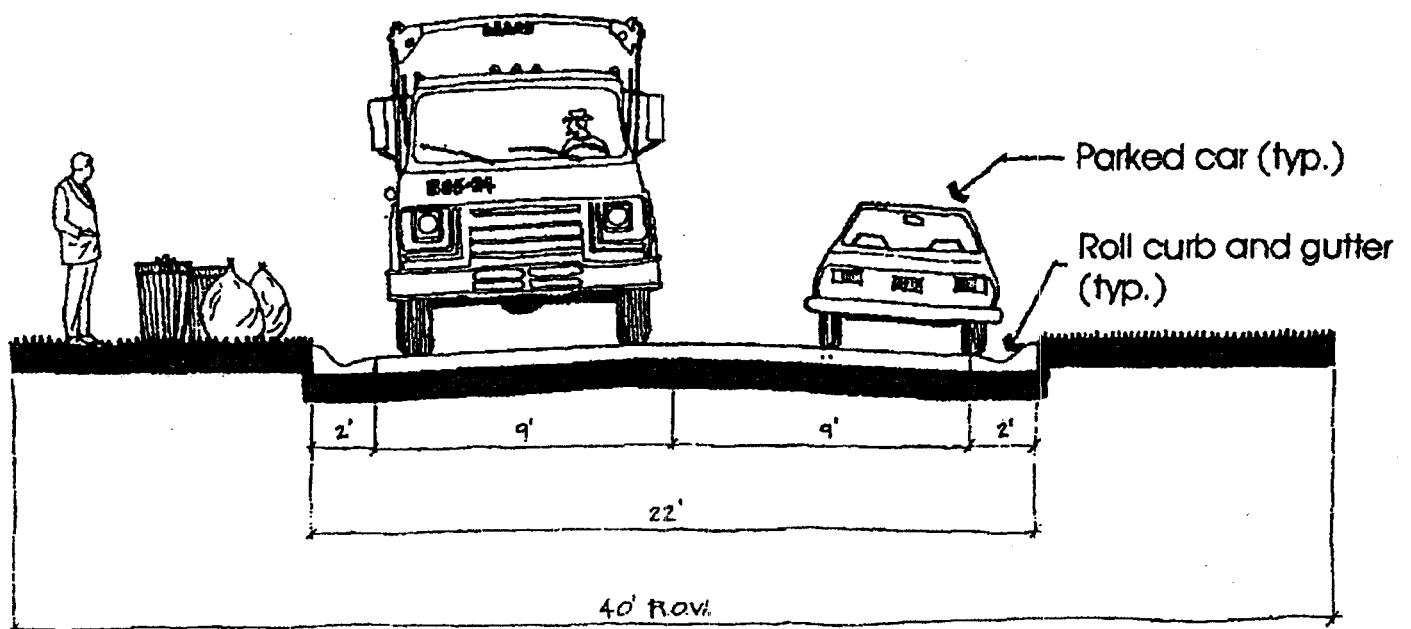


**FIGURE 3-12** (Source: 'Burnside Estates Area Structure Plan', 2000, the City of Medicine Hat)

### BACK LANE



**FIGURE 3-13** (Source: 'Best Development Practices', p. 71, Reid Ewing, 1996)  
18' (5.5 m) WIDE STREET ACCOMMODATING SERVICE AND EMERGENCY VEHICLES





**TABLE 3-2 ALTERNATIVE DEVELOPMENT STANDARDS FOR REVISED STREET HIERARCHY**  
(Source: 'Practices for Sustainable Communities', p. 82, CMHC, 2000)

Variable road right-of-way (row) widths for residential streets					
Street type	Lane	Court	Way	Minor Street	Major Street
# dwelling units	1-10	10 to 15	15 to 30	30 to 115	115 to 160
Design speed	20 km/h (12 mph)	20 km/h (12 mph)	25 km/h (15 mph)	35 km/h (20 mph)	40 km/h (25 mph)
Street frontage of abutting lots					
35 m (115 ft.) or more	12 m (39 ft.) ROW 1 lane 4.3 m (14 ft.) pavement	13.4 m (44 ft.) ROW 1 lane 4.9 m (16 ft.) pavement	13.4 m (44 ft.) ROW 2 lanes 5.2 m (17 ft.) pavement	18.2 m (60 ft.) ROW 2 lanes 5.8 m (19 ft.) pavement	18.2 m (60 ft.) ROW 2 lanes 6.4 m (21 ft.) pavement
27 to 36 m (88 1/2 to 118 ft.)	13.4 m (44 ft.) ROW 2 lanes 4.9 m (16 ft.) pavement	18.2 m (60 ft.) ROW 2 lanes 6.7 m (22 ft.) pavement	18.2 m (60 ft.) ROW 3 lanes 7 m (23 ft.) pavement	18.2 m (60 ft.) ROW 3 lanes 7.6 m (25 ft.) pavement	18.2 m (60 ft.) ROW 3 lanes 8.2 m (27 ft.) pavement
18 to 27 m (59 to 88 1/2 ft.)	18.2 m (60 ft.) ROW 2 lanes 5.5 m (18 ft.) pavement	18.2 m (60 ft.) ROW 2 lanes 7 m (23 ft.) pavement	18.2 m (60 ft.) ROW 3 lanes 7.3 m (24 ft.) pavement	18.2 m (60 ft.) ROW 3 lanes 7.9 m (26 ft.) pavement	18.2 m (60 ft.) ROW 3 lanes 8.5 m (28 ft.) pavement
less than 18 m (59 ft.)	18.2 m (60 ft.) ROW 3 lanes 8 m (26 ft.) pavement	18.2 m (60 ft.) ROW 3 lanes 9.4 m (31 ft.) pavement	18.2 m (60 ft.) ROW 4 lanes 9.7 m (32 ft.) pavement	18.2 m (60 ft.) ROW 4 lanes 10.4 m (34 ft.) pavement	18.2 m (60 ft.) ROW 4 lanes 10.9 m (36 ft.) pavement
No lots with direct access	18.2 m (60 ft.) ROW 2 lanes 4.9 m (16 ft.) pavement (5.5 m—6.4 m—at intersections with higher order streets)	18.2 m (60 ft.) ROW 2 lanes 5.5 m pavement (6.4 m—21 ft.—at intersections with higher order streets)	18.2 m (60 ft.) ROW 2 lanes 5.8 m (19 ft.) pavement (6.7 m—22 ft.—at intersections with higher order streets)	18.2 m (60 ft.) ROW 2 lanes 6.1 m (20 ft.) pavement (7.3 m—24 ft.—at intersections with higher order streets)	18.2 m (60 ft.) ROW 2 lanes 6.4 m (21 ft.) pavement (7.3 m—24 ft.—at intersections with higher order streets)
*Based on a Model (Performance Zoning) Ordinance developed for Lake County, Illinois by Lane Kendig, et al., American Planning Association, 1980.					

### City of Red Deer Comparison

- The City's 'Design Guidelines 2001' states the following street widths for the various residential streets (see Table 3-3). Comparable standards given in the table are from Cornell (1) and Medicine Hat (2).

**TABLE 3-3 RESIDENTIAL STREET STANDARDS**  
(Source: 'Design Guidelines 2001' – the City of Red Deer)

TYPE	R.O.W. WIDTH	ROADWAY (curb face)	TRAVEL LANES	PARKING LANES	TREES
Lane (paved or gravel)	7 m (1) 7.2 m (2) 6 m	6.60 m (1) 5.50 m (2) 5.50 m	One in both directions	None	None
Undivided local	15 m (1) 18 m (2) 18 m	10 m (1) 11 m (2) 9.5 m	One in both directions	Both sides	None (1) n.a. (2) Boulevards
Divided local	22 m	12 m	One in both directions	Both sides	Median
Divided local	25 m	12 m	One in both directions	Both sides	Boulevards
Undivided local (multifamily)	16 m	11 m	One in both directions	Both sides	None
Undivided collector (standard)	20 m (1) 22 m (2) 20 m	12 m (1) 12 m (2) 12 m	One in both directions	Both sides	Boulevards (1) Median and boulevards (2) Boulevards
Undivided collector (separate sidewalk)	24 m	12 m	One in both directions	Both sides	Boulevards
Divided collector	28 m	15 m	Two in both directions	None	Median and boulevards
Divided collector	26 m (1) 22 m	15 m (1) 12 m	Two in both directions (1) One in both directions	None Both sides	Boulevards (1) Boulevards
Divided collector (separate sidewalk)	33 m	15 m	Two in both directions	None	Median and boulevards
Divided collector (separate sidewalk)	31 m	15 m	Two in both directions	None	Boulevards

- The City's standards for lanes, local streets and collector streets appear to be comparable with the examples of similar streets in the 'sustainable communities' of Cornell and Medicine Hat. The standards also appear very similar to those of comparable street types in some of the conceptual renderings cited in this section.
- Comparing the City's standards to the 'sustainable community practices' it appears that in the local context, the idea of 'narrower' local streets would not necessarily mean reduced right-of-way widths, but rather narrower pavement widths and perhaps wider sidewalks. The City's collector rights-of-way are in some cases wider than those applied in 'sustainable community' examples, and this may be an area where the City could investigate the options available.
- As was stated in the discussion of Idea 3, the most notable difference is that Red Deer's street hierarchy extends down to the standard local street, whereas the 'innovative and sustainable' standards include standards for street types one, two or even three levels lower than the standard local street, e.g. the minor street and alley in Cornell (see Table 3-1) and the mews, ways, courts etc. in other examples.

### ***Implications***

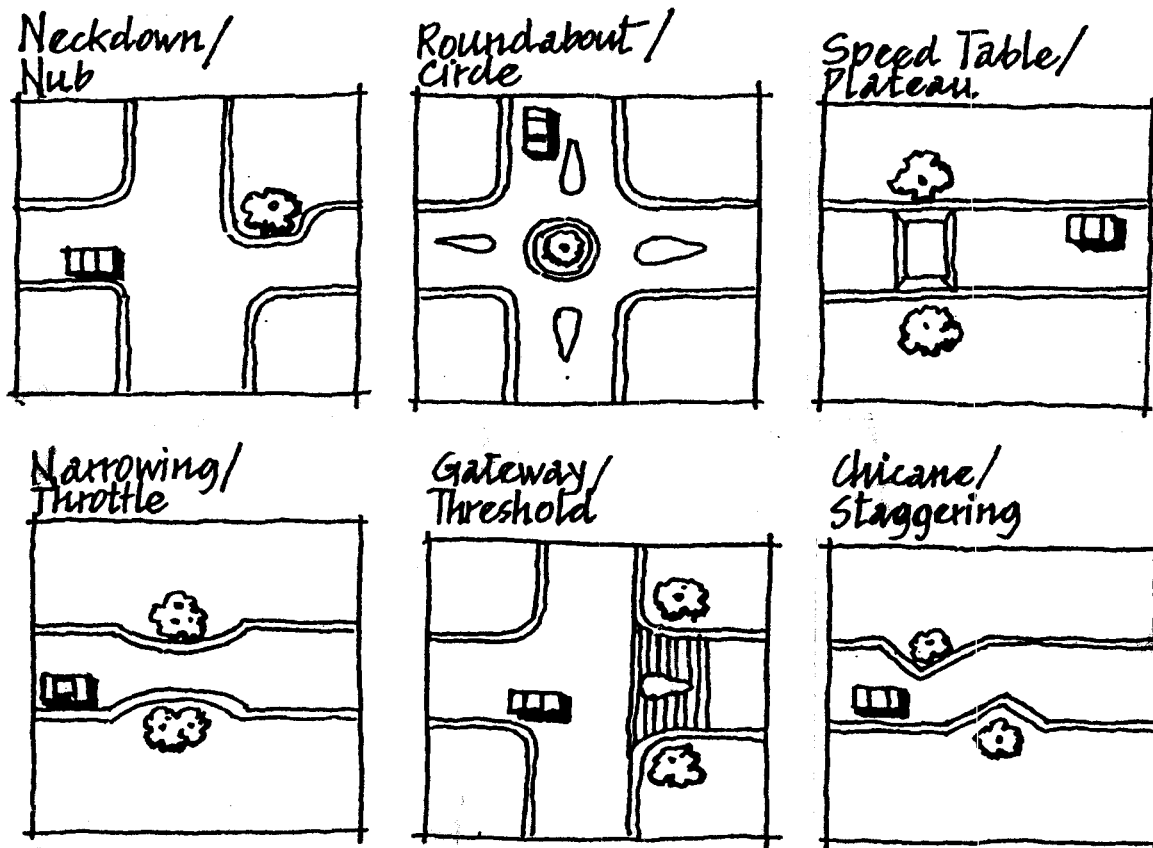
- When considering narrower streets as an alternative development standard, adequate access for emergency vehicles, traffic volume, provision for and extent of on-street parking and the design philosophy of the street function are aspects that need to be considered.
- There may be liability for accidents on City streets that do not conform to the minimum provincial guidelines ('New Urbanism: Comprehensive Report and Best Practices Guide' p. 8-8, New Urban News, 2001).
- The implications of narrower collector streets/bus routes on snow clearing practices need to be investigated (local streets are not implicated as the City does not regularly plow or clear snow on these streets).
- There may be a limitation on the extent to which a higher degree of connectivity can be facilitated onto arterial roadways, as provincial funding for arterials is granted only to projects that conform to provincial standards (e.g. minimum intersection spacing, minimum width, etc.).

### ***Idea 5: Employ traffic calming measures***

#### ***Rationale***

- Slower neighbourhood traffic in conjunction with well-designed sidewalks makes pedestrians and cyclist feel safer.
- The liveability of streets decline as the volume and speed of traffic increase. Residents are more likely to walk, bike and play along streets with low to moderate volumes and speeds of traffic.
- Traffic calming is accomplished through measures that control the volume of traffic, the speed of traffic or both.
- Traffic calming measures must be employed as part of a comprehensive strategy to visually and psychologically remind drivers to slow down, or else the measures taken may create driving hazards.
- Examples of predominantly traffic volume control measures include street closures, restrictive one-way street patterns, diverters at intersections, and turn restrictions.
- Dominant speed control measures include speed humps/speed tables, short streets, small setbacks, street trees, textured pavement, traffic circles, sharp bends and chicanes (S-curves), and narrowings at mid-block or at intersections. Figure 3-14 illustrates some of these devices.

FIGURE 3-14 (Source: 'Best Development Practices,' p. 63, Reid Ewing, 1996)  
SPEED CONTROL DEVICES



- Speed control as a concept is preferred to volume control, as the latter often results in the overloading of other through-streets, which adds long detours to access trips.
- Speed control traffic calming measures must be designed into a community rather than having to retrofit.
- Other devices or roadway design standards that influence traffic speeds in a wide range of applications (and tend to keep through traffic off the local streets) include:
  - Reduced building setbacks
  - Reduced curb radii at intersections
  - Reduce or eliminate daylight (visibility) triangles at intersections
  - Plant trees closer to the curb
  - Allow more on-street parking
  - Include centre boulevards
  - Design intersections with tight, right-angled corners
  - Make short street blocks
  - Use raised pedestrian crossings

### ***City of Red Deer Comparison***

- The City's 'Design Guidelines 2001' states on p. 5 of Section 2 that curvilinear street designs are used effectively to integrate the street infrastructure with the existing topography and other subdivision features to promote slower traffic speeds, and enhance aesthetics.
- If narrower streets are not pursued as a sustainable development practice to slow down residential traffic, consideration should be given to accommodating some of the traffic calming devices into street design standards.

### ***Idea 6: Provide more lots with exclusive rear lane access***

#### ***Rationale***

- Front attached garages create multiple curb cuts which make sidewalks less safe, restrict space available for on-street parking and tree planting and have cost implications for snow plowing along collector streets.
- Garages in the rear yard means that the lot frontage as well as building setbacks in the front yard can be reduced, which helps achieve compact development.
- With house elevations sporting front porches, house entrances and gardens rather than being dominated by garages, driveways and cars, it is possible to employ a high-quality, lively and more secure streetscape, thereby returning the street function to that of a multi-purpose, community oriented element.
- The layout of a house can be improved if the front of the house is available for living areas (rather than garage space) and more and larger windows.
- Providing more (and narrower) lots served by rear lanes can mean significant land savings as well as less capital cost per housing unit of roads, pavement, street lights and engineering services.
- Locating utilities in the lane means street right-of-way widths can be reduced.
- Rear laned subdivisions require the consideration of design aspects such as security and safety (allowing for views from adjacent houses), level of service expected by residents (e.g. snow removal, paving, lighting, etc) and facilitating service vehicle access (e.g. no dead end lanes or requiring turning circles).

### ***Neighbourhood Parking Considerations*** (adapted from 'Smart Growth: Creating Communities for People' p. 96 to 105, A. Semandel & M. R. Kinde, 2000, and 'Making Choices' p. 19 -20, Queen's Printer for Ontario, 1995)

- The appearance of lot frontages has a direct impact on the quality of the streetscape – front yard on-site parking should not take up more than half of the front yard of a narrow lot to avoid a monotonous, unattractive environment without a social function that becomes merely an accessway for cars and utilities.
  - Lot frontage minimum 10 m to accommodate two cars side-by-side.
  - Lots with frontages less than 10 m should have a single-car front-accessed or rear garage, with a second parking space on the driveway or the street.
  - A rear yard two-car parking pad, accessed either from a rear lane or a private or shared front driveway.
- On-street parking avoids duplication of paved surfaces and the need for driveways, and reduces overall land consumption and infrastructure costs.
- An 8.5 m pavement width is considered the minimum required in snowfall areas to accommodate one 2.5 m lane of parking with two 3 m travel lanes without impeding traffic function or safety. Snow plowing can be accommodated by a system of alternating parking between the two sides of the street.
- On-street parking sends a signal to drivers to slow down and provides a barrier between pedestrians and street traffic.

- On-street parking for visitors is generally allowed, and negates the need for every house and even small apartments to provide dedicated on-site visitor parking. This sensible approach means that parking is not overdesigned for peak demand.
- Overnight on-street parking for residents is a departure from the norm, but may be appropriate in certain circumstances.
- Shared parking arrangements
  - In neighbourhoods the duplication of parking is common - churches, schools, supermarkets, clinics and residences all provide parking, which lies idle for much of the time.
  - Different land uses experience their peak parking demand at different times of the day and days of the week. Adjacent land uses should be encouraged to share parking facilities.
  - These sharing arrangements reduce the amount of land devoted solely to parking thus increasing land consumption efficiency and helping to contain the amount of impervious land cover.
- On-site parking at multi-family buildings in neighbourhoods should be concealed from the street view at the interior or the rear of the property, underground or half-level below ground.
- Surface parking should have screening measures for car or garage interior lighting from public or neighbour view.

**FIGURE 3-15** (Source: 'Smart Growth: Creating Communities for People', p. 97)  
NEIGHBOURHOOD PARKING STANDARDS

<i>Recommended Minimum and Maximum Parking Ratios</i>		
	<i>Minimum Required</i>	<i>Maximum Allowed</i>
General Residential	2.0/du	
Multi-Family/ Urban Residential	1.2/Studio du 1.5/1 Bedroom du 1.8/2 Bedroom du 2.0/3+ Bedroom du	
Professional Office	3.5/1000 sq. ft.	4.5/1000 sq. ft.
Neighborhood Business	4.0/1000 sq. ft.	5.0/1000 sq. ft.
Commercial Office	3.5/1000 sq. ft.	4.5/1000 sq. ft.
Community Business	4.0/1000 sq. ft.	5.0/1000 sq. ft.
City Center (Residential)	1.0/du*	
City Center (General)	2.0/1000 sq. ft.	3.5/1000 sq. ft.
Business Park/Industrial	2.0/1000 sq. ft.	3.0/1000 sq. ft.
<i>du = dwelling unit</i>		
<i>* Plus 1 guest space per unit for projects with 6 units or more</i>		
<i>- Municipal Research and Services Center of Washington, 1995</i>		

### ***City of Red Deer Comparison***

- All subdivisions in the City are predominantly serviced by rear lane access and utility placement, and this principle is promoted by the 'Planning & Subdivision Guidelines' and the 'Design Guidelines 2001'.
- The City's policies allow that houses with rear lane access only be built on narrow lots.
- The success of an idea such as to provide more houses without front driveways is mainly market-driven and developers will build what the consumer wants (and rightly so).
- Options to consider for reducing the impact of multiple driveway curb cuts on snow plowing and pedestrian safety include:
  - Introduce a maximum driveway width or require shared driveways along collector streets.
  - Designate areas with exclusive rear yard vehicle access, such as along designated pathways and collector streets.
- The City's minimum neighbourhood parking standards compare favourably with recommended standards. Note that Figure 3-15 suggests that maximum parking standards be set in conjunction with minimum standards, to avoid the over-supply of parking.
- The 'Planning & Subdivision Guidelines' could require that developers locate church sites adjacent to or in close proximity of schools or local shopping centres, so that the parking areas can be shared.

### **3.3 Pathways**

A 'sustainable neighbourhood' in which residents are less dependant on automobiles for many of the regular short trips, would not only have an interconnected system of streets, but also would integrate and link these 'vehicular' connections with its system of sidewalks and pathways, providing relatively direct routes with multiple options, extending across and into adjacent neighbourhoods. Provision for pathways should be an integral part of neighbourhood planning and design at the early stages.

Reducing dependence on the automobile will necessitate long-term modifications to urban development patterns and people's travel behaviour as well as significant shifts in public policies and private development patterns. But the obvious starting point is to provide an expanded range of opportunities and incentives that encourages residents to choose alternative means of travel, even if it is only at the neighbourhood level to start with. This approach would include firstly making alternatives physically available where feasibly and secondly shaping development to make the alternatives available to more people.

Walkable (and bikable) communities display the following features:

- Sidewalks or pathways that link residences to common destinations such as schools and parks, the community centre, public transit stops, churches, other residential areas in the neighbourhood or adjacent neighbourhoods, and even shopping and employment locations.
- Clustering several often-used destinations at one focal point in the community.
- Attractive, convenient and safe pathways.
- Shortening overall walking distances by increasing the overall density of development and ensuring interconnectivity.



***Idea 7: Provide continuous, interconnected and direct pathways within and across neighbourhoods to key destinations***

***Rationale***

- More so than motorists, pedestrians and bicyclists are sensitive to the length of trips and the environment in which they travel.
- The system of streets, walkways and paths must provide relatively direct routes with multiple route options to the same destination.
- The old fashioned grid street system offered minor, continuous and interconnected streets for pedestrian traffic parallel to the higher order roads. In the contemporary curvilinear, branching street network this feature was lost. Attempts to rectify this resulted in completely separate pathways cutting across common property away from indirect street alignments. This soon proved to be ineffective as the pedestrian traffic generated from low density suburbs was too low to ensure personal safety on these pathways.
- The solution is to compensate with good street network design – it is possible to have interconnected streets without the negative features of a grid pattern.
- This objective should be pursued in the early planning stages by providing for a direct pathway system or a system of 'greenways' through neighbourhoods toward key places, such as transit stops at a local shopping centre or a community hall, and including linkages to major parks and trails.
- Within a neighbourhood the greenway system can consist of a series of elements such as paved sidewalks, paved or gravel pathways across mid-block shortcuts and dedicated pathways within a linear park (with due consideration for personal safety).
- The term 'greenway' encompasses the idea of a travel corridor across a community which includes dedicated paths for various modes of movement as alternatives to the automobile. It need not be a natural area along its entire length; parts of it can be purposely designed to provide a continuous connection within and between neighbourhoods and key destinations. A greenway can be part of a storm water management facility or a linear park.
- The new community of East Clayton in the City of Surrey, BC employs the concept of a 'dedicated greenway' separate from the street system (see Figures 3-16 through 3-18). This design feature is a minimum 40 m wide travel corridor parallel to major arterial roadways but within its own, separate right-of-way within which gravel or paved pathways and landscaped as well as natural areas provide a direct, continuous route for pedestrians, cyclist and other forms of non-motorized travel between residential areas and the city centre. It is supplemented by ancillary, on-street greenways which include minor routes such as a separate sidewalk along a major collector street and a pathway within an arterial roadway right-of-way to provide linkages throughout the community. Within these 'on-street greenways' the street elements and design standards are aimed at making cycling and walking among vehicular traffic as safe as possible.
- The concept of 'greenways' or 'purposely designed linear parks' is further illustrated in Figures 3-19 and 3-20.

Figure 3-16 (Source: 'East Clayton Neighbourhood Concept Plan', the City of Surrey, 2000)

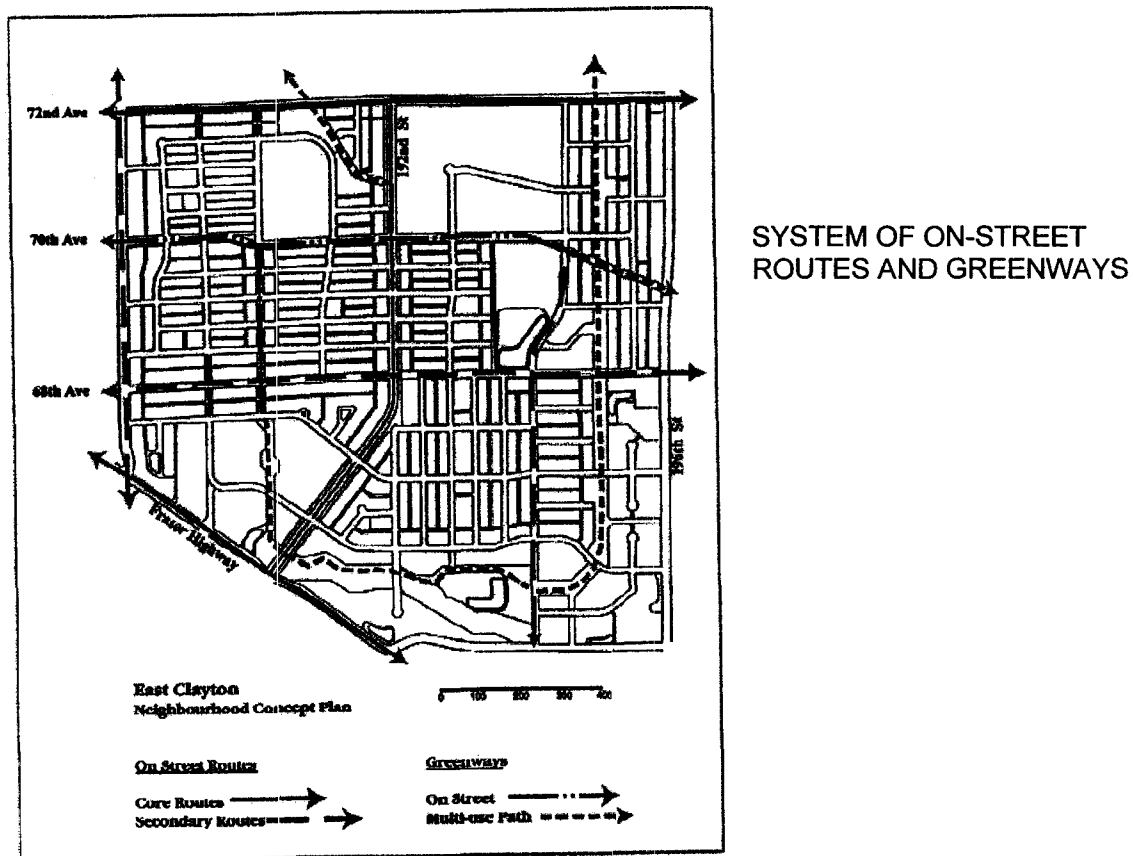
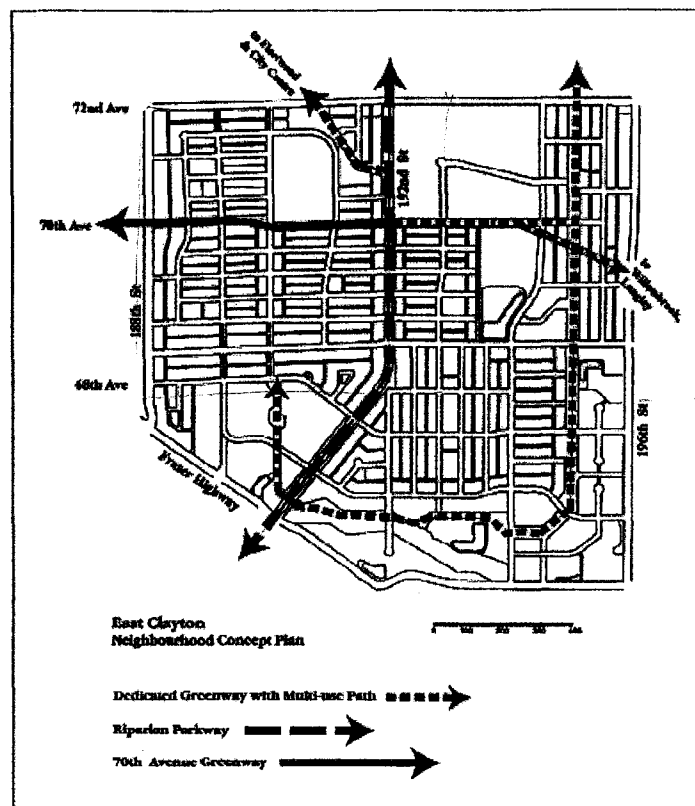


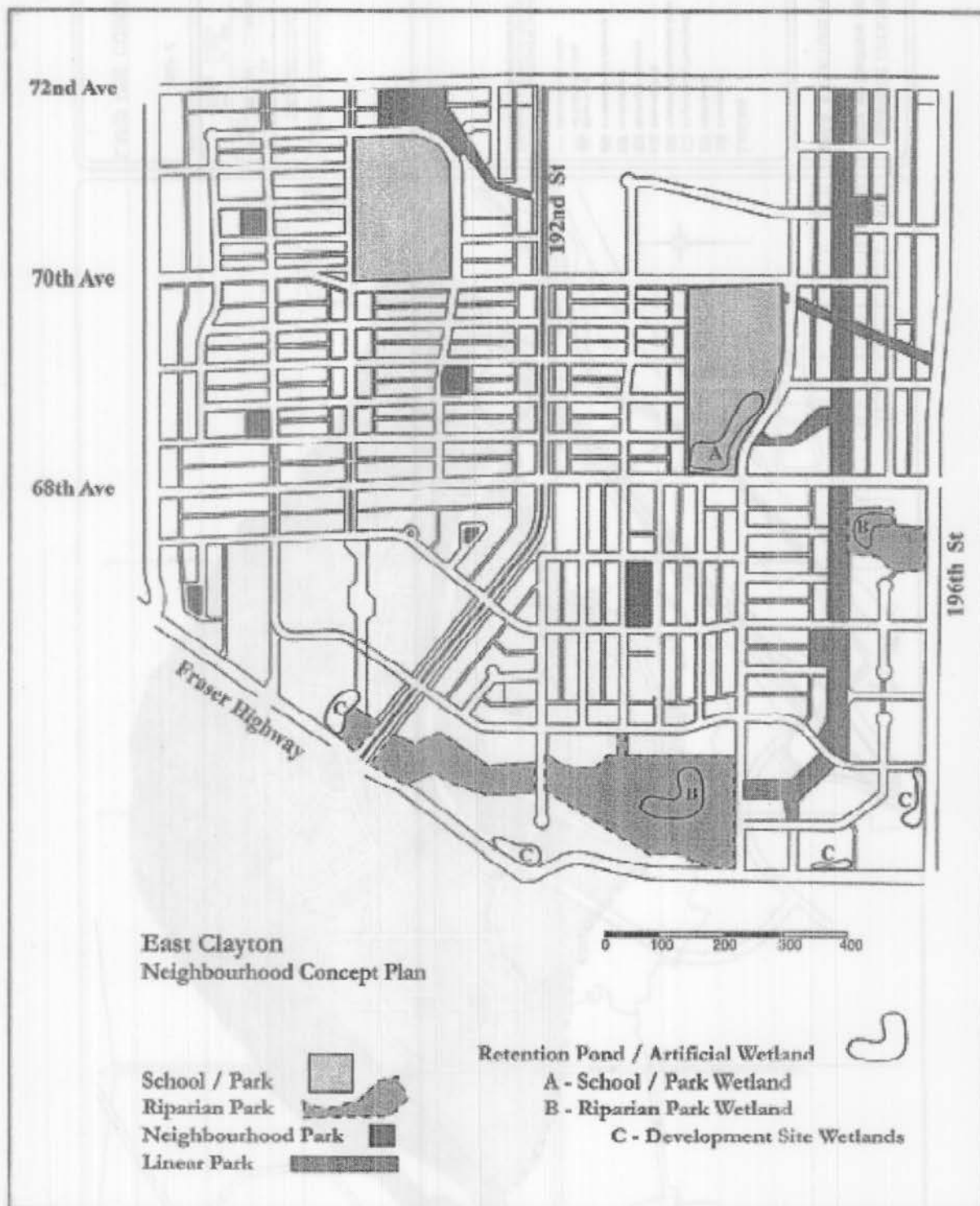
FIGURE 3-17  
(Source: 'East Clayton Neighbourhood Concept Plan', the City of Surrey, 2000)

#### DEDICATED GREENWAY AND RIPARIAN PARKWAY



**FIGURE 3-18** (Source: 'East Clayton Neighbourhood Concept Plan', the City of Surrey, 2000)

**LINEAR PARK SYSTEM, East Clayton**



**FIGURE 3-19** (Source: 'Burnside Estates Area Structure Plan', 2000, City of Medicine Hat)  
**LINEAR PARK SYSTEM, Burnside Estates**



**FIGURE 3-20** (Source: 'Red Willow Area Structure Plan', City of St. Albert, 2001)  
 LINEAR PARK SYSTEM, Red Willow Community

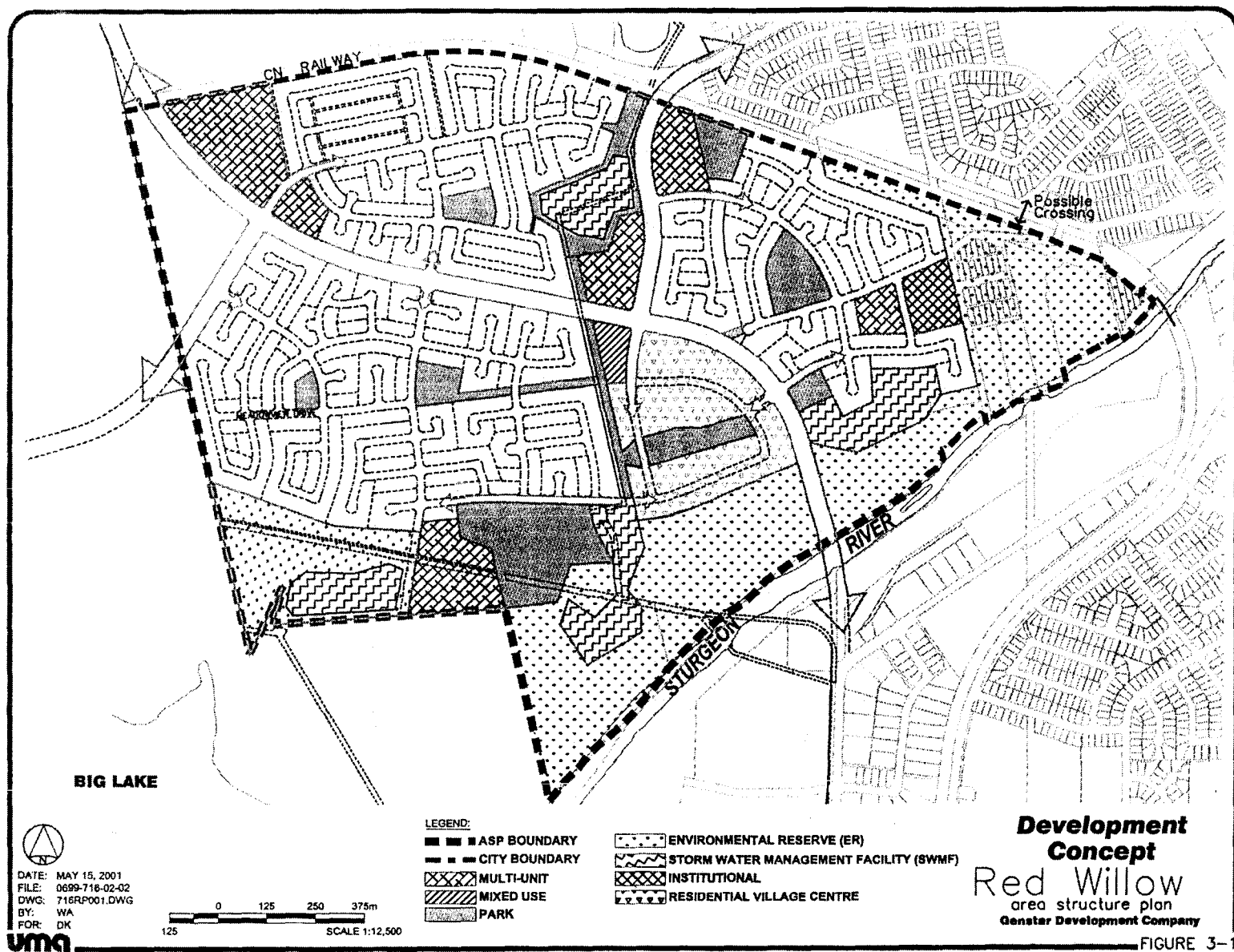


FIGURE 3-1

### **City of Red Deer Comparison**

- The City's policies in various documents facilitate the provision of sidewalks and pathways (e.g. the 'Bicycle Master Plan Update, 2000', the 'Municipal Development Plan', the 'Community Services Master Plan', etc) to develop a continuous network with linkages to the City-wide Waskasoo Park trail system. The positive effect of these policies is reflected in planning documents such as the 'North West' and 'East Hill' Major Area Structure Plans, where the provision of continuous pathway or trail systems provide a framework for the planning of neighbourhood subdivisions.
- The provision of more linear parks that facilitate the development of 'greenways' through neighbourhoods may be a worthwhile pursuit to create more direct routes.
- The policies contained in the 'Bicycle Master Plan Update, 2000' should be actively pursued.

***Idea 8: The pathway system for pedestrians and cyclists should be as good as the street system for motorists***

### **Rationale**

- Neighbourhood residents may walk or cycle for fun within their individual subdivisions, or they may walk for other purposes in activity centres reached by car. But few would think of using walking or biking to commute from home to work or shopping, and not many like to see young children venture outside their immediate subdivisions on foot or bike – the destinations are just too far away and the facilities that link activity centres are just too spotty.
- People should have the choice to use non-motorized travel modes. This means that these options should be physically available. It also implies that where these facilities are available, people choosing to travel by non-motorized means, for leisure or utilitarian trips, should be given an even break with cars. Where feasible a pathway system separate from the street system should be provided. Where this is not feasible and pathways are required to share space with street rights-of-way, due consideration should be given to employing design standards that make non-motorized travel options as convenient as that of the automobile.

***Standards to give pedestrians and cyclists and even break with cars*** (adapted from 'Smart Growth: Creating Communities for People' p. 78 - 92, A. Semandel & M. R. Kinde, 2000)

- Neighbourhood sidewalks:  
*General*
  - Multiple pedestrian/bicycle entries along the perimeter of a community (e.g. an arterial roadway) and bicycle passageways or connectors at cul-de-sac ends, in loop roads and along long blocks (more than 250 m) must be provided. The effect is to reduce the distance of out-of-direction travel with the purpose of reducing the physical and psychological barriers to walking and cycling.
  - Rear lanes should not be used as part of the pathway system.
  - The street system internal to a community must not divide the neighbourhood or form barriers to pedestrians and cyclists between residential areas and the community centre or neighbourhood nodes.
  - Driveways can interfere with pedestrian circulation and interrupt continuity of the streetscape. This can be improved by limiting the number of driveways (consolidation) or restricting driveway widths. Best option in heavily pedestrian areas, such as major collector streets, is to direct vehicle access to rear lanes or side streets.
  - A planting strip, a shoulder barrier, a parking lane or an on-street bicycle lane could be used to buffer sidewalks from traffic lanes at 70 km/hr or above.

#### *Location*

- Sidewalks are an absolute necessity on all through-streets serving developed areas (arterials and collectors).
- Sidewalks are less essential on quiet residential streets, where people may be quite safe to walk and bike along the street pavement. Yet the cost of providing residential sidewalks is not so great and the benefits are considerable – the public realm is extended beyond the street pavement, enhancing the perception of neighbourliness.
- In order to encourage people to walk at least one sidewalk should be provided on all residential streets. Sidewalks on both sides of the street are required where densities are higher and activity increases (e.g. along transit routes or along a street that links activity nodes) and where vehicle traffic volumes are high. Only in a short cul-de-sac is a sidewalk not necessary on either side.

#### *Width*

- Wide enough for comfortable, unobstructed walking, depending on the type of neighbourhood and the desired level of activity.
- A 4' (1.2 m) wide sidewalk is sufficient for pedestrians to pass each other in opposite directions – but not wide enough for two pedestrians travelling side-by-side in one direction. For this purpose a 5' to 6' (1.5 m to 1.8 m) wide sidewalk at a minimum is more effective, also allowing for wheelchairs, strollers and in-line skates.

#### • Crosswalks

##### *General*

- A successful pedestrian and cycle network requires frequent, safe and convenient crossing opportunities. An interconnected street system is ideal for this purpose, such as the street system in a typical downtown.
- The length of crosswalks must be shortened by using narrower vehicle travel lanes, reduced curb radii, adding raised centre medians in wide streets (four or more lanes), eliminating single-use right turn lanes and extending sidewalks into the street or intersection.

##### *Location*

- At intersections. Crosswalks at intersections are extensions of the sidewalks that exist on or along the street network.
- In the suburban residential areas the intersection spacing is longer and most pedestrians will not walk all the way to the next intersection to cross the street. In long streets therefore mid-block crosswalks should be provided.
- In corridors with scattered, low density developments it is more difficult to predict where crossings will occur.
- Grade-separated crossings – where traffic conditions are such that pedestrians perceive the added effort of using grade-separated crossings to be worth it, they could be installed.

##### *Treatment*

- At uncontrolled intersections with low traffic volumes the crosswalk is an implicit extension of the sidewalk and no special treatment is necessary. At busy intersections marked crosswalks are a requirement – raised crosswalks, painted stripes, textured or coloured pavement can distinguish them from the street. Curb ramps for all sorts of wheels are important – 4' (1.2 m) wide in areas that require snow removal equipment.
- Proper illumination especially at mid-block crosswalks can significantly improve the level of night time safety.
- Crosswalk signals depend on activity levels and crosswalk location.



- **Bikeways**
  - The mobility of bicyclists depends on an extensive network of safe and efficient routes. A well-connected system of streets can serve this purpose as long as the roads are designed to accommodate bicycle travel and are in a good condition.
  - A variety of bicycle routes exist, each with its own benefits and disadvantages, and unique application and design standards. The types of bike routes include separate bicycle pathways, dedicated on-street bicycle lanes (5 feet wide), wide curb lanes shared with cars (14 feet wide) and shoulder bikeways on rural highways.
- **Multi-use trails** - used by pedestrians, cyclists, joggers and skaters, and sometimes by cross-country skiers, snowmobilers, horseback riders, mountain bicyclists and skateboarders.

#### *Location*

- Not appropriate along urban and suburban streets, especially the busy ones. The frequent at-grade crossings and driveways make these trails more dangerous than on-road bike lanes or wide-curb lanes.
- Multi-use trails belong along a river, a rural highway or a dedicated greenway.

#### *Width*

- Depends on the expected number and types of users. Pedestrian-only pathways typically follow the standards for sidewalks and walkways. Multi-use pathways must accommodate faster-moving bicyclists, joggers, skaters and other users. Under certain conditions it may be appropriate to provide separate, parallel hard and soft surfaced paths for different types of users.

### ***City of Red Deer Comparison***

- The City is consciously striving to provide well-designed, efficient and convenient sidewalks and pathways. This is reflected in documents such as the 'Bicycle Master Plan Update, 2000', the 'Municipal Development Plan', the 'Community Services Master Plan', area structure plans and the 'Design Guidelines 2001'.
- The design standards for sidewalks and pathways contained and promoted in these documents seem quite appropriate when compared with the standards that are promoted as 'sustainable community practices' (e.g. sidewalk width).
- Opportunities should be pursued to make the sidewalks and pathways more direct and interconnected through the provision of more shortcuts and passageways where curvilinear streets and cul-de-sacs predominate.
- Where pathway shortcuts exist care should be taken not to disrupt the continuity of the system by leasing land to adjacent landowners.
- There is an opportunity to investigate the potential cost savings of requiring sidewalks on both sides of all arterial and collector streets, and wider sidewalks on one side of all streets where higher density housing occurs and along all transit routes, in lieu of providing standard sidewalks in low density streets and cul-de-sacs.

### 3.4 Transit

Transit operations have not proven very successful in new communities around the United States, as is evident from the examples in Figure 3-21, even when their densities support transit service. The reason is that the suburban context of these communities is not conducive to transit use. Rather than endorsing some particular transit service option or requiring for some form of developer subsidy, the solution is to design new communities to support transit service when agencies are ready to provide it. 'If this option seems unlikely to be realized in the long term, it would be better not to approve a large scale development that is not designed to support transit use' ('Best Development Practices', p. 81, Reid Ewing, 1996).

**Figure 3-21** (Source: 'Best Development Practices', p. 81, Reid Ewing, 1996)

#### MODE OF TRAVEL TO WORK IN NEW COMMUNITIES IN THE UNITED STATES

	Carpool	Transit
Columbia, Md.	12%	3%
Coral Springs, Fla.	12	<1
First Colony, Tx.	10	1
Foster City, Calif.	10	4
Miami Lakes, Fla.	9	1
Mission Viejo, Calif.	11	<1
Peachtree City, Ga.	10	<1
Rancho Santa Margarita, Calif.	13	<1
Reston, Va.	13	6
St. Charles, Md.	23	<1
The Woodlands, Tx.	12	4

Source: Journey-to-work data from Summary Tape File 3A, 1990 U.S. Census of Population and Housing.

*Avoid those 'burn-a-quarter-of-gas-to-buy-a-quarter-of-milk' drives*

Many Transit Oriented Development (TOD) manuals are available across North America. Generalizing these manuals, they all agree that the following elements of neighbourhood design are critical to support transit use:

- At a minimum, medium densities are required.
- A mixture of residential, commercial and institutional uses is preferable to any single use alone.
- Grid-like street networks are superior to discontinuous, curvilinear networks.
- Arterials and collectors should not be spaced too far apart and should penetrate residential areas via routes aligned as direct as possible.
- Transit routes and streets leading to transit routes should have sidewalks, and walkways should radiate out from transit stops to nearby transit trip generating buildings (e.g. schools, multi-family housing and shopping centres).
- Mid-block crosswalks on long streets are needed, together with pedestrian connectors at the end of cul-de-sacs and shortcuts through long blocks and on the perimeter of neighbourhoods.
- Transit stops must have minimum, yet adequate amenities, like shelters and benches, and be overlooked by housing for a measure of security.

Other transit-supportive design guidelines from the regional level down to individual sites are provided in Appendix 3-C.

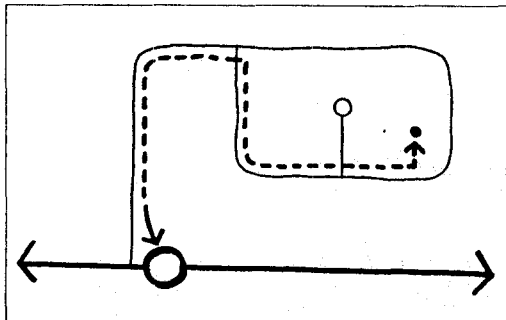
The direct nature of the relationship between transit use and those elements already discussed in this section, i.e. streets and pathways, is reflected in the above list of generally agreed-upon minimum requirements for transit supportive neighbourhood design - most of the ideas promoted in the previous discussion therefore also apply to the enhancement of transit services. Building on these premises then, in the following discussion some design guidelines for transit operations will be highlighted, including street design and transit facility standards, as found in the literature on 'sustainable community best practices'. Care is taken to avoid duplication of the previous discussion, but for the sake of clarity there will be some repetition.

