



# SUSTAINABLE SUBURBS STUDY



CREATING MORE FISCALLY,  
SOCIALY AND ENVIRONMENTALLY  
SUSTAINABLE COMMUNITIES

JULY 1995



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ENVIRONMENTALLY SUSTAINABLE COMMUNITIES



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# **SUSTAINABLE SUBURBS STUDY SUMMARY**

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This report is about taking responsibility for our future. It is about the planning of Calgary's new residential suburbs where most of its population growth is expected to occur.

At first glance there may not seem to be a problem with the way the suburbs are planned now. But, unless ways are found of significantly reducing the costs of development, the ongoing withdrawal of Provincial funding and the increasing share of revenues that have to be spent on building and maintaining infrastructure to support growth may well become a serious financial burden for us and for future generations. Further, if we fail to respond adequately to social needs and put off dealing with difficult environmental issues, we should expect many of the social and environmental health problems that larger cities now contend with. Then the quality of life that Calgarians enjoy and value so much will be threatened.

This study is intended to facilitate the design of new residential communities that start to address these fiscal, social and environmental issues. It is not just a report about land use planning. A wide choice of housing is provided, catering to a broad cross-section of the population. Because more of people's daily needs are provided within the community and transit is more accessible, the need for many car trips is reduced and less roads and other infrastructure have to be built and maintained by the City (and ultimately tax payers). The design of communities and buildings, and the facilities and services provided, combine to encourage people to adopt more sustainable lifestyles.

Many cities throughout North America are reconsidering how they plan their suburbs. The recommendations in this report are unlikely to be the complete answer, but they are a very significant start. Given the will to work together, experiment and take some risks, we can build more liveable communities that enable present and future generations to maintain a high quality of life.

## **REASONS FOR THE STUDY**

The need for the study has been building for a number of years but there were four main reasons for undertaking it now:

- to implement the Calgary Transportation Plan (May 1995) - in particular, to improve mobility options by encouraging alternatives to automobile travel;
- to control the costs of growth;
- to better meet people's needs; and
- to encourage more sustainable lifestyles.

## **WHAT IS A SUSTAINABLE SUBURB?**

The goal of this study is to create communities that are capable of being sustained far into the future:

**fiscally,**

the costs of building, operating and maintaining new communities and their supportive infrastructure and services are affordable, having regard to other spending priorities, and will not become a burden on future generations;

**socially,**

communities are designed to be socially diverse, adaptable to changing lifestyles and to further the objective of providing all Calgarians with access to affordable housing, education, health care, essential goods, public amenities and services, such that their basic needs are met; and

**environmentally,**

communities are designed to minimize air, water, and soil pollution, reduce resource consumption and waste, and protect natural systems that support life.

#### **SOME CHARACTERISTICS OF A MORE SUSTAINABLE COMMUNITY**

	<b>A LESS SUSTAINABLE COMMUNITY</b>	<b>A MORE SUSTAINABLE COMMUNITY</b>
<b>FISCAL</b>	<ul style="list-style-type: none"><li>• High development costs</li><li>• High City infrastructure costs</li><li>• High City maintenance costs</li><li>• High City operating costs</li></ul>	<ul style="list-style-type: none"><li>• Lower costs through:<ul style="list-style-type: none"><li>- more compact urban form</li><li>- better utilization of services</li><li>- less infrastructure</li></ul></li></ul>
<b>SOCIAL</b>	<ul style="list-style-type: none"><li>• Little sense of community, belonging or neighbourliness</li><li>• Housing choice excludes certain household types and lifestyles</li><li>• Design of public areas discourages walking and socializing</li><li>• Few goods and services provided within community</li><li>• Rigid separation of uses</li><li>• Car essential</li></ul>	<ul style="list-style-type: none"><li>• Strong sense of belonging to a community; vibrant community life</li><li>• Wide housing choice catering to many household types and lifestyles</li><li>• Attractive public areas encourage walking and socializing</li><li>• Most routine shopping needs met within community</li><li>• Some mix of uses including employment</li><li>• Need for car much reduced</li></ul>
<b>ENVIRONMENTAL</b>	<ul style="list-style-type: none"><li>• Inefficient use of land</li><li>• High level of air pollution through auto dependency</li><li>• Community design promotes lifestyles where excessive water, energy and resource consumption are largely unavoidable</li><li>• No protection of environmentally sensitive areas</li></ul>	<ul style="list-style-type: none"><li>• More efficient use of land</li><li>• Much reduced air pollution through reduced vehicle trips</li><li>• Community design promotes lifestyles where consumption and waste can be reduced and conservation encouraged</li><li>• Significant environmentally sensitive areas largely protected and integrated into the regional open space system</li></ul>

## ORGANIZATION OF THE REPORT

Part 1 provides background information including the trends that will influence future communities and the major issues dealt with in this report. Part 2 is the operational section of the paper. It proposes policies, performance standards and design guidelines intended to achieve more sustainable community design. It also recommends a new hierarchy of planning documents, a more collaborative approach to preparing Community Plans, and proposals for implementing the policies.

## ISSUES

Achieving more sustainable residential communities raises many issues which can be posed as questions. How can we...

- Keep down the City's costs of accommodating growth?
- Keep down housing costs?
- Use land more efficiently?
- Design communities more in tune with modern lifestyles?
- Provide more housing choice?
- Ensure an adequate supply of affordable housing?
- Encourage people to commute by transit?
- Encourage people to walk instead of drive within the community?
- Protect natural systems of high public value?
- Encourage home builders and home buyers to reduce waste and pollution?
- Improve the planning process?

## GENERAL STRATEGY

This study seeks to encourage developers, City departments and others to find new ways of designing more sustainable communities. **There is no intent to impose any single design approach.** The recommended strategy is to design communities along the lines of an urban village. An adequate choice of shops and services should be provided locally so that residents are not dependent on regional shopping centres for most daily needs and local business and employment is encouraged. The design focus is on improving the public realm, making communities more attractive and liveable for people of all ages and lifestyles, while significantly reducing the need for many vehicle trips.

The following are the major elements common to the design of more sustainable communities:

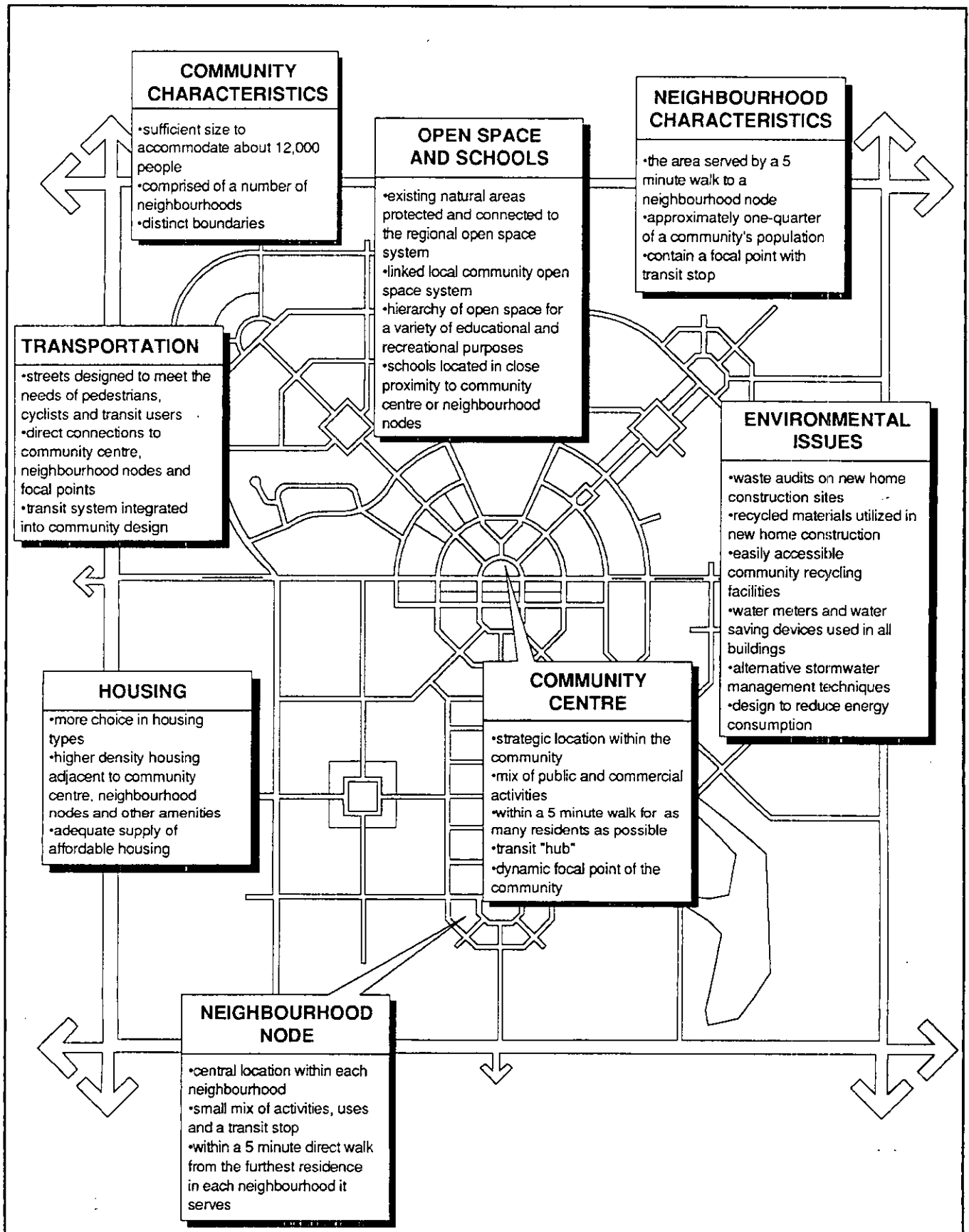
- a) A focal point and recognizable boundaries and entrances that give the community a distinct identity.
- b) A public activity centre, offering a variety of goods and services sufficient to meet people's daily needs.
- c) A mixture of residential, public and commercial uses at and near the activity centre.
- d) Parks, schools and shops within a comfortable walking distance of homes.

- e) Safe, pedestrian and cyclist-friendly streets providing direct connections from homes to community and transit facilities.
- f) A wide choice of housing types and costs to meet a variety of household types and lifestyles.
- g) A range of local employment opportunities.
- h) An efficient and effective public transit system that provides a viable option to the car, especially for the journey to work.
- i) Protected natural areas and a variety of linked open spaces offering a choice of activities, connected where possible to the regional open space system.
- j) Connections to the regional pathway system providing a safe transportation and recreation option for pedestrians and cyclists.

The concept for a more sustainable community, described in this study, works best where we start with raw land and apply the design criteria as a package to produce a carefully integrated community of about  $\pm 12,000$  people. **It is recommended that Council, as a policy, encourage developers to design such communities.** Moreover, where land areas are not large enough for all the elements of a sustainable community to be achieved, developers should be encouraged to apply the design criteria and the principles of the study to the extent feasible.

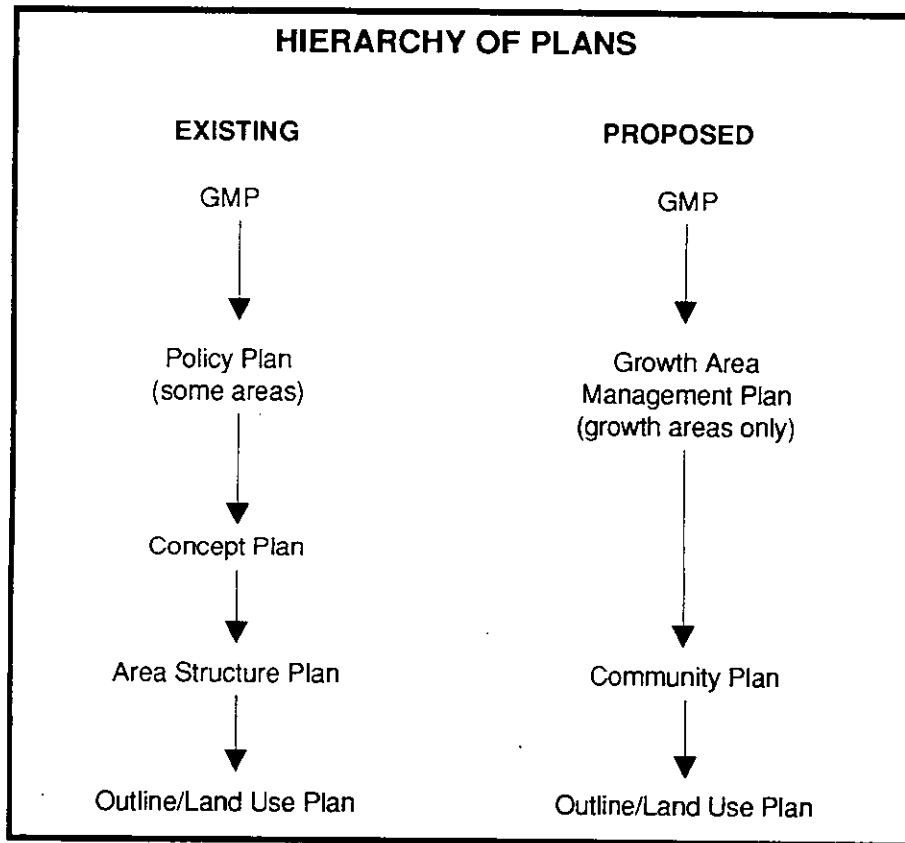
To design new communities that meet the objectives of this study and are properly integrated into the area of the city where they are located, some changes to the hierarchy of planning documents is recommended. Also, the planning process itself has to become more collaborative so that a common vision of the new community can be established early on, and all parties concerned can work together in developing a design that satisfies everyone's objectives.

# ELEMENTS OF A MORE SUSTAINABLE COMMUNITY



## A NEW HIERARCHY OF PLANS

The proposed new hierarchy of plans is intended to simplify and improve the Community Plan preparation process.



- The City would take a more pro-active role in the planning of new communities.
- Growth Area Management Plans, prepared by the City through a consultative process, would provide an intermediate level of planning between the General Municipal Plan and a new Community Plan. The Growth Area Management Plan would consolidate forecasts and policies at a regional level on a broad range of issues.
- Community Plans (the name describes their purpose) would replace area structure plans and the developer-prepared concept plan would be eliminated entirely.
- Many of the issues currently left to be resolved at the outline plan stage would be dealt with by Community Plans.
- The process for preparing Community Plans would bring together expertise from the development industry, City, School Boards and other public agencies, (e.g., AGT, CWNG, etc.) in a collaborative approach to design more liveable communities at less cost than the present process allows.

## **MAKING IT HAPPEN**

In order to encourage the development of more sustainable communities, the policies and acceptable performance standards outlined in the study must be approved. These will form the basis for evaluating plans submitted over the next three to five years, during which developments will be monitored and performance standards revised as required.

To fully implement the recommendations in this study, it is critical that the following work be undertaken in consultation with the development industry:

- a) Develop new street design standards (Report to Council by July 1996).
- b) Develop a city-wide policy on affordable housing (Terms of Reference to Council by May 1996).
- c) Develop Indicators of Sustainability (Report to Council by December 1996).
- d) Review other requirements, standards and practices. For example, certain parts of the Land Use By-Law, such as provisions allowing additional dwelling units, need to be revised to ensure that they do not impede the objectives of achieving sustainability (Terms of Reference to Council by July 1996).
- e) Explore opportunities for new approaches to planning and managing communities, such as, community-based financing of community facilities (Terms of Reference to Council by July 1996).

Finally, we need to demonstrate that it works by requiring new Community Plans proposed over the next three to five years (1995 to 2000) to follow the policies, performance criteria and planning process outlined in this report and by monitoring both the planning process and the success in achieving the policies.

## **APPLYING THE STUDY RECOMMENDATIONS**

The recommendations in this study have been drawn up following a collaborative planning exercise involving several City departments, the development and building industry, the school boards, the Federation of Calgary Communities, and many outside agencies, consultants and individuals involved with community planning.

Most participants now share a common vision of what needs to be done to design more sustainable residential communities. Equally important, a new level of co-operation and understanding between all parties has been established. It is in the public interest, and that of all parties involved, that this positive attitude be carried forward in the implementation of this study.

The recommendations of this study are capable of being applied in the planning of all new suburban communities, but it must be recognized that:

- a) The study recommendations are a considerable departure from the status quo and as such will require all parties involved to adopt new approaches to planning and development of suburban communities.

- b) With the exception of McKenzie Towne now under construction, most of the proposed criteria have not been used before in Calgary as a package in planning new communities.
- c) The successful implementation of these policies will require the City, being responsible for the provision and long-term operation and maintenance of infrastructure, to take some risks and be prepared to find alternative ways of doing things.
- d) The development industry will also have to look at doing things differently in that achieving the objectives of this study in the market-based approach to the provision of housing will require creative and innovative solutions.
- e) Many of the criteria are fairly specific (because vague generalities are too open to interpretation) but, they need to be monitored and adjustments made as required.

For these reasons it is proposed that the study recommendations should be initially approved by resolution of Council, not by by-law, so that amendments found necessary through the monitoring process can be made relatively easily. Ultimately it is anticipated that the study recommendations will be incorporated into a revised Calgary General Municipal Plan, a by-lawed document.

It would not be reasonable, and it is not intended, to apply the study recommendations equally to new communities and to communities for which a plan or planning concept has already been approved. It is proposed that the following criteria be used in determining the applicability of the study recommendations in different circumstances.

### **New Community Plans**

These are plans for areas without an approved area structure plan that are of sufficient size to support a self-contained community (i.e.,  $\pm 12,000$  people) and for which a new community plan is envisaged.

- a) Community Plans should comply with all the policies and acceptable performance criteria in the study. **The policies and performance criteria work as a package and providing certain of the key elements and not others may compromise the success of the whole community design.**
- b) Planning reports accompanying Community Plan applications submitted to CPC and Council for a decision, **must include a detailed check list** showing the conformity of the plan to the criteria.
- c) Notwithstanding points a) and b) above, the Administration, CPC and Council, when evaluating and making a decision on a Community Plan, should:
  - i) adopt a policy of not refusing a plan for a new community merely because it fails to meet one or more of the Acceptable Performance Criteria, and
  - ii) be prepared to relax or forgive criteria in situations where the overall intent of the Sustainable Suburbs objectives has clearly been achieved and the team preparing the plan has valid reasons why certain requirements of this study could not be met.



## **New Community Plans for Small Areas**

These are areas without an approved area structure plan that are too small to support a self-contained community.

The study recommendations should apply as with a Community Plan for a self-contained community except that some of the performance criteria, such as the full retail component recommended for the community public activity centre, may not be achievable. However, regardless of how small the planning area, many of the policies and criteria will be achievable and the team preparing the plan must endeavour to meet them.

## **Outline Plans Implementing an Approved Community Plan**

Outline plans must conform substantially to the design concept of an approved Community Plan or the applicant must seek an amendment to the Community Plan. However, provided that the overall integrity of the approved Community Plan will not be compromised, some variation in the details of an outline plan covering part only of a community should be acceptable.

## **Outline Plans Implementing an Approved Area Structure Plan**

If an approved area structure plan exists, proponents are encouraged to approach the City prior to commencing preparation of the plan with a view to incorporating as many of the design criteria of this study as are logical and feasible into the outline plan. The proponent and the City will mutually agree which of the design criteria are feasible having regard to factors such as the size of the outline plan area and its relationship to built areas. Following such agreement, the City will work with the developer to ensure that such initiative does not result in significant delays to the process.

## **Staffing Resources and Departmental Co-ordination**

Because it will require considerable change from the status quo, successfully implementing the study recommendations will place additional demands on City staff, particularly in the development of the first prototype communities.

Given the current budgetary constraints, the City Administration will have to carefully allocate resources provided by Council. Nevertheless, the City must attempt to respond positively to as many requests as possible from developers who wish to follow the study recommendations.

The success of the new process for preparing community plans is dependant upon careful co-ordination of input from City Departments. The Planning & Building Department will act in a leadership role for the Administration to provide this co-ordination.

## **Monitoring the Process**

Many of the ideas set out in this report have been generated through Round Table discussions. The Round Table will continue to meet to discuss innovative ways of implementing the policies of this report and to provide feedback to its members. In addition, the Administration will submit a formal report to Council on the application of the study policies within 3 years of Council's approval of the study.



# PART I: AN OPPORTUNITY FOR CHANGE

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## 1.0 BACKGROUND

### 1.1 Reasons for the Study

This report is about the future planning of Calgary's residential suburbs. The need for the study has been building for a number of years but there were four main reasons for undertaking it now.

#### To Implement the Calgary Transportation Plan

In 1992 the City embarked upon GoPlan, a major review of the city's transportation system that looks forward 30 years when Calgary may have 540,000 more people, 260,000 more houses and about 470,000 more cars compared to today. GoPlan has resulted in the Calgary Transportation Plan, approved by Council in May 1995. During the preparation of the Plan, the public made it clear that it values the mobility afforded by the city's excellent road system. But a great many people expressed concern about the impact that certain road improvements and river crossings, necessary to handle predicted traffic volumes, would have on natural areas and established communities.

The strategy of the Calgary Transportation Plan is to try and avoid these controversial road improvements, but **success largely depends on achieving a significant reduction in the vehicle trips that new suburbs would normally generate**. Reducing the need for vehicle trips is one of the major goals of the Sustainable Suburbs Study.

According to the Calgary Transportation Plan new suburbs will:

- a) include community and neighbourhood centres, designed to be pedestrian and transit-friendly, which provide a mix of services and amenities for nearly all residents and a range of job opportunities;
- b) accommodate a mix of compatible land uses;
- c) provide for natural areas to be protected and integrated into both regional and neighbourhood open space systems;
- d) contain a variety of housing types;
- e) achieve a density of at least 17.3 units per gross ha (7 units per gross ac);
- f) be designed to encourage people to make more of their journeys by walking, using transit or cycling; and
- g) be designed with an aim to reducing the costs associated with the construction and maintenance of public infrastructure.

**The Sustainable Suburbs Study is aimed at achieving these objectives of the Calgary Transportation Plan and is critical to its success.**

#### To Control the Costs of Growth

A financial report, The City of Calgary's 10-Year Capital Spending Framework - 1991, highlighted a significant difference between the public's expectations for more and better services, as expressed in documents such as Calgary into the 21st Century and Vision 2020, and the City's ability to pay for them. Since then the Province has cut back sharply on funding for transportation, health care, education and family support services. Responsibilities for many social services have been downloaded onto charities and municipalities, resulting in competing demands on the City's revenues. These events have provided stimulus for a fundamental rethinking of how the City manages growth and controls related costs.

One of the major categories of cost faced by the City is providing infrastructure and services to new growth areas. To the extent that the results of this study can help reduce costs to both the City and the new homeowners, it will help the City successfully meet these financial challenges.

#### To Better Meet People's Needs

Although Calgary has some of the best housing found anywhere in the world, some of the stress in people's lives today is because the design of many communities built in recent years is incompatible with their real needs. Shops and services necessary for daily living are inadequate, inconveniently located or missing entirely from many communities. People are obliged to drive outside of their communities for these facilities, wasting time that they could rather be spent with their families or on other pursuits. Moreover, many people are excluded from certain communities entirely because they do not offer a sufficient choice of housing or adequate mobility.

#### To Encourage More Sustainable Lifestyles

Public knowledge and concern for environmental issues has evolved over the past 30 years and is now firmly entrenched in our social and educational systems. Broadly speaking, an awareness of visible pollution in the '60s, the need for energy conservation in the '70s and the threat to major biophysical systems in the '80s, together with a myriad other environmental issues, have led to a realization in the '90s of the need for **sustainability**.

Sustainability is a term used globally to recognize the interdependency of economic development, social well-being and the natural environment. The move towards sustainability is a search for ways of re-orienting our social and economic systems (including the delivery of housing and services) onto a course that is sustainable indefinitely and offers an acceptable future for our children. **Sustainability addresses the causes of problems, not just the symptoms.**

The City's Environmental Policy, Principles and Goals, 1994 states, under the heading 'Responsible Land Use':

**'The City of Calgary recognizes the importance of ensuring that the principles of "sustainable development" and environmental sensitivity are embodied in all planning decisions particularly related to: specific land use and development decisions; the way in which the overall growth strategy of Calgary is managed; and the way in which individual communities, both old and new, are planned.'**

Accordingly, the recommendations in this study seek to follow through on a number of Council's environmental goals, including the following:

- a) Develop policies and strategies to encourage less automobile use and the need to commute, and to encourage transit use, walking and cycling.
- b) Carefully evaluate the impact of urban development on visual aesthetics, natural ecosystems, special places, parks, natural areas and known wildlife habitats (Environmentally Sensitive Areas) at all stages in the land use planning and development process.
- c) Encourage and demonstrate the conservation of resources.
- d) Encourage the use of waste audits by the City of Calgary, the business community and others.
- e) Continue to help protect surface water quality through effective stormwater management.

## **1.2 What is a Sustainable Suburb?**

There is no generally accepted definition of **sustainable** when related to a suburban community. Indeed, on a planet with finite resources, total sustainability is clearly an unachievable goal and the best that we can do is to move in that direction. Nevertheless, many consider **sustainable** to be a useful adjective to describe a community that has been organized in such a way that the fiscal, social, and environmental activities that take place within it are capable of being sustained far into the future. In this study the words **capable of being sustained** mean that:

**fiscally,** the costs of building, operating and maintaining new communities and their supportive infrastructure and services are affordable, having regard to other spending priorities, and will not become a burden on future generations;

**socially,** communities are designed to be socially diverse, adaptable to changing lifestyles and to further the objective of providing all Calgarians with access to affordable housing, education, health care, essential goods, public amenities and services, such that their basic needs are met; and

**environmentally,** communities are designed to minimize air, water, and soil pollution, reduce resource consumption and waste, and protect natural systems that support life.

