DRAWING THE LINE

URBAN GROWTH BOUNDARIES AND GROWTH MANAGEMENT ON THE FRINGE

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ABSTRACT

Sydney is a region highly constrained by its geography. Constraints include agricultural land, rugged terrain and extensive natural reserves to the North and South of the metropolitan region. These and other constraints influence the extent and direction in which Sydney’s growth can take place. Coupled with a remarkably rapid population growth rate in the past two centuries, the expansion of Sydney’s metropolitan footprint has been quite dramatic to over 70km in some directions from the Central Business District within the last five decades. Sydney’s predicted population growth cannot continue as it has in the past if it is to ensure environmental, economical and social sustainability. As such, alternative methods of growth management on the urban fringe need to be explored. One key method is the use of urban growth boundaries to restrict the spread of urban areas. This thesis examines growth management theory and identifies techniques which have been employed to restrict urban expansion with particular emphasis on the effective use of urban growth boundaries. International case studies of existing urban growth boundaries are used to identify the key implementation characteristics of this technique. Finally, an overview of Sydney’s post-war strategic plans is presented, highlighting Sydney’s historic development patterns and identifying the need for more pro-active growth management controls.
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<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TABLE OF CONTENTS</td>
<td></td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>PROBLEM SETTING AND THEORETICAL FRAMEWORK</td>
<td>2</td>
</tr>
<tr>
<td>PROBLEM STATEMENT</td>
<td>3</td>
</tr>
<tr>
<td>METHODOLOGY</td>
<td>4</td>
</tr>
<tr>
<td>RESEARCH LIMITATIONS</td>
<td>7</td>
</tr>
<tr>
<td>THESIS STRUCTURE</td>
<td>7</td>
</tr>
<tr>
<td>GROWTH MANAGEMENT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11</td>
</tr>
<tr>
<td>THE NEED FOR GROWTH MANAGEMENT ON THE RURAL-URBAN FRINGE</td>
<td>16</td>
</tr>
<tr>
<td>TECHNIQUES FOR GROWTH MANAGEMENT</td>
<td>21</td>
</tr>
<tr>
<td>URBAN GROWTH BOUNDARIES</td>
<td>26</td>
</tr>
<tr>
<td>SUMMARY</td>
<td>29</td>
</tr>
<tr>
<td>EXISTING URBAN GROWTH BOUNDARIES</td>
<td></td>
</tr>
<tr>
<td></td>
<td>31</td>
</tr>
<tr>
<td>MELBOURNE: MELBOURNE 2030</td>
<td>32</td>
</tr>
<tr>
<td>PORTLAND: THE 2040 GROWTH CONCEPT</td>
<td>35</td>
</tr>
<tr>
<td>VANCOUVER: THE LIVABLE REGION STRATEGIC PLAN</td>
<td>40</td>
</tr>
<tr>
<td>SUMMARY</td>
<td>44</td>
</tr>
<tr>
<td>THE EXPANSION OF SYDNEY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>46</td>
</tr>
<tr>
<td>THE SYDNEY REGION AND PRE WAR PLANNING</td>
<td>46</td>
</tr>
<tr>
<td>VISIONS FOR THE FUTURE – INITIAL POST-WAR PLANNING</td>
<td>48</td>
</tr>
<tr>
<td>URBAN EXPANSION OF THE LONG BOOM – PLANNING TRENDS DURING THE 1960’S TO</td>
<td>52</td>
</tr>
<tr>
<td>1980’S</td>
<td></td>
</tr>
<tr>
<td>RECENT DEVELOPMENT TRENDS</td>
<td>56</td>
</tr>
<tr>
<td>IMPLICATIONS OF THE PLANS FOR SYDNEY</td>
<td>58</td>
</tr>
<tr>
<td>SUMMARY</td>
<td>60</td>
</tr>
</tbody>
</table>
ANALYSIS AND FUTURE CONSIDERATIONS

INTRODUCTION .................................................................................................................. 62
TOWARDS A NEW MANAGEMENT STRATEGY ........................................................................ 62
PROBLEMS WITH SYDNEY’S CURRENT GROWTH MANAGEMENT METROPOLITAN PLANNING .................................................................................. 63
APPLICATIONS TO SYDNEY .............................................................................................. 65

CONCLUSION

CONCLUSION ....................................................................................................................... 70

REFERENCES

FIGURES

Figure 2.1: An example of urban sprawl development encroaching on farmland in Northern Virginia

Figure 2.2: Green belt locations within England

Figure 3.1: The Melbourne 2030 Urban Growth Boundary

Figure 3.2: Extent of the Portland Urban Growth Boundary in 2006

Figure 3.3: The Vancouver Livable Region Strategic Plan

Figure 4.1: Historical Urban Growth of Sydney 1856 - 1947

Figure 4.2: County of Cumberland Planning Scheme Map

Figure 4.3: Areas of lost open Green Belt space by 1968

Figure 4.4: Areas of lost open Green Belt space by 2005

Figure 4.5: Expansion of Urban Areas: 1948 – 2005
The city, as a constantly expanding entity, is a relatively new phenomenon unique to the past century within our urban environment. New housing developments have traditionally occurred on the outskirts or fringe of the city whilst opportunities for urban renewal within the existing urban areas towards the city core have been overlooked. In addition, this development on the urban fringe has taken place in a piecemeal fashion within most of the major cities of Australia leaving areas of housing and businesses intermixed with the surrounding countryside. This phenomenon, colloquially known as urban sprawl, has been the subject of significant conjecture and increasing debate over the past few decades.

Urban sprawl is often considered to have serious environmental and social consequences which numerous social commentators and critics have described as a “challenging issue”. Environmentalists often contend that suburban sprawl is a socially costly outcome from the continuing development of cities. In Australia, this has been largely caused by “the great Australian dream” – the idealistic notion of the quarter acre block with two cars and a large suburban house.

While unlimited urban expansion has in the past has had some supporters (particularly in the land development sector), even those in support of (generally) uncontained, urban expansion understand that measures need to be taken in order to alleviate the negative affects associated with such expansion. Within this mix of urban and rural land uses is the rural-urban fringe. The urban-rural fringe is often seen as an almost rejected space which is neither completely rural nor completely urban (Gallent. 2006).

The fringe is often used as a repository for land uses which are neither wanted nor accepted in rural or urban areas. Nevertheless, this “intermediate zone” should be considered as a distinct entity in its own right and, as such, should be subject to planning principles designed to manage both its economic and environmental sustainability. However, given the nature of sprawling development, this zone is constantly shifting (Zsilincsar. 2003) and, consequently, any management of this area needs to either be extremely flexible, or to impose a management strategy which reduces the ability of this region to shift.

Traditional urban growth results in low density housing spread across large areas of previously unused or farming land, creating conflicts between the preservation of important rural land uses, food production zones and the need to provide housing to an ever-increasing population. The management of these issues has become a priority for all levels of government (in particular State and Local Governments) that are increasingly presented with the need to find ways in which to
manage growth whilst ensuring that they achieve their “triple bottom line” of environmental, economic and socially sustainability.

**PROBLEM SETTING AND THEORETICAL FRAMEWORK**

Sydney's population growth has been dramatic over the two centuries since settlement of Sydney Cove in 1788 (Meyer, 2005). Fluctuations in birth rates, immigration and internal movement between states at various times have seen both high and low rates of population increases. Nonetheless, the expansion of Sydney as a metropolis has been constant throughout this time, ever expanding into the surrounding rural fringe of the city. As a result, the city has expanded from a compact radius of 21 km in 1909 to its current radius in excess of 70km in some directions from its Central Business core (Meyer, 2005). The current population of Sydney of approximately 4.1 million people is expected to increase to 5 million people by 2037.

