AN EXAMINATION OF ALTERNATIVE METHODS OF COMMUNITY DEVELOPMENT/DESIGN

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B.E.S., The University of Waterloo, 1993

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF

THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF SCIENCE

in

THE FACULTY OF GRADUATE STUDIES

(School of Community and Regional Planning)

We accept this thesis as conforming

to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA

February, 1997

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Date February 25, 1997

ABSTRACT

The prevailing development pattern of sprawling suburbs prevents sustainability and can no longer be tolerated. Since the end of WWII the "American Dream" to own a single-family home on a large lot away from the blight of downtowns has greatly reduced the quality of life of North Americans. To reverse this trend sustainable development/ sustainability must be society's goal. This means that the actions of society - particularly where community development/design is concerned - must promote environmental integrity, economic vitality, and social well-being. The recent New Urbanism Movement which focuses on community development/design makes this important realization. In doing so, it has fostered a series of alternative methods of community development/design which promote environmental integrity, economic vitality, and social well-being. The most prominent examples are Traditional Neighbourhood Development, Transit Oriented Development, and, more recently in Canada, the Metropolitan Purlieu. However, these concepts are not panaceas to sustainability and can gain further insight from earlier development/design projects such as Village Homes in California. By combining the best of the ideas from these concepts and supplementing them with further ideas a concept which further enhances environmental integrity, economic vitality, and social well-being is developed. However, such a concept is only useful if it can be successfully implemented. Thus, prominent barriers to sustainable community development/design such as uncertainty over cost and marketability, and inadequate regulations/guidelines to allow for or promote alternative methods of development/design must be overcome. One method of achieving this is through the use of the performance point system which is devised here. Regardless of the method of

implementation used to enhance the environmental integrity, economic vitality, and social well-being of a community, it is clear that immediate action is required. Without it, the quality of life of North Americans will continue to deteriorate and sustainability will not be realized.

TABLE OF CONTENTS

LIST OF FIGURES

ACKNOWLEDGEMENTS

Let it never be said that the achievement of a worthwhile endeavour is without its challenges and rewards. With this in mind I would like to thank those who have helped me to face these challenges and allow me to reap the rewards - you know who you are.

I would also like to express a special thanks to Professors Alan Artibise, Tom Hutton and Setty Pendakur. Their guidance and helpful insights are greatly appreciated.

Finally, I must acknowledge the love, understanding, and dedication of my parents from which I gain the strength to overcome the obstacles which everyday life confronts us all with.

1.0 INTRODUCTION

Alternative methods of community development/design have been fostered by poor decisions in the past causing urban sprawl and preventing sustainability. To fully understand this, the history of development in North America must be examined.

1.1 History of Urban Sprawl

Urban development in North America since 1900 has promoted urban sprawl and prevented long term sustainability. Cities were built for extraction of resources which encouraged unregulated growth. North American cities lacked the medieval fortifications of European towns which served to regulate their development (Van der Ryn & Calthorpe, 1986).

As cities grew rapidly in the 1950s and 1960s large numbers of people began moving to the suburbs. Fortunately, up until the 1920s, urban sprawl was limited to land directly along streetcar lines. This effectively restricted the detrimental affects (Ward, 1976).

Shortly after World War I, however, the car became the dominant force driving urban sprawl. With the car came the ability to determine one's own travel patterns. This opened vast amounts of land for development. At about the same time, planning professionals were eagerly segregating residential districts from commercial and industrial districts to avoid the inherent health hazards of such land uses. Zoning became the tool that planners utilized to protect land values, foster family environments and maintain a degree of economic and social exclusion (Ward, 1976).

The end of World War II proved to be the greatest boon to urban sprawl. Mass production, and the return of many soldiers requiring

affordable housing, allowed suburbia to become the "American Dream." Federal highway investments in the United States and Canada promoted even easier access to suburban locations. The availability of low cost land and cheap energy at the time exacerbated the problem (Calthorpe, 1993).

The 1950's saw the invention of the regional shopping centre and industrial park, both of which were strung out along the landscape in very low density capacities, demanding the use of the automobile. With a great increase in the use of the car, it was deemed necessary to increase the size of roads. Planners began in earnest to design roads in a hierarchial manner from freeway, to arterial, to collector, to local streets. In addition, even the smallest cul-de-sacs were designed with a turning radius to accommodate any service or emergency vehicle. Little has changed today (Calthorpe, 1993).

What has all of this done? It has greatly reduced the quality of life of North Americans. The environmental and social ramifications which developed along with suburbia are numerous. Vast tracts of land have been swallowed up by sterile neighbourhoods. Air quality has greatly decreased due to the increased reliance on the car. Extra leisure time promised to North Americans was eaten up behind the wheel of a car during a lengthy commute each day. This has resulted because urban sprawl has been allowed and even encouraged for the past century. Consequently, sustainable development/sustainability has been prevented (Calthorpe, 1993).

1.2 Sustainable Development/Sustainability

Before making the connection between alternative methods of community design and sustainable development/sustainability, it is

important to examine the concept.

Sustainable development/sustainability was an issue before Our Common Future, The World Commission on Environment and Development (the Brundtland Commission) was published. However, it is clear that the commission was a milestone in achieving global awareness of the issue. For the first time, an attempt was made to define sustainable development on a world-wide scale. After much discussion and heated debate, the definition that was finally acceptable states: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987, p.2).

This is the definition which has come to be generally accepted as the one which is referred to when the issue of sustainable development arises. However, its validity as a useful definition of sustainable development came under question even before it was published.

Is this an acceptable definition of sustainable development? In general terms, one might be willing to say yes. However, when examining the complexity of the issue of sustainable development it is woefully inadequate. Thus, many attempts have been made to enhance the definition or even change it to fit the circumstances in question. Some other attempts at the definition of sustainable development include:

> • Sustainable development means being able to meet the needs of today, of our present generation, without damaging the ability of future generations to meet theirs. It means accommodating growth without destroying the livability and natural environment of our region. And it means recognizing that environmental, economic and social issues are inextricably linked. (British Columbia Round Table on the Environment and the Economy. Georgia Basin

Initiative, Creating A Sustainable Future. May, 1993. Pamphlet);

• Essentially, the 'sustainable development' concept means not stealing from our children and children yet to come; resources should be managed in a way that takes into account not only their present value but their future wealth as well. (Hilts and Fuller, Eds., The Guelph Seminars On Sustainable Development. 1990, p.5);

• The concept of sustainable growth encompasses the necessity of continued economic growth to meet basic human needs around the globe while also underscoring that the growth must be of such a nature that it can be sustained indefinitely by respecting nature's boundary conditions. (Yarnarella and Levine, "Does Sustainable Development Lead to Sustainability?" Futures, October, 1992, p.761); and

• Sustainable development is positive socioeconomic change that does not undermine the ecological and social systems upon which communities and society are dependent.(Rees, "Defining Sustainable Development," 1989)

It is clear that each of these definitions parallels that of the Brundtland Commission's, but, each also has its own unique attributes. Thus, it is evident that there is a problem when examining sustainable development. There is no clear, unanimously agreed upon definition.

In an attempt to alleviate the need for a common definition of sustainable development, many people have produced lists of attributes which aspire to incorporate all of the concepts of sustainable development. However, this too presents problems, as no list can be exhaustive, and they are inherently linked to inadequate or self serving definitions of sustainable development.

Clearly, it is difficult to pinpoint exactly what sustainable development/sustainability means or what it incorporates. The only thing that seems for certain is that it is a tremendously complex concept. Therein lies the problem which has not received the attention it deserves. When grappling with such a complex idea, one must

question whether or not true sustainability can be achieved.

What may be referred to as 'hard sustainability' is indeed the truest and arguably the only form of sustainability. 'Hard sustainability' requires referring to its root, sustainable, for what it really means. That is, something regardless of what is being referred to will continue to operate *perpetually*. Given that development cannot operate perpetually due to scarce resources such as land, sustainable development is an oxymoron. It simply cannot be achieved, at least given the form of development occurring today in connection with available technology. That is not to say that a technological fix is the answer. Indeed, it has been demonstrated that such a stance is unrealistic.

This does not negate any attempt to be sustainable. It merely means that it is currently out of our reach. However, if society is ever to be sustainable, it must continue to advance the ability to achieve it. Of most importance here is the realization that the crucial components of the concept, and what actions promote and demote our ability to be sustainable, are identifiable.