### 1.3 The Study Goals

The goals of the study parallel the above definition of a more sustainable suburb and provide the underpinnings for all the recommendations in this report. They are:

- |                    |   |
|--------------------|---|
| <b>Costs</b>       | To find ways of significantly reducing the cost of suburban development.  |
| <b>Community</b>   | To find ways of designing more liveable suburban communities that are accessible to a broad cross-section of society, that give people genuine options for housing and mobility and that are adaptable to changing demographics and lifestyles. |
| <b>Environment</b> | To find ways of significantly reducing environmental impacts through community and building design.   |

In so doing, **the study seeks to ensure that the objectives of the Calgary Transportation Plan are met** in so far as they relate to new suburban communities.

### 1.4 The Study Process

A Round Table on Sustainable Community Development was formed in October 1994 to advise the Administration on the issues discussed in this report. The Round Table has eighteen permanent members with representatives from the Urban Development Institute, the Calgary Home Builders' Association, the Public and Separate School boards, the Federation of Calgary Communities, the Alberta Association of Architects and the University of Calgary. As well, the directors of Calgary Parks & Recreation, Engineering and Environmental Services, Transportation and Planning & Building departments are included. The Round Table is chaired by the Director of Planning & Building.

In addition, numerous landowners, consultants, marketing experts, builders and staff from City departments and agencies involved in the planning of new communities have been consulted and have attended Round Table meetings.

A one day design charette was held in March 1995, when the Round Table members divided into teams, each charged with designing a community using many of the criteria proposed in this report.

Open houses on the general recommendations of the study were held in most wards in conjunction with GoPlan.

The results of the extensive research, meetings and surveys conducted by GoPlan over the past three years have been made available to the study team and taken into account in preparing this report.

Discussions have been held with planners and consultants across North America involved with planning more sustainable communities, and a review of planning literature was undertaken. A selected bibliography and glossary of terms are included in this report.

**This report will be reviewed by Council at a public hearing in July 1995 when Council will be asked to approve the study recommendations set out in Part II.** The intention is that these recommendations will ultimately be incorporated into the Calgary General Municipal Plan. Prior to this occurring, however, it will be necessary to test the policies set out in this report to assess how they are to be implemented and, where appropriate, to revise them in light of actual experience. In order to do this it is also recommended that Council instruct the Administration to work with the development industry and the public, using the Round Table and other means, to test the proposed policies and design criteria in prototype suburban communities (see Section 6.2).

## **1.5 Organization of this Report**

Part I provides the background information necessary to understand the intent of the recommendations in Part II. Part I describes some of the demographic and other trends that will influence how future communities are designed and summarizes the major issues dealt with in this study.

Part II is the operational section of the paper. It proposes policies, performance standards and design guidelines intended to achieve more sustainable community design. It also recommends a new hierarchy of planning documents, a more collaborative approach to preparing Community Plans, and makes proposals for implementing and monitoring the policies in the report.



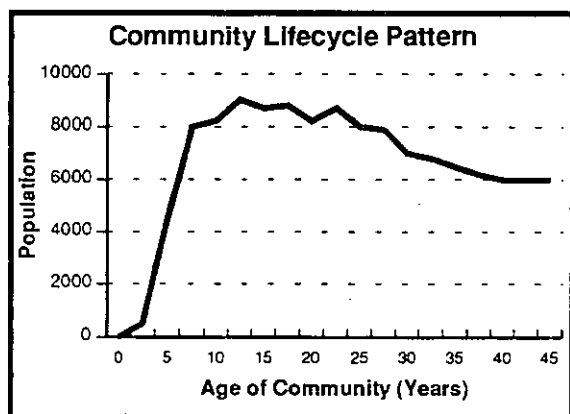


## 2.0 TRENDS

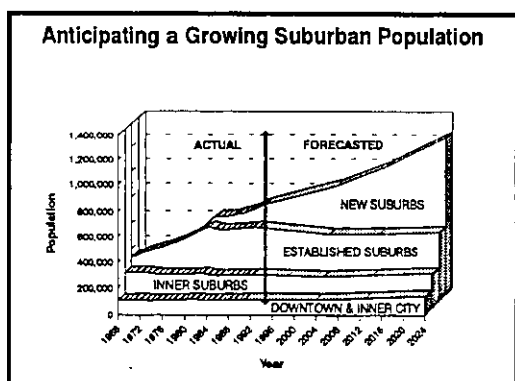
By the year 2024 it is forecast that there could be 1.25 million people living in Calgary, an increase of 70 percent over the 1994 population of 738,184. This section highlights how that growth will influence the opportunities and requirements for achieving sustainable suburbs. The section is based on GoPlan and other recent projects which have conducted extensive research into projected trends over the next 30 years.

### 2.1 Population Growth will be in the Suburbs

Just over half of Calgary's 1994 population lives in suburban communities built since 1970. As the population in older areas of the city declined, newer communities experienced a rate of population growth larger than that of the overall city (due to internal migration) and accommodated 96 percent of the new housing units added between 1984 and 1994. This predominance of the suburbs as growth areas arises from two factors:



a) Communities grow to a peak population after which children grow up and leave home to form new households, usually in new communities. Many of the older inner city communities have already seen the resulting drop in population, sometimes by as much as one-third. The same trend will start to occur in the established suburban communities (those built between 1960 and 1980) over the next 30 years.



b) Developed areas have seen and will continue to experience change as new housing is built. However, often the new units replace some demolished units and, therefore, the net increase is lower than the number of new units added. Forecasts indicate that the downtown and inner city will experience a population growth of 34,000 over the next 30 years. This increase represents a substantial amount of redevelopment compared with an average annual increase of 150 people in the downtown and inner city since 1985. The inner suburbs (those areas built between 1940 and 1960) have little redevelopment potential. Further, as noted above, the established suburbs will see a drop in population as they reach maturity in the community lifecycle.

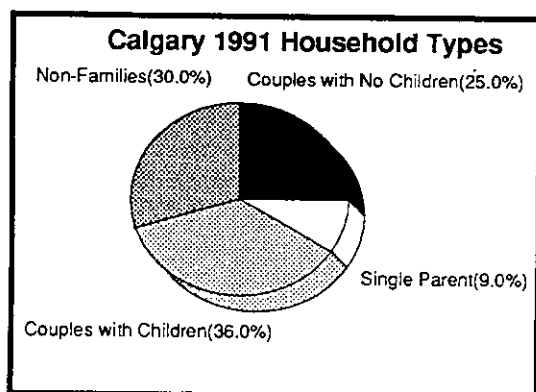
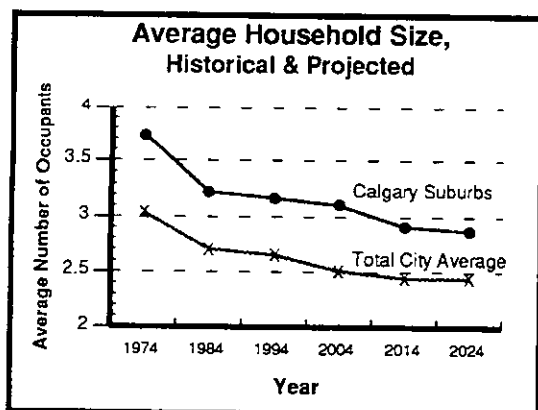
The combination of these factors points to the continued dominance of the suburbs in accommodating growth: **over 98 percent of the population growth over the next 30 years is expected to occur in new suburbs.**

POTENTIAL POPULATION CHANGES			
Sub Area	1991	2024	Change
Downtown/Inner City	104,000	138,000	+34,000
Inner Suburbs	155,000	161,000	+6,000
Established Suburbs	309,000	268,000	-41,000
New Suburbs	135,000	670,000	+535,000
Other Areas	5,000	13,000	+8,000
<b>CITY-WIDE TOTAL</b>	<b>708,000</b>	<b>1,250,000</b>	<b>+542,000</b>

Source: GoPlan, Calgary Transportation Plan (May 1995)

## 2.2 Family and Household Composition is Changing

Three key changes in the formation of families and households will influence new communities.



- Household size is declining. Over 23 percent of Calgary households are one person only; another 32 percent are two people. An aging population and declining birth rates will continue to reinforce this trend. In the next 30 years average city household size is expected to drop from 2.65 people today to 2.4. The suburban average is higher, but is also expected to decline from 3.2 to 2.9 by the year 2024.
- Household types are changing. The 1991 Federal census found that just over one-third of Calgary's households fit the traditional image of couples with children. By 2021, it is projected that only 1 in 4 households will be couples with children.
- Two income families are common. In 1991, 70 percent of the census family couples (with and without children) had two or more people in the labour force.

The type of suburban design and housing that has evolved in North America since the second World War worked well for traditional households, i.e., those with children and a caregiver at home and one person in the labour force. But new household forms require a variety of types, sizes and prices of housing and a variety of community services. Further, the households with children, which are traditionally attracted to the suburbs, are facing critical transportation challenges as they try and fit all the trips related to childcare and household management with the work trips of two or more family members.

## 2.3 Work is Changing

Our economy is no longer primarily resource based. In 1991, 77 percent of the jobs in Calgary were in the service sector and were dispersed outside of the downtown. The Calgary Transportation Plan aims to significantly increase the number of jobs located close to where people live. This presents several opportunities for suburban communities.

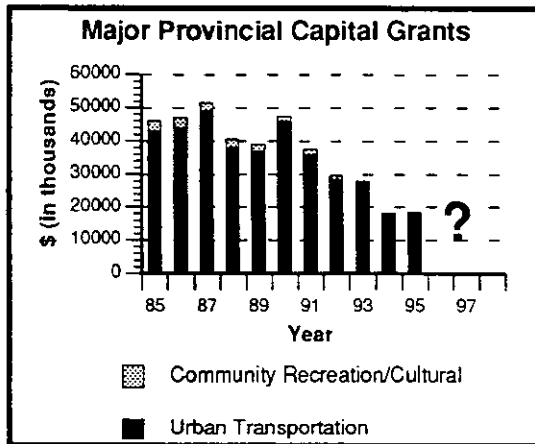
- a) The Calgary Transportation Plan is proposing to encourage jobs in selected mixed-use, higher density centres along major transportation corridors.
- b) The traditional separation of work and home was based on the negative impacts employment centres (often manufacturing) could have on residential areas. But today's service jobs do not usually carry these health and aesthetic concerns. They could be mixed with residential uses to enable people to work close to home and to expand the range of services available to residents.
- c) Over the next 30 years more part-time work, telecommuting, work-at-home, and flextime options are expected to reduce rush hour work trips by about 10 percent and increase the demand for office support services within communities.

These trends suggest that communities can become more self-sufficient 'urban villages,' where more of the activities and services people want can occur in closer proximity to their homes. Further, it suggests that workers in a broad range of jobs located in or near suburban areas may be looking for suitable housing close by.

## 2.4 Demands and Funding for Municipal Services are Changing

All of us are facing the challenge to do more with less. For the City, that translates into providing more services with less revenue.

Taxpayers are reluctant to accept tax increases. There is some indication they will support more 'user pay' options to fund services, but generally they are demanding that services be provided without increasing costs.



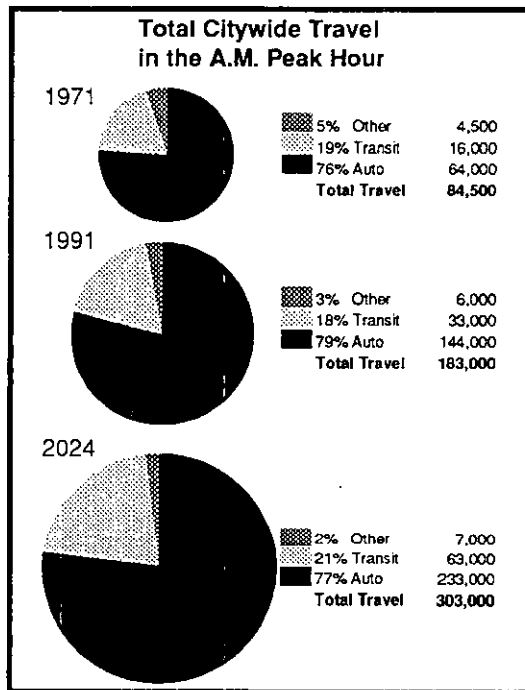
- a) Provincial grants to municipalities are decreasing. Annual Provincial capital grants have dropped from close to \$50 million in 1985 to just over \$18 million in 1994. Transportation grants are the largest share of this and have dropped from \$75 to \$25 per capita since 1991. There is no guarantee that even this level of funding will be available in the future.
- b) Senior levels of government are shifting responsibilities downward. Municipalities and the community at large are expected to take on the funding and direct delivery of a broader range of services, especially social and community support services.
- c) Poverty is still with us. Despite continued growth in jobs and economic prosperity, many Calgarians cannot afford to meet basic needs. It has been estimated that 137,000 Calgarians, 18 percent of the population, are currently living below the poverty line. Included in this group are 38,000 children - nearly 1 out of every 5 children.

The City is faced with difficult choices in meeting the basic social needs of its residents, providing the hard infrastructure that allows development to occur and maintaining an aging infrastructure. This points to the need to build new communities in a more cost efficient manner.

## 2.5 Providing Mobility is a Major Challenge

While funding is becoming more constrained there are going to be more people moving around the city.

- a) Providing transportation is the single most expensive element in developing new communities. City-supplied transportation services, including streets, traffic operations, street lighting and transit, are expected to represent 60 percent of the costs of growth over the next ten years. This includes new growth in addition to upgrading facilities resulting from downstream transportation impacts.



- b) People own more cars and drive more. Between 1971 and 1991 Calgary's population grew by 78 percent. In the same period, private vehicle ownership and vehicle trips during the morning rush hour more than doubled.
- c) GoPlan research indicates that, although the private vehicle will still be the dominant transportation form, one way to avoid some expensive and controversial new transportation infrastructure is to accommodate new growth in a way that is less dependent on private vehicle travel.

**The challenge is to make suburbs work as well for less costly forms of transportation - walking, transit and bicycles - as they now do for vehicles.**

## 2.6 Environmental Problems Persist

Growth and development come with environmental costs.

- a) Over 80 percent of the air pollution in Calgary is caused by motor vehicles. Improvements in tailpipe technology have helped but do not reduce CO<sub>2</sub> emissions (the major greenhouse gas), and are offset by the increase in vehicles on the road. Over the next 30 years, the number of vehicles on the road is expected to more than double from 450,000 to 920,000.
- b) Land consumption for suburban development is largely a function of density. A change from current average densities of 12.4 units per gross ha (5.0 units per gross ac) to 17.3 units per gross ha (7.0 units per gross ac) in new suburban areas could house the same number of people on about 40 percent less land. Changes in housing forms and street standards can help in achieving this magnitude of change in density.
- c) GoPlan surveys have confirmed that Calgarians are committed to protecting river valleys, important natural areas and existing communities. Many people insist that development, especially transportation facilities, be designed to minimize impacts to these areas. Ironically, Calgarians like to live immediately adjacent to those natural areas of highest environmental sensitivity (river valleys, ravines, escarpments, etc.). This places significant development pressure on the areas most in need of protection.
- d) There is a concern that the way we design and build communities encourages excessive resource consumption, waste and environmental damage.

Short and long-term environmental costs have not been given the attention they deserve as communities have been planned. Yet, governments can eventually be faced with the expensive repair of environmental damage.

These issues will not be resolved just by developing the suburbs differently; they are common throughout the city. However, it is easier to design a more sustainable community from the beginning than to retrofit an existing one. New suburban communities offer this opportunity.

### 3.0 ISSUES

An introduction to the issues dealt with in this study can be found in the GoPlan discussion paper titled Calgary's Future Suburban Growth: Moving Towards Sustainable Development (1994), which should be read in conjunction with this report.<sup>1</sup> The following is a brief summary of the major issues. How Can We...

#### Keep Down the City's Costs of Accommodating Growth?

'Business as usual' means that over the next ten years the City must spend at least one billion dollars or roughly a hundred million dollars a year, on bridges, road widenings, interchanges, water and sewer treatment facilities, parks and recreational facilities, etc., needed to support the growth and accommodate the traffic originating from new suburbs. This is happening at a time when Provincial funding is falling and an increasing share of revenues will have to be spent on maintaining existing infrastructure and on other priorities. 'Business as usual' likely means higher taxes.

#### Keep Down Housing Costs?

Developers spend hundreds of millions of dollars on roads and utilities servicing the new communities and these costs are reflected in the price of the serviced lot purchased by the home buyer. How much the developer must spend depends, in part, on what has to be done to satisfy City regulations. These regulations are intended to ensure that what gets built is safe, will not be overly expensive to maintain and fulfils its purpose. Developers argue that City regulations must become more flexible if costs are to be reduced and innovative designs encouraged.

#### Use Land More Efficiently?

Land is used relatively efficiently in Calgary compared to many North American cities but road design standards geared to peak hour traffic, low residential densities, interchanges, large parking areas and private golf courses and lakes, all take up a lot of space.

A sprawling city form means that greater lengths of roads, pipes, wires, etc., must be built and maintained. It also results in higher per capita operating costs incurred for distance-sensitive services such as transit, police, fire, ambulance, garbage collection, snow removal, etc.

#### Design Communities More in Tune with Modern Lifestyles?

Many communities are still being designed for a postwar lifestyle that went out in the '60s. It was an era when the husband was the sole breadwinner and wives had time during the day to drive around the city doing all the errands and be there for the kids when they came home from school. Today, both parents usually have to work and many children come home to an empty house. When there is insufficient recreational choice within a community and mobility options are limited, children will await the return of work-weary parents to drive them elsewhere in the city to where those needs can be satisfied.

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<sup>1</sup> This report is available from the Planning & Building Department Information Centre, 4th Floor, Municipal Building.

Moreover, as pointed out in Section 2.2 b), household types are changing and many communities have largely ignored the needs of non-traditional households, the fastest growing household type in the '90s.

#### Provide More Housing Choice?

As shown in Section 2.0, households and lifestyles have changed considerably over the past twenty years and will continue to do so, driven by demographics and changes in the work place and the work force. Without a wide choice of housing, many people will be excluded from the suburbs and others obliged to move elsewhere in the city when their needs change.

Providing more housing choice helps make communities successful. People are able to find in one community the type of housing they need at different stages in their lives, so they are encouraged to stay and put down roots. They are then more likely to develop neighbourliness and a degree of pride, for and a commitment to, a place they can identify with. The concept of community is at the core of sustainable suburban design.

#### Ensure an Adequate Supply of Affordable Housing?

Although Calgary's housing is certainly more affordable than that of Toronto or Vancouver, nevertheless a median cost of \$170,000 (1994) for a new single family suburban home is well beyond the reach of half of all Calgary households - the median income being \$43,000 (1991). In most communities, the need for a car (\$7,000 per annum) compounds the affordability problem.

Adequate housing is a basic human requirement for self-esteem, yet Calgary has a disturbing number of people living in poverty for whom affordable housing is beyond reach (see Section 2.0). If their needs are ignored, an increase in social problems can be expected, which will carry a high long-term cost.

#### Encourage People to Commute by Transit?

There are many reasons why people commute to work by car rather than transit including status, speed, a few minutes of solitude, comfort, perception of greater safety or because transit does not go where they want to get to (e.g., crosstown, industrial areas). But for many, it is because they need to stop somewhere en route, such as at a supermarket, school, daycare, drycleaners, post office, video store, etc. These services are often not provided within their community and seldom conveniently located for transit-users. Others view the long walk and wait for transit at windy bus stops as a miserable prospect, especially in winter.

Changes to the way the suburbs are built can help address these needs and thereby encourage people to use transit for commuting - a key policy of the Calgary Transportation Plan.



### Encourage People to Walk and Cycle Instead of Drive Within the Community?

People are unlikely to walk or cycle, except for exercise, if there are no nearby destinations, if routes are circuitous, discontinuous or unattractive, or if there are safety concerns. Providing activities, services and other destinations on convenient pedestrian and cycling routes will encourage these modes of transport.

### Protect Natural Systems of High Public Value?

Surveys have repeatedly shown that Calgarians place a high value on the city's parks and natural areas. It is important to find ways of incorporating such spaces into public systems, protecting them from development and ensuring broad public access.

### Encourage Home Builders and Home Buyers to Reduce Waste and Pollution?

Waste begins with the construction process. As much as 1016 kg (1 ton) of lumber per house is currently wasted with little being recycled. Canadians produce about 2 kg (4.4 lb) of solid waste per person per day and use more water and energy than most other countries. While the treatment of polluted stormwater may meet current environmental standards, as the city population increases, more needs to be done to protect the health of residents in downstream communities.

### Improve the Planning Process?

The present process for planning suburban communities is apt to be slow, expensive and confrontational. Landowners submit plans for the City to react to. There is little common vision or sense of partnership and public input is very limited.

Also, the policies and guidelines in most area structure plans are not sufficiently developed to ensure a sustainable community. As a result, key decisions are often left to be made in incremental steps later in the planning process where short-term marketing concerns can seriously undermine the original concept.

It is unreasonable to assume that the implementation of this study will resolve all of these issues, nor will it likely produce suburbs that will satisfy everyone's vision of what sustainable communities should look like and how they should function. But Calgary will have taken a major step in the direction of more sustainable community planning, which it can build upon through experience.



## **PART II: POLICIES AND PROCESS FOR DESIGNING MORE SUSTAINABLE COMMUNITIES**

### **4.0 POLICIES AND DESIGN GUIDELINES**

The development industry, the City and the school boards have, between them, provided Calgarians with excellent housing, roads, schools, parks and services. But we are not presently building sustainable communities. Most of the elements are there, but they are not always in the right proportions, nor are they spatially organized in the most effective way to meet people's needs and encourage lifestyles with significantly reduced environmental impact. Some of the major differences between a sustainable community and other communities are summarized below.

#### **SOME CHARACTERISTICS OF A MORE SUSTAINABLE COMMUNITY**

	<b>A LESS SUSTAINABLE COMMUNITY</b>	<b>A MORE SUSTAINABLE COMMUNITY</b>
<b>FISCAL</b>	<ul style="list-style-type: none"> <li>• High development costs</li> <li>• High City infrastructure costs</li> <li>• High City maintenance costs</li> <li>• High City operating costs</li> </ul>	<ul style="list-style-type: none"> <li>• Lower costs through: <ul style="list-style-type: none"> <li>- more compact urban form</li> <li>- better utilization of services</li> <li>- less infrastructure</li> </ul> </li> </ul>
<b>SOCIAL</b>	<ul style="list-style-type: none"> <li>• Little sense of community, belonging or neighbourliness</li> <li>• Housing choice excludes certain household types and lifestyles</li> <li>• Design of public areas discourages walking and socializing</li> <li>• Few goods and services provided within community</li> <li>• Rigid separation of uses</li> <li>• Private vehicle essential</li> </ul>	<ul style="list-style-type: none"> <li>• Strong sense of belonging to a community; vibrant community life</li> <li>• Wide housing choice catering to many household types and lifestyles</li> <li>• Attractive public areas encourage walking and socializing</li> <li>• Most routine shopping needs met within community</li> <li>• Some mix of uses including employment</li> <li>• Need for private vehicle much reduced</li> </ul>
<b>ENVIRONMENTAL</b>	<ul style="list-style-type: none"> <li>• Inefficient use of land</li> <li>• High level of air pollution through auto dependency</li> <li>• Community design promotes lifestyles where excessive water, energy and resource consumption are largely unavoidable</li> <li>• No protection of environmentally sensitive areas.</li> </ul>	<ul style="list-style-type: none"> <li>• More efficient use of land</li> <li>• Much reduced air pollution through reduced vehicle trips</li> <li>• Community design promotes lifestyles where consumption and waste can be reduced and conservation encouraged</li> <li>• Significant environmentally sensitive areas identified and protected and integrated into the regional open space system.</li> </ul>

#### 4.1 General Strategy

Although the following sections set out a number of new policies, the intention is not merely to replace one set of regulations with another. Rather, the City's strategy is two-fold:

- a) **to be much clearer than in the past as to the City's objectives for new communities, and**
- b) **to work more closely with developers, landowners and others involved in planning new communities, offering flexibility and incentives where possible, to meet those objectives in a manner that is satisfactory to all parties and achieves a more sustainable community.**

The study seeks to encourage developers, City staff and others to find new ways of designing more sustainable communities. **There is no intent to impose any single design approach.** However, the policies and organizing principles for designing new communities, have considerable following in North American cities since they appear to meet many of the major objectives of a more sustainable community. Many of the design elements can be seen to function well in different areas of Calgary, though not necessarily all in one community.