The principle method by which Australian Governments have attempted to deal with the issues of urban growth management has been through the development of state metropolitan plans. Metropolitan planning, which has predominantly occurred within Australia since the end of World War II, has helped to shape the form and direction of urban expansion of Sydney and has played an integral role in the way in which Sydney has expanded. Some plans produced for Sydney have been successful in slowing the outward development of the city limits whilst others, although providing innovative options for growth management, have ultimately been unsuccessful and allowed rapid and uncontrolled increases in the size of the city’s metropolitan region. This variance notwithstanding, the plans for Sydney have indisputably affected the way in which Sydney has developed.

Among many options available for reducing the effects of urban sprawl, such as population caps or increasing existing population densities through urban consolidation, one of the most valuable recommendations is the use of urban growth boundaries. Urban growth boundaries are a growth management planning tool used to identify the limit to which cities are able to expand in a sustainable manner and are intended to distinguish the separation of rural and urbanised land. The predominant reason for creating an urban growth boundary is to limit urban sprawl (Sitko. 2005 and Calthorpe & Fulton, 2001) and to promote the efficient use of urban land. As Daniels notes, “growth boundaries are nothing more than an attempt to bring common sense to the development process” (1999. 188). Whilst this is true, other less recognised outcomes of this form of management include the preservation of prime farming and forest areas beyond the boundaries of urban expansion in addition to providing a driving economic force for an urban region (Sitko. 2005).
In 2005, the NSW State Government released its latest metropolitan plan, The City of Cities metropolitan strategy, which provides an outline of how it is envisaged that Sydney will accommodate expected population growth over the next 30 years. This plan identifies eight key strategic aims for the future management of Sydney’s growth. Of particular importance to the research for this thesis is the fourth aim of this strategy, this being to “contain Sydney’s urban footprint” (Department of Planning, 2005: 8). To achieve this, the strategy proposes the creation of two contained growth centres in the North-West and South-West sectors of Sydney’s urban fringe. In effect, this latest strategy proposes a set of mini urban growth boundaries.

Until the release of this latest strategy, Sydney’s metropolitan strategies did not have any significant proposals for curbing the spread of its urban ecological footprint (the measure of load on the environment imposed by a certain population). This area is now estimated at a dramatic 49% of NSW’s total land area and is predicted by 2031 to increase to 91% of NSW if no action is taken on today’s patterns of development (Department of Planning, 2005). Given the nature of the latest strategy, it is timely that further investigation be made in to the increased effective use of a total urban growth boundary for the benefit of the entire Sydney region.

**Problem Statement**

The rural-urban fringe is an important component of a metropolitan region. It provides a separation between the highly urbanised areas of a city’s suburbs and the rural areas beyond the city that often provide the land to grow a substantial portion of that city’s food production needs. However, as urban development continues to expand in an unconstrained form, such as is currently being experienced within Sydney, significant portions of land in the rural urban fringe are being stretched to their viable limit. This problem needs to be investigated and addressed through the implementation of policies that ensure that urban expansion does not result in permanent disbenefits to our cities.

This thesis explores the use of growth management techniques at the rural-urban fringe and, more particularly, evaluates the use of urban growth boundaries as a particular method of urban growth management within this region. It examines the theoretical concept of growth management and the use of urban growth boundaries as a tool for managing the sprawl of large metropolitan regions. Urban growth boundaries have been previously used in the growth management of numerous cities for a number of decades. Some of these existing examples of urban growth boundary management will be examined as a basis for establishing a set of key criteria for implementing a successful growth management strategy.
Historical experience at the fringe of Sydney is also provided in the thesis as a case study of a metropolitan region which is in need of growth management. It is anticipated that the established criteria from the case studies will facilitate the formation of a set of recommendations that could be implemented within an urban growth boundary strategy for the Sydney region.

Research Questions

The following research questions need to be addressed in order to provide an informed assessment of the concept of growth management and urban growth boundaries:

- What is the concept of growth management?
- What are some of the methods of growth management that can be utilised at the urban fringe?
- What impact has post-World War II metropolitan planning policies in NSW had on the rural-urban fringe?
- What are the opportunities and challenges that the urban growth boundary presents as one option for managing growth at the urban-rural fringe?
- Are there local and international case studies of the use of urban growth management techniques, in particular the use of urban growth boundaries, which identify the successful elements of urban growth management at the rural-urban fringe?
- Would there be potential for success in the implementation of an urban growth boundary for Sydney's Metropolitan Region?

**METHODOLOGY**

Discourse Analysis

The approach that has been undertaken for this thesis comprises both primary and secondary research. A significant portion of the secondary research which has been undertaken includes research of relevant literature within the field of urban planning. A major part of the literature research presented in this thesis is a review of the history of metropolitan strategies and policies that have been implemented within Sydney and an assessment of the success or failure of the planners of the respective periods in attaining the objectives which they set out to achieve. These strategies included all post-World War II metropolitan strategies from the County of Cumberland Planning Scheme (1952) to the most recent strategy, the City of Cities Metropolitan Strategy (2005). In
addition, journal articles, speeches (such as Meyer 2005) and other current literature relating the history of Sydney metropolitan planning were reviewed with particular focus on critically examining each successive plan in terms of its success in meeting its urban objectives.

Three urban growth boundary case studies have also been chosen for analysis within this thesis. These case studies include both Australian and international examples and are intended to illustrate how various forms of urban planning through urban growth boundaries have been implemented as growth management tools for containing the spread of urban areas in those selected circumstances.

Key literature relating to the case studies includes a combination of important data sources ranging from Local and State Government/County planning strategy documents and their respective websites to community-driven interest groups and local news and media web sources. The use of community and local news sources was considered to be a key component of the assessment of each of the case studies as they provided commentary on both positive and negative impacts of the cases study in terms of the outcomes of each of the growth management strategies. From each of the case studies evaluated, key criteria, or ‘lessons learned’, have been identified as being integral to the successful implementation of each of the different management strategies.

Graphical review of Sydney’s historical expansion

Primary research in the development of this thesis has been undertaken through the creation of a set of graphical maps. This research identifies the spatial impact of urban development within Sydney since the introduction in 1948 of the County of Cumberland Scheme (and gazetted in 1952), Sydney’s first major post-World War II metropolitan plan and the ‘blueprint’ for Sydney’s expansion over the subsequent six decades. Of key interest in the development of this research was the spatial correlation between the development of the Sydney metropolis and the proposed green belt; the first attempt within Australia to implement a form of urban development containment. The results of the mapping demonstrate the continuing expansion of the Sydney region since 1948 and highlight the outward development patterns which Sydney has experienced and the need for growth management of this region.

After obtaining each of the maps used for the research (the 1948 County of Cumberland Plan, the 1968 Sydney Region Outline Plan and the 2005 City of Cities Metropolitan Plan), the plans were scanned as high resolution images (including joining together image tiles for the larger plans). Once the plans had been successfully created, the images were imported to the graphics program Photoshop. Within Photoshop each of the different land uses was identified and split into separate layers so that final images could show only the types of uses which were required.
These individual layers included each of the various land uses which were mapped on each of the plans including the urban or “living” areas, business and commercial centres, industrial areas, rural areas and the Green Belt Area (on the County of Cumberland Plan). Overall, this process resulted in a Photoshop file in which individual land uses could be “turned on or off” as required for a specific issue which was required to be shown. This process was completed for each of the plans.