### **Neighbourhood Design Guidelines for Transit Facilities and Operations**

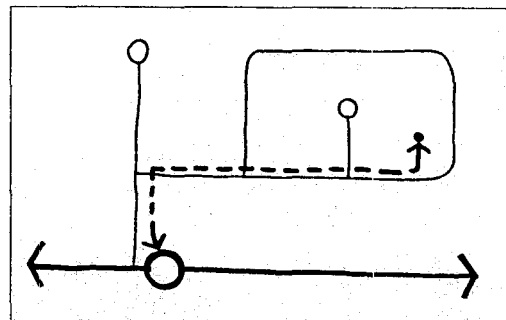
- **Multi-modal street design**
  - Buses need wide travel lanes, gentle slopes and hard road surfaces to operate efficiently and short, direct routes connections to major destinations to improve travel times.
  - Street network layout – can affect the speed and efficiency of transit service; loop roads and cul-de-sacs limit access to neighbourhoods and increase out-of-direction travel. May force passengers to walk longer distances to transit stops. Interconnected street patterns eliminate these problems to a great extent.
  - Curb radii design need careful consideration so as not to restrict bus operations and pedestrian crossings.
  - At bus stops concrete bus pads can be used to minimize pavement deterioration and expand the functional life of the road.
- **Passenger circulation and access** – improving pedestrian accessibility to transit stops encourages transit ridership:
  - Maintain direct pedestrian connections through neighbourhoods.
  - If mid-block pedestrian walkways are provided, then they should be paved, maintained year-round and be illuminated at night to enhance personal safety.

**Figure 3-22** (Source: 'Transit-Supportive Land Use Planning Guidelines', p. 101, Ministry of Transportation & Ministry of Municipal Affairs, Ontario, 1992)

#### **GOOD AND POOR STREET LAYOUT DESIGN**



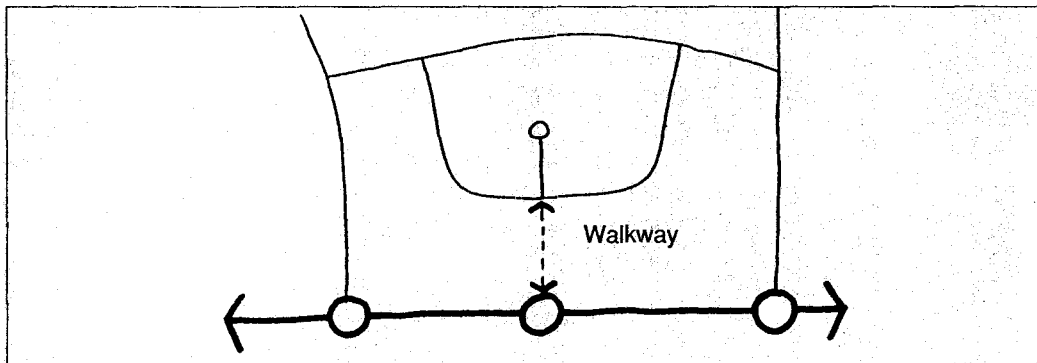
*Layout provides longer, indirect pedestrian access to transit.*



*Layout provides shorter, direct pedestrian access to transit.*

**Figure 3-23** (Source: 'Transit-Supportive Land Use Planning Guidelines', p. 101, Ministry of Transportation & Ministry of Municipal Affairs, Ontario, 1992)

PROVIDE MID-BLOCK WALKWAYS WHERE NECESSARY



*Walkway necessitated by poor local street design.*

- Location of transit facilities
  - Route alignments must optimize ridership, operating speeds and construction costs – major destinations, right-of-way availability and future growth play a role and are often not compatible at the time.
  - Bus stop location – influences walking distance and improper placement can create bus operational problems.
  - Bus stop spacing – a balance must be struck between efficient transit operations and walking distances.
  - Bus stop site specific placement – near side vs. far side placement at intersections have advantages and disadvantages depending on the application (see Figure 3-24).
- Transit facility design
  - The basic design of a transit stop (whether it is a terminal or a single roadside stop) is directly and primarily affected by the needs of waiting passengers, such as safety and security, weather conditions, handicapped accessibility and information services. Other important considerations include maintenance considerations and the overall aesthetics of the facility.
  - Transit stops are best when they provide waiting passengers with a pleasant and dignified waiting environment, helping them to manage their time and feel more in control (e.g. adequate seating to meet 5-10% of predicted peak hour ridership, a shelter for harsh climate areas, proper lighting, trash containers, bicycle racks, a public telephone, and transit schedules).
  - A shelter with seats are required at locations with long waiting periods, on routes or buildings with high ridership statistics and where elderly and disables passengers are expected. If a bus stop has more than 50 boardings per day it is usually provided with a shelter.
  - Waiting area seats should be situated to take advantage of interesting views and pleasant weather conditions, and not block pedestrian circulation or compromise the safety of waiting passengers or pedestrians.
  - Sidewalk width at transit stops – maintain a clear walking area, accommodate waiting passengers and provide space for passenger and pedestrian amenities (see Figure 3-25).

**Figure 3-24** (*Smart Growth: Creating Communities for People*, p. 120, A. Semandel & M. R. Kinde, 2000)

## NEAR-SIDE VERSUS FAR SIDE BUS STOP PLACEMENT

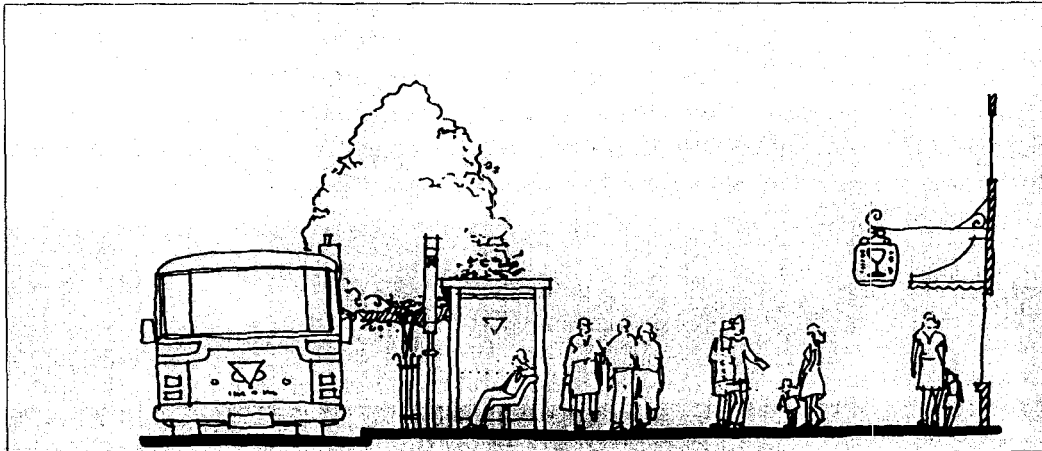
<i>Bus Stop Site-Specific Placement</i>	
<i>Location</i>	<i>Preferred Circumstances</i>
<i>Far-Side</i>	<ul style="list-style-type: none"> <li>• When a route alignment requires a left turn before the stop.</li> <li>• At an intersection where there is a high volume of right turns.</li> <li>• At complex intersections with multiphase signals or dual right or left lanes (a far-side stop removes the potential for queuing buses or automobiles to overflow into the intersection).</li> <li>• At a signalized intersection only when the bus can avoid stopping in the travel lane.</li> </ul>
<i>Near-Side</i>	<ul style="list-style-type: none"> <li>• Where the bus must stop in a travel lane on a street with curbside parking; the front door of the bus is at an intersection and crosswalk.</li> <li>• At a signalized intersection, so that traffic stopped behind the bus will not block the intersection.</li> <li>• In combination with curb extensions to provide direct access from the bus to the adjacent sidewalk system, which improves pedestrian accessibility.</li> <li>• With strong directional pairing between two lines (e.g., heavy volumes to eastbound to northbound); placing one stop near-side and one far-side will facilitate passenger transfer movements.</li> <li>• In a right-turn lane if a queue jump signal is provided to allow buses to merge back into the travel lane, accompanied by sign indicating right turn only except bus.</li> </ul>
<i>Mid-Block</i>	<ul style="list-style-type: none"> <li>• When the route alignment requires a right turn and the curb radius is short.</li> <li>• When the distance between intersections is unusually long.</li> <li>• Where major transit generators are located mid-block and cannot be served by nearby intersection stops.</li> <li>• Where a mid-block pedestrian crossing forms a link between pedestrian connections in adjacent districts.</li> </ul>
<i>Off-Street</i>	<ul style="list-style-type: none"> <li>• When stops are located at the end of a route (i.e., serving a transit center, a park and ride lot, or major transit generator).</li> <li>• If ridership would be substantially increased by having a stop closer to the development and effect on other riders is not extreme.</li> </ul>
- Tri-County Metropolitan Transportation District of Oregon, 1996	

- Image and character – architectural design to create a focal point with local context, incorporating major themes (e.g. modular components, similar materials and standardized graphics) throughout the service network to provide a strong, consistent, legible image; landscaping in the form of planters to form part of streetscape; and level of maintenance determines people's attitude toward public transit.
- Passenger safety and security
  - Lighting -- appropriate height to give sense of security to passenger as well as adequate visibility to vehicle operators.

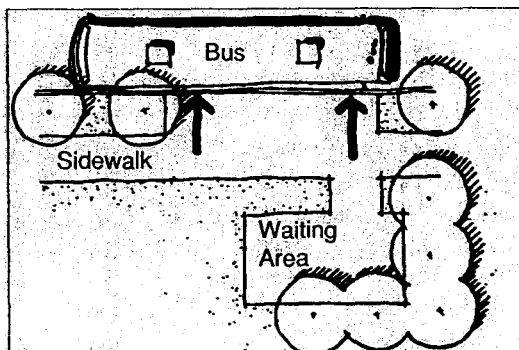
- Visibility for security – check landscaping, lighting and location near other land uses for casual surveillance.
- Passenger safety – stop signs, crosswalks, and signals to help prevent conflicts between pedestrians and vehicles.

**Figure 3-25** (Source: 'Transit-Supportive Land Use Planning Guidelines', p. 101, Ministry of Transportation & Ministry of Municipal Affairs, Ontario, 1992)

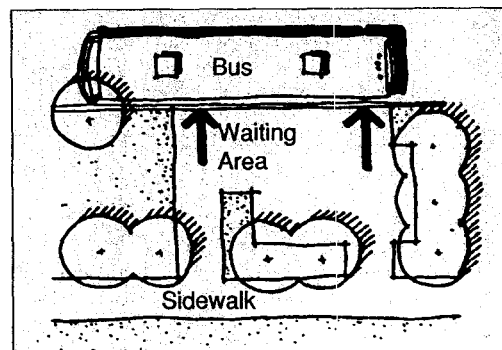
#### BUS STOP SHELTER AND SIDEWALK DESIGN CONSIDERATIONS



*Provide wide sidewalks and shelters along major transit routes.*



*Sidewalk adjacent to curb*



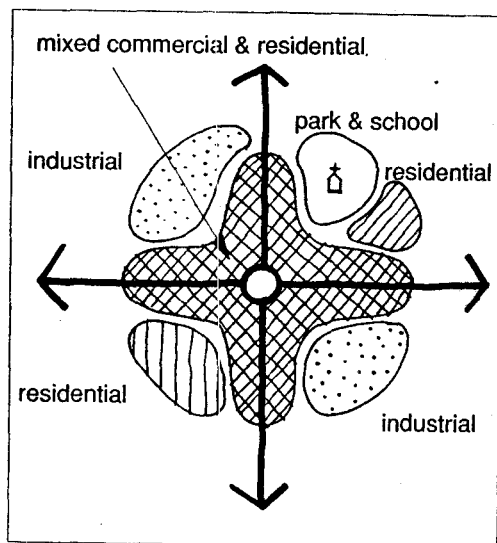
*Waiting area adjacent to curb.*

#### **Other Transit Oriented Design Considerations**

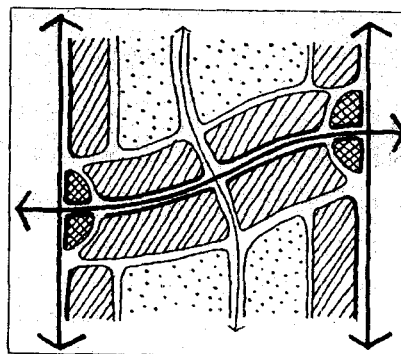
- For most people climate and distance does play a role in the decision to walk and cycle, and thus use transit rather than drive a car.
- Walking distances to transit stops should not exceed 400 m and 85% of dwelling units should be within a 300 m street-based walk of a transit stop. Up to 5% of all dwelling units may be beyond the 400 m guideline.
- Residential densities should be increased. Thirty units per hectare within 400 m of a bus stop is a reasonable minimum density for a 30-minute frequency bus service. Twelve to eighteen units per hectare for single family housing is the minimum density required for a viable and effective bus route.
- Medium and higher density residential developments should be located adjacent to transit routes. Mixed land uses must be encouraged around bus stops and transit terminals.

**Figure 3-26** (Source: 'Transit-Supportive Land Use Planning Guidelines', p. 101, Ministry of Transportation & Ministry of Municipal Affairs, Ontario, 1992)

### LAND USE MIX AND DENSITY VARIATION ALONG TRANSIT ROUTES AND AT BUS STOPS



*Higher density, mixed-use activity nodes are transit-supportive.*



*Locate higher density development along transit routes.*

- Neighbourhood retail services can provide incentives for increased transit use if such services are located adjacent to bus stops. The key is for transit stops to be located near the entrances of buildings, not on the fringe of the parking lot.
- Schools of any size are ideal near public transportation.
- Integrate transit stops into community design as key components of the community centre, neighbourhood nodes and other focal points throughout the neighbourhood – architecturally compatible, providing shelter and seating, passenger loading/unloading zones, telephones, adequate lighting, and secure bicycle storage.
- Indicate the transit route network and bus stop locations on the community plan.
- The street pattern must support efficient bus routes (as direct as possible) for transit service within the community which also connects with the regional transit system.
- Neighbourhood development most supportive of public transit generally demonstrate the following characteristics:
  - Transit routes and bus stop locations within 10 minutes walking distance of public, commercial and residential uses.
  - A mix of uses, including a compact urban core of public, commercial and residential uses.
  - A mix of housing densities, types, prices and ownership forms.
  - A street and pathway system easily understood and interconnected, converging on core areas.
  - Building orientation towards the street.



### ***City of Red Deer Comparison***

- The City's Transit Department Business Plan 2001 – 2003 reflects the appropriate standards for service delivery, routing and facility design that are found in the 'sustainable community best practices' literature, and in some cases the standards are higher – e.g. target of 90% of all residences within 400 m of a bus stop, spacing of bus stops and location of shelters.
- In the cold winter climate of Central Alberta it is essential to provide shelters and passenger amenities at most if not all bus stops, in particular along the key routes. This is a budget issue but may be one of the more important contributions to increase ridership efforts.
- More attention could be given to detail regarding the design of shelters and the amenities provided. This aspect is dependant on adequate funding.
- The City's transit department must be better involved in all stages of the neighbourhood planning and subdivision process. Staff resources would be required to serve this purpose, which again depends on adequate funding.
- The City's policy framework for transit service provision could be developed to a higher level of detail involving land use and engineering design standards in the 'Municipal Development Plan', the 'Community Services Master Plan', the "Planning & Subdivision Guidelines", 'Design Guidelines 2001' and/or the various area structure plans, in close conjunction with the Transit Department.
- Transit service planning will likely have little effect to increase transit ridership if engineering standards and land use policies relating to neighbourhood development are not revised in support of transit use.

### **3.5 Ideas on Circulation and Connections for Further Consideration**

From this section it is evident that the City's policies and design standards with regard to streets and lanes, pathways, and transit in new neighbourhoods compare favourably with many of the 'best practices' of sustainable development principles. The following ideas are extracted as those elements of the circulation and connection network of new neighbourhoods where the City could do well in looking at ways to do things different and better, or more sustainable:

- Allow developers to improvise with hybrid street networks that combine the advantages of the traditional grid system and the curvilinear network (Idea 2).
- Favourably receive and review developer proposals for alternative street design standards that seek to introduce a revised residential street hierarchy (i.e. more variety in local streets and minor collectors) for application in specific neighbourhood contexts. If such proposals are being advanced and favourably reviewed, work towards the inclusion of such alternative design standards into the Engineering Services department's 'Design Guidelines' as acceptable standards for use in other new neighbourhoods (Ideas 3 & 4).
- Encourage developers to consider traffic calming measures in appropriate contexts in the early stages, and as an integral part, of neighbourhood planning and design (Idea 5).
- Encourage developers to provide exclusively rear access lots or lots with shared front driveways or maximum front driveway widths along streets that accommodate designated trails, bus routes and snow plowing routes (i.e. most collector streets), while still requiring a variety of housing types along such streets (Idea 6).
- Require that developers locate land uses such as schools and churches in close proximity of each other and that shared parking arrangements be struck between such uses (Idea 6).

- Require that on-site parking areas for multiple family buildings be provided in a location that is out of public view from the street (Idea 6).
- Promote the provision of linear parks with continuous and direct pathways across adjacent neighbourhoods at the level of major area structure plans (Idea 7).
- Ensure through neighbourhood area structure planning and subdivision approval that street layouts and appropriately located walkways facilitate direct sidewalks and paths for pedestrians and bicyclists to major trails along the neighbourhood perimeter, bus stops, community centre and schools (Ideas 7 & 8).
- Consider the provision of sidewalks on both sides of all arterial and collector streets, and wider sidewalks on one side of all streets where higher density housing occurs and along all transit routes, in lieu of providing standard sidewalks in minor streets (Idea 8).
- Provide shelters with seating and appropriate amenities at all bus stops along major transit routes, all schools, shopping centres and other trip generating buildings or land uses and at all senior's housing (subsection on Transit).
- Develop transit-friendly design guidelines and policies for inclusion into the 'Planning & Subdivision Guidelines' or another appropriate policy document and involve the Transit Department more directly in area structure planning and subdivision design (subsection on Transit).

## **Appendix 7**

**Utility Services Compendium of Ideas and Practices  
(Chapter 7 of Background Report No. 5)**

## **7. INFRASTRUCTURE SERVICES AND THE NATURAL ENVIRONMENT**

### **7.1 Materials Management**

#### **Overview**

Solid waste management efforts have traditionally focussed on waste diversion strategies, i.e. to clean up the mess at the end of the line, rather than focussing on waste prevention strategies, which is now a sustainable communities effort. In 'sustainable community planning' the term solid waste management has been replaced by the term 'materials management' - a more accurate term, as many products traditionally labelled as waste are now considered reusable goods or recyclable secondary source resources for re-manufacturing as similar or new products. Barriers to implementing these practices include consumer preferences, attitudes and misconceptions. Only after every action has been taken to reduce, re-use and recycle materials, are the materials remaining considered being residual waste. These materials must go to disposal, and in Canada there are two disposal methods now in use: 1) energy-from-waste incineration, which involves the burning of waste materials, and 2) sanitary landfill, which in its modern format is a highly engineered facility to minimize environmental impacts and may also include energy generation from gas burning.

By its nature waste or materials management is a City-wide element of sustainable communities, while the focus of this study is on the planning and development practices that make for sustainability on the neighbourhood level. There are some aspects of materials handling that apply to planning and development practices at the neighbourhood level, and these are outlined below:

- In Calgary builders are encouraged to equip all construction sites with a waste bin partitioned for the sorting of debris; collect, sort and transport all recyclable waste to identified recycling facilities, and provide a temporary facility for storing reusable construction materials during the building phase to facilitate the exchange of materials otherwise wasted.
- Builders are also encouraged to equip all new multi-family buildings with bins for sorting recyclable dry waste (paper, plastic, metal and glass) and to locate a permanent composter on site for degradable wet waste and yard waste.
- Developers in Calgary and other communities are encouraged to provide for a recycling depot in the design of neighbourhood community centres.
- Builders of multi-family buildings could consider central recycling facilities in their building design, including a three-chute system for each apartment, an automated carousel system (where residents push the appropriate button to activate the chute room carousel) or rollout containers and bulk bins.

Sustainable materials management rests on the following premises:

- Continuously seeking for ways to improve the system to get the most possible waste diversion through the 3 R's.
- Markets must be actively maintained for the reuse of products and the purchase of items with recycled content.
- Final disposal of residual materials must be environmentally secure and reduce potential impacts to the lowest possible level.
- There should be full cost accounting.

### ***City of Red Deer Comparison***

- The City's Solid Waste Master Plan (1998) contains goals and policies which are aligned to the principles of a sustainable materials management system. Many of the issues are influenced by public opinion or preference or refusal. These and other future waste management options should be re-evaluated on an ongoing basis in accordance with the Plan recommendations.
- The City's new waste management facility (opened in 2001) employs modern technology and practices. It is environmentally-friendly, it incorporates hazardous waste disposal measures, materials sorting facilities, recycling and education programs, and provides for the future option to generate energy from methane gas burning.
- Approximately 75% of all single family households in the City participate in the blue box recycling programme. Presently all apartment buildings are provided with waste bins (skips). To extend the blue box programme the City could require mandatory recycling facilities at all new multifamily developments, even for small developments such as fourplexes.
- Commercial waste which includes construction and demolition waste makes up 50% of the total waste stream in the City. The City should not at this time force recycling and reuse bylaws on builders. These programs work much better when they are adopted voluntarily or as a cost benefit/economic incentive. Staff shortage is another reason why the City does not presently undertake construction waste audits on building sites (construction waste sorting, reuse, recycling, etc). The Nuisance Bylaw does give some authority to enforce builders to clean up a messy yard or wind-blown litter.
- The City could consider policies to encourage builders to practice sustainable materials management at the site level. The Environmental Advisory Board is presently engaging in correspondence with both the Calgary and Red Deer Home Builders' Associations with regard to construction waste recycling programs (Minutes of the regular meeting of the Environmental Advisory Board, April 23, 2002).
- The City could also encourage developers to plan and design for the provision of recycling facilities at neighbourhood centres.

## **7.2 Energy Management**

### **Overview**

Sustainable energy management reduces the demand for energy generation through energy efficiency, energy conservation and energy substitution, and applies to every phase of planning, design, construction and management:

- Energy efficiency in land use planning relates to subdivision, site and building design that reduce the energy needed for heating and cooling by using passive heat gain from the sun, reducing heat loss and controlling the effect of wind. These design practices rely on basics such as latitude, slopes, vegetation, the sun and wind.
- Energy conservation changes organization and individual behaviour to reach lower energy consumption.
- Energy substitution uses the most environmentally appropriate energy, emphasizing free, renewable energy - wind, solar and biomass energy.

Design principles that enhance energy management at the neighbourhood level:

- Attached or multiple family housing types are the most energy efficient as they have fewer exposed surfaces.
- Higher development densities means compact development that is transit-supportive and thus contributes to the basis of energy-efficient land use planning.
- Dwelling unit orientation – large windows should be within 15 degrees of due south to make the most use of direct solar radiation gain. At the same time, the ideal would be to orient dwelling units to avoid the full blast of winter winds.
- As a general rule streets should be oriented in an east-west direction with lots allowing the orientation of large windows within 15 degrees of due south and away from prevailing winter winds.
- When streets are not oriented in an east-west direction alternatives that would still allow energy-efficient subdivision include:
  - flag shaped lots or a checkerboard lot pattern allow buildings to be offset from each other to limit overshadowing.
  - Lots can be skewed from the street, instead of perpendicular to it, or dwelling units can be skewed on the lot.
  - More attached or multiple family housing types should be located on north-south streets to compensate for the lack of southern exposure.
- Vegetation on the north and west boundaries of a site can screen individual lots or entire subdivisions from the prevailing winter winds.
- The design and layout of homes and residential buildings should be done cognisant of factors such as room layout, dwelling shape, accessory buildings, construction details, window treatments and colours, insulation and landscaping to optimize all elements of energy management. These home design factors are passive systems that rely on the sun and wind to heat and cool a house, and unlike active systems, which depend on mechanical equipment, they can be incorporated into building design at little cost.

The PLACE<sup>3</sup>S planning approach illustrates these concepts. PLACE<sup>3</sup>S is the acronym for **PL**Anning for **C**ommunity **E**nergy, **E**conomic and **E**nvironmental **S**ustainability, an approach developed by the states of Oregon, California and Washington. In a very brief summary, this approach can be described as one that analyzes all components of urban development from an energy efficiency perspective in terms of the amount of energy that is predicted to be consumed by a proposed activity or caused by a proposed land use over a period of one year. The projected energy values are expressed in million British thermal units as a standard unit of measurement (MMBtu). The data generated in this way can be used to compare the energy efficiency of various alternate development options based on density, land use mix, compactness of development, housing types, street network, transportation options, energy consumption for heating and cooling, and energy sources, etc. Some of these concepts are illustrated in Figures 7-1 to 7-7.

**Figure 7-1** (Source: 'The Energy Yardstick: Using PLACE<sup>3</sup>S to Create More Sustainable Communities', California Energy Commission, Oregon Department of Energy & Washington State Energy Office, 1996)

#### HOW COMMUNITY PLANNING INFLUENCES ENERGY MANAGEMENT

FIGURE 1.2 INFLUENCE OF URBAN PLANNING ON ENERGY DEMAND		
Planning Variables	Energy Link	Effect on Energy Demand
Shape of urban boundaries	Travel requirements	Energy use variation of up to 20%
Shapes and sizes of land-use designations	Travel requirements (especially trip length and frequency)	Variation of up to 150%
Mix of activities	Travel requirements (especially trip length)	Variation of up to 130%
Density/clustering of trip ends	Transit feasibility	Energy savings of up to 20%
Density and mix	Space conditioning needs and district heating/cooling/cogeneration feasibility	Savings of up to 15%. Efficiency of primary energy use improved up to 30% with district heating and cooling
Site layout/orientation/design	Solar use feasibility	Energy savings of up to 20%
Siting/landscaping/exterior materials	Microclimate improvements	Energy savings of at least 5%; more in exposed areas

Adapted from Owens, 1986.

**Figure 7-2** (Source: See Figure 7-1)  
CONVERSION OF ENERGY VALUES TO MILLIONS OF BRITISH THERMAL UNITS

FIGURE 1.8 ENERGY CONVERSION VALUES					
	Btu Equivalent	Million Btu (MMBtu) Equivalent	National Average Cost (\$/MMBtu)	National Average Emissions (Lbs/MMBtu)	
				CO	CO <sub>2</sub>
1 kilowatt of electricity	3,412	0.003412	20.10	0.153	537.74
1 therm of natural gas	100,000	0.100000	3.90	0.021	115.80
1 gallon of gasoline	125,071	0.125071	9.10	2.221	155.40
1 gallon of diesel	138,690	0.138690	7.00	0.850	159.70





Source: USEPA, 1995



Figure 7-3 (Source: See Figure 7-1)

COMPARISON OF ENERGY DEMAND IN URBAN VS SUBURBAN LOCALITIES

**FIGURE 1.10**  
**URBAN vs. SUBURBAN ENERGY USE PER HOUSEHOLD**







		Urban Families			Suburban Families		
		Energy (MMBtu/yr)	Cost (\$/yr)	CO <sub>2</sub> (tons/yr)	Energy (MMBtu/yr)	Cost (\$/yr)	CO <sub>2</sub> (tons/yr)
 Household (2.5 persons)	 Travel	80	910	6	140	1,670	11
	 Home	100	1,220	12	110	1,340	14
	 Community fraction*	140	1,650	21	190	2,280	29
		320	3,780	39	440	5,290	54

\* Community fraction includes household share of all non-residential energy use and community infrastructure energy use.  
Source: See Figure 1.13.

Figure 7-4 (Source: See Figure 7-1)

ENERGY CONSUMPTION LEVELS  
OF TYPICAL COMMUNITY USES

**FIGURE 1.9**  
**TYPICAL COMMUNITY ENERGY USES**


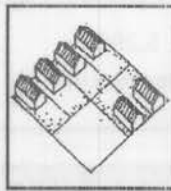
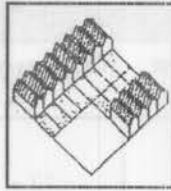
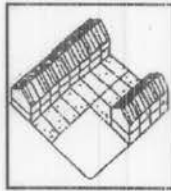
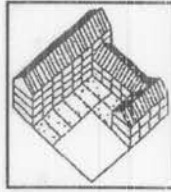

	Energy Use (MMBtu/yr)	Energy Cost (\$/yr)	CO <sub>2</sub> tons/yr
 Single-family home (2.5 persons)	110	1,280	13
 10,000 sq. ft. store	850	10,240	129
 20,000 sq. ft. office	2,080	25,180	317
 Auto (avg. 1.1 occupants)	80	740	6
 Bus (avg. 10 occupants)	1,300	10,380	103
 Total per capita	150	1,650	17

Source: See Figure 1.13.

Figure 7-5 (Source: See Figure 7-1)

THE EFFECT OF HOUSING DENSITY ON ENERGY DEMAND

**FIGURE 1.11**  
**ENERGY EFFECTS OF RESIDENTIAL DENSITY**

Total Operating Energy Use Per Household				
		Energy (MMBtu/yr)	Cost (\$/yr)	CO <sub>2</sub> (tons/yr)
	3 Units/Acre Single-family subdivision on 10,000 sq. ft. lot, auto dependent.	440	4,800	50
	6 Units/Acre Detached housing on 5,000 sq. ft. lot, commuter oriented transit service.	410	4,600	49
	12 Units/Acre Townhouse on 2,500 sq. ft. lot, high level of transit service to employment centers; attached walls reduce building energy use.	380	4,300	47
	24 Units/Acre Low rise apartments, walking and transit trips equal to auto use; bldg. energy use lower per apt.	360	4,100	47
	48 Units/Acre Mid rise apartments, transit and pedestrian trips exceed auto use; per apartment energy reduced further.	340	3,900	45
	96 Units/Acre High rise, very high transit and pedestrian activity; very low building energy use per apartment	310	3,700	42

Total operating energy use includes building, travel, and community fraction. Acres are net.  
Source: See Figure 1.13.

**Figure 7-7 (Source: See Figure 7-1)**  
**COMPARISON OF THE ENERGY CONSUMPTION OF STREET NETWORKS**

FIGURE 4.14  
COMPARISON OF STREET NETWORK PERFORMANCE






Criteria	Conventional Suburban Development (CSD)	Traditional Neighborhood Development (TND)	Difference
Daily Vehicle Miles of Travel (VMT), Internal Travel			
Arterial Streets	4,340	850	TND is 25% of CSD
Collector Streets	5,400	810	TND is 15% of CSD
Local Streets	1,250	4,600	TND is 4 times CSD
Total VMT	10,990	6,260	TND is 57% of CSD
Volume/Capacity Ratio			
Arterial Streets	0.92	0.83	TND is lower
Collector Streets	0.94	0.87	TND is lower
Local Streets	0.21	0.22	Nearly identical
Level-of-Service (LOS)			
Arterial Streets	D	B	TND has higher LOS
Collector Streets	D	D	Same
Local Streets	A	A	Same

In a well-connected grid street pattern, trips are made on routes dispersed throughout the neighborhood rather than concentrated on a few peripheral collector and arterial streets. The net result is fewer vehicle miles traveled and less congestion, particularly on arterials.

The letters A, B and D are indicative of different levels of service, A being the highest level and D the lowest.

**Figure 7-6 (Source: See Figure 7-1)**  
**THE ENERGY EFFECTS OF LAND USE MIX**

FIGURE 1.12  
ENERGY EFFECTS OF LAND-USE MIX

	Energy (MMBtu/yr)	Cost (\$/yr)	CO <sub>2</sub> (tons/yr)
 1 Acre Retail	61,100	566,400	5,020
 1 Acre Office	17,000	168,300	1,660
 1 Acre Jobs/Housing Ratio 4:1	8,200	83,800	860
 1 Acre Jobs/Housing Ratio 1:4	4,600	48,500	530
 1 Acre Jobs/Housing Ratio 1:1	5,500	57,700	620

Energy use includes buildings and travel only; excludes community fraction. Jobs are office only.  
 Source: See Figure 1.13.

Measured by the PLACE<sup>3</sup>S method, an energy sustainable neighbourhood will display all or a combination of most of the following features in its various elements:

- Reduce and/or relocate yards to allow for increased densities.
- Mix housing types.
- Hide the garage in an alley or side yard to emphasize front porches.
- Make the streets narrow and the sidewalks wide to slow traffic and encourage walking and interaction with neighbours.
- Reduce the number of cul-de-sacs, and connect streets so that pedestrians, bikes and autos can travel in short, convenient routes.
- Improve connections to transit to encourage its use.
- Bring back the corner store and other neighbourhood shops so that people can shop without driving.
- Shrink parking lots so save land and pavement and discourage dependence on the automobile.
- Work at home to reduce the number and length of work trips.
- Use the sun for heating and lighting to reduce energy costs and air pollution.
- Use trees and community gardens for cooling to reduce energy costs and improve the pedestrian environment.
- Use shared energy production systems at the neighbourhood centre for economies of scale and better efficiencies.

Reducing energy consumption in communities, neighbourhoods and individual buildings may be the single most important aspect of sustainable development. A potential stumbling block in undertaking energy-efficient development is fear for the unknown – people often ask for proof of cost savings, for a record of experience over time, or for assurance that a proposed design is not a radical departure from accepted practices.

In considering energy-efficiency alternatives, the challenge is to find the balance between the cost saving benefits over time of employing higher standards and the actual capital costs to achieve those.

#### ***City of Red Deer Comparison***

- The City's performance on energy efficiency at the neighbourhood level is difficult to quantify, because it is not simply a matter that involves the City's policies only – many consumers and the personal choices they exercise, influence energy efficiency at the neighbourhood level and City-wide.
- The City's performance at the neighbourhood level can best be measured against its policy content on some of the elements of sustainable development – notably housing mix and density, street network interconnectivity and well designed pathways. As shown in other sections in this report, the City is doing reasonably well in some areas, while opportunities exist to improve in others.
- The Alberta Building Code promotes energy-efficient practices, and the minimum energy-efficiency standards of homes in Red Deer are good, because builders are following the ABC closely. The City cannot arbitrarily impose more stringent standards than those in the building code, e.g. to require special water faucets, low flow toilet tanks, special insulation or light fixtures. These are the prerogatives of home owners as consumers.
- Street lights are controlled by photocell switches to conserve energy and operating/staffing cost. Street lights could possibly be spaced further apart, but TAC sets minimum safety standards for the illumination of different classes of roadways, which should be met if the City wants to secure funding for arterial roads and avoid liability claims. Also, the public expects well lit streets, the minimum level of service

expectations are high. The public perception is that if it is dark, they feel unsafe – if they could have their way, the public would even want their lanes lit up. Street light bulbs that consume less energy for the same light strength are being used in new subdivisions, and in the older areas old technology bulbs are replaced with new standards as they fail over time. Almost all the City areas have been upgraded. New technologies and innovative efficiency equipment are pursued within the TAC standards and the budget constraints.

- The City should require that each dwelling unit in a multiple family building has its own electricity metre – this would improve consumer awareness of their individual usage and actual costs, and could well lead to more energy efficiency.

### **7.3 Water Management**

Water management in Alberta increasingly seems to become a topic of concern at provincial and local government levels. Managing the available water resources in a sustainable manner would be to the benefit of all Red Deer residents and Albertans.

The overriding principle on water management is to sustain the natural water balance, both quantitatively and qualitatively. This means that water extracted from a subsurface aquifer should be returned to the aquifer within the same watershed (i.e. sustaining the water balance quantity). At the same time water quality standards should be set and maintained, to sustain the water balance qualitatively. To achieve sustainability in water management requires the careful consideration of all three water-related aspects of land development – water supply, waste water and stormwater management.

#### **7.3.1 Water Supply and Waste Water**

##### **Overview**

A sustainable water and wastewater system pays attention to the natural water cycle and the interplay of water use, reuse and disposal. A sustainable water system defines the quantity and quality of water needed at each step of the water cycle. It is based on minimizing first water use and maximizing reuse. Public education about the benefits and lifestyle changes needed for a successful sustainable water system is important.

The major water supply success in the last century has been the virtual elimination of water-borne diseases. The ultimate, long-range goal of a sustainable water and waste water system is a biosphere solution, in which all water is recycled and reused. Technology that can do this is still many years away. The focus continues to be on how we use the water that we have – treated water must be restricted to ‘first uses’ having a direct impact on public and personal health (drinking, cooking and bathing).

Waste water from first use that is free of human waste is sometimes called ‘grey water’. It may be used for ‘second uses’, usually after minimum treatment. In a typical home second uses include water for toilet flushing and outdoor uses, such as lawn and garden uses, where people usually do not contact grey water, and health concerns become fewer.

Waste water from black water sources such as toilets and other sources not suitable for reuse must first be treated before release. In addition to using the best available treatment technologies, alternatives to conventional sewage treatment can introduce elements of sustainability. Examples of new technologies include the reed bed-constructed wetland system, which uses the natural nutrient needs of plants to cleanse sewage effluent. Alternative systems can be used in large communities or small urban areas for local sewage treatment. An important advantage of local treatment is the increased availability of treated

effluent for local second uses, such as irrigation. Another advantage is that fewer chemicals are needed for treatment.

Water systems are by nature a 'City-wide' component and its sustainability should be addressed and measured primarily at that level. Nonetheless, at the neighbourhood level, which is the focus of this study, there are a number of planning, design and operating principles that can contribute to sustainable water management:

- The first use of water should be limited, inter alia in the following ways:
  - Using fixtures that make the most efficient use of water - it is now common for plumbing codes to specify these fixtures in new construction.
  - Encouraging and requiring the use of energy and water-saving appliances to cut water use.
  - Reducing the water supply system pressure, as long as the reduction does not conflict with uses that need higher water pressure, such as firefighting, or a separate, dedicated system for firefighting be installed. Water for firefighting may classify as 'second use' and thus need not be cleaned to drinking water standards. A separate system for firefighting could also supply water for lawns and gardens, with suitable infrastructure designed on a neighbourhood-by-neighbourhood basis.
- Even for second uses, water use should be limited. Methods for limiting include low water vegetation landscaping, such as 'xeriscaping', which minimizes water use and slows down stormwater runoff, allowing greater absorption.
- Define the quality and quantity of water for first, second and community uses.
- Minimize water use with low-flow fixtures (i.e. toilets, showerheads and faucets), water-saving appliances, system pressure reduction or alternative landscaping.
  - A typical American household consumes approximately 340,000 litres of water each year. The use of high-efficiency faucets, fixtures and appliances can reduce that rate of consumption to less than 200,000 litres per year without any perceptible effect on the quality of life or convenience.
- Maximize water reuse, particularly where this can be accomplished with minimum intermediate treatment, such as grey water irrigation from rooftop run-off and household water reuse.
- Consider alternative sewage treatment technologies (i.e. biological vs. chemical treatment), especially those with environmental advantages, for neighbourhood package treatment plants.
- Educate the public about water use and reuse.

### ***City of Red Deer Comparison***

- Generally water conservation only becomes a strategy when plant capacities are being reached. The City's water treatment plant has flow capacity to accommodate growth based on population projections until 2050. As long as there is water in the Red Deer River, the plant will be able to supply the City with water.
- There is thus little incentive for the City to push residents and/or builders to a point where water savings are imposed or enforced by bylaw, building code or excess charges. The City could at most educate and encourage. The consumer, who can afford it and has little inclination to conserve, will not conserve, and the builder will build what the consumer wants.
- A development within a neighbourhood, or perhaps a whole neighbourhood, could be considered as a special pilot project to implement some of the sustainable ideas discussed above, for which applicable bylaws would have to be developed.



### 7.3.2 Stormwater Management

#### Overview

Environmental planning and regulatory emphasis in general in North America is shifting from the individual development site to the system approach, e.g. an ecosystem. This shift is prompted by the realization that functional systems are the appropriate units of environmental analysis and management. The same principles are being applied to stormwater management - e.g. the river basin or watershed-sub watershed becomes the unit of measurement, rather than treating stormwater runoff as wastewater that is collected and conveyed directly to natural watercourses on an individual site basis.

Nature is comprised of systems that do not necessarily follow man-made boundaries. Water in nature is an appropriate example. A single river system may run through several cities, a few regions and provinces, a couple of countries and cross an entire continent. The natural habitats and developed land uses located adjacent to the river banks and draw from or input into the river, form part of the complete system. Each part of the system, including towns or cities, should function appropriately so as not to affect the health of the whole system. Impacts on the system along its length may affect the system further downstream, which in turn may affect the upstream system in a number of ways.

Stormwater runoff from urban development is one element that may affect the natural water system in several ways and which is best managed on a watershed basis to coordinate the timing of stormwater releases and achieve economies of scale. Stormwater storage facilities have two main functions:

- They reduce the need for larger and larger pipe sizes by detaining back-up water and releasing it at a lower tempo over longer period of time; and
- By doing this, the impact of erosion on the receiving water body (creek or river) is reduced.

There is an environmental awareness drive towards a third purpose or benefit of stormwater storage facilities such as constructed wetlands, i.e. to treat stormwater prior to putting it into the receiving body. This drive will increase if the Province were to impose requirements that downstream water quality must meet upstream standards. Stormwater and sewage water outfalls would then have to meet any such standards. Alberta Environment is shifting its emphasis on stormwater management practices to the system or river basin approach, and is likely moving away from a regulatory approach to one where innovative proposals for alternative systems and best management practices would be welcomed and favourably considered (introductory remarks of Brian Chinery, Senior Planner, Alberta Environment, at the AACIP Stormwater Management seminar, April 26, 2002).

This study focuses on the planning and design considerations of sustainable development at the neighbourhood level. Consequently there is more need to focus on 'best practices' for stormwater management at the neighbourhood level than on leading edge ideas at the City, regional or provincial level. The 'best practices' for stormwater management that apply to the neighbourhood level may have a very limited impact on the functioning of larger system, but cumulatively in the City and along the entire length of the system the contribution by each individual 'best practice' may be increasingly significant.

*Stormwater runoff from neighbourhood surfaces tends to pick up pollutants and particles along its path across house roofs, street pavements, parking lots, etc. These pollutants are carried to the stormwater outfall in the natural stream or river where it is carried further along in the larger system (the river basin), if not treated before discharge. Further, by collecting most of the stormwater runoff from impervious neighbourhood surfaces and piping it down to*



*a stream means that less water is allowed to infiltrate the ground and replenish aquifers and river base flows.*

Best management practices (BMP's) for stormwater runoff at the neighbourhood level should be considered from a 'treatment train' approach, which utilizes incremental benefits along the flow path, attempting to address the basic principles of sub watershed or river basin planning, which are:

- *Surface and groundwater quality control, by enhancing or treating storm water runoff before it is discharged;*
- *Protect and maintain the quantity of existing surface and groundwater with infiltration and groundwater recharge of excess urban storm water runoff; and*
- *Reduce potential flooding and outfall erosion by controlling excessive increases in post-development runoff peaks with flow volume control.*

*Stormwater management BMP's can be non-structural (i.e. policies, techniques, operational procedures, educational programmes) or structural (i.e. designed physical facilities or modified natural environments). In most cases an effective and appropriate mix of non-structural and structural BMP's is needed to meet stormwater management objectives.*

*BMP's can also be categorized by distinguishing between:*

- *At-source BMP's e.g. street sweeping or vacuuming, catch basin cleaning, animal matter removal.*
- *Lot-level BMP's e.g. reduced lot grading with depression storage, rooftop detention storage, and yard infiltration systems.*
- *Conveyance system BMP's e.g. pervious pipe systems, pervious catch basins, grassed swales and ditches, oil and grit separators.*
- *End-of-pipe BMP's (outlet to watercourses) e.g. wet ponds, dry ponds, infiltration trenches and basins, filter strips (or vegetated buffer zones), sand filters and constructed wetlands.*

At-source BMP's are preferred to end-of-pipe controls as it is easier, more environmentally efficient and less-costly to control pollution at its source.

Sub watershed planning would determine the receiving water objectives, the level of control and the types of controls to be used in a community. Even so, the following are important considerations for implementing best management practices in stormwater management at the neighbourhood planning and design level:

- The guiding principle should be to plan and design, where applicable and where site conditions allow, for on-site stormwater recharge through streams and wetlands rather than stormwater detention, piping and discharge away from the site – to maintain the water balance and natural hydrological cycle on a particular site, and cumulatively that of the larger system.
- On-site stormwater systems rely on applications of the effluent to the soil to complete the natural treatment process, mimicking the natural hydrological system and thereby returning the effluent to the groundwater, rather than constructing long distance discharge systems at prohibitive cost.
- These systems purify water by breaking down pollutants through a combination of physical, biological and chemical processes before returning the water to the ground.
- As much as 30 – 50% of construction and operating costs can be saved with on-site stormwater systems compared with conventional systems.
- On-site systems serve a limited number of people and are relevant to site-specific applications.
- Types of on-site stormwater management systems include spray and drip irrigation systems, free water and subsurface-flow constructed wetlands, ponds and lakes,

swales, protected open lands, surface and subsurface infiltration or recharge beds, reduction of impervious surfaces and solar aquatic systems.

- To promote natural drainage systems and minimize downstream flooding, erosion and sedimentation of waterways, allow for overland flow through ground vegetation or bioretention swales, which maximizes infiltration and aquifer recharge. In this regard:
  - plan for the provision of surface drainage easements;
  - reduce the overall area of paved surfaces;
  - use porous paving where applicable;
  - provide incentives to limit the use of impervious paving; and
  - collect and recharge all stormwater runoff from large impervious surfaces through infiltration systems (some problems exist – durability, climatic limitations, ability to handle high traffic volumes, water quality, cost, high water tables, soil types, etc).
- Avoid detention basins unless recharge is not feasible. If detention is used, provide additional NPS pollutant removal treatment processes.
- Public stormwater management facilities could be integrated into the overall open space system, ensuring that their location and configuration complement the open space system, reinforce views and accommodate public access for social interaction and passive recreational use.
- Obstacles or 'issues' in the implementation of alternatives to conventional stormwater management systems include:
  - Land use zoning – whether on-site system qualify as public utilities or not, and what portion of the area of such a facility could be considered as public open space, if any.
  - Operations quality control and maintenance – how to enforce proper operation and maintenance of private systems on home owners' or condo associations.

A series of BMP's, their advantages and disadvantages, their life-cycles, cost and potential applications are listed in Table 7-1. The Practice Summaries of pervious pipe systems and artificial wetlands on page 7-16 should be read in conjunction with the table.

Table 7-1 (Source: 'Practices for Sustainable Communities' p. 149-151, CMHC, 2000)

Best Stormwater Management Practices

Best Stormwater Management Practices						
Practice	Advantage	Disadvantage	Operation/ maintenance	Life	Cost	Development
Disconnection of roof leaders	Decreased runoff to receiving system; increased infiltration Runoff detainment Potential for some water quality benefit	Potential for homeowner inconvenience from ponding water, clogging of pond outlet/soakaway pit if implemented Difficult to implement in existing development	Soakaway pits and ponding areas: require regular inspection, roof leader filter cleaning/replacement and trash removal (ponding area)	Long	Low	Retrofit or new development
Disconnection of foundation drains	Decreased runoff to receiving system; increased infiltration	Requires sump pump Difficult to implement in existing developments	Soakaway pits and sump pumps require regular inspection	Long	Low	Retrofit or new development
Catch basin restrictors- Control orifices	Runoff detainment Potential for limited sediment removal	Potential for clogging Inconvenience due to ponding water	Require regular inspection and cleanout	Short	Low	Retrofit or new development
Reduced lot grading	Decreased runoff quantity to receiving system, increased infiltration and evaporation- transpiration Runoff detainment Some water quality benefit	Potential for homeowner inconvenience (for instance, longer lot drainage time) Vulnerable to alterations by homeowner, difficult to regulate	None	Long	Low	New development where topography permits
Rooftop storage	Runoff detainment	Difficult to retrofit Only suitable for flat industrial, commercial roofs	Requires regular inspection, roof hopper clean-out	Med	Med	More suitable for new industrial, commercial development
Parking lot storage	Decreased peak flow to receiving system	More suitable for commercial and industrial areas Potential hazard to motorists and pedestrians	Requires regular operation and maintenance	Med	Med	Retrofit or new developments
Porous pavement	Decreased runoff quantity to receiving system; increased infiltration	Potential for groundwater contamination Potential for clogging	Requires regular inspection and cleaning	Med	High	Retrofit or new development
Slope stabilization and erosion control	Reduced maintenance of SWMPs Improved water quality		Requires regular inspection and replanting until established (if plantings are used as a control measure)	Med	Low	Retrofit or new development

## Best Stormwater Management Practices (cont'd)

Practice	Advantage	Disadvantage	Operation/ maintenance	Life	Cost	Development
Grassed swales	Potential for decreased runoff quantity to receiving system; Increased infiltration Runoff detainment Improved water quality Preferred to ditches by the public	Mosquito breeding ground Requires more land than conventional ditches	Require regular inspection, grass cutting, weed control, removal of accumulated sediment and trash	Med	Low	Retrofit or new development
Channel outlet protection	Decreased erosion Improved water quality	Disruption of natural habitat	Requires regular inspection	Long	Med	Retrofit or new development
Pervious pipe system	See Practice Summary					
Pervious catch basin	Decreased runoff quantity to receiving system; increased infiltration	Potential for groundwater contamination Potential for clogging Replacement filters expensive	Requires regular inspection, frequent filter cleaning/ replacement, removal of accumulated sediment, and possible need to disc. during winter if salting/sanding roads	Med	Med	Retrofit or new development Specific site requirements
Detention-retention facilities—dry, wet and extended detention ponds	Water quantity control Improved water quality Potential for downstream erosion control Potential for spill control	Potential for sediment re-suspension (dry ponds) Potential for thermal warming (extended detention) Potential for odour, algae, debris and/or mosquitos (wet ponds) Potential for outlet clogging Not suitable/economical for small areas, wet ponds require more land area than dry ponds, although both are land consumptive	Require regular inspection, grass cutting, weed control, replanting of vegetation as necessary, removal of accumulated sediments, trash removal and occasional outlet valve adjustment	Long	High	Retrofit (if land available) or new development

## Best Stormwater Management Practices (cont'd)

Practice	Advantage	Disadvantage	Operation/ maintenance	Life	Cost	Development
Underground storage	Decreased runoff peak Improved water quality	Difficult to keep clean	Require frequent and expensive cleanout	Long	High	Retrofit and new developments
Artificial wetlands	See Practice Summary					
Infiltration basins and trenches	Decreased runoff quantity to receiving system; increased infiltration if allowed to recharge groundwater system Improved water quality if collected and discharged	Potential for clogging/ compaction Potential for groundwater mounding Potential for groundwater contamination Operation and maintenance problems reported Pre-treatment suggested	Require regular inspection, grass cutting, weed control, replanting of vegetation as necessary, removal of accumulated sediments, trash removal and possible need to disc. during winter if salting/sanding roads Infiltration basins require periodic floor tilling	Short— Med	High	Retrofit or new development Specific site requirements
Filter-buffer strips	Potential for decreased runoff quantity to receiving system; increased infiltration and evaporation-transpiration Runoff detainment Improved water quality erosion protection	Potential for clogging	Require regular inspection Filter strips: require weed control, replanting of vegetation as necessary, removal of accumulated sediments, and trash removal	Short	Low	Retrofit or new development
Sand filters	Runoff detainment Improved water quality	Potential for clogging Potential for unsightliness and odour Operation-maintenance problems reported May not be as cost-effective as other SWMPs	Require regular inspection, grass cutting, removal of accumulated sediments, trash removal and possible need to disc. during winter if salting/sanding roads Potential for regular replacement of filter media	Short	Med	Retrofit or new development
Oil and grit separators	Limited runoff detainment Improved water quality spill control	Can only control limited areas Not suitable for quantity control Not suitable for soluble pollutants	Require frequent inspection, removal of accumulated oil/ sediment and cleaning	Med	Med	Retrofit or new development

## Practice summary 1: Conveyance controls— Pervious Pipe Systems

Pervious pipe systems are experimental and have been used on a limited basis. Pervious pipes are pierced, or perforated, storm sewers that allow storm water to 'dribble' through the pipe and into the surrounding soil, which filters the storm water. Pervious pipe systems are a best conveyance-control practice for storm water management. They are used instead of traditional storm sewer systems or with traditional storm sewer systems.