The crucial components of sustainability in society are the environment, the economy and society itself. To be sustainable these components must work congruently to support the existence of the planet. Actions which do not promote environmental integrity, economic vitality, and social well-being are not sustainable.

It is here where the connection between alternative methods of community development and sustainable development/sustainability can be made. Given that the current methods of development centred around sprawling suburbs is unsustainable, it is natural to seek alternatives which may close the gap to the realization of sustainability. It is

realized that community development is only a small piece in the puzzle of sustainability. However, it is an integral one nonetheless. Furthermore, it is not meant to suggest that any of the alternative methods of community development examined in this paper claim to be sustainable. However, they do represent the next step in community development towards sustainability. Like all aspects of sustainability, community development must take an incremental approach to achieving the end goal. Thus, it is now necessary to examine alternative methods of community development/design and determine their ability to promote the crucial components of sustainability. To do so successfully, a multiple account analysis is used where the attributes which promote the components of sustainability are assigned different ranking factors based on their relative importance (see Figure 6).

2.0 ALTERNATIVE METHODS OF COMMUNITY DEVELOPMENT/DESIGN

In reviewing the concepts of the following alternative methods of community development/design, they will be evaluated on their ability to promote environmental integrity, economic vitality, and social well-being.

2.1 The New Urbanism

The New Urbanism is a relatively new movement in community development/design derived from old ideas. It receives its inspiration from the older communities of North America where the automobile had not become the focus of everyday life. These communities are viewed as holding the secrets to more livable communities and their design for future development.

Unlike many other attempts to increase the quality of community life and reduce detrimental impacts on the environment, the New Urbanism is not merely cheap window dressing masking the root of the problems which exist in communities, towns and cities today. It is much deeper than that. It is an attempt to revive the principles of community development/design which have been ignored for too long and have been all but forgotten. The sense of community that is so vital in achieving a quality development which well planned public spaces provide are realized and incorporated into the New Urbanism. Everyday needs are focused on and are provided for without demanding the use of the automobile which has robbed society of its human scale. And, inherent within the concept are crucial steps which are needed to promote environmental integrity, economic vitality, and social well-being (Katz, 1994).

The New Urbanism is a legitimate attempt at beginning a new

chapter in city planning away from urban sprawl and the suburbs which have been built and planned for over the last half century. It is not an extension of the familiar rhetoric of growth at any cost which many planners, developers and politicians promote.

The examples of alternative methods of development/design which follow are those that have received the most attention recently, and all but one are derived from the New Urbanism Movement. These include Traditional Neighbourhood Development, Transit Oriented Development, the Metropolitan Purlieu and Village Homes. The one concept not derived from the New Urbanism Movement is the Village Homes concept which exists in southern California, and was developed well before any of the other concepts or the New Urbanism Movement began. However, it is included here because it is clear that the newer concepts can gain much from this concept/development.

Each of the alternative methods of development/design will be scrutinized for their ability to promote environmental integrity, economic vitality and social well-being.

2.2 Traditional Neighbourhood Development (TND)

Credit for the concept of Traditional Neighbourhood Development (TND), although not exclusive, can be given mainly to Andres Duany and Elizabeth Plater-Zyberk. Since 1980, their architecture firm has been most influential in reviving the design concepts found in older traditional towns of North America for use in new developments.

The focus of TND is on the neighbourhood which is based on how far a person can easily walk within five-to-ten minutes. This consists of an area of about 80 hectares, or slightly less than one square kilometre (see Figure 1).

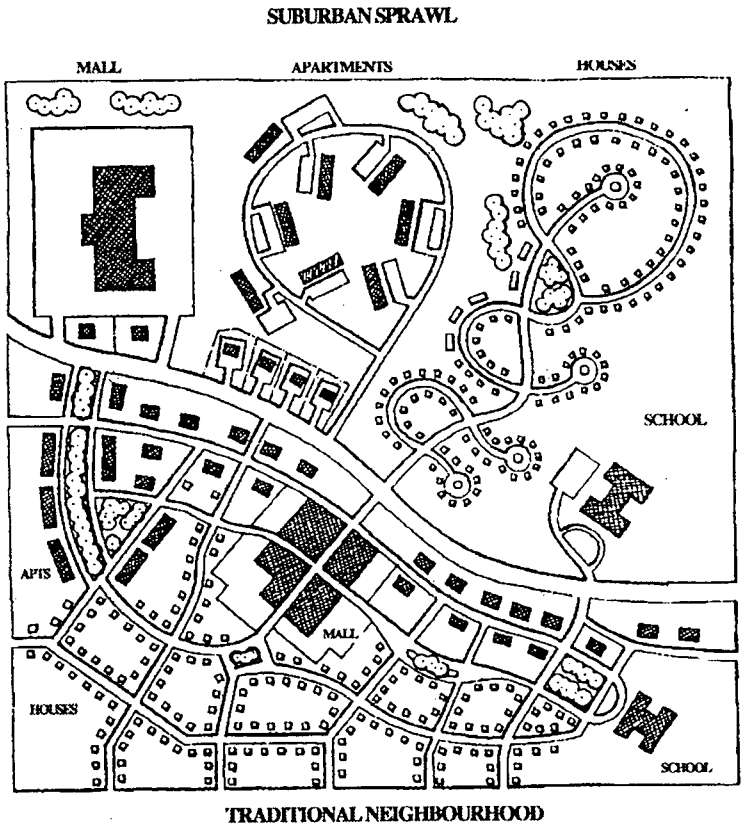


Figure 1: Low Density Sprawl Compared With Traditional Neighbourhood Development

Source: Katz, Peter. The New Urbanism Towards an Architecture of Community 1994. p. xxx.

The underlying purpose of their concept is to revive the sense of community that they found in older North American towns. They feel it is a crucial component which new community developments require if they are to be successful. Although not the primary focus of their design, the advancement of sustainability was also considered. In doing so, their exists many components within their concept which serve to promote environmental integrity, economic vitality and social well-being in a neighbourhood setting (Bookout, January, 1992. UDI Research Department, November, 1991).

2.2.1 Environmental Integrity

The first of three criteria by which to judge the success of an alternative method of community development is environmental integrity. Traditional Neighbourhood Development consists of many attributes which serve to enhance environmental integrity. These include:

Generally:

- decreased automobile dependence.
- community compactness/increased density.

Specifically:

- locating all areas in the neighbourhood within a five-to-ten minute walk of the town centre where commercial and retail uses would be concentrated (thus, providing the opportunity to reduce the number of car trips required by an individual or family).
- Providing pedestrian friendly streets to make walking to a destination more enjoyable and thus encouraging more people to do so. This is

accomplished in many ways:

- street widths are reduced to slow down and calm traffic,
- parallel parking of cars, and formally arranged street trees are used to provide a buffer between moving cars and pedestrians,
- buildings are appropriately scaled and placed close to streets to give the perception of smaller, friendlier streets,
- sidewalks are located close to the curb of streets, and
- garages are placed and accessed by back alleys to reduce their negative affect on the streetscape.

- Building Single-family homes on narrow, small lots, and through the provision of increased multi-family housing, such as town houses and apartments. Thus, greatly increasing overall density.

Given that the automobile is one of the major contributers to air pollution, reducing its use contributes greatly to the enhancement of environmental integrity. However, it is important to note that Andres Duany and Elizabeth Plater-Zyberk do not ignore the importance of the automobile. In fact, they realize that North Americans have a love affair with the automobile and that it cannot be easily given up. Thus, to accommodate the automobile their traffic system is based on a grid pattern. Among other things, this allows for a great deal of choice when driving from location A to location B. It also contributes to decreased traffic congestion by reducing the time spent in the car.

Further, increased density within a community allows for the reduction of the use of land. This also enhances the environmental integrity of Traditional Neighbourhood Development.

2.2.2 Economic Vitality

Traditional Neighbourhood Development also allows for economic vitality. This is accomplished in several ways including:

Generally,

- locating work and shopping opportunities within the neighbourhood.
- providing a mix of housing opportunities.