In order to analyse the differences between each plan, the urban areas from each plan were combined into one image of multiple layers. In order to see where the images aligned, specific geographical points (such as the Hawkesbury River, Prospect Reservoir and Barrenjoey Head) were identified as “alignment markers” and the various layers were rotated and enlarged individually so that each layer represented the same scale. The reason for this was so that a common alignment and scale would result across all of the maps allowing for accurate overlays during analysis.

This method of analysis was predominantly used for comparing the change in the location of urban areas between 1948 and 2005. Additionally, this process has been used to show the loss of the green belt area (Sydney’s first attempt at post-World War II growth management) over time. To easily show where areas had been lost and where areas of the green belt had been retained, the “layer blending” command was used and altered until a suitable contrast between the “retained” and “lost” areas was achieved.

Study Areas

The study areas proposed for analysis include both Australian and international examples of urban growth management. Critical analysis of urban growth boundaries in the following metropolitan areas has been undertaken:

- Melbourne, Australia;
- Portland, Oregon, USA; and
- Vancouver, British Columbia, Canada.

Review of the urban growth management strategies in these three metropolitan regions has allowed a focused discussion on a diverse range of implementation strategies and outcomes successes, thereby facilitating conclusions which determine successful and unsuccessful elements of the various growth boundary management techniques.
RESEARCH LIMITATIONS

Some limitations have been identified as constraints to the research undertaken within this thesis and should be considered when evaluating the results presented in this thesis. The limitations identified include the following:

- Numerous examples of successful growth management strategies involving the use of urban growth boundaries currently exist across the world. Because of the scope of this thesis, only a few of these examples have been considered for assessment of the characteristics which allowed them to be effective tools in the management of urban growth at the fringe of the respective cities;

- A significant portion of the primary research which has been undertaken involved the correlation of various metropolitan strategy planning maps. Although generally consistent in terms of shape and size, discrepancies between the cartography of each of the individual plans did not allow for totally accurate alignment between the different maps once digitised. Therefore, minor adjustments have been made to some of the maps to allow for a more accurate visual interpretation of the overall analysis.

- The data available from each of the various metropolitan strategy planning maps with respect to different land uses varies greatly between the strategies. Generally, each planning strategy subsequent to the County of Cumberland Planning Scheme (1952) shows less detail than the previous one. When combined with the above issue relating to map scale, only the overall urban footprint has been mapped for each strategy as part of the overall analysis with as much accuracy as was possible.

THESIS STRUCTURE

The thesis is structured into chapters which analyse the issues associated with growth management and the implementation of urban growth boundaries as a management tool. The structure of the thesis comprises the following:

Chapter 1: Introduction

This chapter summarises the proposed research for this thesis. A contextual setting was first established to provide a background to urban growth management in order to establish a theoretical framework for the thesis. A research statement was then outlined, including the aims and objectives on which the proposed research was based and the methodologies employed in gathering the
research. The introduction chapter concludes with a concise description of the contents for each of the chapters within the thesis.

Chapter 2: Growth Management

This chapter introduces the theory of growth management and its use as a planning mechanism for influencing the growth of both metropolitan and urban-rural fringe areas. A review of existing discourse material forms a basis for identifying and defining this theory and the various forms in which it can take place. The chapter defines both rural-urban fringe and growth management and identifies some of the factors leading to the need for growth management at the rural-urban fringe then discusses some of the various tools and techniques currently used within the field of growth management to mitigate these issues. Finally, the technique of urban growth boundaries as one specific technique is defined and critiqued in greater detail as the key technique of interest to this research, including a discussion on the opportunities and challenges it presents as a growth management tool.

Chapter 3: Existing Urban Growth Boundaries

The third chapter identifies case studies with respect to three cities which have been chosen because of their implementation of urban growth boundaries as a preferred technique for managing the urban growth of their respective metropolitan regions. The cities identified for investigation include Melbourne, Portland and Vancouver. These cities have been assessed on the effectiveness of the plans that they have implemented, their ability to respond to changing conditions and the opportunities and constraints which each area has experienced in the implementation of its growth management plans. A review of government policy and strategy documents, journals, media articles and information produced by local community groups forms a substantial component of the analysis of the success (or failure) of these cities.
Chapter 4: The expansion of Sydney

This chapter provides a synopsis and critical analysis of post-World War II metropolitan planning in NSW, including identifying the destruction of Sydney’s original attempt at managing growth – the County of Cumberland Green Belt and the effect which this has had on the metropolitan landscape. The chapter identifies the effects that different planning strategies have had on managing the rural-urban fringe and the need to urgently manage the remaining rural areas beyond the rural-urban fringe. Strategy outcomes and objectives have been an important factor in determining the success of these plans on managing the rural-urban fringe. As a key component of this chapter, Sydney’s urban development trends have been specifically analysed using spatial analysis which maps the increasing growth of the city’s development footprint throughout the various metropolitan planning stages of Sydney’s post-war expansion.

Chapter 5: Analysis and Future Considerations

Chapter Five presents an analysis of the opportunities which urban growth boundaries provide for managing metropolitan growth at the urban fringe and assesses the potential success of the implementation of an urban growth boundary for the Sydney Metropolitan Region. This analysis is based on a combination of reflection on the theories with respect to growth management, analysis of existing examples of urban growth boundary implementation and the lessons which have been learnt from Sydney’s previous range of urban growth management. This chapter also identifies some of the limitations of Sydney’s current metropolitan planning processes and suggests the use of an urban growth boundary as an alternative to Sydney’s current growth management strategy, drawing conclusions on the potential effectiveness of the implementation of this growth management tool within this region.

Chapter 6: Conclusion

The sixth chapter of this thesis provides a summary of the background research and findings of the previous five chapters. As a way of ensuring that the aim of this thesis has been achieved, specific reference is made to the original research statement and aims and objectives presented in Chapter One.
INTRODUCTION

This chapter introduces the theory of growth management and its use as a planning mechanism for influencing the growth of both metropolitan and urban-rural fringe areas. A review of existing discourse material forms a substantial basis for identifying and defining this theory and the various forms in which it can take place. The chapter defines both rural-urban fringe and growth management and identifies some of the factors leading to the need for growth management at the rural-urban fringe. Following this, some of the various tools and techniques currently used within the field of growth management to mitigate these issues are discussed. Finally, the technique of urban growth boundaries as one specific technique is defined and critiqued in greater detail as the key technique of interest to this research including a discussion on the opportunities and challenges it presents as a growth management tool.

Historical Context

The earliest forms of transportation through to the early 1900's were restricted to walking, riding a horse or the limited use of horse-drawn carriages. Before the increased popular use of the horse drawn cart, or “horse and buggy” as it was more colloquially known, people were confined to the distance they could walk, so cities could not, and did not grow significantly. As new motor vehicle technologies emerged in the early 1900’s, the boundaries of the city were able to expand. People who had previously lived in the business districts of the city because they had no alternative means of reaching the city in order to work, were now able to live a few kilometres away from these areas of the city and still “commute” to their workplaces in the city (Wotherspoon. 1983). This led to a rapid increase in the growth of the city away from the central areas of the city. It allowed the radius of the city to grow, because its citizens no longer had to walk all the time, while still allowing ready accessibility to the city and its businesses. Consequently, a formal central area of commerce became established in each city, creating the beginning of separation between residential areas and businesses.