Pervious pipe systems can provide both water quality and quantity benefits. Suspended solids, soluble pollutants, such as chlorides and oil and grease from road runoff, are removed. Groundwater recharge of the storm water reduces peak flows and runoff volumes, lowering the potential for flooding and erosion downstream.

Pervious pipe systems can be used for new development and roads and for retrofitting existing areas. Pervious pipe systems are restricted to locations with suitable subsoil. The Ontario Ministry of

Environment standard, set in 1994, is soils with minimum percolation rates greater than 15 mm (1/2 inch) an hour.

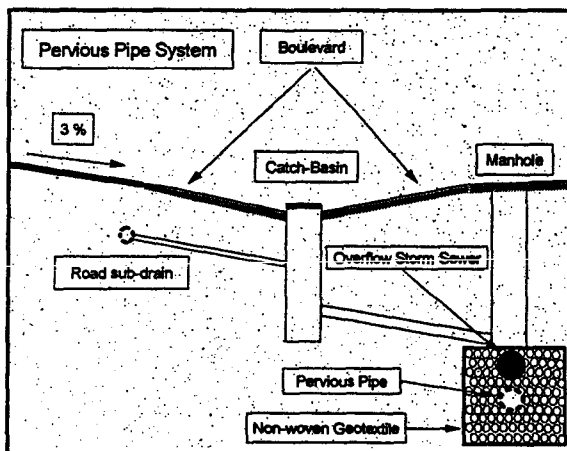
### Advantages

- Both water quality and quantity benefits.
- Can be built in road or other rights-of-way where land availability is limited.

### Disadvantages

- Subject to clogging. Storm water needs pre-treating to remove coarse sediments.
- May require groundwater impact assessment.
- Experimental and have limited application.
- May not comply with municipal design standards for storm sewers.
- Not appropriate for widespread use as a single solution, best management practice.

- Requires regular inspection, removal of accumulated sediment, trash removal and may have to be disconnected for winter salting and sanding.



**Information sources**  
Ontario Ministry of Environment and Energy, City of Etobicoke, City of Nepean, *Storm water Management Practices Planning and Design Manual*, 1994

## Practice Summary 2: End-of-pipe Controls— Artificial Wetlands

Artificial, or constructed, wetlands are engineered storm water management installations. They are designed to improve the quality of urban storm water runoff and control peak flows. An added benefit of this end-of-pipe control is habitat creation and improvement.

Artificial wetlands are very effective for water quality improvement and quantity control:

- They are very efficient at removing particulate pollutants. They offer additional enhancement capabilities for both nutrient uptake and soluble pollutant removal. Enhanced pollutant removal capabilities are linked to the biological interactions and aquatic vegetation in the wetland.
- Including extended storage provides water quantity benefits including flood and erosion relief by controlling peak flows.

The Ontario Ministry of Environment requires a minimum drainage area of at least five hectares (12 acres). To improve removal of coarse particles and minimize potential for scour and re-suspension, wetlands should be built with a sediment forebay.

An artificial wetland:

- Is a multi-purpose storm water management practice.
- Removes pollutants.
- Can create or improve the appearance of the landscape.
- Can create or improve aquatic and wildlife habitat.



### Advantages

- Emphasizes more natural systems for storm water management.
- Both water quality and quantity benefits.
- Habitat creation or improvement.
- Aesthetic improvement and passive recreational benefits such as bird watching.
- Potential for downstream erosion control. Effective for spill treatment.

### Disadvantages

- Not suitable for single homes or developments less than five hectares (12 acres).
- Land area requirements can be significant and construction costs high.
- May not be acceptable because of fear of offensive smells, insects and danger to children.
- Need monitoring and maintenance. Accumulated forebay sediments need to be cleaned out. May have plant sustainability problems where affected by road salts.

### ***City of Red Deer Comparison***

- The City's 'Design Guidelines 2002' promotes the use of dry (detention) ponds and wet (retention) ponds in stormwater management. The City's stormwater management policy (#4310) however does not allow for wet (retention) ponds, and the developer must request to use this technology. Each request would be considered on a site-specific basis for an exemption to the policy.
- The stormwater management policy should be revised to include and promote a wider range of alternative stormwater management practices (such as the examples listed in the overview), even if these would still be allowed only as exemptions to the standard facilities and practices. Where appropriate in terms of site conditions and costs, such technologies should be allowed for use in new communities.
- Constructed wetlands take up huge land areas. The City does not have a policy in place for constructed wetlands to become the standard – e.g. if the City required that developers replace the standard 3 hectare dry (detention) pond with a 3 hectare wet (retention) pond or 3 hectare constructed wetland, before provincial legislation is in place to support it, the City would have to buy these lands from the developer as PUL or portions thereof as MR, and the City would effectively 'lose' considerable amounts of active recreation areas and facilities.
- The City also has its minimum standards for recreation and culture and open space, so in order to meet and maintain these standards through the 10% MR dedication, the City would need to buy the additional land required for retention ponds and wetlands from the developer.
- There is very little cost difference in the maintenance of a wet (retention) pond or a constructed wetland compared to a dry (detention) pond or any other grassed area for landscaping and mowing – maybe just additional litter and mosquito control.
- The on-site alternative technologies mainly work on a site specific, small scale basis. On a City-wide scale you still need the pipes to the receiving body, simply because the site cannot handle the volume of water during storm events.
- The way the City use detention ponds as a dual purpose park and sport field is a sustainable practice.
- The City does not use greywater irrigation for parks and playgrounds, mainly because very little irrigation is done. The needs for irrigation are assessed based on the recent rainfall measurements. The actual water consumption for irrigation is measured. The use of such systems would depend on individual homeowners or condominium associations.



**Appendix 8**

**Fiscal Considerations (Chapter 9 of Background Report No. 5)**

## **9. FISCAL CONSIDERATIONS**

### **9.1 Infrastructure Costs**

#### ***Overview***

What are the costs of 'best practices' in sustainable community development? Is the concept of 'sustainable communities', also referred to as the 'new urbanist movement' or 'neo traditional design', fiscally sustainable, or is this nothing more than an expensive market trend in subdivision and housing? These questions are addressed in the following summaries of a number of case studies, literature overviews and study papers.

The opinions expressed are those from the literature reviewed. Many of the conclusions are based on case-specific or other circumstances that may be quite different in another case. Therefore, not all of the conclusions could be applied to Red Deer, however, the general trends and findings provided by these case studies are indicative of the nature of fiscal considerations in sustainable community development, and as such are noteworthy in this study.

#### **9.1.1 Chesapeake Bay Literature Review**

In 1993 the Chesapeake Bay Program's Subcommittee on Population Growth and Development retained CH2M HILL to perform a comprehensive review of the literature dealing with how the capital cost of providing services and infrastructure varies according to the characteristics of residential development. The consultant was asked to present the findings from the literature and draw conclusions where appropriate. The findings of the study were printed by the U.S. Environmental Protection Agency for the Chesapeake Bay Program (CH2M HILL, May 1993: 'Cost of Providing Government Services to Alternative Residential Patterns', prepared for the Chesapeake Bay Program's Subcommittee on Population Growth and Development).

Through the study the following trends have been observed:

- The capital costs of intra-neighbourhood services are, for the most part, most sensitive to net density and lot size. These capital costs are also affected by service and design standards. Population and locational factors have moderate to minimal effects on the capital costs of intra-neighbourhood services.
- The capital costs of inter-neighbourhood services tend to be, depending on their level of capital intensity, highly sensitive and sensitive to gross development density (for trunk lines and arterial streets), and highly sensitive to the population to be served (for labor intensive services). For the capital-intensive services, net density and lot size have less of an effect. Capital costs are also sensitive to service standards. Locational attributes have, with the exception of arterials, a minimal effect on capital costs.
- The capital cost of city level services is most sensitive to the total population to be served, and is only slightly less sensitive to capacity utilization and to design and service standards. The type of dwelling unit affects the capital cost for some services, such as high schools, water supply and water treatment, and highways. The cost of city level services is not sensitive to development density or to lot size.

Presented below are the more detailed conclusions of the CH2M HILL study:

#### ***General***

- The capital cost per dwelling unit of intra-neighbourhood services declines as density increases and lot size diminishes. Although the decline is due primarily to

development density and lot size, other factors also have an effect (i.e. service and design standards).

- An increasing proportion of the marginal capital costs per dwelling unit, particularly for capital-intensive intra-neighbourhood services, are being incurred by the homeowners through the imposition of impact fees and proffer charges (in Canada these costs are comparable to development cost charges through levies).
- Density and lot size are not the only factors that determine the capital cost of providing intra-neighbourhood services. Service and design standards also affect capital costs.
- The precise contribution of cost factors in determining the total capital cost per dwelling unit remains unclear, particularly for inter-neighbourhood and city level services, but some idea of relative effects can be ascertained.
- The greatest reduction in total capital costs per dwelling unit through the use of higher density residential development is achieved in intra-neighbourhood services. The reduction in capital cost per dwelling unit from more efficient development forms is greater at the subdivision or neighbourhood level and is smaller at the municipal, county, or city level.
- The use of compact, higher density residential development forms produces a small percentage savings in capital cost at the city or statewide levels.
- Infill development or contiguous development will minimize marginal capital costs for inter-neighbourhood services and, to a lesser extent, for city level services.
- Increases in the population growth rate and population density produce increases in local per capita annual operating and maintenance expenditures and, to a lesser extent, in annual per capita capital spending.
- The capital cost per dwelling unit of providing services is only a minor proportion of the total annual costs per dwelling unit (annual operating and maintenance cost plus annualized capital cost).
- Not all local jurisdictions provide comparable services, either in terms of the types provided or service levels. This complicates comparing the cost of providing services to dwellings units located in rural areas to that of suburban areas.
- Demographic characteristics of the occupants of dwellings units to be served are a major factor in determining the demand for and resulting cost of providing labor-intensive services to new residential development.
- The cost of providing education services, both capital and operating, is the largest cost per dwelling unit expense in most local budgets. Education costs are only minimally sensitive to development density and lot size, and, to a lesser extent, to the location of new development.

#### Intra-neighbourhood Services

Because of their linear, capital-intensive nature, the capital costs of intra-neighbourhood services are the most sensitive to the form and development density of residential development. These services have the greatest potential for shifting capital costs from local governments to property owners through the use of impact fees.

- The capital cost of all intra-neighbourhood services, except stormwater structures, is highly sensitive to lot size and net development density. Both factors interact to determine the spacing between dwelling units; frontage length of pipe, streets, street lighting, and sidewalks required per residential lot; and, ultimately, capital cost.
- Intra-neighbourhood capital costs are sensitive to gross density. Where gross and net densities are nearly equal (as in standard subdivisions where there is no clustering), capital costs are highly sensitive to gross density.
- Intra-neighbourhood services can be provided most efficiently (cost per dwelling unit) for high-density, compact, residential developments, although density and lot size are

not the only important factors. Intra-neighbourhood capital costs vary in sensitivity to service and design standards.

- The marginal capital cost of providing intra-neighbourhood facilities to new residential development is much lower when density is increased or infill development occurs than it is when the new development is built in unserved areas in a leapfrog or scattered form. Changes in density and flow coming from within a given residential area produce relatively small changes in the capital cost of intra-neighbourhood and inter-neighbourhood facilities, particularly water and sewer pipes.

#### Inter-neighbourhood Services

The capital cost of inter-neighbourhood services are, in general, less sensitive to lot size and net density, and are more sensitive to gross density and to the size of the population to be served. Major conclusions about inter-neighbourhood services are presented below:

- The capital cost of inter-neighbourhood services is less sensitive than that of intra-neighbourhood services to the development density and lot size of the residential areas being served, and is more sensitive to population density within the service area and to locational factors
- The cost of linear, inter-neighbourhood services, such as water, sewer, and stormwater trunk lines, and roads, are highly sensitive to the gross development density of the service area. This determines the total length of the network that connects demand centers, such as neighbourhood and subdivisions, with interceptors or central treatment facilities.
- The most expensive residential land use pattern in capital costs per dwelling unit consists of scattered, noncontiguous neighbourhoods and subdivisions, which results in low service area gross density.
- With the exception of education, the capital cost portion of inter-neighbourhood services is a much smaller proportion of the total costs per dwelling unit than the capital cost portion of intra-neighbourhood services is.
- Locating new residential development at the edge of existing service areas decreases the capital and annual costs of providing inter-neighbourhood services. The capital cost of providing the linear capital facilities that connect a new development to the existing infrastructure systems is minimized. A contiguous location also allows for more cost-effective capital facilities that support such labor-intensive inter-neighbourhood services as solid waste, police, fire, and emergency medical.

#### City Level Services

- In general, the capital costs for providing city level services are most sensitive to the population factors and service standards, and are less sensitive to the development density, type, and location of the new residential development. City level services, with the exception of general government, generally are provided in large increments of capacity, have long service lives, and often enable economies of scale in unit capital and operating and maintenance costs to be obtained.
- The capital costs of water and wastewater treatment, water supply facilities, and solid waste disposal facilities are highly sensitive to the number of persons to be served, which includes the current and projected populations. Often, these facilities must be designed with substantial initial excess capacity to accommodate future development.
- The capital costs of most city level services are sensitive to service characteristics, specifically service standards and capacity utilization. Design standards determine the capital cost of city level facilities through engineering standards and regulations that may specify treatment methods. Underutilized city level facilities, particularly

water and wastewater treatment plants, highways, and water supply facilities, can impose high initial marginal costs on existing residents.

The general effect of density on per-unit costs for streets, utilities and schools is illustrated in Table 9-1.

**Table 9-1:** (Adapted from: '*The Energy Yardstick: Using PLACE<sup>3</sup>S to Create More Sustainable Communities*', California Energy Commission, Oregon Department of Energy & Washington State Energy Office, 1996)

**THE EFFECT OF DENSITY ON INFRASTRUCTURE COSTS**

Residential Density (dwelling unit/hectare)	Infrastructure Cost per Dwelling Unit (US\$)			Total Infrastructure Cost for 30 Dwelling Units (US\$)
Streets	Utilities	Schools		
7.5	10,000	15,500	17,000	1,275,000
12.4	8,000	10,000	17,000	1,050,000
24.7	6,500	7,000	14,000	825,000
29.7	6,000	8,000	13,500	825,000
37	4,500	4,500	14,000	690,000
74	2,500	3,000	5,000	315,000

Findings such as that of the CH2M HILL study and various other recent studies across North America seem to support the famous 1976 study from the Real Estate Research Corporation for the US Environmental Protection Agency. This study concluded that road and street systems cost 33% less to build and 51% less to maintain in a neighbourhood of townhouses than in one of single family detached homes. It found that the comparable figures for utilities (water, sewer, storm drainage, gas, electricity, and telephone and underground cables) are 58% less to build and 30% less to maintain. The study also showed that costs for other infrastructure, such as parks, public buildings, and schools, do not vary much across neighbourhoods. Particularly the Canadian studies offer consensus on the impact of different types of development patterns on infrastructure costs. These studies find that compact urban development results in lower infrastructure costs (especially for water and sewers) and lower operating costs (from *C.D. Howe Institute Commentary #160, February 2002*).

### 9.1.2 The CMHC comparative study of Cornell community, Town of Markham, ON

The Canadian Mortgage and Housing Corporation has undertaken a number of studies with regard to cost comparisons. One such study compared the higher density neo-traditional community of Cornell with two 'conventional' communities, namely Mintleaf (at a low-density) and Armadale (at a slightly higher density). The purpose of the comparison was to examine the relative effect of density, engineering standards and street layout on infrastructure costs. The comparison is shown in Table 9-2. (For interest sake, Report No. 3 provided information that showed the average density per gross hectare in Red Deer at 11.55.)

**Table 9-2** (Source: 'Changing Values, Changing Communities: A Guide to the development of Healthy, Sustainable Communities', CMHC)

<b>Table 8: Comparative Data for Cornell, Armadale and Mintleaf Communities</b>						
<b>ITEM</b>	<b>CORNELL (\$)</b>		<b>ARMADALE (\$)</b>		<b>MINTLEAF (\$)</b>	
Number of units <sup>1</sup>	890	1,070	890	1,070	890	1,070
Gross area (ha) <sup>2</sup>		42	63	79	76	90
School, park area (ha)		5.3	10.5	12.9	9.2	9.2
Net area (ha)		36.7	52.5	66.1	66.8	80.8
Gross density (upha)	21.2	25.5	14.1	13.5	11.7	11.9
Net density (upha)	24.3	29.2	17	16.2	13.3	13.2
Road length (m)		6,040	7,055	8,765	8,350	9,950
Lane length (m)		3,680	0	0	0	0
Road length per ha (m) (not including lanes)		144	112	111	110	111
Road per unit (m) (not including lanes)	6.8	5.6	7.9	8.2	9.4	9.3
Full infrastructure cost (including roads, lanes and other linear services) <sup>3</sup>	10,226,100	10,432,500	9,757,070	12,097,770	12,176,980	14,615,130
Full infrastructure cost per unit	11,490	9,750	10,963	11,411	13,682	13,659
Full infrastructure cost per metre of road	1,693	1,727	1,383	1,393	1,458	1,469

1. The consultants based the cost comparisons on two alternative concepts: one with 890 units, the other with 1,070 units.
2. The physical areas of each subdivision used for the cost analysis were determined by balancing the same number of units that are in the subject Cornell neighbourhood. Hence the comparison is based on the number of units produced rather than the physical area developed.
3. Infrastructure costs represent the costs of municipal servicing that is normally required in the development of a new plan of subdivision. They do not include land costs, consulting fees, levies and similar development costs.

**Significant findings:** The following points summarize some of the significant findings of the study:

- It can be concluded that neo-traditional street configurations will increase infrastructure costs by about 35% over conventional street configurations, assuming net densities are the same in both plans. Of these extra costs, about 60-65% can be attributed to the addition rear lanes alone (Armada and Mintleaf subdivisions are laneless).
- For conventional suburban developments such as Armada and Mintleaf, a 50% increase in density from 14 to 21 units per hectare, could reduce per unit infrastructure costs by about 25%. A doubling in density, from 14 to 28 units per hectare, could reduce per unit costs by about 35%.
- The net result is that cost savings can be realized in a neo-traditional compact form community when compared to a low-density conventional plan such as the Mintleaf subdivision; similar savings will not be realized when compared to a slightly higher-density conventional neighbourhood such as Armada (i.e. there are still savings, but of a lesser order. Note that considerable savings already occur when the density is increased from the Mintleaf level, which is in the same order as that of Red Deer, to the Armada level, which is only slightly higher).

**Capital Costs:** The following summarises some of the infrastructure works for which reduced standards can be considered to save capital costs:

- Revised street hierarchies with reduced right-of-way widths that attempt to more accurately reflect intended levels of traffic and parking requirements, include a range of alternative streets, including mews, minor streets, conventional streets, major streets, main streets and grand boulevards. Right-of-way widths are reduced from the standard 20 m to as little as 12.5 m to 30 m.
- In some case studies right-of-way widths are reduced, but the standard pavement width of 8.5 m has been maintained. In other cases pavement widths on local streets range from 9 m to 8 m, for a saving of approximately \$30 per metre of road.
- The need for sidewalks on the lower order streets in the revised hierarchy, notably the minor streets and mews, has been questioned. Curb standards are being re-examined, especially the expensive two-stage curb and gutter. In some cases curbs may be eliminated if a rural cross-section is used to improve stormwater quality. The cost savings for sidewalks and curbs are in the order of \$135 per metre of road.
- Geometric road standards are generally adopted based on the movements of garbage trucks, fire trucks and snow plows. Without compromising public safety, many of these standards could be relaxed in certain situations.
- Technological improvements in watermain materials and appurtenances have allowed for smaller pipe diameters, greater valve spacing and the ability to locate mains under the pavement. Additional savings can be achieved by installing valve boxes rather than expensive chambers.
- Technological improvements in sewer materials and cleaning methods have allowed smaller manholes, greater manhole spacing, lower drops through manholes and fewer house connections (dual connections serving two houses).

**Operational Costs:** In the cost comparison of the Cornell, Armada and Mintleaf communities it was found that the operational costs for the neo-traditional plan ranged from 12% greater to 11% less than the conventional plans, depending on the densities – denser, compact development decreases the per unit cost of maintenance. Most maintenance costs are directly related to the amount of roads, therefore, an increase in the length of road and the addition of rear lanes increase the cost of maintenance. The most savings (15%) is achieved in garbage collection when this is done along rear lanes.



***Replacements Costs:*** As with capital and maintenance costs, it was found that an increase in the length of roads and lanes tended to increase replacement costs, whereas a more compact development tended to reduce the costs when considered on a per-unit basis.

***Difficulties and Obstacles***

- Review agencies tend to seek improvements in their own particular area of concern (sometimes with unrealistic expectations) without considering the implications for other areas which affect the overall quality and performance of a project.
- Innovative proposals challenge standard development guidelines and practices in areas that require municipal and provincial approval of variances.
- These difficulties can be overcome by maintaining the overall vision for the community and encouraging all players and stakeholders to look at the urban fabric as a whole.

**9.1.3 The CMHC test site in Ottawa-Carleton, ON**

In 1997 the CMHC undertook a study to compare infrastructure costs and municipal revenues in conventional and alternative development patterns. For this purpose a test site representative of conventional suburban development patterns (at a gross density of 12.2 units per hectare) was selected in the Regional Municipality of Ottawa-Carleton (i.e. the community of Barrhaven, in the South Urban Community of the City of Nepean). An alternative plan based on the principles of 'new urbanism' (at a gross density of 20.9 units per hectare) was superimposed onto the land area of the conventional site. The development statistics of the two plans were compared and a financial model to quantify public and private life-cycle infrastructure costs over a 75-year period was developed. The infrastructure costs and revenues associated with each development pattern over the 75-year period were calculated and compared. Tables 9-3 through 9-7 provide the details of the comparisons, while the most significant findings of the study include:

- The infrastructure in the alternative plan, featuring a denser development and a broader mix of house types and land uses, is approximately 7.5% more cost effective for both private and public sectors, and approximately two thirds of the savings are public savings.
- A reduction in infrastructure capital costs of \$5,151 per unit was achieved in the alternative plan, of which approximately 60% accrue to the private sector, the rest to the public sector. Assuming the savings are passed on to the consumer, infrastructure capital costs represent an opportunity to reduce housing unit cost by approximately \$5,000.
- Operating and maintenance costs for the residential component are almost \$2,000 per unit less in the alternative plan, all of which are public savings.
- Schools and school transportation represents approximately half of total life-cycle costs in the alternative and the conventional plans. The capital costs for these items are 4% less in the alternative plan, while the operating and maintenance costs are about equal in the two plans.

**TABLE 9-3: PUBLIC AND PRIVATE CAPITAL DEVELOPMENT COSTS**  
 (Source: 'Conventional and Alternative Development Patterns. Phase 1: Infrastructure Costs', CMHC, 1997)

Table 10: Comparison of Public Versus Private Emplacement Costs (\$)												
Service Component	Conventional Site				Alternative Plan				Difference			
	Private		Public		Private		Public		Private		Public	
	Res /unit	Non-res /sq. m.	Res /unit	Non-res /sq. m.	Res /unit	Non-res /sq. m.	Res /unit	Non-res /sq. m.	Res /unit	Non-res /sq. m.	Res /unit	Non-res /sq. m.
1. Roads (inc. utilities) & serv. conn.)	3,885	92.90	1,387	33.16	2,444	23.09	867	8.19	(1,441)	(69.81)	(520)	(24.97)
2. Sidewalks & Streetlighting	174	4.17	323	7.73	473	4.47	163	1.54	299	0.30	(160)	(6.19)
3. Sanitary Sewer	1,151	13.04	734	8.32	794	5.05	397	2.53	(358)	(7.99)	(337)	(5.79)
4. Stormwater Management	2,392	57.21	1,099	26.27	1,605	15.17	605	5.72	(787)	(42.05)	(493)	(20.55)
5. Water distribution	1,004	11.38	754	8.54	706	4.49	552	3.51	(298)	(6.88)	(202)	(5.03)
6. Transit	31	0.31	693	7.09	0	0	643	7.02	(31)	(0.31)	(49)	(0.07)
7. Fire Protection	0	0	298	3.20	0	0	270	2.41	0	0	(29)	(0.80)
8. Police Protection	0	0	275	2.81	0	0	258	2.81	0	0	(17)	0
9. Parkland	2,873	12.62	718	3.15	2,695	2.45	674	0.61	(178)	(10.17)	(45)	(2.54)
10. Recreational Facilities	0	0	3,335	14.65	0	0	3,183	2.89	0	0	(152)	(11.76)
11. Libraries	0	0	522	2.29	0	0	489	0.44	0	0	(32)	(1.85)
12. Works & Parks Depots	0	0	417	9.97	0	0	358	3.39	0	0	(58)	(6.58)
13. Garbage Collection	0	0	0	0	0	0	0	0	0	0	0	0
14. Hydro-electric Services	1,363	n.a.	629	n.a.	1,116	n.a.	615	n.a.	(247)	n.a.	(14)	n.a.
15. School Facilities/ Transportation	0	0	10,562	0	0	0	10,561	0	0	0	(1)	0
<b>TOTAL</b>	<b>12,873</b>	<b>\$191.63</b>	<b>21,746</b>	<b>\$127.20</b>	<b>9,832</b>	<b>\$54.72</b>	<b>19,636</b>	<b>\$41.06</b>	<b>(3,041)</b>	<b>(\$136.91)</b>	<b>(2,110)</b>	<b>(\$86.13)</b>

**TABLE 9-4: INFRASTRUCTURE REPLACEMENT COSTS**  
(Source: see Table 9-3)

<b>Table 11: Comparison of Replacement Costs (\$) (1994 \$ Present Value)</b>								
<b>Service Component</b>	<b>Conventional Site</b>		<b>Alternative Plan</b>		<b>Difference</b>			
	Residential (per unit)	Non-res (per sq. m.)	Residential (per unit)	Non-res (per sq. m.)	Residential		Non-residential	
					(\$)	%	(\$)	%
1. Roads (inc. utilities) & serv. comm.)	3,353	80.19	2,020	19.09	(1,333)	-39.7%	(61.10)	-76.2%
2. Sidewalks & Streetlighting	134	3.21	221	2.09	87	64.9%	(1.12)	-34.8%
3. Sanitary Sewer	145	1.64	92	0.58	(53)	-36.5%	(1.05)	-64.3%
4. Stormwater Management	253	6.06	162	1.53	(91)	-35.9%	(4.52)	-74.7%
5. Water distribution	411	4.66	294	1.87	(117)	-28.4%	(2.79)	-59.8%
6. Transit	623	6.38	571	6.23	(53)	-8.4%	(0.15)	-2.4%
7. Fire Protection	168	1.85	148	1.14	(19)	-11.6%	(0.71)	-38.4%
8. Police Protection	230	2.36	216	2.36	(14)	-6.2%	0.00	0.0%
9. Parkland	431	1.89	404	0.37	(27)	-6.2%	(1.52)	-80.6%
10. Recreational Facilities	721	3.17	705	0.64	(17)	-2.3%	(2.53)	-79.8%
11. Libraries	268	1.18	251	0.23	(17)	-6.2%	(0.95)	-80.6%
12. Works & Parks Depots	323	7.72	278	2.62	(45)	-14.0%	(5.10)	-66.0%
13. Garbage Collection	0	0	0	0	0	0.0%	0	0.0%
14. Hydro-electric Services	939	n.a.	816	n.a.	(123)	-13.1%	n.a.	n.a.
15. School Facilities/ Transportation	648	0	648	0	0	0.0%	0	0.0%
<b>TOTAL</b>	<b>\$8,649</b>	<b>\$120.30</b>	<b>\$6,828</b>	<b>\$38.76</b>	<b>(\$1,821)</b>	<b>-21.1%</b>	<b>(\$81.54)</b>	<b>-67.8%</b>

**TABLE 9-5: OPERATING AND MAINTENANCE COSTS**  
(Source: see Table 9-3)

<b>Table 12: Comparison of Operating &amp; Maintenance Costs (1994 \$ Present Value)</b>								
<b>Service Component</b>	<b>Conventional Site</b>		<b>Alternative Plan</b>		<b>Difference</b>			
	Residential (per unit)	Non-res (per sq. m.)	Residential (per unit)	Non-res (per sq. m.)	Residential		Non-residential	
					(\$)	%	(\$)	%
1. Roads (inc. utilities & serv. conn.)	1,822	43.56	2,060	19.47	239	13.1%	(24.09)	-55.3%
2. Sidewalks & Streetlighting	304	7.26	368	3.47	64	21.0%	(3.79)	-52.2%
3. Sanitary Sewer	622	7.05	395	2.51	(228)	-36.6%	(4.54)	-64.4%
4. Stormwater Management	360	8.62	233	2.20	(127)	-35.3%	(6.42)	-74.4%
5. Water distribution	1,365	15.47	893	5.69	(472)	-34.6%	(9.78)	-63.2%
6. Transit	4,760	48.71	4,450	48.55	(310)	-6.5%	(0.16)	-0.3%
7. Fire Protection	3,571	36.54	3,349	36.54	(222)	-6.2%	0	0.0%
8. Police Protection	5,162	52.82	4,841	52.82	(320)	-6.2%	0	0.0%
9. Parkland	713	3.13	553	0.50	(160)	-22.5%	(2.63)	-84.0%
10. Recreational Facilities	3,718	16.33	3,528	3.21	(190)	-5.1%	(13.12)	-80.4%
11. Libraries	2,145	9.42	2,012	1.83	(133)	-6.2%	(7.59)	-80.6%
12. Works & Parks Depots	32	0.76	27	0.26	(4)	-14.0%	(0.50)	-66.0%
13. Garbage Collection	1,850	0	1,735	0	(114)	0.0%	0	0.0%
14. Hydro-electric Services	3,339	n.a.	3,346	n.a.	7	0.2%	n.a.	n.a.
15. School Facilities/ Transportation	48,584	0	48,579	0	(4)	0.0%	0	0.0%
<b>TOTAL</b>	<b>\$78,345</b>	<b>\$249.68</b>	<b>\$76,370</b>	<b>\$177.06</b>	<b>(\$1,975)</b>	<b>-2.5%</b>	<b>(\$72.63)</b>	<b>-29.1%</b>

**TABLE 9-6: TOTAL LIFE-CYCLE COSTS: PUBLIC AND PRIVATE**  
 (Source: see Table 9-3)

Table 13: Comparison of Total Life-cycle Costs (1994 \$ Present Value)								
Service Component	Conventional Site		Alternative Plan		Difference			
	Residential (per unit)	Non-res (per sq. m.)	Residential (per unit)	Non-res (per sq. m.)	Residential		Non-residential	
					(\$)	%	(\$)	%
1. Roads (inc. utilities) & serv. conn.)	10,446	249.82	7,392	69.84	(3,054)	-29.2%	(179.97)	-72.0%
2. Sidewalks & Streetlighting	936	22.38	1,225	11.58	289	30.9%	(10.80)	-48.3%
3. Sanitary Sewer	2,652	30.05	1,677	10.67	(975)	-36.8%	(19.37)	-64.5%
4. Stormwater Management	4,105	98.16	2,606	24.62	(1,499)	-36.5%	(73.54)	-74.9%
5. Water distribution	3,534	40.04	2,446	15.56	(1,089)	-30.8%	(24.47)	-61.1%
6. Transit	6,106	62.49	5,664	61.80	(442)	-7.2%	(0.69)	-1.1%
7. Fire Protection	4,037	41.60	3,767	40.09	(270)	-6.7%	(1.51)	-3.6%
8. Police Protection	5,667	57.99	5,315	57.99	(352)	-6.2%	0	0.0%
9. Parkland	4,735	20.80	4,325	3.93	(410)	-8.7%	(16.87)	-81.1%
10. Recreational Facilities	7,774	34.15	7,416	6.74	(359)	-4.6%	(27.41)	-80.3%
11. Libraries	2,934	12.89	2,752	2.50	(182)	-6.2%	(10.39)	-80.6%
12. Works & Parks Depot	772	18.45	663	6.27	(108)	-14.0%	(12.19)	-66.0%
13. Garbage Collection	1,850	0	1,735	0	(114)	0.0%	0	0.0%
14. Hydro-electric Services	6,270	n.a.	5,893	n.a.	(377)	-6.0%	n.a.	n.a.
15. School Facilities/ Transportation	59,794	0	59,789	0	(5)	0.0%	0	0.0%
<b>TOTAL</b>	<b>\$121,613</b>	<b>\$688.81</b>	<b>\$112,666</b>	<b>\$311.60</b>	<b>(\$8,946)</b>	<b>-7.4%</b>	<b>(\$377.21)</b>	<b>-54.8%</b>

**TABLE 9-7: TOTAL LIFE-CYCLE COSTS: PUBLIC ONLY**

(Source: see Table 9-3)

Table 14: Comparison of Total Life-cycle Costs (\$) Public Costs Only (1994 \$ Present Value)								
Service Components	Conventional Plan		Alternative Plan		Difference			
	Residential (per unit)	Non-res (per sq. m.)	Residential (per unit)	Non-res (per sq. m.)	Residential		Non-residential	
					(\$)	%	(\$)	%
1. Roads (inc. utilities) & serv. conn.)	6,561	156.91	4,948	46.75	(1,614)	-24.6%	(110.16)	-70.2%
2. Sidewalks & Streetlighting	762	18.21	752	7.11	(9)	-1.2%	(11.10)	-61.0%
3. Sanitary Sewer	1,501	17.01	884	5.63	(617)	-41.1%	(11.38)	-66.9%
4. Stormwater Management	1,712	40.95	1,001	9.46	(712)	-41.6%	(31.49)	-76.9%
5. Water distribution	2,530	28.66	1,739	11.07	(791)	-31.2%	(17.59)	-61.4%
6. Transit	6,076	62.18	5,664	61.80	(412)	-6.8%	(0.38)	-0.6%
7. Fire Protection	4,037	41.60	3,767	40.09	(270)	-6.7%	(1.51)	-3.6%
8. Police Protection	5,667	57.99	5,315	57.99	(352)	-6.2%	0	0.0%
9. Parkland	1,862	8.18	1,631	1.48	(231)	-12.4%	(6.70)	-81.9%
10. Recreational Facilities	7,774	34.15	7,416	6.74	(359)	-4.6%	(27.41)	-80.3%
11. Libraries	2,934	12.89	2,752	2.50	(182)	-6.2%	(10.39)	-80.6%
12. Works & Parks Depots	772	18.45	663	6.27	(108)	-14.0%	(12.19)	-66.0%
13. Garbage Collection	1,850	0	1,735	0	(114)	0.0%	0	0.0%
14. Hydro-electric Services	4,908	n.a.	4,778	n.a.	(130)	-2.6%	n.a.	n.a.
15. School Facilities/ Transportation	59,794	0	59,789	0	(5)	0.0%	0	0.0%
<b>TOTAL</b>	<b>\$108,740</b>	<b>\$497.18</b>	<b>\$102,834</b>	<b>\$256.88</b>	<b>(\$5,906)</b>	<b>-5.4%</b>	<b>(\$240.30)</b>	<b>-48.3%</b>

- Life-cycle savings of \$8,947 per unit generate approximately \$62.6 million in savings when spread over a community of 7,000 dwellings. Over a 75-year period, this translates into annual savings of about \$850,000 for the alternative plan.
- In addition to providing significant public and private cost savings, the alternative plan accommodates many more units, thereby reducing the pressure to develop new residential lands. The increased density supports mixed-use development, stimulates the provision of a range of housing and transportation options, and a variety of employment, commercial and community activities.
- Community designs which make more efficient use of land, cost less to build and operate than low-density communities built according to conventional standards. The savings are largely due to higher densities, which reduce the per-unit capital, operating and maintenance costs of the community's linear infrastructure.
- Similar savings than those achieved for linear infrastructure will not be realized for certain community services where costs are not significantly influenced by spatial factors. School costs, for example, are largely a function of the number of students and are not significantly affected by community design. Therefore, while there may be a large cost difference between community designs for linear infrastructure, when considered with the rest of the (non-linear) community services, overall per unit savings are less obvious.
- The alternative plan generates less revenue under the existing municipal revenue rate structure. There are two reasons for this. First, the alternative plan contains proportionately more higher-density housing which generates less development charges on a per-unit basis than the single-detached houses. Single-detached houses account for over 61% of all the housing in the conventional plan, and only 43% in the alternative plan. Secondly the alternative plan generates significantly less property taxes than the conventional plan, because the smaller lots and smaller houses in the alternative plan are assumed to be more affordable, and therefore assessed at lower market values (note that the study acknowledges that this assumption is case-specific and not necessarily true of all 'neo-traditional' developments). The end result is that the per unit cost savings associated with the alternative plan are not enough to offset the reduction in per unit revenues, making the conventional plan more attractive under the current property tax system. This situation gives rise to a familiar debate in the field of municipal finance – specifically, should property taxes be more closely related to the infrastructure costs incurred by different housing forms, locations and development patterns, or is the current property tax system which sets rates in relation to assessments and property values a fairer and more equitable system overall?

#### **9.1.4 The C.D. Howe Institute Commentary No. 160, February 2002**

- The conclusions of a study report in the C.D. Howe Institute Commentary No. 160, February 21, 2002, ISSN 0824-8001, by Enid Slack draws similar conclusions as those discussed under the last bullet of sub-section 9.1.3 above. The study report starts from the premise that Canada's rapid urbanization makes it necessary to achieve a balance between urban growth and the protection of farmland, open spaces, and environmentally sensitive areas. Many people believe that achieving this balance requires compact development, rather than urban sprawl, partly because the cost of providing municipal services is higher in low-density, outlying developments than in high-density developments within the central city. Cities can and do use planning tools to influence the location, type, and density of development. But they should not ignore the significant potential impact of revenue-raising tools. At least, these tools should not encourage sprawl. Yet empirical studies show that the property tax, Canadian local governments' main source of revenue, sometimes encourages low-density development. A regime that does not match property taxes with services received has the potential to reduce property improvements and the density of development and is likely to affect some decisions about



low-density, outlying developments than in high-density developments within the central city. Cities can and do use planning tools to influence the location, type, and density of development. But they should not ignore the significant potential impact of revenue-raising tools. At least, these tools should not encourage sprawl. Yet empirical studies show that the property tax, Canadian local governments' main source of revenue, sometimes encourages low-density development. A regime that does not match property taxes with services received has the potential to reduce property improvements and the density of development and is likely to affect some decisions about business location. User fees can be an effective tool for achieving a desired development pattern if they are correctly applied, which rarely occurs in Canada. Development charges also have the potential to encourage the efficient use of land and infrastructure. They must, however, be structured to reflect the full costs and benefits of development. In the absence of such charges, developers consider only their own costs and benefits, not the impact on the city's costs of providing services. Even a charge applied uniformly across the city can encourage inefficiency: developments that impose higher municipal costs (usually developments on the fringes) end up being subsidized by those that incur lower costs (usually developments in existing, high-density neighbourhoods). Overall, cities should remove distortions in the property tax system, eliminating the overtaxation of apartments and commercial and industrial properties relative to single-family houses. And they should set user fees and development charges so they do not work against planning objectives.

#### **9.1.5 St. Albert "Financial Discussions Paper" – General Municipal Plan Update Discussion Paper**

The primary purpose of the study was to determine the implications on municipal finance of different densities and house sizes. The study reviewed the City's options for adopting policy directions in the then General Municipal Plan (now Municipal Development Plan) update that would address the ratios for dwelling type mix and non-residential/residential assessment split in new growth areas, considering the financial implications of each option.

The St. Albert study generated a number of Area Structure Plan scenarios (land use and density) on an area structure plan and a city-wide basis including new growth areas. With the aid of a financial model, the financial impacts of these scenarios were analyzed by determining municipal revenues and costs for each scenario.

An existing area structure plan was used as the base model to which fourteen different scenarios were applied. The differences were based on various combinations of the split between multiple and single family units, smaller and larger lot sizes, and smaller and larger house sizes. For the purpose of the study the definition of an average smaller lot was 548 m<sup>2</sup> (5,900 ft<sup>2</sup>) and an average small house was 158 m<sup>2</sup> (2,600 ft<sup>2</sup>). The resultant densities for the area structure plan scenarios varied between 6.2 units/acre and 7.4 units/acre. From this the projected population for each scenario was determined.

Average assessment rates and per capita municipal operating and capital costs were used to develop the financial model.

The basic findings were:

1. The analysis found that the 10/90 multiple family/single family split, large lots and large house scenario was the one that generated the most favourable ranking from a municipal revenue perspective (\$547,000 net gain). The least favourable scenario that was practically likely was the 30/70 small lot, small house scenario (\$287,000 net loss). All scenarios based on a smaller house variable displayed a net loss in municipal finances. This would suggest that house size, rather than density, is the most significant factor contributing to the maximization of net financial benefit to the City (see Table 5).
2. Although the study identified density as a variable with secondary importance when it comes to financial impact on the City, the model determined that the higher the density, the less favourable is the net financial result. This is primarily due to higher municipal operating costs calculated on a per capita basis.
3. This essentially means that single family dwellings generate more tax dollars per person than do multiple family units.
4. It also means that for single family units, larger houses generate more tax dollars per person than do small houses.
5. Note that the density variable in the fourteen scenarios was based on household sizes typical to St. Albert at the time (1991). Assuming that household sizes would follow the national trend of decline, the study applied a sensitivity test and found that if household sizes for multiple family units were reduced from 2.7 persons per unit to 2.0 persons per units, and single family unit household sizes were reduced from 3.4 to 3.2 persons per unit, the ranking order of the fourteen scenarios changed considerably, and most scenarios generated a net gain in municipal finances (although the small lot, small house scenarios still recorded a net loss). The study acknowledges that this would suggest that in spite of the major role played by house size in terms of municipal finance, population density (as opposed to dwelling unit density) is also critical (see Table 6).

In terms of the basis of the non-residential/residential split in new growth areas:

6. The scenario with a 25/75 split with larger houses ranked the highest of all scenarios in terms of net financial gain to the City. This result further reinforces the importance of larger houses in determining the net financial benefit to the City.
7. The impact of larger houses on the financial benefit to the City is so significant that even in scenarios where non-residential assessment was only 14%, the contribution of tax dollars by larger houses still accounted for a net gain to the City.

### Implications and Issues

From a purely financial perspective the optimal land use and development scenario for the new growth areas in the City of St. Albert in 1991 was the 25/75 non-residential vs. residential (larger house) scenario. All the smaller house scenarios generated net loss

results. This seemed to indicate that development in new growth areas should display low densities and concentrate on large houses. However, the study cited a number of important planning related caveats to pursuing a homogeneous larger house residential development policy for new growth areas, namely:

1. A low density form of residential development will decrease the population capacity of the existing City boundaries. This would suggest that further investigation of density implications, such as the potential need for additional lands, should be considered and that a unilateral approach which focuses only on the results of the financial analyses may be too narrow and simplistic.
2. A homogeneous form of development which would result from pursuing a policy to encourage low density development and large housing forms will inevitably result in homogeneous socioeconomic neighbourhoods which will cater to a very specific, and perhaps limited, market segment.
3. As populations mature through their lifecycles the demand for housing types changes. The City should retain some flexibility and leeway through its fiscal management and related planning policies in recognition of potential changes in market trends.
4. Affordability and the availability of starter homes is another issue that is affected by house size, and which cannot be ignored in City policies.
5. The fact that three of the six small house scenarios generated net gains instead of net losses when the average household size was reduced in the sensitivity analysis, could also be expected in the new growth areas. This indicates that smaller houses need not be a financial burden if family size decreases. The possibility of smaller family sizes becoming a reality is high based upon past trends.

## **9.2 Marketing and Feasibility**

### ***Overview***

The case studies and literature overviews cited in section 9.1 have attempted to contribute to the debate on the cost-effectiveness of different development patterns. This debate seems to conclude that denser and more compact development patterns are in some ways (in particular with regard to linear infrastructure) more cost efficient to construct, operate and maintain.

One question that remains is whether cost-effectiveness is sufficient reason for municipalities to initiate change. The short answer is that the public's choice about house forms, communities, and the amount they are prepared to pay for municipal services, will be as significant a determinant of future development patterns as economic issues.

From this perspective, some relevant comments from the literature on this subject include the following:

- We often marvel at pre-WW2 developments with great architectural detail, design and quality compared to what we achieve today. The difference is that real estate

projects undertaken in the era before the widespread use of discounted cash flow were generally built for the ages and not for short term returns.

- New Urbanism projects require a mid- to long term investment. In making capital allocation decisions, the private sector uses a methodology whose unintended short-term bias discourages innovative investments in sustainable development as well as in smart growth and new urbanism projects.
- By necessity, the financial markets are conservative. As a result, the lack of a track record for alternative projects comparable to newly conceived and proposed alternative developments means that the latter will experience difficulty in obtaining equity and debt financing. In addition, alternative development projects appear to perform financially in a fundamentally different way than conventional developments.
- Developers depend for their livelihood on accurately identifying and satisfying consumers' needs and desires. Many have been able to carve out niche markets that respond to particular forms of development – from seniors' housing to entertainment complexes. Among niche markets are groups of consumers who crave features and forms of development that promote sustainability.
- The 1990's seemed to mark a fundamental shift in consumer preferences. Evidence of this trend is the resurgence of downtowns as viable residential markets. The underlying reason is probably the aging of the baby boom generation – they are becoming empty nesters and many seem to be questioning why they should remain in suburban isolation. They intend to live a far more active life than their parents did. Generation Xers prefer to live in an urban setting as well.
- In a 1999 CMHC study found that awareness of sustainable community planning issues is low among consumers – neither the environmental dimension of community planning nor the benefits of sustainable communities are clear to the general public at large. This is essentially due to a lack of information being made available to them. At the same time many aware consumers find sustainable community planning to be an intriguing concept. Most, particularly the urban dwellers, like at least some of the elements, though very few buy into the complete package. Of the various sustainable community elements discussed, consumers appear to be the least receptive to the idea of compact communities. For many, this idea has negative associations such as increased parking, traffic and noise as well as loss of privacy. However, consumers were attracted to community features that would enable them to drive less and provide greater convenience and accessibility. The study concluded that education and information of the public on sustainable community planning should focus on those aspects that make communities great places to live, stressing the human dimension of sustainable communities and the potential personal benefits that resonate most strongly with consumers: community interaction and dialogue with neighbours, access, convenience, safety, affordability, options for life cycles and life styles, recreational opportunities, etc. The theme of environmental stewardship should not be overemphasized, but rather woven into the overall message of great livability.