Specifically,

- by concentrating commercial, retail, office, and other employment and shopping opportunities in the town centre.
- through the provision of sufficient residential density and by-laws to allow and promote corner stores.
- by promoting offices within the household.
- building and providing for affordable housing in two ways:
    - authorizing residential uses above retail uses in buildings, and
    - permitting garage apartments or cottages in the backyards of single family homes.

The allocation of commercial, retail, office and other services within the neighbourhood allows for people to spend and make money within their own community. Furthermore, the provision of affordable

housing allows for people of all economic backgrounds to buy into the area. These together enhance the economic vitality of TNDs.

2.2.3 Social Well-being

The final test of Traditional Neighbourhood Development is that of enhancing social well-being. Since the underlying purpose of TNDs is to increase sense of community, this is an important factor. Hence, every attribute of Traditional Neighbourhood Development contributes to it. These include those mentioned earlier as well as two others:

Generally,

- the provision of open space.
- prominent civic buildings.

Specifically,

- parks, village greens, and recreational areas are appropriately designed and situated to be easily accessible and intensely used by everyone.
- civic buildings are designed and well placed to act as symbols of identity and provide places of purposeful assembly.

These two components are coupled with:

- decreased automobile dependence.
- community compactness/increased density.
- locating work and shopping opportunities within the neighbourhood.
- providing a mix of housing opportunities.

These elements serve to enhance the social well-being of Traditional Neighbourhood Development beyond that accomplished in most communities today:

> By a compact organization, infrastructure is minimized, automobile use and pollution are decreased and public transit is made viable. By providing a full range of housing types and workplaces, all age groups and economic classes are integrated and the bonds of authentic community are formed. By providing habitable public places, citizens come to know each other and watch over collective security. By providing most of the activities of daily life within walking distance, the elderly and the young gain independence and movement. By providing suitable civic buildings, and democratic initiatives, the balanced evolution of society are encouraged (UDI Research Department, November, 1991, p.22).

2.2.4 Conclusion

The concept of Traditional Neighbourhood Development successfully promotes environmental integrity, economic vitality, and social well-being.

2.3 Transit Oriented Development (TOD)

Transit Oriented Development (TOD) was derived from numerous design charrettes at the University of California at Berkeley. The architect of the concept, and coauthor of The Pedestrian Pocket: A New Design Strategy, which was generated at the charrettes is Peter Calthorpe (Calthorpe et al, 1989).

As its name suggests, Transit Oriented Development is strongly focused on public transit and its ease of access by everyone within a TOD. Like Traditional Neighbourhood Development, a TOD consists of an area which can be entirely accessed within a five-to-ten minute walk (see Figure 2).

The underlying purpose of Transit Oriented Development is to enhance the livability of communities. This generally means to advance the sustainability of the built environment, focusing on communities which consist of TODs. Inevitably, many components of this concept

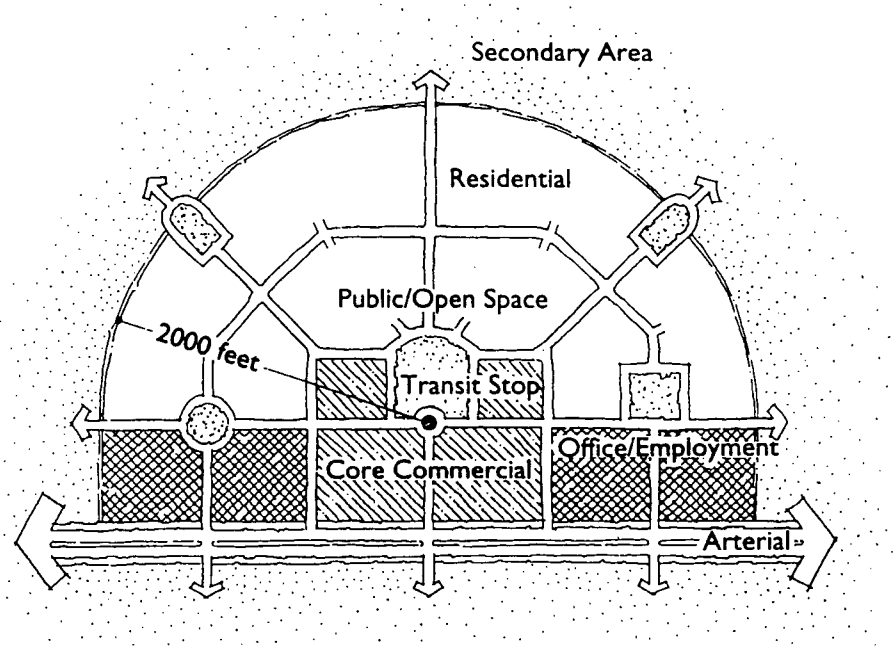


Figure 2: Transit Oriented Development

Source: Calthorpe, Peter. The Next American Metropolis: Ecology Community, and the American Dream. 1993. p. 56

serve to promote environmental integrity, economic vitality and social well-being (Calthorpe, 1993).

Many of the attributes of Transit Oriented Development are very similar to that of Traditional Neighbourhood Development. Thus, to avoid analyzing them again they are assumed to promote environmental integrity, economic vitality and social well-being to the same capacity and are listed below for quick reference:

Generally,

- decreased automobile dependence.
- community compactness/increased density.
- work and shopping opportunities within the community.
- a mix of housing opportunities.
- open space.
- prominent civic buildings.

Specifically,

- locating all areas in the community within a five-to-ten minute walk of the town centre/transit stop where commercial and retail uses are concentrated.
- providing pedestrian friendly streets which is accomplished in many ways:
    - street widths are reduced to slow down and calm traffic,
    - parallel parking of cars, and formally arranged street trees are used to provide a buffer between moving cars and pedestrians,
    - buildings are appropriately scaled and placed close to streets to give the perception of

smaller, friendlier streets,

- sidewalks are located close to the curb of streets, and
- garages are placed and accessed by back alleys to reduce their negative affect on the streetscape.

- building single-family homes on narrow, small lots, and providing extensive multi-family housing.
- concentrating commercial, retail, office, and other employment and shopping opportunities in the town centre.
- providing sufficient residential density and by-laws to allow and promote corner stores.
- promoting offices within the household.
- building and providing for affordable housing by:
    - authorizing residential uses above retail, and
    - permitting garage apartments or cottages in the backyards of single family homes.
- parks, village greens, and recreational areas are appropriately designed and situated to be easily accessible and intensely used by everyone.
- civic buildings are designed and well placed to act as symbols of identity and provide places of purposeful assembly.

Also, like Traditional Neighbourhood Development, Transit Oriented Development does not ignore the importance of the car, and thus, relies heavily on a grid pattern for the street system.

Although the general design of TODs differs from that of TNDs,

this realization is insignificant in comparison to the two areas where TODs exceed TNDs in promoting environmental integrity, economic vitality and social well-being. These two areas are in the provision of transit and the protection/conservation of the natural environment.

Granted, Traditional Neighbourhood Development promotes the use of transit. However, public transit is at the core of Transit Oriented Development. This can be seen in many of the guiding principles of TODs:

- land use and transit systems must be planned together.
- transit systems should guide regional growth.
- land use and transit stations should be treated as neighbourhood and community focal points.
- transit stations should be placed at the centre of mixed use commercial and residential neighbourhoods.
- trunk line systems should be designed to allow "walk-and-ride" or "bike-and-ride" rather than "park-and-ride" (Calthorpe, 1993).

This final principle also reinforces the greater focus of TODs on the use of bicycles. Bicycle systems are designed and built right into TODs to allow easy access to all amenities, whereas TND merely provides for calmer streets for the use of bicycles.

The greatest disparity between Traditional Neighbourhood Development and Transit Oriented Development exists in the preservation/conservation of the environment. Although, both concepts take the natural environment into account in their designs, TOD endeavours to focus a great deal of energy on ecology and habitat. Many of the guiding principles of TOD deal with this issue:

- sensitive environmental areas should be conserved as open

space amenities and incorporated into the design of new neighbourhoods.

- natural features are to be protected through the use of an Urban Growth Boundary.
- wastewater treatment facilities, which use biological systems to reclaim water, should be used when possible and are to be located on site.
- drainage and wetlands should be maintained in a natural state or enhanced.
- prominent stands of trees should be conserved. Where additional planting is required indigenous species should be used.
- passive solar, natural ventilation, daylighting, shading, and good building configuration should be utilized to conserve energy (Calthorpe, 1993).