The recommended approach is to move away from largely single-purpose low-density residential areas and to design communities more along the lines of an urban village. An adequate choice of shops and services should be provided locally, thereby reducing the dependency of residents on regional shopping centres for most daily needs while encouraging local business and employment. **The design focus is on improving the public realm, making communities more attractive and liveable for people of all ages and lifestyles, while significantly reducing the need to drive.**

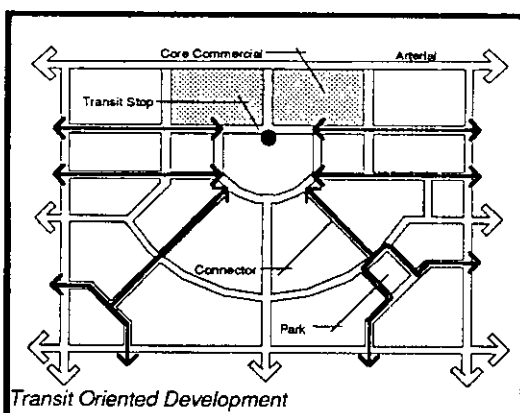
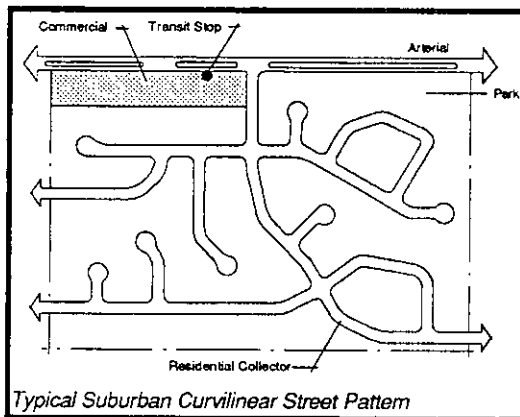
The following summarizes the major elements that should be provided in a complete community of a minimum of 2.6 sq km (1 sq mi) in size and supporting  $\pm 12,000$  residents. These elements, and the organizing principles that follow, work best as a package. Not achieving certain key elements may compromise how well the community functions. At the same time, it is recognized that plans need to be done for areas of less than 2.6 sq km (1 sq mi). In such cases, unless developed at higher densities than 17.3 units per gross ha (7 units per gross ac), it may not be possible to provide all of these elements. The major elements are:

- a) A focal point and recognizable boundaries and entrances that give the community a distinct identity.
- b) A public activity centre offering a variety of goods and services sufficient to meet people's daily needs.
- c) A mixture of residential, public and commercial uses at or near the activity centre.
- d) Parks, schools and shops within a reasonable walking distance of homes.
- e) Safe, pedestrian and cyclist-friendly streets providing direct connections from homes to community and transit facilities.
- f) A wide choice of housing types and costs to meet a variety of household types and lifestyles.

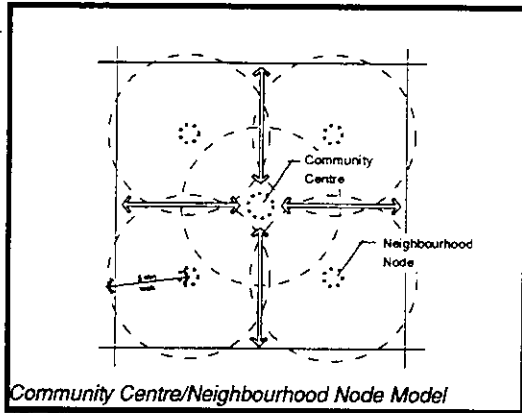
- g) A range of local employment opportunities.
- h) An efficient and effective public transit system that provides a viable option to the car, especially for the journey to work.
- i) Protected natural areas and a variety of linked open spaces offering a choice of activities, connected where possible to the regional open space system.
- j) Connections to the regional pathway system providing a safe transportation and recreation option for pedestrians and cyclists.

## 4.2 Organizing Principles

Developers and planners will likely find many ways of organizing the above elements to produce a successful community. The sketches below illustrate a typical curvilinear street pattern and a more sustainable transit-oriented design. Regardless of the design chosen, it is recommended that all new communities:



- a) have distinct boundaries usually defined by arterial roads or major natural features;
- b) have a population sufficient to support a public activity centre with a significant retail area (see 4.1b);
- c) protect the viability of the community retail area by locating it far enough away from higher-order shopping centres. A minimum of 3.2 km (2 mi) is preferable (see 4.3);
- d) comprise a number of neighbourhoods, each defined by a 5 minute walk from a neighbourhood node or small activity centre;
- e) allow major topographical features and the protection of natural areas and systems to be primary determinants of design;
- f) make the public transit system an important determinant of the design (see 4.6);
- g) ensure that there is a transit connection between neighbourhood nodes and the community centre, and to the downtown and regional centres, with a minimum of transfers;



- h) strategically place the community centre so that it is within walking distance of a high proportion of residents, but is also connected to a major transit route, giving access to the downtown and other parts of the city (see 4.3); and
- i) organize the street layout to provide direct connections and alternative routes to the community centre, neighbourhood nodes and other major focal points (see 4.6).

In the next sections 4.3 to 4.7, each of the major components of a more sustainable community - a mixed-use activity centre, open space, housing, transportation and environmental issues - is dealt with under the following headings:

Policy

A general statement of what is required.

Public Benefit Intended

The public purpose behind the policy.

Acceptable Performance

This is a checklist of performance standards that are essential to ensure that the policy is acted upon.

Design Guidelines

These are suggested ideas for use by developers, consultants, builders, City staff and decision-makers involved in planning, developing and building communities.

Discussion

Comments to help in understanding the rationale for what is being proposed.

### 4.3 Community Centres and Neighbourhood Nodes: Meeting People's Needs Locally

Designing a more sustainable community begins with defining a core. Think of how any small town developed. The essence of community revolved around a public main street or core, centrally located, where people could gather to buy things, get their mail, worship, recreate, relax, meet and chat. Most of our suburban areas do not have cores and do not function this way, but the sustainable suburb of tomorrow should.

The terms **community centre** and, to a lesser extent, the **neighbourhood node** are meant to convey this message. The reader should think of these centres as a mix of activities that can satisfy more of the needs of daily living than do today's suburban areas. The larger community centre is intended to serve a community of  $\pm 12,000$  people, and would consist of retail uses and offices, as well as public uses such as open space, a community hall or facility, a clinic, public services, daycare, etc. The community itself would consist of several neighbourhoods, defined by a 5 minute walk to a node with a smaller mix of activities.

#### **Policy C.1**

***Mixed use public activity centres must be located in all communities in the form of a community centre and a number of neighbourhood nodes.***

#### Public Benefit Intended

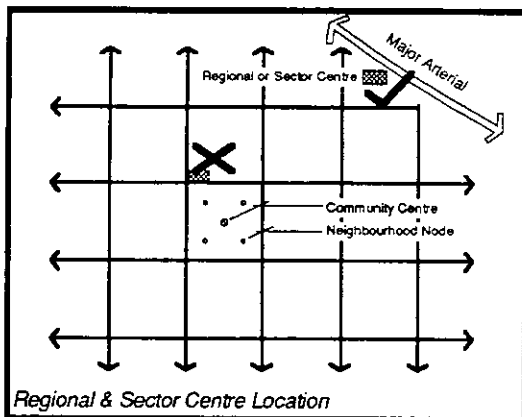
- a) To provide for more of people's daily needs within the community, allow trips to be combined and reduce the need to drive outside the community. This will help reduce vehicle emissions, downstream traffic congestion, and reduce or delay public expenditures for road improvements.
- b) To enable suburban communities to function as more than a housing base. Communities should be places to live, work, shop and enjoy a range of leisure activities.
- c) To create a dynamic and vibrant core to the community that provides a sense of place or community identity.

#### Acceptable Performance

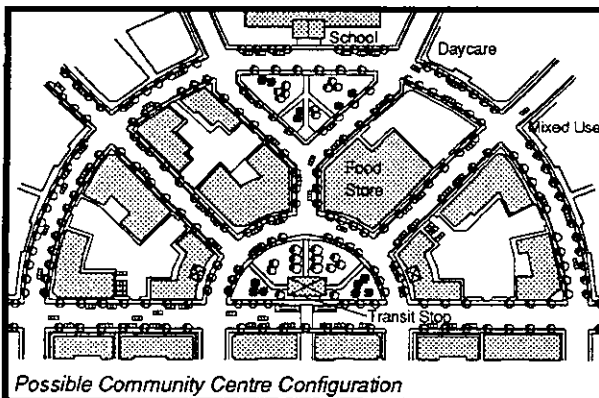
- a) Determine the locations of the community centre and neighbourhood nodes in the early stages of the planning process.
- b) Provide a significant mix of public and commercial activities in the community centre to satisfy many of the daily and weekly needs of residents. These include activities and uses such as shopping, public facilities and open space. The community centre should also serve as the main transit 'hub' of the community.
- c) At neighbourhood nodes, provide a smaller mix of activities, uses and a transit stop.
- d) As part of each Growth Area Management Plan, determine the locations of sector and regional shopping facilities so as to not undermine the viability of community retail.

## Design Guidelines

The following guidelines are suggestions to be considered when planning new communities.



- a) As a general rule, plan for up to 1 sq m ( $\pm 10$  sq ft) of commercial development per resident in a community.
- b) In order to ensure local shopping viability, it is recommended that new sector and regional centres be planned a minimum of 3.2 km ( $\pm 2$  mi) driving distance from any community centre.



- c) Community centres will function as the key shopping and public use attractions in the community. The size of the retail component will vary depending on the uses attracted to the site, but 5,500 to 7,400 sq m (60,000 to 80,000 sq ft) of commercial space on a 1.2 to 2.4 ha (3 to 6 ac) site is recommended.<sup>2</sup>
- d) Providing for offices and public uses such as open space, a community facility, schools, etc., will require additional acreage at the community centre.

## Discussion

The intent of this policy is to infuse a sense of place in the suburbs through the provision of a mixed use public activity centre that residents can conveniently walk to in order to help meet the daily needs of life without driving outside the area.

In a typical scenario, a resident may choose to walk to the centre in the morning, drop off children at the daycare or school, and take the bus to work. On the return journey, this resident could end their bus trip again at the centre where a food store could provide for needed daily items, before picking up children and walking home. In the evening, the centre remains a hub of activity for organized sports, leisure activities and retail uses. In today's suburbs, few of these

<sup>2</sup> For a discussion of commercial square footage targets, site sizes and parking requirements, refer to the analysis at the end of this section.



choices could be made and certainly the combination of these trips without the use of a car is unlikely.

Retail is a major element of the community centre and, to a lesser extent, the neighbourhood node. It would not locate or survive at internal community centres if ad hoc higher order shopping (a regional or sector centre, e.g., Deer Valley Shopping Centre, or a warehouse food store) was allowed to locate at the confluence of many communities. Residents would simply drive the short distance to the larger shopping venue. It is recommended no new higher order shopping centres be located within 3.2 km (2 mi) of a community centre if the local retail is to survive.

### ***Policy C.2***

***The community centre and neighbourhood nodes must be located strategically and should be as central as possible, while recognizing topographical constraints.***

#### Public Benefit Intended

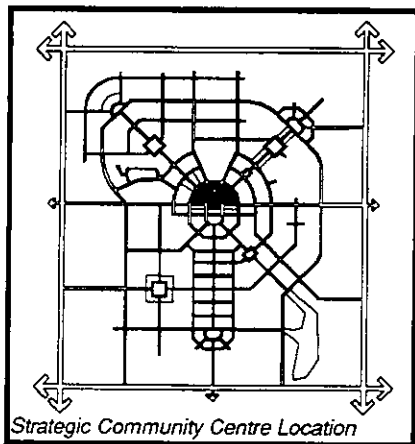
- a) To allow all residents convenient access to major community facilities.
- b) To foster a community and neighbourhood focus.
- c) To shorten all trips within the community.

#### Acceptable Performance

- a) Locate the community centre within a comfortable 5 minute (400 m) walk for as many people as possible; car, bus and bicycle travel is likely beyond that.
- b) Locate the neighbourhood node within a 5 minute direct walk from the furthest house in the neighbourhood it serves.

## Design Guidelines

The following guidelines are suggestions to be considered when planning new communities.



- a) Local streets leading to the community centre and neighbourhood nodes should be as pedestrian-friendly as possible.
- b) There should be a number of direct linkages that allow residents a choice of routes to community centres, as opposed to a hierarchy of streets that funnel vehicle traffic onto a collector loop.

## Discussion

The location of the community centre and neighbourhood nodes is key to encouraging resident access which ultimately determines whether the site will be well used or not. Typically, in auto-oriented suburbs, a small retail site locates on a collector or at a busy corner near a main community access point in order to catch the traffic coming and going. Such sites are not convenient to walk to for most residents, given the circuitous street network and their edge locations. In order to be seen as community focal points, community centres should be as central as possible and serve as the hub of a converging street network.

## **Policy C.3**

***A mix of both public and private activities must be located in and around the community centre and neighbourhood nodes.***

## Public Benefit Intended

- a) To reduce the need to drive outside the community for daily needs.
- b) To provide a greater variety of activities in close proximity, in order to combine trips.
- c) To provide local employment.
- d) To achieve activity at all times, providing security and safety.

## Acceptable Performance

- a) Incorporate a food store site into the community centre to allow a 2,800 sq. m ( $\pm 30,000$  sq ft) development.
- b) Integrate transit stops with the community centre and neighbourhood nodes.

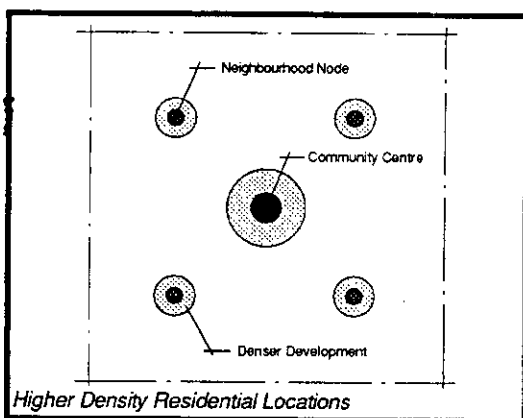
- c) Provide a range of supportive retail, commercial and public uses to satisfy many of the daily needs of the resident population.

### Design Guidelines

The following guidelines are suggestions to be considered when planning new communities.



- a) The key to community centre viability is a range and mix of uses to attract residents to the site for a variety of purposes. Typically, a site may contain public spaces, schools, daycare, a transit stop, community facilities, public services, a clinic, post office, office uses, a variety of retail, etc. In planning the site, consideration should be given as to how the mix of uses might vary if, after the community is substantially built-out, there proves to be insufficient demand for all the recommended retail.
- b) Opportunities for housing should be explored. For example, seniors' housing or mixed use residential could be located over retail uses.
- c) Permitted Uses, Certainty of Use, and a Direct Control designation for specific uses should be considered as ways to encourage the mix of activities.
- d) Higher density housing should be located around the community centre and neighbourhood nodes in order to maximize the number of residents within the shortest walking distance. Higher density around transit facilities is also desirable.



## Discussion

A vibrant and viable centre will only be achieved with a diverse mix of land uses, including retail, to draw a variety of residents for different purposes, as well as to combine trips for various needs. It is felt that a supermarket is a critical use around which other retail uses would locate. It should be of sufficient size to attract residents for their daily needs and weekly shopping. Without a supermarket, residents will drive outside of the community to higher-order shopping centres and will satisfy other retail needs during the same trip. A food store, therefore, is key to reducing the need to drive and the length of trip, and to provide the anchor to other activities in the community centre.

In addition to the commercial component, other public uses such as open space, schools, public services, a transit stop, and a community facility should locate at the centre to provide a critical commercial and civic mix that becomes the area's focus. The mix of uses helps soften the results of downturns in the economy when various commercial enterprises may come and go, allowing the centre to successfully adapt while continuing to function.

## **Policy C.4**

***Community centre and neighbourhood node site designs must encourage pedestrian and bicycle access and transit use.***

### Public Benefit Intended

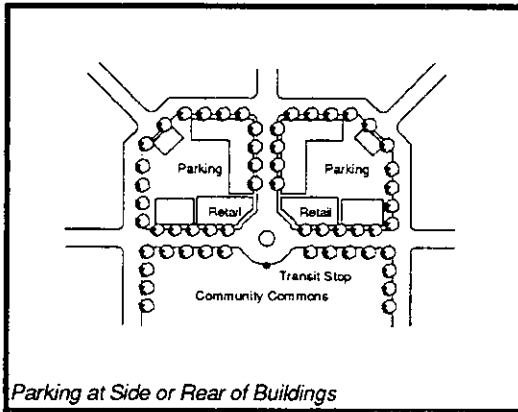
- a) To encourage the use and enjoyment of community centre activities by pedestrians, transit-users and cyclists.

### Acceptable Performance

- a) Reduce parking requirements for community centre commercial from 5.5 stalls per 93 sq. m (1,000 sq ft) of gross leasable area (GLA) to a range of 4 to 4.5 stalls.
- b) Locate at least one retail access point, combined with shelter and complementary uses, so as to front onto the street adjacent to a transit stop.
- c) In a shopping centre or main street configuration, locate parking primarily to the side and rear of the site.
- d) In the community centre and neighbourhood nodes, front a substantial proportion of commercial onto the street, with minimal setbacks.

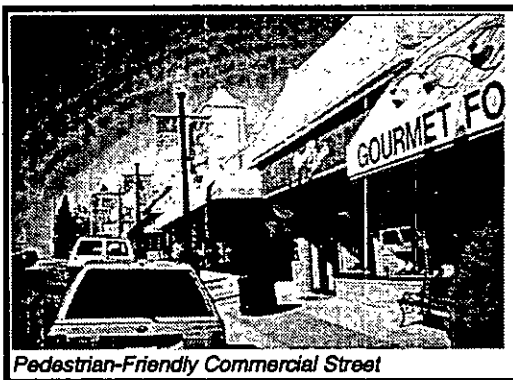
## Design Guidelines

The following guidelines are suggestions to be considered when designing new communities.



- a) Supermarkets in community centres should have side or rear parking whenever possible, in order to maintain the continuity of the pedestrian street environment.
- b) Shared and/or on-street parking should be considered where there is a mix of uses with a staggered peak period of demand. Commercial on-street parking should not be allowed on streets with residential frontages.

- c) Site design should be such that pedestrians do not have to cross a parking lot to get from a sidewalk or transit stop to shops and services.



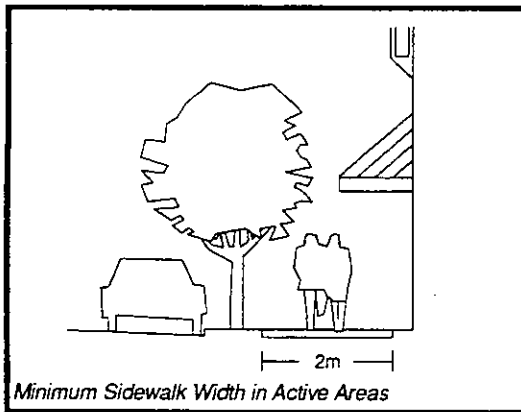
- d) In a 'main street' configuration, building frontage should be continuous and pedestrian-unfriendly gaps, such as wide parking lots, avoided.
- e) Community centre and neighbourhood nodes should be at the hub of local roads.



f) Storefronts should be narrow, incorporating window frontage, awnings for shelter, and recessed doorways.

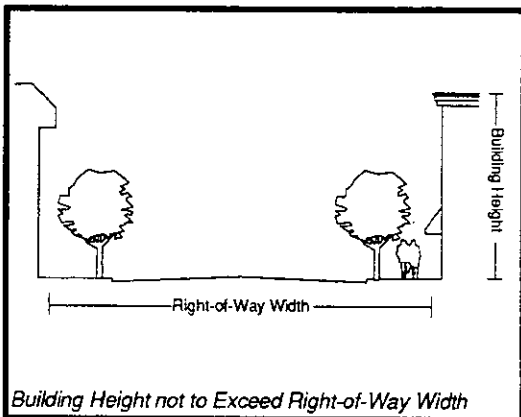
g) Exterior landscaping should be provided for pedestrian shelter and visual relief.

h) Bicycle parking should be provided on-site.



i) At the community centre, sidewalk widths should be as follows:

- a minimum of 2 m (6.6 ft) where street parking is parallel; and
- a minimum of 2.5 m (8.2 ft) where parking is angled at 90°.



j) Street frontage building height should be no more than the right-of-way width on which it fronts.

## Discussion

Pedestrian-friendliness, bicycle use and convenient transit access are important for the community centre and neighbourhood nodes to function as destinations, rather than as a quick stop in the car. Reduced and relocated parking, reduced setbacks, and careful design should be used to soften the commercial/residential interface.

A central location for the community centre means more convenient access for more people. This, as well as pedestrian-friendly site development and a converging road network, allows a reduction in parking requirements since more people will walk or cycle to the centre and take transit once there.

A large auto-oriented shopping centre with the City's current parking standards does not belong at the centre of a suburban community. But a site designed to encourage and accommodate modes of travel other than the car will allow choice for residents and achieve the important Calgary Transportation Plan (May 1995) objective of reducing the need to drive.

## ***Policy C.5***

***Compatible home occupations should be encouraged.***

### Public Benefit Intended

- a) To increase the jobs/population ratio in the community, thereby reducing work trips outside the community, traffic congestion and vehicle emissions.
- b) To support local businesses catering to people working out of their homes.
- c) To foster a safer community through a daytime resident/worker presence.

### Acceptable Performance

No specific performance requirements.

### Design Guidelines

No specific guidelines.

## Discussion

Encouraging home occupations recognizes this significant trend in our society, and helps reduce vehicle work trips outside the community, particularly during rush hour. Benefits include reduced peak hour vehicle emissions and reduced downstream traffic congestion. Home-based work also benefits the community by increasing the all-day resident and worker presence, resulting in a safer environment, and providing an all-day market for local commercial areas.

The Calgary Land Use By-law distinguishes between Class 1 and 2 Home Occupations. Class 1 activities are those of minimal impact, with three or less business associated visits per week. Class 2 refers to activities of more moderate impact, with three or more visits per week, and can include personal service businesses. Class 1 Home Occupations are Permitted Uses in all

residential areas; Class 2 are Discretionary.

Section 6.1 calls for follow-up work related to home occupations, with the intent of introducing policies that would better facilitate this form of employment. Initial ideas include instituting a same-day turnaround by the City for Class 1 Permits, encouraging the design of dwellings with specific areas for home occupations, neighbourhood business mail drops, and communal parking areas.

### **Policy C.6**

***Community centre and neighbourhood node sites may be developed with interim uses, provided that the eventual development of the preferred mix of uses is not precluded.***

#### Public Benefit Intended

- a) To avoid large vacant parcels during the phasing of development. Typically, commercial and retail development is not built until there is a sufficient population base to support it.

#### Acceptable Performance

- a) Demonstrate that any interim use would not preclude the intended long-term commercial and related uses.
- b) Integrate a transit stop with any interim use.
- c) In any proposal, include a concept plan describing any interim uses and their life expectancy.

#### Design Guidelines

The following guidelines are suggestions to be considered when planning new communities.

- a) Interim uses could include temporary buildings, temporary uses in permanent buildings, or some permanent uses in temporary facilities.
- b) Other uses might be a tree nursery, community gardens, farmers' market, a central community mailbox, etc.
- c) The City should use its resources to encourage interim uses. For example, it could facilitate the provision of a temporary building that could function as a transit shelter, mail pick-up, coffee shop, newsagent, etc.



## Discussion

The community centre and neighbourhood nodes are key spatial components of the community, yet will probably be the last to fully develop. Large vacant tracts of strategically located central land could hinder the saleability of the community. Interim uses can help aesthetically as well as functionally while awaiting long-term development.

As residential development is phased in, a 'corner store' could be constructed as a first step in community centre retail. This would set the retail focus, to be added to later, and incorporate the transit stop, and open space as an initial mix of uses.

The City should work with the developer from the initial planning stages to explore options for interim uses and be prepared to use its own resources to get a viable interim use established.

### **Suggested Commercial Square Footages, Site Sizes, and Parking Requirements: A Discussion (see Policies C.1, C.3, C.4)**

As a general rule, up to 1 sq m ( $\pm 10$  sq ft) of commercial floor space can be supported per resident in a community. Total commercial space could be as high as 7,400 sq m (80,000 sq ft), with at least 5,500 sq m ( $\pm 60,000$  sq ft) at the community centre and smaller concentrations in three or four neighbourhood nodes. 5,500 sq m ( $\pm 60,000$  sq ft) is the desired minimum at the community centre, in order to accommodate a workable food store size of 2,800 sq m ( $\pm 30,000$  sq ft), with the balance distributed amongst smaller retailers that may be drawn to the location as a result of the food store anchor.

The following analysis combines various elements to determine site requirements: site size required to accommodate the low-end of the development square footage range, combined with reduced parking standards, versus site size required to accommodate the high-end of the development square footage range, while allowing present parking standards. This way the resulting minimum and maximum site size range is known, while accommodating any middle-ground scenario. The following table looks at retail areas of 60,000 and 80,000 sq ft and shows, for each, the reduction in site size that results from reducing parking standards:

#### **Assume:**

Parking Space	4 Stalls	5.5 Stalls
Square Footage		
60,000	<ul style="list-style-type: none"><li>60,000 sq ft of commercial</li><li>parking @ 4 stalls/1000 GLA<sup>3</sup> and 400 sq ft/stall (including driving aisles) = 96,000 sq ft</li><li>site needed - 3.6 ac resulting in .38 FAR<sup>4</sup></li></ul>	<ul style="list-style-type: none"><li>60,000 sq ft of commercial</li><li>parking @ 5.5 stalls/1000 GLA and 400 sq ft/stall (including driving aisles) = 132,000 sq ft</li><li>site needed - 4.4 ac resulting in .3 FAR</li></ul>
80,000	<ul style="list-style-type: none"><li>80,000 sq ft of commercial</li><li>parking @ 4 stalls/1000 GLA and 400 sq ft/stall (including driving aisles) = 128,000 sq ft</li><li>site needed - 4.8 ac resulting in .38 FAR</li></ul>	<ul style="list-style-type: none"><li>80,000 sq ft of commercial</li><li>parking @ 5.5 stalls/1000 GLA and 400 sq ft/stall (including driving aisles) = 176,000 sq ft</li><li>site needed - 5.9 ac resulting in .3 FAR</li></ul>

**The result suggests a community centre site size range of 1.2 to 2.4 ha (3 to 6 ac) for the commercial component only.** The minimum site size is more critical than the maximum, given the need to provide enough commercial square footage to attract local residents. The 1.2 ha (3 ac) is further validated by the crucial need for a community food store. If the 1.2 ha (3 ac) was developed under present City parking standards and typical FAR, total community centre commercial development of 3,716 sq m ( $\pm 40,000$  sq ft) could be achieved, enough for a community food store of 2,780 sq m ( $\pm 30,000$  sq ft), and six or seven smaller retail stores of 140 sq m (1,500 sq ft) each. Providing for other civic uses such as open space, a community facility, etc., would require additional acreage.

<sup>3</sup> GLA means gross leasable area.

<sup>4</sup> FAR means floor area ratio.