Local government has a number of roles to play:

- Local government as educator, creating political and public will for action and support by communicating the problem and possible solutions, and by facilitating public development of a vision.

- Local government as leader – public policy decisions can encourage new development. Local governments build and maintain infrastructure, the purchase, manage and sell land, they set standards, regulations, taxes and fees; they procure large amounts of products and services, and they provide services required by the community. Through its decisions in these actions, the municipality can determine where and how the community should invest in growth.
- Local government as regulator can review land use bylaws, planning policies and other regulations for elements that hinder sustainable development practices.
- Local government as convenor, bringing together stakeholders on growth and development through constructive dialogue.

### 9.3 Conclusion

The following findings from the case study and literature review appear significant for the purpose of our own study:

- Neighbourhood level capital costs for all infrastructure services except stormwater structures are highly sensitive to lot size and net density, and sensitive to gross density.
- The capital costs of linear infrastructure on a multiple neighbourhood level are highly sensitive to gross density.
- In a neo-traditional community plan the greater length of streets and lanes will increase the total infrastructure cost, but the net effect is that savings can be achieved in the cost per unit. In Red Deer where lanes are already provided, the increase in the total infrastructure costs may be less than expected.
- Infrastructure costs on a neighbourhood level are significantly reduced when only a slight increase in residential density is achieved. These savings have a much less noticeable impact at the city level.
- One study (St. Albert 1991) indicated that residential areas with large lots and large houses generated the most favorable net municipal revenue in relation to services required, as compared to neighbourhood scenarios with much higher densities, including large portions of small houses and multi-family dwellings; this is relevant to note with respect to the often held perception that increased density would improve a municipality's net revenue; also relevant to note is that while a neighbourhood of large lots and large homes may be favorable from a net revenue perspective, such neighborhoods are land consumptive, do not address the multiplicity of housing needs of a community, and produce homogeneous neighbourhoods
- Considering that private capital cost savings are achieved in neo-traditional community plans, these savings could possibly be passed on to consumers (home buyers).
- On a life-cycle basis the infrastructure costs of compact, denser neo-traditional community plans are about 7.5% more cost effective than conventional plans, and almost two-thirds of these savings are public savings.
- Considering that private capital cost savings are achieved in neo-traditional community plans, these savings could possibly be passed on to consumers (home buyers).
- It is the cost of linear infrastructure services that are significantly reduced in neo-traditional community plans. The result is that when considered with the cost of

the rest of the (non-linear) community services, overall per unit savings are less obvious.

- There are opportunities to revisit the basis of municipal tax structures.
- Consumer preference may very well determine whether the new urbanism will become standard practice or fade away as a trend. There are suggestions in the literature that a growing market is emerging for neo-neighbourhoods and sustainable communities built on 'smart growth' principles, namely the aging 'baby boomers' and the maturing generation X-ers.

# **COUNCIL MEETING OF NOVEMBER 18<sup>TH</sup> , 2002**

## **ATTACHMENT**

**DOCUMENT STATUS:**        **PUBLIC**

**REFERS TO:**                **RED DEER GROWING SMARTER:  
DESIGN ELEMENTS AND IDEAS  
FOR NEW RESIDENTIAL  
NEIGHBOURHOODS**

**EXECUTIVE SUMMARY**



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RED DEER GROWING SMARTER:  
DESIGN ELEMENTS AND IDEAS  
FOR NEW RESIDENTIAL NEIGHBOURHOODS

EXECUTIVE SUMMARY



*Parkland Community Planning Services*

*November 2002*

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RED DEER GROWING SMARTER:  
DESIGN ELEMENTS AND IDEAS  
FOR NEW RESIDENTIAL NEIGHBOURHOODS



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November 2002

**RED DEER GROWING SMARTER: DESIGN ELEMENTS  
AND IDEAS FOR NEW RESIDENTIAL NEIGHBOURHOODS  
EXECUTIVE SUMMARY**

**1.0 Foreword**

In the early 1990s, the Province of Alberta established a mission to work to achieve sustainable development by providing leadership, policy advice and strategies for government, business and the general public. One of the resulting recommendations was that all levels of government demonstrate sustainable development leadership in its operations. The City of Red Deer is one community that 'took up the challenge' by addressing 'sustainability' through the Municipal Development Plan and land use planning system.

In the Municipal Development Plan, one of the key goals is: "to apply the principles of sustainability to managing growth and resources so that fiscal, social and environmental initiatives occur in a manner capable of being sustained in the future." This incorporates three inter-related components:

1. Fiscal sustainability, which includes: costs of buildings, maintaining and operating economical communities and infrastructure; affordable services; development of a sound/balanced tax base; regard for spending priorities that will not burden future generations.
2. Social sustainability, which includes: community design which enhances social diversity, adapts to changing lifestyles, and meets the objective of providing access to affordable housing, health care, education, essential goods, community amenities and services in order that basic needs are met.
3. Environmental sustainability, which includes: minimization of air, water and soil pollution; reduction of resource consumption; waste reduction; protection of the natural environment.

Early in 2001, the City initiated a 'sustainable community' study with respect to neighbourhood planning. It was to review current approaches to neighbourhood planning and evaluate these approaches relative to the principles of sustainability, including sustainable community initiative elsewhere in Alberta, Canada and the United States.

The resulting report is titled Red Deer Growing Smarter: Design Elements and Ideas for New Residential Neighbourhoods. One of the report's main findings is present developing neighbourhoods in Red Deer exhibit several elements of sustainability. This suggests that neighbourhood planning in Red Deer is 'on the right track.' Nonetheless, the report identifies aspects where Red Deer's approach to planning neighbourhoods could be improved to further enhance their fiscal, social and environmental sustainability. In this regard, the report challenges the way Red Deer – including the City and the residential development community - plans, designs and builds residential areas.

The terms "neighbourhood" and multi-neighbourhood" are used throughout this Executive Summary. They have the following meaning:

*neighbourhood means a predominantly residential area which is usually one quarter section (64.75 ha [160 acres]) in size.*

*multi-neighbourhood means a predominantly residential area generally comprising of two to four neighbourhoods ranging between two to four quarter sections (129.5 to 259 ha [320 to 640 acres]) in size.*

## **2.0 Background**

### **2.1 Purpose**

The purpose of this Red Deer Growing Smarter Study is to evaluate Red Deer's existing planning and development practices against the concept of sustainability. This is to be done with the view of advising changes and modifications to Red Deer's policies, standards and practices so residential growth is fiscally, environmentally and socially responsible.

### **2.2 Study Objectives**

The Terms of Reference identified three main areas, or objectives, to be investigated by the study:

1. Review of Red Deer's current approaches to neighbourhood planning
2. Outcome of Red Deer's current practices of neighbourhood planning
3. Recommend changes to Red Deer's neighbourhood planning practices.

### **2.3 Research and Technical Background Reports**

The study process included a review of key literature on sustainable development and related planning movements, including new urbanism, traditional neighbourhood development, smart growth, neo-traditional communities and healthy and livable communities. While several different labels are used, these movements share common themes and suggestions on how neighbourhoods can be designed and developed to balance the social, environmental and economic needs of residents.

A review of Red Deer's current policy framework and its resulting influence on planned and developing residential neighbourhoods was undertaken. To gain insights into current practices and suggestions for potential improvement, interviews were conducted with Red Deer's residential land developers, home builders, emergency response personnel and City staff responsible for planning, engineering, parks, and social care.

Through an examination of eleven new and planned neighbourhoods, the major characteristics of Red Deer's neighbourhoods were identified. This allowed for comparisons to aspects of smarter residential growth demonstrated in neighbourhoods in other cities, particularly Alberta communities that are working within the same or similar economic and environmental conditions as Red Deer.

Ideas of 'best practices' from other communities were gained from the study of planned and developing neighbourhoods in numerous Canadian and American cities. From this research, a series of design elements and ideas that can contribute to the development of sustainable neighbourhoods was compiled and assessed for potential application to Red Deer.

The background reports of the Red Deer Sustainable Community Study include:

- Report No. 1: Study Framework (September 2001)
- Report No. 2: Initial Community Vision and Background (September 2001)
- Report No. 3: Red Deer's Neighbourhoods: Policy Framework and Current Form (January 2002) and Supplementary Report
- Report No. 4: Neighbourhood Planning in Other Communities (March 2002)
- Report No. 5: Sustainable Communities: Compendium of Ideas and Practices (June 2002).

### **3.0 Red Deer's Neighbourhoods Today**

The design of Red Deer's newer, developing neighbourhoods is a product of City policies and changing trends in the housing market. While some of the policy influences have been consistent over the last 20 or so years, neighbourhood design has continued to evolve with new ideas being incorporated on either a pilot or permanent basis.

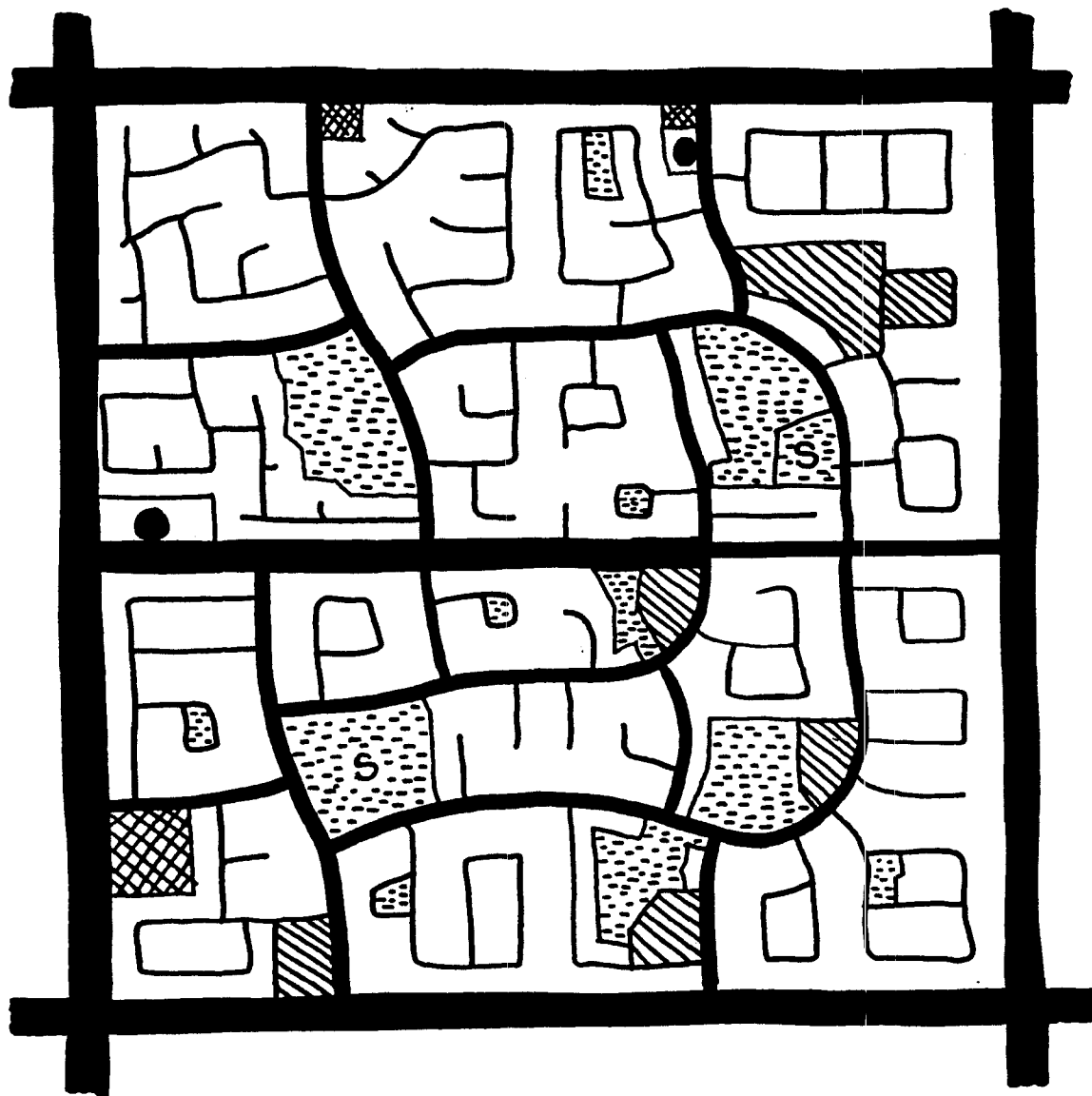
Under the guidance of the City's major area structure plans, new residential areas have generally been planned on a quarter section basis. Each quarter section is considered a separate neighbourhood, with detailed planning approved through a neighbourhood area structure plan. A multi-neighbourhood may consist of up to four neighbourhoods within the one square mile defined by arterial roads, but can be smaller where the major road patterns or natural features restrict the size.

From an analysis of eleven of Red Deer's developing, newer neighbourhoods (listed on Table 1 and schematically shown on Sketch 1) the following are the typical characteristics of present multi-neighbourhoods:

- Size: one mile square containing approximately 259 hectares or 640 acres consisting of four 'separate' neighbourhoods
- Boundaries: usually arterial roads; natural barriers in some cases
- Edges: usually defined by landscaped berms
- Access: limited to collector roads, with 7 or 8 entries per multi-neighbourhood and 2 per neighbourhood
- Road pattern: generally curvilinear; neighbourhoods are linked by the collector roads and some local roads
- Central park/school sites: usually one per neighbourhood (i.e. four per multi-neighbourhood)
- Local and linear parks: generally minimal, although recently more space has been allocated to these
- Average density of 11.74 dwelling units per gross hectare
- Multi-family housing: located on external edges near entry points

- Commercial: two commercial sites per multi-neighbourhood, usually at entry points
- Few, if any effective focal points.

**Sketch 1: 'Typical' Contemporary Red Deer Multi-Neighbourhood**



**LEGEND:**

AREA SHOWN: 1 SECTION (640 ACRES)

ARTERIAL ROADS	MULTI-FAMILY
COLLECTOR ROADS	SCHOOL SITE
LOCAL ROADS	CHURCH SITE
OPEN SPACE	COMMERCIAL SITE
LOW DENSITY RESIDENTIAL	

**Table 1: 'Typical' Red Deer Neighbourhood**

Size of Neighbourhood (Gross Developable Area): .....	58.3 ha
Land Area for Residential Uses: .....	33.5 ha (57.5% of total area)
Land Area for Parks and School Sites:.....	8.2 ha (14.0% of total area)
Land Area for Other Uses:.....	3.6ha (Commercial, Church, Social Care and Utility Lots) (6.1% of total area)
Land Area for Roads and Lanes:.....	13.1 ha (22.4% of total area)
Land Area for Low Density Residential: .....	29.4 ha (Single detached and semi-detached housing)
Land Area for Multiple Family Residential:.....	4.1ha (Fourplex, row/town and apartment style housing)
Number of Dwelling Units: .....	684
Number of Low Density Residential Units: .....	555 (Single detached, semi-detached housing, manufactured home) (81.1%)
Number of Multiple Family Residential Units: .....	129 (Fourplex, row/town and apartment style housing) (18.9%)
Density of Residential Development (dwelling units per hectare): .....	11.74
Potential Population (based on 2.5 to 3.2 occupancy per unit):	1,710 – 2,188

Note: based on 11 new and recently developed neighbourhoods, these being: Anders-on-the-Lake, Aspen Ridge, Davenport, Devonshire, Inglewood, Kensington/Kingsgate, Kentwood West, Lonsdale, Lancaster Green, Oriole Park West and West Park Extension)

#### **4.0 Sustainable Neighbourhood Vision**

Two community workshops attended by persons representing various sectors of neighbourhood life and development produced a vision of the characteristics of sustainable neighbourhoods. Red Deer's vision of a sustainable neighbourhood consists of...

##### Major Principles

1. A diversity of housing types which provide opportunities for a diverse population in terms of age and income levels



2. A mix of uses so there is access to a broad range of recreation, education, commercial, work places, social services and amenities
3. A strong sense of community based on caring for neighbours, pride in private property and public spaces, and safe environs provided through design and the presence of emergency services
4. Priority on a diversity of open spaces that facilitate a variety of leisure activities (both active and passive) and serve to provide connections within the neighbourhood and to other neighbourhoods
5. Visually appealing neighbourhoods which include highly attractive, durable buildings and treed parks and streetscapes
6. A diverse range of transportation opportunities (roads, transit, trails) that provide connections to other neighbourhoods and to services and amenities within the City

#### Environmental Principles

7. More intense use of land and buildings providing for an increased population density and greater mix of uses and activities
8. Green space that is accessible and serves multiple purposes including natural preservation, wildlife habitat and recreational pursuits
9. Wise use of water through water retention systems and conservation
10. Reduction of solid waste and opportunities for recycling and solid waste diversion

#### Social Principles

11. Affordable and appropriate housing opportunities for all income and age groups
12. A safe community consisting of well-lit streets, highly visible sidewalks and crosswalks and served by effective community policing programs
13. Inclusive, accessible and affordable services and amenities catering to a broad range of needs and interest
14. A series of gathering places, including multi-purpose community facilities, that are within walking distance of homes
15. Identifiable neighbourhoods through distinguishing entrance features, edges, focal points, public art and other visual amenities

#### Economic/ Infrastructure Principles

16. A safe, accessible transportation system that caters to several modes of transportation (auto, transit, pedestrian, bicycle) for travel within the neighbourhood, to other neighbourhoods and other parts of the city
17. Roadways designed to provide optional routings, reduce trip lengths, slow and minimize traffic on local roads and make use of alternate materials such as recycled products
18. Reduced costs through the use of energy efficient infrastructure and opportunities to convert waste products into energy
19. “Smart” infrastructure and ‘wired’ neighbourhoods to support home-based employment and communication.

Being a vision of the form of sustainable neighbourhoods desired for Red Deer, these 19 neighbourhood vision elements should form the essence of neighbourhood and multi-neighbourhood planning and development.

## **5.0 Recommended Community Design Elements**

Red Deer's contemporary neighbourhoods already have many sustainable elements. However, a review of neighbourhood planning and development practices and ideas that are applied in other cities across North America has led to the following series of recommended design elements as a base for neighbourhood planning in Red Deer.

### General

1. Establish neighbourhood planning and development guidelines and standards
2. The basic module for neighbourhood planning usually will be one quarter section (approximately 64.75 ha or 160 acres)
3. Multi-neighbourhood communities are to be formed by integrating the plans for two to four adjacent neighbourhoods, with the size being determined by natural features and/or arterial roads; generally, multi-neighbourhoods are to be 129.5 ha (320 acres) to 259 ha (640 acres) in size

### General Form

4. Plan for complete, higher density walkable multi-neighbourhoods that contain a mix of housing, shops and services for daily needs, work places, schools, community facilities and a variety of active and passive open spaces
5. Encourage identifiable neighbourhoods that promote a sense of place through the provision of recognizable boundaries, distinct entrances and a series of public focal points
6. Give high priority to the location, accessibility and connectivity of public spaces
7. Create multi-neighbourhoods that contain a vital mixed use multi-neighbourhood level gathering place and a series of other neighbourhood nodes, all strategically located to encourage use and access to by walking, cycling and transit
8. Enhance the aesthetics of communities with attractive streetscapes and public buildings, appealing architecture and distinctive public gathering places

### Housing

9. Provide for a broad range of housing types and price ranges in each neighbourhood to encourage the evolution of a blended, inclusive residential neighbourhood
10. Require plans for new neighbourhoods to achieve a density between the range of 12.35 and 17.30 dwelling units per gross developable hectare (5 to 7 du/gross developable acre) if major utility infrastructure so permits;

gross developable area is the total area of land in title less land for: environmental reserve; major roads (expressways and arterials); regional and district commercial sites; industrial uses; high schools and sports fields additional to municipal reserve land dedicated for these purposes and, as determined by the City, may include special land uses sites, constructed wetlands and retention (wet) ponds or portions thereof that have high aesthetic values

11. Provide for the density in existing neighbourhoods to increase to no more than 17.30 dwelling units (7 du/acre) per gross developable hectare if major utility infrastructure so permits and the applicable neighbourhood area structure is amended or, where there is no neighbourhood area structure plan, a neighbourhood area structure plan is adopted to provide for the increased density
12. Require within a new neighbourhood multi-attached housing (three or more dwelling units) to be no less than 20 percent of the total housing units while single detached and semi-detached housing is no less than 60 percent of the total housing units, but the ratio of detached housing (includes narrow lots and manufactured homes) to semi-detached housing must be at least 3:1
13. Locate higher density forms of housing in close proximity to a major open space and transit stop, but not always near the edge of a neighbourhood in order to be adjacent to community or neighbourhood gathering place; some higher density housing should be located adjacent to or in near proximity to a commercial development
14. Design a neighbourhood to consist of interconnected detached residential modules of up to 50 to 60 units. The concentration of semi-detached, multi-attached (excluding apartments) and narrow lot single detached housing are to be limited to modules of up to 50 to 60 units with individual modules being separated by different housing forms or land uses
15. Since neighbourhoods are meant to be inclusive entities, gated communities should be avoided; if permitted they should be in locations where the 'fenced surround' is least visible and the appearance of the fence surround and gate are softened by the use of a see-through design and materials and/or landscaping along the fence surround
16. Allocate parcels on which the development of an accessory suite may be developed; as part of the neighbourhood density calculation each accessory suite will count for one-half (0.5 ) a dwelling unit
17. Encourage housing designs for front and side yards facing streets to emphasize social spaces and entry features (porches, verandas, windows, front doors) and de-emphasize attached garages and driveways

#### Open Space

18. Give high priority to the provision of a diversity of parks, including large multi-purpose parks, sub-neighbourhood parks, parkettes, linear parks and natural areas that serve a broad range of ages, interests and abilities
19. Give higher priority to linear parks that serves to link open spaces within a neighbourhood and one neighbourhood to another

20. Locate at least three parkettes, or their equivalent, in each neighbourhood at locations that encourage their frequent use (e.g. all homes are within a 2 - 3 minute walk)
21. Locate larger open spaces containing sports fields so they are shared by two or more neighbourhoods, usually as a joint use site with a school; if higher density housing is not adjacent to a larger open space, the housing should have green space integrated with the development
22. Promote urban forestry through the retention of significant trees and stands of trees and the planting of trees along streets, within yards and in public open spaces

#### Gathering Places

23. Strategically distribute and locate functional, desirable gathering places within neighbourhoods; utilize where advantageous a more flexible approach to the use and distribution of municipal reserve dedication, to encourage higher levels of sustained use
24. Encourage the provision of at least one gathering place per neighbourhood designed to integrate three or more of the following land uses: commercial, educational, cultural, recreational, transit stop and clustered mailboxes, often adjacent to or close by higher density housing
25. Direct shops and services to a highly accessible 'centre' located usually at an entrance to the neighbourhood
26. Locate schools and sports fields as key functional components of joint use sites shared by two or more neighbourhoods
27. Locate and design schools and other public buildings to enhance their role as community focal points

#### Social and Cultural

28. Provide for a diversity of social interaction opportunities through the provision and design of a variety of gathering places and open spaces which serve as places to shop, learn, play, rest, contemplate, celebrate and visit
29. Design gathering places to enhance a neighbourhood's sense of place by promoting interest and functionality for social interaction, but not at the expense of personal and community safety
30. Encourage the provision of public art in gathering places or other prominent neighbourhood locations to enhance the sense of 'neighbourhood' place
31. Provide opportunities for employment within a neighbourhood
32. Integrate existing heritage resources, including where appropriate the preservation of the resource, into the design of a neighbourhood
33. Provide a range of social, education, health, recreation and cultural opportunities within a multi-neighbourhood or reasonable access to by means of affordable and efficient public transit

#### Circulation/Connections

34. Provide an internal multi-neighbourhood roadway system that facilitates the effective collection and dispersion of traffic within the multi-

- neighbourhood while discouraging cut-through traffic; boundary roads are to be expressways or arterials, while internal roads normally are to be collectors and local roads; portions of neighbourhoods may be laneless
35. Design streets to provide for the safe movement of traffic, as well as safe pedestrian and bicycle movement
  36. Implement design standards for each class of roadway to provide, without overbuilding, for the main function of the roadway
  37. Design the neighbourhood street and trail/linear park system to provide direct links between multi-neighbourhood and neighbourhood level focal points
  38. Place more emphasis on the creation of attractive, pedestrian-friendly streetscapes
  39. Design a neighbourhood that integrates a safe and convenient railway system for non-motorized travel that links gathering places inside the neighbourhood and connects the neighbourhood with others in the multi-neighbourhood and city-level (regional) trails
  40. Integrate transit services so convenient transit stops will be available at edges of the neighbourhood and at key places along collector roads within the neighbourhood

#### Infrastructure and the Natural Environment

41. Integrate existing significant natural areas into the design of a neighbourhood in a manner that complements and links the open space system
42. Encourage energy efficiency by designing subdivisions, sites and buildings that reduce the energy needed for heating and cooling
43. Encourage neighbourhood designs and development standards that promote water conservation
44. Encourage sustaining a natural water balance, both quantitatively and qualitatively, through community design
45. Integrate stormwater management facilities into the neighbourhood open space system so their location and configuration promote public social interaction, including various forms of leisure activities
46. Encourage waste diversion (i.e. the three R's – reduce, recycle, reuse) in all aspects of community development

#### Fiscal

47. Share infrastructure, services and facilities within multi-neighbourhoods (in striving for lower infrastructural costs per housing unit)
48. Utilize shared use buildings, sites and parking areas wherever possible
49. Balance municipal services and amenities provided in neighbourhoods with the ability of the overall municipal tax base to support their provision and maintenance
50. Minimize the use of public utility lots and maximize the use of easements for underground services not located in road rights-of-way.

## 6.0 Red Deer's Future Neighbourhoods

Application of the above design elements will lead changes in the form of Red Deer's multi-neighbourhoods. While there will be considerable variation in detailed neighbourhood designs in response to the recommended neighbourhood design elements, Sketch 2 and Table 2 present the characteristics of what a multi-neighbourhood may look like based on the recommended design elements.

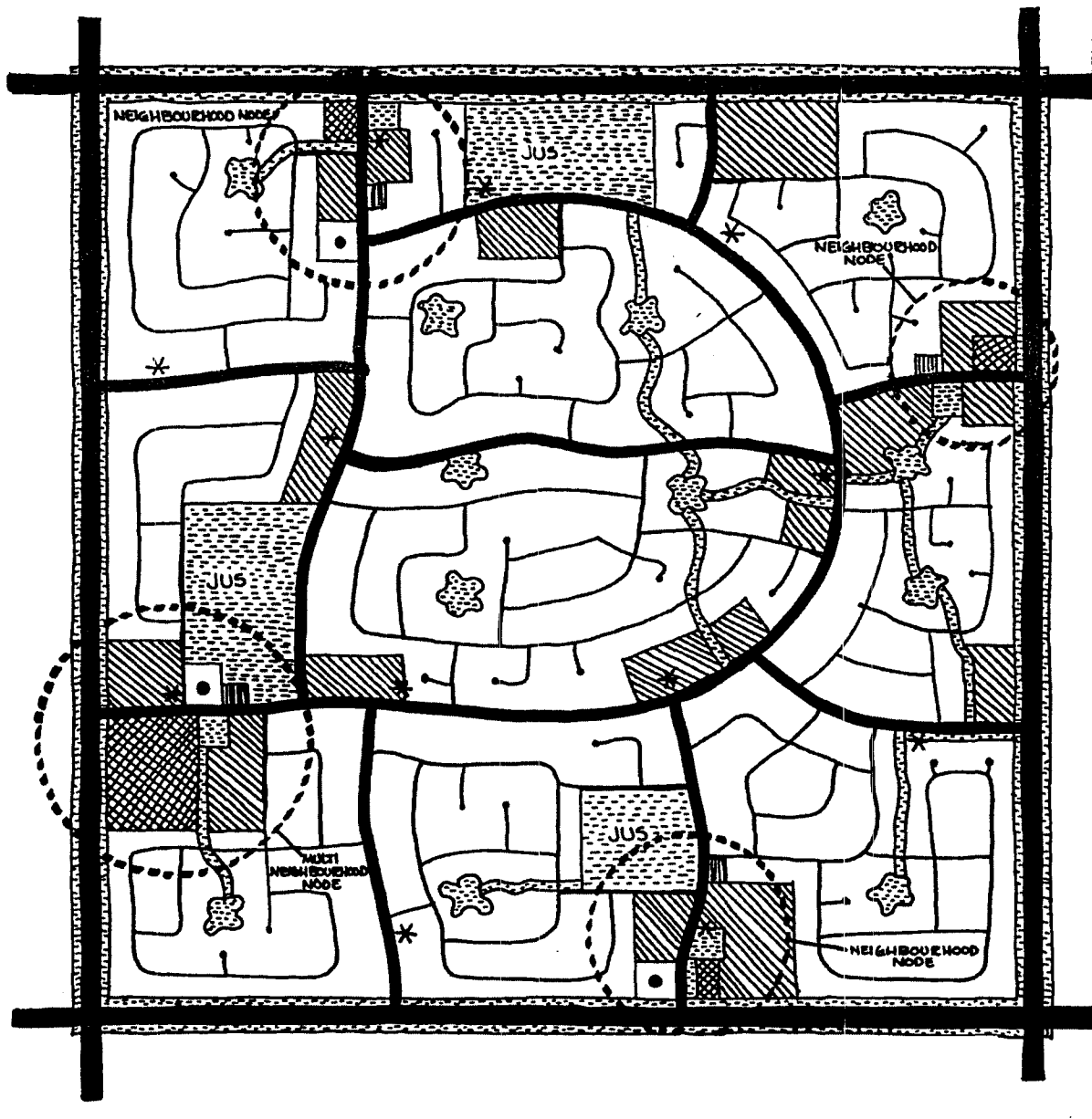
**Table 2: Conceptual Neighbourhood Based on Recommended Neighbourhood Design Elements**

Size of Neighbourhood (Developable Area): .....	58.3 ha
Land Area for Residential Uses: .....	35.0 ha (60.0% of total area)
Land Area for Parks and School Sites:.....	5.83 ha (10.0% of total area)
Land Area for Other Uses:.....	4.1 ha (Commercial, Church, Social Care and Utility Lots) (7.0% of total area)
Land Area for Roads and Lanes:.....	13.4 ha (23% of total area)
Land Area for Low Density Residential: .....	29.5 ha (Single detached and semi-detached housing)
Land Area for Multiple Family Residential:.....	5.5 ha (Fourplex, row/town and apartment style housing)
Number of Dwelling Units: .....	862
Number of Low Density Residential Units: .....	646 (Single detached, semi-detached housing, manufactured home) (75%)
Number of Multiple Family Residential Units: .....	216 (Fourplex, row/town and apartment style housing) (25%)
Density of Residential Development (dwelling units per hectare): .....	14.8
Potential Population (based on 2.5 to 3.2 occupancy per unit):	2,155 – 2,758

Table 3 summarizes some key differences between Red Deer's contemporary 'typical' neighbourhood and future neighbourhoods designed and developed in accordance with the design elements presented in Section 5 above.

## Sketch 2

### Conceptual Multi-Neighbourhood Based on Recommended Neighbourhood Design Elements



#### LEGEND:

AREA SHOWN: 1 SECTION (640 ACRES)

	ARTERIAL ROADS		JOINT USE SPACE
	COLLECTOR ROADS		CHURCH SITE
	OPEN SPACE		COMMERCIAL SITE
	LOW DENSITY RESIDENTIAL		SOCIAL CARE
	MULTI-FAMILY		TRANSIT STOP

**Table 3      Comparison of Typical Contemporary and Conceptual New Neighbourhoods**

<b>Typical Contemporary Neighbourhood</b>	<b>Neighbourhood Aspect</b>	<b>Conceptual New Neighbourhood</b>
58.3 ha	Size of Neighbourhood (Developable Area)	58.3 ha
33.5 ha (57.5% of total area)	Land Area for Residential Uses	35.0 ha (60.0% of total area)
8.2 ha (14.0% of total area)	Land Area for Parks and School Sites	5.83 ha (10.0% of total area)
3.6 ha (6.1% of total area)	Land Area for Other Uses	4.1 ha (7.0% of total area)
13.1 ha (22.4% of total area)	Land Area for Roads and Lanes	13.4 ha (23.0% of total area)
29.4 ha	Land Area for Low Density Residential	29.5 ha
4.1 ha	Land Area for Multiple Family Residential	5.5 ha
684	Number of Dwelling Units	862
555 (81.1%)	Number of Low Density Residential Units (single detached and semi-detached housing)	646 (75%)
129 (18.9%)	Number of Multiple Family Residential Units	216 (25%)
11.74	Density of Residential Development (dwelling units per hectare)	14.8
1,710 – 2,188	Potential Population (based on 2.5 to 3.2 occupancy per unit)	2,155 – 2,758

While the land required for roads and lanes is envisioned to increase marginally from 22.4% to 23.0% of the gross developable area, the amount of land for municipal reserves (parks and schools) is likely to decrease from 14% to 10.0%, as is already being experienced in recently planned neighbourhoods (e.g. West Park Extension, Inglewood). This decrease is related to costs. As land and servicing costs increase, developers become less willing to provide open space additional to the 10% maximum municipalities are allowed by legislation to require through the subdivision process. By keeping municipal reserve at close to 10%, more land is available for housing, thus yielding more housing units and reducing the cost per unit of development.

Even with a decrease in the proportion of low density housing from 81% to 75%, the number of these forms of housing increases from 555 to 646 dwelling units. The area of land for single detached, semi-detached and manufactured homes is



increased marginally from 29.4 ha to 29.5 ha, meaning average lot sizes will decrease. Land for multi-family housing increases by 34%, from 4.1 ha to 5.5 ha, to accommodate the increase in multi-family housing from 18.9% to 25%.

It is anticipated that the average density of the new neighbourhood will increase to 14.8 dwelling units per gross developable hectare. This represents an increase of 26% from the current average of 11.74 du/ha. However, this average includes three neighbourhoods that are well below the density of other new neighbourhoods which are approaching, or have exceeded, 14.8 du/ha. The average density of Aspen Ridge, Davenport, Devonshire, Inglewood and Lonsdale neighbourhoods is 13.87 du/ha, or only 6.7% less than the future anticipated average density of 14.8 du/ha.

Other changes in neighbourhood form are evident from a comparison of Sketches 1 and 2. These include:

- The change in location of joint use sites to an edge of the multi-neighbourhood or to a site straddling two neighbourhoods (in contemporary neighbourhoods the sites are central within a neighbourhood)
- More linear park space, including 'central greenway' 'spine'
- More parkettes, which are often linked by linear green space to collector roads, joint use sites, multi-family sites or the or central greenway
- A street pattern that is a hybrid of curvilinear and modified grid patterns
- Focal points, including significant buildings at key road intersections or entry points
- Multi-use nodes, often at the entrance to neighbourhoods
- Multi-family housing dispersed throughout the multi-neighbourhood, including central locations along transit routes
- Higher portion of the total housing is multi-family (three or more units).

## **7.0 Implementation**

The implementation of the design elements and ideas for smarter growth neighbourhoods will require a number of actions by the City of Red Deer to revise statutory plans, the Land Use Bylaw and other documents that guide the design and development of neighbourhoods. As a part of these actions, it will be important to continue to consult the neighbourhood development sector and community groups. Section 9 of the full Growing Smarter Report outlines actions to implement the sustainable neighbourhood vision and neighbourhood design elements and ideas through changes to the municipal development plan, major area structure plans, the land use bylaw and pertinent guideline documents.

To be remembered is that this report brings together a series of ideas for smarter, more sustainable growth through neighbourhood planning and development. These are ideas and suggestions. It remains for the City's community, social and park planners and engineers to determine the specifics of changes to neighbourhood planning practices, whether they are policies, standards or guidelines.



City Clerk's Department

Council Decision – November 18, 2002

**FILE**

**DATE:** November 19, 2002

**TO:** Bill Shaw, Director  
Parkland Community Planning Services

**FROM:** Kelly Kloss, City Clerk

**SUBJECT:** Red Deer Growing Smarter:  
Design Elements and Ideas for New Residential Neighbourhoods

---

*Reference Report:*

Parkland Community Planning Services, dated November 8, 2002


*Bylaw Readings:*

*Resolutions:*

*Report Back to Council:* Yes

*Comments/Further Action:*

This report is to be re-submitted to Council for consideration at the December 2, 2002 Council Meeting.



Kelly Kloss  
City Clerk

/chk

c

**Christine Kenzie**

**To:** ngkh@dowd.com  
**Subject:** Red Deer City Council Meeting - November 18, 2002

*to call back. - out e-mail again  
on Nov. 14/02.*

For your information, the report regarding Red Deer Growing Smarter: Design Elements and Ideas for New Residential Neighbourhoods will be presented to Council in Council Chambers on Monday, November 18, 2002 at approximately 4:30 p.m. Bill Shaw, of Parkland Community Planning Services, will be making the presentation to Council. This item was presented to the Environmental Advisory Board for their comments earlier.

You are welcome to attend this meeting.

Please call me if you require any further information.

**Christine Kenzie**  
**Administrative Assistant**  
**City of Red Deer**  
**City Clerk's Department**  
**(403) 342-8201**  
**chrisk@city.red-deer.ab.ca**

**Christine Kenzie**

---

**To:** Phil Hyde  
**Subject:** Red Deer City Council Meeting - November 18, 2002

For your information, the report regarding Red Deer Growing Smarter: Design Elements and Ideas for New Residential Neighbourhoods will be presented to Council in Council Chambers on Monday, November 18, 2002 at approximately 4:30 p.m. Bill Shaw, of Parkland Community Planning Services, will be making the presentation to Council. This item was presented to the Policing Committee for their comments earlier.

You are welcome to attend this meeting.

Please call me if you require any further information.

**Christine Kenzie**  
**Administrative Assistant**  
**City of Red Deer**  
**City Clerk's Department**  
**(403) 342-8201**  
***chrisk@city.red-deer.ab.ca***

**Christine Kenzie**

---

**To:** azzaraa@rdpsd.ab.ca  
**Subject:** Red Deer City Council Meeting - November 18, 2002

For your information, the report regarding Red Deer Growing Smarter: Design Elements and Ideas for New Residential Neighbourhoods will be presented to Council in Council Chambers on Monday, November 18, 2002 at approximately 4:30 p.m. Bill Shaw, of Parkland Community Planning Services, will be making the presentation to Council. This item was presented to the Recreation, Parks & Culture Board for their comments earlier.

You are welcome to attend this meeting.

Please call me if you require any further information.

**Christine Kenzie**  
**Administrative Assistant**  
**City of Red Deer**  
**City Clerk's Department**  
**(403) 342-8201**  
**chrisk@city.red-deer.ab.ca**

**Christine Kenzie**

---

**To:** mstyner@canparaplegic.org  
**Subject:** Red Deer City Council Meeting - November 18, 2002

For your information, the report regarding Red Deer Growing Smarter: Design Elements and Ideas for New Residential Neighbourhoods will be presented to Council in Council Chambers on Monday, November 18, 2002 at approximately 4:30 p.m. Bill Shaw, of Parkland Community Planning Services, will be making the presentation to Council. This item was presented to the Transportation Advisory Board for their comments earlier.

You are welcome to attend this meeting.

Please call me if you require any further information.

**Christine Kenzie**  
**Administrative Assistant**  
**City of Red Deer**  
**City Clerk's Department**  
**(403) 342-8201**  
**chrisk@city.red-deer.ab.ca**

## **Christine Kenzie**

---

**From:** Andre Tremblay  
**Sent:** November 14, 2002 8:17 AM  
**To:** Christine Kenzie  
**Cc:** 'dhachey@ivanhoecambridge.com'  
**Subject:** RE: Land Use Bylaw Amendment 3156/BBB-2002 - Bower Place Shopping Centre

Contact address listed below. Please call me if you have questions. Andre.

Dan Hachey  
Ivanhoe Cambridge  
Bower Place  
4900 Molly Bannister Dr., Suite 1000  
Red Deer, Alberta  
T4R 1N9

Please CC Allan Rivet

-----Original Message-----

**From:** **Christine Kenzie**  
**Sent:** November 14, 2002 8:10 AM  
**To:** Andre Tremblay  
**Subject:** Land Use Bylaw Amendment 3156/BBB-2002 - Bower Place Shopping Centre

Good Morning Andre:

Do you have a mailing address and contact for Ivanhoe Cambridge - owners of the Bower Place Shopping Centre? I will have to send them a letter regarding the advertising costs for a public hearing regarding the LUB Amendment that is going for first reading on Monday, November 18th.

Thanks.

**Christine Kenzie**  
**City Clerk's**  
**(403) 342-8201**



City Clerk's Department

**DATE:** November 7, 2002  
**TO:** City Council  
**FROM:** City Clerk  
**SUBJECT:** Red Deer Downtown Business Association  
Board of Director Appointments

---

The Red Deer Downtown Business Association held their Annual Meeting on October 8, 2002 and six new directors were elected.

The Downtown Business Association requested Council's approval of the new directors. As in the past names of the directors have been submitted in confidence to Council.

*Recommendation*

That Council approve the appointment of six new directors to the Red Deer Downtown Business Association for the following terms:

- a) three directors to be appointed for 2-year terms (2003 – 2004)
- b) three directors to be appointed for 3-year terms (2003 – 2005)

A handwritten signature in black ink, appearing to read 'Kelly Kloss'.

Kelly Kloss  
City Clerk

KK/chk



***Comments:***

We agree with the recommendations of the City Clerk.

"G.D. Surkan"  
Mayor

"N. Van Wyk"  
City Manager

# THE CITY OF RED DEER

Date: November 18, 2002

No. 1, p. 5

Moved by Councillor

*Lorne Pimm*

Seconded by Councillor

*Pimm*

*Resolved* that Council of the City of Red Deer, having considered the report from the City Clerk, dated November 7, 2002, re: Red Deer Downtown Business Association – Board of Director Appointments, approves the appointments of the following directors to the Red Deer Downtown Business Association for the terms specified:

<u>Penny Elliott</u>	2 – year term to expire December 31, 2004
<u>Frank Kuny</u>	2 – year term to expire December 31, 2004
<u>Ed Parent</u>	2 – year term to expire December 31, 2004
<u>Sharon Fisher</u>	3 – year term to expire December 31, 2005
<u>Phil Pugh</u>	3 – year term to expire December 31, 2005
<u>Terry Warke</u>	3 – year term to expire December 31, 2005

Dawson	Watkinson -Zimmer	Hughes	Higham	Flewelling	Moffat	Pimm	Rowe	Surkan
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Carried	Defeated	Withdrawn	Tabled					

☐ For

✓ Against

A  
Absent

# THE CITY OF RED DEER

Date: November 18, 2002

No. 2, p. 7

Moved by Councillor

*Pimm*  
*Dawson*

Seconded by Councillor

*Higham*  
*Rowe*

**Resolved** that Council of the City of Red Deer, having considered the report from the Land & Economic Development Manager, dated November 12, 2002, re: Advancing Capital Budget for Engineering Design / Lancaster Green PH. 4A, 5, 6, 7, 22<sup>nd</sup> Street and Kidd Close in Kentwood West, amends the 2002 Budget by approving the capital expenditure of \$200,000 for Lancaster Green Phases 4A, 5, 6, & 7 and 22<sup>nd</sup> Street and \$75,000 for Kidd Close in Kentwood West for detail design and survey work, with the funding to come from land sales.

Dawson	Watkinson -Zimmer	Hughes	Higham	Flewwelling	Moffat	Pimm	Rowe	Surkan
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Carried	Defeated	Withdrawn	Tabled
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☐ For

✓ Against

A  
Absent

# THE CITY OF RED DEER

Date: November 18, 2002

No. 3, p. 19

Moved by Councillor

*Flewelling*

Seconded by Councillor

*Moffat*

*Resolved* that Council of the City of Red Deer, having considered the report from the Recreation, Parks & Culture Manager and the Bid Red Deer Chair, re: 2007 Western Canada Summer Games, agrees as follows:

1. To undertake a joint bid with Red Deer County to host the 2007 Western Canada Summer Games and that City Administration and Bid Red Deer forward a letter of intent to Alberta Community Development by November 29, 2002.
2. That the Administration recommend to Council the membership of an Ad Hoc Committee whose purpose is to prepare a formal bid to host the 2007 Western Canada Summer Games.

Dawson	Watkinson -Zimmer	Hughes	Higham	Flewelling	Moffat	Pimm	Rowe	Surkan
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Carried	Defeated	Withdrawn	Tabled					

☐ For

✓ Against

A  
Absent

## THE CITY OF RED DEER

Date: November 18, 2002

No. 4, p. 22

Moved by Councillor

Seconded by Councillor

*Resolved* that Council of the City of Red Deer, having considered the correspondence from the Concerned Citizens Group, dated November 11, 2002, re: Kyoto Agreement directs the Mayor to send a letter to the Prime Minister, with copies to the Premier of Alberta and Federal and Provincial Ministers of the Environment, incorporating the recommendations of the Concerned Citizens Group, and calling for a process based on the principles of consultation and consensus building.

Dawson	Watkinson -Zimmer	Hughes	Higham	Flewwelling	Moffat	Pimm	Rowe	Surkan
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Carried	Defeated	Withdrawn	Tabled					

☐ For

✓ Against

A  
Absent

## THE CITY OF RED DEER

Date: November 18, 2002

No. 5 p. 22

Moved by Councillor

Verno

Seconded by Councillor

Dowson

Whereas, there exists a general lack of clarity and understanding relative to many of the key issues surrounding the Kyoto debate, namely:

1. <sup>what is</sup> ~~The~~ cost of implementing Kyoto targets on:
  - individual tax payers - workers - consumers
  - municipalities, and
  - businesses in various sectors
2. <sup>what</sup> ~~The~~ format and impact of the "carbon trading" scheme under the Kyoto plan.
3. <sup>what is</sup> ~~The~~ international legal or other ramifications if Canada is unable, for any reason, to meet its emission reduction targets.
4. <sup>what is the degree</sup> ~~Will the Kyoto plan actually~~ reduce world wide emissions of CO<sub>2</sub>, <sup>actually</sup> given that 65 - 70% of industrialized emission producing countries in the world are not restricted by the plan, and are rather, free to increase their emissions production.

Therefore, be it resolved, that Council of the City of Red Deer, having considered the correspondence from the Concerned Citizens Group, dated November 11, 2002, re: Kyoto Agreement, hereby agrees as follows:

1. That the Mayor be directed to send a letter to the Prime Minister, with copies to the Premier of Alberta, and Federal and Provincial Ministers of the environment, incorporating the recommendations of the Concerned Citizens Group.

I have Read on  
my computer.

2. That Council urges the Prime Minister to delay ratifications of the Kyoto Protocol, until further national consultation can take place, to help ordinary citizens more clearly understand the key issues involved and the scope of Canada's commitments under the Kyoto plan.

Dawson	Watkinson -Zimmer	Hughes	Higham	Flewwelling	Moffat	Pimm	Rowe	Surkan
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Carried	Defeated	Withdrawn	Tabled					

☐ For

✓ Against

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Absent



**FILE**

CITY CLERK'S DEPARTMENT

November 19, 2002

Mr. Ray Congdon  
Executive Director  
Red Deer Downtown Business Association  
9, 4921 – 49 Street  
Red Deer, AB T4N 1V2

Dear Ray:

**Re: Red Deer Downtown Business Association  
Board of Director Appointments**

At the Council Meeting held on Monday, November 18, 2002, Council passed the following resolution approving the appointment of six directors to the Red Deer Downtown Business Association:

**Resolved** that Council of the City of Red Deer, having considered the report from the City Clerk, dated November 7, 2002, re: Red Deer Downtown Business Association – Board of Director Appointments, approves the appointments of the following Directors to the Red Deer Downtown Business Association for the terms specified:

Penny Elliott	2 – year term to expire December 31, 2004
Frank Kuny	2 - year term to expire December 31, 2004
Ed Parent	2 – year term to expire December 31, 2004
Sharon Fisher	3 – year term to expire December 31, 2005
Phil Pugh	3 – year term to expire December 31, 2005
Terry Warke	3 – year term to expire December 31, 2005

...2/



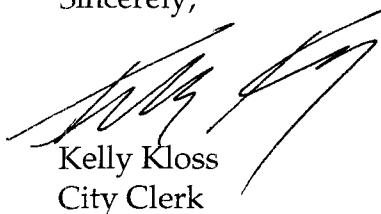
Downtown Business Association

November 19, 2002

Page 2

Please call if you have any questions regarding the above.