In addition to the obvious enhancement of environmental integrity achieved by these principles, economic vitality and social well-being are also magnified.

2.3.1 Economic Vitality

The economic vitality of the community is enhanced in the short term as well as the long term through the use of these principles. Short term savings are gained through:

- reduced infrastructure costs for drainage systems which are left natural.
- reduced spending which would be required to replace trees which are needlessly uprooted.

Long term savings are accomplished by:

- reduced infrastructure costs due to intensified development resulting from the Urban Growth Boundary,
- reduced use of water through reclamation.
- reduced costs to individuals for cooling and heating within homes with the use of energy conservation techniques.

2.3.2 Social Well-being

Social well-being is also enhanced through the preservation and use of sensitive environmental areas, and prominent stands of trees which adds to the quality-of-life of a community. Reduced use of water and energy conservation which enhances environmental integrity has also been shown to increase the quality-of-life, and thus social well-being within a community.

2.3.3 Conclusion

Transit Oriented Development not only promotes environmental integrity, economic vitality and social well-being, it addresses additional significant issues that Traditional Neighbourhood Development does not.

2.4 Metropolitan Purlieu

The Metropolitan Purlieu is a term derived from Old French, which loosely translated means a frequently visited neighbourhood located on the outskirts, having dimensions which are easily navigable by foot. This concept is the work of Ian MacBurnie, which is derived from many aspects of Traditional Neighbourhood Development and Pedestrian Pockets/Transit Oriented Development. He developed the concept for the

Centre for Future Studies in Housing and Living Environments, Canada Mortgage and Housing Corporation.

The focus of the Metropolitan Purlieu is on a pedestrian friendly neighbourhood, which is based on an area of approximately 60 ha. which would allow easy access to all amenities by foot. However, like TNDs and TODs the street system is based on a grid pattern to allow for the use of the car (see Figure 3).

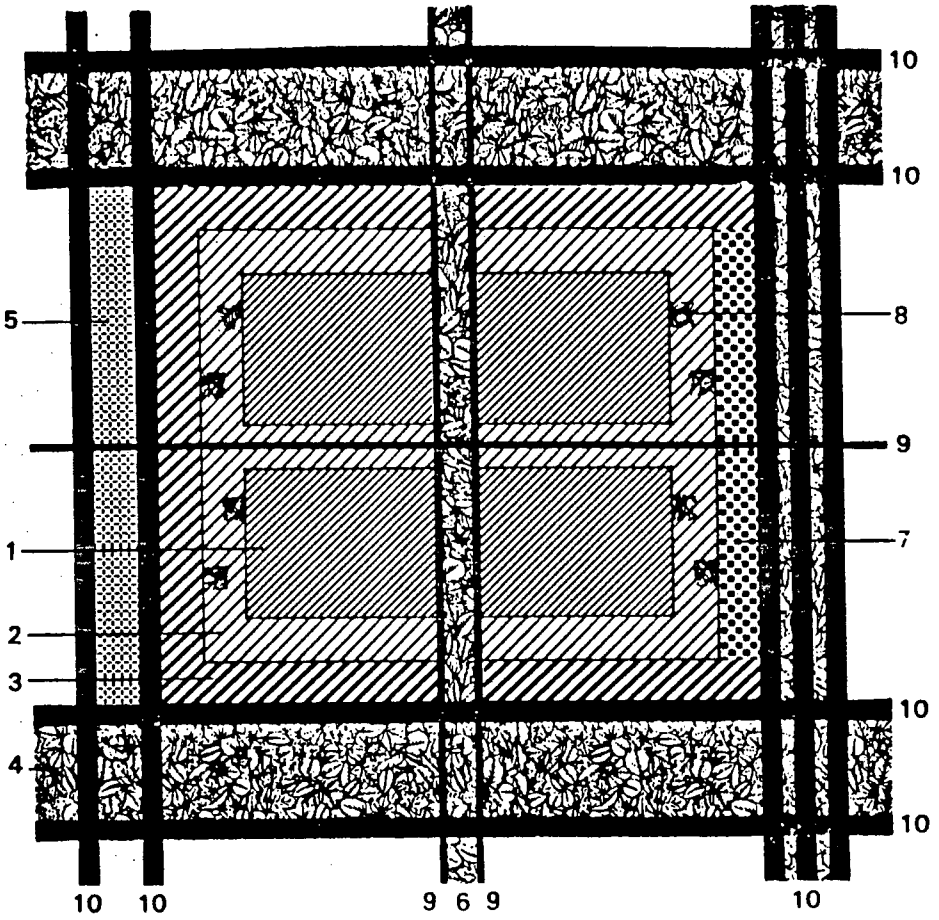
Since many components of this concept are derived from Traditional Neighbourhood Development and Transit Oriented Development and thus are very similar, they will simply be listed here to avoid reanalysis. They are assumed to promote environmental integrity, economic vitality and social well-being in a similar fashion as they were for TND and TOD. These similar attributes are:

Generally,

- decreased automobile dependence.
- community compactness/increased density.
- work and shopping opportunities within the community.
- a mix of housing opportunities.

Specifically,

- locating all areas in the community within a five-to-ten minute walk of a transit stop, and commercial and retail uses.
- building many single family homes on narrow, small lots, and providing considerable multi-family housing.
- concentrating commercial, retail, office, and other employment opportunities along a main street and on the periphery of the community.



1 MIXED DENSITY POCKET
2 MEDIUM DENSITY BELT
3 HIGH DENSITY BELT
4 NATURE/RECREATIONAL/INSTITUTIONAL BELT
5 TECHNO INDUSTRY BELT
6 LINEAR PARK BELT
7 MIXED USE BELT
8 MULTI PURPOSE SQUARE
9 MAXI TAXI ROUTE
10 PUBLIC TRANSIT ROUTE

Figure 3: The Metropolitan Purlieu

Source: MacBurnie, Ian. "Reconsidering The Dream: Towards A Morphology For A Mixed Density Block Structure in Suburbia." Canada Mortgage and Housing Corporation June, 1992. Appendix

- providing sufficient residential density and by-laws to allow and promote corner stores.
- promoting offices within the household.
- building and providing for affordable housing by:
    - authorizing residential uses above retail, and
    - permitting ancillary apartments for single family units.

As evidenced from some of the specific attributes listed above, the general design of the Metropolitan Purlieu is somewhat different from that of the design of TNDs and TODs. This is due in most part to a significant difference in approaches among the concepts. In developing the Metropolitan Purlieu, Ian MacBurnie took a more conservative stance than TNDs and TODs take. He predicated the concept upon being more readily implementable than TNDs and TODs. Thus, it takes contemporary development practices and consumer predilections as he saw them into more consideration. This produces a somewhat different structure for development which includes such attributes as:

- a central area which consists of a mixed density pocket containing a variety of housing types from single family to walk up apartments.
- a peripheral area where higher density residential, main street commercial and light industry are located.
- a linear green belt surrounding the community containing recreation and institutional infrastructure which is linked to the community by a bicycle path system.
- strip malls and surface parking dispersed among the community (MacBurnie, June, 1992).

However, the most important difference between the Metropolitan

Purlieu and its counterparts is the idea of transformation which is incorporated into the concept. This means that the individual lots, regardless of their use would not be "end-run" propositions, they would evolve over time. In fact, regulations would allow for the subdivision of the largest lots into as many as four smaller lots. Furthermore, residences are designed for expansion, contraction and conversion. Such regulations would enable builders and home owners to adapt to demographic or market circumstances. The greatest advantage this would produce is the ability of a community to successfully integrate into one which promotes environmental integrity, economic vitality and social well-being more so than when first developed. The reasoning behind this strategy is again to develop a concept that is more implementable than those of TND and TOD. Thus, providing a more familiar development initially (MacBurnie, June, 1992).

Although the general design and some attributes differ from those of TND and TOD, the Metropolitan Purlieu still promotes environmental integrity, economic vitality and social well-being when first developed.

2.4.1 Environmental Integrity

Environmental integrity is enhanced through decreased automobile dependence, community compactness/increased density and the conservation of a green belt around the community.

2.4.2 Economic Vitality

Locating work and shopping opportunities within the community and a mix of housing serves to further the community's economic vitality.