#### 4.4 Schools and Open Space: A Systems Approach

What are parks for? Clearly, they are places for team sports, toddlers to play, and people to walk, fly a kite or enjoy nature. But too often they are fragmented, isolated, and underused. Their traditional role as a 'commons,' or convivial public meeting place, has been largely usurped by the shopping mall.

In a sustainable suburb, the protection of existing natural areas strongly influences community design, and connections to the city-wide regional open space system (and the regional pathway system) are very important. At the regional level, a Growth Area Management Plan will set the broader system context for establishing an open space hierarchy. At the community level, a Community Plan will establish a linked system of local parks, plazas and public buildings, in balance with the needs of the residents, and strategically located to provide the stage for a vibrant community life.

##### **Policy OS.1**

***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.***

##### Public Benefit Intended

- a) To ensure the sustainability of natural systems including significant environmentally sensitive areas.
- b) To incorporate natural areas into the urban form and, where appropriate, protect wildlife corridors.
- c) To provide passive recreational areas and educational opportunities.
- d) To provide visual relief and diversity and protect natural areas and features that give an area its identity (and often increase residential property values).
- e) To support the regional pathway system and reduce the need to drive.
- f) To provide environmental benefits such as shading, soil stabilization, filtering of air pollutants, wind blockage, etc.
- g) To include natural drainage systems as a component of the area's stormwater management system (but ensuring that the natural integrity of these areas is protected).

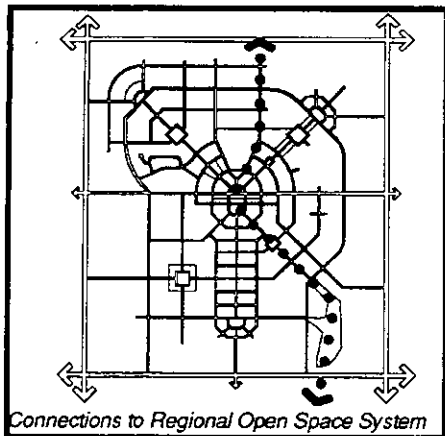
##### Acceptable Performance

- a) Include, as part of Growth Area Management Plans, a general open space plan which identifies natural systems that should be protected, connections to the contiguous regional open space system, the local community open space system, and the regional pathway system.

- b) Assess existing natural systems during the preparation of Growth Area Management Plans. If any areas are environmentally sensitive, Calgary Parks & Recreation criteria will be used to determine which are significant.
- c) Identify, in Growth Area Management Plans, proposed transportation and utility facilities that may impact natural systems.
- d) Include, in Community Plans, a detailed open space plan containing a linked hierarchy of open spaces, which identifies:
  - connections to the regional open space system;
  - significant environmentally sensitive areas and recommends ways for their protection;
  - local pedestrian and cyclist systems and their connections to the regional pathway system; and
  - any use of natural systems for stormwater management (see Policy E.7).

### Design Guidelines

The following guidelines are suggestions to be considered when planning new communities.



- a) Various components of an open space system, utility rights-of-way, linear parks, etc., may be used to ensure that a contiguous regional open space system is maintained.
- b) Components of the regional pathway system should follow off-street linear parks to ensure a safe, viable option for transportation and recreation.
- c) Channelization, utility crossings, etc., within natural areas should be minimized.

### Discussion

There is increasing demand and support among Calgarians for protecting natural areas. Calgary Parks & Recreation is taking a systems management approach in planning and managing the regional open space system in Calgary. This approach should be continued in each community to protect the integrity of the open space system and ensure its long-term sustainability. Further, the regional pathway system must be extended into each new community to ensure that a contiguous system for transportation and recreation is maintained.

## **Policy OS.2**

***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.***

### Public Benefit Intended

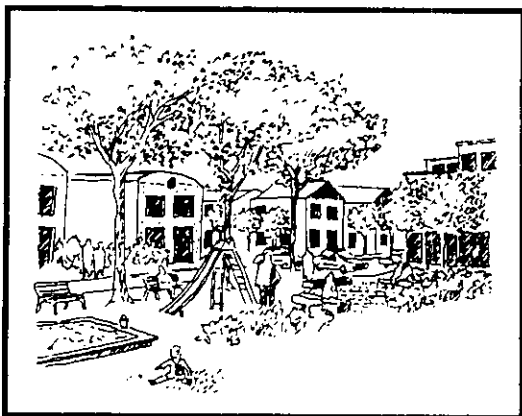
- a) To provide easily accessible open space that contributes to a safe, vibrant and healthy community.
- b) To improve pedestrian and cyclist movement within the community and to the regional pathway system and natural areas.
- c) To reduce construction and maintenance costs by careful design and attention to community needs.
- d) To provide a variety of outdoor recreational activities (team, individual).

### Acceptable Performance

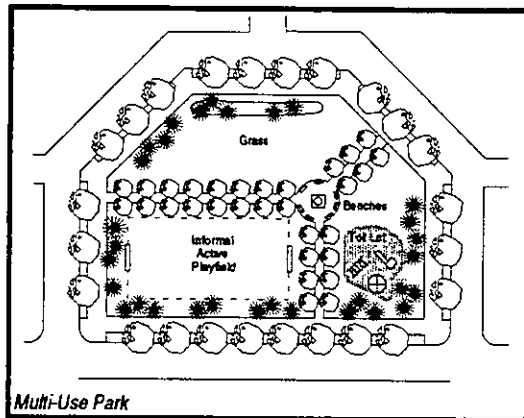
- a) Establish and maintain a linked local system of functional open space for educational and recreational purposes.
- b) Provide an open space system which is accessible and designed for safe use.
- c) Consider pedestrian and cyclist routes as fundamental elements in planning the linked local open space system as well as providing connections to the regional pathway and open space systems.
- d) Connect natural areas to the regional and local open space systems wherever possible.
- e) Provide for a broad range of open space recreational activities.

### Design Guidelines

The following guidelines are suggestions to be considered when planning new communities.



- a) Sub-neighbourhood, neighbourhood and community parks should be distributed so that all community residents have access to some public activity areas.
- b) Park configuration and design should respect and reinforce views and linkages to streets and other public spaces and buildings.



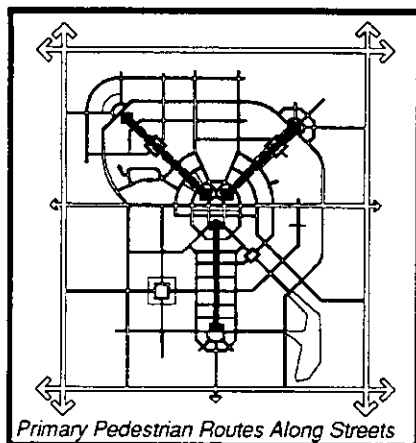
c) Joint use sites should facilitate safe, efficient pedestrian movement to major attractions. Joint use sites may represent the major land use in a neighbourhood node if there is little commercial development, but their design and configuration must not detract from the accessibility and effectiveness of the transit stop or other activities.

d) Parks and joint use sites should be bounded by local streets. These can make public areas safer because they are visible from the surrounding streets and the residences fronting on the streets. Further, it provides for greater on-street parking and reduces traffic problems associated with these facilities.

e) Small single-use parks should be avoided and their function (e.g., play areas) incorporated into larger multi-use parks.

f) Local open space elements should be linked, but not necessarily contiguous. Linkages in the open space system should be provided through the use of:

- street systems (pedestrian and cyclist considerations);
- components of the regional pathway system;
- linear parks; and
- utility rights-of-way.



g) The local pedestrian and cyclist systems within the community should primarily follow the enhanced street system (which has residential frontages). Local streets must be designed to safely accommodate cyclists as well as cars (see Policy T.3).

h) Local open space linkages through parking lots or along the rear of residential developments (which duplicate the street system) should be avoided.

- i) Components of the regional pathway system should follow safe off-street connections through linear parks. If it is necessary to follow the street system, the street design should accommodate regional pathway users.
- j) Parks should be designed to accommodate the anticipated intensity of use through appropriate configuration and use of materials. Where possible, natural vegetation should be retained.

### Discussion

The size, location and configuration of the open space elements is important in providing functional community open space and ensuring that these areas are accessible and support, rather than impede, pedestrian and cyclist movements. In a community, connections to the regional open space system will be provided through contiguous open space which should also accommodate the regional pathway system. Additional connections to the regional pathway system should follow off-street linear parks.

Components of the local open space system should be located and configured so they are functional and accessible. Local pedestrian and cyclist systems should link individual community and neighbourhood parks utilizing the street system, components of the regional pathway system, linear parks and utility rights-of-way. The emphasis should be on utilizing the enhanced system for local pedestrian and cyclist trips instead of pathways through linear open space behind houses, which duplicates the street system.

### **Policy OS.3**

***Local open space must provide a variety of opportunities for people of all ages, interests and abilities.***

#### Public Benefit Intended

- a) To satisfy the various functions of open space (ecological, educational, recreational, health, civic, urban form, amenities, stormwater management, etc.), while being flexible enough to accommodate community growth and changing needs.

#### Acceptable Performance

- a) Work jointly with Calgary Parks & Recreation to ensure various recreation functions are achieved in open space.
- b) Include, in Community Plans, a detailed open space plan identifying:
  - the function of the various components of the open space system (i.e., general park concept plans);
  - any use of the open space system for stormwater management (whether natural or artificial systems); and

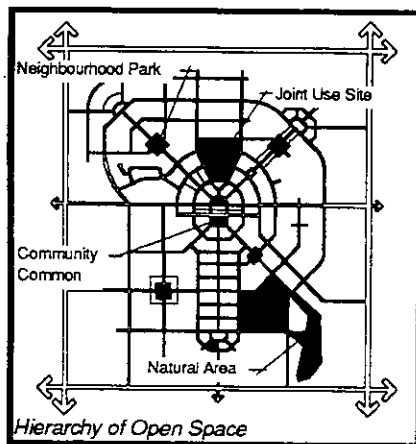
- significant environmentally sensitive areas to be protected.
- c) Consider the long-term needs of the community in planning the local community open space system.
- d) Design parks to promote accessibility.

### Design Guidelines

The following guidelines are suggestions to be considered when planning new communities.



- a) Large, engineered stormwater facilities which limit recreational opportunities should be discouraged. Engineered stormwater facilities should be aesthetically pleasing and integrated into the open space system.
- b) Stormwater ponds should incorporate natural elements such as varied topography and native plant material which can enhance the recreational opportunities of the site and improve water quality.



- c) Consider a broad range of possible activities (e.g., community gardens) in addition to the more common recreational pursuits.

### Discussion

A variety of open spaces is needed in a community to meet diverse recreational needs and provide visual relief and interest. Open space should satisfy a variety of needs and should be planned and designed for a variety of identified functions.



#### **Policy OS.4**

***Joint use sites (elementary and/or junior high school sites 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.***

##### Public Benefit Intended

- a) To enable residents to combine trips (e.g., daycare near school) within one area of the community.
- b) To provide pedestrian access to joint use sites and make walking and transit use easier and more attractive to students.
- c) To achieve fiscal efficiencies through a more compact urban form with a mix of uses in and around the community centre and neighbourhood nodes.
- d) To provide a focus and community identity through a strong civic/public component near the centre of the community and/or neighbourhoods.
- e) To provide a dynamic community centre.

##### Acceptable Performance

- a) Include, as part of Growth Area Management Plans, an open space plan which generally identifies the location of regionally-based senior high schools and recreational facilities.
- b) Provide joint use sites to meet the projected needs of the community.
- c) Include, in Community Plans, a detailed open space plan identifying joint use sites for elementary and/or junior high schools, and their relationship to the community centre or neighbourhood nodes.
- d) Locate, size and configure joint use sites to encourage use and ensure they are not perceived as a barrier to walking.
- e) Consider opportunities for shared use of sites and/or buildings with other public agencies (see Policy OS.7).

##### Design Guidelines

The following guidelines are suggestions to be considered when planning new communities.

- a) Work with the Site Planning Team to assess the community's needs in terms of joint use sites.

- b) Schools should be in a location that maximizes the number of students who can walk to school.
- c) Joint use sites should be bounded by streets to provide adequate road frontage and access to meet the needs of bus and vehicle loading in a safe and efficient manner.
- d) Large joint use sites (that accommodate schools, playfields and community facilities) can undermine efforts to achieve higher residential densities around the community centre. Not all playfields are required for the school curriculum; therefore, separation of non-essential playfields from these joint use sites should be considered. These playfields will be provided elsewhere in the community at locations which will minimize residential/sportsfield conflicts.

### Discussion

Schools provide an important function in communities as centres of education and as meeting places. In addition, the buildings represent major public structures and should provide a sense of identity and pride in the community. The school should be near complementary services in the community centre (e.g., daycare) and on a transit route. The playfields associated with these schools provide opportunities for intensive recreation near the community core which can help make this a community focal point. Fewer schools are being built, but those being constructed are bigger and serve students from much larger catchment areas. As a result, there is increased bussing of students to and from different communities, creating related transportation problems at the school sites. However, it is important that student transportation-related issues not override other school locational considerations, as described above. By locating schools near community centres or neighbourhood nodes on transit routes, and by providing adequate road frontage, some of the transportation problems should be resolved.

It may be necessary to reconsider the current practice of providing large joint use sites (combining major recreational playfields with school sites). The large field expanses needed create barriers to pedestrian and street systems and are land-extensive uses which could be located away from the community centre. The school building envelope may be the major building in a neighbourhood node, especially if minimal commercial development is planned.

## **Policy OS.5**

***The community centre must accommodate a community hall or similar facilities and contain functional public open space.***

### Public Benefit Intended

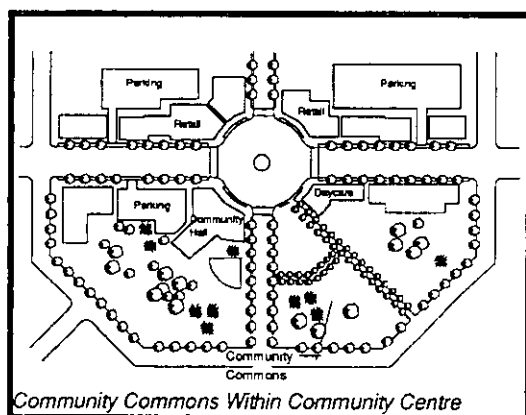
- a) To provide a highly visible, public component at the community centre.
- b) To provide an activity centre at the core of the community which helps establish community identity.
- c) To provide a public place for formal and informal gatherings.
- d) To provide a functional community square or commons for recreation and relaxation in the core of the community.

### Acceptable Performance

- a) Provide functional public open space and a site for a community facility in the community centre.

### Design Guidelines

The following guidelines are suggestions to be considered when planning new communities.



- a) Provide a site for a community facility in the community centre. The type of facility may vary, depending on the needs of residents and their involvement in designing, operating and maintaining the facility. Further, its location may depend on opportunities for shared use of sites and/or buildings (see Policy OS.7).
- b) Where possible, the residents of developing communities should be involved in the planning of the community facility.
- c) Provide a commons or central park in the community centre with opportunities for both active and passive recreation (e.g., skating, tennis, basketball, play area, seating, fountains, gardens, etc.). While this may incorporate a hard-surfaced plaza, the emphasis should be on providing a green, treed area for social interaction, relaxation, recreation and visual relief.
- d) Neighbourhood nodes may contain a smaller public open space component.

- e) Large joint use sites can undermine efforts to achieve higher residential densities around the community centre. Separation of non-essential playfields from these sites, and their relocation elsewhere in the community, should be considered.

### Discussion

It is important for each community to have a building(s) for public meetings and social events. This structure represents the public focal point within the community and must be affordable, functional and attractive. The construction and long-term operating and maintenance costs associated with these facilities are critical. This issue is addressed in Policy OS.6. The community centre should also have some public open space to provide visual relief from the commercial buildings as well as an attractive outdoor area for residents to relax or play.

### **Policy OS.6**

***Opportunities for long-term community financing and involvement in the design, construction, operation and maintenance of community facilities or local open space should be pursued.***

### Public Benefit Intended

- a) To enable all community residents to take responsibility for the public facilities provided for their use and enjoyment.
- b) To enable early construction of community facilities that will establish a strong community focus in the community centre.
- c) To reduce municipal costs for community services.

### Acceptable Performance

- a) Address, in Community Plans, how community facilities, open space features or amenities will be financed and/or managed (this includes construction and long-term operating and maintenance considerations).
- b) Provide for the potential inclusion of **all** homeowners in the community in any body (e.g., a homeowners' association) established to pursue community-based financing and/or management of community facilities or local open space.

## Design Guidelines

The following guidelines are suggestions to be considered when planning new communities.

- a) During preparation of Community Plans, consider how community facilities or special open space features or amenities could be financed. All developers/landowners should work with the City Administration to jointly determine and assess options and possible solutions (e.g., developers could finance the cost of the community building, additional tree planting, etc., by a small additional charge on each lot).
- b) Consider establishing a homeowners' association where residents contribute directly to the cost of managing and maintaining local community facilities or open space features or amenities. No homeowners within the community shall be excluded, but the long-term implications of mandatory or optional membership and participation should be evaluated.
- c) Community facilities may be the first structures in the community centre and could play an important role in creating a community focal point and triggering further development.

## Discussion

Because of reduced Provincial and municipal grants, it is becoming more difficult for communities to raise funds to build, operate and maintain a community hall. As well, some communities would like special features or amenities (e.g., fountains) not provided by the City. It is important that various options for financing these community facilities (throughout their lifespan) be considered early in the planning process, to take advantage of the opportunities available. While residents should be involved in deciding the actual facilities to be provided, many decisions related to financing and homeowner associations must be made before they buy into a community. This issue is addressed further in Section 6.1 under e) Explore Opportunities.

## **Policy OS.7**

***Opportunities for shared use of sites and/or buildings for public facilities (e.g., fire, emergency services, library, police, schools, community facilities, social services, health services, etc.) should be pursued.***

### **Public Benefit Intended**

- a) To produce significant municipal cost-savings for infrastructure and services.
- b) To establish a strong civic/public identity and satisfy competing demands for land for public facilities.

### **Acceptable Performance**

- a) Address, in Growth Area Management Plans, opportunities for shared use of sites and/or buildings for these public facilities. Provide greater detail in Community Plans.

### **Design Guidelines**

The following guidelines are suggestions to be considered when planning new communities.

- a) Work with the Shared Use of Facilities Committee (and the Federation of Calgary Communities for community facilities) to determine options and possible solutions during preparation of Growth Area Management Plans for:
  - shared use of a site to take advantage of parking opportunities, land efficiencies, location, etc.; and,
  - shared use of a building to take advantage of land efficiencies, shared/lower construction and maintenance costs, etc.

### **Discussion**

With reduced Provincial grants and municipal funds, there is a need to look at cost-saving opportunities in providing public facilities in suburban communities. Options for shared use of land or buildings must be done at an early stage in the planning process to determine optimum locations and to assess compatibility, etc. While cost-savings are important, the location and facility design must first serve the needs of the various public agencies involved.

## 4.5 Housing: Providing More Choice

The major distinguishing characteristic of a more sustainable community is a focus on a rich, diverse community life: the interaction of people with their neighbours, friends, local business, schools and services within the community. To encourage this, each community, but not necessarily each neighbourhood, must provide a choice of housing so that people of different household types, income levels and age groups can find the accommodation that suits their present circumstances within the community boundaries. Such communities are not designed to meet the needs only of young families in a certain income bracket and at a certain point in their lives.

In more sustainable communities, people live in houses that are oriented to attractive, pedestrian-friendly streets and architectural styles and finishes along a street are compatible, regardless of building type. Sustainable communities have somewhat higher densities to foster land use efficiency and cost-savings for both the home purchaser and municipality.

### ***Policy H.1***

***All communities must achieve a minimum density of 17.3 units per gross ha (7 units per gross ac).***

#### Public Benefit Intended

- a) To use land more efficiently, produce a more compact urban form and slow down the rate of absorption of agricultural land.
- b) To reduce per capita costs for public infrastructure (e.g., roads, pipes, wires, etc.).
- c) To increase transit ridership and reduce per capita operating costs.
- d) To reduce per capita costs for supplying distance-sensitive public services - fire, police, ambulance, library, social services.
- e) To ensure that there is a sufficient population base within each community to support local commercial facilities and services.
- f) To support the objectives of the Calgary Transportation Plan.

#### Acceptable Performance

- a) Achieve a minimum average density of 17.3 units per gross ha (7 units per gross ac) across the community. Individual neighbourhoods may vary.

Private land that is occupied by recreational facilities such as lakes, buildings or other public uses that have broad appeal and foster community life will be **excluded** from the density calculation, provided that they are made available to **all residents** in that community at no more than a modest fee. Private golf courses or private clubs that take up huge areas of land, have limited public appeal, or are not made available to **all residents** of that community at a modest fee, will be **included** in the density calculation.

- b) Provide a graduated density pattern that is highest near the community centre, neighbourhood nodes and transit stops.

#### Design Guidelines

No specific guidelines.

#### Discussion

Given an occupancy rate of about 3 persons per unit, a density of 17.3 units per gross ha (7 units per gross ac) equates to roughly 22 persons per ac, Council's policy for new communities up until the late '70s. It is the upper end of the density range 12.3 to 17.3 units per ha (5 - 7 units per ac) asked for in most area structure plans over the past 10 years **and is the density on which the policies in the Calgary Transportation Plan are based.**

#### ***Policy H.2***

***All communities must provide a wide choice of housing types in addition to single family. Buildings should be predominantly oriented to the street and be compatible in architectural style and finish.***

#### Public Benefit Intended

- a) To meet the needs of different age groups, family types, income levels and lifestyles and to encourage social diversity.
- b) To minimize community lifecycle swings that lead to fluctuations in the demand for community services and facilities such as schools, open space and public transit.
- c) To provide a better balance of socio-economic groups across the city.

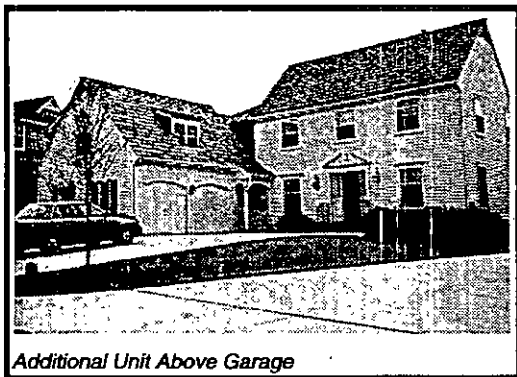
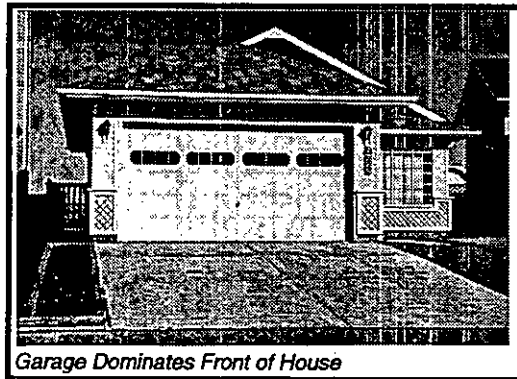
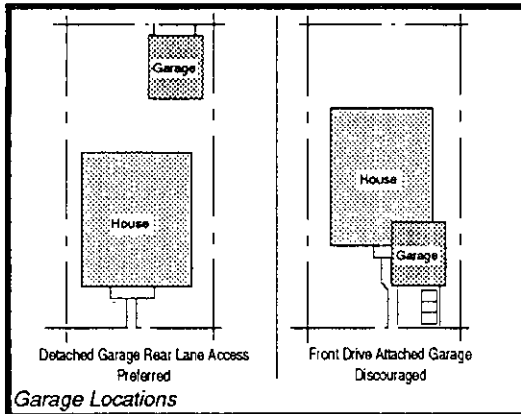
#### Acceptable Performance

- a) Ensure that approximately 20 percent of all dwelling units in a **community** are other than single family (e.g., basement suites, apartments, townhouses, semi-detached units, etc.).
- b) Limit the percentage of multi-family units (e.g., townhouses, apartments, etc.) in a **neighbourhood** to a maximum of approximately 60 percent.
- c) Ensure that architectural styles and finishes of residential buildings on a street are compatible with those nearby and building orientation is predominantly toward the street.



## Design Guidelines

The following guidelines are suggestions to be considered when designing and building new communities.



- a) See Policy H.4 guidelines regarding location of multi-family housing.
- b) The garage and driveway should not be the dominant architectural feature. Front drive garages should not protrude far in front of the house. Garages located at the rear of the lot with lane access are encouraged. This issue is especially important with narrow-lot housing.
- c) Front porches, bays and balconies are semi-private spaces that should be encouraged to provide interaction with pedestrians and 'eyes on the street' security.
- d) Blank walls, fences or rows of garage doors fronting the street, which provide minimal access or visual interest, should be avoided.
- e) Small front yard setbacks are encouraged to bring houses close to the street and to provide human scale and visual interest. This allows a greater portion of the lot to be private backyard (provided lot depth remains the same).
- f) Additional dwelling units in basements, lofts, or over garages (with proper insulation against fumes) should be provided, particularly in locations close to transit stops, the community centre and neighbourhood nodes.
- g) Housing should be constructed and landscaped in accordance with the recommendations of Section 4.7.
- h) Walled residential areas, which segregate parts of communities, should be avoided.

## Discussion

The single family house will continue to be the dominant form of housing but demographic and lifestyle trends indicate an increasing demand for a variety of types of units. These will include townhouses, apartments and small luxury homes (see Section 2.0). Additional units provide accommodation for elderly relatives, adult children living at home or a rental suite to help pay the mortgage on the principal dwelling. All of these are to be encouraged in new communities.

Community plans will address the question of dwelling unit mix and will suggest appropriate guidelines. Achieving a non-single family housing mix of approximately 20 percent is considered reasonable in this regard. The actual mix will vary from community to community, in response to locational and other planning factors.