Sincerely,

A handwritten signature in black ink, appearing to read 'Kelly Kloss', is written over the printed name and title.

Kelly Kloss  
City Clerk

KK/chk



# Memo <sup>7</sup>

Date: November 12, 2002  
To: Kelly Kloss, City Clerk  
From: Howard Thompson, Land & Economic Development Manager  
Re: **ADVANCING CAPITAL BUDGET FOR ENGINEERING DESIGN  
LANCASTER GREEN PH. 4A, 5, 6 & 7, 22<sup>nd</sup> STREET AND KIDD CLOSE  
IN KENTWOOD WEST**

---

## **Background**

City Council approved advancing capital budget funds in May, 2002 to develop Lancaster Green Phase 4 and Kentwood West Phase 20 for delivery in the fall of 2002 to provide some inventory to carry over the winter. Land and Economic Development have experienced continued strong demand for residential lots with both phases being entirely pre-sold at their respective lot draws. To date we have sold and optioned approximately 275 lots in 2002 compared to 125 for all of 2001.

In order to get head start on designing the remaining future phases of Lancaster Green and the last phase in Kentwood West indicated in the 2003-7 Capital Budget, Engineering Services is recommending that the detailed design and survey work start this fall. Normally this work would be tendered out in February after the budgets are approved, however, the benefits of proceeding now are that the lots can be brought on sooner in the spring, the engineering consultants are not as busy at this time of year and with less competition by tendering the construction work earlier in 2003 may result in cost savings to the City. Also by designing the remainder of Lancaster Green Phases 4A, 5, 6 & 7 and 22<sup>nd</sup> Street west of 30<sup>th</sup> Avenue all at one time, although we only intend to develop Phase 5 in 2003, it is more cost efficient and will allow us to proceed quicker in 2003 should we need to bring on additional lots in Phase 6 in the fall of 2003. Any additional development would be subject to City Council approval and would have to be within the maximum 25% of market agreed to with the Urban Development Institute. Should we need to proceed with Phase 6 in 2003, then we could also market Phase 7, which is a multifamily site.

## **Financial Implications**

Engineering Services have estimated \$200,000.00 for Lancaster Green Phases 4A, 5, 6 & 7 and 22<sup>nd</sup> Street, while \$75,000.00 is required for Kidd Close in Kentwood West. Funding for this additional work is to be funded from the additional land sale revenue generated this year.

## **Recommendation**

That City Council approve the capital expenditure in 2002 of \$200,000.00 for Lancaster Green Phases 4A, 5, 6 & 7, and 22<sup>nd</sup> Street and \$75,000.00 for Kidd Close in Kentwood West for detail engineering design and survey work with the funding to come from land sales.

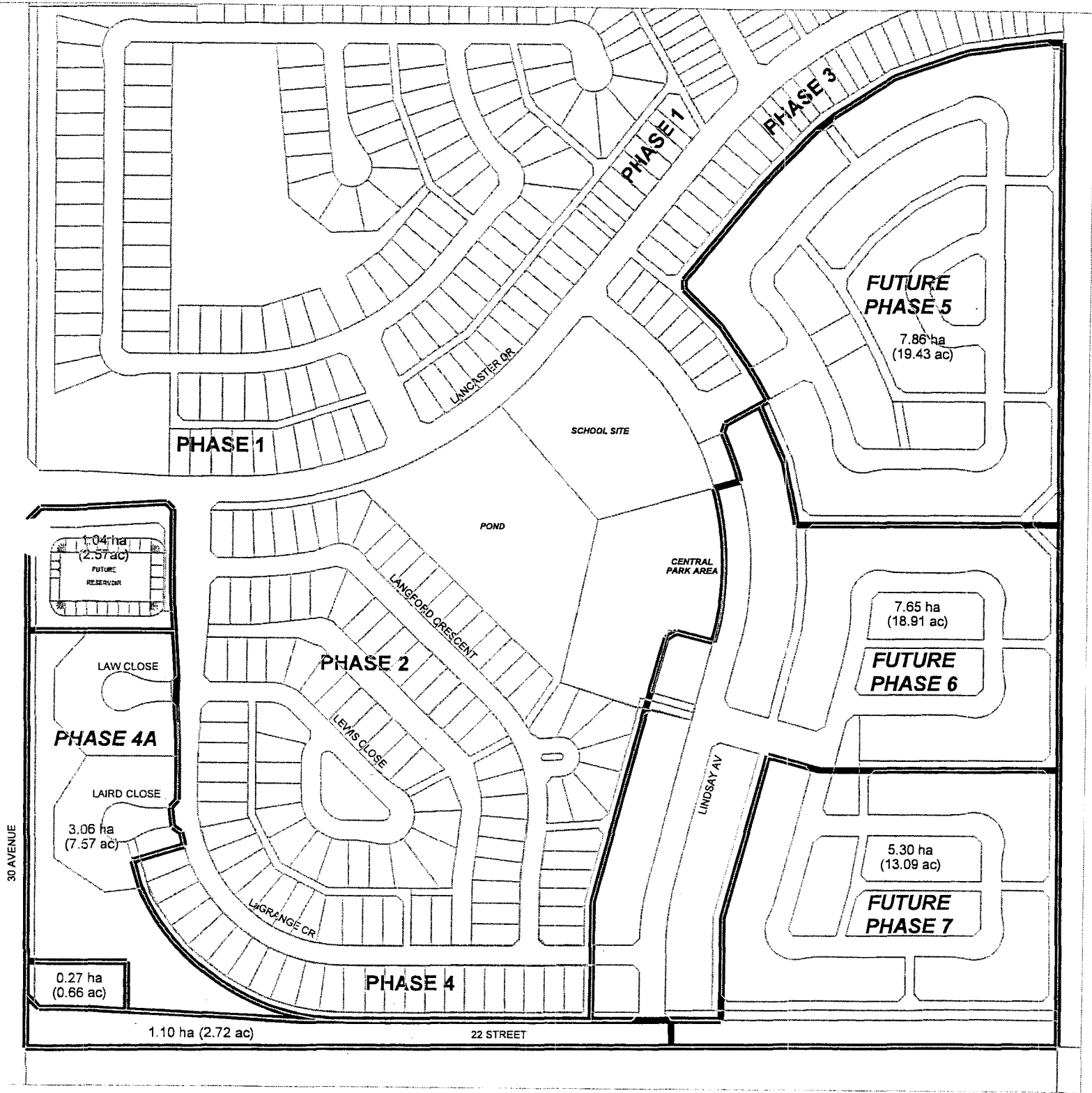
Howard Thompson

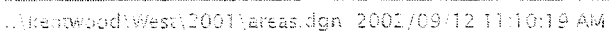
Attach.

c. Bryon Jeffers, Director of Development Services

# LANCASTER GREEN

8





***Comments:***

We agree with the recommendations of the Land & Economic Development Manager.

"G.D. Surkan"  
Mayor

"N. Van Wyk"  
City Manager



City Clerk's Department

**FILE**

Council Decision – November 18, 2002

**DATE:** November 19, 2002

**TO:** Howard Thompson, Land & Economic Development Manager

**FROM:** Kelly Kloss, City Clerk

**SUBJECT:** Advancing Capital Budget for Engineering Design  
Lancaster Green PH. 4A, 5, 6 & 7, 22<sup>nd</sup> Street and Kidd Close in Kentwood West

---

*Reference Report:*

Land & Economic Development Manager, dated November 12, 2002

*Resolutions:*

*Resolved* that Council of the City of Red Deer, having considered the report from the Land & Economic Development Manager, dated November 12, 2002, re: Advancing Capital Budget for Engineering Design / Lancaster Green PH. 4A, 5, 6, 7, 22<sup>nd</sup> Street and Kidd Close in Kentwood West, amends the 2002 Budget by approving the capital expenditure of \$200,000 for Lancaster Green Phases 4A, 5, 6, & 7 and 22<sup>nd</sup> Street and \$75,000 for Kidd Close in Kentwood West for detail design and survey work, with the funding to come from land sales.

*Report Back to Council:* No

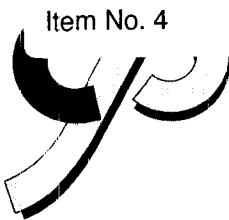
*Comments/Further Action:*

A handwritten signature in black ink, appearing to read 'Kelly Kloss'.

Kelly Kloss  
City Clerk

/chk

c Director of Development Services  
Treasury Services Manager



**DATE:** November 11, 2002

**TO:** KELLY KLOSS, CITY CLERK

**FROM:** Tony Lindhout, Planner  
Howard Thompson, Manager, Land & Economic Development

**RE:** Land Use Bylaw Amendment 3156/BBB-2002  
Bower Place Shopping Centre

---

Ivanhoe Cambridge, owners of the Bower Place Shopping Centre have requested the addition of "call centres" to the range of uses currently permitted in their regional shopping centre in an effort to better market current vacant floor space contained within their shopping centre; in particular, the vacant floor space in the former Zellers store.

### **Background**

While the City already contains some small scale call centre operations, the proposal for the City to accommodate call centres as a use in a regional shopping centre creates some unique challenges.

Land & Economic Development staff, in light of the economic benefit of attracting a potential new large employer to the City, had requested planning staff undertake a review and analysis of call centres earlier this year in response to periodic requests to locate call centres.

Several municipalities in Saskatchewan, Alberta and British Columbia were contacted directly and/or their Land Use Bylaws/zoning regulations examined to determine how these municipalities deal with call centre developments. Most of the surveyed municipalities consider a "call centre" the same as an "office" use. Many allow office uses in most of their commercial land use districts throughout the municipality. While none of the surveyed municipalities had any specific development standards or guidelines pertaining to call centres, they all acknowledged that the parking related to call centre developments must be critically examined. Municipalities with developed call centres acknowledged that the normal parking requirements for the traditional "office" use are insufficient in the case of call centres.

Call centres have the following common characteristics and site selection criteria:

1. The operation of a call centre is similar in many aspects to a typical office use (desks, computer terminals, telephone and related office support services and staffed with clerical and secretarial personnel) however, call centres in their physical layout differs from most conventional office uses in that a call centre consists entirely of multiple compact work spaces/stations whereby many employees work in a confined area.
2. Large call centres could operate with up to 3 work shifts, with total operating hours between 7 AM and 12 midnight.
3. Call centres prefer a location on or near major arterial roadways that are serviced with transit.

4. Call centres prefer large amounts of open floor space on one level, preferably in an existing large vacated building with high open ceilings; buildings with windows are not required. Large call centres may require 50-60,000 square feet of floor space and could employ up to 500 persons.
5. Call centres are not interested in purchase or construction of their own building, preferring rather a long term lease (i.e. 5-15 years) of the floor space required.
6. Call centres desire and require large amounts of well lighted parking.
7. The normal “office” parking standard of 2 stalls/93 m<sup>2</sup> (1,000 sq. ft.) is not sufficient for a call centre due to the compact configuration of call centre workspaces (small work stations/multiple cubicles). Parking standards applied to call centres in other cities have been in the often suggested and recommended range of 8-10 stalls/93 m<sup>2</sup>.

Our research on call centres recommended the following:

- That a Bylaw amendment would be supported if the proposed amendment was site specific.
- Positive evaluation of any proposal based on the merit of the application. Considerations to be evaluated would include hours of operation, number of employees, access to site and potential impact on adjoining uses and properties.
- Location is in a C2 Commercial (Regional Shopping Centre) District or C4 Commercial (Major Arterial) District.
- Location is in an I1 Industrial (Business Service) District subject to possible landowner consultation.
- Call centre contains a gross floor area of at least 15,000 square feet.
- Provision of parking in the range of 8-10 parking stalls per 93 m<sup>2</sup> (1,000 sq. ft.) of gross floor space.

### **Conformity of a “call centre” at Bower Place Shopping Centre**

The former Zeller’s store location appears to meet the site selection criteria for a call centre. This location offers a significant amount of leasable floor space in a format that can easily be converted into a call centre operation. This floor space has sat vacant for a number of years. This location is adjacent or in close proximity to the City’s Gaetz Avenue and Taylor Drive arterial transportation corridors with major signalized intersections providing good access to the Bower Place Shopping Centre site. The site is fully serviced with regular transit service.

Regarding parking, the City’s Land Use Bylaw requires a regional shopping centre to provide 5.1 parking stalls/93 m<sup>2</sup> of commercial retail floor space and 2 parking stalls/93 m<sup>2</sup> of office floor space. Bower Place Shopping Centre contains a total 467,915 square feet of leasable floor space including the former Zellers store location and provides 2,464 on-site parking stalls. The shopping centre currently provides parking spaces in excess of the Bylaw requirements.

If a call centre were to operate beyond the Bower Place Shopping Centre’s normal business hours of 9:30 a.m. to 9 p.m., it is not expected to have any negative affect on the overall operation of the shopping centre.

The Bower Place Shopping Centre is zoned C2 Commercial (Regional Shopping Centre) District under the City’s Land Use Bylaw whereby a call centre would appear to be considered similar to an



“office” use. Office uses must not exceed 5% of the gross leasable floor area of the total shopping centre. However, because existing office uses within the Bower Place Shopping Centre already account for most, if not all, of the allowable 5% office allocation, any consideration of a call centre (as an office use) would significantly exceed the maximum 5% of the total shopping centre leasable floor space allocated for office uses.

To consider increasing the amount of allowable “office” floor space within the Bower Place Shopping Centre, or within other C2 zoned properties, beyond the 5% of leasable floor space could have negative consequences on the City’s downtown areas which are designated as the primary location for office development. Due to the unique site selection criteria which clearly, in certain cases, would define a call centre as being different from conventional office space, there is merit for the City to consider some call centres as a separate use. This would require an amendment to the City’s Land use Bylaw.

### **Referral Responses**

The request by Bower Place Shopping Centre to add “call centres” to the range of permitted uses at the shopping centre and consideration of call centres as a separate use was circulated to various City Departments and outside agencies for input and comment. The following responses were received:

#### **1. The Downtown Business Association:**

- while the downtown is able (and does) accommodate small call centre operations, it has very few buildings that could accommodate large call centre operations due to recent lowering vacancy rates in the downtown and lack of availability of large single floor leasable space,
- some potential freestanding downtown locations could be appropriate for a call centre operation if the buildings were to become vacant (i.e. Port-o-Call Safeway, Co-op Store/Plaza, City yards bus depot, Dairy World site, A&B Sound building),
- there is not enough adequate parking in the downtown for large call centre operations,
- call centres 15,000 square feet or less should be located in the downtown, and
- would not object to “call centres over 15,000 square feet” being located outside of the downtown area.

#### **2. Engineering Department:**

- potential parking spill over to adjacent residential roadways,
- potential peak hour demand from worker’s shift changes will impact traffic at the Gaetz Avenue and Molly Banister and Bennett Street traffic signals; these signals are heavily taxed at the current time; in order to improve intersection efficiency, the East Gaetz Avenue service road between these intersections should be closed and an auxiliary lane constructed with right in/right out access to the west side of Bower Place Shopping Centre,
- there may be an internal traffic circulation and access queuing problem that the shopping centre owners should address, and
- sidewalk connection between the transit stop on Bennett Street and the shopping centre requires improvement.

3. Inspections & Licensing:

- no objection to a land use bylaw amendment that permits a “call centre” at the Bower Place Shopping Centre only,
- a detailed parking analysis based on the types of uses currently operating at the Bower Place Shopping Centre indicates that 2,061 parking stalls are required for the commercial retail outlets (5.1 stalls/93 m<sup>2</sup>) and 39 parking stalls required for minor office uses (2 stalls/93 m<sup>2</sup>) totaling 2,100 parking spaces out of the existing 2,464 stalls provided by the shopping centre, and
- this leaves 364 parking stalls that could be applied to any future use(s) that would locate in the vacant former Zellers store; a ratio that works out to 8.3 parking stalls per 93 m<sup>2</sup>.

4. Emergency Services:

- no objections.

5. Transit:

- although easier and faster to provide transit service to the central downtown area, regional shopping centres are a high priority for service delivery, and
- existing transit service to Bower Place Shopping Centre has the capacity to manage possible influx of new mall employees (including shift changes) without additional expense to operate.

### **Summary/Analysis**

Call centres are a unique land use requiring special site criteria – large single floor buildings with ample availability of parking. The potential large number of employees, hours of operation, multiple work shifts and significant on/off site vehicle trips associated with call centres could impact adjoining land uses and in some circumstances, a call centre could even be an incompatible land use with adjoining development.

While Red Deer appears to be unique in its restriction of office uses to the downtown, planning staff continue to fully support the principle of office development in only the downtown. This approach allows for a strong orientation and concentration of commercial retail and office uses in one area, the downtown. This approach has also added significant economic strength and focus to development of our downtown area and has provided easy transit access for staff. Furthermore, the successful redevelopment of the Riverlands area will, in part, be dependent upon retention of office uses in the downtown.

Planning staff believe that policies and goals contained in the City's Municipal Development Plan and the Greater Downtown Action Plan are sound in their intent to continue to direct office uses to the downtown. In our opinion these documents do contain enough flexibility that would allow the City to consider unique site specific “office” situations outside of the downtown. We believe that a call centre could fall into this category in that certain call centre operations are likely a very limited form of an office-like development. While the actual inside activity of a call centre can be similar to a typical office use, the type of building required by larger call centres and the related required parking lends itself to locations more likely found outside of our downtown commercial core area.

Land Use Bylaw Amendment 3156/BBB-2002  
 Call Centre – Bower Place Shopping Centre  
 Page 5

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As there is a limited demand especially for larger call centre operations, this use should only be considered on a case by case basis due to potential impacts on adjoining areas. This use should not be added to the use table of the C2 Commercial District as this would then be applicable to all C2 sites within the City.

Regarding the potential location of a call centre in the Bower Place Shopping Centre, planning staff acknowledge that from a land use perspective, a call centre is not necessarily the best fit for a regional shopping centre which is meant to provide commercial and retail services to the general public in a shopping environment. A call centre would effectively sterilize and isolate floor space that would be used in a different manner and function from other mall tenants. It is also recognized that attempts by the Bower Place Shopping Centre to find traditional mall retail tenants for its vacant space have been unsuccessful to date.

Evaluation by City Departments, the Downtown Business Association and planning staff of the Bower Place Shopping Centre “call centre” request has raised no major concerns, objections or indicated any negative impacts on adjoining properties. Notwithstanding that a potential call centre at the Bower Place Shopping Centre could impact traffic and intersection movements along Gaetz Avenue at certain peak times, options are available that would help alleviate this situation through possible removal of the service road along the shopping centre’s west boundary and corresponding access changes. This would benefit the Bower Place Shopping Centre with an opportunity for expanded parking.

Planning staff are therefore prepared to support a Land Use Bylaw amendment to define and add a “call centre” use at the Bower Place Shopping Centre based on the following rationale and criteria:

1. Not all call centres can be accommodated in the City’s downtown due to this being a unique form of land use that can require large buildings and ample parking.
2. That small call centres (i.e. 50 employees or less and under 15,000 sq. ft.) be required to locate in the downtown under the present “office” definition as contained in the Land Use Bylaw.
3. Call centres with more than 50 employees and over 15,000 sq. ft. to be defined as a separate non-office use and, subject to a positive evaluation on a case by case basis, be permitted to locate outside of the downtown, but not in a residential area.
4. Any site deemed appropriate for a call centre operation (more than 50 employees and over 15,000 square feet) be designated as a site specific exception to the Land Use Bylaw. For the Bower Place Shopping Centre request, the site specific exception would be applied to only the south-east sector of the shopping centre (former Zellers store) due to the availability of ample parking in this corner of the shopping centre site.
5. Call centres (more than 50 employees and over 15,000 square feet) are to provide a minimum of 8 parking stalls/93 m<sup>2</sup> of floor area.
6. The former Zellers store location has been vacant for a considerable time.
7. All future applications for a call centre (more than 50 employees and over 15,000 square feet) require a detailed evaluation to determine its suitability at a specific site.
8. Evaluation of the Bower Place Shopping Centre’s total parking requirements indicates that the existing number of parking stalls meets all bylaw requirements and is sufficient to include development of a call centre. Based on a call centre parking standard of 8 stalls/93m<sup>2</sup>, the amount of vacant floor space in the former Zellers store building could accommodate a call centre with up to ±450 employees.

Land Use Bylaw Amendment 3156/BBB-2002  
Call Centre – Bower Place Shopping Centre  
Page 6

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**Recommendation**

Planning staff recommend that City Council proceed with first reading of Land Use Bylaw Amendment 3156/BBB-2002.



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Tony Lindhout, ACP, MCIP  
PLANNER  
Attachments

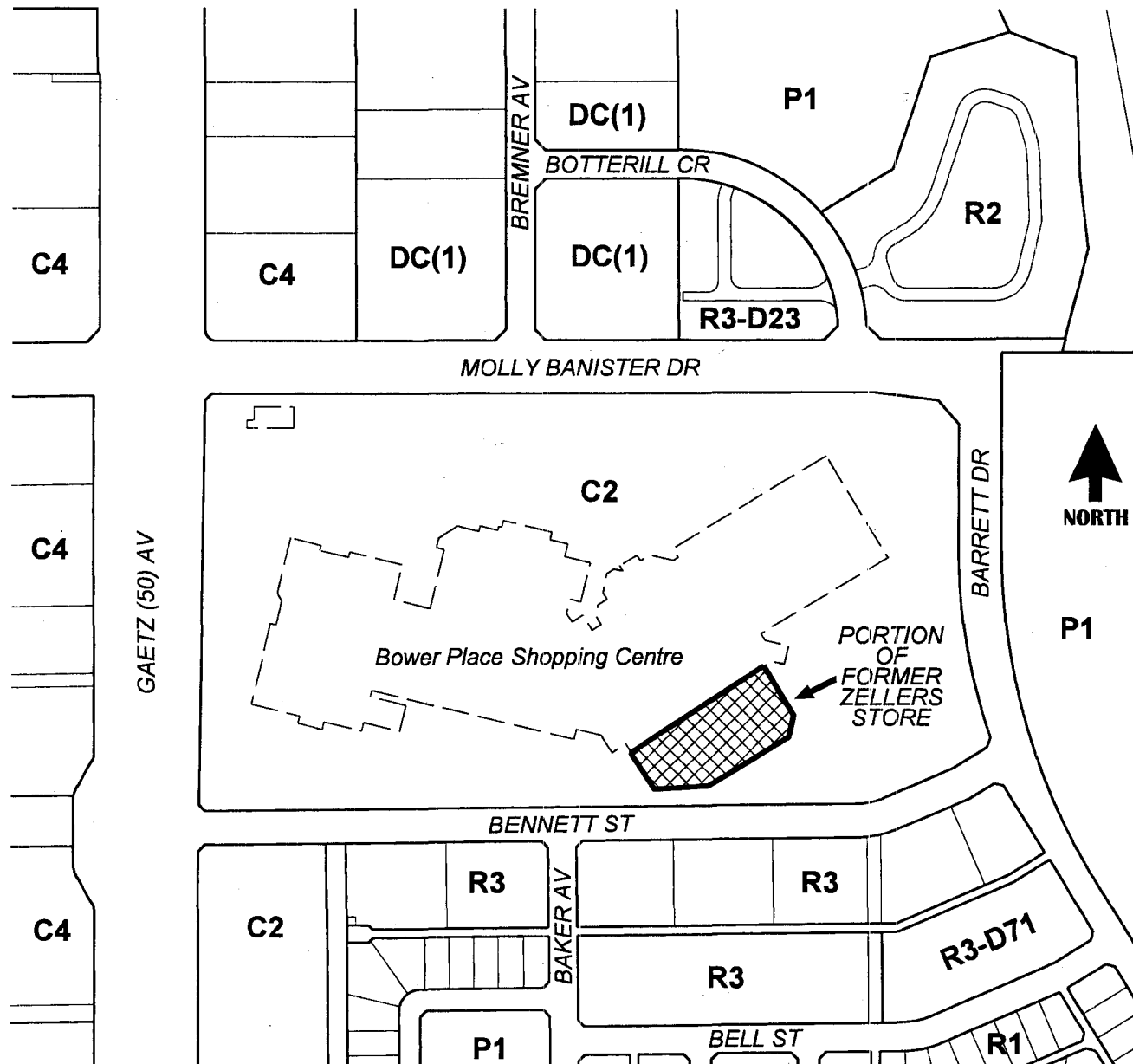


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Howard Thompson, Manager  
Land & Economic Development

- c. Colleen Jensen, Community Services Director
- Andre Tremblay, Land & Economic Development
- Greg Scott, Inspections & Licensing Manager
- Ken Haslop, Engineering Services Manager
- Kevin Joll, Transit Manager

# The City of Red Deer PROPOSED LAND USE BYLAW AMENDMENT



Addition of Exception - 6(G) 

## AFFECTED DISTRICTS:

C2 - Commercial (Regional and District Shopping Centre)

MAP No. 55/ 2002  
BYLAW No. 3156 / BBB - 2002

***Comments:***

We agree that Council proceed with First Reading of the Land Use Bylaw Amendment. A Public Hearing would be held on Monday, December 16, 2002, at 7:00 p.m. in Council Chambers during Council's regular meeting.

"G.D. Surkan"  
Mayor

"N. Van Wyk"  
City Manager



City Clerk's Department

**FILE**

Council Decision – November 18, 2002

**DATE:** November 19, 2002  
**TO:** Tony Lindhout, Parkland Community Planning Services  
**FROM:** Kelly Kloss, City Clerk  
**SUBJECT:** Land Use Bylaw Amendment 3156/BBB-2002  
Bower Place Shopping Centre

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*Reference Report:*

Parkland Community Planning Services and Land & Economic Development Manager, dated November 11, 2002

*Bylaw Readings:*

Land Use Bylaw Amendment 3156/BBB-2002 was given first reading. A copy of the bylaw is attached.

*Report Back to Council:* Yes

A Public Hearing will be held on Monday, December 16, 2002 at 7:00 p.m. in the Council Chambers during Council's regular meeting.

*Comments/Further Action:*

Land Use Bylaw Amendment 3156/BBB-2002 provides for a call centre operation , as a permitted use, in the south-east portion of the Bower Place Shopping Centre.

This office will now proceed with the advertising for a Public Hearing. Ivanhoe Cambridge will be responsible for the advertising costs in this instance.

  
Kelly Kloss  
City Clerk

/chk

/attach.

c Director of Development Services  
Community Services Director  
Land & Economic Development Manager  
Inspections & Licensing Manager  
Transit Manager  
C. Adams, Administrative Assistant

## BYLAW NO. 3156/BBB-2002

Being a Bylaw to amend Bylaw No. 3156/96, the Land Use Bylaw of The City of Red Deer as described herein.

COUNCIL OF THE CITY OF RED DEER, ALBERTA, ENACTS AS FOLLOWS:

- 1 "That Section 54 Exceptions Respecting Land Use, subsection (6) "On those sites, or portions thereof herein listed, the following uses may be allowed as permitted uses in the existing structure only" is hereby amended by adding the following:

(g) a call centre operation in the south-east portion of the Bower Place Shopping Centre (former Zellers store) subject to meeting the parking standard, on

(i) Block 6B, Plan 942 2669 (4900 Molly Banister Drive)

- 2 The "Use District Map G5" contained in "Schedule B" of the Land Use Bylaw is hereby amended in accordance with the Land Use District Map No. 55/2002 attached hereto and forming part of the bylaw.

- 3 That Section 2 Definitions is hereby amended by adding the following:

**"Call Centre"** means a minimum 15,000 square foot facility with more than 50 employees who provide information on sales, goods and services, takes orders for sales, goods and services, and/or provide technical after sales support to customers by telephone, e-mail or, other telecommunication technologies but does not include other office uses.

- 4 That Section 48 Parking Spaces and Areas is hereby amended by adding to subsection "Commercial & Industrial" the following:

Uses

Parking Spaces

Call Centre

8 stalls per 93 m<sup>2</sup> (gross leasable floor area)"

READ A FIRST TIME IN OPEN COUNCIL this 18th day of November 2002.

READ A SECOND TIME IN OPEN COUNCIL this day of 2002.

READ A THIRD TIME IN OPEN COUNCIL this day of 2002.

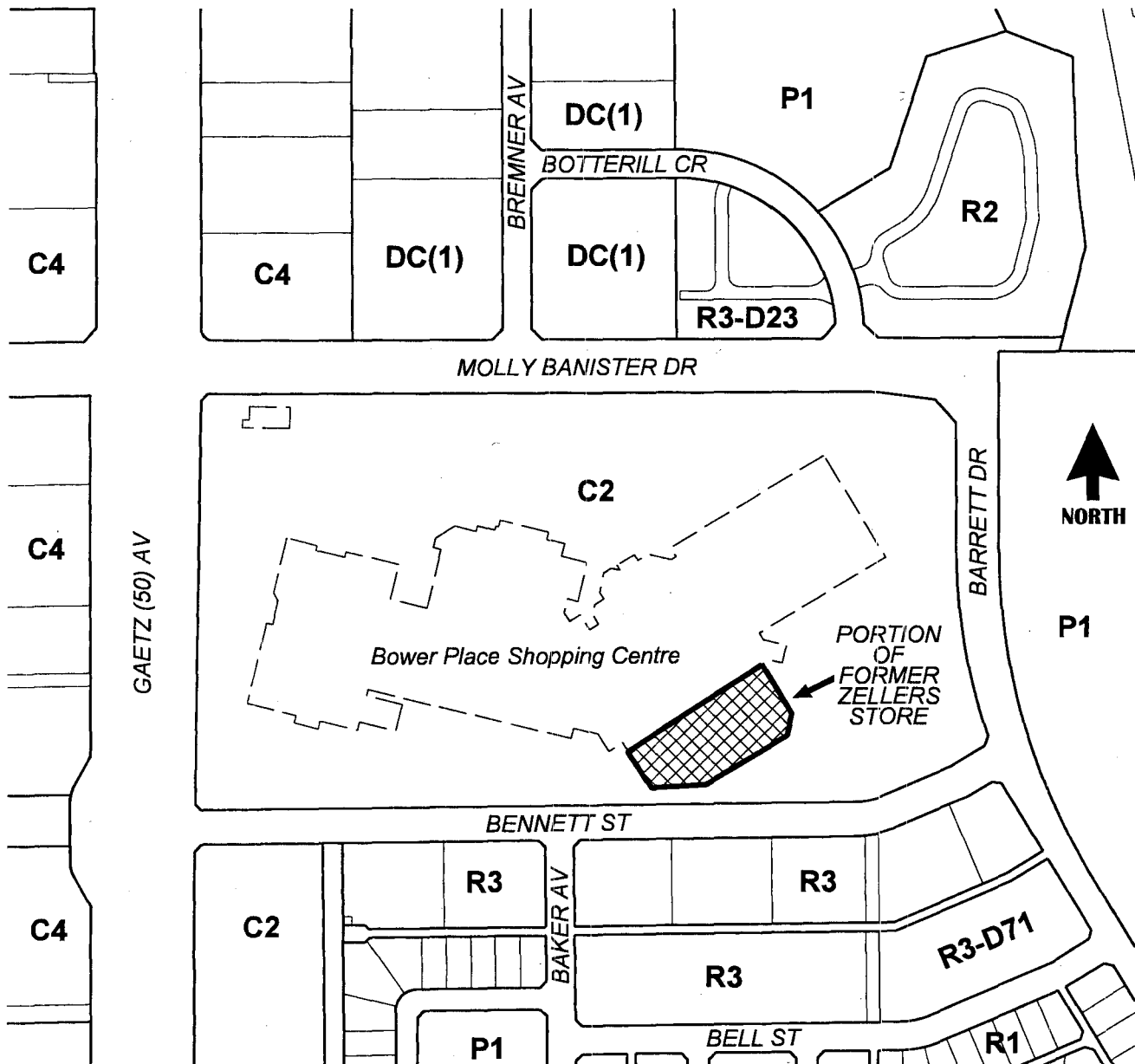
AND SIGNED BY THE MAYOR AND CITY CLERK this day of 2002.

\_\_\_\_\_  
MAYOR

\_\_\_\_\_  
CITY CLERK



# The City of Red Deer *PROPOSED LAND USE BYLAW AMENDMENT*



*Addition of Exception - 6(G)* 

## **AFFECTED DISTRICTS:**

*C2 - Commercial (Regional and District Shopping Centre)*

*MAP No. 55/ 2002  
BYLAW No. 3156 / BBB - 2002*



**LE**

CITY CLERK'S DEPARTMENT  
November 19, 2002

Fax: 341-4646

Mr. Dan Hachey  
Ivanhoe Cambridge  
Bower Place  
4900 Molly Bannister Drive, Suite 1000  
Red Deer, AB T4R 1N9

Dear Mr. Hachey:

**Re: Land Use Bylaw Amendment 3156/BBB-2002  
Bower Place Shopping Centre**

At the City of Red Deer's Council meeting held Monday, November 18, 2002, first reading was given to Land Use Bylaw Amendment 3156/BBB-2002. A copy of the bylaw is attached for your information.

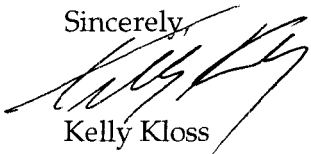
Land Use Bylaw Amendment 3156/BBB-2002 provides for a call centre operation, as a permitted use, in the south-east portion of the Bower Place Shopping Centre.

This office will now proceed with the advertising for a Public Hearing to be held on Monday, December 16, 2002 at 7:00 p.m. in the Council Chambers of City Hall during Council's regular meeting.

In accordance with the Land Use Bylaw, you are required to deposit with the City Clerk, prior to public advertising, an amount equal to the estimated cost of advertising, which in this instance is \$400. We require this deposit by no later than Wednesday, November 27, 2002 in order to proceed with the advertising. Once the actual cost of advertising is known, you will either be invoiced for or refunded the difference.

If you have any questions or require additional information, please do not hesitate to call me.

Sincerely,



Kelly Kloss  
City Clerk

KK/chk  
/attach.

c Mr. A. Rivet, Ivanhoe Cambridge  
Parkland Community Planning Services  
Land & Economic Development Manager  
C. Adams, Administrative Assistant

## BYLAW NO. 3156/BBB-2002

Being a Bylaw to amend Bylaw No. 3156/96, the Land Use Bylaw of The City of Red Deer as described herein.

### COUNCIL OF THE CITY OF RED DEER, ALBERTA, ENACTS AS FOLLOWS:

- 1 "That Section 54 Exceptions Respecting Land Use, subsection (6) "On those sites, or portions thereof herein listed, the following uses may be allowed as permitted uses in the existing structure only" is hereby amended by adding the following:

(g) a call centre operation in the south-east portion of the Bower Place Shopping Centre (former Zellers store) subject to meeting the parking standard, on

(i) Block 6B, Plan 942 2669 (4900 Molly Banister Drive)

- 2 The "Use District Map G5" contained in "Schedule B" of the Land Use Bylaw is hereby amended in accordance with the Land Use District Map No. 55/2002 attached hereto and forming part of the bylaw.

- 3 That Section 2 Definitions is hereby amended by adding the following:

**"Call Centre"** means a minimum 15,000 square foot facility with more than 50 employees who provide information on sales, goods and services, takes orders for sales, goods and services, and/or provide technical after sales support to customers by telephone, e-mail or, other telecommunication technologies but does not include other office uses.

- 4 That Section 48 Parking Spaces and Areas is hereby amended by adding to subsection "Commercial & Industrial" the following:

#### Uses

#### Parking Spaces

Call Centre

8 stalls per 93 m<sup>2</sup> (gross leasable floor area)"

READ A FIRST TIME IN OPEN COUNCIL this 18th day of November 2002.

READ A SECOND TIME IN OPEN COUNCIL this day of 2002.

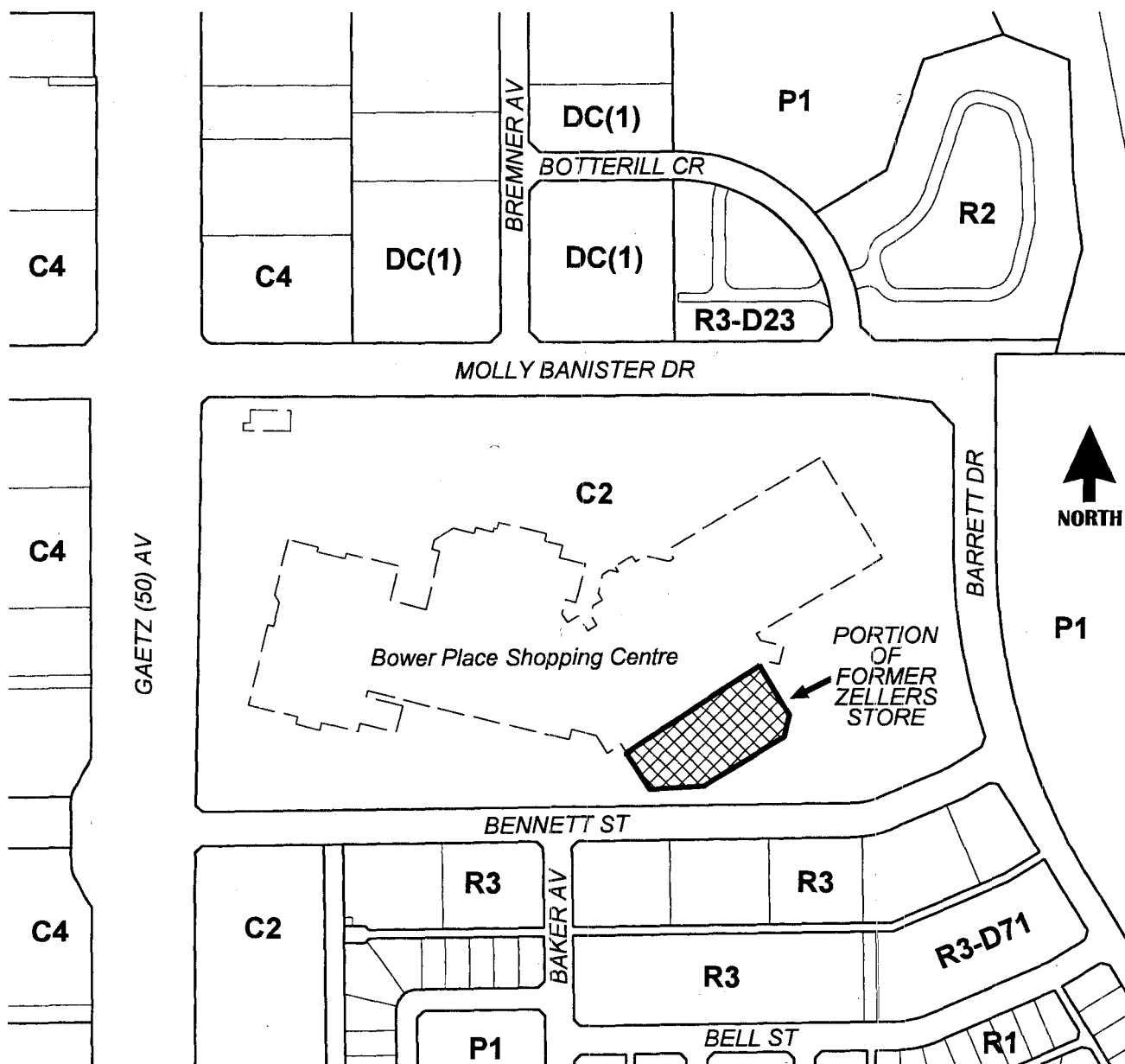
READ A THIRD TIME IN OPEN COUNCIL this day of 2002.

AND SIGNED BY THE MAYOR AND CITY CLERK this day of 2002.

\_\_\_\_\_  
MAYOR

\_\_\_\_\_  
CITY CLERK

# The City of Red Deer *PROPOSED LAND USE BYLAW AMENDMENT*



Addition of Exception - 6(G) 

## AFFECTED DISTRICTS:

C2 - Commercial (Regional and District Shopping Centre)

MAP No. 55/ 2002  
BYLAW No. 3156 / BBB - 2002



City Clerk's Department

**FILE**

**DATE:** November 19, 2002  
**TO:** City Council  
**FROM:** City Clerk  
**SUBJECT:** Land Use Bylaw Amendment 3156/BBB-2002  
Bower Place Shopping Centre

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### *History*

At the Monday, November 18, 2002 meeting of Council, Land Use Bylaw Amendment 3156/BBB-2002 was given first reading.

Land Use Bylaw Amendment 3156/BBB-2002 provides for a call centre operation , as a permitted use, in the south-east portion of the Bower Place Shopping Centre.

### *Public Consultation Process*

A Public hearing has been advertised for the above noted bylaw to be held on Monday, December 16, 2002 at 7:00 p.m. in the Council Chambers during Council's regular meeting. The owners of the properties bordering the site have been notified by letter of the Public Hearing.

### *Recommendations*

That following the Public Hearing, Council may proceed with 2<sup>nd</sup> and 3<sup>rd</sup> readings of the bylaw.

Kelly Kloss  
City Clerk

/chk

# Memo

**To:** City Clerk  
**From:** Harold Jeske  
Jerry Tennant

**Re:** Western Canada Summer Games

---

The City of Red Deer has been invited by Alberta Community Development to submit a bid to host the 2007 Western Canada Summer Games. The City in turn asked Bid Red Deer to investigate the possibilities and ramifications of hosting the event and to recommend a course of action.

The Western Canada Summer Games is a major sporting event consisting of sixteen different sports over a period of up to ten days in August 2007. Up to 2200 athletes from the four western provinces and three territories would be attending along with several thousand spectators, officials and dignitaries.

The cost of the event is estimated to be between 2.5 million and 3.5 million dollars with the Provincial Government providing a grant of 1.5 million dollars as well as a cultural grant of 75 thousand dollars. The host community would have to raise the remaining dollars in cash and gifts in kind.

It is anticipated an amount of \$150,000.00 would be required as a contribution from the City. This represents approximately 5% of the total cost of staging the games and 10% of the amount to be raised locally. This figure is based on the support given by the host municipalities of the last games in Prince Albert Saskatchewan and the 2003 Games in Manitoba. In addition, the host community is expected to provide all municipally owned sport facilities free of charge. In the past (Alberta Summer & Winter Games) the City has chosen to charge the organizing group for the cost of facilities and then provide a grant to cover those costs. This could add an additional \$10,000.00 - \$15,000.00 to the City's contribution.

Communities that have a good facility base, requiring very little upgrading and no new construction, can expect to host the Games for between 2.5 million and 3 million dollars. Communities without this type of infrastructure can expect a budget of up to 3.5 million dollars depending on the needs. Red Deer is in the enviable position of having first rate facilities to stage the games and very little would be required in the way of retrofitting or upgrading. It is therefore estimated the cost of holding the event in the City and County would be the lower amount.

With over 2000 athletes and several thousand visitors in the city for a period of up to ten days, the economic impact is expected to be in the range of four to seven million dollars.

Members of Bid Red Deer attended an information session in Edmonton to obtain more information about the Games and the bid process and then polled various individuals, groups and businesses in the city to determine the amount of support for hosting the event. The overwhelming consensus is that we should not pass up the opportunity to showcase our community and Central Alberta and to bring tourism dollars to the area.

The proposal to host the games was also presented to the Recreation, Parks and Culture Board on November 12<sup>th</sup>. The Board passed the following motion.

"Resolved that the Red Deer Recreation, Parks and Culture Board support the recommendations of Administration that Red Deer City Council undertake a joint bid with Red Deer County to host the 2007 Western Canada Summer Games."

In light of the support of the community and the Recreation, Parks and Culture Board, the Recreation, Parks and Culture Department and Bid Red Deer make the following recommendations to Council.

"That the City of Red Deer undertake a joint bid with Red Deer County to host the 2007 Western Canada Summer Games and that a letter of intent to this effect, along with a resolution of Council, be sent to Alberta Community Development by November 29<sup>th</sup>, 2002."

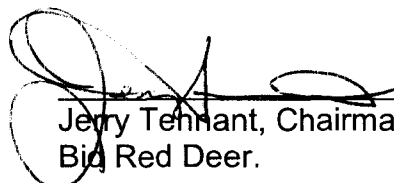
"That an Ad Hoc committee, including representatives from Red Deer County be formed to prepare a formal Bid to host the 2007 Western Canada Summer Games."




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Harold Jeske

Recreation, Parks & Culture Department, Manager




---

Jerry Tennant, Chairman  
Bid Red Deer.

***Comments:***

We agree with the recommendations of the Administration. The required financial contribution can be made over the intervening four years or a one-time contribution in the year of the Games.

“G.D. Surkan”  
Mayor

“N. Van Wyk”  
City Manager



**DATE:** November 19, 2002  
**TO:** Harold Jeske, Recreation, Parks & Culture Manager  
**FROM:** Kelly Kloss, City Clerk  
**SUBJECT:** 2007 Western Canada Summer Games

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*Reference Report:*

Recreation, Parks & Culture Manager and Bid Alberta Chair.

*Resolution:*

*Resolved* that Council of the City of Red Deer, having considered the report from the Recreation, Parks & Culture Manager and the Bid Red Deer Chair, re: 2007 Western Canada Summer Games, agrees as follows:

1. To undertake a joint bid with Red Deer County to host the 2007 Western Canada Summer Games and that City Administration and Bid Red Deer forward a letter of intent to Alberta Community Development by November 29, 2002.
2. That the Administration recommend to Council the membership of an Ad Hoc Committee whose purpose is to prepare a formal bid to host the 2007 Western Canada Summer Games.

*Report Back to Council:* Yes

*Comments/Further Action:*

Please provide, for Council's approval, a membership list for an Ad Hoc Committee that will prepare the formal bid to host the 2007 Western Canada Summer Games.



Kelly Kloss  
City Clerk

/chk

c Community Services Director  
Jerry Tennant, Chairman, Bid Red Deer

November 19, 2002

Mr. Steve Pritchard  
Western Canada Games Council  
c/o Alberta Community Development  
905 Standard Life Centre  
10405 Jasper Avenue  
Edmonton, Alberta T5J 4R7

Dear Mr. Pritchard.

**Re: 2007 Western Canada Summer Games**

I am pleased to indicate that the City of Red Deer is interested in submitting a bid for the **2007 Western Canada Summer Games** in cooperation with Red Deer County. At its November 18, 2002 meeting, City Council passed a resolution (attached) in support of submitting this "Letter of Intent to Bid."

Our community is ready and able to host such an event. We have the facilities, the experience, the expertise, and the volunteer base required to make the games a success. We are also confident in the support of the corporate community and other groups and organizations to meet the financial requirements.

We look forward to the opportunity to host the selection committee and to showcase the City and County of Red Deer

Sincerely yours,

Gail Surkan  
Mayor  
Att.

c. Hon. Victor Doerkson, MLA Red Deer South  
Mary Anne Jablonski, MLA Red Deer North  
Gregg Johnson, Reeve, Red Deer County  
K. Kloss, City Clerk  
Jerry Tennant, Chairman, Bid Red Deer  
Pauline Mousseau, Red Deer County  
Alberta Azzara, Chairman, Recreation, Parks & Culture Board  
Jim Baker, Chairman, Visitor & Convention Bureau

# **COUNCIL MEETING OF NOVEMBER 18<sup>TH</sup> , 2002**

## **ATTACHMENT**

**DOCUMENT STATUS:**      **PUBLIC**

**REFERS TO:**              **"A MESSAGE FROM THE  
GOVERNMENT OF ALBERTA"**

**"WHY ALBERTA OPPOSES THE  
KYOTO PROTOCOL"**

# Why Alberta opposes the Kyoto Protocol

**450,000 Jobs Lost in Canada**

**Income Taxes Increase**

**Gasoline Prices Increase**

**Investment Flees Province**

**We could see these headlines if the Kyoto Protocol is approved!**

If approved, the Kyoto Protocol will affect the Canadian economy more than that of any other country and Alberta will suffer the most. It could cost Alberta over \$8 billion and thousands of jobs per year. Every business and every individual in Canada would be negatively affected by higher prices, higher taxes and a devastated economy.

Although experts have conducted many studies, the potential impact of implementing the Kyoto Protocol is still uncertain. Some reports suggest that 450,000 jobs would be lost<sup>1</sup>, income taxes would increase substantially<sup>2</sup>, electricity costs could increase by 100%<sup>3</sup>, natural gas prices could increase by 60%<sup>3</sup>, and gasoline could reach \$1.10 per litre<sup>1</sup>.

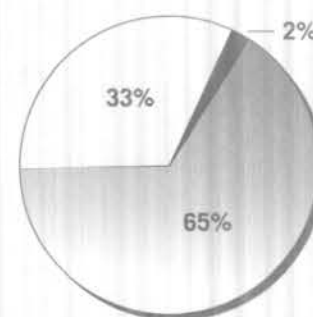
You will likely pay more income taxes; worry about job security; pay more to drive your car, heat your home, and keep your appliances running - all without making an actual or significant reduction in global gas emissions.