2.4.3 Social Well-being

Like TND and TOD, all of the components of the Metropolitan Purlieu serve to increase the overall quality of life and therefore social well-being.

2.4.4 Conclusion

The Metropolitan Purlieu successfully promotes environmental integrity, economic vitality and social well-being. In fact, it may provide an alternative development/design method that is more easily implementable than TND and TOD.

2.5 Village Homes

Unlike the previous concepts, Village Homes, is not a product of the New Urbanism Movement. Although this concept contains many similarities to those previously examined, Village Homes predates all of them by several years. Not only is Village Homes an alternative method of development/design, it actually exists on the outskirts of Davis, California (see Figure 4). The brainchild of Michael and Judy Corbett, it "is a workable, no-nonsense model of a sensible, energy and resource-conserving community of the future" (Bainbridge, et al, p.9 1979).

The focus of Village Homes is on a community which is entirely accessible by foot. The purpose is to create a strong sense of community which has been lost in typical suburbs.

The Village Homes concept is much more ambitious than the other concepts in attempting to bring back the genuine feeling of a community lifestyle long since past. That lifestyle is considerably more public/communal in terms of interaction and dependence. Many

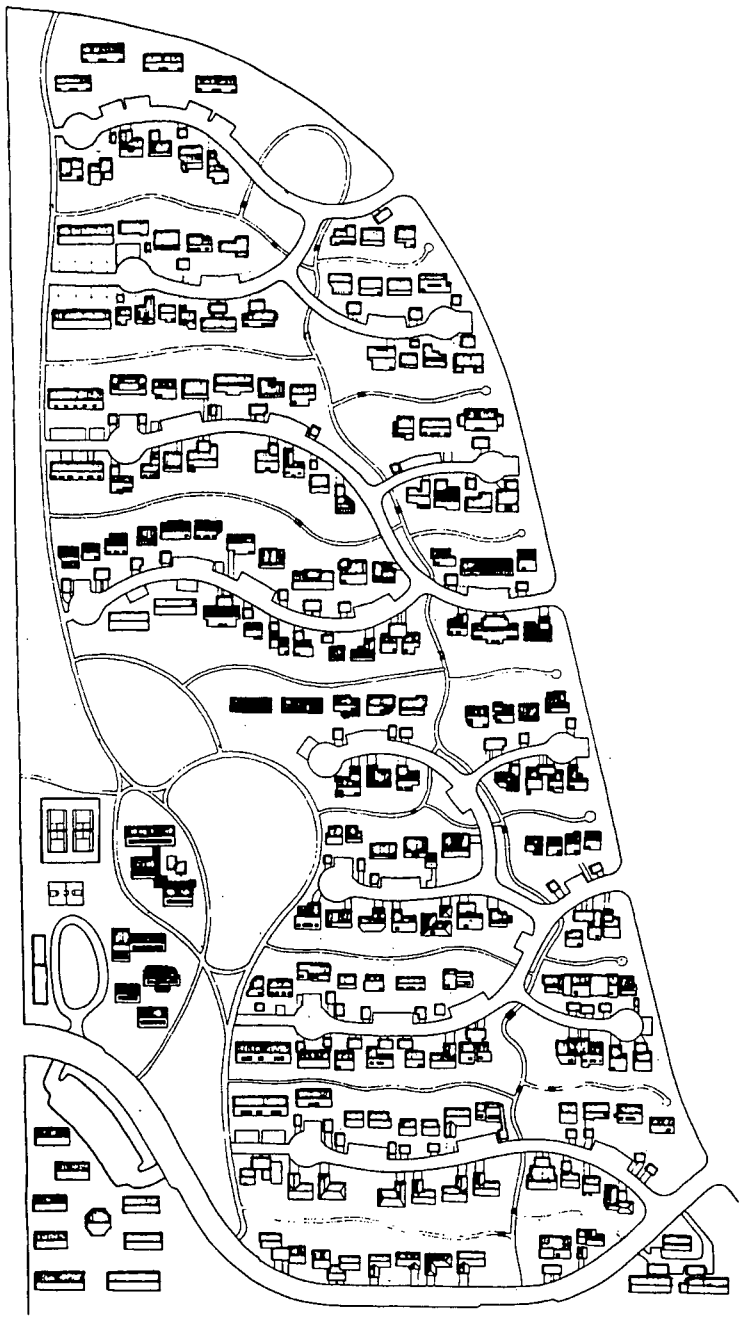


Figure 4: Village Homes

Source: Bainbridge, David, et. al.
Village Homes Solar Designs, a collection of 43 energy conscious house designs.
1979. p. 15.

attributes exist within the concept to achieve this:

Generally,

- decreased automobile dependence.
- intensive land use.
- locating work and other amenities within the community.
- provision of open space.

Specifically,

- locating all areas within the community within easy walking distance.
- providing pedestrian friendly streets in two ways:
    - reducing the widths of streets, and
    - the use of cul-de-sacs to prevent through traffic.
- linking all destinations with a bicycle path system.
- building houses on small lots where the lots are intensely used for producing food and other goods.
- providing work opportunities at communal gardens, greenhouses, and open space areas for local residents.
- generating work parties to build and maintain common facilities and areas.
- incorporating community farms into the development.
- providing the opportunity to work at home.
- designing many open spaces which are intensely used and available for the many public meetings held within the community.

Also, unlike the previous concepts, Village Homes takes the

design of individual homes into much more consideration. Village Homes demonstrates that new technology can interface successfully with older values and a sense of community by incorporating many modern amenities into the homes such as:

Generally,

- active and passive solar energy.
- natural cooling.
- good building orientation.
- landscaping.
- water preservation techniques.
- waste reduction.
- energy conservation.

Specifically,

- using solar panels to heat homes, buildings and hot water for those buildings.
- utilizing large windows and skylights to heat and light interiors.
- designing homes to be cooled naturally with good ventilation.
- orienting buildings to maximize the use of natural features such as the sun.
- landscaping to allow for warming in the winter and cooling in the summer.
- using greywater where possible and collecting rainfall.
- composting waste through the use of outdoor composters and composting toilets (which were prevented just before development due to

regulations).

- insulating and weatherproofing buildings well.
- using energy efficient appliances (Bainbridge, et al, 1979).

In achieving a strong sense of community through close linkages and dependence among people, Village Homes also successfully promotes environmental integrity, economic vitality and social well-being. Once again, it is assumed that similar components to those of previous concepts promote environmental integrity, economic vitality and social well-being to the same extent. However, Village Homes takes a different perspective on many of the similar components.

2.5.1 Environmental Integrity

Environmental integrity is further enhanced by taking into consideration the impact of the design of an individual building or home. When designing a new community this should be taken into account along with the overall design.

2.5.2 Economic Vitality

By promoting community farming, communal greenhouses, and neighbourhood maintenance of open spaces, Village Homes not only enhances the economic vitality of the community, it promotes further environmental integrity. This is accomplished through the production of local goods for local consumption.

2.5.3 Social Well-being

Through the promotion of communal dependence, Village Homes greatly enhances the social interaction within the community. In doing

so, quality of life is augmented and social well-being is advanced.

2.5.4 Conclusion

Village Homes manages to promote environmental integrity, economic vitality and social well-being with the use of many of the concepts which are seen in the more recent methods of alternative design. At the same time, it manages to illustrate the need for individual building/house design to promote further progress toward sustainability.

2.6 Reviewing the Alternatives

Although all of the alternative methods of community development/design examined here promote environmental integrity, economic vitality and social well-being, none of them is complete. Each concept contains components which the others could incorporate to enhance their own ability.

2.6.1 Traditional Neighbourhood Development

The concept of Traditional Neighbourhood Development lays the foundation for a good beginning to promoting environmental integrity, economic viability and social well-being with attributes which:

- decrease automobile dependence.
- increase community compactness and density.
- locate work and shopping opportunities within the neighbourhood.
- provide a mix of housing opportunities.
- provide open space.
- promote prominent civic buildings.

2.6.2 Transit Oriented Development

Transit Oriented Development then builds upon the attributes of TND by enhancing the use of public transit and bicycles. In addition, Transit Oriented Development adds attributes which take into consideration ecology and habitat. These both serve to increase the ability of a community to promote environmental integrity, economic vitality and social well-being.