While neighbourhoods will likely focus on different housing markets and have different housing mixes, it seems undesirable for one neighbourhood to have an overwhelming concentration of multi-family housing. Hence, the recommendation that no single neighbourhood within a community have more than approximately 60 percent multi-family dwelling units.

## ***Policy H.3***

***Policies and guidelines ensuring that an adequate choice of low to medium income housing is provided in suburban communities shall be developed as part of a new comprehensive city-wide package of policies on affordable housing.***

## Public Benefit Intended

- a) To ensure that all new communities include a percentage of housing that is affordable by medium to low income earners.
- b) To ensure that the basic human need of adequate shelter is available to all Calgarians.
- c) To prevent long-term social problems that are very difficult and expensive to remedy and are attributable, in whole or in part, to inadequate housing.

## Acceptable Performance

No specific requirements.

## Design Guidelines

As an interim measure, pending the introduction of the proposed policy on affordable housing, developers are encouraged to target a minimum of approximately 10 percent of all dwelling units (any type, excluding additional dwelling units) in a community at households earning no more than the median Calgary household income.

## Discussion

Communities designed as recommended in this report are very suitable for medium to low income families because they offer an affordable and high quality lifestyle. Smaller homes are located close to jobs, shops, schools, parks and transit, reducing the need for car ownership (a \$7,000 per annum expense). Moreover, these communities are designed to foster community

life, neighbourliness and family support systems which combine to alleviate stress and promote physical and mental health. However, many communities do not provide much, if any, lower cost housing, while architectural controls imposed in some communities (such as controls requiring minimum floor areas and expensive finishes) work against reducing costs.

The median household income for Calgary in 1991 was about \$43,000 per annum, sufficient to obtain a mortgage on a home costing no more than \$110,000. Yet the median cost of a new single family suburban home was about \$170,000. This suggests that we are mainly building homes for upper income households and the move-up market, and missing or ignoring the needs of the average first-time home buyer and those earning below average incomes. With over 500,000 more people in the city within 30 years, and most of that growth expected to go into the suburbs, there is going to be a significant demand for a range of lower cost suburban housing options. Excellent narrow-lot single family housing, intended to provide affordable home ownership, has been provided in certain communities, but in others it is resisted by both developers and residents. This type of housing is one of the choices that should be available in all communities, in all quadrants of the city, rather than being concentrated in a few areas. Encouraging developers to provide approximately one in ten suburban homes to be affordable by half of all Calgary households, addresses affordable home ownership in a modest way. This guideline is proposed as an interim measure only, pending completion of a city-wide study into the larger issue of affordable housing.

The City last articulated a comprehensive housing policy in 1978 in the Calgary General Municipal Plan, prepared during the boom years when economic conditions and government priorities were very different from today. Since then, several studies and task forces have examined the needs of certain groups (such as the homeless and victims of family violence), but no comprehensive city-wide strategy dealing with affordable housing has been completed.

Policy H.3 recommends that such a study be undertaken, involving the development and building industries and City Departments and public agencies concerned with the provision of housing. Policies relating to the provision of affordable housing (not just affordable home ownership) in the suburbs would be one of the products of that study. Policies H.3 and possibly H.2 and H.4 of this study would then be revised. Also see Section 6.1 b).

#### ***Policy H.4***

***Most multi-family housing should be located near community centres, neighbourhood nodes, recreational areas or other public amenities, and be close to transit stops.***

#### **Public Benefit Intended**

- a) To ensure that multi-family housing has locational advantages.
- b) To improve the marketability of multi-family housing.
- c) To support public transit.
- d) To reduce the need for car ownership.
- e) To provide support for retail stores and other community services and facilities located at community centres and neighbourhood nodes.

- f) To help reduce the need for school busing.

#### Acceptable Performance

- a) Locate most multi-family housing within 300 m (1,000 ft) of the community centre, neighbourhood nodes and transit stops.
- b) Determine the location of most multi-family sites during the preparation of the Community Plan.

#### Design Guidelines

The following guidelines are suggestions to be considered when planning and designing new communities.

- a) Multi-family housing should be located on attractive sites, comparable to conventional single family housing, and enjoy similar amenities. It does not have to be on the best sites but it should not be placed in marginal locations or used as a buffer against road noise, industrial development, etc.
- b) Large areas of multi-family housing are best avoided. Sites of 1.2 ha (3 ac) or less, and designs where all units have street frontage, fit better in predominantly single family areas and are preferred.

#### Discussion

Historically, multi-family housing has not always sold well in Calgary suburbs because it is often poorly located on unattractive or remnant land parcels and sometimes is of poor or inappropriate design for its setting. As a result, developers are reluctant to risk building more and residents often view it as having a negative affect on property values. Improved quality and location will go a long way to making this type of housing more successful.

#### 4.6 Transportation: Encouraging Walking, Cycling and Transit

Streets must serve a number of functions: providing transportation for all kinds of users and vehicles, a right-of-way for underground utilities, and public space. The primary focus in current street design is to move vehicles safely and efficiently. Sustainable communities will offer a broader range of mobility choices by continuing to work well for vehicles while making walking, cycling and public transit travel attractive options for many daily trips, including the journey to work.

The overall objectives are to improve mobility choices for all suburban residents, whether or not they own a vehicle, and to reduce the total number and length of private vehicle trips, both within the community and on the overall city street system. This means shifting the emphasis in street layout and design away from accommodating vehicles and more toward the requirements of other transportation options. The organization of land uses described in earlier sections is the first step. This section identifies ways of making the connections between land uses more direct, pedestrian and cyclist-friendly and efficient for transit.

##### ***Policy T.1***

***The street system in a community must provide all residents with direct links between key community focal points (community centre, neighbourhood nodes, schools, open spaces, major entrances).***

##### Public Benefit Intended

- a) To provide for efficient, safe and comfortable walking and bicycling as an alternative to private vehicle travel.
- b) To provide direct, efficient and effective transit routes in the community.
- c) To provide residents with convenient access to local commercial facilities and services.

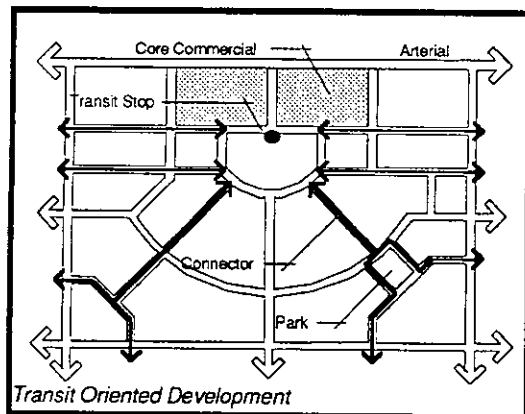
##### Acceptable Performance

- a) Provide a street system which offers a number of routes to major destinations within the community.
- b) Provide connections to the surrounding regional road network at several community entrances to avoid concentrating vehicle traffic at one location. Where limited (bus-only) access is required, it should also accommodate emergency vehicles.
- c) Provide direct pedestrian and cyclist-oriented routes between:
  - residential areas and the nearest neighbourhood node and open space;
  - the community centre and neighbourhood nodes; and
  - schools and their adjacent residential areas.

- d) Include a street pattern which supports efficient routes for transit service within the community (especially to community focal points) and which connects with the regional transit system.
- e) Provide bicycle routes (separate pathways or on-street) to link community focal points with the regional pathway system.
- f) Design streets to safely incorporate cycling.
- g) Ensure the internal community street pattern does not divide a neighbourhood or form barriers between residential areas and the community centre, neighbourhood nodes or schools.

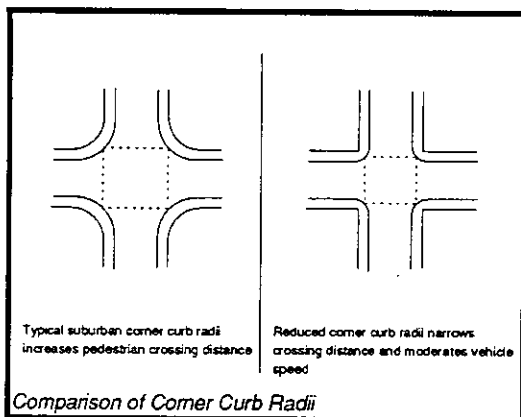
### Design Guidelines

The following guidelines are suggestions to be considered when designing new communities.



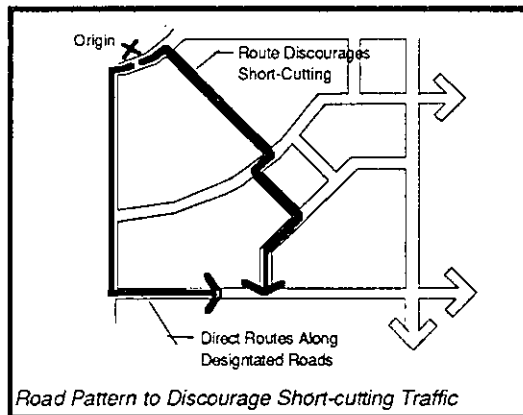
- a) The street layout should be based on a system of 'connector streets' that link major destinations.

- b) Connector streets should be designed without barriers (e.g., fences, medians, etc.) to pedestrians and cyclists.



- c) Features that moderate vehicle speed to make walking and cycling safe and comfortable should be incorporated in street design. Examples include narrower pavement where low vehicle traffic volume is expected, shorter blocks and reduced corner curb radii (see Policy T.3).

- d) Use of rear lanes as part of the pedestrian and cyclist system should be avoided.



- e) Consideration should be given to a grid or modified grid pattern for residential streets to support the alternative routes provided by the connectors, and to improve emergency vehicle access.
- f) Where short-cutting traffic may become a problem, consideration should be given to modifying the street layout to discourage vehicle traffic, while still maintaining efficient pedestrian, cyclist and transit routes.

## Discussion

The typical suburban street pattern or layout is based on funnelling all vehicle traffic from smaller streets onto larger streets, similar to a system of tributary streams emptying into rivers. The pattern in a sustainable community should emphasize efficiency and directness by providing a number of routes to key destinations within the community. The proposed connector street is similar to the current collector street with one major difference: its purpose is to connect important destinations rather than just collect and funnel vehicular traffic.

The design and alignment of streets should balance efficient vehicular travel with the safety and liveability of residential areas. Minimizing the width of driving lanes and using features such as on-street parking may discourage speeding and protect a residential environment. Street patterns that require pedestrians to backtrack, cross or walk along major roadways, or travel excessive distances are not desirable.

## **Policy T.2**

***The transit system must be integrated into the community design and be a key component of the community centre, neighbourhood nodes and other community focal points.***

## Public Benefit Intended

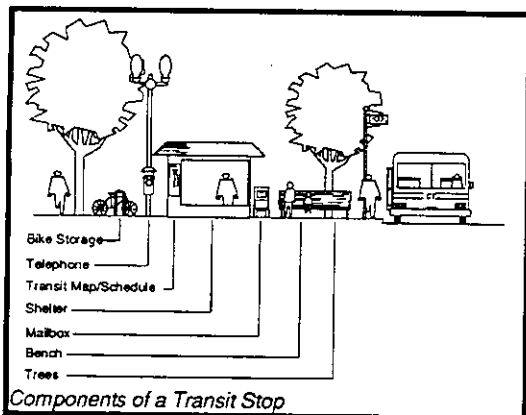
- a) To increase the accessibility, convenience and efficiency of transit.
- b) To provide better opportunities for multi-purpose trips.
- c) To increase transit ridership and thereby lower the City's operating cost per passenger.
- d) To implement the Calgary Transportation Plan.

### Acceptable Performance

- a) Incorporate regional transit facilities into the community centre.
- b) Ensure that transit routes within the community are as direct as possible, to shorten trip length.
- c) Design the community centre and neighbourhood nodes to be pedestrian and transit-oriented.
- d) Indicate the transit network and transit stop locations on the Community Plan.
- e) Strive to limit the street-based walking distance from dwelling units to a transit stop (bus or LRT) to 400 m (1300 ft). Ensure 85 percent of dwelling units are within a 300 m (1000 ft) street-based walk of a transit stop. Up to 5 percent may be beyond the 400 m (1300 ft) guideline.

### Design Guidelines

The following guidelines are suggestions to be considered when planning and designing new communities.



- a) Transit stops should be incorporated into the community centre and neighbourhood nodes and should be attractive structures, architecturally compatible with adjoining buildings. They should provide shelter and seating for pedestrians, convenient passenger loading/unloading zones, telephones, adequate lighting, and secure bicycle storage. If development of the community centre is delayed, temporary transit shelters should still be provided at appropriate locations. The City should try to find ways of providing such shelters, perhaps in conjunction with other uses.
- b) Transit stops not located in the community centre or neighbourhood nodes should be similarly designed, but may contain fewer features.
- c) Large open areas, park'n'ride and other parking facilities should be designed so as not to create a large separation between transit stops and transit-users.



## Discussion

Accessibility is important in attracting a significant number of transit riders. Providing a high quality transit stop close to a concentration of users (the community centre and neighbourhood nodes), should encourage increased transit ridership. Circuitous routes to transit stops should be avoided.

The guidelines for the distance between dwelling units and a transit stop are based on a desire to have as many residents as possible within a comfortable 5 minute walk. Higher densities are encouraged closer to transit service. Unusual landform or terrain may require some dwelling units to be located beyond the 400 m (1300 ft) guidelines.

Transit facilities, especially at the community centre and neighbourhood nodes, should accommodate and encourage year-round use by providing comfortable shelters, convenient loading zones and secure bicycle storage.

### ***Policy T.3***

***A new package of street design standards (road hierarchy, width, right-of-way, boulevard and intersection design, landscaping) must be developed to meet the needs of pedestrians, cyclists and transit-users, while continuing to provide for vehicle transportation.***

## Public Benefit Intended

- a) To ensure that street designs that promote efficient vehicle movement do not compromise a safe, convenient and aesthetically pleasing environment for pedestrians, cyclists and transit-users.
- b) To minimize pedestrian, cyclist and vehicle conflicts.
- c) To develop the role of streets as public space.
- d) To ensure that the cost of building and maintaining streets is minimized.

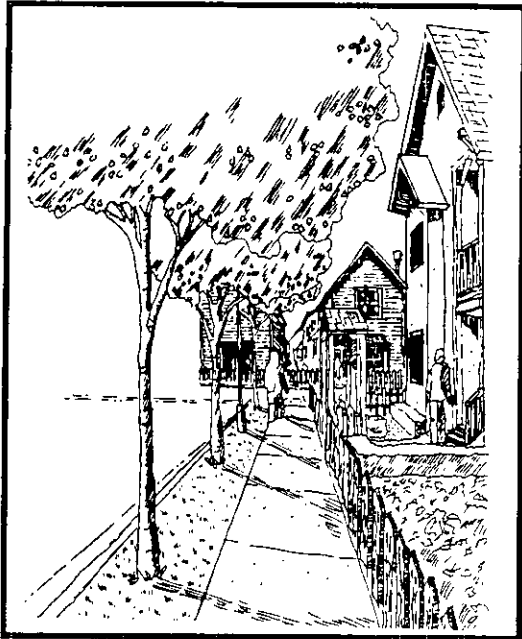
## Acceptable Performance

- a) Develop a new selection of pedestrian, cyclist and transit-friendly street designs that:
  - are based on a street layout that offers alternative routes, rather than funnelling vehicle traffic onto a limited number of streets;
  - offer an expanded choice of approved street types to include streets that have narrower carriageways and offer higher quality, more aesthetically pleasing pedestrian areas (e.g., sidewalks, boulevards and intersections);
  - incorporate elements that discourage speeding (e.g., short blocks, on-street parking, etc.); and

- incorporate elements that encourage pedestrian and cyclist use (e.g., wide sidewalks, street furniture, landscaping, bike lanes, and reduced corner curb radii) especially on routes connecting the community centre and neighbourhood nodes, and those linking to regional pathways.
- b) Many elements combine to generate street design, especially street width and intersection design. To further the development of new street standards, evaluate and revise, where possible, the following elements according to their effect on achieving pedestrian, cyclist and transit-friendly design:
  - the location of, and the required separation between utilities;
  - the requirements (width, asphalt thickness, etc.) for streets to be suitable for transit operation;
  - the requirements (access, carriageway width, intersection design, etc.) for emergency vehicles, goods delivery and service vehicles; and
  - front yard setbacks and landscaping restrictions.
- c) Existing roadway environmental guidelines dictate the type of street (residential, collector, etc.) based on expected vehicle traffic volumes. Set aside these guidelines where the new street standards developed in Acceptable Performance a) are applied, and where the street pattern distributes rather than funnels vehicle traffic.
- d) To provide flexibility in applying appropriate street standards, while ensuring all the required functions are met, develop a street standard 'menu' to define the features that can and cannot be combined in a street design (e.g., a narrower right-of-way with reduced or eliminated parking lanes can work where sufficient off-street parking is provided or where the number of front driveways already limits on-street parking).

## Design Guidelines

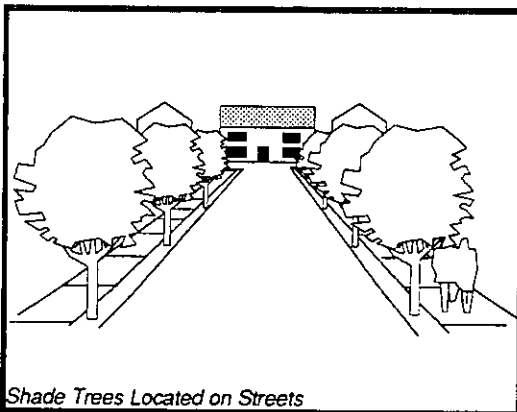
The following guidelines are suggestions to be considered when designing new communities.



- a) The streetscape should incorporate features that are aesthetically pleasing and provide more of a public presence ('eyes on the street'): buildings which front on the street, porches, front windows, small front yard setbacks and shade trees along the street.

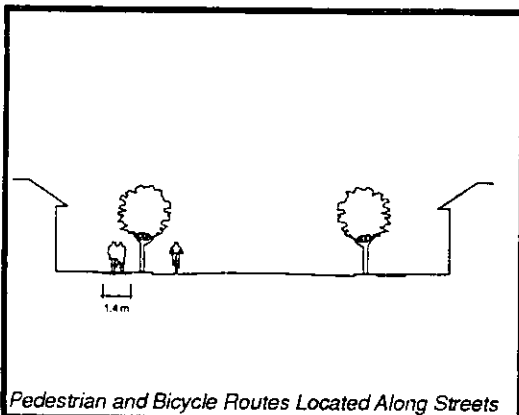
- b) Rear lanes and/or shared driveways should be considered in residential areas for garage access.

- c) Where possible, streets should frame vistas of the community centre, parks and natural features.



*Shade Trees Located on Streets*

- d) Pedestrian routes should be bordered by residential frontages, public parks, plazas or commercial uses.



*Pedestrian and Bicycle Routes Located Along Streets*

- e) Local pedestrian and cyclist routes on the street are preferred to rear and sideyard pathways.

## Discussion

While street design standards have changed frequently over the years, they have always been directed more at moving vehicles and providing utility corridors than they have at meeting the needs of pedestrians, cyclists and transit-users. A new set of standards is proposed to shift this emphasis and improve facilities for all forms of transportation. In particular, this means evaluating the trade-offs made between accommodating vehicles and creating effective, attractive pedestrian routes. This new set of standards (e.g., reduced curb radii, etc.), may incorporate many of the features that have proven to work well in older areas of the city. However, any changes to standards must not perpetuate such problems as short-cutting traffic from outside the community.

The street standard 'menu' is a mechanism to design basic components of a street that can be combined in different ways, depending on the circumstances. This flexibility will allow community designers to take advantage of particular opportunities (e.g., to create a main street retail area, or a limited access residential cul-de-sac). Greater flexibility in combining components will also help address concerns about the cost of building streets. The developers who build streets within communities are concerned that street design standards (particularly width) add unnecessarily to costs. At the same time, the City must ensure that the street system can safely handle the vehicle traffic volumes expected in the long-term, and be built to minimize long-term maintenance costs. The intention of the 'menu' is to combine components in a way that meets all these objectives. The menu must be developed by the Administration, through a joint public/private consultation process, so that consideration is given to the concerns of all parties responsible for suburban development.

The first stage in developing these new standards should be for City and industry staff to hold a series of technical workshops. The purpose of these would be to assess the needs of all users of the public right-of-way and to identify options for meeting them. The technical meetings would be followed by a Round Table meeting(s) at which a larger group would discuss which of the options best meet the design objectives of this study for creating more sustainable communities. Also see Section 6.1 a).

#### **4.7 Environmental Issues: Reducing Waste and Pollution and Conserving Energy**

For many of us, when we think of designing communities with less environmental impact, the first question that springs to mind is 'how can we get people to leave their cars at home and walk or take transit for many trips?' That has certainly been the goal of many of the foregoing policies. However, planning a sustainable community also provides an opportunity to address some basic issues relating to the protection of the environment. The City of Calgary's Environmental Policy, Principles and Goals identifies four goals, among others, related specifically to reducing waste and pollution. The goals are to:

- Continue to help protect surface water quality through effective wastewater management.
- Continue to help protect surface water quality through effective stormwater management.
- Encourage water conservation through public education and metering programs.
- Encourage the use of waste audits by the City, the business community and others.

We need to be concerned about the quality of the water discharged into our rivers and the long-term impact of urban water consumption. Surface water quality is an important asset. We must protect it for Calgarians and acknowledge our responsibility to protect it for downstream users, also, by examining innovative methods for stormwater management and by encouraging people to use less water. We also need to look carefully at non-water waste generation at the source, not only from a household perspective but during the initial building stages. This can be accomplished by encouraging recycling, the reuse of materials and composting. Finally, designing both the suburban form and buildings, so as to conserve energy is an important factor in creating a sustainable community.

Addressing these issues will not only help to protect the environment, it will bring long-term municipal cost-savings through water and sewage treatment facilities that do not have to be built and pollution clean-up that is avoided.

##### ***Policy E.1***

***Builders are encouraged to ensure that all new buildings in new communities are audited for construction waste.***

##### **Public Benefit Intended**

- a) To reduce the amount of waste generated during building construction.
- b) To reduce the amount of blowing debris and dust from construction sites.
- c) To reduce municipal costs for landfill sites.
- d) To reduce overall construction costs.

##### **Acceptable Performance**

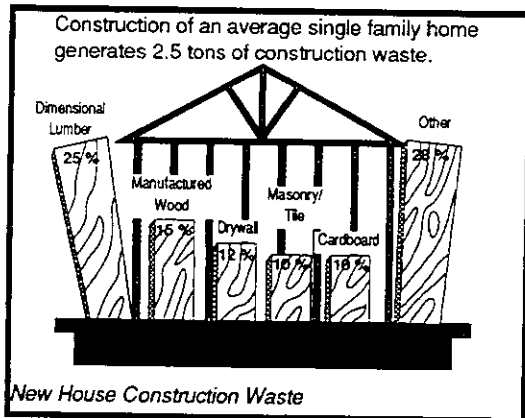
Builders are encouraged to:

- a) Equip all construction sites with a waste bin partitioned for the sorting of debris.
- b) Collect, sort and transport all recyclable waste to identified recycling facilities.

- c) Provide a temporary facility for storing reusable construction materials during the building phase, to facilitate the exchange of materials otherwise wasted.

### Design Guidelines

The following guidelines are suggestions to be considered when building new communities.



- a) A waste audit should address the following waste categories:

- Dimensional Lumber
- Drywall
- Masonry and Tile
- Manufactured Wood
- Corrugated Cardboard
- Asphalt
- Fibreglass
- Metal
- Plastic and Foam
- Other Packaging

- b) A wood shredder should be provided on construction sites to shred wood products for use in landscaping public areas.

### Discussion

Enormous waste is produced in the assembly of a building. For example, dimensional lumber and manufactured wood products make up approximately 35 percent of all waste material, equating to nearly 1000 kg (1 ton) of waste per house constructed. This, in turn, is equivalent to about 10 percent of all lumber required for one house.

The Calgary Home Builders' Association and the Calgary Office of Canada Mortgage and Housing Corporation, are currently preparing the terms of reference for a report and implementation strategy aimed at reducing the amount of waste generated by home construction, minimizing water hauling and identifying waste management cost controls. An outline of the acceptable amounts of waste in each of the above categories would be beneficial and would provide a baseline from which future waste audits can be conducted.

## **Policy E.2**

***Builders are encouraged to use recycled materials in the construction of new buildings when supplies are available, existing standards allow, and the cost of materials is feasible.***

### Public Benefit Intended

- a) To reduce the consumption of new materials, especially those that are collected or processed at high environmental cost (e.g., tropical hardwoods).
- b) To reduce municipal costs for landfill sites.
- c) To promote business opportunities relating to the production and distribution of recycled goods.

### Acceptable Performance

- a) Use recycled products in building construction where availability and suitability allow.
- b) Endeavour to inform the home buyer of those recycled products that are considered to be a feasible alternative to traditional materials and fixtures.

### Design Guidelines

The following guidelines are suggestions to be considered when building new communities.

- a) Builders should identify the suppliers of recycled products and make this information available to home buyers so that informed choices can be made on product selection.

### Discussion

The Calgary Home Builders' Association is committed to working with recyclers and has showcased innovative concepts for converting recyclable materials into useable construction products. For example, carpeting and underlay recycled from plastic bottles and tires, and paving stones manufactured from tires have been produced and are being used. Feedback from the public indicates a willingness to use these products. Training and education of builders on recycled product availability and cost should be ongoing.

## **Policy E.3**

***Provision for a recycling depot must be included in the design of the community centre.***

### Public Benefit Intended

- a) To encourage people to make recycling a way of life.
- b) To provide safe, easy access for the drop-off of sorted recyclables.

- c) To provide a common location for distributing and disseminating information and coordinating community initiatives relating to the principle of 'Reduce, Reuse, Recycle and Recover.'
- d) To reduce municipal costs for landfill sites.