## What is the Kyoto Protocol?

In 1997, an international agreement under the United Nations was created to reduce greenhouse gases in the developed countries of the world. Its goal is to reduce greenhouse gas emissions an average of 5.2% below 1990 levels by 2012.

There is general agreement among all countries, and in Canada by all provinces, that the goal of reducing greenhouse gas emissions is desirable. Disputes have largely arisen over details of the Protocol such as implementation time frames and the relatively small number of countries that actually have to make emission reductions.

Global Greenhouse Emissions 2000



■ Countries rejecting Kyoto/  
no reduction target  
□ Countries with Kyoto target  
■ Canada

SOURCE: U.S. Department of Energy

<sup>1</sup> Perrin Beatty, CEO Canadian Manufacturers & Exporters, Sept. 3, 2002.

<sup>2</sup> Canada Climate Change Secretariat, quoted in: "Pain Without Gain—Canada and the Kyoto Protocol", *Canadian Manufacturers and Exporters*, p.11. Feb. 2002.

<sup>3</sup> M. Jaccard, "Costing Greenhouse Gas Abatement—Canada's Technological and Behavioral Potential", *Canadian Journal of Policy Research*, Winter 2001.

65% of all greenhouse gas emissions come from major producers that have chosen not to ratify the Protocol or who do not have emission reduction targets. They include:

- China
- India
- Mexico
- United States

Canada would be the only country in the Western Hemisphere committed to targets under Kyoto.

## What are greenhouse gases?

Greenhouse gases are invisible and are not smog or other types of visible air pollution caused by particulates in the atmosphere.

The most abundant greenhouse gases are carbon dioxide and methane. These are naturally occurring components of our atmosphere. Carbon dioxide is essential for plant growth. The issue is, however, that concentrations of these gases beyond natural levels may cause global warming.

The burning of fossil fuels such as oil, gas and coal produce greenhouse gases (mainly carbon dioxide). In Alberta, these fuels are used for heating, gasoline, production of electricity, production of oil and gas, and a variety of other industrial uses.

## What countries have agreed to ratify the Protocol?

As of August 30, 2002, 89 countries have ratified the Protocol. The United States and Australia do not support the Protocol and have indicated they will not ratify it. The 18 *developed* countries that have ratified the Kyoto Protocol account for 25% of the world's greenhouse gas emissions.

65% of all greenhouse gas emissions come from major producers that have chosen not to ratify the Protocol or who do not have emission reduction targets. They include China, India, Mexico and the United States. Also none of the OPEC countries are considering reductions under the agreement.

Canada has not yet ratified the Kyoto Protocol but proposes to put it to a vote of Parliament prior to the end of this year.

## Why did the United States refuse to ratify the Protocol?

The United States, Canada's most important trading partner (accounting for 80% of Canada's export trade), is opposed to Kyoto because of the negative economic impact the agreement would have on their country. They believe that the targets are impossible to meet in a realistic time frame. In addition, the U.S. did not accept that most of the world's countries are excluded because they are in the *developing* country category. The U.S. does not feel that only the *developed* countries should carry the full burden of greenhouse gas emission reductions.

*"Compliance with the Kyoto accord would require the U.S. to reduce its energy consumption by about 25 percent below the amount that would otherwise occur...reducing energy use in the United States by one-fourth would be to stop nearly all highway, rail, sea and air traffic permanently."*

National Center for Policy Analysis, March 1999





## Are all countries treated equally?

**No!** Countries are divided into two categories: *developed* countries and *developing* countries. Only *developed* countries are required to reduce emissions by 2012. Other countries are allowed to increase emissions. Canada is one of 25 countries termed *developed*.

*Developing* countries, such as Russia, are also able to sell *credits* for the unused parts of their emission quotas. For example, a *developing* country would be given a quota equal to the emissions target they agreed to under Kyoto. The difference between their actual emissions and their quota is called *credits*. These *credits* could be sold to *developed* countries that cannot meet their emission targets.

Purchasing *credits* could cost Canada between \$2 billion and \$6 billion annually – money that would leave the country, offering no tangible value or return to Canadians, and do absolutely nothing to reduce global greenhouse gas emissions.

## How much does Canada contribute to the greenhouse gas problem?

Canada is a small contributor (2%), but will pay heavily because of fossil fuel-based natural resource production. Estimates are that economic risk to Canada will be four times that of the European Economic Community and 10 times that of Japan. Alberta will pay the highest economic price within Canada because of our production of energy and use of coal to produce electricity.

## What is the impact on Canadians?

- Jobs would be lost because Canada would not be competitive with the United States, our largest trading partner and a non-participant in the Kyoto Protocol.
- Every Canadian will suffer from a weak economy and higher prices for energy related products. Government revenues would be severely reduced with a resulting negative effect on programs and services.
- Industry will have to reduce emissions by changing technology (currently high-cost and unproven) with resulting increased prices in products.
- Industries that cannot meet emission targets will have to purchase *credits* from countries who have room to spare in their greenhouse gas allotment. If 50% of emissions are reduced by efficiencies and technological changes, then *credits* for the other 50% will have to be purchased. Estimates are that as much as \$2 billion to \$6 billion per year might have to be purchased from countries in the *developing* category. This money would leave Canada. Costs for the purchase of these *credits* would be passed on to consumers through higher product costs.
- Oil, gas, electricity, agricultural products, etc. would become more expensive and non-competitive in global markets – Canada does not set prices for oil and gas.
- Some industries such as agriculture would be severely affected because of their high consumption of energy products whose prices would increase under Kyoto (diesel fuel, natural gas for grain drying, fertilizer, etc.).
- Oil sands projects may be stopped or scaled back because cost increases to meet emission targets may make the projects uneconomical.
- Industries and investment would tend to locate in countries that do not have the extra costs – perhaps in the U.S. or in *developing* countries that do not have a target and thus no extra costs. Why would an industry locate in Canada when it could be located across the border and not have to worry about extra emission control costs?

## Does Alberta believe in reducing greenhouse gases?

**Yes!** Alberta agrees that Canada must be a responsible member of the world community. Greenhouse gases have to be reduced and Alberta is committed to doing that – but not under the Kyoto framework.

Alberta continues to be a leader within Canada and has won several awards for success in reducing greenhouse gas emissions (three awards since 1997).

*"We need to protect our environment and reduce greenhouse gas emissions. At the same time we have to protect our economy and the livelihoods of people in Alberta. Our Alberta proposal will do that!"*

Ralph Klein, September 2002

## We can do better.

Alberta supports a *made-in-Canada solution*. We believe greenhouse gases can be reduced without the extremely negative economic impact of the Kyoto Protocol's targets and timetables.

*"It's like signing a mortgage for a property you have never seen and for a price that you have never discussed. At the very least the federal government must first evaluate costs, create a realistic implementation plan and then consult with the provinces, including a meeting of the First Ministers."*

Ralph Klein, September 3, 2002

Alberta has prepared an alternative to the Kyoto Protocol and has presented it to the federal government and the other provinces. See below for how to get your copy of the Alberta proposal: *Albertans & Climate Change - A Plan for Action*.

Alberta believes that greenhouse gas emissions can be significantly reduced without the hardships caused by the Kyoto Protocol. Alberta's proposal achieves similar targets but over a longer time frame. The proposal includes:

- Working with citizens and industry to aggressively set emission targets and strategies to achieve significant greenhouse gas reductions.
- Working with industry to establish enforceable performance targets for greenhouse gas emissions.
- Keeping investment money in Canada to re-tool our own economy and meet our own targets rather than sending dollars to other countries for emission *credits*.
- Focusing research on technology that will lead to greenhouse gas emission reductions such as:
  - creating cleaner energy production;
  - more efficient oil sands upgrading technologies;
  - improving oil and gas production efficiency; and
  - working on alternative energy such as fuel cells and hydrogen fuels.
- Finding ways to efficiently capture carbon dioxide emissions, store them and use them for positive economic benefits (injecting carbon dioxide into oil wells to recover more oil, etc.).
- Working with citizens and industry to achieve energy conservation – less consumption and more efficient use of energy.
- Setting longer-term goals to continue to reduce greenhouse gases.

## Here's what you can do!

Let people know that you support a *made-in-Canada solution* and that Alberta is proposing a realistic workable alternative. Get a copy of the Alberta proposal: *Albertans & Climate Change – A Plan for Action*.

Do your part to be more energy efficient and reduce emissions.

Get a copy of *Albertans & Climate Change – What Can Individual Albertans Do?* It's full of helpful hints.

Both documents are available on-line at [www.gov.ab.ca](http://www.gov.ab.ca) or by calling **310-4455** (in Alberta).

**Take part in the public consultation on the Alberta plan and provide your comments.**

**For more information visit**

[www.gov.ab.ca](http://www.gov.ab.ca) or call toll-free 310-4455 (in Alberta)

**Write to the Prime Minister** (postage free)

Office of the Prime Minister  
80 Wellington Street  
Ottawa, Ontario K1A 0A2  
Fax: 613-941-6900  
email: [pm@pm.gc.ca](mailto:pm@pm.gc.ca)

**Write to your Member of Parliament** (postage free)

c/o House of Commons  
Parliament Buildings  
Ottawa, Ontario K1A 0A6

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[www.gov.ab.ca](http://www.gov.ab.ca)

**Alberta**  
GOVERNMENT OF ALBERTA

VIA HAND DELIVERY.

Mayor Gail Surkan  
Members of City Council  
City of Red Deer  
P.O. Box 5008  
Red Deer Alberta  
T4N 5E9

November 11, 2002

Dear Ms. Surkan and Council

Enclosed is information regarding the Kyoto Agreement. The Hon. David Andersen, Minister of Environment has indicated that there will be costs attached to ratification but has not provided specifics of those costs. As well, the benefits of Kyoto have not been specified and are now being questioned in the Gwyn Morgan letter and by the Alberta Government release among others.

Based on the information contained herein our concern is that there is potential for losses of jobs in the energy sector and any small business doing business with the energy services sector, potential for rising costs of energy to consumers including the City of Red Deer and potential for the withdrawal of investment in our industrial base.

We believe these concerns are of sufficient concern to the community of Red Deer that city council should intervene in a timely manner to support Red Deer workers, consumers, businesses and taxpayers.

The Prime minister has indicated he will commit Canada and Canadians to the agreement with no further consultation with provinces, stakeholders, municipalities or individual Canadians or with any further explanation of the costs and the benefits to workers, businesses, or taxpayers.



We respectfully request council to debate and pass a resolution which:

1. seeks information about the cost to Red Deer City, Red Deer taxpayers and Red Deer businesses of ratification of the Kyoto Protocol;
2. that the Prime Minister delays ratification until the cost and benefit impact on us is forthcoming.

The provinces and territorial governments have proposed an implementation framework leading to a national plan over a period of time. This resolution will allow sufficient time for that process to occur.

The text of the Kyoto Protocol is available at [unfccc.int/resource/docs/convkp/kpeng.html](http://unfccc.int/resource/docs/convkp/kpeng.html).

Copies of the Alberta Government alternative entitled Albertans & Climate Change - A Plan for Action will be provided as soon as received.

For further information please contact any of the signatories. Thank you.

Yours truly

*Jeff Wood*  
343-6640

*ASH*  
342-0652

*Mark Full*  
343-5838

*[Signature]*  
397-4491

"JEFF WOOD"  
350-8686

*[Signature]*  
343-6002

*[Signature]*  
346-8334

*[Signature]*  
346-2011

*Ray McBoat*  
346-2573

*[Signature]*  
342-5424

Concerned Citizens Group

Enclosures: Gwyn Morgan Letter to Prime Minister September 4, 2002  
Alberta Government "Why Alberta Opposes the Kyoto Protocol"  
Armet Report "Kyoto Update" 12 Implementation Plan - Provinces

*[Signature]*  
347-2652

**CONCERNED CITIZEN'S GROUP  
KYOTO PROTOCOL**

<b>Baker, Jim</b>	<b>Red Deer, AB</b>	<b>346-2011</b>
<b>Ehnes, Leroy</b>	<b>Red Deer, AB</b>	<b>342-5424</b>
<b>Fischer, Jan</b>	<b>Red Deer, AB</b>	<b>347-4491</b>
<b>Hull, William</b>	<b>Red Deer, AB</b>	<b>347-5838</b>
<b>Liptak, Ed</b>	<b>Red Deer, AB</b>	<b>343-6002</b>
<b>McBeth, Ray</b>	<b>Red Deer, AB</b>	<b>346-2573</b>
<b>McPherson, James</b>	<b>Red Deer, AB</b>	<b>343-6640</b>
<b>Olafson, William</b>	<b>Red Deer, AB</b>	<b>346-8334</b>
<b>Oldring, John</b>	<b>Red Deer, AB</b>	<b>347-2652</b>
<b>White, Barclay</b>	<b>Red Deer, AB</b>	<b>342-0642</b>
<b>Wood, Jeff</b>	<b>Red Deer, AB</b>	<b>350-8686</b>

**COUNCIL MEETING OF NOVEMBER 18<sup>TH</sup> , 2002**

**ATTACHMENT**

**DOCUMENT STATUS:        PUBLIC**

**REFERS TO:                ATTACHED IS ADDITIONAL  
INFORMATION PROVIDED BY THE  
CONCERNED CITIZENS GROUP  
REGARDING THE KYOTO  
AGREEMENT**

## ALBERTANS CLIMATE CHANGE

### *What can Individual Albertans Can Do?*

A natural greenhouse effect keeps Earth's temperatures within habitable limits, but the release of increased volumes of man-made greenhouse gases into the atmosphere may be affecting global climate.

The Alberta government encourages all Albertans to play their part as responsible stewards of the environment, in addressing this risk of climate change. Efficient use of energy by Albertans is one way of taking responsible environmental action on this important issue.

#### HUMANS AND CO<sub>2</sub>:

Human activities now add an estimated five billion tonnes of carbon dioxide to the atmosphere each year.

For the individual Albertan, energy conservation pays off three ways: it saves money, it saves energy and it benefits the

#### RISE IN TEMPERATURE:

Average temperature of the Earth's surface has increased by between 0.3 and 0.6 degrees over the past 100 years.

environment. Good energy conservation practices also help ensure that Alberta's good air quality stays that way, for generations to come.

Reduce your share of greenhouse gas emissions at home by:

- Turning off lights, appliances, televisions, computers and any other electrical devices when they're not needed.
- Caulking or weather stripping to seal leaks around doors, windows and cracks. (Save up to 25 per cent on your heating bills.)
- Insulating when you renovate.
- Setting your thermostat a couple of degrees lower. (Save five per cent on heating costs.)
- Cleaning your furnace every year and changing its filter once a month. (Save another five per cent on heating costs.)

#### LET THERE BE LIGHT:

Compact fluorescents cost more initially, but use 75 per cent less energy than conventional light bulbs - and last up to 10 times longer.

- Wrapping your hot water tank with a thermal blanket. (Save 10 per cent on water heating costs.)
- Using compact fluorescents in place of conventional incandescent bulbs. (They cost more initially but last longer and consume less electricity.)

Reduce your share of greenhouse gas emissions at the office by:

- Turning off lights and computer equipment at night. Save up to \$100 per workstation annually.
- Photocopying only what you need. Turn the copier off when you are not using it.
- Reducing lighting. Open the curtains or blinds to increase the light, naturally. (Saves energy - and is easier on your eyes!)
- One larger appliance is generally more efficient than several small ones. Where possible, have one communal appliance per office floor.



Reduce your share of greenhouse gas emissions as you commute by:

- Keeping your vehicle properly maintained. Change the oil filter regularly and have the engine tuned for summer and winter.
- Maintaining the recommended tire pressure for your vehicle. (It's printed on the tire.) This is one of the best ways to maintain a vehicle's efficiency - and reduce its air emissions.
- Driving evenly. Sudden acceleration and frequent hard stops increase your vehicle's output of pollutants.
- Not over-using your vehicle's block heater in winter. Use a timer to switch it off and on.
- Take the bus. Ride a bike. Walk or run. Car pool to work.

**DRIVING  
EMISSIONS:**

Roughly half Canada's CO<sub>2</sub> emissions come from the 14 million cars and light trucks we drive.

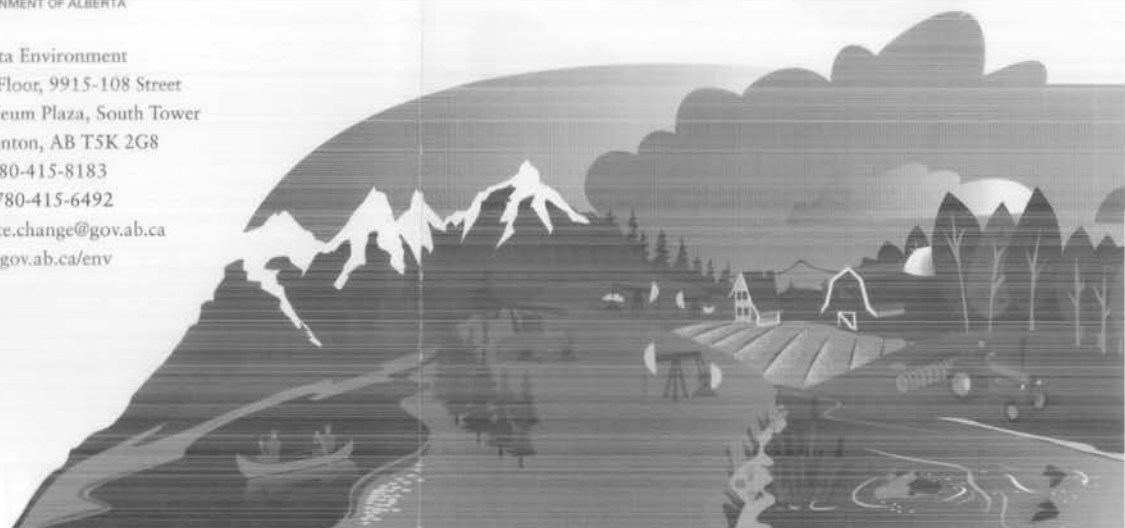
**ALBERTANS  
CLIMATE  
CHANGE**

*what can individual  
Albertans do?*

For more information on climate change, visit the Alberta Environment website: [www.gov.ab.ca/env](http://www.gov.ab.ca/env)



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# ALBERTANS CLIMATE CHANGE

## *Taking Action*



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In May 2002, the Government of Alberta released a draft *Plan for Action* proposing an Alberta approach to address the issue of climate change and reduce greenhouse gas emissions.

Following extensive consultations, the finalized Alberta plan - *Albertans & Climate Change: Taking Action* - establishes a framework to reduce greenhouse gas emissions.

The plan focuses on improving energy efficiency, enhancing technology to control industrial emissions, seeking out renewable energy sources and better emissions management. Alberta’s action plan is another step towards an achievable national climate change strategy.



The Alberta government is committed to taking effective action on climate change. *Albertans & Climate Change: Taking Action* provides a comprehensive framework for an aggressive set of actions that will reduce greenhouse gas emissions and train Alberta's economy to operate in a way that contributes to our environment and our future.

By 2020, Alberta will cut emissions in the province relative to GDP by 50 per cent below 1990 levels. This will be about a 60 million tonne reduction in greenhouse gas emissions below "business as usual" levels. To measure our progress towards this target, Alberta's greenhouse gas emissions will be expected to be 20 million tonnes lower than "business as usual" by 2010.

The following actions will be taken to achieve this target.

#### Negotiate agreements with key sectors

The Alberta government will:

- Work with stakeholders through the Clean Air Strategic Alliance on managing air emissions from Alberta's electricity sector.
- Begin negotiations on emissions reductions with the oil and gas sector in November 2002.
- Begin negotiations with nine other sectors by Spring 2003.
- Include regulatory backstops such as standards, inclusion in approvals, and financial consequences for non-participation, in emission reduction targets.
- Define expectations for mandatory industry greenhouse gas reporting.

#### Emissions trading

The Alberta government will:

- Develop a definition for eligible greenhouse gas offsets.
- Establish a registry for greenhouse gas offsets.
- Take part in initiatives to buy real emission reductions.

#### Put the Alberta government "house" in order

The Alberta government has now cut greenhouse gas emissions from its own operations by more than 20 per cent (compared with 1990 levels). We have won three national awards for these efforts and are committed to reducing our emissions by 26

## Alberta's Climate Change Action Plan

### Executive Summary



### Renewable Energy

An energy resource that is replaced rapidly by natural processes. Examples include: sunlight, hydropower (water a through a dam) and wood.

### Tradeable Emissions Permits

Part of a domestic emissions trading system (*see above*) that allows an emitter a specified number of tonnes of emissions. Once this limit has been reached, the permit expires. Total number of permits in any tradable market equals the level of emissions sought by the regulating authorities.

### U.N. Framework convention on climate change

This is the governing body for international climate change negotiations that was established in 1992 at the Rio Earth Summit. The convention's primary objective is: "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic (man-made) interference with the climate system." This level is to be achieved "within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner." The Kyoto Protocol document came out of this U.N. convention.



## *Emissions Trading*

A market-based system that allows companies flexibility to choose the most cost-effective solutions to achieve established environmental goals. Companies that produce fewer emissions than they are allowed could sell their “excess capacity” to others who do not.

## *Greenhouse Gases (GHGs)*

The main greenhouse gases are CO<sub>2</sub>, methane, nitrous oxide and the chlorofluorocarbons (CFCs). All but CFCs occur naturally. Collectively, these gases make up less than one per cent of our atmosphere, sustaining what is called the Earth’s “natural greenhouse effect.” Without this, Earth would be 30 degrees cooler - essentially, a frozen planet.

## *International credits/permits*

The Kyoto Protocol allows for creation and transfer of emissions credits or permits between countries. These are designed to minimize the cost of reducing global greenhouse emissions and include: Joint Implementation (emission-reducing projects between two countries with a Kyoto target); Clean Development Mechanisms (project-based reductions between developed and developing countries), and International Emissions Trading (international trading of international greenhouse gas permits).

## *Intergovernmental Panel on Climate Change (IPCC)*

A panel set up by the World Meteorological Organization and the United Nations Environment Programme in 1988, in recognition of potential global climate change. The panel’s role is to assess the scientific, technical and socio-economic information needed to understand the risk of human-induced climate change. IPCC does not carry out research or monitor climate related data, but bases its assessments mainly on peer reviewed and published scientific/technical literature.

## *Kyoto Protocol*

Adopted in 1997, Kyoto’s key concepts state that: developed countries should commit to reducing collective emissions of six key greenhouse gases by an average of at least five per cent; national emissions targets must be achieved by 2008-2012; and, countries have some flexibility in how to make and measure their emissions reductions.

## *Non-Renewable Energy*

Non-renewable energy comes from a resource that is not replaced, or replaced only very slowly, by natural processes. Primary examples of fossil fuels are: oil, natural gas and coal. These fossil fuels are produced by decay of plant and animal matter, at much slower rates than our present fossil fuel consumption.

percent below 1990 levels by 2005. We will:

- Fund deployment of innovative technologies in government operations.
- Continue to acquire alternative and hybrid vehicles for government use.
- Support energy retrofits for Alberta’s schools.
- Roll out a government driver education program that encourages more fuel-efficient driving.
- Insist on “best in class” when leasing vehicles.
- Establish, as part of the Alberta government’s own sectoral agreement, a longer-term (post 2005) emission reduction target.

### Help Albertans conserve energy

- Climate Change Central’s new *Energy Solutions Alberta* office will provide a one-stop shop for information about energy efficiency and conservation opportunities for homes and small businesses.
- The Alberta government will support Climate Change Central led initiatives including: municipal building and street lighting retrofits, consumer education, energy labeling, vehicle anti-idling, energy-efficient “teletrips”, pilot programs for accelerated replacement of household appliances, adoption of new technologies and reducing barriers to low-impact power generation.

### Support technology

- Enhance government support for the Alberta Energy Research Institute and make climate change a key part of its focus.
- Support centres of excellence for clean energy technologies and climate change analysis.

### Carbon management

- Start pilot projects/monitoring programs for using carbon dioxide for enhanced oil recovery. The Alberta government will set a royalty credit for demonstration projects using CO<sub>2</sub> for enhanced oil recovery.
- Start a pilot project for CO<sub>2</sub> Enhanced Coal Bed Methane recovery.
- Work with other governments to develop protocols for the monitoring of CO<sub>2</sub> in stored geologic formations.

### Renewable/alternative energy sources

- The Alberta government will expect average emissions intensity from electricity generation to decrease and will look to Alberta’s Clean Air Strategic Alliance for an overall framework under which this will happen. As part of this, the government will expect the renewable and alternative energy portion of the province’s total electricity capacity to grow by 3.5 per cent by 2008.
- The Alberta government will expect electricity retailers to disclose the emissions intensity of the electricity they market.



## Biological sinks

- Confirm ownership of the carbon sequestration potential of soil and forests.
- Develop a land use registry to track greenhouse gas emission reductions/removals.
- Participate in and support a Canada-wide university-based research effort to confirm the reliability and estimate the potential for biologic storage of carbon.
- Support Climate Change Central initiatives to develop ways of measuring, monitoring, verifying and trading sink-related greenhouse gas offsets.

## Adapting to climate change

- Work with stakeholders to understand climate change impacts.
- Take part in national and regional research initiatives (Prairie Adaptation Research Collaborative; Water Institute for Semi-Arid Eco-Systems, University of Lethbridge).
- Enhance the Alberta government's adaptation research.

# A glossary of Terms

## *carbon sinks*

Any naturally occurring thing, like forests or specific kinds of agricultural activity, that can be grown or created specifically to help absorb more carbon dioxide.

## *cleaner Energy Exports*

Natural gas or hydropower from Canada provides an environmental benefit to the United States when they buy and use these “cleaner” fuels in place of their coal-fired electric power. However, producing this cleaner energy generates greenhouse gas emissions in Canada, for which we would be liable under any international emissions reduction agreement like Kyoto. The federal government is now arguing that Canada's cleaner energy exports should be recognized internationally.

## *climate change*

The Earth's climate system adjusts to any rise in greenhouse gas levels to keep its global “energy budget” in balance. A thicker blanket of greenhouse gases - from increased human burning of fossil fuels for example - will result in warming of the Earth's surface and its lower atmosphere, or in changed climate patterns.

## *climate change central*

A unique public-private partnership that promotes the development of innovative responses to global climate change and its impacts. The Alberta government is a partner in Climate Change Central's efforts to build links and relationships between businesses, governments and other stakeholders in Alberta interested in pursuing greenhouse gas reduction initiatives.

## *Domestic Emissions Trading*

Emissions trading within Canada, as distinct from international emissions trading.

## *Emissions Intensity*

Greenhouse gas emissions released as measured against some other factor like the Gross Domestic Product (GDP) of a nation, province or state. Other standards by which emissions intensity can be measured include: per barrel of oil; per million cubic feet of natural gas; per tonne of coal, cement, etc. produced; or per megawatt hour of electricity.



## conclusion and Next Steps

*Albertans & Climate Change: Taking Action* reflects the interests of Albertans by responding to the climate change issue in a manner that is environmentally effective and economically responsible. This plan will result in real greenhouse gas emission reductions in Alberta. It focuses on actions that increase the productivity and efficiency of all sectors of the economy, and prepares Albertans and Alberta organizations for the long-term challenge of achieving deeper reductions in greenhouse gas emissions over the coming century.

Alberta's approach is based on partnering with all stakeholders to identify challenging goals for reducing the emission intensity of their operations. Alberta will work with industry and other governments to support innovative technologies, and best practices will play a key role in facilitating reduced emission intensities. Through our strong partnerships in organizations such as Climate Change Central, our approach will also provide Alberta energy consumers with the tools and resources they need to improve their efficiency.

Effectively contributing to climate change solutions requires a workable plan for stakeholders to adopt. Alberta's plan reflects the interest of Alberta organizations and the public in developing an environmentally effective response. Our plan also clearly identifies the expectations that the province will have of all sectors in contributing to the challenge ahead.

Most of all, *Albertans & Climate Change: Taking Action* reflects a commitment:

- To take immediate action on climate change.
- To work collaboratively - building genuine partnerships with trust and confidence.
- To make strategic investments that position us to make ever increasing contributions to actions on climate change, and to continue to develop our economy to be more competitive under any world policy and in any environmental or economic climate.



## Taking Action Introduction

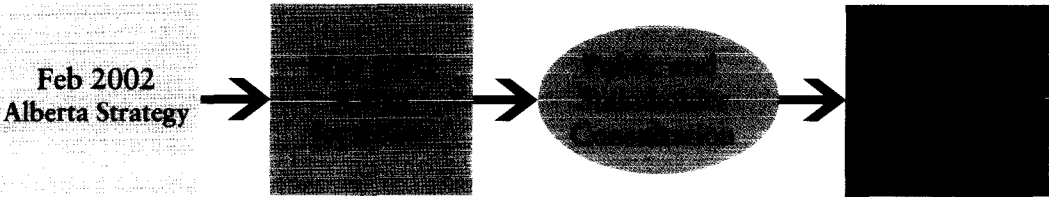
Alberta is committed to reducing greenhouse gas (GHG) emissions and contributing to an effective approach for responding to the risks of climate change. The Alberta government and many of our partners in industry, academic institutions, municipalities and environmental organizations have been actively involved in the search for an effective climate change response since the issue emerged in the late 1980s and early 1990s. The Alberta government recognizes that global climate change is real and that the current level of scientific agreement on this issue warrants further action. Alberta is prepared to contribute to the global objective of reducing the concentrations of greenhouse gases in the atmosphere through a set of challenging and promising actions.

Over the past decade, Alberta organizations have been recognized as national leaders in taking action to reduce greenhouse gas emissions. Our industries have successfully begun the long-term task of reducing the environmental footprint of the commodities and services they provide to consumers. These organizations have set an example for others to follow on the long road towards a less emissions-intensive economy. Alberta citizens and industries have told us that they are ready for the challenge ahead. They realize the benefits of continuing to search for more efficient ways of producing goods and services and using new technologies that increase competitiveness while reducing waste. The public is increasingly expecting "best in class" environmental performance as well as competitively priced products and services. Alberta organizations are rising to meet this challenge.

Alberta's commitment to sustainable resources and environmental management runs deep and has been well established. Albertans enjoy a high quality of life based on economic, social and environmental factors. Employment opportunities and access to educational, health and social programs flow directly from the strength of our resource-based economy. Alberta's high quality of air and water help ensure the health, well-being and enjoyment of Albertans as they live, work and play in the province. Alberta's dynamic economy and the ability to maintain it in the long term are the direct result of the sustainable management of our natural resources.

In February 2002, the Alberta government released *Albertans & Climate Change: A Strategy For Managing Environmental and Economic Risks*. This strategy outlined the government's climate change approach of influencing the development of an effective national climate change response, while at the same time, taking action within the province to reduce greenhouse gas emissions.

To provide further detail, in May 2002 the province released *Albertans & Climate Change: A Plan for Action*. This draft for discussion outlined how the Alberta government proposed to make an effective contribution to global greenhouse gas emissions reductions.



The draft *Plan for Action* detailed a number of actions for pursuing sustainable greenhouse gas emission reductions within the province. The draft was tested through an extensive set of stakeholder consultations with a range of sectors. Albertans also provided their input. Elements of Alberta’s draft plan received strong support. In some areas, stakeholders and the public asked for further detail.

After integrating input from stakeholders and the public, *Albertans & Climate Change: Taking Action* provides the guideposts and signals that define how Alberta will tackle the climate change challenge. This finalized plan establishes the framework and the specific actions the province will take on its long-term journey towards reduced greenhouse gas emissions.

- Develop synergy and partnerships with other climate change research and development efforts such as BIOCAP Canada Foundation, a national university research organization for biology-based research in climate change.
- Provide a basic set of climate scenarios for use by government departments and all Albertans.
- Develop suitable indicators and information systems so that significant changes can be detected.

**ACTION:**

**Help Albertans explicitly address the risks of short-term climate variability and extremes - notably in the management and planning for agriculture, forestry, health, municipalities, infrastructure and water.**

- Assess the impacts associated with current and future climate extremes.
- Assess current responses to climate extremes.
- Incorporate improved responses to climate extremes into management and planning at provincial and regional levels.

**ACTION:**

**By 2010, prepare Albertans to deal with longer-term climate changes as a result of developing scenarios.**

- Assess the ability of our major systems (natural, economic and institutional) to adapt to the range of possible future climates.
- Develop options to increase adaptability of those systems that are not sufficiently robust.
- Implement changes to management systems to ensure that they have the ability to address possible future climates.

**ACTION:**

**Keep Albertans informed of the risks and opportunities of climate change and engage them in efforts to adapt.**

- Inform Albertans of what the government is doing on adapting to climate change.
- Involve Albertans in adapting through their daily activities.
- Facilitate access to current knowledge of climate change and adaptation.



# Adapting to climate change

## Vision

*Albertans, their communities and industries take steps to prepare for possible future climates and develop the ability to adapt successfully to changes in climate.*

While it is important to reduce greenhouse gas emissions in an effort to mitigate the effect of climate change, we must also be prepared to adapt, regardless of the ultimate causes of these changes.

Adaptation seeks to ensure that our natural and socio-economic systems are able to cope with the potential impacts of climate change and can take advantage of potential opportunities.

Adaptation must take place where climate effects are felt, addressing the particular changes being experienced. Alberta requires its own adaptation strategy geared towards our specific needs, building on what is transferable from elsewhere.

Adaptation is risk management based on sound science. Risk management for climate change will be based on anticipating, understanding and addressing the effects of climate change. Scenarios of emissions, climate and socioeconomic conditions are used to provide estimates of potential impacts. Scenarios are not forecasts or predictions - they describe plausible futures and a range of scenarios is needed to assess the risk. They rely on sound science and objectivity to ensure Albertans are well informed about the options available and are able to make good decisions.

Research and development, monitoring and communications are important to ensure good information is available to everyone affected by climate change.

Climate change affects our whole society, environment and economy. However, different systems have different natural and socio-economic characteristics, so adaptation to climate change will differ among systems. An Alberta climate change adaptation strategy will involve cooperative efforts among the sectors affected by climate change. This cooperation will improve overall priority setting and help ensure the objectives of different government departments complement each other and are responsive to changing needs. Cooperation is necessary to assess and monitor progress when dealing with the long-term adaptation process.

## ACTION:

**Establish an adaptation research program including collaboration with other governments in Canada.**

- Establish partnerships with federal-provincial research agencies, such as the Prairie Adaptation Research Collaborative (PARC), for collaboration in research on prairie adaptation.
- Support the University of Lethbridge Water Institute for Semi-arid Ecosystems (WISE) program, which includes a significant climate change adaptation component.
- Identify information gaps and coordinate research in the science, impacts and adaptation of climate change, focusing on Alberta.

## Background

In May 2002, the Government of Alberta released *Albertans & Climate Change: A Plan for Action*. This draft plan outlined Alberta's position on taking action on climate change and proposed goals, timelines and actions that Albertans could take to address the possible effects of climate change. The *Plan for Action* also represented an approach to reducing greenhouse gas emissions that could be considered by other governments in Canada.

Alberta's *Plan for Action* heavily emphasized the following features:

- Outlining a technologically driven approach, rather than a politically driven one.
- Allowing for immediate action on climate change.
- Setting a realistic timeframe to reflect technology lead times and expected time to replace capital stock.
- Allowing the province to keep capital in Alberta and Canada, facilitating further investment in technology, research and development, rather than spending it primarily on international emission permits.
- Allowing Alberta to exercise its responsibility to address climate change as an environmental and natural resource related issue.
- Working collaboratively - in strategic partnerships with other governments and stakeholders.

Over the summer and fall of 2002, the Alberta government sought the input of Albertans and a wide range of stakeholder groups on the *Plan for Action*. A number of common themes emerged from these consultations, including:

- Albertans recognize the need to take action on climate change. The risks are real and action needs to begin now.
- Environmental progress cannot be achieved in isolation of other policy objectives, including the need to maintain economic prosperity.
- All sectors of the economy must play a role in reducing greenhouse gas emissions.
- Primary emphasis should be placed on achieving emission reductions within the province, positioning Albertans to contribute to lasting emission reductions.
- Our progress in reducing greenhouse gas emissions must be measured and managed in a timely and effective manner. A variety of tools should be used in measuring our progress.



- There is a need for a cooperative national approach. Stakeholders, particularly industry, require certainty. Duplicate and inconsistent provincial and national approaches are not desired.

*Albertans & Climate Change: Taking Action* is a plan that builds on our dialogue with Albertans and reflects key public and stakeholder priorities, emphasizing climate change actions that have received widespread support. Reflecting the desire of the public and stakeholders for an effective national approach to climate change, this plan is presented as a workable approach that fits Alberta's circumstances and allows Alberta to do its fair share in dealing with an international problem. This plan reflects:

- **A collaborative approach**, through which the Alberta government will work with stakeholders and other governments in a collaborative manner.
- **Our fair share** - which is based on the pursuit of environmentally effective innovative actions that allow for truly "win-win" results.
- **Immediate action** - building on the leadership the province has already shown in reducing greenhouse gas emissions within the province.
- **An appropriate timeframe** - that is consistent with the lead-time necessary for technological innovation and behavioral change.
- **An emphasis on consumers** - as real, long-term greenhouse gas reductions require action and behavioral change by all consumers.
- **A workable and positive national approach** that allows all governments and sectors to contribute to sustainable development.

This plan was built on the following Core Principles:

- Informed consultation with key stakeholders and the public in developing and implementing a climate change action plan is vital if we are going to make a meaningful and real difference.
- Any actions we develop must be compatible with our largest trading partner - the United States - to ensure we maintain a competitive economic advantage.
- Immediate investment in emissions control technology is the key to environmental improvements that will also reap economic benefits.
- Ongoing investment in technology and energy research is the key to breaking the link between increasing emissions and economic development.
- As energy consumption drives emissions, energy conservation and efficiency must be a core part of our climate change response.
- Alberta will continue to work with other provinces and territories to develop a national plan that is in Canada's best environmental and economic interests.
- All Albertans must be part of the provincial climate change solution.



#### **ACTION:**

**Establish a provincial GHG emissions trading framework that links carbon enhancements to soil and forest sinks to the trading of emission reduction offsets (see Government Leadership-Action: Emission offset trading system).**

- Develop specific criteria for applying sink credits to current offset obligations for new thermal power plants or other projects.
- Work with Climate Change Central to establish the framework for a measuring, monitoring and verification system.
- Through pilot programs and research in partnership with other stakeholders, advance understanding of the role that emission offset trading can play within the agriculture and forestry sectors.
- Undertake a full cost analysis of greenhouse gas reduction practices, including monitoring and verification.
- Establish a 1990 soil carbon/forestry level baseline to recognize and not penalize early adopters.
- Work with Climate Change Central to develop a land use registry for documenting greenhouse gas emissions reductions and removals.
- Develop long-range forecasts on the value of carbon credits.

#### **ACTION:**

**Overcome permanence and liability issues.**

- Examine an appropriate mechanism for dealing with liability in emissions removal.
- Couple this mechanism with standard contracts for facilitating trades and minimizing risks between buyer and seller.
- Assess the risk/cost of emissions from previously sequestered soil carbon.
- Develop criteria for applying sinks credits to current offset obligations related to new facilities (e.g. new thermal power plants).

#### *What We Heard:*

**Some provincial stakeholders believe that biological sinks will create new opportunities but would like more information on the role, management and regulatory regime for biological sinks.**

#### *Our Response:*

**The Alberta government will pursue a coordinated approach to removing barriers associated with using biological sinks.**

To realize Alberta’s biological sink opportunities, the following focus areas are being pursued:

**ACTION:**

**Explore the use of biological sinks (agriculture soils and forests) to store carbon.**

- Work with Climate Change Central and other stakeholders to finalize and implement a biosinks framework aimed at enhancing carbon capture and storage activities in the agriculture and forest sectors.
- Conduct and compile cost/benefit analyses of best management practices in agriculture and forestry to demonstrate their efficiency and conservation benefits.
- Identify the gaps and uncertainties in our current estimates of greenhouse gas removal/reduction by biological sinks, and carry out research designed to address these gaps.
- Explore the feasibility of establishing a provincial multi-sector fund that offers conservation incentives for environmentally sustainable agriculture/forestry practices and adoption of new technologies.
- Examine potential market-based instruments for adopting these practices, such as tradable permits (land use, GHG emissions), tax credits, financial incentives, etc.
- Assess the use of the environmental farm plan as a delivery mechanism for best management practices.
- Assess incentives for adopting conservation practices.

**ACTION:**

**Address stakeholder uncertainty.**

- The Alberta government position on the ownership of the carbon in biological sinks is that:
  - the title to sinks on Alberta Crown land is a property right vested in the Alberta government.
  - the title to sinks on all other land in Alberta is a property right vested in the owner of the land. The ownership of any incremental carbon offsets created through forest or soil capture or storage activities is a private matter.
  - sinks will be considered personal property for the purpose of emission reduction trading.

*Taking  
Action*

Alberta’s Climate Change Strategy, released in February 2002, emphasized the importance of taking action to reduce greenhouse gas emissions. *Albertans & Climate Change: Taking Action* provides the framework - targets, goals and milestones - that will ensure challenging and effective actions are taken to reduce greenhouse gas emissions. This plan will position the province’s citizens and businesses to compete and prosper in a carbon emissions-constrained future and will help the world meet its energy requirements with sharply reduced emissions over the longer term.

*Albertans & Climate Change: Taking Action* sets a province-wide emission reduction target. Alberta’s target balances emission reductions and economic performance. It also signals that absolute net reductions in greenhouse gas emissions will be expected. While our target is long-term, actions to reduce greenhouse gas emission reductions will begin immediately. Alberta is prepared to do its part to reduce global greenhouse gas emissions. This plan includes actions in the following areas:

- Government Leadership
- Energy Conservation
- Carbon Management
- Technology and Innovation
- Renewable and Alternative Energy
- Enhancing Carbon Sinks
- Adaptation

The goals, targets and milestones contained in this plan will lead to emissions reductions and the long-term objective of reduced concentrations of greenhouse gas emissions in the atmosphere. Focusing on arbitrary, internationally imposed, short-term targets that are unrealistic and costly for Canada risks a large diversion of investment capital out of Canada. That investment capital is required for developing and implementing technologies and practices within Canada to cost-effectively address our own climate change contributions (i.e., supporting new energy production technologies, developing methods of capturing and storing carbon dioxide, and reducing costs associated with renewable energy).

*Albertans & Climate Change: Taking Action* addresses Alberta’s long-term technological opportunities and the role of all energy consumers in reducing greenhouse gas emissions.



Alberta will contribute to reducing emissions through our expertise in developing and demonstrating leading-edge technologies and innovative practices for producing and delivering low-emissions energy. Our approach will be based on partnering with industry, other organizations and the federal government to pursue shared objectives. This plan will provide a basis from which these organizations can work collaboratively to address climate change.

*What We Heard:*

Alberta’s plan provides a balanced approach to responding to the climate change issue. The province has provided an effective framework under which action can be taken but renewable energy should have a higher profile.

*Our Response:*

**Albertans & Climate Change: Taking Action** continues to frame action under the same broad focus areas while adding a seventh focus area - Renewable and Alternative Energy.

*Emissions Reductions*

Overall Objective

*By the year 2020, the province will reduce greenhouse gas relative to Gross Domestic Product (GDP) by 50 per cent below 1990 levels. This is a reduction of about 60 million tonnes of carbon dioxide equivalent gases below expected levels. By 2010, Alberta expects to have achieved an emissions intensity improvement of more than 20 per cent and will have reduced emissions by the carbon dioxide equivalent of about 20 million tonnes below expected levels.*

Alberta’s Emissions Reduction Target

Albertans recognize that our climate change response must include both environmental and economic objectives. A provincial greenhouse gas reduction target based on emissions intensity allows us to measure both environmental and economic progress. This approach recognizes the reality of multiple policy objectives and sets a course for a win-win solution. The Alberta government will reduce the greenhouse gas emissions intensity of its economy (emissions relative to GDP) by 50 per cent below 1990 levels by the year 2020. “60 million tonnes by 2020” is a translation of what that level of intensity improvement would mean in tonnes of carbon dioxide equivalent. “20 million tonnes by 2010” is a milestone on the path to 2020.

An emissions intensity objective represents a new way of thinking about our overall objectives. Such targets challenge us to think about what progress will look like at the end of the day. Some stakeholders have equated a 50 per cent reduction in carbon intensity to a doubling of our existing energy efficiency. Other stakeholders still want to see how this target translates into an absolute emission reduction in order to compare Alberta’s plan to alternative approaches.

The following table outlines Alberta’s emission intensity target and how it translates into projected emission reductions below forecasted levels. While this table also

programs and policies directed towards promoting the use of these practices.

Current approaches under consideration include: using currently available best management practices such as reduced or zero till farming, comprehensive nutrient management practices, reduced summer fallow and using bioenergy sources.

Enhanced forest management can result in a timely benefit to global well-being by increasing the carbon stored in both forest soils and trees.

The overall strategy for forest management in Alberta is to ensure that the values and benefits Albertans receive from environmental resources and economic, recreational, cultural and social activities conducted on Alberta’s public lands are sustainable for future generations.

Alberta continues to explore sustainable forest management options that will maintain or increase carbon storage, reduce emissions, or reduce the risk of emissions.

Most stakeholders agree that agriculture and forestry sinks can provide an interim, cost-effective solution for major greenhouse gas emitters to meet targets for greenhouse gas emission reductions. However, clear rules around the ownership of emission reductions, as well as an emission trading framework, are required.

Many organizations, including industry, are increasingly looking at emission reductions from carbon capture and storage as an element of their overall greenhouse gas plans. Carbon capture and storage is an important activity to help ease the transition until low-emitting technologies enter the market. In conjunction with the development of an emissions offset trading system, the Alberta government will ensure that emission reductions achieved through verifiable carbon sequestration initiatives can be used against corporate or sectoral objectives.

Agriculture and forestry stakeholders have asked for clear policy direction on the ownership of carbon in the soil and vegetation (applying primarily to emission removals). They also are seeking confirmation of the government’s expectations of how their sector will be expected to contribute to future emission reductions. A clear government statement on the ownership of emission reductions from agriculture and forest sinks will be the initial step for facilitating private sector activities to enhance these carbon sinks.

Carbon capture and storage in agriculture and forest sinks is a reversible process, and this reversal can happen within a very short period of time. The core concern associated with the impermanent nature of carbon sinks is determining who bears the ultimate liability for released carbon - if credit is given when carbon is captured and stored, who is responsible for the debit when carbon is released? This liability issue needs to be resolved.





to directly subsidize the renewable or alternative energy sectors. The government’s efforts to support these sectors will instead be focused on removing policy, regulatory or technical barriers, facilitating customer choice and consumer understanding of the emissions intensity of their electricity purchases and working with stakeholders to identify realistic yet challenging expectations on the appropriate minimum capacity of renewable and alternative electricity the province should be moving towards.

Specific initiatives include:

- The Alberta government will set a goal for increasing the renewable and alternative energy portion of total provincial energy capacity by 3.5 per cent by 2008. This equals about 560 Megawatts of new capacity. The specific framework for reaching this target will be established by the Clean Air Strategic Alliance Electricity Project Team.
- Requiring electricity retailers to disclose the emissions intensity of the electricity they market to consumers.
- In 2004, the Alberta government will require at least 10 per cent of the electricity consumed at government facilities to be generated from green power sources. The Alberta government will immediately begin securing a diverse portfolio of green power providers.
- The Alberta government will continue to work with our partners in industry and other governments to develop “green corridors” that support increased use of alternative fuel vehicles. We will build on initial efforts to establish a green corridor between Calgary and Banff.

storing carbon in Agricultural and Forestry Sinks

Vision

To develop, enhance and promote environmentally sustainable agriculture and forestry practices across Alberta that make meaningful, long-term contributions to reducing atmospheric greenhouse gas concentrations and maintain or enhance ecosystem health and integrity.

Alberta has significant potential for capturing and storing carbon in our agricultural lands and forests. Alberta stakeholders understand the opportunity in taking action to enhance carbon storage in soils and forests. For example, early indications are that by adopting environmentally sustainable management practices, agriculture can contribute significantly to offsetting greenhouse gas emissions.

Alberta organizations are moving to realize this potential. For example, no-till and low-till farming practices are now commonly accepted as effective farming practices. Some forest producers are exploring ways of enhancing the carbon uptake from managed forests. The Alberta government’s Forest Management Agreements outline clear expectations for reforestation. The benefits of environmentally sustainable management practices to both the environment and agriculture/forestry sectors justify

identifies an interim milestone that may be helpful in measuring our progress towards the 2020 target, other interim milestones will be developed in conjunction with agreements developed between the Alberta government and key sectors (see Government Leadership: Sectoral Agreements).