Economic growth in the 1950’s and 60’s brought with it increased incomes and a desire for more private dwellings and private motor vehicles. In many cases the responses of governments to this rapid increase in private car ownership was to substantially increase the funding for roads, resulting in “the great decade of highway construction” throughout both Britain and America (Hall. 1997. 84) as well as Australia (Calthorpe and Fulton. 2001).

The liberation offered by the automobile, coupled with the rapid post-World War II economic and population expansion (a significant proportion which was attributable in Australia to a high
immigration level (Hamnett & Freestone, 2000)), saw many suburbs in Australian cities expand rapidly into the fringe regions of the cities, taking over large swaths of previous agricultural farmland and reserves of open space. Supported by metropolitan plans such as the County of Cumberland Planning Scheme and the Sydney Region Outline Plan (discussed in greater detail in Chapter 4) the suburbs of Sydney, for example, began to consume vast tracts of land for low density housing, industrial parks and retail precincts.

The impacts of this growth went generally unnoticed during much of the post-war period until the late 1960’s when the impacts of this sprawling form of development began to be realised (Deakin, 1989). During the 1970’s and 1980’s, environmental awareness and protection began to gain momentum and interest groups were formed to respond to rising concerns over uncontrolled development. As Hamnett and Freestone note “the tradition of unserviced land subdivision, which led to uncontrollable public cost and urban sprawl, was not replaced by a packaged land development process until the early 1970’s. The interest groups endeavoured to bring to the forefront the environmental impacts of this form of development and bring awareness to the need for growth management at the urban fringe. Public concern for the environment arising from rampant outward expansion of cities resulted in the increased need for government intervention to occur through various mechanisms of growth management.

The Fringe – Defining the Rural-Urban Fringe

To be able to manage the growth of an area, it is essential that this area be capable of being defined or identified. As a prelude to discussing growth and its management at the rural-urban fringe, it is important to first provide a definition of the rural-urban fringe. However, it has been found that this is one of the initial challenges faced when undertaking a review of the issues associated with the rural-urban fringe within currently available literature.

There have been several studies in recent years relating to the rural-urban fringe and to the issues and conflicts in land use which arise in these areas. These studies examine issues such as the affects of traditional land use regulations, growth controls, urban containment and open space conservation in this fringe zone. In contrast, there appears to be comparatively less literature on the growth management of these areas, in particular on the use of urban growth boundaries as a management tool in these regions. Notwithstanding this deficiency, some of the definitions of rural-urban fringe policy techniques tend to overlap, allowing research of these policies to overlap one another. A number of authors have expressed views on what indeed actually constitutes the “urban fringe” with some correlations evident between the varying views.
This difficulty in defining the urban fringe has been noted for a significant period since Pryor (1968) in her study of this zone noted that “the heterogeneity which writers acknowledge as characteristic of the fringe may be, from one point of view, inconclusive in its very complexity yet is better viewed as distinctive in comparison with related urban and rural characteristics” (204-205). It appears that these sentiments have been maintained since that time, with a number of more recent definitions still providing a mixed definition for the rural-urban fringe with a number of authors noting that this idea of an urban-fringe region is not clear cut (Daniels. 1999; Bunker. 2002a; Gallent. 2006).

Bunker (2002a) identifies the urban fringe in terms of both social and environmental aspects. He notes that the fringe is a region of rapid population growth while also being an area where “the shifting interactions of natural resource management, rural production and metropolitan growth and influence are played out” (Bunker, 2002a. 66). Bunker (2002a) also delineates the urban fringe as comprising an “inner” and an “outer” boundary, each exhibiting different functions and relationships to the urban and rural environments. Gallent (2006) adopts a similar approach to the definition of the urban-fringe area describing it as a buffering zone between the real countryside and the urban environment of the city. However, Gallent (2006) takes the idea of separated functions one step further by identifying the fringe as a “distinct entity” (Gallent, N. 2006. 384). Bromley continues this line of distinction between the separate areas noting that, “in geographical terms, therefore, there is, and always has been, a push-and-pull of the green line” (Bromley. 1990. 11).

This assertion that the rural-urban fringe is a separate region which requires its own set of controls and management is supported and developed further by Sinclair (2003) who proposes that rural land on the fringe can be described as having three broad and different components. These components, he notes, include productive agricultural land, places for people to live and large areas of connected vegetation which provide biodiversity and habitats. Bromley expands on his idea of the rural-urban fringe to complement Sinclair’s view by stating that, in respect to urban planning “the rural urban fringe is often designated as a green belt, or agricultural policy area, which brings with it certain policy and planning implications and powers” (Bromley. 1990. 12).

An area of convergence between Sinclair (2002) and Daniels (1999) is that the rural-urban fringe areas are often significantly undervalued in what they offer their respective cities in terms of environmental, social and agricultural value. In contrast, with regard to economic and value impacts, Calthorpe and Fulton (2001) observe that the rapid population growth subsequent to World War II (which is discussed below by Hamnett and Freestone, (2000)) is a driving force of an unsustainable property market that is increasingly demanding increased amounts of land to be developed in the urban fringe regions.
Another, somewhat contrasting, approach which Sinclair takes in a collaborative study with Bunker and Holloway (2003) notes that the urban fringe can be considered in terms of commuting limits from employment locations within city regions, including Sydney. However, it is now accepted that a policy designation is not sufficient in its own right and positive land management is needed to tackle the issues. Most major towns and cities now, therefore, have an urban fringe project, or an equivalent arrangement.

The results of a simple analysis of definitions of the rural-urban fringe, though tending to place emphases on different area factors such as mixed land uses or environmental concerns, do tend to have some consistency in that the rural-urban fringe is an area of numerous conflicting interests which require some form of managed growth strategy as a means of sustaining their existence. One thing is clear though; no definitive standard as to what does or does not constitute the rural-urban fringe is currently available. One conclusion which may, however, be drawn from this discussion is that the definition of ‘the countryside’ “has witnessed a shift away from the traditional rural idea to a wider rural-urban continuum” (Bromley. 1990. 12)

Growth Management Defined

It is appropriate at this juncture to define the concept of urban growth management, in particular management of growth at the rural-urban fringe. As was the case above in trying to define the rural-urban fringe as the area under investigation for this thesis, there does not seem to be a ‘neat’ definition for the concept of growth management. Even though much of the literature on and actual strategies for growth management comes from North America and Europe, fundamentals exist which allow for comparisons to be made within an Australian context.

Growth management is a term often used however, rarely defined. The Oxford Dictionary defines ‘growth’ as being to “increase in size or value [and to] develop faster than other industries” (Fowler and Fowler. 1978. 384-385). It also defines ‘manage’ as being able to “organise, regulate and take control or charge of” (Fowler and Fowler. 1978. 529). Hence growth management in an urban context can be defined simply as organising or regulating control of the increase in size and value of an urban area from a simple to a more complex stage.

Bromley however, provides a broader basis incorporating the need to understand growth management stating that “one of the basic requirements of [growth] management is to come to terms with, and direct the constant flow of, interaction and change which occurs in the wider physical, cultural and economic environment” (Bromley. 1990. 15). Bromley, therefore, sees management as a process both accommodating and initiating changes within an environment (Bromley. 1990).
Bromely (1990) also suggests that management is a process which brings ideas, people and things together in order to achieve aims and objectives of a certain task.