#### Acceptable Performance

- a) Locate recycling depots close to other services within the community centre.
- b) Provide good vehicular and pedestrian access to recycling depots.
- c) Provide for an information exchange/dissemination function at recycling depots.

#### Design Guidelines

The following guidelines are suggestions to be considered in designing and building new communities.

- a) Parking at the depot, for purposes other than the drop-off of recyclables, should be restricted.
- b) Community associations should establish a collection program for recyclables aimed at those who cannot, or choose not to drive to the recycling depots.

#### Discussion

By integrating recycling depots (City or privately operated) into the community centre, users are encouraged to combine trips, and use the facility as part of a daily/weekly routine.

#### **Policy E.4**

***Builders are encouraged to equip all buildings (residential, commercial and institutional) in new communities 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.***

#### Public Benefit Intended

- a) To encourage people to make recycling a way of life.
- b) To reduce municipal costs for landfill sites.
- c) To maximize the recycling potential of certain products.
- d) To promote business opportunities relating to the production and distribution of recycled goods.



- e) To foster community spirit through common goals and achievements.

### Acceptable Performance

- a) Install built-in sorting bins at convenient locations in new single and two-family homes, (e.g., kitchen, laundry room, mud room, etc.), and in common areas in multi-family housing developments, commercial and institutional buildings, where appropriate.
- b) Install permanent composters on all new residential lots and on commercial and institutional sites.
- c) Ensure that clear directions on the use and maintenance of composters are provided with the unit.

### Design Guidelines

The following guidelines are suggestions to be considered in building, planning and developing new communities.

- a) Measures should be considered for the alternative storage and collection of compostable materials destined for centralized composting units.
- b) Community associations should coordinate recycling programs, bottle drives, book drives, etc., as a source of revenue for community improvement projects.
- c) Community associations should promote and assist, where appropriate, the endeavors of agencies collecting used household goods such as appliances, furniture, clothing, etc.
- d) Commercial/retail outlets in new subdivisions should be encouraged to promote the use of biodegradable or recycled products (e.g., paper bags, cloth bags, recycled plastic, etc.).

### Discussion

Creating convenient space in the home for the clean storage and easy sorting of wet and dry household waste and yard waste would encourage people to recycle and compost. Community-run collection programs would also make it easier to dispose of recyclable material, while at the same time providing a potential source of income to the community, and an opportunity for social interaction.

It is important that each owner knows how to use and maintain composters properly. Problems with odour and vermin can develop with improper techniques. As an alternative to each residence having a composter, a centralized composting unit could be located at the recycling depot in the community centre.

## **Policy E.5**

***As part of the future Integrated Solid Waste Management Plan, the feasibility of waste limits and/or yard waste bans will be determined.***

### Public Benefit Intended

- a) To reduce municipal costs for landfill sites.
- b) To promote the use of recycling and composting facilities.
- c) To create a more equitable system, whereby people who reduce waste are not subsidizing those who do not.
- d) To reinforce cost-control initiatives relating to mill rate supported waste collection.

### Acceptable Performance

- a) Provide containers of a prescribed standard dimension for each single family residence.
- b) Establish an enforcement program and penalty system under the Waste By-law 13M82.

### Design Guidelines

The following guidelines are suggestions to be considered when building new communities.

- a) In conjunction with the provision of composters on all residential, commercial and institutional sites in new communities, a yard waste ban should also be considered, regardless of whether general waste limits are also imposed.

### Discussion

At present, the City of Calgary's Solid Waste Services Division has the mandate to collect garbage weekly from residential units (single family to fourplex). Residential waste makes up one-third of the total waste collected, with the remainder from retail/commercial and institutional uses. An average home generates approximately 15 kg (33 lbs) of garbage per week in winter and approximately 26 kg (57 lbs) per week in summer. Many cities have imposed a waste limit and/or a yard waste ban to address excessive domestic waste. Currently the mill rate supports garbage collection. By shifting the cost outside of the tax base (i.e., direct charges on utility bills), a reduction in waste may result. Also, programs such as 'Tag-a-bag,' whereby people purchase stickers to apply to garbage bags set out for collection and any bag without a sticker is not collected, places a direct cost to individuals for the amount of waste generated.

The Solid Waste Services Division is currently preparing an Integrated Solid Waste Management Plan (ISWMP) as recommended in the City's Environmental Policies, Principles and Goals. The feasibility of waste limits and/or yard waste bans will be addressed in this plan.

## **Policy E.6**

***All homes in new communities should have water meters and manufactured water-saving fixtures.***

### Public Benefit Intended

- a) To delay the need to construct water treatment, storage and distribution facilities - a major municipal expenditure.
- b) To provide an incentive for people to use less water.
- c) To create a more equitable system, whereby people who use water prudently are not subsidizing those who do not.
- d) To pump and treat less water, thereby reducing the amount of energy and chemicals used.
- e) To reduce the nutrients and chemicals discharged into natural water courses from excessive irrigation.
- f) To reduce the water being diverted from natural water courses.

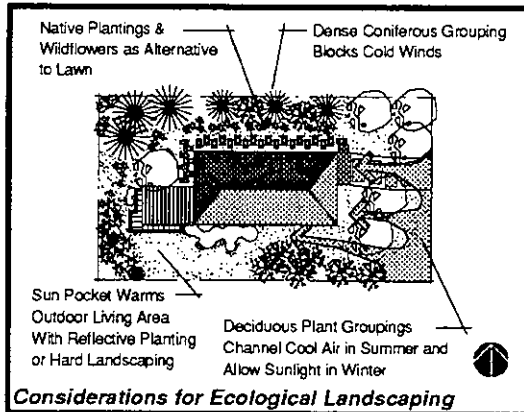
### Acceptable Performance

Builders are encouraged to:

- a) Equip all show homes in new communities with water meters.
- b) Equip all buildings (residential, commercial and institutional) with manufactured low volume toilets (not modified standard toilets).
- c) Equip all buildings (residential, commercial and institutional) with manufactured water-saving fixtures such as showerheads and faucets, where appropriate.
- d) Inform the homebuyers of the water meter incentive program and product information relating to water-saving fixtures.

## Design Guidelines

The following guidelines are suggestions to be considered in designing and building new communities.



- a) 'Ecological landscaping' or 'xeriscape' should be used as a means to reduce water consumption and fertilizer and pesticide use.
- b) Rain water should be collected to supplement residential watering.
- c) Community associations should work with Calgary Parks & Recreation and public health agencies to determine the feasibility of using recycled or 'grey water' for irrigation on public spaces.

## Discussion

Although the choice of flat-rate versus metering for single family and duplex residences cannot be removed unless Calgarians adopt the concept of universal metering through a plebiscite, it is important to encourage home buyers in new communities to install meters as soon as possible. In 1991, the City introduced a water meter incentive program which allows new homeowners to try out a meter for one year with no financial risk. At the end of the one year trial period, the homeowner is provided with a financial statement comparing the total meter charges to the amount the homeowner would have paid using the flat-rate calculation. If the metered cost proves more expensive than the flat-rate cost, then the homeowners' account is credited with the difference and the meter is removed at no cost (the normal \$35 removal fee is waived). Current statistics indicate 97 percent of the homeowners who enroll in the meter incentive program decide to keep the meter after the trial period. Since its introduction in 1991, the water meter incentive program has saved the City about \$15.7 million in capital costs. Builders are encouraged to inform new home buyers of the City's water meter incentive program.

Water meters have been compulsory in Calgary for multi-family residential, commercial and institutional uses for some time. However, historically Calgary has a high rate of residential water consumption relative to other cities. For example, Edmonton and Winnipeg both have **universal** metering systems and, in a study done in 1989, it was estimated that Calgary's water consumption was 96 percent higher than Edmonton's and 110 percent higher than Winnipeg's (based on a maximum day). Since then meter usage has increased to approximately 38 percent of all single family and duplex households in Calgary.

There are a variety of ways for households to cut water consumption. For example, between one and five percent of the water produced at municipal treatment plants is used for drinking. Irrigation is an often misrepresented factor in water consumption. Although overall annual consumption from irrigation is low, relative to toilets, showering, bathing, etc., nearly 50 percent of household consumption during the peak summer months is attributed to irrigation. A reduction in discretionary use for irrigation, coupled with innovative landscaping techniques can substantially reduce water consumption. The terms 'ecological landscaping' or 'xeriscape' relate to the use of native and drought-hardy plant material rather than the conventional lawns and ornamental plants, which typically have higher water demand. An additional benefit to

using native plant material is a reduction in fertilizer and pesticide use.

Toilets consume approximately 25 percent of the total household water using 23-37 l of water per flush. Manufactured low volume toilets can reduce the amount of water used by approximately 50 percent (12-14 l per flush). However, retrofitted toilet tank water-saving devices, such as toilet dams, are often ineffective as standard toilets are not designed for low flows. Manufactured low flow toilets, although initially more expensive, can offer greater long-term cost-savings.

The use of other water-saving devices also contributes to substantial savings. For example, a showerhead typically delivers 15 l of water per minute. This rate can be reduced by one-third by installing an inexpensive flow restrictor. Builders are therefore encouraged to equip buildings in new communities with water-saving fixtures and make product information available to home buyers so that informed choices can be made on product selection.

#### ***Policy E.7***

***Alternative methods to traditional stormwater management techniques must be examined, in terms of appropriateness and cost, for use in new communities.***

#### **Public Benefit Intended**

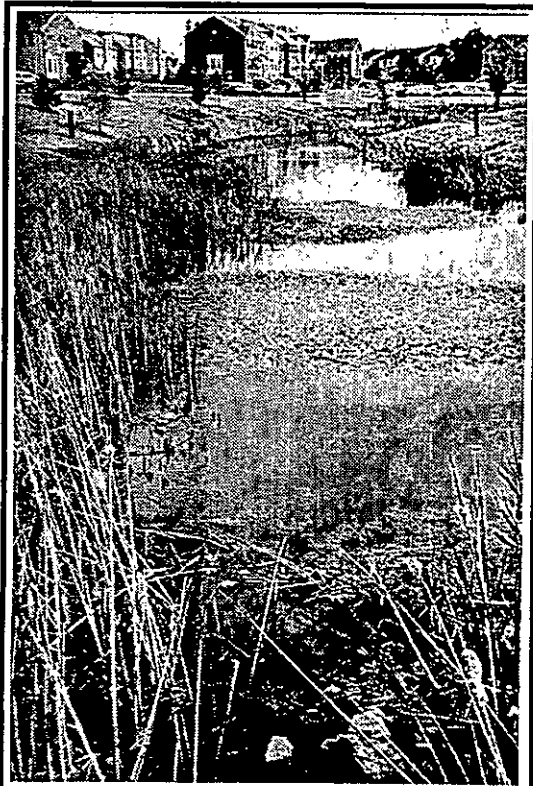
- a) To improve the quality of surface water discharged into our rivers.
- b) To reduce operating and maintenance costs associated with traditional stormwater treatment.
- c) To more effectively integrate stormwater facilities as passive open space into new communities.
- d) To enhance the aesthetic value of new communities by providing visual relief and diversity.
- e) To provide a mechanism for habitat enhancement.
- f) To reduce the need for herbicide and pesticide use around stormwater management facilities.

#### **Acceptable Performance**

- a) Integrate stormwater facilities (traditional or innovative) into the overall open space plan for new communities.
- b) Identify the use of natural systems for stormwater management in Community Plans.
- c) Consider the feasibility of using alternative methods of stormwater management (e.g., braided streams, constructed wetlands, etc.), having regard to regional and site specific conditions and cost.
- d) Assess the potential long-term impact of alternative methods of stormwater management on groundwater quality and availability, and develop monitoring programs particularly in areas where adjacent residents rely on well water.

## Design Guidelines

The following guidelines are suggestions to be considered when planning and designing new communities.



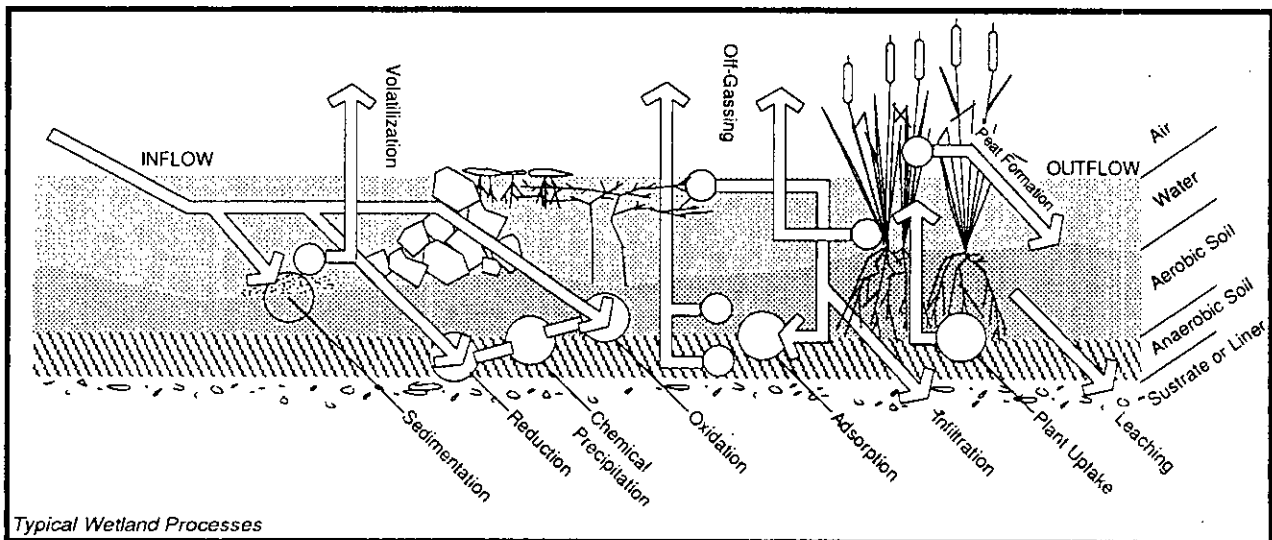
*Constructed Wetland Example*

- a) Natural drainage systems should be used instead of artificial stormwater management systems, where site conditions allow. Water quality and/or flow levels should remain at pre-development levels, so that the natural integrity of the system is not jeopardized.
- b) The location and configuration of stormwater management facilities, particularly retention facilities, should complement the open space system, reinforce views and accommodate public access for social interaction and passive recreational use.
- c) Native vegetation should be used to enhance water quality, provide an aesthetic backdrop to promote passive recreation use and control public access to the water's edge, where necessary.
- d) The area of impervious surfaces (pavement, asphalt, cement) should be reduced and alternative materials that allow water percolation should be used wherever possible.

## Discussion

The City of Calgary's Policy on Stormwater Lakes recognizes the need for innovative designs to 'improve the aesthetic, recreational and environmental features of urban developments.'

In this regard, the City has undertaken an experimental project on the treatment of stormwater through constructed wetlands. Construction will begin on the prototype in 1995 and a monitoring program will follow. The project is partially funded through the federal government's infrastructure program. Constructed wetlands are based on the concept of using plant material and microbes to naturally extract excess nutrients and pollutants from incoming water. When exposed to this natural process, contaminants are removed, settled out or transformed, resulting in cleaner discharge into natural water courses. The success of constructed wetlands has been proven in the United States where savings of 50 percent over the cost of installing traditional treatment solutions has been achieved. However, this project is still in the experimental stages. Local climate and site conditions would effect the feasibility of this option and it may not be an appropriate alternative for all communities.



### **Policy E.8**

***Builders are encouraged to design, locate and construct all buildings in new communities with the objective of reducing energy consumption.***

#### Public Benefit Intended

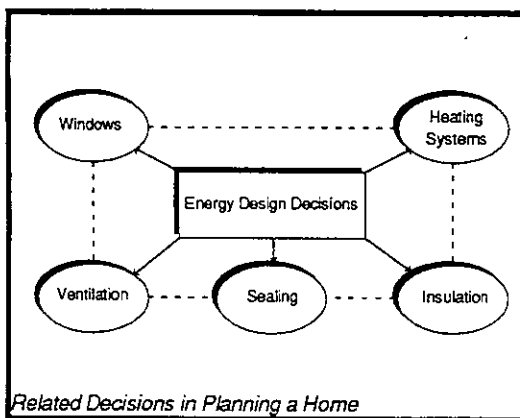
- a) To conserve non-renewable fossil fuels.
- b) To reduce energy costs to the public.
- c) To reduce the need for new electrical generation and distribution facilities.

#### Acceptable Performance

- a) Attempt to maximize solar exposure for buildings through the alignment of the local road network, as outlined in Community Plans.
- b) Design and locate houses to maximize solar orientation as well as complementing the streetscape.
- c) Use ecological landscaping or xeriscape to supplement heating and cooling systems.
- d) Incorporate energy-saving techniques in housing design.
- e) Make provision for co-generation or district heating options in the design of the community centre and neighbourhood nodes.

#### Design Guidelines

The following guidelines are suggestions to be considered when building new communities.



- a) Houses should be positioned, where appropriate, to reduce sun blockage.
- b) Attached greenhouses are encouraged to trap and redistribute passive solar heat.
- c) Buildings should have vestibules/mud rooms to minimize the amount of heat loss through entering and exiting.
- d) Energy-saving appliances and lighting fixtures should be incorporated in all buildings.
- e) The surface exterior of buildings should be minimized.



- f) Buildings should incorporate air barriers and vapour retarders to prevent heat loss from air leaks.
- g) Buildings should have an open area plan to allow for maximum distribution of natural light.
- h) Buildings should have large south/southeast facing windows and incorporate skylights to maximize natural lighting.
- i) Buildings should incorporate radiant floor heating versus forced air heating systems.
- j) Heating systems should be appropriately sized for the building.
- k) Buildings should incorporate centralized mechanical ventilation in conjunction with airtight design techniques.

### Discussion

There are two key areas relating to reducing energy consumption in the built environment: **site planning** and **building design and construction**.

Site planning relates to the location and orientation of buildings and the associated landscape design in the context of the overall streetscape. For example, given the local solar pattern, an ideal building would be located facing south or southeast, on a street running east-west and with no obstructions to the southern horizon. Buildings on either side of an east-west street should be placed far enough apart so that buildings on the south side do not shadow those on the north side. Buildings on north-south streets should be staggered so that adjacent structures do not obstruct the southern horizon.

Wind patterns also tend to be site specific, influenced by local topography and built structures. The location and orientation of buildings should also address intensity and frequency of wind exposure.

Ecological landscaping or xeriscape uses native and drought-hardy plant material to influence the micro-climate around a building. Trees have the greatest effect on energy conservation. In summer, trees lower air temperature by shading and creating breezes, and in winter they act as a windbreak. When planting trees, deciduous varieties should be located on the south side of a building so that sun exposure is maximized in winter and, conversely, conifers should be located to block prevailing winter winds.

There are three key principles to achieving an energy efficient building design: airtight construction, controlled air management and insulation.

Areas of heat loss (leakage) are the greatest around doors and windows and in basements. Air leakage is responsible for up to one-third of the total heat requirement in an average home.

Buildings should be well sealed to prevent heat loss and to stop water vapour from entering insulated spaces. Air movement can be controlled by an 'air barrier' of drywall, plywood or olefin fibre sheeting which must be as continuous as possible. Anything that pierces the barrier (e.g., electric outlets, plumbing stacks, exhaust fans, windows, doors, etc.), should be sealed for maximum effectiveness. Centralized mechanical ventilation must accompany airtight building designs to prevent the accumulation of harmful pollutants and humidity.

The concept of co-generation or district heating, whereby one heating/air cooling facility is shared by a number of buildings in close proximity, provides another option for reducing fuel consumption. The cost of construction, operation and maintenance of the heating/cooling facility can be borne by the users, each having control over the amount of heat used and paying for it accordingly. Alternatively, a developer can build the facility, turn over operation and maintenance to the users and collect fees to compensate for the original construction cost. These facilities use hot water/steam for heating. There is a marked increase in heating/cooling efficiency and a 30 to 50 percent decrease in overall fuel consumption can be expected. Some areas in Calgary that currently have co-generation facilities are the University of Calgary, the Foothills Hospital complex and the Armed Forces Base. Although co-generation may be difficult to implement for residences, it would be appropriate for buildings in the community centre and neighbourhood nodes of new subdivisions.

The National Energy Code and the Code for Energy Efficient Appliances are currently being prepared and should be completed by late 1995 or early 1996. Once mandated, these can be applied to the City's Building Code to allow greater flexibility and a shift toward a more performance-based evaluation that can address innovative ideas for reducing energy consumption.

## **5.0 THE PLANNING PROCESS**

The key to the development of more sustainable communities is the establishment of a more co-operative process between developers, builders and the City. This process must be sensitive to the needs and priorities of all parties. For example, developers are accountable to investors who expect a return on their investments. They must therefore deal with current market conditions and industry competition. Even if they agree that educating the public and encouraging society to adopt more sustainable lifestyles is important, they will likely feel that it is more a role for government than it is for private enterprise.

The City, on the other hand, is accountable to the public for the fiscal, social and environmental health of Calgary and must represent the interests of future generations. It must provide ongoing services to built communities and deal with design problems that may show up after the developer's responsibility has legally ended. So, although developers and the City may have different priorities, it is in both their interests for communities to be well-designed and successful.

### **5.1 How Can the Present Process be Improved?**

In most cases, the planning of new residential communities starts at present with the developer preparing a concept plan for the City to use as the basis for an area structure plan (ASP). The ASP establishes the policies and provides the framework for subdivision and land use plans. Area structure plans are prepared by the Planning & Building Department, in consultation with other City Departments and public agencies, landowners and local residents.

The current process does not produce the comprehensive, carefully integrated Community Plan advocated in this report because:

#### The ASP is a 'Jack of All Trades' Plan

In only a few areas of the city is there a level of planning between the broad city-wide policies of the General Municipal Plan (GMP) and the ASP. Midnapore, Calgary North and the southeast industrial area have policy reports prepared in the early '80s that deal with certain issues and provide a framework for ASPs, but they are neither comprehensive nor up to date. Consequently, the preparation of ASPs is often delayed by the need to deal with regional or downstream issues, often related to transportation or servicing, that have to be addressed before the ASP is commenced.

Also, ASPs may be used to plan a few acres or several sections of land. The planning area is based more on land ownership than on what is a logical size for a functional community.

#### Too Many Decisions are Left to the Outline Plan

Too often decisions that are important to the success of the overall concept are left to be determined at the next level of planning, the outline plan. However, outline plans often deal only with phases of the total ASP area. Community design is apt to be compromised by making key decisions in incremental steps based on short-term market conditions. The very nature of the outline plan stage of the planning process is that it is oriented to a smaller, specific piece of land, as opposed to the whole community.

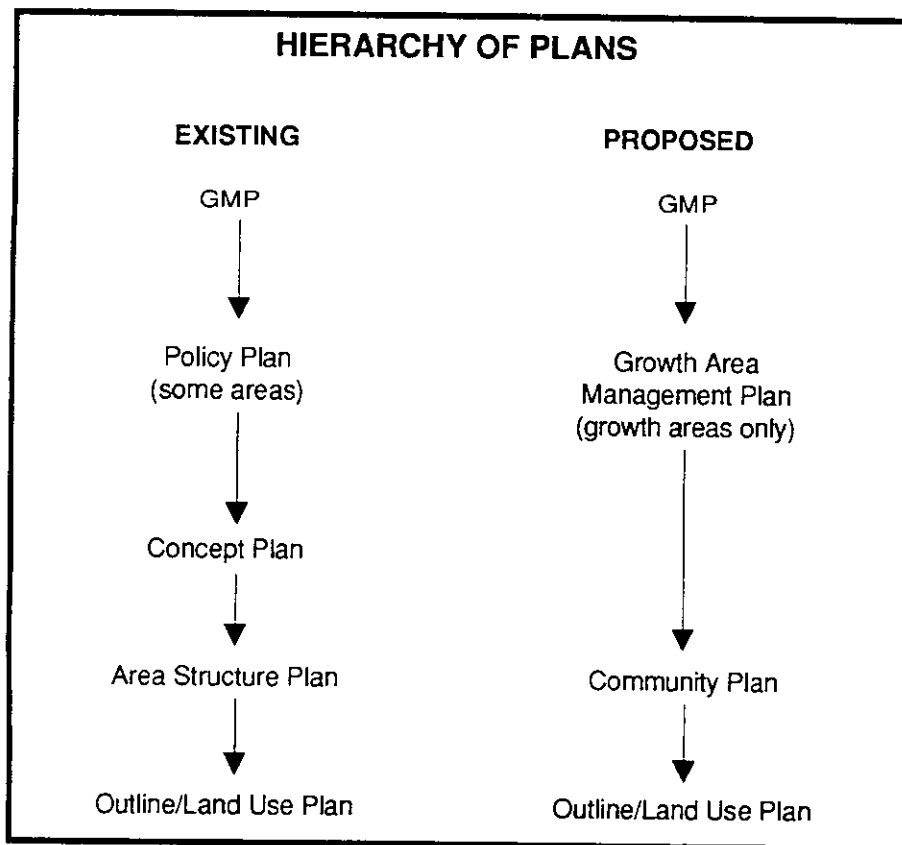
### There is a Need for Better Communication and Co-ordination

Developers prepare concept plans based on their priorities and submit them to the City to react to. They will work with individual City departments on details, but often it is not until the plan is submitted that the overall concept becomes clear. By then, the developer will have spent considerable time and money on the plan and will be reluctant to make fundamental changes.

If the plan conflicts with the City's long-term objectives for the city and the region, the process can lead to frustration, delays, and public and private costs which neither the City nor the developer can afford.

## **5.2 A New Hierarchy of Plans**

The proposed new hierarchy of plans is intended to simplify, speed up and improve the Community Plan preparation process.