Alberta’s Target: Key Milestones

Year	1990	2000	2010	2020
Actual/ "Business as Usual" Emissions Intensity Improvement (below 1990 level) without this plan		13%		
Alberta Action Plan Emissions Intensity Target				
Actual/ "Business as Usual" Greenhouse Gas Emissions (Million tonnes of CO <sub>2</sub> equivalent) without this plan	171	223		
Milestone Emission Reductions (Million tonnes of CO <sub>2</sub> equivalent) Expected from Action Plan			20	

This framework for pursuing our target provides a meaningful approach for managing our progress in reducing greenhouse gas emissions. It avoids “solutions” that simply transfer revenue to other parts of the world through permit purchases, leaving less investment capital here to further improve our reduction efforts.

What We Heard

Provincial stakeholders expressed support for an emission intensity targets as a useful way of pursuing greenhouse gas emission reductions without jeopardizing economic growth. Some stakeholders suggested that to make these targets more relevant to Albertans and to key sectors, shorter-term milestones are also required. Others suggested more strongly linking progress towards our carbon intensity targets with reductions in absolute greenhouse gas emissions. They saw merit in having performance measures that relate to intensity improvements as well as absolute reductions in greenhouse gases.

Our Response

Albertans & Climate Change: Taking Action further elaborates on our 2020 emissions intensity target by outlining mid-term (e.g. 2010) milestones. This plan also translates our emissions intensity improvements to actual greenhouse gas emission reductions below forecast levels.



Relationship to our long-term goal

The Alberta government is committed to a long-term goal of preventing atmospheric concentrations of greenhouse gases from reaching levels that have negative impacts on people and ecosystems. In pursuit of that goal, Alberta recognizes that more significant emissions reductions will be required over the longer term (2050). This action plan is therefore only the beginning of a 50-year initiative to dramatically reduce the carbon intensity of the province’s economy. The approach outlined in this plan will ensure Alberta organizations are prepared for this long-term challenge. The plan allows the province to focus its efforts on changes and investments that lead to lasting reductions in greenhouse gas emissions.

Why an intensity target makes sense

Responding to climate change requires substantive long-term improvements in efficiency and reductions in emissions. Absolute emission reduction targets simply force a jurisdiction to bear the costs of emission reductions while displacing investment, jobs and emissions to nations without greenhouse gas emission reduction targets. Alberta cannot control the global demand for goods and services (especially fossil fuel) but through emissions intensity improvements, we can ensure that our commodities and services reflect best-in-class performance and result in fewer emissions than similar commodities and services produced elsewhere.

Intensity based targets allow organizations, firms, industries and nations to improve their efficiency, reduce waste and ultimately increase their competitiveness. The end result is an effective integration of social, economic and environmental priorities - i.e., People, Prosperity and Preservation.

For Alberta, an emission intensity target makes sense because Canada’s major trading partner, the United States, has not adopted an absolute emission reduction target but is instead focusing on improvements in emissions intensity. Canada’s approach must reflect the trading relationship we have with the United States. With our economies so closely interrelated, substantive increases in production costs in Canada will simply erode our ability to compete in the international marketplace and attract investment. Alberta needs an approach that will allow our economy to continue to flourish within the North American context while at the same time positioning the province for long-term contributions towards effective emission reductions.

Some stakeholders have questioned what a 50 per cent reduction in carbon intensity means. A wide range of perspectives has been put forward. Some feel it reflects little more than “business as usual” improvements, while others equate this target with a “wartime” effort. The Alberta government believes that a 50 per cent reduction in emissions intensity is a realistic yet challenging target. Based on emissions data from Environment Canada and economic data from Alberta Finance, Alberta has already reduced its intensity by about 13 per cent between 1990 and 2000 (a period of significant economic growth within the province). Current national economic projections suggest that without additional action, emissions intensity would be about 28 per cent below 1990 levels by 2020. The 50 per cent target is almost a doubling of

Renewable and Alternative Energy

Vision

Alberta’s renewable and alternative energy sector will make a growing and significant contribution to the province’s energy mix. Through an effective policy framework, the renewable and alternative energy sector will be competitive with other energy sources. Alberta will be recognized as a renewable energy center within North America.

What We Heard:

Albertans indicated they would like to see the government place a stronger emphasis on the role that renewable energy can play as part of the province’s climate change response.

Our Response:

The Alberta government will make renewable energy a key component of the Alberta government’s climate change response. In the May 2002 *Plan for Action*, action on renewable and alternative energy was included under the broad category of Energy Conservation. To reflect what we heard, Renewable and Alternative Energy is now a separate component of *Albertans & Climate Change: Taking Action*. In addition to supporting the work of groups like Climate Change Central in demonstrating new technologies and removing barriers to renewable and alternative energy technologies, the Alberta government will outline its expectations for the contribution that renewable and alternative energy will make to the provincial energy mix.

Alberta’s renewable and alternative energy sectors have experienced tremendous growth over the past five years. The province’s electricity deregulation has been a key factor in facilitating new renewable and alternative energy development and private sector investment in these sectors. For example, Alberta’s wind capacity has increased from 21 megawatts in 1996 to approximately 100 megawatts as of 2002. As well, the private sector has proposed a wide range of new wind, hydro and biomass projects that will allow Alberta’s renewable energy capacity to increase over the coming years. Despite this tremendous growth, renewable energy remains a relatively small proportion (less than nine per cent) of the province’s overall electricity portfolio and an even smaller proportion of the electricity actually consumed in the province.

Alberta’s climate change response calls for a larger role for renewable energy. *Albertans & Climate Change: Taking Action* signals the province’s interest in increasing the capacity of the renewable energy sector and an increase in electricity generated from these sources.

Policy Framework for Renewable and Alternative Energy

The Alberta government is committed to the principles of electricity deregulation and the need for a level playing field among all electricity generation sources. The Alberta government is also committed to increasing the proportion of renewable and alternate energy supplied to consumers. It does not, however, believe that it is prudent



#### *What We Heard:*

Albertans liked the fact that Alberta's plan included an emphasis on energy efficiency and conservation. They support an increased focus on specific initiatives that target energy consumers.

#### *Our Response:*

The Alberta government will ask Climate Change Central to be the lead provincial organization for developing and implementing energy conservation and efficiency initiatives. The Alberta government expects that the focus of these initiatives will be on the public and key energy end-use sectors (e.g. municipalities, small business, commercial sector) that require additional support for energy conservation.

Encouraging innovation through demonstration or by encouraging action.

The Alberta government will also support additional actions aimed at encouraging innovation and action to improve energy efficiency across the provincial economy. For example:

- The Alberta Energy Research Institute (AERI) will support research aimed at energy efficiency and alternative energy technologies.
- The Alberta government will partner with the building construction sector to increase the efficiency of new and existing buildings by incorporating an energy efficiency requirement into the provincial Building Code, establishing new Energy Codes or through other mechanisms.
- Alberta Environment and Alberta Revenue will establish a task force to consult with stakeholders and consumer groups to explore how market signals can encourage increased energy efficiency and conservation and identify potential revenue sources.
- The Alberta government will partner with municipalities to facilitate more environmentally sustainable forms of municipal infrastructure and planning (e.g. support for the City of Edmonton's Light Rail Transit expansion, or the City of Calgary's Ride the Wind transit power project).



our efforts to improve efficiency and reduce emissions. This level of reduction will be challenging. Some stakeholders have equated this effort to the level of efficiency gains the economy experienced in the late 1970s and early 1980s - a period of rapidly rising energy costs.

A 50 per cent reduction in greenhouse gas emissions intensity is a goal that will require investment to develop new technologies and innovations, and put new technologies and practices into operation. It is a tough but realistic level of emission reductions. Achieving these reductions will require action across the Alberta economy - in all areas that consume energy - and in areas that can potentially sequester or capture and store carbon dioxide emissions.

#### *Achieving our Target*

*Albertans & Climate Change: Taking Action* outlines the approach Alberta will use to get to our target. The plan outlines a framework for the Alberta government to work with our partners to set greenhouse gas reduction expectations. This framework provides organizations (including energy producers and energy consumers) with certainty as to what government expects of them - while at the same time providing them with flexibility and innovation in pursuing these reductions.

This plan also outlines how the government will facilitate investment in technologies related to conserving energy, lowering the emissions intensity of fossil fuel production and consumption, and non-fossil fuel based technologies. The Alberta government expects that all sectors, energy consumers and other governments will play a meaningful role. Responding to climate change requires a fundamental shift in our energy consumption patterns. The Alberta government, through our partnerships in groups like Climate Change Central, will provide consumers with the information and tools they need to contribute to climate change efforts.

The Alberta government will ensure that actions to achieve the emissions intensity objective contained in this plan - as well as other key elements of the plan - are given a high level of priority and importance.

- Alberta will back up its targets with the necessary legislative, regulatory and financial provisions to provide all organizations with certainty about the province's expectations for carbon intensity improvements and the steps being planned to achieve this target.

#### *Best-in-Class Performance*

Many Alberta organizations have told us that they strive to use best practices in their production of goods and services. They realize that increasing their energy efficiency and reducing their waste are practical actions that enhance competitiveness. *Albertans & Climate Change: Taking Action* is based on the principle that all Alberta organizations should demonstrate best-in-class performance - using the best technologies and practices that are commercially feasible. Alberta will ensure that its energy services are as clean or cleaner than their international competition.

Global competitors of Alberta organizations will continue to increase their energy efficiency and improve their emissions intensity performance, so it is vital to the



ongoing competitiveness of Alberta organizations that they innovate and pursue leading-edge, best-in-class production practices. The Alberta government will work with industry and business to accelerate their adoption of best practices and deployment of best-in-class technologies. Through negotiated agreements with key sectors, the Alberta government will establish a framework under which best-in-class performance can be achieved. Many Alberta organizations have told us they are ready and willing to take up this challenge.

*What We Heard:*

Some stakeholders found it confusing to differentiate between Alberta’s emissions related to domestic consumption and emissions related to the goods we produce for export out of the province.

*Our Response:*

*Albertans & Climate Change: Taking Action* is based on the principle that our target relates to all provincial greenhouse gas emissions regardless of the destination of Alberta’s commodities. This plan does not differentiate between emissions produced by goods produced for consumption within or outside Alberta.

*Government Leadership*

*Vision*

*Alberta organizations and the public will have a clear understanding of the role they can play and the tools they can use to reduce the carbon intensity of their activities. In leading the way, the Alberta government will adopt leading-edge energy efficient practices and technologies that significantly reduce the environmental footprint of government operations.*

The government’s overall role in addressing climate change is to be a leader, a partner, a facilitator and an innovator. It is government’s role to educate, motivate, inspire, celebrate and ensure action is being taken.

The Government of Alberta has been addressing climate change since 1990 by seeking to influence national policy and by taking action to encourage the reduction of greenhouse gas emissions in Alberta. We are acknowledged as a national leader in this area both through our early actions to date, and by the fact that the Alberta government is the only government in Canada to win a national leadership award — three times to date — for voluntarily reducing greenhouse gas emissions.

In 1995, the government made a written public commitment to reduce overall greenhouse gas emissions from its operations by 14.1 per cent below 1990 emission levels by 2000. By the end of 2000, the government had exceeded this target, reducing emissions by 22 per cent below 1990 levels.

As well, in 1999 the Government of Alberta formally established Climate Change Central, a unique private-public partnership non-profit organization, to follow up and implement key directions and recommendations for addressing climate change.



- Launch “teletrips” initiative in targeted Alberta municipalities.
- Partner on delivery of the EnerGuide Audit and Rebate program for homes.
- Determine a course of action for an enhanced provincial labeling program that makes it easy for the public and key energy consuming sectors to understand the environmental and economic consequences of their purchase decisions.
- Partner on delivering an anti-idling awareness program.
- Undertake a pilot initiative to reduce the up-front capital costs of retrofits, new appliances or distributed energy sources (e.g. micro-turbines or small fuel cells used to generate electricity at or near the point of energy consumption).
- Explore developing a pilot green mortgage or green loan program that would allow for energy efficiency considerations to be included in mortgage financing.
- Support the demonstration of energy efficiency buildings and practices across a variety of sectors.

5) Increase local investments in energy efficiency and conservation.

- Consider options for establishing a revolving fund for auditing and upgrading buildings not amenable to energy performance contracting.

6) Leverage the effectiveness of the energy efficiency/conservation office by pursuing partners from all stakeholder groups and levels of government.

- Partner with other governments and stakeholders on energy efficiency and conservation programs being undertaken in Alberta municipalities.

7) Identify, review and recommend options to government for removing barriers that prevent the adoption of more energy efficient alternatives.

- Develop interconnection guidelines for distributed electricity generation.
- Partner with Alberta Chapter of Canadian Electricity Code to recommend further changes to facilitate interconnection for small distributed generation.
- Review potential for net metering in Alberta (net metering would make it easier for homeowners or small businesses who generate their own electricity to sell surplus electricity back to the power grid).
- Partner on the removal of administration and procedural barriers to distributed generation.

8) Collect the information required to properly analyze the success of Energy Solutions Alberta’s activities.

- Document and analyze energy efficiency trends, and develop performance measures for new programs.

Energy Solutions Alberta will concentrate on the residential and commercial sectors. Many of the building technologies and materials that make significant efficiency gains in this area already exist and their use depends on incentives, consumer education and removing policy barriers. Action on energy efficiency and conservation in other sectors will be addressed through the development of sectoral agreements.

Energy Solutions Alberta will take the following actions to support its core objectives:

**1)Expand public communication and education programs on energy efficiency and develop publicly accessible information tools to engage Albertans in taking action to reduce their GHG emissions.**

- Implement a strategy to ensure provincial activities related to climate change education and information programs are coordinated with the activities of Energy Solutions Alberta.
- Engage the efforts of Alberta's Public Education and Outreach Hub, established under Climate Change Central in 2000 to coordinate climate change education and awareness activities, to help Albertans demonstrate environmental stewardship (including energy efficiency) through school-based programs and public awareness.
- Launch public education and awareness campaigns on energy efficiency and conservation opportunities.

**2)Augment existing national energy conservation initiatives by increasing accessibility to these programs and by expanding them to the entire Alberta market.**

- Energy Solutions Alberta will work with the national Office of Energy Efficiency and establish a partnership agreement where it can jointly deliver national programs in Alberta, and act as an information clearinghouse and one-window contact for information.

**3)Compare the effectiveness of other programs/services delivery models and recommend effective implementation methods for Alberta.**

- Energy Solutions Alberta will commission an expert study to review energy efficiency programs in North America and recommend programs that could be implemented in Alberta.

**4)Design and help implement innovative programs that address GHG emissions through energy efficiency and conservation actions and result in real, quantifiable and verifiable GHG reductions.**

- Partner in the development and launch of a municipal building retrofit program.
- Explore options for launching a municipal street light pilot project targeted at testing new technologies in smaller communities and removing barriers to implementation. Based on results of this pilot initiative, expand program through innovative financing mechanisms.
- Expand the vehicle scrappage program based on the results of the Calgary pilot.

The Government of Alberta is committed to leading action on climate change on key province-wide actions and initiatives, and to taking action immediately and, where possible, within government itself.

Climate change is not just a government issue. It is not just an industry issue. Consumption is the key driver behind emissions - so it is an issue for everyone. As a result, all Albertans must work together to make a difference. The government will work directly, as well as through Climate Change Central and other established, complementary organizations, to engage all Albertans in reducing emissions.

**Sectoral Agreements**

Alberta organizations - industry, municipalities, consumer organizations - are looking for an overall framework under which they can take best-in-class actions to reduce greenhouse gas emissions and reduce economic and environmental risks. The Alberta government is committed to providing leadership and increased certainty to these organizations and clearly outlining how it will work in partnership to achieve these reductions.

In May 2002, the Alberta government proposed to negotiate agreements with specific economic sectors, including electricity, petroleum, transportation, forestry, municipalities and other industries to gain commitment for action to reduce greenhouse gas emissions. The province will also commit to reducing emissions from its own operations — in effect a sectoral agreement with Albertans – setting an example for others by demonstrating a range of cost-effective actions.

These agreements will be based on realistic emission reductions expectations. Industry will be asked to reduce emissions to levels that are consistent with the adoption of best practices. The opportunity for further reductions will be provided through emissions trading mechanisms, allowing for least-cost emission reductions.

***What We Heard***

During our consultations, Alberta stakeholders expressed strong support for using sectoral agreements as the key policy mechanism for pursuing emission reductions. Stakeholders believed that this mechanism could ensure emission reductions targets were firm and well understood while providing key sectors with flexibility in how they achieved the reductions. Some stakeholders identified the importance of having a strong framework that ensures a “level playing field” among different organizations within a sector. They supported the idea of a regulatory “backstop” to ensure fairness and that the desired results are achieved.

***Our Response***

Sectoral agreements are a key element of *Albertans & Climate Change: Taking Action*. To ensure fairness, equity and certainty, the province will establish regulatory “backstops.” Alberta will ensure that the necessary legislative, regulatory and financial provisions are developed to provide these “backstops.”



## **ACTION:**

**Over the next two years, the Alberta government will negotiate binding agreements with specific sectors, including electricity, petroleum, transportation, forestry, municipalities, mining, manufacturing, commercial and agriculture to set measurable goals for reducing greenhouse gas emissions.**

These agreements will be negotiated between the Alberta government and various sectors of the economy using sector associations to bring companies to the table. Government will define the sectors and the agreements will focus on covering all the firms and emissions in a sector. The specific approach to negotiating agreements will be tailored to the circumstances of each sector.

The Alberta government will seek to work with other provincial and territorial governments and the federal government to ensure the consistency, compatibility and harmonization of these agreements across the country. Where appropriate, other provinces or territories may spearhead specific sectoral negotiations with the expectation that agreements consistent with Alberta's plan would be applied and accepted in Alberta.

Each agreement will establish a measurable goal based on emissions per unit of production. The objective of each agreement is to establish a reduction target that reflects reasonable costs, takes into account expected technological or other opportunities, and encourages investments that enhance competitiveness. The negotiated agreements will establish greenhouse gas emission reduction targets that are linked to the overall Alberta target. Specific objectives related to the sector as a whole, such as support for research and technology development or infrastructure improvements, could form part of the agreements.

Regulations will ensure that organizations who choose not to sign on to a sector agreement will be required to meet at least the same reduction requirements.

The agreements will:

- Be developed in an open and transparent manner.
- Cover most of the greenhouse gas emissions and all but the smallest companies within each sector.
- Allow for sector-wide initiatives to be pursued.
- Allow flexibility in how the target is achieved (not prescriptive).
- Establish a baseline from which performance is compared.
- Cover the period to 2020 with periodic reviews to assess performance and relevance.
- Include specific goals and interim benchmark/targets to encourage continuous improvement.



## *Energy conservation*

### **Vision**

*Albertans are North American leaders in the efficient use of energy.*

This strategy takes a very broad definition of energy conservation. It includes energy conservation, energy efficiency, and using alternative energy sources (the next section provides a specific focus on renewable and alternative energy). Energy conservation and improved energy efficiency are key ways Albertans can begin breaking the link between economic prosperity and emissions growth.

Over the past several years, Alberta organizations (industry, small businesses, municipalities) and people have increased their energy efficiency through a range of cost-effective actions. Equipment, materials, and technologies are continuing to evolve and increased efficiencies are possible.

Achieving further efficiencies will require a renewed commitment from all Albertans. The Alberta government will partner with other Alberta organizations and stakeholders to facilitate further action on energy efficiency and conservation.

The Alberta government's approach to energy conservation will focus on the following four elements:

- Facilitating access to electricity generated from a diversity of energy sources - including renewable power — and other energy conservation alternatives (for a further discussion of renewable energy, see the next section of this plan).
- Demonstrating leadership and reducing operating costs by promoting and implementing energy efficient options for government operations (see previous section on Government Leadership).
- Increasing the awareness of, and choices for, Albertans to adopt energy conservation opportunities.
- Encouraging innovation through energy efficiency demonstration projects or by facilitating action by energy consumers.

Achieving further efficiencies will also require a broad mix of initiatives, including incentives for energy efficient investments and minimum energy efficiency expectations.

The key mechanism for pursuing action on energy efficiency and conservation will be Alberta's new energy efficiency and conservation office - Energy Solutions Alberta. Established by Climate Change Central in partnership with the Alberta government in June 2002, Energy Solutions Alberta will focus on increasing access to new low emissions technologies, creating awareness and choices for Albertans, and encouraging innovation through demonstration or by encouraging action.

A website containing energy efficiency information for individuals and businesses [www.altaenergysolutions.com](http://www.altaenergysolutions.com) has been established.

The office will have four core components:

- Public Awareness and Program Marketing.
- Program Advice and Support.
- Policy Advice and Recommendations.
- Program Development and Delivery.



## 7) Clarify Environmental/Health and Monitoring Requirements

- Focus research on the short and long-term fate and safety of geologically stored CO<sub>2</sub> to increase confidence and reduce risk. Build on the lessons learned from acid gas injection projects.
- Through demonstration projects with industry in Alberta (anticipated to begin in 2003) and elsewhere (e.g. Weyburn, Sask.), resolve any outstanding and new health, environmental and safety issues dealing with capture, transportation and storage of CO<sub>2</sub>.
- Establish a CO<sub>2</sub> monitoring component on storage and leakage associated with three commercial demonstration projects.

## 8) Consult with the Public to Increase Awareness, Understanding and Acceptance

- Help achieve greater public awareness and understanding by addressing public concerns on possible safety and environmental issues associated with CO<sub>2</sub> storage. A strategy to engage key stakeholders and the public is currently being developed.

- Include ongoing monitoring, verification and reporting.
- Include commitments by both government and the sector.
- Include a regulatory backstop to ensure a level playing field within each sector.
- Allow for innovative mechanisms (e.g. the option for participants to contribute to an Alberta Climate Change and Emissions Management Fund that would be used to support further technology deployment and development and energy efficiency and conservation initiatives) if sectoral greenhouse gas objectives are not met.
- Strive for consistency and fairness across sectors.
- Be signed at an executive level.

The Alberta government is already pursuing this approach for Alberta's electricity sector through a collaborative process run by Alberta's Clean Air Strategic Alliance (CASA). In June 2003, the Alberta government will receive CASA's recommendations for a new air emissions management framework for Alberta's electricity sector. The government expects that those recommendations will provide the basis for an agreement for the electricity sector.

Sectoral agreements will build on existing initiatives - the work of CASA in developing a framework for reducing flaring within the petroleum sector provides an excellent example. Under this approach, the government made a clear policy statement that flaring had to be reduced. A workable framework for reducing and managing flaring was developed, including performance standards that could be met through voluntary actions but were "backstopped" by clear government statements regarding the regulatory consequences of not achieving the sector-wide objectives. Through this broad sectoral approach, this sector has been able to reduce flaring of oilfield gases by 50 per cent in the past year - well ahead of projected targets.

- In November 2002, the Alberta government will begin discussions with the petroleum sector to develop a sectoral agreement for reductions in emissions intensity. It is expected these negotiations will be completed within one year.

In addition to the Alberta electricity and petroleum sectors, partnership agreements will be sought with a broader range of sectors that will include: agriculture, transportation, mining, manufacturing (chemical, pulp and paper, etc.), commercial, municipalities, and forestry.

- In Spring 2003, negotiations will commence with these other key sectors.

### **ACTION:**

**Implement mandatory greenhouse gas emissions reporting for large emission sources.**

The Alberta government will require large emitting sources (facilities with annual carbon dioxide equivalent emissions higher than 100-150 kilotonnes) to report their greenhouse gas emissions, allowing the province to develop a better understanding of the nature of its greenhouse gas emissions sources. Greenhouse gas reporting will also help industry better manage its own emissions - allowing them to track progress and understand opportunities for emission reductions.





- Alberta Environment, working with industry, has begun to develop a system through which large greenhouse gas emitting facilities will report on their annual greenhouse gas emissions - with the first annual reports filed in the beginning of 2004 for emissions in 2003.

Efforts will be made to avoid duplication (e.g. provincial and federal reporting requirements). Alberta's approach will allow for the development of an effective national system of greenhouse gas reporting that can be adopted by other governments.

#### **ACTION:**

**Lead the development of an emission offset trading system. This system will reflect Alberta's unique needs and circumstances, complement the negotiated sectoral agreements, and work with national, continental and international systems.**

In addressing climate change, an emission reduction in southern Alberta has the same environmental benefit as an emission reduction in northern Alberta. Emission offset trading is a mechanism by which an organization could purchase emission reductions from another organization that had exceeded its emission targets. The purchasing organization would then apply this offset to its own emission reduction objectives. Rules would ensure that such emission reductions were real and verifiable, and properly tracked to ensure that a particular offset is used by a single organization.

Emission offset trading systems, if properly designed, can provide an effective tool through which organizations can understand emission reduction costs and opportunities and ensure least-cost emission reductions are being achieved. They also allow organizations to pursue emission reduction opportunities that are outside of their operations. The Alberta government recognizes the merits of emission trading systems.

In *Albertans & Climate Change: A Strategy for Managing Environmental and Economic Risks*, the Government of Alberta outlined its commitment to a domestic emissions trading system that allows the province to retain the ability to set overall greenhouse gas emission reduction objectives and participate in national, continental and international trading systems that may allow for larger emission reduction opportunities to be pursued.

The Alberta government has already begun to establish a foundation for an emission offset trading system. Alberta has provided the stimulus for emissions offset trading by requiring that all new approved thermal (coal-fired) generation facilities offset their greenhouse gas emissions down to the level of a combined cycle natural gas turbine. This represents a 53 to 63 per cent reduction in net greenhouse gas emissions from these facilities. In developing rules around the creation and use of offsets, the Alberta government will build on experience gained through provincial, regional and national emission offset trading initiatives (e.g. Greenhouse Gas Emission Reduction Trading (GERT) Pilot).

Building on this initial direction, Alberta is well positioned to move forward as a leader in establishing the mechanisms for emission offset trading. Alberta can build on its experience in developing energy markets and defining commodities that can be traded on the open market.



### **3) Cutting the Costs of Capture**

- Considerable global research is underway to reduce the costs of purifying and capturing CO<sub>2</sub> from plant stacks. Drawing upon these efforts, research, adaptation and demonstration of new capture technologies will be a primary part of the proposed new focus on energy research.
- As part of the Alberta Energy Research Institute's Energy Strategy, initiatives will be pursued with a goal of reducing the cost of capture and compression of CO<sub>2</sub> by 50 per cent for retrofit operations and 75 per cent reduction in costs associated for new facilities.

### **4) Finding New Resources - Coal Bed Methane**

- The Alberta Geological Survey and the Alberta Research Council will expand efforts to map and characterize coal beds and develop a better understanding of Alberta's coal bed methane potential. They will identify which coal beds are appropriate for enhanced methane production by CO<sub>2</sub> injection and storage, and address issues related to the disposal of produced water.
- Partnerships will be pursued with industry players that are already engaged in research efforts, and also to bring in new players. A key component will be to proceed with technical demonstration projects for Enhanced Coal Bed Methane recovery.

### **5) Infrastructure Development**

- Identify infrastructure needs (e.g. pipelines or other facilities required for CO<sub>2</sub> transmission to selected sites) and pursue projects to build the infrastructure through incremental efforts under an industry/government partnership.

### **6) Develop Economic, Fiscal and Regulatory Requirements**

- Work in collaboration with government agencies (including the federal government) and industry, to identify the types of economic, fiscal and regulatory frameworks that are conducive to a Carbon Management Strategy. For example:
  - The Alberta government will work with the federal government and other western provinces to develop protocols for measuring actual CO<sub>2</sub> stored, and to form the basis for environmental and safety regulations.
  - Alberta Energy will establish a royalty credit program to encourage early action for the use of CO<sub>2</sub> in Enhanced Oil Recovery operations. Companies who are interested in participating in demonstration projects will be eligible for this royalty.
  - The Alberta government will define the ownership, rights and policy regime for geologic pore spaces for long-term CO<sub>2</sub> storage.



# carbon Management

## Vision

*Alberta develops the capacity for cost-effective and safe capture, use and storage of carbon dioxide (CO<sub>2</sub>) for enhanced resource recovery.*

Carbon management is the capture and storage of CO<sub>2</sub> in geological formations.

Alberta CO<sub>2</sub> (e.g. from oil sands upgrading, oil refining, power generation, gas processing and petrochemical production) could potentially be captured and used to increase production from oil reservoirs and coal bed methane, or be stored in geological formations.

Currently, market conditions do not encourage widespread commercial use of CO<sub>2</sub> in Enhanced Oil Recovery (EOR), or Enhanced Coal Bed Methane (ECBM) recovery or other applications. The economics of capturing a pure stream of CO<sub>2</sub> are, at present, marginal. However, with oil and natural gas prices at high levels, there is industry interest in exploring the options for enhanced oil and gas recovery using captured CO<sub>2</sub>.

The proposed carbon management strategy consists of eight broad goals. Each goal will be addressed over a planning cycle of eight years, which has been divided in three phases:

Phase 1: Current - 2003 - Enhanced recovery of Alberta fossil fuel resources.

Phase 2: 2004 - 2007 - Building the CO<sub>2</sub> market in Alberta.

Phase 3: Post 2007 - Commercially testing zero-emission coal plants.

The eight goals are:

### 1) Developing the CO<sub>2</sub> EOR Market

- By 2003, the Alberta government will partner with industry on three demonstration projects to use CO<sub>2</sub> to enhance oil production or maintain reservoir pressure.

### 2) Developing Alberta's Geo-science Base for CO<sub>2</sub> Storage in Geological

#### Media

- The Alberta Geological Survey, in partnership with the Geological Survey of Canada will expand and support activities in the analysis of Alberta's subsurface suitability and capacity for CO<sub>2</sub> sequestration in hydrocarbon reservoirs, coal beds, and deep saline formations.
- The Alberta Geological Survey, Environment Canada, Alberta Research Council, Natural Resources Canada, Alberta universities, and industry will work together to assess the integrity and safety of such locations, both in the short and long term.

Alberta will determine the reduction commitments of Alberta sectors through negotiated sectoral agreements. These negotiations will determine the scope through which sectors will be able to pursue emission reductions through emissions trading systems. In advance of sectoral consultations, the Alberta government is taking action to facilitate participation in emissions trading systems. For example:

- Alberta will work with Climate Change Central and the Voluntary Challenge and Registry (VCR Inc.) to develop an effective Emission Reduction Registry. Existing registries (such as VCR Inc.) will be considered for this role, with the goal of ensuring registered emission reductions have clear and unique title and can form the basis for transparent verification protocols.
- Alberta will build on its current work within the electricity sector to further expand on rules for creating and using emission offsets. As part of this work, the Alberta government is consulting with stakeholders on:
  - The range of activities and initiatives within the province that would be eligible for credit creation (e.g. role of telecommuting initiatives).
  - Linking our approach to emerging continental trading systems (possibly linked to NAFTA) that allows for U.S.-based credits.
  - The viability of developing a joint industry/government Climate Change and Emissions Management Fund to support provincial investments in real emission reductions that also advance Alberta economic and technology transfer opportunities.
- The Alberta government is supporting efforts by Climate Change Central to develop standard mechanisms for trading the emission reductions associated with agriculture and forestry sinks.
- Alberta has launched a major feasibility study on the potential design of an emission trading system. This study will examine the potential for emission trading for greenhouse gases as well as for air contaminants, such as sulphur dioxide and nitrogen oxides. The results of this major study will inform our negotiations on sectoral agreements.
- The Alberta government will participate in a national program involving the review, selection and purchase of emission reductions by governments across Canada. Participation in this initiative, called the Pilot Emission Removals, Reductions and Learnings (PERRL) program, will provide valuable information for the Alberta government around emission reduction opportunities in Alberta and the process and procedures for determining real and verifiable emission reductions. The Alberta government will work on this initiative with Climate Change Central, who will serve as Alberta's PERRL Program Authority.



### *What We Heard*

Stakeholders generally supported the Alberta government's emphasis on sectoral agreements. They concurred that such agreements could challenge sectors to achieve meaningful yet realistic emission reductions. These agreements could help ensure that financial resources are focused on greenhouse gas activities within the province rather than on the purchase of international emission permits. While emission offset trading could play an important role, care needs to be taken to ensure that provincial offset trading systems are consistent with emerging continental and international approaches.

### *Our Response*

The Alberta government will use sectoral agreements as the primary approach to establishing meaningful emission intensity targets. By using the "bottom up" approach - focusing on realistic targets that can be achieved by actions in Alberta - this plan limits the need for purchasing international emission permits and trading. However, emission offset trading which is compatible with continental and international systems will be established to provide sectors with flexibility.

The Alberta government seeks to ensure the broadest possible framework for emissions trading, thereby ensuring a robust and effective market that lowers the cost of achieving any specific reduction. Through mechanisms such as an Alberta Climate Change and Emissions Management Fund, the province will effectively limit the costs to industry of having to purchase greenhouse gas emission reductions and, instead, allow for the private sector to invest in provincial research and development and energy efficiency and conservation initiatives, keeping investment and capital in Alberta.

The Alberta government will continue to work with other governments in Canada to ensure there is a consistent commodity that can be traded across Canada, and possibly within North America and internationally.

### **ACTION:**

**Lead by example through action within the Government of Alberta.**

The Alberta government has led by example and reduced emissions from its own operations. Cost effective actions taken in government buildings and fleets since 1995 have resulted in a 22 per cent reduction in greenhouse gases below 1990 levels. This achievement exceeded the government's target (established in 1995) of a 14.1 per cent reduction in greenhouse gas emissions below 1990 levels by the year 2000.

A new target of a 26 per cent reduction below 1990 levels by 2005 has been established. Longer-term targets will also be established as part of the Alberta government's own sectoral agreement with Albertans.



Moving from hydrocarbons to a hydrogen economy with a focus on infrastructure and fuel cell development that use Alberta resources; developing alternate sources of clean energy, including bioenergy.

- Develop and implement an Integrated Energy Research Strategy for Alberta.
- Increase the focus on alternative and renewable energy projects, in areas such as fuel cells and hydrogen technology.
- Interact with renewable and alternative energy industries and associations to establish their research priorities and assist research providers to address these priorities. The renewable and alternative energy sectors will be allocated between 13 to 23 per cent of the total new funding proposed by AERI.
- Focus on demonstration projects with private sector partners to promote knowledge of the new technologies and promote adoption of these technologies.

### *What We Heard:*

Albertans liked the strong emphasis the province is placing on technology. A long-term issue such as climate change requires significant investments in new technology. Some stakeholders felt that while technological innovation related to fossil-fuel energy sources required further investment, non-fossil fuel based energy sources also required provincial support.

### *Our Response:*

**Technological innovation will remain a key part of Alberta's Action Plan. In addition to supporting the fossil fuel-related research through AERI, the alternative energy and renewable energy sectors will be allocated between 13 to 23 per cent of the total proposed new funding for the Alberta Energy Research Strategy.**



In addition, the Alberta government will work with industry, universities and other research providers to develop world-class, cross-disciplinary centers of excellence in energy and environmental research and technology development.

Specific areas of focus related to the Alberta Energy Research Strategy include:

**Managing CO<sub>2</sub> and other emissions**

See the Carbon Management section of this plan for the province's strategy for carbon capture and storage in geological formations.

**Burning coal cleanly with significantly reduced environmental emissions** to generate electricity; using coal and other feedstocks to produce steam, hydrogen, synthetic natural gas, chemicals; adapting clean coal technologies to Alberta resources and integrating them with oil sands, petrochemicals, biomass and fuel cells; and capturing concentrated CO<sub>2</sub> streams to reduce environmental impacts and using this by-product as a vehicle for enhanced oil and gas recovery.

- Develop a network linking provincial, national and global research activities in cleaner energy.
- Leverage funds from the federal government, industry and research funding sources into a cleaner energy research program.
- Promote bench scale and pilot projects in clean coal technologies, integration with other feedstocks and low intensity heavy oil upgrading, and in emissions sensing and mitigation.

**Increasing the marketability and value of bitumen**

- Conduct a technical audit of research programs to understand the benefits and help reposition upgrading research areas that involve less energy intensity and customized synthetic products.

**Increasing recovery** from conventional oil and gas and accessing additional non-conventional reserves; natural gas from coal beds, bitumen and heavy oil; lowering intensity of extraction and recovery processes; management of oil field water and tailings.

- Work with other research agencies on less energy intensive in-situ and extraction processes, water use and tailings management issues.
- Work with research organizations and industry associations to promote industry working groups with a focus on oil and gas enhanced technology and optimizing economics.
- Work with Climate Change Central, the Petroleum Technology Alliance of Canada (PTAC) and the Canadian Environmental Technology Advancement Corporation (CETAC-West) to support emerging greenhouse gas reduction technologies in energy and other sectors.
- In October 2002, the Alberta government, in partnership with industry, invested \$7 million in a \$30 million heavy oil research partnership project to test the economic, environmental and technical viability of a process that involves injecting vaporized solvents into heavy oil. Known as the VAPEX Process, this promises to virtually eliminate greenhouse gas emissions and significantly reduce water consumption, as compared to other extraction technologies currently being used.



In its efforts to continue to highlight the range of opportunities available to others, the Alberta government will take actions that include the following:

- Reduce emissions related to government activities and facilities by 26 per cent below 1990 levels by 2005 as set out in the Alberta government's Voluntary Challenge and Registry (VCR) Action Plan and take action to encourage boards and authorities to reduce emissions in government funded facilities (i.e. schools and hospitals).
- Complete energy retrofit programs in 190 government facilities, comprising 60 per cent of the area managed by government.
- Install cogeneration (combined power and heating from natural gas) units at government-funded research facilities.
- Consider recommendations of the Minister's Symposium on Schools to support the development of durable, multi-functional, flexible "Green" schools. This will include implementing a sustainable building rating system.
- Ensure new government buildings and government-funded buildings are built to energy efficiency standards that exceed those of the Model National Energy Code for Buildings.
- Register the Alberta Government VCR Action Plan under the VCR Inc. Champions in Action initiative - ensuring the province's plan receives a rigorous peer review and receives the highest level of national recognition.
- Establish, as part of the Alberta government's own sectoral agreement, a long-term (post 2005) emission reduction target.
- Establish a Sustainable Infrastructure Fund for reducing emissions within government through the deployment of innovative low-emission technologies.
- Install solar panels to generate electricity for the Alberta Legislature.
- Purchase or lease 100 new alternative fuel or hybrid vehicles for the government fleet over the next three years, building on Alberta Environment's purchase of hybrid vehicles.
- Commit to purchasing green power (beginning in 2004) for at least 10 per cent of electricity consumed at government facilities and immediately begin securing a diverse portfolio of green power providers.
- Roll out a Driver Education Program to government fleet drivers.
- Implement a government vehicle leasing process that accounts for "best in class" fuel efficiency ratings.

*What We Heard:*

Some stakeholders thought that Alberta government success stories needed to be more broadly communicated to encourage action in institutional and commercial sectors.

*Our Response:*

The Alberta government will remain committed to the national Voluntary Challenge and Registry (VCR Inc.) as a means of taking action within its own operations. Over the coming year, the Alberta government will register its Action Plan with the VCR Inc. Champions in Action initiative. The Alberta government will also apply its knowledge to key institutional sectors such as schools and hospitals.

## Technology and Innovation

### Vision

*Alberta is recognized around the globe for leading-edge innovation in environmentally sustainable technologies that maximize the value of Alberta's energy and other resources and the prosperity of its citizens.*

The Government of Alberta is supporting strategic research into reducing the costs and environmental footprint associated with energy production, distribution and use in Alberta. The intent is to break the link between hydrocarbon energy development and greenhouse gas emissions, thereby sustaining Alberta's ability to develop its resources in a carbon-constrained world.

To address the global challenges of energy for the future, the Alberta government, working with the energy industry and research providers, must embrace new and innovative approaches that result in positive incremental changes in environmental practices. Through strategic investments, our aim is to make the province a world-class energy research centre that can develop, adopt and adapt transformational technologies that minimize the impact on our environment.

Alberta's investment in sustainable energy technologies will be coordinated through the Alberta Energy Research Institute (AERI). AERI provides funding, coordination and harmonizing of energy research and technology development. AERI's mandate is to promote energy research, technology evaluation and technology transfer in areas that include oil and gas, heavy oil and oil sands, coal, electricity, and renewable and alternative energy. The AERI research strategy is intended to lead and support the transformation of separate sectors of the economy into an integrated energy industry focused on using Alberta's resources to their fullest potential while ensuring clean air, water and land.

AERI advises the Minister of Innovation and Science and the government regarding energy research and the development of resources in the interest of Albertans.

AERI will maintain a portfolio of research and technology programs that is directed towards maintaining current levels of oil and gas revenue; developing innovative technologies to address the challenges of climate change; extending the life of conventional resources; and exploiting additional unconventional resources.



AERI's strategic intent is to stimulate the research and development of new technology and assist the energy sector to play a dominant role in the new economy by:

- Developing value-added products and processes including alternate and renewable energy sources.
- Using best-in-class knowledge.
- Advancing technologies and environmental standards.

The intent will also be to adapt, demonstrate and use the best available technologies available elsewhere. Specifically in the area of renewable energy, the Government of Alberta will supplement its research, development and demonstration efforts with efforts taking place elsewhere in the country. Some government leadership will take place through the demonstration or purchase of these technologies, such as in retrofits to government buildings (solar energy) or in the purchase of green power for government use.

The three initial primary strategic drivers for research and technology will be:

- Development of cleaner coal technologies for electricity generation. In addition, the use of coal and other feedstocks for production of steam, hydrogen (for oil sands upgrading and fuel cells) and the capture of concentrated CO<sub>2</sub> streams for enhanced oil and gas recovery.
- Oil sands upgrading technology to produce new products customized for North American refineries. This will allow Alberta to reduce environmental impacts, and maintain/enhance the value obtained from bitumen and synthetic production, which is expected to double in the next five years.
- Management of CO<sub>2</sub> and other emissions by developing technology that will capture, transport and use CO<sub>2</sub> for increasing the recovery of conventional crude oil and injection into coal beds to release natural gas (see Carbon Management).

In addition to these major thrusts, the strategy includes research issues related to:

- Unlocking the potential of coal bed methane.
- Developing renewable and alternative energy sources associated primarily with fuel cell development and hydrogen technology.
- Lowering the emissions intensity of oil sands production and upgrading.
- Enhancing the recovery of conventional oil and gas.
- Reducing greenhouse gas emissions associated with oil, gas and coal production and use.

Our investments will lead to field plant demonstrations of value-added upgrading of Alberta resources into energy services and feedstocks (e.g. electricity, hydrogen, biofuels) with a significant reduction in greenhouse gas emissions intensity.

The Alberta government is committing to a partnership that is based on leveraged funding from the federal government, other governments and industry. In 2003/04 the Alberta government will invest in the Alberta Energy Research Institute.

The

**Armet****R E P O R T****Kyoto Update**

The personal attacks aside, Canada's provinces and territories this week appear to have developed a consensus, which could lead to a framework for implementing the *Kyoto Accord*.

The significance of the agreement, arrived at during a federal/provincial *Ministers of Energy and Environment* session in Halifax, cannot be overstated.

Canada's ten provinces and territorial governments, comprised of various political stripes, have agreed to the following points for a national plan:

- all Canadians must have an opportunity for full and informed input into the development of the plan.
- the plan must ensure that no region or jurisdiction shall be asked to bear an unreasonable share of the burden and no industry, sector or region shall be treated unfairly. The costs and impacts on individuals, businesses and industries must be clear, reasonable, achievable, and economically sustainable. The plan must incorporate appropriate federally-funded mitigation of the adverse impact of climate change initiatives.
- the plan must respect provincial and territorial jurisdiction.
- the plan must include recognition of real emission reductions that have been achieved since 1990 or will be achieved thereafter.
- the plan must provide for bilateral or multilateral agreements between provinces and territories, and with the federal government.
- the plan must ensure that no province or territory bears the financial risk of federal climate change commitments.
- the plan must recognize that benefits from assets such as forest and agricultural sinks must accrue to the province and territory which owns the asset.
- the plan must support innovation and new technology.
- the plan must maintain the economic competitiveness of Canadian business and industry.
- Canada must continue to demand recognition of clean energy exports.
- the plan must include incentives for all citizens, communities, businesses and jurisdictions to make the shift to an economy based on renewable and other clean energy, lower emissions and sustainable practices across sectors.
- the implementation of any climate change plan must include an incentive and allocation system that supports lower carbon emission sources of energy—such as hydroelectricity, wind power generation, ethanol, and renewable and other clean sources of energy.

A statement accompanying the above 12-point plan suggested that "slowing, stopping and then reversing growth of greenhouse gas emissions will require major changes for individual citizens and companies, in all provinces and territories".

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"REPRODUCED WITH PERMISSION"

# Newell wants Ottawa to listen

FRANCIS

Continued from Page FP1

"The Kyoto issue has been wrongly framed from the beginning. It's been put this way by the environmentalists: 'If you are for Kyoto you are for the environment; if you are against Kyoto you are against the environment.' It polarizes the issue and is not honest. Kyoto is simply one solution that was put forward five years ago. There are others. But the wrongly framed debate puts those of us bothered by the math of Kyoto on the defensive," he said.

The danger is that Canada agreed in 1997 to draconian CO<sub>2</sub> reductions of 240 megatonnes by 2012.

"Canadians don't realize that the reductions promised are so significant that only if you eliminated all transportation — planes, cars, trucks, rail — could you meet the target. If you shut down all the oil, natural gas and coal industries you would only get halfway there," he said. "The goal is totally unrealistic and Canadians aren't prepared to make such sacrifices. And without changing consumer habits, Canada would shut down its oilsands industry and have to import oil from elsewhere such as Venezuela [which is exempt from doing anything under Kyoto]."

Eric is trying to make Ottawa understand that these gooey sands, and underground heavy-oil deposits, are this country's biggest economic trump card. It's also one of Canada's greatest engineering stories: An army of sharp pencils at Syncrude, Sunco Energy Inc. and other oil companies drove down costs so much that there are now 300 million barrels of economically recoverable oil in these deposits — more than Saudi Arabia's 265



YVONNE BERG / NATIONAL POST

Eric Newell believes the oilsands and heavy-oil deposits are Canada's biggest economic trump card.

million barrels of reserves.

With such an opportunity, the industry got into high gear. Production soared and projects worth \$86-billion were announced. This promised that oilsands production would triple from 800,000 barrels a day to 2.4 million barrels by 2015, creating hundreds of thousands of jobs and tens of billions of dollars each year in exports.

But the industry hit the wall on Labour Day, when the Prime Minister publicly committed Canada to its 1997 Kyoto promises at a United Nations conference in Johannesburg. He did so without consultation, without a plan or without any understanding of the consequences across the country. He also went ahead even though the Americans and Australians, after intense study, withdrew from their Kyoto commitments. Last week, the world's undeveloped countries also reneged and withdrew from their five-year-old pledge to start curbing their emissions in 2012.

"Kyoto means that these [oilsands] projects will be put on ice or the raw material extracted

from the sands will be shipped and refined south of the border instead of here," he said. "We'll be hewers of wood and drawers of water again."

"We are in a race for oil sands development. The market is the U.S. which is running out of oil and it won't wait. If we don't supply the Americans from the oilsands, then Venezuela [which has unexploited oilsands and conventional oil], Mexico and

## 'KYOTO MEANS THAT THESE PROJECTS WILL BE PUT ON ICE'

others will," he said. "What's frustrating is that we can win the race."

Fortunately, Eric is patient with politicians. In 1991, he formed a task force that ironed out a tax regime and strategy that led to today's oilsands boom — against all odds. Naturally, his schedule has taken him away from home half the time for years. But he's always

been on the move.

A native of Kamloops, B.C., he was trained as a chemical engineer and completed a master's degree in management studies. He worked in London briefly before joining Imperial Oil Ltd. in 1969, living in 15 cities in 20 years before landing in Fort McMurray as a vice-president of Syncrude in 1986. He became president and CEO in 1989 and chairman in 1994.

"I am not interested in running for politics, but I just like to find the common ground where people can meet," he said. "I think our industry has a great story to tell. Our per-unit emissions are down 17% since 1990 and industry-wide it's down 35% to 40%. That's the best result of all economic sectors in the country."

His goal is to get Ottawa to listen and understand.

"These are global problems requiring a global solution and an agreement where any of the major economies are excluded won't work," he said. "That's the problem with Kyoto."

Financial Post  
dfrancis@nationalpost.com



September 4, 2002

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The Right Honourable Jean Chrétien, P.C., M.P.  
Prime Minister of Canada  
Langevin Block  
80 Wellington Street  
OTTAWA, Canada  
K1A 0A2

Dear Prime Minister:

Following your momentous personal decision of August 21, I write to thank you for your four decades of public service, for your love of and passion for Canada and for your obvious desire to make decisions that strengthen our great country. Now, as you contemplate the legacy your decade as Prime Minister will leave for Canadians, I want to urge you to lead us to a *Made-in-Canada* alternative plan to the Kyoto Protocol – a *Team Canada* initiative that will do far more to improve Canada's environment than the fatally flawed Kyoto Protocol.