In a similar vein, Daniels (1999) considers changing circumstances and the interaction between people, in particular the interaction between the public (and land holders) and their governments to be key factors in describing growth management. He further raises is the relevance of the locality of these changes stating that “the purpose of growth management is to provide greater certainty and predictability about where, when, and how much development will occur in a community, region, or entire state” (Daniels. 1999. 4).

As a policy medium, Daniels and Bowers narrow the view of growth management by identifying it as the use of government regulatory powers “to influence the rate, timing, location, density, type and style of development” (Daniels and Bowers. 1997. 315). This somewhat constrained view, although a valid method of growth management, does not seem to incorporate the interaction between communities and governments as in the definitions of Bromley and Daniels. Stein, on the other hand, provides a comprehensive summary describing growth management as involving use of “government regulatory powers in a comprehensive, rational coordinated manner to meet public objectives for balancing economic growth with the protection and preservation of our natural and manmade systems.” (Stein. 1993. vii).

The various definitions make it clear that growth management is a dynamic entity, but one which is grounded in the regulation and determination of land uses within a framework of specific tools. This entity, considered by some, such as Daniels and Bowers (1997) to be predominantly influenced by regulatory controls, has evolved into a “complex set of activities, which reach beyond a single community and take various stakeholder interests into consideration” (Pallagst. 2007. 20).

An important addition to the discussion of growth management at the fringe is the concept of direction of growth. Sinclair states that “growth of urban areas can go in two directions: outwards or upwards. Outward growth is called urban sprawl and upward growth is called urban consolidation” (Sinclair. 1999. 2). These two forms of growth are the options facing planners on the rural fringe of Sydney today. The current policies governing the already urbanised metropolis of inner Sydney have seen the establishment of effective management controls of urban consolidation. However, in the rural areas of the metropolitan fringe, the horizontal form of development is still following the tradition of outward moving land subdivision as described above (Hamnett & Freestone. 2000). The subdivision of open land, once used (or still currently used) for agriculture, is increasingly consumed by urban sprawl across the rural fringe.
Finally, it is important to also recognise and understand some of the obstacles to managing growth at the urban fringe. Daniels sees this as important to influencing “the relevance of the vision for and the planning potential of a community, county, or metropolitan region” (Daniels. 1999. 44). He notes at least eight obstacles that hinder coordinated and effective growth management in the metropolitan fringe. These include:

- Fragmented and overlapping governments and authorities;
- The large size of fringe areas;
- Lack of community or regional vision;
- Lack of a sense of place;
- Newcomers, social conflicts and rapid population growth;
- Scattered new developments;
- Lack of planning resources; and
- Outdated planning and zoning techniques. (Adapted from Daniels. 1999. 44-45)

To effectively control growth at the urban fringe, these factors need to be considered and mitigated as part of an overall strategy. As will be shown within the case studies presented in Chapter Three, the implementation of an urban growth boundary management strategy provides opportunities to overcome many of these issues including the ability to provide a single management authority to control land use and the prevention of scattered land uses at the rural-urban fringe.

**The Need for Growth Management on the Rural-Urban Fringe**

Given the constantly shifting nature of the rural-urban fringe (Zsilincsar, W. 2003; Daniels and Bowers. 1997) in terms of both physical pressures (increased loss of productive land and open spaces areas) and social pressures (changing demographics resulting from increased urbanisation) on the fringe region, it is clear that there is a significant need to manage this environment. A substantial amount of literature and actual strategies pertaining to growth management techniques and tools has been developed as part of studies undertaken in the United States (Moore and Nelson (1994) and Medler and Mushkatel (1979)), the United Kingdom which has been implementing holistic growth management tools for the past half-century (Gallent, 2006), and increasingly Asia (Yokohari et al, 2000 and Saizen et al, 2006). A number of these techniques and associated management
tools are described below; however, first it is important to identify why it is that urban planners need to consider implementing growth management strategies at the rural-urban fringe.

Whilst the definitions of growth management and the rural-urban fringe can be debated within the existing literature, an analysis of the research which has been undertaken into the options for managing the growth of the urban-fringe areas can be more readily defined. Current research such as Sinclair, Bunker and Holloway (2003) and the Taskforce of the Farm Foundation (1997) suggests that there is a trend towards the increasing fragmentation of rural-urban fringe areas which is affecting the environmental, economic and social sustainability of these areas. Other theories from the United Kingdom suggest that “large swathes of land lying between the urban edge and the wider countryside don’t fit comfortably within either an urban or rural classification – containing elements of both” (Gallent. N. 2006. 383). Because of this uncomfortable split, management techniques are required to ease the conflict and the distinctions between urban and rural land uses. When considered in the context of the definitions outlined above there are a number of factors which influence the requirement for urban growth management strategies at the rural-urban fringe. Some of the key factors are described below.

Sustainable Agriculture and Resources Production

Many rural-urban fringe conflicts occur over land use involving farmland. One of the most important causes of this conflict is that the best forms of land for agricultural production, including “level and best-drained soils”, (Daniels. 1999. 213) also provide the best characteristics for home and business development sites. Daniels (1999), Henderson (2003) and Sinclair (2002) regard the demise of agricultural and other “green land” as one of the most important factors signalling the need for urban growth management strategies. Sinclair (2002) also notes that growth management strategies can play an important role in protecting these areas from urbanisation.

Sydney's agricultural land contributes a significant amount of the agricultural produce which supplies the Sydney regional consumer market. A report by the ABS Agricultural Bureau in 1997 found that the “Sydney region agriculture has a gross value of 5.6% of the total NSW production. Other sources suggest the true figure is much higher, possibly up to 12% of the state’s production” (Gillespie and Mason. 2003. 5). They estimate that the value of agricultural production within the Sydney region is over one billion dollars per annum, with NSW's total agricultural produce worth $28 billion per annum (Daniels. 2002). As a result, agriculture plays a major role in the Sydney region in terms of economic growth in NSW.
For this reason, the sustainability of Sydney's agricultural land is a primary concern of rural planners in NSW. The urban fringe of the Sydney basin, where much of the agricultural land is located, is used for a wide variety of agriculture. Within the Richmond area, for example, there are numerous types of agricultural produces such as fruits and vegetables for the markets in Sydney. This location is an optimal area for such production as the soil is good quality (from the alluvial processes associated with the Hawkesbury-Nepean River), and the area is within an acceptable distance from the Sydney markets making the process more economically viable. Turf farming is also a major agricultural industry located in the northern fringe areas of the Sydney region around Windsor and Richmond.

The use of this land also for large-lot ‘rural residential’ development is one of the greatest problems facing existing agricultural land as it consumes much more land per unit of housing than a typical suburban development style.

Urban and Rural Sprawl

During the second half of the 20th century, the phenomenon of urban sprawl began to define the urban and suburban landscapes of many cities throughout both Europe and North America. Whilst “urban sprawl” can be simply defined as low density development of housing dependant on automobile usage, it can commonly conjure images of “unchecked urban expansion at and beyond the fringe of cities and towns” (Williams. 2004. 105). Sprawl, can also be simply defined as the outward migration of homes (and jobs) to low-density areas outside the core metropolitan region of a city to the fringe areas (Kahn. 2006).