### Growth Area Management Plans

The Growth Area Management Plan is the proposed name to be given to a revised version of the policy plans done in the past for areas like Midnapore and Calgary North. Growth Area Management Plans would be a level of strategic planning between the General Municipal Plan and the Community Plan (discussed below) for growth areas of the city.

Growth Area Management Plans would be:

- In conformity with the General Municipal Plan and other strategic plans such as the Calgary Transportation Plan.
- For growth areas of the city only (areas currently being determined).
- Prepared in consultation with landowners, all City departments and agencies involved in community planning, adjoining communities and the ward alderman.
- All or part of the Growth Area Management Plan may be adopted, by by-law, as an area structure plan (existing area structure plans are similar having by-lawed and non by-lawed parts).

Growth Area Management Plans would provide a comprehensive framework for the preparation of Community Plans. They would identify major land uses, assess the provision of public utilities, services and facilities that are provided for more than one community in a sector, and identify matters related to the timing and sequence of development/servicing. Specifically, this would include:

a) Integrating major land uses:

- identifying major land use elements in the plan area and assessing the expected relationships between them (e.g., residential areas, employment centres, sector and regional shopping centres, environmentally sensitive areas, major recreational facilities and high school sites);
- determining how strategic land use policies from city-wide plans (e.g., General Municipal Plan, Calgary Transportation Plan, Urban Parks Masterplan, etc.) can be achieved through development in a specific sector; and
- assessing job/population ratio issues and opportunities.

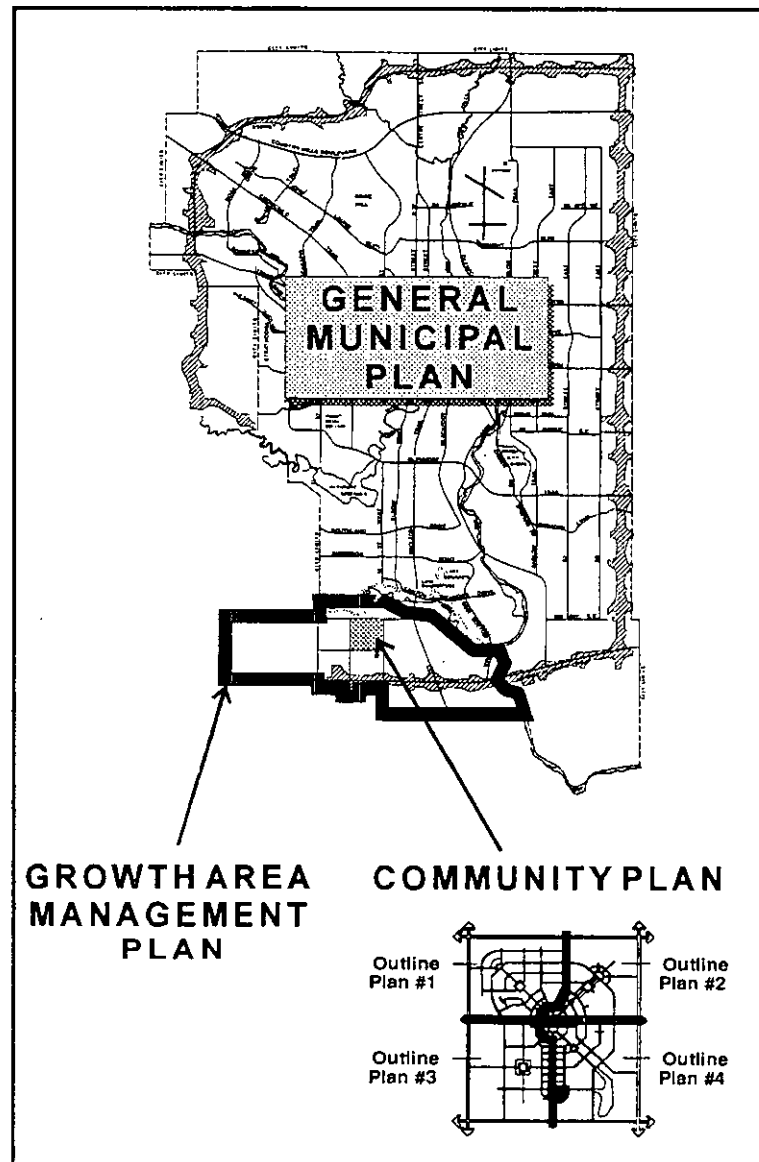
b) Creating a framework of public systems for the Growth Area Management Plan area:

- regional road hierarchy (freeways, expressways and major roadways);
- regional pathways, open space, and recreational and cultural facilities;
- stormwater management areas and system elements (e.g., wet and dry pond channels, etc.);
- utility infrastructure (e.g., water, sewers, electric);
- public services in the Growth Area Management Plan area (e.g., library, social services, police, fire, ambulance); and
- services provided by external agencies (e.g., CWNG, AGT, school boards for high school sites).

- c) Determine the framework for subsequent community-level planning, development and servicing in the Growth Area Management Plan area:
- the location of major transit corridors;
  - the phasing of major transportation improvements (T.I.P.S.);
  - the boundaries of Community Plans;
  - identification of special planning areas/studies to be undertaken;
  - expected phasing of servicing and development;
  - integration with capital budget schedules, priority of service extensions and anticipated timing;
  - opportunities for partnerships in land use planning and the delivery of public systems (e.g., recreation centres and community facilities);
  - strategies for funding of desired infrastructure elements (e.g., special street lighting, landscaping); and
  - expectations for subsequent planning processes (e.g., special studies, how will parties be involved, when will they occur, what their focus will be).

These plans **would not identify** multi-family sites, community open space, elementary or junior high schools, local roads, etc., which would be covered by community, outline and land use plans.

Many factors would influence the boundaries of a Growth Area Management Plan. The following illustration is intended to show how a Growth Area Management Plan area relates to areas covered by community and outline plans.



## Community Plans

Plans for new communities would be called Community Plans (the name best describes their purpose).

Community Plans would be:

- In conformity with the policies and guidelines proposed in this report.
- In conformity with the Growth Area Management Plan (if available)
- Prepared as a collaborative team effort with landowners, as proposed in Section 5.3.
- Adopted by Resolution of Council, not by by-law, to allow some flexibility.

Many of the issues currently left to be resolved at the outline plan stage would be dealt with by Community Plans. Developer prepared concept plans would no longer be required.

## Outline/Land Use Plans

At present, it is likely that development will occur in phases, with outline and land use plans prepared for portions of Community Plan areas.

Outline plans would be reviewed by Calgary Planning Commission (CPC) and land use amendments by Council, consistent with the present process. No approvals should be given if the outline or land use amendments seriously compromise achievement of approved Growth Area Management Plans or Community Plans.

### **5.3 A Collaborative Process**

The following process for preparing Community Plans is intended to bring together expertise from the development industry, City, school boards and other public agencies, (e.g., AGT, CWNG, etc.) in a collaborative approach to design more sustainable communities.

- a) The City would appoint a team to work with the developer(s) and consultant(s) in preparing the plan. Staff would be appointed to the team from the Engineering and Environmental Services, Transportation (including a transit specialist), and Calgary Parks & Recreation Departments, with the Planning & Building Department acting in a leadership role.
- b) The public and separate schools boards, other public agencies, Ward Alderman and representatives of adjoining communities impacted by the plan would be invited to participate in the community planning process at appropriate stages.
- c) The community planning process would commence with design charrettes during which the team would consider opportunities and constraints and develop a collective vision. The public should be invited to provide input, perhaps through a design charrette.
- d) Oral presentations to CPC and Council would be made by the developer and City staff jointly.

Preparing Community Plans in this way is not entirely new: the community plan for McKenzie Towne in southeast Calgary was developed using a similar process.



**This process will work and produce a much better product, provided that:**

- a) City departments organize themselves and make staff available as described above.**
- b) All parties involved in preparing and evaluating plans 'buy in' to the concepts for community design engendered in this study and are committed to making the process work.**



## 6.0 MAKING IT HAPPEN

The policies and design criteria presented in this paper are similar to those being tried in other cities and to those used in planning the new community of McKenzie Towne, now being built in southeast Calgary. The experience in Calgary and elsewhere suggests there are a variety of techniques that can fulfil the policies and achieve a more sustainable community. Developers and the City Administration believe that the policies for sustainable suburbs outlined in Section 4.0 should be demonstrated in a few new 'prototype' communities, to encourage a range of creative responses.

### 6.1 Preparing for Prototype Communities

In order to encourage the development of more sustainable communities, the policies and acceptable performance criteria outlined in Section 4.0 must be approved. These criteria will form the basis for evaluating plans submitted over the next three to five years, during which developments will be monitored and acceptable performance criteria revised as required. (see Section 6.2).

In addition, to fully implement all the recommendations in this study, it is critical that the following work be undertaken:

#### a) Develop New Street Design Standards

Policy T.3 recommends the development of a new set of street design standards, as an essential element to create communities that work successfully for pedestrians, cyclists and transit. This review will be undertaken through technical workshops and a Round Table at which all parties with an interest in the application of the standards will be invited to participate. It will be done in parallel with the planning of new communities in order to assist all parties in understanding how the new standards would be applied on the ground.

**This review shall be undertaken by the City, in consultation with the development industry, with a report to Council by July 1996.**

#### b) Develop an Affordable Housing Policy

As discussed under Policy H.3, new communities provide an excellent opportunity for affordable housing but first a city-wide package of policies and guidelines, with a clearly articulated action plan, should be developed by the City.

It is recommended that a study be undertaken involving the Planning & Building Department, the Corporate Properties Group, Social Services Department, the development and building industry and other agencies and interests concerned with the provision of housing. A Round Table format, as used in the Sustainable Suburbs study, is suggested.

Once approved by Council, the recommendations of the affordable housing study, in so far as they relate to new suburban communities, will lead to a revision to Policy H.3 and perhaps also to Policies H.2 and H.4 of this study. These recommendations should also be included in any forthcoming update of the Calgary General Municipal Plan.

**A terms of reference for an affordable housing study shall be prepared, in consultation with the development industry, and submitted to Council for approval by May 1996.**

c) Develop Indicators of Sustainability

In order to know if communities designed in conformity with the recommendations in this report are any more sustainable than other communities, it is necessary to develop some measurable indicators of sustainability. For example, we need to know if people really are using transit more and their cars less, shopping locally, recycling more waste, etc.

The study will determine what the indicators should be, and how and at what intervals they should be measured.

**A report shall be prepared, in consultation with the development industry, and submitted to Council by December 1996.**

d) Review Other Requirements, Standards and Practices

Critics of current suburban planning believe that City standards and practices restrict creativity in suburban development. Rules about the separation of land uses, density, building setbacks, open space, school sites, stormwater treatment and vehicle parking combine to produce physical constraints on achieving sustainability. Some of these standards need to be reviewed and revised.

i) Commercial Land Use:

- Review the commercial needs of existing and future suburban areas of the city and locational criteria for the hierarchy of shopping facilities. This should be undertaken with a view to ensuring local community shopping can survive as a critical spatial component of the sustainable suburb.
- Reduce community centre parking requirements, recognizing increased pedestrian, cyclist, and transit-user patronage.
- Develop design guidelines to ensure that commercial uses can exist harmoniously within a residential setting and to maximize pedestrian access.

ii) Housing:

- Review provisions in the Land Use By-law to allow additional dwelling units (e.g., basement suites and garage lofts).
- Review rules on home occupations to identify ways to better facilitate their use.

iii) Schools and Open Space:

- Explore other opportunities in joint-use site planning including size, location, configuration, function/components and number of sites.

iv) Transportation:

- Develop policies to allow transit stopovers for shopping and other multi-purpose trips at community centres.

v) Reducing Waste and Pollution:

- Assess the anticipated capital savings related to mandatory water metering in new communities and universal metering.
- Review the Land Use By-law standards, such as building setbacks, that may impede solar access.

e) Explore Opportunities

The analysis of factors that make up a more sustainable suburb has brought forward a number of new opportunities that need to be explored, including:

- Reviewing opportunities for community-based long-term financing and/or management of community facilities, services and local open space. This can help ensure facilities are built more quickly or help the community to obtain services it might not otherwise have (e.g., shuttle buses, recycling programs). Mechanisms for implementing this approach could range from the homeowner associations currently operating in some communities, to the inclusion of the whole community as a 'bare-land' condominium whose owners have responsibility for managing all common property. Issues to be considered include legal considerations, private versus public facilities, equity and multiple landownership and the impact on affordability.
- Developing programs to reduce waste and pollution. These include waste audits on construction sites, processes for tracking construction waste, developing alternatives to traditional building materials, recycling programs, alternative stormwater management techniques and innovative building design options.

**A terms of reference for the work involved in items d) and e) above shall be prepared, in consultation with the development industry, and submitted to Council for approval by July 1996.**

## 6.2 Demonstrating that It Works

New community plans submitted over the next three to five years will be expected to follow the policies, performance criteria and planning process outlined in this report. To facilitate this, the Administration is preparing criteria for deciding where Growth Area Management Plans are needed. The objective is to concentrate planning efforts on strategic areas that are experiencing growth pressure in order to resolve regional issues and facilitate the preparation of Community Plans (see Section 5.0).

There may be opportunities to apply the policies in this report to individual communities in advance of a Growth Area Management Plan being finalized, provided regional or downstream impacts can be resolved. In addition, it may prove possible to apply some of the ideas to communities which already have ASP's, but for which outline plans have not yet been approved. In such cases, care will be taken to ensure that areas being planned complement portions of the community that have already been built, or for which plans have been approved.

As communities are developed under these policies it will be necessary to monitor both the planning process and the success in achieving the policies. It is expected that the acceptable performance criteria and design guidelines will be revised as a result of this monitoring exercise.

### **6.3 Applying the Study Recommendations**

The recommendations in this study have been drawn up following a collaborative planning exercise involving several City departments, the development and building industry, the school boards, the Federation of Calgary Communities, and many outside agencies, consultants and individuals involved with community planning.

Most participants now share a common vision of what needs to be done to design more sustainable residential communities. Equally important, a new level of co-operation and understanding between all parties has been established. It is in the public interest, and that of all parties involved, that this positive attitude be carried forward in the implementation of this study.

The recommendations of this study are capable of being applied in the planning of all new suburban communities, but it must be recognized that:

- a) The study recommendations are a considerable departure from the status quo and as such will require all parties involved to adopt new approaches to planning and development of suburban communities.
- b) With the exception of McKenzie Towne now under construction, most of the proposed criteria have not been used before in Calgary as a package in planning new communities.
- c) The successful implementation of these policies will require the City, being responsible for the provision and long-term operation and maintenance of infrastructure, to take some risks and be prepared to find alternative ways of doing things.
- d) The development industry will also have to look at doing things differently in that achieving the objectives of this study in the market-based approach to the provision of housing will require creative and innovative solutions.
- e) Many of the criteria are fairly specific (because vague generalities are too open to interpretation) but, they need to be monitored and adjustments made as required.

For these reasons it is proposed that the study recommendations should be initially approved by resolution of Council, not by by-law, so that amendments found necessary through the monitoring process can be made relatively easily. Ultimately it is anticipated that the study recommendations will be incorporated into a revised Calgary General Municipal Plan, a by-lawed document.

It would not be reasonable, and it is not intended, to apply the study recommendations equally to new communities and to communities for which a plan or planning concept has already been approved. It is proposed that the following criteria be used in determining the applicability of the study recommendations in different circumstances.

### **New Community Plans**

These are plans for new areas without an approved area structure plan that are of sufficient size to support a self-contained community (i.e.,  $\pm 12,000$  people) and for which a new community plan is envisaged.

- a) Community Plans should comply with all the policies and acceptable performance criteria in the study. **The policies and performance criteria work as a package and providing certain of the key elements and not others may compromise the success of the whole community design.**
- b) Planning reports accompanying Community Plan applications submitted to CPC and Council for a decision, **must include a detailed check list** showing the conformity of the plan to the criteria.
- c) Notwithstanding points a) and b) above, the Administration, CPC and Council, when evaluating and making a decision on a Community Plan, should:
  - i) adopt a policy of not refusing a plan for a new community merely because it fails to meet one or more of the Acceptable Performance Criteria, and
  - ii) be prepared to relax or forgive criteria in situations where the overall intent of the Sustainable Suburbs objectives has clearly been achieved and the team preparing the plan has valid reasons why certain requirements of this study could not be met.

### **New Community Plans for Small Areas**

These are new areas without an approved area structure plan that are too small to support a self-contained community.

The study recommendations should apply as with a Community Plan for a self-contained community except that some of the performance criteria, such as the full retail component recommended for the community public activity centre, may not be achievable. However, regardless of how small the planning area, many of the policies and criteria will be achievable and the team preparing the plan must endeavour to meet them.

### **Outline Plans Implementing an Approved Community Plan**

Outline plans must conform substantially to the design concept of an approved Community Plan or the applicant must seek an amendment to the Community Plan. However, provided that the overall integrity of the approved Community Plan will not be compromised, some variation in the details of an outline plan covering part only of a community should be acceptable.

### **Outline Plans Implementing an Approved Area Structure Plan**

If an approved area structure plan exists, proponents are encouraged to approach the City prior to commencing preparation of the plan with a view to incorporating as many of the design criteria of this study as are logical and feasible into the outline plan. The proponents and the City will mutually agree which of the design criteria are feasible having regard to factors such as the size of the outline plan area and its relationship to built areas. Following such agreement, the City will work with the developer to ensure that such initiative does not result in significant delays to the process.

### **Staffing Resources and Departmental Co-ordination**

Because it will require considerable change from the status quo, successfully implementing the study recommendations will place additional demands on City staff, particularly in the development of the first prototype communities.

Given the current budgetary constraints, the City Administration will have to carefully allocate resources provided by Council. Nevertheless, the City must attempt to respond positively to as many requests as possible from developers who wish to follow the study recommendations.

The success of the new process for preparing community plans is dependant upon careful co-ordination of input from City Departments. The Planning & Building Department will act in a leadership role for the Administration to provide this co-ordination.

### **Monitoring the Process**

Many of the ideas set out in this report have been generated through Round Table discussions. The Round Table will continue to meet to discuss innovative ways of implementing the policies of this report and to provide feedback to its members. In addition, the Administration will submit a formal report to Council on the application of the study policies within 3 years of Council's approval of the study.



## **SUSTAINABLE SUBURBS STUDY TEAM**

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## GLOSSARY OF TERMS

Where possible, the terms used in this study match definitions used in the **City of Calgary Land Use By-law 2P80**, other By-laws and policy documents. Other definitions apply only to this document.

**Additional Dwelling Unit** - means a secondary residential unit on a parcel, such as a suite in the basement or over a garage (often referred to as 'granny flats' or 'garage lofts').

**Affordable Homeownership** - means housing that is within the purchasing power of households earning the median household income for the City of Calgary.

**Architectural Controls** - means regulations that control the architectural design of buildings to ensure they are aesthetically acceptable to a community. They are often used by developers to regulate such building elements as facades, rooflines, door and window locations, massing, landscaping, exterior finish, etc.

**Area Structure Plan (ASP)** - means a statutory plan that establishes the policies and provides the framework for subsequent subdivision and development of an area of undeveloped land. Area structure plans are prepared by the Planning & Building Department in consultation with the landowner/developer, other City departments and public agencies.

**Arterial Roadways** - see **Street Types**.

**Bicycle Routes** - means informal on-street connections to local attractions within the community (e.g., to the community centre, neighbourhood nodes, joint use sites, neighbourhood parks, etc.) and designated City cycle routes.

**Boulevard** - see **Street Design Terminology**.

**Carriageway** - see **Street Design Terminology**.

**Certainty of Use** - means a category of discretionary uses in the Land Use By-law, which cannot be refused on the basis that the use is not appropriate. They may, however, be refused for other reasons.

**Collector Street** - see **Street Types**.

**Community** - means an identifiable geographical area within the larger urban area, primarily used for residential purposes. Communities are places to live, work, play and shop, and are made up of a number of neighbourhoods. The minimum for a complete, functional community is about 2.6 sq km (1 sq mi) with  $\pm 12,000$  residents.

**Community Centre** - means the primary public activity centre within a community. Community centres are intended to provide a mix of public and commercial activities, including transit, provision for goods and services, community facilities, schools and open space to serve the needs of the community.

**Community Facility** - means a building that serves as the public focal point within the community and is used for public meetings and social events. While a community hall is the usual community facility, opportunities for different types of facilities, as well as different financial and management options, will be considered.

**Community Lifecycle** - means the normal stages a community goes through: first the initial population increase as a community develops and is completed, followed by a period of population decline and stabilization as children grow up and leave home.

**Community Plan (proposed)** - means a non-statutory plan for a new residential community that provides a detailed framework for outline and land use plans.

**Concept Plan** - means a non-statutory plan under the current planning process, which is prepared by the developer as the precursor to preparing an area structure plan.

**Connector Street** - see **Street Types**.

**Constructed Wetlands** - means engineered wetlands for stormwater treatment based on the concept of using plant material and microbes to naturally extract excess nutrients and pollutants from incoming water.

**Corner (Curb) Radii** - see **Street Design Terminology**.

**Curvilinear Street Pattern** - means the typical post World War II suburban residential street system in North America, characterized by a collector road curving through a community with residential culs-de-sac, P-loops, crescents, etc., connecting to it.

**Density** - means the number of dwelling units in a given area expressed in dwelling units per gross hectare or acre (also see Gross Acre).

**Design Charette** - means an intensive workshop at which representatives of various planning-related interests participate to develop a plan for a given area.

**Direct Control** - means a land use district under the Land Use By-law that enables Council to impose site-specific rules on a piece of land as an alternative to the non site-specific uses and rules of other land use districts.

**Direct Linkages** - means short and relatively straight routes between identified points, utilizing the street system, walkways, pathways through parks, etc.

**Driving Lanes** - see **Street Design Terminology**.

**Duplex** - means a single building containing two dwelling units one above the other, each having a separate entrance.

**Dwelling Unit** - means two or more rooms used or designed to be used as a residence by one or more persons and containing kitchen, living, sleeping and sanitary facilities.

**Ecological Landscaping** - means the use of native and drought-hardy plant material rather than the conventional lawns and ornamental plants, to reduce fertilizer and pesticide use and to influence the micro-climate around a structure (e.g., trees to block winter winds or provide shade in summer).

**Environmentally Sensitive Area** - means an area of land and/or water that has existing characteristics of:

- a natural/native plant or animal community and/or
- portions of a natural ecological and/or geomorphic system.

It retains, or has re-established a natural character, although it need not be completely natural.

**Floor Area Ratio (FAR)** - means the quotient of the gross floor area of a building divided by the gross site area.

**Focal Point** - means a structure, feature or area of interest or activity.

**Gross Acre** - means the land area used to calculate density. The elements included and excluded are as follows:

INCLUDED IN DENSITY CALCULATIONS	EXCLUDED FROM DENSITY CALCULATIONS
<ul style="list-style-type: none"><li>• All residential land uses</li><li>• Neighbourhood shopping centres</li><li>• Municipal Reserve</li><li>• Municipal School Reserve</li><li>• Church sites</li><li>• Daycare centres</li><li>• Community halls</li><li>• All roads except Expressways, Freeways, and Major roads</li><li>• All lanes</li><li>• Commercial centres less than 2.8 ha (7 ac)</li><li>• Elementary schools, Junior High schools</li><li>• Small-site Fire and Police Stations</li><li>• Private golf courses (see Policy H.1)</li></ul>	<ul style="list-style-type: none"><li>• Environmental Reserve</li><li>• Expressways, Freeways, and Major Streets (annexation report)</li><li>• Regional and Sector Shopping Centres</li><li>• Major institutional centres</li><li>• Land reserved by the Province</li><li>• High School sites (purchased by the school boards)</li><li>• Vacant multi-family sites and single family acreages</li><li>• Commercial centres greater than 2.8 ha (7 ac)</li><li>• Industrial uses</li><li>• Regional land uses such as regional parks, etc.</li><li>• Community lakes (see Policy H.1)</li></ul>

**Gross Leasable Area (GLA)** - means the sum of all floor areas within a commercial building.

**Growth Area Management Plan** - means a plan prepared for growth areas of the city that provides a framework for (proposed) Community Plans. All or part of a Growth Area Management Plan may be a statutory area structure plan.

**Home Occupation** - means the accessory use of a dwelling unit or private garage, by the resident, for small scale business purposes. The Land Use By-law contains specific guidelines for home occupations.

**Household Size** - means the average number of persons living in a single occupied dwelling unit, determined from the Civic Census.

**Household Type** - means categories of the make-up of households determined from the Federal Census. The categories are: non-families; single parent; couples (married and common law) with children; and couples (married and common law) with no children.

**Housing Type** - means categories of dwelling units (regardless of ownership). The categories are: single family (single-detached dwellings); two-family (duplex, semi-detached and additional dwelling units); and multi-family (triplex, fourplex, townhouse, and apartment buildings).

**Infrastructure** - means the urban facilities that are required to service land for its subsequent development and use, usually referring to roads, bridges, and utilities.

**Jobs/Population Ratio** - means a measure of the number of jobs per number of residents within a given area and expressed as a ratio (e.g., 1:5 indicates one job for every five residents).

**Joint Use Site** - means municipal reserve lands jointly owned by the City of Calgary, the Calgary Board of Education and the Calgary Roman Catholic Separate School District #1 through the Joint Use Agreement. Provisions concerning planning, development and maintenance of sites are included in the agreement. Sites may contain schools, playfields, community association facilities, recreation facilities, dry ponds, etc.

**Linear Park** - means open space with a linear form which may contain pathways (regional or local, lighting, park furniture, tot-lot equipment, etc.).

**Major Street** - see **Street Types**.

**Manufactured Low Volume Toilet** - means a specially designed toilet having a smaller tank than regular models and a modified flushing mechanism to ensure efficiency with less water.

**Multi-family Dwelling** - means a building having three or more dwelling units: triplex, fourplex, townhouse, and apartment building.