2.6.3 Metropolitan Purlieu

The Metropolitan Purlieu takes a more conservative stance to designing for environmental integrity, economic vitality and social well-being in an attempt to increase the implementability of the concept. This is done through the consideration of contemporary development practices and consumer predilections. The result is the idea of transformation which is built into the Metropolitan Purlieu allowing for adaptability and integration of further ideas/components.

2.6.4 Village Homes

Finally, Village Homes, incorporates the very important attribute of the design of individual buildings/homes to promote environmental integrity, economic vitality and social well-being. Without such a consideration, an alternative method of design is not complete.

2.6.5 Conclusion

To further the promotion of environmental integrity, economic vitality and social well-being the positive attributes of each of these concepts must be merged. In doing so, the achievement of sustainability is also enhanced.

3.0 A COMPREHENSIVE ALTERNATIVE

The following "hybrid" alternative method of community development/design is not meant to be a panacea to sustainability in a community context. It is an attempt to improve upon those concepts previously examined. This is to be accomplished by melding the most promising attributes from the earlier concepts, with additional attributes which are pertinent to advancing sustainability at a community level.

3.1 Attributes from Previous Concepts

Attributes from the previous concepts which are to be utilized in this comprehensive alternative include (a comparison of the provision of attributes among alternatives is provided in Figure 5):

Generally,

- decreased automobile dependence.
- community compactness/increased density.
- locating work and shopping opportunities within the community.
- providing a mix of housing opportunities.
- provision of open space.
- the use of prominent civic buildings.
- intensive land use.
- consideration of ecology and habitat.
- the incorporation of individual home and building design into the overall community design.

Specifically,

- locating all areas in the community within a five-to-ten minute walk of a town centre where a transit

CONCEPT / ATTRIBUTE	TND	TOD	METRO-POLITAN PURLIEU	VILLAGE HOMES	COMPRE-HENSIVE
Decreased automobile dependence	yes	yes	yes	yes	yes
Community compactness/increased density	yes	yes	yes	no	yes
Locating work and shopping opportunities within the community	yes	yes	yes	yes	yes
Providing a mix of housing opportunities	yes	yes	yes	no	yes
Provision of open space	yes	yes	yes	yes	yes
The use of prominent civic buildings	yes	yes	no	no	yes
Intensive land use	no	no	no	yes	yes
Consideration of ecology and habitat	no	yes	no	yes	yes
The incorporation of individual home and building design into the overall community design	no	no	no	yes	yes
Improved design of building layout	no	no	no	no	yes
Sensible use and disposal of materials	no	no	no	no	yes

Figure 5: A Comparison of the Provision of Attributes Among the Concepts

Source: Devised by author.

stop would be located along with a concentration of commercial, retail, office and other employment opportunities.

- providing pedestrian friendly streets to be accomplished through:
    - reduced street widths to calm traffic,
    - parallel parking of cars, and formally arranged street trees to provide a buffer between moving cars and pedestrians,
    - scaling buildings appropriately and placing them close to streets to give the perception of smaller, friendlier streets,
    - locating sidewalks close to street curbs, and
    - placing garages to be accessed by back alleys to reduce their negative affect on the streetscape.
- planning land use and transit systems together.
- using transit systems to guide regional growth.
- designing trunk line transit systems to allow "walk-and-ride" or "bike-and-ride" rather than "park-and-ride".
- linking all areas of the community with a bicycle path system.
- building single-family homes on narrow, small lots, and providing considerable multi-family housing, such as town houses and apartments.
- providing sufficient residential density and by-laws to allow and promote corner stores.

- promoting offices within the household,
- providing work opportunities for local residents at communal gardens, greenhouses and open space areas.
- incorporating community farms into the development,
- building and providing for affordable housing in two ways:
    - authorizing residential uses above retail uses in buildings, and
    - permitting garage apartments or cottages in the backyards of single-family homes.
- designing parks, village squares, and recreational areas to be easily accessible and intensely used by everyone.
- conserving sensitive environmental areas as open space amenities and incorporating them into the design of new communities.
- designing and placing civic buildings to act as symbols of identity and provide places of purposeful assembly.
- promoting intensive use of land through the use of open areas and private yards for the production of food and other goods.
- protecting natural features through the use of an Urban Growth Boundary in the form of a linear green belt.
- reclaiming water through the use of wastewater treatment facilities.
- maintaining drainage and wetlands in a natural or

enhanced state.

- conserving prominent stands of trees, and planting indigenous species where required.
- using solar panels to heat homes, community buildings and hot water for those buildings.
- utilizing large windows and skylights to heat and light interiors.
- cooling buildings with the use of good ventilation.
- orienting buildings to maximize the use of natural features such as the sun.
- landscaping to allow for warming in the winter and cooling in the summer.
- using greywater and collecting rainfall.
- composting waste through the use of outdoor composters and composting toilets.
- insulating and weatherproofing buildings well.
- using energy efficient appliances.

Furthermore, the utilization of a basic grid pattern of streets throughout would allow for the necessary use of automobiles while reducing traffic congestion.

Although it has not been determined if it is necessary, the provision of transformation as evidenced in the Metropolitan Purlieu may prove beneficial in some cases. However, it should only be included where it has been conclusively proven to be needed.

3.2 Additional Attributes

Other components which were not included in the previous concepts but further promote environmental integrity, economic vitality, and

social well-being by there inclusion are:

Generally,

- improved design of building layout.
- sensible use and disposal of materials.

Specifically,

- designing community layouts to maximize the conservation of all trees and other vegetation, not just prominent stands.
- using recycled materials.
- utilizing locally produced materials.
- using lower grade materials where possible to reduce cost.
- using quality materials where necessary to extend the life-cycle of buildings and reduce maintenance.
- disposing of waste materials in separate bins to allow for easy recycling.

3.3 Environmental Integrity

By designing to maximize the layout of all buildings in a community development around existing trees and other vegetation, the conservation of nature is increased greatly. The use of recycled materials and actively recycling those materials which cannot be further employed in construction reduces the exploitation of natural resources such as trees. Furthermore, by utilizing locally produced materials the impact on the environment is greatly reduced in many ways. Less pollution is caused by shorter haulage distances, and local sustainability can begin to be realized. All of these actions contribute to the promotion of environmental integrity.

3.4 Economic Vitality

The economic vitality of a community is enhanced in many ways through the use of many of the attributes above. Locally produced products can often be purchased more cost effectively than those imported from long distances. Not only that, but by spending money locally it creates many other advantageous economic spinoff effects. By using lower grade materials where possible without compromising the life-cycle or integrity of a building, costs can be reduced. At the same time, using quality materials which may cost more initially can prove to save on long term maintenance and redevelopment costs. And, contrary to what many people believe, designing around natural features such as trees can be done so as to not incur any additional costs. In fact, money can be saved through reducing the need for replanting measures. Thus, the economic viability of a community can be further enhanced through the incorporation of many of these additional attributes.

3.5 Social Well-being

The social well-being of a community can be easily improved through the existence of mature natural vegetation immediately upon the move-in period. Furthermore, many people will take pride in knowing that the detrimental effects to the environment were minimized in the development of their community. Finally, cost savings which can be passed on to the home buyer allow for a larger, and more diverse mix of people within a community.

3.6 Conclusion

Of course, this list of attributes is incomplete, as all lists

are. And it is important to realize that the continued modification of any alternative method of development/design is necessary to keep pace with changing trends and technology. However, a community development/design which incorporates all of the above components or even many of them would undoubtedly serve to promote environmental integrity, economic vitality and social well-being, and, thus, enhance the realization of sustainability.

Unfortunately, it is unlikely that all of these attributes would be incorporated into a single development/design at this time. With this in mind, a means of maximizing the use of these attributes for specific sites has been devised, and is elaborated upon in section 4.2 (Implementation Strategy).

4.0 IMPLEMENTATION

As with any concept, an alternative method of development/design is only useful if it can be implemented. Thus, this section will deal with devising a flexible method of implementing any alternative method of development/design. However, before the implementation of a concept can be successful, the barriers which act to prevent its implementation must be examined.

4.1 Barriers to Implementation

There are three prominent barriers to the implementation of alternative methods of development/design. These are:

- uncertainty over cost (Palombi, April, 1992).
- uncertainty over marketability (Bookout, June, 1992).
- inadequate regulations/guidelines to allow for or promote alternative methods of development/design (Bookout, April, 1992).