Common elements which are often indicative of sprawl include:

- Low-density development that is dispersed and uses a lot of land;
- Geographic separation of essential places such as work, homes, schools, and shopping; and
- Almost complete dependence on automobiles for travel. (Heimlich & Anderson. 2001. 1)

Kahn also states that sprawl typically increases land consumption and vehicle use, which in turn increases carbon dioxide production and requires the building of new roads” (Kahn. 2006. 110). Daniels (1999) adds to this concern by noting the cyclical nature of the problem with dispersed settlement patterns at the urban fringe leading to even more sprawl. “As more people and development locate in the fringe, the territory of the fringe also increases, adding to a more dispersed settlement pattern” (Daniels. 1999. 17). He sees the development of sprawl as a short-
sighted and expensive way to develop housing for an expanding population due to the high energy consumption it creates and the fact that low-density housing consumes more acreage than is necessary.

Australia has not escaped this phenomenon and the processes of urban sprawl can be directly linked to a majority of the growth patterns within major cities throughout this country. An increasingly evident and problematic type of sprawl which is occurring at the rural-urban fringe is the development of large rural residential developments. Rural residential development is defined by Sinclair as “residential use of rural land where the main source of income is not the productive use of the land” (2007. 12). The proliferation of this form of housing development is known as ‘rural sprawl’ (Daniels. 1999b. Sinclair. 2007).

The key issue with rural residential development and ‘rural sprawl’ is that this form of development consumes farming and other agricultural land while the residents of these forms of housing commute (often long distances) to work in the main towns and cities. Sinclair, Bunker and Holloway, in a land use study of the rural-urban fringe in 2003 found that 78.3 per cent of the fringe regions between the LGAs of Baulkham Hills and Campbelltown consisted of land used for rural residential development.

With Sydney’s growth anticipated to increase by approximately 1.1 million people within the next 25 years (Department of Planning. 2005), the Sydney metropolitan region is expected to accommodate over 44,000 additional people on average each year. The current metropolitan planning strategy for Sydney (described in greater detail in Chapter 4) notes that as part of the accommodation of this population increase, the NSW government is “planning for almost 400,000 new dwellings” (Department of Planning. 2005. 5) by the year 2031. Although somewhat contained within the proposed North-West and South-West growth areas, such development will still result in the loss of approximately 350km² (Rock. 2007) of existing urban fringe land within these regions.

Environmental Sustainability

Environmental sustainability is an issue relevant to both agricultural sustainability and minimisation of urban sprawl. Decisions which affect growth and development of urban areas at the urban fringe have long-term impacts on the condition of environmental elements such as soils, rivers and groundwater quality (which are key factors in maintaining agricultural viability) as well as public access to and maintainability of woodlands, open space reserves and other environmentally sensitive areas.

As Daniels notes, the impacts on the environment from development at the rural-urban fringe “are not light” (Daniels. 1999. 17). He cites examples such as a ‘proliferation’ of on-site septic systems.
and drinking water wells as key components in this issue. Often this proliferation occurs through the rapid expansion at which development on the fringe takes place. Without the installation of regional and district infrastructure such as sewerage trunk mains, on-site systems are generally employed. However, Daniels points out that, unless these systems are properly maintained, they present a threat to the quality and supply of ground water. Additionally, severe impacts can occur on river systems with the contamination of these waterways resulting in the loss of freshwater ecosystems and the proliferation of dangerous plant species, algae blooms and the like.

In addition to contaminant issues, the environmental effect of sprawl is evident in the loss of wildlife habitats of the areas into which sprawling urban developments encroach. These natural areas provide habitat for wildlife and are necessary to sustain and support numerous environmental systems (ecosystems). These natural land resources also minimise the negative effects of stormwater run-off, stabilize soils, modify climatic effects, provide visual attractiveness, and serve as recreational areas.

The impacts of development on environmental sustainability can be either direct or indirect. Direct impacts include the removal or alteration of the habitat itself, whilst indirect impacts include factors such as increased human activity decreasing vegetation species diversity or increasing numbers of introduced predator animal species (Ames County. 2006). Identifying such resources, and cooperatively planning growth within the urban fringe zones in order to sustain the natural areas within the planning area, helps mitigate the negative affects of growth and development on these areas.

Land Use Conflict

Land use conflict can occur for many reasons within the rural-urban fringe. Often, conflict occurs when large farmland areas are subdivided and rural residential areas are established on these areas of land (see Figure 2.1 below). These conflicts occur, for example, with respect to noise and odours from farmland because of a lack of understanding by the new residents of the processes used by farmers and other agricultural producers (Henderson. 2003; Sinclair. 1999; Sinclair. 2002).
Such problems can be exacerbated if there is an increase in the competition for available land. In such cases, there may be a tendency to increase the intensity of agricultural development on the available land, leading to a higher level of conflict with non-rural residents. It is these conflicts which highlight the need for separation between land uses. Currently, it is the role of the local government authorities and their planners to develop appropriate controls through the strategic and statutory means available to them (as described below) through Local Environmental Plan (LEP) zoning and requirements within Development Control Plans (DCPs). This involves separating incompatible land uses while at the same time “recognising the efficiencies which can be achieved through the integration of many of these land uses”. (Sinclair. 1999, p115)

**TECHNIQUES FOR GROWTH MANAGEMENT**

Growth management policies can be implemented at local, regional and state levels; however, the correlation and interaction between these levels of policy setting and planning do not appear to have been widely recorded or analysed within existing literature. There are a number of growth management techniques which have been successfully implemented within outer urban environments with the aim of mitigating growth impacts at the rural-urban fringe. Daniels (1999)
notes that these techniques tend to fall within two main types of management strategy. He sees these types as:

- the ‘carrots,’ which aim to encourage good development; and
- the ‘sticks,’ which aim to regulate development. (Adapted from Daniels. 1999. 159)

Growth management programs which are successful often combine a variety of these techniques within an overall suite of planning strategies. Some of the main techniques which have historically been utilised for containing urban expansion and protecting rural-urban fringe areas are discussed below.

Policy and statutory controls

Policy and statutory controls comprise the primary strategies used by state and local governments to set targets for population growth and to define the locations and types of permissible development. They are the most common form of growth management used in Sydney. As Bunker (2002a, 67) notes, “the principles of land use zoning and controls on development were introduced with the adoption of the (modified) [County of Cumberland] Scheme in 1951 and have been the mainstay of planning policies since”. Zoning is still the most common statutory control that is used in NSW and can control the intensity and type of development that can occur on any given site.

Within the Sydney Region, statutory powers have been given to local governments in order to allow them to control and regulate development within their own boundaries, principally through the use of land use zoning. It is noted by Toon that the use of statutory land use controls “is commonly associated with the adoption of town planning legislation” (Toon. 2006. 145). In the Australian context, this was indeed an accurate observation with the development of the County of Cumberland Planning Scheme – a statutory planning document incorporating zones which provided for permissible and prohibited forms of development.

As Sinclair, Bunker and Holloway (2003) have indicated through their research, this system, due to the relatively large number of Local Government Areas located within the rural-urban fringe, has caused significant fragmentation in development patterns across these areas and, as a consequence, has resulted in a number of inefficient uses of land as well as areas of significant land use conflict. However, with the development of the new Standard Local Environmental Plan (LEP) template, it is hoped that some of this fragmentation will be mitigated.
As discussed previously, one of the greatest needs for managing urban development and expansion into the rural-urban fringe is the protection of farming land and land which is currently used for agricultural purposes to sustain the needs of the city. A form of zoning which is not currently available within Australia, but which is utilised in a number of states in the USA is agricultural zoning. Areas within the United States which currently use this type of zoning as a growth management tool include Marin County, located in California immediately North of San Francisco and Lancaster County, in Pennsylvania.