**Neighbourhood** - means an area within a larger community, defined by a 5 minute direct walk to a central neighbourhood node.

**Neighbourhood Node** - means a secondary public activity centre serving an individual neighbourhood within a community. It contains a transit stop and may include a smaller mix of activities than the community centre.

**Occupancy Rate** - see **Household Size**.

**Outline Plan** - means a non-statutory plan, usually for a phase of a new community, that establishes the detailed design of the subdivision, including street and lane patterns, utility layout and dedication of reserve land.

**Pedestrian-oriented or Pedestrian-friendly** - means an environment designed to make movement (on foot or by wheelchair) fast, attractive and comfortable for various ages and abilities (i.e., visual and hearing impaired, mobility impaired, developmentally challenged, situationally impaired). Considerations include separation of pedestrian and auto circulation, street furniture, clear directional and informational signage, safety, visibility, shade, lighting, surface materials, trees, sidewalk width, prevailing wind direction, intersection treatment, curb cuts, ramps, landscaping, etc.

**Permitted Uses** - means uses that are well-suited to a particular land use district. Applications relating to permitted uses that fully comply with the Land Use By-law must be approved.



**Poverty Line** - means an income level at which people are spending at least 55 percent of their income on food, clothing and shelter.

**Primary Collector Street** - see **Street Types**.

**Regional Open Space System** - means the city-wide park and recreation network, which includes the various types of open space, parks, golf courses, etc., as well as the regional pathway system.

**Regional Pathway System** - means the identified city-wide network of both on and off-street routes for cyclist and pedestrian use for recreational and travel purposes.

**Regional Shopping Facilities** - means a group of commercial uses that provides a wide variety of goods and services on a city-wide scale, and may include offices and other non-commercial uses.

**Residential Street** - see **Street Types**.

**Sector Centre** - means a group of commercial uses that provides a wide variety of goods and services to a number of communities, and may include offices and other non-commercial uses.

**Semi-detached Dwelling** - means a single building designed and built to contain two side-by-side dwelling units, separated from each other by a party wall extending from foundation to roof.

**Single-family Dwelling** (also referred to as single detached dwelling) - means a single residential building containing one dwelling unit only. It does not include mobile homes.

**Site Planning Team** - means the sub-committee to the Joint Use Coordinating Committee, generally responsible for the overall location and detailed planning of joint use sites. Membership includes representatives from the two school boards, the Federation of Calgary Communities, Calgary Parks & Recreation, Transportation Department and the Planning & Building Department. Sewer Division serves in an advisory role on stormwater management issues.

**Spatial Planning** - means the process of determining the locations of different land uses within a planning area.

**Streetscape** - means all the elements that make up the physical environment of a street and define its character. This includes paving, trees, lighting, building type, style, interface and setback, pedestrian amenities, street furniture, etc.

## Street Design Terminology:

**Boulevard** - means the portion of land on either side of a street, between the curb and the property line, and may include a sidewalk [either separated or immediately adjacent to the road pavement (monolithic)].

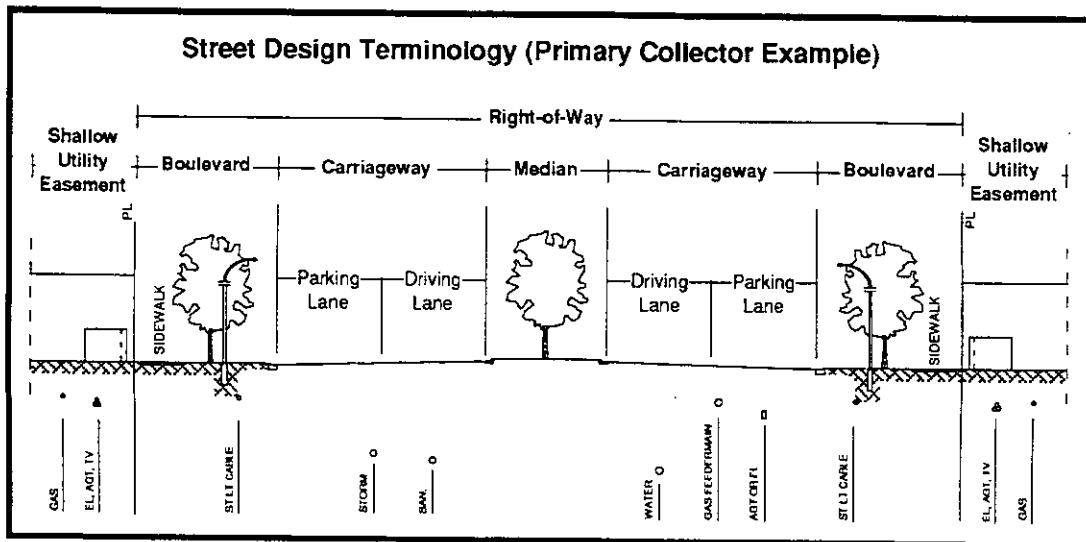
**Carriageway** - means the paved area or roadway from curb to curb on streets, including driving and parking lanes.

**Corner Curb Radii** - means the radius of the circle formed by the curve of the curb at the corner of two intersecting streets. It is used in street design as a measure of the sharpness of the corner.

**Driving Lane** - means the paved area on the carriageway for free vehicle or bicycle movement.

**Parking Lane** - means the paved area on the carriageway for vehicle parking.

**Shallow Utility Easement** - means a right-of-way containing facilities for gas, electricity, telephone and cable television.



## Street Types (hierarchy):

**Residential Street** - means a discontinuous undivided roadway designed to permit low speed travel within a neighbourhood and direct access to adjacent properties, with intersections at-grade and traffic signals or signals provided at intersections with collector streets (referred to in the Land Use By-law as a Local Street).

**Connector Street** (proposed) - means a street providing direct links between residential areas and community destinations and between neighbourhoods. This is an alternative street standard to a collector street. Connectors are intended to provide multiple, direct routes to destinations to distribute traffic over more routes. They are intended to carry moderate levels of traffic, provide on-street parking, and can have residential frontage.

(See Peter Calthorpe, The Next American Metropolis: Ecology, Community and the American Dream, New York: Princeton Architectural Press, Inc., 1993.)

**Collector Street** - means an undivided roadway serving secondary traffic generators and traffic within a community. Traffic signals are at major intersections and direct access is permitted to adjacent properties, except at major intersections. It is distinguished from a primary collector street only by its lower design volume and may function as a bus route.

**Primary Collector Street** - means a divided or undivided roadway designed to collect and distribute traffic from major streets to streets of a lesser standard and to serve secondary traffic generators and traffic within a community, with traffic signals at major intersections and direct access permitted to adjacent properties, except at major intersections. It is distinguished from a collector by its higher design volume, and may function as a bus route.

**Major Street** - means a roadway, generally divided with at-grade intersections and traffic signals, designed to collect and distribute traffic to and from freeways and expressways to less important streets, major traffic generators, and from subdivision to subdivision.

**Arterial** - means a street designed for high volume, through-traffic. In Calgary this would equate to a Major Street, Freeway or Expressway.

**Transit-oriented, transit-friendly or transit-supportive** - means the elements of urban form and design which make transit more accessible and efficient. These range from land use elements (e.g., locating higher density housing and commercial uses along transit routes) to design (e.g. street layout which allows efficient bus routing.) It also encompasses pedestrian-friendly features as most transit riders begin and end their rides as pedestrians.

**Utilities** - means facilities for gas, electricity, telephone, cable television, water, storm and sanitary sewer.

**Vehicles** - means all motorized conveyances for street travel (whether for private, public or business purposes), and includes automobiles, vans, trucks, motorcycles, recreational vehicles, emergency vehicles, buses, tractor trailers, etc.

**Waste Audit** - means a systematic monitoring of waste. It is normally achieved by sorting the waste into categories, evaluating the amount generated, the amount that is reusable in its existing state and the amount that can be recycled.



## SELECTED BIBLIOGRAPHY

- Alberta Energy. *Energy Matters Publication Series*. Government of Alberta, Energy Efficiency Branch.
- Alberta Environmental Protection. *Waste Minimization Manual*. Government of Alberta, Action on Waste.
- Baker, Maureen. *Canada's Changing Families*. Ottawa: Vanier Institute of the Family, 1994.
- Barton-Aschman Associates, Inc. *Shared Parking*. Washington, D.C.: ULI - The Urban Land Institute, 1983. 87 pp.
- Bergman, David ed. 'Off-Street Parking Requirements.' Chicago: *APA PAS 432* (May 1991): 26 pp.
- Bowes, W.; Gravel, M.; and Noxon, G. *Guide to Transit Considerations in the Subdivision Design and Approval Process*. Ottawa: Transportation Association of Canada, (1991).
- Brown, Lester R. *State of the World 1991: A Worldwatch Institute Report on Progress Toward a Sustainable Society*. New York: W.W. Norton & Company, 1991.
- CMHC. *Healthy Housing: A Guide To A Sustainable Future*. Ottawa.
- Calthorpe Associates. *Transit-Oriented Development Design Guidelines*. Prepared for the City of San Diego: 1992.
- Calthorpe, Peter. *The Next American Metropolis*. New York: Princeton Architectural Press, 1993.
- Canada. *Super Energy Efficient Housing and Solar Orientation*. Ottawa: Energy, Mines and Resources Canada, 1984.
- Canada. *The Neighborhoods - Calgary. Parts A & B*. Ottawa: Statistics - Canada.
- Canada. *Vision of Life in a Sustainable 21st Century Canadian City*. Ottawa: CMHC.
- Canadian Urban Transit Association. *Demographic and Socioeconomic Trends: Implications for Urban Transit in Canada*. Phase 1 Final Report. Tranplan Associates, Environics Research Group (November, 1990).
- Carver, Humphrey. *Cities In The Suburbs*. Toronto: University of Toronto Press, 1962.
- City of Calgary. *1994-1998 Business Plan*. Calgary Parks & Recreation (1994).
- City of Calgary. *1994 Civic Census*. Statistical Services Division, Planning & Building Department (1994).
- City of Calgary. *A Policy on Dry Ponds*. Engineering Department (1989).
- City of Calgary. *A Policy on Stormwater Lakes*. Engineering, Parks & Recreation, and Planning Departments (1981).

- City of Calgary. Commissioners' Report To Operations And Development Committee. *Residential Water Meters*. (1989).
- City of Calgary. *Natural Area Management Plan*. Calgary Parks & Recreation (1994).
- City of Calgary. *Review of Off-Site Development Charges*. Directors' Growth Management Steering Committee (June, 1994).
- City of Calgary. *The Allocation of Open Space in Developing Communities*. JUCC Project Team (1993).
- City of Calgary. Transportation Department. *System Status 91* (1991).
- City of Mississauga. *Official Plan of the City of Mississauga*. (1980): 85.
- City of Montreal. *Master Development Plan for the Central District*. (1988): 30-31.
- City of Ottawa. *Vision For Ottawa: City of Ottawa Official Plan*. (1991): 17-21.
- City of Regina. *Regina RSVP. A Planning Strategy for Regina*. (1977): 62, 75-81.
- City of Toronto, and Wekerle, G.R. *A Working Guide for Planning and Designing Safer Urban Environments*. Toronto: Safe City Committee of the City of Toronto (1992).
- City of Vancouver. *Greenways - Public Ways: Final Report*. Urban Landscape Task Force (1992).
- D'Amour, David. *Towards an Investigation of Sustainable Housing*. Ottawa: CMHC (July, 1993).
- Duany, Andres, Elizabeth Plater-Zyberk. *Towns and Town-Making Principles*. 2nd ed. Cambridge, Mass.: Harvard University Graduate School of Design, 1991.
- Essiambre, Phillips, Desjardins et al. *Infrastructure Costs Associated With Conventional and Alternative Development Patterns*. Phase One Report: Assessment Of Conventional Development Pattern. Prepared for CMHC (December, 1994).
- Girling, C.L., and Helphand, K.I. *Yard, Street, Park: The Design of Suburban Open Space*. New York: John Wiley & Sons, 1994.
- ITE Technical Committee 5P-8. *Traffic Engineering for Neo-Traditional Neighborhood Design: A Synthesis Report*. Washington, D.C., 1992.
- Kelbaugh, D., ed. *Pedestrian Pocket Book: A New Suburban Design Strategy*. New York: Princeton Architectural Press, 1989.
- Lerner-Lam, Eva; Celniker, S.P.; Halbert, G.W.; Chellman, C.; and Ryan, S. 'Neo-Traditional Neighborhood Design and Its Implications for Traffic Engineering.' *ITE Journal* (January 1992): 17-25.
- MacKenzie, James J.; Dower, Roger C.; and Chen, Donald D.T. *The Going Rate: What it Really Costs to Drive*. New York: World Resources Institute, 1992.

- McHarg, Ian L. *Design With Nature*. Garden City, N.Y.: Doubleday & Co. Inc., 1969.
- McKeever, J. Ross, ed., *The Community Builders Handbook*. Washington: U.L.I. - The Urban Land Institute, 1968.
- Nelessen, Anton Clarence. *Visions For A New American Dream*. 2nd ed. Chicago: Planners Press, APA, 1994.
- Newman, Peter, and Kenworthy, Jeffrey. *Cities and Automobile Dependence: An International Sourcebook*. Brookfield: Gower Publishing Co. Ltd., 1989.
- North Carolina. City-County Planning Board. Forsyth County. *Vision 2005: A Comprehensive Plan*. (1988): 92-95.
- Ontario. *Making Choices: Alternative Development Standards*. Ministries of Housing and Municipal Affairs. (1994).
- Ontario. *Transit-Supportive Land Use Planning Guidelines*. Ministries of Transportation and Municipal Affairs. (1992).
- Ostler, Jolene. 'A New Street Classification System: Phoenix Style.' Chicago: APA PAS Memo (April 1993) 4 pp.
- Owens, Peter M. 'Neighborhood form and pedestrian life: Taking a closer look.' *Landscape and Urban Planning*, 26 (1993): 115-135.
- Perks, W.T.; Van Vliet, D. *Assessment of Built Projects for Sustainable Communities*. Faculty of Environmental Design. University of Calgary, 1993.
- Perks, W.T., Van Vliet, D.; and Naylor, B. *Innovative Site Development Standards Review*. Draft Report. Faculty of Environmental Design, The University of Calgary (1991).
- Regional Municipality of Ottawa-Carleton. *Alternative Development Standards: Proposals to Reduce Housing Costs*. Regional Working Committee on Alternative Urban Development Standards (June, 1992).
- Roseland, Mark. *Toward Sustainable Communities*. Ottawa: National Roundtable on the Environment and the Economy, 1992.
- Smith, Thomas, P. 'Flexible Parking Requirements.' Chicago: APA PAS 377 (August 1983) 38 pp.
- Tourbier, J. Toby. 'Open space through stormwater management.' *Journal of Soil and Water Conservation*. 49 (January-February 1994): 14-21.
- U.K. Department of the Environment. PPG 6. *Town Centres and Retail Developments*. London: HMSO, 1994.
- U.K. Department of the Environment. RPG 8. *Regional Planning Guidance for the East Midlands Region*. London: HMSO, 1994.
- U.K. Department of the Environment. PPG 13. *Transport*. London: HMSO, 1994.

- U.K. Transport and the Environment. *Royal Commission on Environmental Pollution*. London: HMSO, 1994.
- U.K. Department of the Environment. *Sustainable Development: The UK Strategy*. London: HMSO, 1994.
- U.S. Department of Transportation. *Transit-Supportive Development in the United States: Experiences and Prospects*. Washington: Federal Transit Administration, 1993.
- University of Calgary. *Sustainability and Planning: An Annotated Bibliography*. 2nd Draft. Faculty of Environmental Design. (1993).
- Urban Land Institute. American Society of Civil Engineers. National Association of Home Builders. *Residential Streets*. 2nd ed. Washington: 1990.
- Wetland Design Group. *Constructing Wetlands for Water Quality Enhancement in Western Canada*. Friends of the Environment 1994.



**CALGARY CITY COUNCIL DECISION 1995 JULY 17**  
**CALGARY PLANNING COMMISSION RECOMMENDATION 1995 JUNE 14**

22-95-73  
 Amendment  
 Sustainable  
 Suburbs Study

MOVED BY ALDERMAN HIGGINS, SECONDED BY ALDERMAN HAWKESWORTH, that the document entitled, "Sustainable Suburbs Study: Creating more Fiscally, Socially and Environmentally Sustainable Communities", as attached to the C.P.C. Report, Proposal - Sustainable Suburbs Study, Item M-95-028, dated 1995 June 14, be amended on Page 47, under "Design Guidelines", Item (f), by the addition of the word, "lofts", after the words, "units in basements".

(ALDERMAN SCHMAL OPPOSED)

MOTION CARRIED

22-95-74  
 Amendment  
 Sustainable  
 Suburbs Study

MOVED BY ALDERMAN HIGGINS, SECONDED BY ALDERMAN BRONCONNIER, that the document entitled, "Sustainable Suburbs Study: Creating More Fiscally, Socially and Environmentally Sustainable Communities", as attached to the C.P.C. Report, Proposal - Sustainable Suburbs Study, Item M-95-028, dated 1995 June 14, as amended, be further amended on Page 64 by the deletion of the Sections entitled, "Acceptable Performance" and "Design Guidelines", in their entirety.

VOTE WAS AS FOLLOWS:

<u>YEAS:</u>	Aldermen Kerr, Schmal, Bronconnier, Higgins and Hodges .....	5
<u>NAYS:</u>	Aldermen Johnston, Kraychy, Scott, Smith, Clark, Hawkesworth and Mayor Duerr .....	7

MOTION LOST

22-95-75  
Amendment  
Sustainable  
Suburbs Study

MOVED BY ALDERMAN HIGGINS, SECONDED BY ALDERMAN SCHMAL, that the document entitled, "Sustainable Suburbs Study: Creating More Fiscally, Socially and Environmentally Sustainable Communities", as attached to the C.P.C. Report, Proposal - Sustainable Suburbs Study, Item M-95-028, dated 1995 June 14, as amended, be further amended on Page 83, under Item v), Reducing Waste and Pollution, by the deletion of the first bullet in its entirety, as follows:

- "● Assess the anticipated capital savings related to mandatory water metering in new communities and universal metering."

VOTE WAS AS FOLLOWS:

YEAS: Aldermen Kerr, Schmal, Bronconnier and Higgins . . . . . 4  
NAYS: Aldermen Kraychy, Scott, Smith, Clark,  
Hawkesworth, Hodges, Johnston and Mayor Duerr . . . . . 8

MOTION LOST

22-95-76  
Amendment  
Sustainable  
Suburbs Study

MOVED BY ALDERMAN HIGGINS, SECONDED BY ALDERMAN HAWKESWORTH, that the document entitled, "Sustainable Suburbs Study: Creating More Fiscally, Socially and Environmentally Sustainable Communities", as attached to the C.P.C. Report, Proposal - Sustainable Suburbs Study, Item M-95-028, dated 1995 June 14, as amended, be further amended on Page 85, as follows:

- 1) Under the heading, "New Community Plans", in the first paragraph, by the addition of the word, "new", after the words, "These are plans for"; and
- 2) Under the heading, "New Community Plans for Small Areas", in the first paragraph, by the addition of the word, "new", after the words, "These are".

MOTION CARRIED

NOTE: Alderman Kraychy commended all of the participants of the round table who contributed to the Proposed Sustainable Suburbs Study.

22-95-77  
As Amended  
CPC Report  
Sustainable  
Suburbs Study

MOVED BY ALDERMAN KRAYCHY, SECONDED BY ALDERMAN  
CLARK, that the Recommendation contained in the C.P.C. Report,  
Proposal - Sustainable Suburbs Study, Item M-95-028, dated 1995  
June 14, be adopted, as amended.

(ALDERMAN HIGGINS OPPOSED)

MOTION CARRIED

## REPORT TO THE CALGARY PLANNING COMMISSION

<b>MISCELLANEOUS</b>	ITEM NO: M-95-028
	CPC DATE: 1995 June 14

**PROPOSAL:** Sustainable Suburbs Study: Creating More Fiscally, Socially and Environmentally Sustainable Communities

### BACKGROUND:

The Sustainable Suburbs Study was initiated to change the way new suburban communities are designed and developed in order to:

1. implement the objectives of the Calgary Transportation Plan (1995 May 29) relating to reducing the need to drive;
2. control the costs of growth;
3. better meet people's needs by providing a variety of housing and the shops and services needed for daily living; and
4. encourage more sustainable lifestyles, and in so doing, help achieve the City's Environmental Policy, Principles and Goals, (1994).

### SUMMARY OF THE STUDY

The Study proposes significant changes to:

- the way new suburban communities are designed and developed; and
- the hierarchy of plans and the process used to plan new suburban areas.

a) Key Changes to the Design and Development of New Communities:

The general strategy is to design communities along the lines of an urban village, with a wide variety of housing to suit people of all ages and lifestyles, an adequate choice of shops and services nearby and a significant public realm. The study does not attempt to impose any single design approach, but rather seeks to ensure communities have the following major elements:

- A focal point and recognizable boundaries and entrances that give the community a distinct identity.
- A strategically located public activity centre, offering a variety of goods and services sufficient to meet people's daily needs.
- A mixture of residential, public and commercial uses at and near the activity centre.

- Parks, schools and shops within a comfortable 5 minute walking distance of most homes.
- Safe, pedestrian and cyclist-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 private vehicle, especially for the journey to work.
- Protected natural areas and a variety of linked open spaces offering a choice of activities and connected, where possible, to the regional open space system.
- Connections to the regional pathway system providing a safe transportation and recreation option for pedestrians and cyclists.

To achieve these elements, the report outlines 28 policies, the public benefit intended by each policy, a checklist of "Acceptable Performance" standards which will achieve the policy, and suggested "Design Guidelines". These elements work best as a package in new communities where no development has taken place. In smaller areas, it may not be possible to achieve all of the elements, but many of the key policies can be followed.

b) Key Changes to the Planning Process

The Sustainable Suburbs Study outlines changes needed to establish a collaborative and comprehensive process for planning suburban communities, with a new hierarchy of plans to include Growth Area Management Plans and Community Plans.

Growth Area Management Plans are a new level of strategic planning between the General Municipal Plan and the Community Plan. They will be prepared for major growth areas of the city only and provide the framework for several community plans. Growth Area Management Plans will address regional and downstream issues, major land uses, public systems, transit corridors and community plan boundaries.

Community Plans will replace Area Structure Plans and offer a greater level of detail. Outline Plans will continue to be used to establish land use designations.

c) Key Points on Implementing the Study:

To implement the report the Administration is recommending that the policies and performance standards:

- a) be approved by resolution of Council, not by by-law;
- b) be applied universally in new, prototype communities, with their effects monitored and the policies and standards revised before ultimate incorporation into a revised General Municipal Plan;
- c) serve as a checklist to evaluate new community plans, with the Administration, CPC and Council adopting a policy of not refusing a plan for a new community merely because it fails to meet one or more of the "Acceptable Performance" standards if the overall intent of the Sustainable Suburbs policies has clearly been achieved, and there are valid reasons why certain requirements could not be met; and
- d) serve as the basis for discussions proponents might want to initiate with the City on revising existing approved but undeveloped communities to incorporate sustainable principles.

The City must be prepared to take some risks by accepting new suburban designs in order to encourage the development of prototype communities to test the policies. In addition, City departments must co-ordinate planning efforts and be organized in a way that ensures the new planning process works efficiently.

## **PUBLIC PARTICIPATION IN THE STUDY PROCESS**

The study was developed under the guidance of a Round Table on Sustainable Community Development made up of representatives involved in the planning, designing and development of suburban communities. The work of the Round Table was supported by research on suburban planning locally and across North America, and the use of the extensive research and surveys conducted by GoPlan.

Early versions of the policies were reviewed at a design charette with the members of the Round Table, and presented at open houses held in each ward as part of GoPlan. The draft report was circulated to all those who participated in or assisted the Round Table, many of the members they represented and close to 200 public citizens who had requested copies. The report was revised based on the comments received.

## CONCLUSION

The Sustainable Suburbs Study presents opportunities for improving the way new suburban communities are planned and developed, but at the same time it challenges all those involved in creating new communities to approach them with a new vision and objectives. The policies must be implemented with flexibility to provide the opportunity to respond creatively to special locational and other conditions. The City must be prepared to dedicate sufficient resources to ensure the new planning process is efficient and effective. Finally, although the study is directed at new areas, there are opportunities to create a more sustainable city as a whole. Experience with the policies in the Sustainable Suburbs Study will be helpful in this regard.

## **PLANNING RECOMMENDATION:**

## **APPROVAL**

That the Calgary Planning Commission recommend to City Council:

1. That the recommendations in Sustainable Suburbs Study: Creating More Fiscally, Socially and Environmentally Sustainable Communities be approved and used as the basis for evaluating plans for new development submitted between 1995 August and 1998 August, following the process outlined in Section 6.3 of the Study.
2. That the work programs necessary to undertake the follow-up work described in Section 6.1 of the Study be prepared by the Administration and presented to Council through the annual budget process.
3. That in recommending that the Sustainable Suburbs Study be approved, the Commission draw to City Council's attention Section 6.3 which sets out the context within, which the Study's recommendations are to be implemented.

Attachment: Sustainable Suburbs Study: Creating More Fiscally, Socially and Environmentally Sustainable Communities

**PLANNING COMMISSION DECISION:**

95/06/14

The Calgary Planning Commission recommended that Council **APPROVE** the proposed Sustainable Suburbs Study in accordance with the planning recommendation as amended.

**Moved by: R. Parker Carried: 8-0**

**Absent: H. Quintilio**

**Motion Arising:**

Letter from Trouth Agencies Ltd., be referred to the Planning & Building Department for response.

**Moved by: R. Parker Carried: 8-0**

**ACTION RECOMMENDED:**

Approval of the above recommendation.

RJW/RL/jmg/vm  
5 (Mis\1995)  
95/07/06