4.1.1 Uncertainty Over Cost

A great deal of uncertainty exists over the cost of developing and maintaining alternative methods of development/design. Thus, it represents a barrier to the implementation of such developments. This problem no doubt exists in great part due to the use of an inadequate means of measuring the cost of developments.

The majority of developments built today and in the past have been measured for cost effectiveness based solely on initial development expenditures. This simply is not an effective means of evaluating any development. Instead, what is required to effectively evaluate the cost effectiveness of a development is the use of a

method known as life-cycle costing. This is a method which incorporates not only the emplacement costs (initial development expenditures), but also the replacement (capital cost of rebuilding infrastructure) and operating and maintenance costs of a development over its life expectancy period (usually about 75 years). In doing so, the true cost of a development to the private and public sectors is evident (Essiambre-Phillips-Desjardins Associates Ltd., June 1, 1995).

Upon comparing the cost of a conventional subdivision with that of a New Urbanism alternative based on life-cycle per unit cost it was found that the alternative method was much more cost effective for both the public and private sector:

- the total life cycle cost of the infrastructure in the alternative plan was 8.8% less than the conventional plan, or approximately $11,000 per unit.
- emplacement costs of approximately $5,300 per unit was saved.
- a savings of over $3,700 per unit in operating and maintenance costs was also realized (Essiambre-Phillips-Desjardins Associates Ltd., June 1, 1995).

Unfortunately, it is difficult to get many municipalities and developers to consider the cost of development in this manner. However, through continued education and leading by example, progressive developers and municipalities will be able to illustrate the need for such cost accounting. Over time this should effectively remove this barrier.

4.1.2 Uncertainty Over Marketability

A further barrier to alternative methods of development/design is

the uncertainty of its market appeal. Since very few alternative methods of development/design have been built in Canada, it is difficult to prove that they are desired. Consequently, if it cannot be proven that a development is desired or marketable it is next to impossible to acquire financing. To further the conundrum, if financing cannot be secured, a development cannot be built to prove that it is marketable. Hence, the need to prove that alternative methods of development are marketable exists and creates a difficult barrier (Canadian Urban Institute, 1991).

Fortunately, some alternative methods of development/design have been built such as Montgomery Village, in Orangeville, Ontario. To date, the sales have been just as steady as those for a conventional development. However, many developers, municipalities, and financial institutions remain sceptical (Sales Manager for River Oaks Homes).

It appears the only way that this scepticism will weaken is if more alternative developments manage to be built and prove that a market exists for them. Fortunately, others have been begun such as Cornell, in Markham, Ontario and West Morrison Creek, in Oakville, Ontario. There success should prove the marketability of alternative methods of development/design.

4.1.3 Inadequate Regulations/Guidelines

The third prominent barrier to the implementation of alternative methods of development/design is the existence of regulations and guidelines which do not allow for or promote these new concepts. Most municipalities in Canada currently rely on regulations and guidelines which are over designed and obsolete. This is most evident when dealing with legislation which governs emergency access and snow

removal (Bookout, April, 1992).

Almost without exception, all roads within a municipality are designed to allow for the easy access of emergency vehicles and effortless snow removal. This means that roads are typically assigned a minimum width in excess of what is really necessary. Given that alternative methods of development/design call for reduced road widths which violate these regulations they are typically refused. Those which do manage to gain approval only do so after much discussion and debate (Bookout, April, 1992).

What is needed is the realization of engineers and municipalities that reduced road widths can accommodate emergency vehicles and snow removal without reduced efficiency. Only then can it be hoped that guidelines and regulations will be drafted which promote alternative methods of development/design. Already, this has been accomplished to a great extent in Ontario where, Alternative Development Standards, Making Choices, a provincial guideline has been recently passed. However, it remains to be seen if it will stimulate the necessary change required. Further exposure to these ideas will be necessary to overcome this barrier.

4.1.4 Conclusion

Although, these three prominent barriers and others exist which prevent the implementation of alternative methods of development/design in many cases, they can be overcome. As has been promoted above, further exposure to these problems and solutions through increased education will serve to break down the barriers which exist.

4.2 Implementation Strategy

Nothing can serve to promote improved development better than an implementation strategy which is flexible and fully examines components which are crucial to good development. One such implementation strategy is that which has been devised here and will be referred to as a performance point system.

Based on the performance zoning concept developed by Lane Kendig in 1980, a performance point system imposes minimum levels of "performance" by setting standards for individual site development. It is intended to establish criteria which promote environmental integrity, economic vitality and social well-being during the proposal design stage. As a proactive measure, the leverage on final sustainability is much greater.

Of course, for this system to work it must be adopted for use by individual municipalities when considering development proposals. Also, for alternative methods of development/design to be promoted to enhance environmental integrity, economic vitality and social well-being, the components outlined in section three must be incorporated in the system.

4.2.1 The Performance Point System

For each development/design attribute specified by the municipality for a site, a "performance factor" is scored on a scale of zero to five. A zero score will result if the site design does not address the component at all, whereas a top score of five will result if the site design makes full use of the design component.

A "ranking factor" is also established for each development/design attribute. These ranking factors are used to

indicate the relative importance of each development/design attribute.

By multiplying the performance factor by the ranking factor, a "score" is obtained which is achieved by the site development/design for each development/design attribute. The sum of all scores can then be used to evaluate the effectiveness of a proposed development/design. A minimum score is set by the municipality which developers must surpass for their proposal to be accepted for consideration.

The following is an example of how one development/design component would be dealt with. Specifically, locating all areas in the community within a five-to-ten minute walk of a town centre.

Performance Factor: A score of 0 would result if no areas were within a five-to-ten minute walking distance of a town centre. This would progress upwards to a score of 5 if all areas within a proposed development/design are within a five-to-ten minute walk of a town centre.

Ranking Factor: Since this is a fundamental component of alternative developments/designs, a ranking factor of 10 would be assigned.

Once all of the attributes which have been assigned to a site have been evaluated, a total score can be determined (see Figure 6 for a detailed example). If the total score is equal to or higher than the minimum score required for a site than it can be considered for approval. From this stage on, the approval process would remain unchanged.

The flexibility of this method of implementation is evident in two areas, both of which are centred on choice. To begin with, the municipality has the flexibility of choosing which attributes it

DESIGN CRITERIA **The design criteria would consist of one of the attributes of an alternative method of development/ design which a municipality has adopted for use.**	**PERFORMANCE FACTOR** **The performance factor is a measure of how well a proposed development/ design accomplishes the desired design criteria**	**RANKING FACTOR** **The ranking factor would be determined by the municipality based on the design criteria's relative importance.**	**SCORE** **The score is determined by multiplying the performance factor achieved by the ranking factor which has been assigned.**
Locating all areas in the community within a five-to-ten minute walk of a town centre	From 0 to 5. 0, if no areas were within a five-to-ten minute walk of a town centre. 5, if all areas are within a five-to-ten minute walk of a town centre	10, since this is a fundamental component of alternative developments/ designs.	i.e. 3X10=30.
Linking all areas of the community with a bicycle path system	From 0 to 5. 0, if no areas are linked. 5, if all areas are linked	8, since this is a relatively important component of alternative developments/ designs.	i.e. 2X8=16.
Promoting offices within the household.	0 to 5. 0, if this is not well done. 5, if it is done well.	3, since this is not as crucial a component in relation to the two previous.	i.e. 4X3=12.
TOTAL SCORE **This is calculated by adding all of the scores achieved by one particular proposal. If it is greater than the minimum score assigned by the municipality for the site this proposal can be accepted for consideration.**			30+16+12=58.

Figure 6: The Performance Point System

Source: Devised by author based on Lane Kendig's Performance Zoning, 1980.

believes need to be included in all development approvals, and those which can be specific to an individual site. Naturally, the more components which are included which are contained in alternative methods of development/design the greater the promotion of environmental integrity, economic vitality and social well-being. Second, the developer also has the choice of which components to provide, and in what detail as long as a minimum score is achieved. This also gives the developer the feeling of having a true say in what the final development/design will be.

Of course not every municipality will be willing to attempt such a means of implementation. Indeed, there may be a better means of implementing improved developments/designs which promote environmental integrity, economic vitality and social well-being depending on the circumstances of each municipality. This performance point system is only one attempt to illustrate a means by which alternative developments/designs could be promoted.