The primary benefit in the use of agricultural zoning as a technique for growth management is that it provides a way of keeping a separation between urban and non-urban land uses. This has the consequential benefit of minimising land use conflicts between these two uses. There are several types of agricultural zoning which can be applied to land within the urban fringe. Factors that determine which type of zoning is applied to agricultural land include whether or not the land is to be exclusively agricultural, the minimum lot sizes allowable, the number of dwellings which will be permitted within the agricultural zones and the types and size of buffers between urban land uses (Daniels. 1999; Sinclair. 1999).

However, an issue which can arise from this form of growth management technique is that agricultural zonings can be seen merely as a way of preserving existing open space in preparation for future development as housing. This is particularly the case in situations that Daniels (1999) refers to as “pro-growth communities”. In such cases, he notes, zonings such as ‘agricultural-residential’ or ‘agricultural holding’ are utilised in combination with smaller minimum allotment sizes, allowing for small hobby farms and rural residential uses to be established in these areas. The use of this technique consequently minimises the effectiveness of this form of control as a means of managing clashes between urban and rural uses.

Purchase and Transfer of Development Rights

In addition to the issues associated with agricultural zoning, owners of farming land are often opposed to the idea of agricultural zoning of their land because, in effect, it “restricts their use of their land without compensation” (Daniels. 1999. 221). Two methods by which this restriction can be overcome are the use of Purchase of Development Rights (PDR) and Transfer of Development Rights (TDR). Although mostly confined in their implementation to the United States, these legal instruments involve the purchase of easements over an area of land.

In the use of PDRs, compensation is paid to the existing land owners by a government or land trust for not developing their land or selling it for development in the future. This prevents any
development occurring on that particular area of land and allows the maintenance of crucial farmland areas without the influence of developers. TDRs are managed within a similar framework; however, the rights of land owners to develop their land can be ‘sold’ to governments or to private organisations and then transferred to other sites, generally within an urban area. This transfer then allows a developer to build higher density developments within that urban area than would otherwise be allowable whilst maintaining the original valuable agricultural lands at the rural-urban fringe.

Within Australia, however, PDRs and TDRs are currently more commonly utilised as a means of protecting heritage buildings or sites from urban renewal development (Williams 2004).

**Green belts**

The original concept of providing a physical boundary between cities and their adjoining rural countryside regions dates back to the ideas of Ebenezer Howard in the late nineteenth century when he introduced his schemes for managing London’s growth whilst maximising accessibility to adjacent green land. An urban planner who further developed Howard’s ideas included Raymond Unwin during the 1930s and Patrick Abercrombie in his development of the Greater London Plan in 1945.

A green belt is a scheme which proposes a “belt” of green, open spaces around the perimeter of a city in order to limit its outward expansion. The fundamental aim of a green belt (or green belt policy) “is to prevent urban sprawl by keeping land permanently open; the most important attribute of Green Belts is their openness” (Office of the Deputy Prime Minister. 1995. 5). Green belts, although similar in their approach to restricting the outward expansion of a city, are conceptually different to an urban growth boundary. In the case of a green belt, an area of land surrounding a city is designated as an open space ‘green belt’ and any future development beyond the existing capacity of the city must occur outside of the green belt zone, effectively creating a new town or city. An urban growth boundary is different (as will be seen below) as this form of management seeks to constrain the development of the city within an area defined by the growth boundary and, where necessary, providing higher densities within this urban area to accommodate expanding population levels.

As will be seen in Chapter 4, Sydney’s first concerted post-war attempt to contain its urban growth was the implementation a green belt growth boundary within the Cumberland County Plan in 1948. This scheme proposed a “green belt” around the urban area of the city to limit the expansion of the city but, as Bunker (2002a) notes with respect to the population booms of the 1950’s, 1960’s and early 1970’s, it was quickly realised that the growth of Sydney was moving too quickly for the “green belt” to remain and it was abandoned in 1961. This, however, does not detract from the use of green belts as a growth management tool in principle, as indicated by the successful use of this technique.
throughout England with over one and a half million hectares (13 per cent) of England (Countryside Agency. 2004) consisting of green belt-protect open space (see Figure 2.2).

**Figure 2.2: Green belt locations within England**

![Map of Green Belts in England](image)


**Consolidation Policies**

Although more often used within existing urban areas, consolidation policies are an important consideration to an overall package of management strategies designed to minimise urban
expansion into the urban fringe of cities. The concept of urban consolidation was introduced within the metropolitan planning strategies from the mid to late 1980s onwards through the development of strategies such as Sydney into its Third Century (1988), Cities for the 21st Century (1993) and Shaping Our Cities (1998).

Urban consolidation aims to encourage future development to occur in existing urban locations through the approval by state and local governments of different and higher forms of urban densities. This type of strategy, known as ‘centres policies’ often encourages concentration of higher density urban areas around transport nodes and commercial and retail precincts and has featured prominently in Sydney’s metropolitan strategies since 1988 (Naidovski. 2005). Even though urban consolidation is not a key growth management tool for development at the urban fringe, the promotion of urban consolidation and centres policy strategies as a state level is essential to reducing the amount of population growth which will otherwise maintain increasing pressure on the urban fringe at a local government level.

Urban Growth Corridors

Urban growth corridors, associated with the concept of consolidation policies, aims to allow for the expansion of cities along corridors of land which have been identified as suitable for growth and as a technique for helping to establish the overall structure of a city. Often urban growth corridor development is undertaken in conjunction with rail or other forms of public transport infrastructure which can provide a structure and direction in which the city can expand. Corridor plans which have been historically implemented as growth management strategies include the Copenhagen Finger Plan in Denmark and the Sydney Region Outline Plan.

**Urban Growth Boundaries**

As is evident from the above examples, there are several options for tools and strategies that aid the management of urban growth. However, the focus of this thesis is on the management of urban areas through the use of another growth management technique, the urban growth boundary. This section of the thesis will examine the role which urban growth boundaries can play as a key technique for managing urban growth specifically at the rural-urban fringe. This section focuses initially on the definition and concept of an urban growth boundary and concludes by examining some of the opportunities and challenges which this technique provides as a growth management technique.
What is an Urban Growth Boundary?

An urban growth boundary establishes a geographical boundary up to which urban expansion can be developed. They are used by state governments and cities to forecast where a city may be anticipated to grow. Such boundaries have had mixed success as tools to control or manage growth. Urban growth boundaries can be defined in a number of different ways. At its simplest, an urban growth boundary can be considered as a line drawn on a map between urban and rural land which defines the limits to which the urban area will grow. Land within the line is allowed to be developed and is often zoned to encourage development at higher densities than under original zonings. Daniels (1999) provides a rather pragmatic view of the urban growth boundary stating that “growth boundaries are nothing more than an attempt to bring commonsense to the development process. They encourage compact, cheaper-to-service development; they separate communities from merging into one another; and they are flexible enough to expand over time and in appropriate directions as additional land is needed”. (Daniels. 1999. 188)

Douglas Porter notes that “urban growth boundaries restrict urban growth to a specific area around a community and prevent the spread of development into the surrounding countryside” (Porter. 1997. 44). Porter also states that the technique of growth boundaries are typically based on long term projections of development upwards of twenty years or more. Burrows also identifies the idea of using a growth boundary as a means of identifying where urban development should and should not occur, and that the “cordon or boundary line establishes the geographical extent to which development is permissible. It is an indirect means of controlling growth in that it channels development rather than limit it” (Burrows. 1978. 73). Overall, the establishment of an urban growth boundary is intended to create edges to a city in the form of a clear boundary between urban and rural uses.