*Unfortunately, this letter is lengthy. But, with great respect, sir, I urge you to take fifteen minutes to read it carefully before you make a decision which will greatly impact your legacy to the country for many years to come. Major international agreements are rare in a country's history, and they profoundly impact both the country and the legacy of a Prime Minister. After an extensive national debate, in 1989 Canada entered into the Free Trade Agreement with the United States. Despite the fact that the Right Honourable Brian Mulroney left your government with many challenges, most notably a huge fiscal deficit, there is no doubt that the Canada/U.S. Free Trade Agreement and your wisdom in building markets through negotiation of the NAFTA agreement, resulted in two of the most beneficial international agreements ever signed by Canadian Prime Ministers. Mr. Chrétien, it is my earnest submission that signing the Kyoto Protocol would go down in history as one of the most damaging international agreements ever signed by a Canadian Prime Minister.*

*Prime Minister, please don't let the strong pressure being put on you by your European counterparts lead you to sign an agreement which is relatively easy for their countries to achieve, but which Canada will inevitably fail to achieve. The purpose of this letter sir, is to explain why signing Kyoto in its present form would reverse the economic progress achieved under your leadership, while doing little or nothing to improve our environment.*

Herein, I set out for your consideration eight plain language perspectives on the Kyoto issue, and the importance of your personal leadership in taking control of a train which is on a very dangerous track for our country. But before I do that, I want to give you a very brief update on Canada's largest industrial merger, creating the largest international energy company ever to be headquartered in Canada.

On April 5 of this year, following regulatory approval by your government, a shareholder vote and authorization by the courts, EnCana Corporation took its place among the world's top energy companies. As a citizen, I am very proud that we have created a flagship Canadian-headquartered, world-class independent oil and gas company capable of competing shoulder to shoulder with the best companies from the U.S. and throughout the world. EnCana is also one of the top two Canadian-headquartered industrial companies by stock market capitalization. A major investor in Western Canada, the Maritimes, the Canadian North and internationally, EnCana's top-ranked annual capital investment of \$5 billion creates jobs across the country. Our multi-billion dollar energy exports provide substantial foreign exchange revenue crucial to our struggling Canadian dollar.

The creation of EnCana exemplifies the terminology used in a recent speech by your Deputy Prime Minister, John Manley: *"If we want to become the northern dynamo, we've got to be not only as good as the U.S., but better. Another challenge is to build global enterprises with a Canadian base."*

As the leader of a company which intends to do just that, I believe Canada must go beyond the increasingly weak and tangled web of the Kyoto Protocol by creating a truly effective Canadian approach toward managing our nation's carbon dioxide (CO<sub>2</sub>) emission levels, and going beyond Kyoto to focus on air quality as well.

As you know from your many years in politics, Prime Minister, meaningful debate on important issues often degenerates into 'labeling' those for or against any given issue. And so it is with Kyoto. Those wanting Canada to sign are considered environmental saviours; those who believe Canada should not sign are labeled environmentally irresponsible. So right up front, I want to deal with the knee jerk response that my position on Kyoto will engender from critics... *"He's just another oil and gas guy who cares more about profits than the environment."* to that I submit the following:

I have always had a special personal connection with and concern for the outdoors and the environment. I have kayaked our West Coast islands, canoed rivers from our southern border all the way to where the great Mackenzie enters the Beaufort Sea, walked many hundreds of kilometers of wilderness trails... I know my country, I'm connected with it, and I care about it very much. Further, my company is already ahead of the game as a Canadian leader in proactively reducing emissions. For example, EnCana is the principal owner of one of the world's largest CO<sub>2</sub> sequestration projects. This billion-dollar Canadian initiative, located in Saskatchewan, has been selected as a demonstration and research project under agreement with the European Union Research Directorate.

Elsewhere in our operations, EnCana's two predecessor companies, PanCanadian Energy and Alberta Energy Company, have been leaders in greenhouse gas emission reporting, achieving the "Gold Level" in the Voluntary Challenge and Registry ("VCR") Program.

Moreover, given that EnCana is Canada's largest natural gas producer and exporter, and natural gas is the least carbon-intensive hydrocarbon fuel, we are better positioned than other companies to navigate change under a clean energy export mechanism which you have pledged would be a prerequisite to ratifying Kyoto. In addition, since EnCana operates in many countries in the world, we have greater flexibility than non-international companies to move our investment programs if growth is constrained here in Canada.



*The Right Honourable Jean Chrétien*  
*Prime Minister of Canada*  
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My concern, therefore, about Kyoto ratification is truly broader than just EnCana or the energy sector -- it is a concern for Canada as a whole, because objective analysis of the facts clearly shows that signing Kyoto would create a huge economic *and environmental* disadvantage for Canada.

*The most severe impact of Kyoto would be on consumers, not producers of energy -- in other words, essentially all Canadian businesses and individuals from sea to sea. Why? Because more than 80% of greenhouse gas emissions come from the consumption of energy, rather than its production. Recent public polls may show support of Kyoto based on some vague, noble concept of a cleaner environment, but these polls also show that support quickly disintegrates when Canadians are asked about the inevitable personal sacrifices, major lifestyle changes, higher fuel costs and job losses. Support would deteriorate even more drastically once Canadians come to understand that Kyoto would do little or nothing to clean up our air quality, nor to stop global warming, making their sacrifices 'pain for no gain'.*

I borrow a phrase from recent pronouncements in the **Globe and Mail** when I submit that with so much rhetoric and so many conflicting claims, it's important to create **perspective** on the Kyoto issue. The following is an attempt by one very proud Canadian to create *perspective* regarding the Kyoto ratification decision facing you, on behalf of all citizens of Canada.

#### **1. A perspective on harming the competitive position of a country's economy.**

For a moment, let's imagine that we wanted to devise a plan to severely harm a country's economic competitiveness. One sure route would be to persuade that country to sign a legally binding international agreement that would force a contraction of the most productive parts of its economy through mandatory restrictions on growth and new investments, while simultaneously adding to the cost structure of businesses and individuals across the entire country.

This decision would be rationalized on the basis of government and NGO rhetoric urging citizens to believe that such an agreement would mean minimal change to their daily lives because it would really only affect "industry". Meanwhile, industry is told that this will be an "opportunity" to restructure their businesses to produce a whole new range of goods and services. Citizens and industry would both be told that these new "opportunities" would compensate for the higher living costs and job losses, even though analyses by the country's major national business groups clearly show that such a leap of faith is tantamount to believing in the tooth fairy.

To further compound the destructive impacts, the international agreement would include an exemption from any growth constraints for the lion's share of that country's trade competitors, and even a mechanism to send some of them unearned windfall payments through something called "carbon credits."

If even *that* wasn't enough, our imaginary act of economic self-mutilation could actually have that country sign this legally binding agreement when its overwhelmingly most important trading partner -- and principal source of financial market capital -- whose economy already has competitive advantages, has decided that it would not sign because it believes doing so would carry devastating economic consequences.

Let's also say this leaves this determinedly self-destructive country as the only economy in the Western Hemisphere to tie its economy to this ball and chain deal. And, further, that the most formidable of its other export competitors - the new Asian tiger of China - would gain even further competitive advantage because the agreement allowed it to continue growing its economy, and its emissions, at double digit rates with absolutely no constraints. (See attached *Wall Street Journal* article.)

A great national debate would emerge that would alarm shareholders of home-based companies. The messaging in that debate has the National Environment Minister denying there will be any negative economic impacts of this proposed legal agreement. He would condescendingly tell very worried business groups from across the country that they simply don't understand, and their concerns over higher cost structures, loss of competitiveness, a falling dollar and job losses are unfounded. Meanwhile, the President of the country's largest trading partner is saying that signing the agreement would cost his economy US\$400 billion! *Investors take careful note of this when they evaluate where to invest their pension and mutual funds, adding to the stock market "risk discount" of home-based companies and their vulnerability to foreign takeover.*

Prime Minister, the above outlines what I earnestly believe is the economic "*perspective*" that accurately describes the harm inflicted upon Canada if you sign the Kyoto Protocol.

## **2. A perspective on Kyoto and the environment.**

Even if Canada were to take all of this economic pain and risk, would it do any good? Would it really help the global environment?

Several months ago, none other than *Dr. Robert Watson*, Chairman of the UN Intergovernmental Panel of Climate Change, and chief spokesman on climate change for the World Bank stated: "*If one wants to meet the ultimate goal of the convention, i.e. stabilization of greenhouse gas concentrations – it would require far more than Kyoto. It would require emissions reductions not only in industrialized countries, but also in developing countries.*"

This is a very important and timely admission regarding *developing* countries, but the futility of Kyoto is even more evident when one considers that only a small portion of emissions from *industrialized* countries will be under Kyoto's constraints. In fact, the countries constrained by Kyoto represent only about 30% of the world's greenhouse gas emissions. Since none of the highest emission growth economies, including China and India, would be subject to Kyoto constraints, before long that 30% could fall to 25% or less.

## **3. A perspective on how Kyoto could actually increase greenhouse gases.**

The countries making commitments under Kyoto are economies with the lowest population growth rates, and are already relatively efficient producers and users of energy. *By signing Kyoto, these countries take on cost burdens which reduce growth and competitiveness, while new growth investments are transferred to countries not constrained by Kyoto. Therefore, emissions from unconstrained countries will grow even faster. And this group already represents almost 70% of total emissions!*

This view is reinforced by your "down under" counterpart, John Howard, who stated

*"The reason it is not in Australia's interest to ratify the Kyoto Protocol is that because the arrangements... continue to exclude both developing countries*

*The Right Honourable Jean Chrétien  
Prime Minister of Canada  
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*and the United States, and for us to ratify the protocol would cost us jobs and damage our industry. That is why the Australian government will continue to oppose ratification."*

#### **4. A perspective on why the 1990 Kyoto protocol baseline year advantages Europe and disadvantages Canada.**

Events since the 1990 "base year" for measuring commitments under the Kyoto Protocol have put Canada at a huge disadvantage relative to other key Kyoto countries. Due to the fall of the Soviet Union economy and associated emissions, Russia stands to benefit significantly from the sale of its "hot air" allowances since its emissions peaked in 1990. In addition, it is expected that the European Union will require eastern European countries such as Poland, the Czech Republic, and Hungary to integrate their "hot air" into the EU bubble as a condition of entry into the European Union. *As a result, Canada, with its significant economic growth over the last 12 years and forecasted continued growth, has been placed into an essentially impossible position relative to other countries under the Kyoto target and timelines.*

#### **5. A perspective on the Great "Carbon Credits" Solution.**

Since the January announcement of the merger to create EnCana, I have met with many large U.S.-based investors. This was during the same period in which the Bush Administration announced the "Clear Skies" and global climate change initiative. U.S. investors expressed great concern to me about the impact on Canadian-based companies if Canada imposes a carbon tax under the Kyoto initiative. I responded that the federal government has, supposedly, ruled out this policy option. But, it is easy to understand how reports out of Canada could lead investors to a different conclusion. Quoting from a speech by David Anderson on March 5 in Hull, Quebec:

*"The emissions trading system would cover large final emitters and include major industrial plants, oil sands operations, petroleum refineries and electricity generators. It would drive both low cost emission reductions at home as well as the purchase of some international credits.*

*Each firm that would be covered would have to decide whether to buy permits or reduce its emissions. They would reduce their own emissions where that is less costly than their three alternatives which are:*

- Buying emission reduction permits from other companies in the domestic trading regime;*
- Buying emission reduction credits from other domestic sources such as agricultural sinks and landfill gas captures that could be opted into the trading regime – which by the way becomes a source of earnings for other sectors of the economy; or*
- Buying credits in the international marketplace.*

*It is actually the international price of carbon credits that would determine what emission reductions might be most cost effective to make at home. In essence if we leave everything up to the market the international carbon price determines the balance between domestic reductions and the international purchase of credits."*

*The Right Honourable Jean Chrétien  
Prime Minister of Canada  
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As you can see, no matter how one chooses to label it, any business wanting to grow, including oil sands plants in Western Canada, or manufacturing, processing and power generation plants in Central Canada and the Maritimes, would have to pay a fee by buying "carbon credits." This would mean that businesses have to pay for each unit of emission above a government-imposed cap. *Either pay a carbon emission fee to invest in Canada, or avoid the fee and invest elsewhere.*

We have already seen one of the potential bizarre ramifications of a domestic emission trading policy in the comments out of Quebec suggesting that *"Alberta should pay for the costs of Kyoto."* This anticipates that Kyoto would force payments from the oil and gas producing provinces to Quebec and Manitoba for "carbon credits" from their low emissions hydro-based projects. Whether this would be the case or not is just one part of the incomprehensible mess that a carbon credits system would engender. This divisive inter-provincial discord is only the tip of the iceberg when one contemplates the nightmare of *international emissions credit trading*. Just imagine the potential for *Enron-like games that could be played when accounting for the purchase of emissions credits from places like Russia and other countries. And how could anyone convince Canadian voters that sending money to Russia was good for the Canadian or global environment?*

Clearly, Canada and Canadian industry want to reduce emissions. However, buying "hot air" allowances does not produce any real environmental benefit and simply *transfers wealth out of Canada*. Furthermore, significant reliance on international emission credits, whether allowance or project-based (Joint Implementation and Clean Development Mechanism), puts Canada at the whim of international carbon credit prices. Canada needs a sustainable long-term emissions reduction plan that *keeps capital in Canada and encourages the investment of that capital in emissions reduction initiatives and technologies to address climate change and adaptation measures.*

In his comments a few months ago, United Nations Climate Change Panel Chairman Dr. Robert Watson also shed some light on the danger to Canada of trying to implement an emissions trading program when our largest trading partner has opted out of Kyoto.

*"If the U.S. is not party to Kyoto, no one can try to sell carbon to the U.S. for credit. By definition, you have to be part of the Kyoto Protocol mechanism to trade carbon. I can't see how it would work for Canada."*

## **6. A perspective about carbon dioxide and the environment.**

One of the ironies of the Kyoto debate is that a substance which is the "breath of life" for all plants on earth, has been vilified as a noxious pollutant. For example, over the past summer media reports carried statements claiming the smog over Toronto are more evidence of the need to sign Kyoto. *Well, there was smog, but none of it was created by the CO<sub>2</sub> emissions targeted by Kyoto.*

Grade school science of the photosynthesis cycle teaches us that plants breathe CO<sub>2</sub> and give off oxygen. In fact, greenhouse operators have long added CO<sub>2</sub> to their growing rooms to enhance plant growth. Animals (including us) breathe in oxygen and give off CO<sub>2</sub>. It's the eternal "carbon cycle" of life. In fact, if there were no CO<sub>2</sub>, there would be no life on earth, both because no plants could grow and the earth would be an unlivable frozen mass. So, while CO<sub>2</sub> is a greenhouse gas, it certainly is not a "pollutant" and it does not create "smog."

## **7. A perspective on the Kyoto consultation process**

There seems little doubt that the earth is undergoing a warming cycle, as evidence based research indicates it has several times in its evolution. And while there is considerable scientific debate among eminently qualified scientists, man-made emissions may be adding to this natural warming cycle. The question is not *whether* Canada should act, but *how* we should act.

The answer: both responsibly, and realistically.

Kyoto started off with noble intent. But it is clear the agreement has evolved to the point where it would actually be counter-productive to enhancing the global environmental outlook, while imposing completely unacceptable burdens on Canadians. In the face of this, *it's irresponsible for the Federal Department of the Environment to be rejecting any and all detailed studies, analyses, comments, opinions, and words of caution from those who have created, and are responsible for maintaining, the vast majority of the jobs in this country.*

Mr. Chrétien, determining the best course for Canada to follow doesn't come from hazy public polling of the citizens who have no idea of the impact Kyoto would have on their lives. You have committed to the development of a specific plan and consulting with all stakeholders. *I urge you not to breach this public trust.*

## **8. A perspective on the best solution for Canada.**

It is my earnest submission that the best solution for Canada, and the world, is for us to focus our dollars and creativity on measures that will truly lengthen Canada's lead as one of the world's cleanest places to live.

EnCana urges your Administration to work with provincial governments and businesses in an integrated assessment of a non-Kyoto plan not only to reduce greenhouse gas emissions, but also to make the air in Canadian cities cleaner. Canadian industry stands ready to be part of a focused, timely *Team Canada* effort to help define a balanced climate change plan. Some of the common interests include: Canadian competitiveness; the role of technology; the recognition of the need for action; the need for broad support for action across the country; and the need to work constructively with our major trading partners. We need a truly collaborative, national approach for developing Canada's action plan. All major industry groups are ready to engage their efforts in developing a *Made-in-Canada* alternative as soon as you give the word.

When it comes to an issue of the magnitude of climate change, Canada needs to ensure that its strategy and implementation plan balance our environmental, social and economic goals and outcomes. Canada faces huge economic challenges as the world's economy restructures... and we cannot afford to take our social programs and quality of life for granted. We cannot afford to sign a major international agreement which works against our economic growth and competitive position. A *Made-in-Canada* initiative is within reach through the cooperation of stakeholders across the country and the application of our homegrown brilliant scientific minds. European leaders will express disappointment that Canada doesn't sign Kyoto, but they will also know that to do so would have been putting short-term international recognition over the long term best interest of your country. Recognition will come when we set about making Canada an environmental and economic showcase for the world. *Your environmental legacy would be much stronger than that of*

*The Right Honourable Jean Chrétien*  
*Prime Minister of Canada*  
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*the leaders who have tied their countries to an agreement which history will show was fatally flawed.*

I commit EnCana, the nation's largest energy company, to be an enthusiastic partner in this initiative. Mr. Chrétien, in a quest for a clean, competitive and innovative Canada, I implore you to take this leadership initiative, which will leave a legacy of a Canada which is both cleaner and economically stronger.



Gwyn Morgan  
President and Chief Executive Officer

GM/jam  
Attachment

cc: First Ministers  
Energy Ministers, Environment Ministers, Finance Ministers  
All Members of Parliament  
Other interested groups

***Comments:***

Climate change - and the Kyoto strategy designed to address it - are undoubtedly among the most complex, difficult and pervasive issues currently facing Canadians. We believe that a great majority of Canadians – and Red Deer citizens – believe that the issue must be addressed and that the status quo is not sustainable. We also believe that there is a willingness to be involved in a solution both at the community and individual level. Nevertheless, there is clearly a lack of understanding concerning the most appropriate strategies and a lack of consensus on an effective implementation plan. In addition, there is considerable confusion regarding the need for Canada to ratify Kyoto without such a consensus in place.

In our experience attempting to implement sweeping change without reasonable consensus is often counterproductive and unsuccessful. The danger is that those most impacted spend considerable energy resisting rather than participating in the mandated action. As Council is aware, community engagement and consensus building are important components of every major City initiative in our own community.

The attached letter from concerned citizens addresses issues related to the lack of understanding of the impacts of the Kyoto agreement and a clear consensus on the strategies Canadians should use to reduce greenhouse gas emissions. The group is recommending that Council pass a resolution seeking more information about the costs and benefits of the Kyoto protocol, and requesting the federal government to delay ratification of the protocol until that information is forthcoming. They make the point that the delay in ratification of the Protocol would allow further consideration of the implementation framework prepared by the provincial and territorial governments and provide an opportunity for some important consensus building.

Consultation and consensus building have long been important principles for the City of Red Deer. Should Council wish to endorse these principles as a foundation for the development of a national strategy to deal with climate change – and specifically the ratification of Kyoto, we recommend Council direct the Mayor to send a letter to the Prime Minister, with copies to the Premier and the federal and provincial Ministers of the Environment, incorporating the recommendations of the concerned citizens group and calling for a process based on the principles of consultation and consensus building.

“G.D. Surkan”  
Mayor

“N. Van Wyk”  
City Manager



November 19, 2002

The Right Honourable Jean Chretien  
Prime Minister  
Government of Canada  
Room 409-S, Centre Block  
House of Commons  
Ottawa, Ontario  
K1A 0A6

Dear Prime Minister:

Climate change—and the Kyoto strategy designed to address it, are undoubtedly among the most complex, difficult and pervasive issues currently facing Canadians. The City of Red Deer believes that a great majority of Canadians—and Red Deer citizens—agree that the issue must be addressed and that the status quo is not sustainable. The City also believes there is a willingness for involvement in a solution both at the community and individual level. Nevertheless, there is clearly a lack of understanding concerning the implication of the Kyoto accord for individual Canadians and Canadian communities. In addition, there is little understanding of, or agreement on the parameters of an effective implementation plan. Finally, there is considerable confusion regarding the need for Canada to ratify Kyoto without such basic information and understanding in place.

In Red Deer's experience, attempting to implement sweeping change without reasonable consensus is often counterproductive and unsuccessful. The danger is that those most impacted spend considerable energy resisting rather than participating in the mandated action.

On November 18, 2002, Red Deer City Council debated issues related to the lack of the understanding of the impacts of the Kyoto agreement and of the strategies Canadians should use to reduce greenhouse gas emissions. After careful consideration, Council passed the attached resolutions seeking more information about the costs and benefits of the Kyoto Protocol, and requesting you to delay ratification of this Protocol until that information is forthcoming and more informed debate can take place.

The City of Red Deer is noted for its environmental leadership, as acknowledged by several prestigious environmental awards. Our community has made a significant and ongoing commitment to environmental stewardship. These achievements have been won through considerable citizen engagement in the development of appropriate strategies. City Council believes that the same process needs to take place at a national level relative to the reduction of CO2 emissions.

**THE CITY OF RED DEER**

Box 5008, Red Deer, Alberta, Canada T4N 3T4 Telephone: (403) 342-8155 Fax: (403) 342-8365

City Web Site: <http://www.city.red-deer.ab.ca> E-mail: [gails@city.red-deer.ab.ca](mailto:gails@city.red-deer.ab.ca)



The Right Honourable Jean Chretien

November 19, 2002

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We ask that you give careful consideration to the request to delay ratification of the Kyoto accord and to provide Canadians with the information they require to effectively address the issues involved. We believe that the position expressed by Red Deer City Council reflects the views of the majority of Canadians and deserves your immediate attention.

Sincerely yours,



Gail Surkan  
Mayor

- c. Hon. David Anderson, Minister of the Environment, Canada
- Hon. Ralph Klein, Premier of Alberta
- Hon. Lorne Taylor, Minister of the Environment, Alberta
- Bob Mills, M.P.
- Hon. Victor Doerksen, M.L.A., Red Deer South
- Mary Anne Jablonski, M.L.A., Red Deer North
- Members of Council, City of Red Deer
- Red Deer Chamber of Commerce
- Environmental Advisory Board, City of Red Deer

Attch.

The Right Honourable Jean Chretien

November 19, 2002

Page 3

- b.c. Bill Hull, Concerned Citizens Group  
Director of Development Services, City of Red Deer  
Solid Waste Superintendent, City of Red Deer



CITY CLERK'S DEPARTMENT

The following is a copy of a Resolution passed at the City of Red Deer Council Meeting on Monday, November 18, 2002:

*Whereas*, there exists a general lack of clarity and understanding relative to many of the key issues surrounding the Kyoto debate, such as:

- What is the cost of implementing Kyoto targets on workers, consumers, taxpayers, municipalities, and businesses in various sectors?
- What is the format and impact of the "carbon trading" scheme under the Kyoto plan?
- What are the international legal or other ramifications if Canada is unable, for any reason, to meet its emission reduction targets?
- To what degree will the Kyoto plan actually reduce worldwide emissions of CO<sub>2</sub>?

*Therefore*, be it resolved that Council of the City of Red Deer, having considered the correspondence from the Concerned Citizens Group, dated November 11, 2002, re: Kyoto Agreement, hereby directs the Mayor to send a letter to the Prime Minister, with copies to the Premier of Alberta, and Federal and Provincial Ministers of the environment, requesting clarification on the impacts and ramifications of approving the Kyoto Protocol on such issues as outlined in the above preamble.



CITY CLERK'S DEPARTMENT

The following is a copy of a Resolution passed at the City of Red Deer Council Meeting on Monday, November 18, 2002:

*Whereas*, there exists a general lack of clarity and understanding relative to many of the key issues surrounding the Kyoto debate, such as:

- What is the cost of implementing Kyoto targets on workers, consumers, taxpayers, municipalities, and businesses in various sectors?
- What is the format and impact of the "carbon trading" scheme under the Kyoto plan?
- What are the international legal or other ramifications if Canada is unable, for any reason, to meet its emission reduction targets?
- To what degree will the Kyoto plan actually reduce worldwide emissions of CO<sup>2</sup>?

*Therefore*, be it resolved that Council of the City of Red Deer, having considered the correspondence from the Concerned Citizens Group, dated November 11, 2002, re: Kyoto Agreement, hereby directs the Mayor to send a letter to the Prime Minister, with copies to the Premier of Alberta, and Federal and Provincial Ministers of the environment, requesting the delay of the Kyoto Protocol ratification until clarification on its impacts and ramifications are identified and communicated to the citizens of Canada and until further national consultation can take place to help Canadian citizens more clearly understand the key issues involved and the scope of Canada's commitments under the Kyoto plan.

The Right Honourable Jean Chretien

November 19, 2002

Page 3

b.c. Bill Hull, Concerned Citizens Group  
Director of Development Services, City of Red Deer  
Solid Waste Superintendent, City of Red Deer

\* \* \* Transmission Result Report (MemoryTX) ( Nov.20. 2002 12:49PM ) \* \* \*

1) CITY OF RED DEER  
2) City Clerks Dept

Date/Time: Nov.20. 2002 12:47PM

File No. Mode	Destination	Pg(s)	Result	Page Not Sent
5393 Memory TX	16139416900	P. 4	OK	

Reason for error

E.1) Hang up or line fail  
E.3) No answer

E.2) Busy

E.4) No facsimile connection

*Office of the Mayor*

November 19, 2002

The Right Honourable Jean Chrétien  
Prime Minister  
Government of Canada  
Room 409-S, Centre Block  
House of Commons  
Ottawa, Ontario  
K1A 0A6

Dear Prime Minister:

Climate change—and the Kyoto strategy designed to address it, are undoubtedly among the most complex, difficult and pervasive issues currently facing Canadians. The City of Red Deer believes that a great majority of Canadians—and Red Deer citizens—agree that the issue must be addressed and that the status quo is not sustainable. The City also believes there is a willingness for involvement in a solution both at the community and individual level. Nevertheless, there is clearly a lack of understanding concerning the implication of the Kyoto accord for individual Canadians and Canadian communities. In addition, there is little understanding of, or agreement on the parameters of an effective implementation plan. Finally, there is considerable confusion regarding the need for Canada to ratify Kyoto without such basic information and understanding in place.

In Red Deer's experience, attempting to implement sweeping change without reasonable consensus is often counterproductive and unsuccessful. The danger is that those most impacted spend considerable energy resisting rather than participating in the mandated action.

On November 18, 2002, Red Deer City Council debated issues related to the lack of the understanding of the impacts of the Kyoto agreement and of the strategies Canadians should use to reduce greenhouse gas emissions. After careful consideration, Council passed the attached resolutions seeking more information about the costs and benefits of the Kyoto Protocol, and requesting you to delay ratification of this Protocol until that information is forthcoming and more informed debate can take place.

The City of Red Deer is noted for its environmental leadership, as acknowledged by several prestigious environmental awards. Our community has made a significant and ongoing commitment to environmental stewardship. These achievements have been won through considerable citizen engagement in the development of appropriate strategies. City Council believes that the same process needs to take place at a national level relative to the reduction of CO2 emissions.

THE CITY OF RED DEER

Box 5008, Red Deer, Alberta, Canada T4N 3T4 Telephone: (403) 342-8155 Fax: (403) 342-8365

\* \* \* Transmission Result Report (MemoryTX) ( Nov.20. 2002 12:52PM ) \* \* \*

1) CITY OF RED DEER  
2) City Clerks Dept

Date/Time: Nov.20. 2002 12:50PM

File No.	Mode	Destination	Pg(s)	Result	Page Nct Sent
5394	Memory TX	18199533457	P. 5	OK	

Reason for error

E.1) Hang up or line fail  
E.3) No answer

E.2) Busy

E.4) No facsimile connection

P.O. Box 5008, Red Deer, Alberta T4N 3T4  
Web Site: [www.city.red-deer.ab.ca](http://www.city.red-deer.ab.ca)City Clerk's Department (403) 342-8132  
Email: [cityclerk@city.red-deer.ab.ca](mailto:cityclerk@city.red-deer.ab.ca)DATE: Nov 20/02

OUR FAX NO: (403) 346-6195

NUMBER OF PAGES INCLUDING THIS PAGE: 5FAX TO: HON. DAVID ANDERSONATTENTION: MINISTER OF ENVIRONMENTTHEIR FAX NO: 1-819-953-3457FROM: CITY OF RED DEERDEPARTMENT: CITY CLERK'S DEPARTMENTPHONE #: (403) 342-8132

## MESSAGE AREA (if required):

RE: Kyoto Agreement -- COPY OF LETTER TO  
PRIME MINISTER.

## Confidentiality Notice

This communication is directed in confidence solely to the person named above and may not otherwise be distributed, copied or disclosed. It may contain information that is confidential or subject to legal privilege. Further disclosure or use of this communication in whole or in part, by any other person, in any manner, may be an offence under the Freedom of Information and Protection of Privacy Act. If you received this fax in error please telephone us immediately. Thank you for your assistance.

ORIGINAL TO FOLLOW: BY MAIL ☐ BY COURIER ☐  
NO ORIGINAL WILL BE FORWARDED: ☐

IF YOU DO NOT RECEIVE ALL OF THE PAGES, PLEASE CONTACT SENDER AT THE PHONE NUMBER SHOWN ABOVE. THANK YOU.

\* \* \* Transmission Result Report (MemoryTX) ( Nov.20. 2002 12:55PM ) \* \* \*

1) CITY OF RED DEER  
2) City Clerks Dept

Date/Time: Nov.20. 2002 12:53PM

File No.	Mode	Destination	Pg(s)	Result	Page Not Sent
5395	Memory TX	17804271349	P. 5	OK	

Reason for error

E.1) Hang up or line fail  
E.3) No answerE.2) Busy  
E.4) No facsimile connectionP.O. Box 5008, Red Deer, Alberta T4N 3T4  
Web Site: [www.city.red-deer.ab.ca](http://www.city.red-deer.ab.ca)City Clerk's Department (403) 342-6132  
Email: [cityclerk@city.red-deer.ab.ca](mailto:cityclerk@city.red-deer.ab.ca)DATE: Nov. 20/02

OUR FAX NO: (403) 346-6195

NUMBER OF PAGES INCLUDING THIS PAGE: 5FAX TO: HON. RALPH KLEINATTENTION: PREMIER OF ALBERTATHEIR FAX NO: 1-760-421-1349

FROM: \_\_\_\_\_

DEPARTMENT: \_\_\_\_\_

PHONE #: (403) 342-6132

## MESSAGE AREA (if required):

COPY OF LETTER TO PRIME MINISTER RE  
KYOTO AGREEMENT

## Confidentiality Notice

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ORIGINAL TO FOLLOW: BY MAIL ☒ BY COURIER ☐  
NO ORIGINAL WILL BE FORWARDED: ☐

IF YOU DO NOT RECEIVE ALL OF THE PAGES, PLEASE CONTACT SENDER AT THE PHONE NUMBER SHOWN ABOVE. THANK YOU.



\* \* \* Transmission Result Report (MemoryTX) ( Nov.20. 2002 12:56PM ) \* \* \*

1) CITY OF RED DEER  
2) City Clerks Dept

Date/Time: Nov.20. 2002 12:55PM

File	No. Mode	Destination	Pg(s)	Result	Page Not Sent
5396	Memory TX	17804226259	P. 5	OK	

## Reason for error

E.1) Hang up or line fail  
E.3) No answerE.2) Busy  
E.4) No facsimile connectionP.O. Box 5008, Red Deer, Alberta T4N 3T4  
Web Site: www.city.red-deer.ab.caCity Clerk's Department (403) 342-8132  
Email: cityclerk@city.red-deer.ab.caDATE: Nov 20/02

OUR FAX NO: (403) 346-6195

NUMBER OF PAGES INCLUDING THIS PAGE: 5FAX TO: HON. LORNE TAYLORATTENTION: MINISTER OF ENVIRONMENTTHEIR FAX NO: 1-780-422-6259

FROM: \_\_\_\_\_

DEPARTMENT: \_\_\_\_\_

PHONE #: (403) 342-8132

## MESSAGE AREA (If required):

COPY OF LETTER TO PRIME MINISTER RE  
KYOTO AGREEMENT

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ORIGINAL TO FOLLOW: BY MAIL X BY COURIER \_\_\_\_\_  
NO ORIGINAL WILL BE FORWARDED: \_\_\_\_\_

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Office of the  
Prime Minister



Cabinet du  
Premier ministre

Ottawa, Canada K1A 0A2

Copy

Bob Mills, M.P.  
Hon U. Doerksen  
Mary Anne Jablonski  
Council  
Red Deer Chamber  
Env. Advisory Board

November 26, 2002

Her Worship Gail D. Surkan  
Mayor  
The City of Red Deer  
P.O. Box 5008  
Red Deer, Alberta  
T4N 3T4

Dear Madam Mayor:

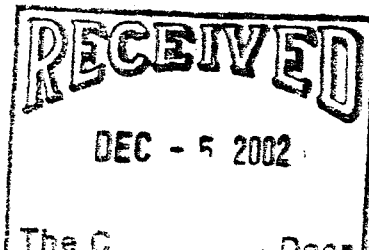
On behalf of the Right Honourable Jean Chrétien, I wish to acknowledge receipt of your correspondence of November 19 and the enclosed resolution regarding the Kyoto Protocol.

You may be assured that your comments, offered on behalf of the City of Red Deer, have been duly noted. That said, please know that the Government considers climate change a global responsibility. In addition, Canadians from coast to coast to coast recognize the significance of this issue and take pride in this country's environmental record. We are determined to move forward on this file. Wealthy nations, such as Canada, have an obligation to make innovative changes for the betterment of the global community. Preventing climate change is in Canada's interests. Adverse effects of climate change could include serious implications such as drought; reduced water levels in the Great Lakes and St. Lawrence River; changes and reductions in the marine fishery; melting permafrost levels; and an increased number of heat waves.

As the Prime Minister has said:

*I do not pretend that achieving our climate change objectives will be easy. It will not be. We have ten years to meet our obligations under the treaty. But we can make progress together. There are many good ideas: from industry, from provincial governments. That will take us a long way toward meeting our obligations. Technology will take us further.*

Canada



We recently released a copy of the *Climate Change Draft Plan*. We will use this to consult with our partners to develop a made-in-Canada approach for the reduction of emissions. Included in this plan are several energy efficiency measures - measures that will help consumers and businesses use existing technology to reduce their energy and their costs. In addition, we propose to develop new and better technologies, to enable greater efficiency and encourage the use of renewable energy to make further improvements in the future. We will also invest in infrastructure, such as enhanced public transit, which will help our cities while reducing emissions. We are confident that Canadians look forward to the opportunity to develop and implement some of these new technologies that will lead to a better world for our children and our children's children. In the short term, these new initiatives will also result in cleaner air, especially in our cities.

The Government will continue to engage in intense and productive consultations with all interested parties, whose views will certainly have a major impact on the plan we produce before Parliament is asked to vote on the ratification of the Kyoto Protocol. The Prime Minister has been clear that this plan will distribute the burden and the risk equitably across all sectors of the economy and all regions of the country; between producers and consumers; individuals and businesses; and citizens and governments.

I am certain that the Honourable David Anderson, Minister of the Environment, to whom you indicate a copy of your correspondence has already been forwarded, will also have appreciated being made aware of your views.

Thank you for writing to the Prime Minister.

Yours sincerely,

A handwritten signature in dark ink, appearing to read 'K. Mayer', with a stylized flourish at the end.

K. Mayer  
Executive Correspondence Officer

Office of the  
Prime Minister



Cabinet du  
Premier ministre

Ottawa, Canada K1A 0A2

Copy

Bob Mills, M.P.  
Hon U. Doerksen  
Mary Anne Jablonski  
Council  
Red Deer Chamber  
Env. Advisory Board

November 26, 2002

Her Worship Gail D. Surkan  
Mayor  
The City of Red Deer  
P.O. Box 5008  
Red Deer, Alberta  
T4N 3T4

Dear Madam Mayor:

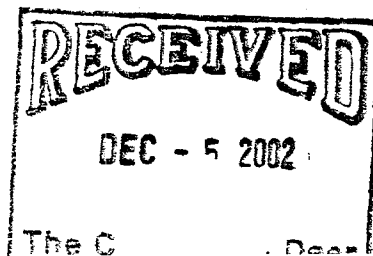
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Yours sincerely,

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K. Mayer  
Executive Correspondence Officer

## **Christine Kenzie**

---

**From:** Sam Denhaan  
**Sent:** November 16, 2002 7:32 PM  
**To:** City clerk City of Red Deer  
**Subject:** Distribution to Mayor and Councilors



Advocate 17 09 02.tiff



Kyoto meeting 14 11  
02.doc

Dear Kelly Kloss;  
Please distribute attached files to Mayor and Councilors as soon as possible, on Monday November 18.  
Thank you  
Sam Denhaan  
3314 44A Avenue Red Deer AB  
T4N 3J8 ph 341 5491

[This message has been scanned for security content threats, including computer viruses.]

Sam Denhaan  
3314-44A Avenue  
Red Deer, AB. T4N 3J8  
Email: sdenhaan@telusplanet.net

Telephone 403 341 5491

The Red Deer City Council.

Dear Mayor and Council of the City of Red Deer;

I noted the article in the Red Deer Advocate "City council asked to jump into Kyoto", where a number of Red Deer business people wrote to council asking for City of Red Deer intervention to the Prime Minister. I am aware of the Red Deer chamber of commerce's opposition to Kyoto as expressed by executive director Jan Fisher. I am also aware of the extremely negative approach by the Klein government and the Canadian Association of Petroleum Producers.

I attended a panel discussion at Margaret Parson Theatre, Red Deer College on November 14 2002. The panel included John Donner assistant deputy minister of Alberta Environment, John Squarek, manager of Alberta operations with the Canadian Association of Petroleum Producers, David Pollock, executive director of the Pembina Institute for Appropriate Development.

The PowerPoint presentations by John Donner Alberta Govt. and John Squarek CAPP were far from direct or simple. They contended that Kyoto has already caused resource corporations to slow down projects, and that Kyoto reduction requirements will be impossible to achieve without purchase of carbon credits from other jurisdictions.

David Pollock of Pembina noted that Petro Canada, Shell and Suncor all have said that the confusion surrounding Kyoto is not expected to cloud their future oil sands expansion plans. True North has difficulties other than Kyoto. And that large energy savings are available if conservation is supported.

John Donner referred to the former "Albertans and Climate Change" draft released February 2002, which is now called the "Made in Canada solution". It has many worthwhile actions recommended to be taken. The problem is that almost all are voluntary to the "stake holders" and the reduction horizon is extended far into the future. John Squarek of CAPP said "that his sector would do the best it can when it can" and that the production of hydrocarbons is driven by consumers. I believe that means Canadian and US consumers.

The questions to the panel were revealing in their tone and simplicity. For example:

- Why has the Klein Alberta Government and CAPP raised the level of advertising and publicity on Kyoto to such a negative level akin to Armageddon, giving the bleakest picture possible? This is creating "a no win situation" spreading fear and anger instead of leadership in creating opportunity.
- Why after years of notice has so little voluntary improvement been achieved by industry. We now have 50% reduction of emissions but thousands more flares.
- Why after a good start during the Mid East oil crisis had government failed to lead in environmental responsibility?
- Why should we as citizens trust industry and government promises when the record is filled with problems resulting from development versus ecology and conservation.

No answers were given on these questions.

This is why council, for the sake of our children's future, **should take action to get its environmental house in order**, but not get on the local anti Kyoto bandwagon. **DO NOT** as our representatives continue a business as usual development at all cost position. But become part of the solution; give leadership for change for the better. You will find most citizens will do their part.

Please provide your individual reply.

Regards Sam Denhaan

## **Christine Kenzie**

---

**To:** Mayor; Councillors; City Manager  
**Cc:** Mary Stewart  
**Subject:** FW: Distribution to Mayor and Councilors

For your information, the following is a letter from a citizen regarding the Kyoto Agreement.

***Christine Kenzie***  
***Administrative Assistant***  
***City Clerk's Department***  
***(403) 342-8201***

-----  
**From:** Sam Denhaan  
**Sent:** November 16, 2002 7:32 PM  
**To:** City clerk City of Red Deer  
**Subject:** Distribution to Mayor and Councilors



Advocate 17 09 02.tiff



Kyoto meeting 14 11  
02.doc

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Thank you  
Sam Denhaan  
3314 44A Avenue Red Deer AB  
T4N 3J8 ph 341 5491

[This message has been scanned for security content threats, including computer viruses.]



## **Christine Kenzie**

---

**To:** Sam Denhaan  
**Subject:** RE: Distribution to Mayor and Councilors

Your letter has been forwarded to the Mayor and Councilors. For your information, the following resolutions were passed at the November 18, 2002 Council Meeting:

### Resolution No. 1

*Whereas*, there exists a general lack of clarity and understanding relative to many of the key issues surrounding the Kyoto debate, such as:

- What is the cost of implementing Kyoto targets on workers, consumers, taxpayers, municipalities, and businesses in various sectors?
- What format and impact of the "carbon trading" scheme under the Kyoto plan?
- What are the international legal or other ramifications if Canada is unable, for any reason, to meet its emission reduction targets?
- To what degree will the Kyoto plan actually reduce worldwide emissions of CO<sup>2</sup>?

*Therefore*, be it resolved that Council of the City of Red Deer, having considered the correspondence from the Concerned Citizens Group, dated November 11, 2002, re: Kyoto Agreement, hereby directs the Mayor to send a letter to the Prime Minister, with copies to the Premier of Alberta, and Federal and Provincial Ministers of the environment, requesting clarification on the impacts and ramifications of approving the Kyoto Protocol on such issues as outlined in the above preamble.

### Resolution No. 2

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- What is the cost of implementing Kyoto targets on workers, consumers, taxpayers, municipalities, and businesses in various sectors?
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**Christine Kenzie**  
**Administrative Assistant**  
**City of Red Deer**  
**City Clerk's Department**  
**(403) 342-8201**  
***chrisk@city.red-deer.ab.ca***

-----  
**From:** Sam Denhaan  
**Sent:** November 16, 2002 7:32 PM  
**To:** City clerk City of Red Deer  
**Subject:** Distribution to Mayor and Councilors

<<File: Advocate 17 09 02.tiff>><<File: Kyoto meeting 14 11 02.doc>>

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Thank you

Sam Denhaan

3314 44A Avenue Red Deer AB

T4N 3J8 ph 341 5491

[This message has been scanned for security content threats, including computer viruses.]

**BYLAW NO. 3156/BBB-2002**

Being a Bylaw to amend Bylaw No. 3156/96, the Land Use Bylaw of The City of Red Deer as described herein.

COUNCIL OF THE CITY OF RED DEER, ALBERTA, ENACTS AS FOLLOWS:

1 "That Section 54 Exceptions Respecting Land Use, subsection (6) "On those sites, or portions thereof herein listed, the following uses may be allowed as permitted uses in the existing structure only" is hereby amended by adding the following:

(g) a call centre operation in the south-east portion of the Bower Place Shopping Centre (former Zellers store) subject to meeting the parking standard, on

(i) Block 6B, Plan 942 2669 (4900 Molly Banister Drive)

2 The "Use District Map G5" contained in "Schedule B" of the Land Use Bylaw is hereby amended in accordance with the Land Use District Map No. 55/2002 attached hereto and forming part of the bylaw.

3 That Section 2 Definitions is hereby amended by adding the following:

**"Call Centre"** means a minimum 15,000 square foot facility with more than 50 employees who provide information on sales, goods and services, takes orders for sales, goods and services, and/or provide technical after sales support to customers by telephone, e-mail or, other telecommunication technologies but does not include other office uses.

4 That Section 48 Parking Spaces and Areas is hereby amended by adding to subsection "Commercial & Industrial" the following:

Uses

Parking Spaces

Call Centre

8 stalls per 93 m<sup>2</sup> (gross leasable floor area)"

READ A FIRST TIME IN OPEN COUNCIL this                      day of                      2002.

READ A SECOND TIME IN OPEN COUNCIL this                      day of                      2002.

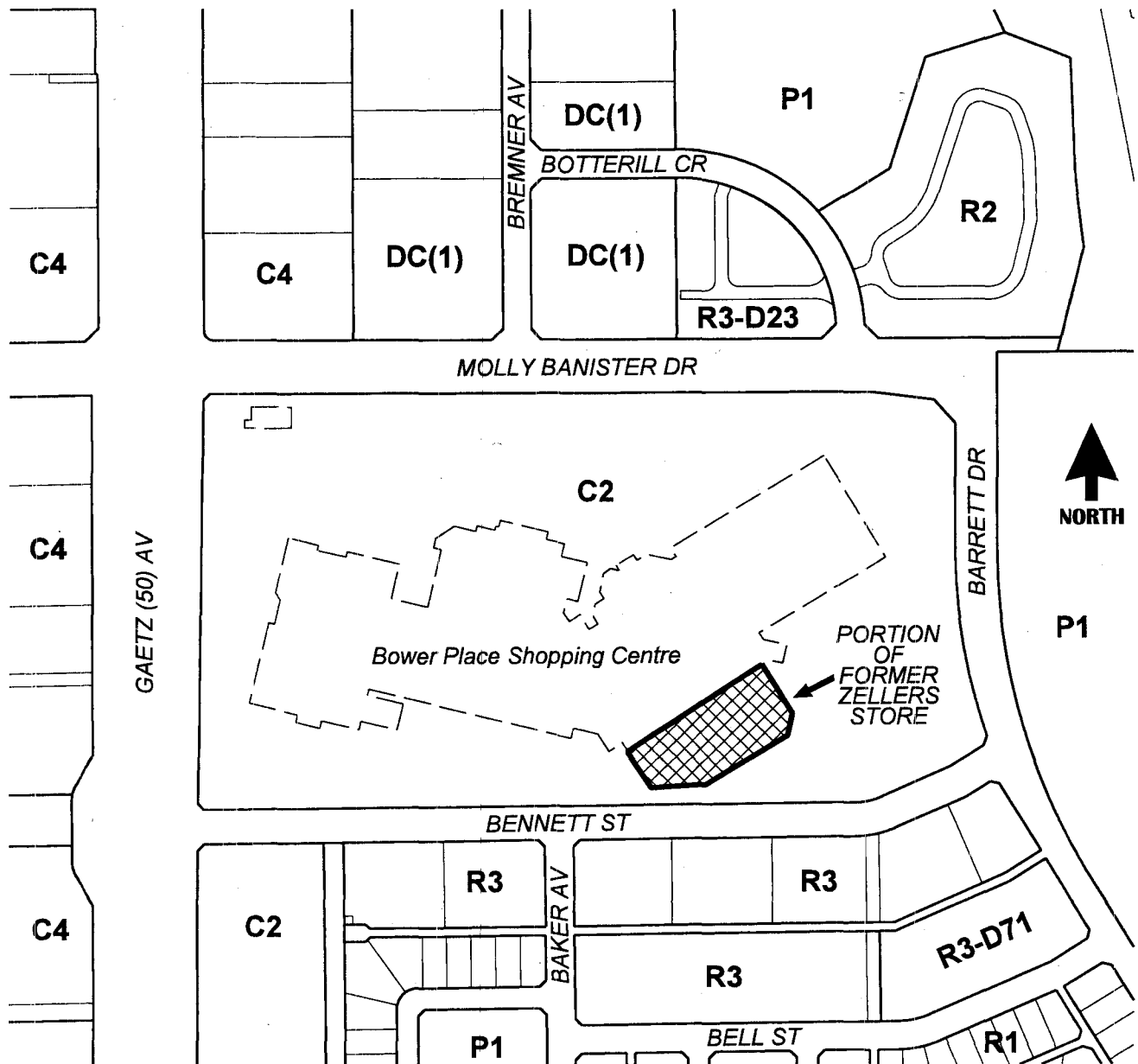
READ A THIRD TIME IN OPEN COUNCIL this                      day of                      2002.

AND SIGNED BY THE MAYOR AND CITY CLERK this                      day of                      2002.

\_\_\_\_\_  
MAYOR

\_\_\_\_\_  
CITY CLERK

# The City of Red Deer PROPOSED LAND USE BYLAW AMENDMENT



Addition of Exception - 6(G) 

## AFFECTED DISTRICTS:

C2 - Commercial (Regional and District Shopping Centre)

MAP No. 55/ 2002  
BYLAW No. 3156 / BBB - 2002