4.2.2 Assumptions and Limitations

As with any means of implementation there are assumptions which must be made and limitations which must be accepted. The performance point system is no different. However, in the case of the performance point system these are minor in nature and are such that the overall improvement in the development approval process and the promotion of sustainability can be significant.

The greatest assumption of the performance point system is that municipalities will be willing to undertake such a strategy to implement alternative methods of community development/design and others which promote sustainability. Although sustainability and

sustainable development may be generally regarded as the goal to which municipalities must aspire, the means to achieve it and to what extent are a subject of great debate. Thus, the performance point system has been devised in such a way that it can be easily incorporated into existing development approval processes and to the extent that the municipality believes is appropriate.

Rather than replacing the already existing development approval process, the performance point system is a component which is included at the beginning of the approval process. By doing so, only those proposals which meet the minimum requirements of the performance point system need be scrutinized beyond this initial stage. This not only prevents any disruption in the approval process but actually reduces the number of proposals which must be circulated to agencies for further comment before a final decision can be made. The savings in time, money, and resources is clearly evident.

Since many municipalities may wish to incorporate alternative methods of community development/design in an incremental means for any number of reasons, the performance point system allows them this flexibility. Although the more attributes of alternative methods of community development/design that are incorporated the greater the promotion of sustainability, not all attributes have to be incorporated from the outset. The municipality may chose the appropriate attributes for its purposes and only include them in the performance point system. When further attributes are desired they can easily be added to those already included.

Thus, with the ability of the performance point system to be easily incorporated into existing development approval processes to the extent that a municipality desires, the assumption that

municipalities will be willing to undertake such a strategy is minor in nature.

Assuming that municipalities will chose to incorporate the performance point system into their development approval process, it must be noted that there are some limitations to the system. The greatest limitation of the performance point system is the inability to evaluate qualitative attributes of sustainability. Given that the system relies on the ability to assign a quantitative performance factor to each design criteria, attributes which cannot be so easily measured can not be evaluated. Thus, we are left with the need to continue to muddle through the evaluation of a development proposal in its ability to promote qualitative aspects of sustainability. However, this does not detract from the ability of the performance point system in its ability to enhance the implementation of alternative methods of community development/design and their attributes. Through the promotion of such attributes it is conceivable that many qualitative attributes will also be satisfied. Such results will only be known once alternative methods of community development/design have been built and evaluated.

With the above assumptions and limitations noted, the performance point system necessarily should be adopted for its ability to implement alternative methods of community development/design and not for its ability to solve any other planning problems for which it was not developed.

4.2.3 Achieving the Design Criteria

In order to achieve the design criteria chosen by municipalities to be incorporated in their performance point system it is necessary

to understand them in the manner in which they were intended. In this case the three design criteria included in figure 6 will be examined to provide such an explanation.

The first design criteria is that of locating all areas in the community within a five-to-ten minute walk of a town centre. As may be immediately apparent this allows for a 100% error in the choice between five or ten minutes. However, this number is simply used as a bench mark which was adopted from the many alternative methods of community development/design that were examined here. What is necessary here is to realize that each and every municipality will need to chose an appropriate distance for the location of town centres within proposed developments. This distance will be dependant on many factors such as land relief, land forms, and demographics. Obviously, municipalities with extensive changes in elevation, land forms which must or are to be built around, and populations with a greater number of elderly people must modify their bench mark figure accordingly. Large elevation changes will necessarily reduce the distance which can be walked in five-to-ten minutes if indeed that is the bench mark number agreed upon. The principle which must be understood is that town centres must be located in such a way that they are easily accessible by foot by the residents of the community they are intended to serve. Once an appropriate bench mark figure has been determined for a sight or municipality through the examination of all factors which have an impact it can be adopted as the acceptable design criteria. The ranking factor can then be assigned depending on how important achieving this design criteria is to the municipality. Finally, a performance factor can be determined for any proposal based on how well the bench mark figure is achieved (see figure 6).

Municipalities can help to further promote this design criteria by zoning for higher densities to allow for more residences to be built within an appropriate distance of a town centre.

Linking all areas of the community with a bicycle path system is another very important design criteria which many municipalities may chose to adopt. Determining what is meant by easy access is the key to the success of this design criteria. Like a five-to-ten minute walk, easy access would be dependent on each individual municipality/site and the relevant characteristics present. A municipality may decide that access to the path system means locating the path system within a maximum distance of all areas within the community. This distance could then be measured throughout a proposed development to determine its ability to promote the design criteria. If sixty percent of the proposed development is within the maximum distance of a bicycle path system then a performance factor of 3 (60% of 5) could be assigned and multiplied by the determined ranking factor to achieve a score (see figure 6). A municipality could further promote this design criteria by building its own bicycle path system and allowing developers to link up to it.

The promotion of offices within the household is more dependent on the municipality and it by-laws than it is on the developer. However, certain considerations such as a separate entrance to an office space within a household can be provided and extra phone, cable and fibre optic lines can be linked to the household. The extent to which a developer provides for these considerations and others would determine the performance factor achieved. The municipality can greatly enhance the provision of this design criteria by passing by-laws allowing for the existence of household offices, increased

parking, and the use of signs where necessary.

It is crucial to understand that the specific design criteria included in the performance point system matrix are not meant to be inflexible. In most cases it will be necessary to modify them according to specific municipal and site characteristics. Like the examples of alternative methods of community development/design which they were taken from they are used to simplify and promote an understanding of an idea.

4.2.4 Conclusion

If a municipality is serious about promoting environmental integrity, economic vitality and social well-being, a performance point system strategy for implementation can be very successful in doing so and should be considered.

5.0 CONCLUSIONS AND RECOMMENDATIONS

This paper through multiple account analysis has examined several alternative methods of community development/design which serve to promote environmental integrity, economic vitality and social well-being. From them many attributes were merged and some new ones were added to form yet another alternative which serves to further promote environmental integrity, economic vitality and social well-being. Some of the prominent barriers which serve to prevent the implementation of these alternatives were then scrutinized. Finally, a flexible method of implementing these alternatives was illustrated.

5.1 Conclusions

Based on this examination, the following conclusions can be made:

- urban sprawl in the form of subdivisions has reduced the quality of life of North Americans and has prevented sustainable development.
- the notion of sustainable development/sustainability has not been adequately addressed to date, and it is questionable whether true sustainable development/ sustainability can be achieved.
- if society is ever to be sustainable, efforts to advance abilities in achieving it must be continued.
- the most crucial components to sustainable development/sustainability are the promotion of environmental integrity, economic vitality and social well-being.
- alternative methods of community development/design serve to promote environmental integrity, economic vitality and

social well-being.

- an alternative method of community development/design is only useful if it can be implemented.
- many barriers exist which serve to prevent the implementation of alternative methods of community development/design.
- barriers to the implementation of alternative methods of community development/design need to be overcome, if alternative methods of community development/design are to be successful.
- an implementation strategy like that of the performance point system, if adopted by municipalities, can serve to promote environmental integrity, economic vitality and social well-being.

5.2 Recommendations

Equally as important as the conclusions that have been drawn are the recommendations which are made. If the following recommendations are acted upon they will serve to greatly enhance sustainability at the community development/design level.

- urban sprawl in the form of conventional subdivisions must be halted and replaced with alterative methods of community development/design which promote environmental integrity, economic vitality and social well-being.
- efforts must continue to address the complex issue of sustainable development/sustainability so that it will one day be attained.
- only actions which promote environmental integrity,

economic vitality and social well-being, particularly in the form of alternative methods of community development/design must be encouraged and allowed.

- barriers which prevent the implementation of alternative methods must be overcome through increased understanding from further education.
- Municipalities must adopt strategies such as a performance point system to promote environmental integrity, economic vitality and social well-being.

5.3 Final Comments

It is imperative that the actions of planners, politicians, engineers, architects and the general populace promote environmental integrity, economic vitality and social well-being. The use of alternative methods of community development are only one means in accomplishing this, and thus furthering the realization of sustainable development/sustainability. However, community development/design is an integral component with which planners can lead the way to sustainable development/sustainability. The time for indecision has passed; now it is time for constructive work to be performed.

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