Opportunities and Challenges of Urban Growth Boundaries

Several cities in North America have successfully initiated growth management programs utilising the principles of urban growth boundaries to contain future development and to protect farmlands and open space areas from development. Daniels (1999) and Moore and Nelson (1994) note for example, that the State of Oregon is leading the way in implementing urban growth boundaries. In Australia, Melbourne has also recently implemented its own urban growth boundary initiative through its new Metropolitan Planning Scheme, Melbourne 2030, and this is discussed in greater detail in Chapter Four.
As with any growth management program, however, urban growth boundaries can present both advantages and disadvantages. One of the key values of an urban growth boundary has been identified by Bollier (1998) as not actually being the drawing or fixing of a boundary per se, but rather in the resultant pressure which it applies on municipalities to make direct estimations of the long-term implications of unplanned sprawl on their existing cities. He notes that the application of urban growth boundaries as a planning tool essentially requires a town or city to re-evaluate its existing planning strategies and to consider a longer-term approach to maintaining its community (Bollier, 1998).

A number of other opportunities which derive from urban growth boundaries have been identified by researchers such as the Hamlin and Thomas (2000) and the Green Belt Alliance (a large, community group in California, USA). These opportunities range from social advantages such as affirming a community’s identity and encouraging the development of more affordable housing to environmental advantages including access to open space from urban centres and the preservation of open space, farmland, and environmentally sensitive areas.

A further opportunity that urban growth boundaries present is the opportunity for the community to work with the government in preparing strategies which accommodate everyone within a community. The siting of urban growth boundaries should be a joint effort. The process requires that both the municipality implementing the boundary and neighbouring municipalities agree on land uses outside of the proposed urban growth boundary since the adjoining municipality is responsible for planning and zoning the area outside of the city limits, and the types of zoning which they allow within these areas will impact on how successful the strategy will be.

However, some critics of urban growth boundaries as a planning technique highlight some of the disadvantages of this form of development control, particularly with regard to the impacts that they can have on land cost both within and outside the identified growth boundary. These disadvantages include:

- segmented real estate markets;
- increased land prices inside boundaries and reduced prices outside; and
- increased overall housing costs. (Hamlin and Thomas. 2000. 2)

Notwithstanding, the research undertaken by Hamlin and Thomas also found that some planners and developers feel that even these disadvantages can be turned to advantages through increased land values which encourage in-fill development and brownfield remediation.
SUMMARY

This chapter has provided an overview of some of the issues which are facing the rural-urban fringe and has also provided evidence that there are a number of good management options which exist, albeit often in isolation of one another. It has introduced the theory of growth management and its use as a planning mechanism for influencing the growth of both metropolitan and urban-rural fringe areas. It has also found that there are a number of ways in which both growth management and the rural-urban fringe can be defined and that there are common characteristics which link each of these definitions. This chapter has also identified some of the different techniques currently used within the field of growth management to mitigate, in particular, issues which occur at and within the rural-urban fringe. Finally, the technique of urban growth boundaries as one specific technique has been described in greater detail as the key technique of interest to this research including a discussion on the opportunities and challenges it presents as a growth management tool. The following chapter will continue the discussion of urban growth boundaries by highlighting and discussing three examples of the current implementation of this growth management strategy.
INTRODUCTION

Urban growth boundaries have been widely documented as a successful growth management technique used to manage and restrict urban sprawl. The third chapter of this thesis reviews three case studies of existing urban areas where urban growth boundaries have been implemented as the preferred method of growth management. The areas which have been identified for investigation are Melbourne, Australia, Portland Oregon in the USA and Vancouver, British Columbia in Canada. These areas have been assessed on key criteria such as their ability to meet the aims and objectives which they set out to achieve, the opportunities and constraints which each area has experienced, to respond to changing conditions and to the overall effectiveness of the plans that their respective planners implemented to manage urban growth.

Why These Case Studies

The decision to choose these three different metropolitan areas for analysis was based on the diversity of solutions which they provide whilst still representing a common theme in providing urban growth management through a boundary system. Many of the issues and challenges which face Sydney today are similar to those of the chosen case studies. Almost all states and territories throughout Australia have implemented some form of growth management strategy as a means of curbing the outward expansions of their cities. For example, the Queensland Government has recently released the South East Queensland Regional Plan (State of Queensland) and Adelaide has also implemented an urban growth boundary aimed at containing urban development until 2014 (Property Council of Australia. 2007). Given the long term nature of growth management strategy implementation, the outcomes of these strategies are yet to be fully determined. Notwithstanding the options available in Australia, the first case study which has been analysed for this thesis is the Melbourne 2030 strategy which has implemented an urban growth boundary for the Greater Melbourne region in Victoria.

Portland has been chosen for its historical influence on growth management techniques. As one of the best known examples of the use of urban growth boundaries, Portland is considered by many urban planners to be a template example of the use of this growth management technique. The final case study of Vancouver has been chosen for its similarity to Sydney with respect to geographical and demographic characteristics. Although not completely an urban growth boundary as in the style of Melbourne or Portland, the methods which have been undertaken in Vancouver, due to various constraints, essentially mimic an equivalent management structure to the other case studies whilst
providing an option of growth boundary management which could quite readily be applied to the Sydney region.

**Melbourne: Melbourne 2030**

**Context and History**

As with the growth and urban development of Sydney, Melbourne has developed over the second half of the last century under the guidance of several metropolitan strategies, commencing with the *Melbourne and Metropolitan Board of Works Metropolitan Strategy 1954* and thereafter through to *Shaping Melbourne’s Future* in 1980. These plans which preceded the current Strategy provided a basis for the post-war development of Melbourne’s metropolitan region which was principally based on a system of train and tram lines radiating out from the CBD core in corridors of growth.

It is noted on the website of the Department of Sustainability and Environment that “earlier planning systems for metropolitan Melbourne included a strategic framework plan that defined the metropolitan urban boundary; however, the concept of a metropolitan strategic boundary and a regional approach to urban growth has been eroded over time” (www.dse.vic.gov.au). The main explanation provided for this erosion has been the increasing delegation of planning responsibilities from the State Government to the local governments, resulting in an increased lack of strategic direction at the metropolitan level.

**Program Description**

The Melbourne 2030 Metropolitan Strategy, which was released in 2002, is a strategic planning policy framework prepared by the Victorian Government to manage the growth of the Greater Melbourne metropolitan area up until 2030. It is estimated that over this period, the population of the metropolitan region of Melbourne will increase by approximately one million people, resulting in a population of just under 4.8 million people (Department of Infrastructure. 2002. 14).

The strategy is based on nine specific planning principles. Of particular importance to the research within this thesis are the first two of these principles which identify the need for:

- A more compact city (Principle 1); and
- Better management of metropolitan growth (Principle 2); (Department of Infrastructure. 2002).

These two principles establish the need for managing urban growth within the Melbourne region. As is evident, the first principle aims to create a more compact city. The second principle incorporates
the policy principles which establish the urban growth boundary for the region as well as the policies which are intended to manage any future growth sectors and the green wedges (as described below).

A map of the urban growth boundary for the Greater Melbourne region is shown below in Figure 3.1.

**FIGURE 3.1: THE MELBOURNE 2030 URBAN GROWTH BOUNDARY**

*Source: Department of Infrastructure. 2002. 33*
The objective of the urban growth boundary, initially implemented as an interim boundary in 2002 (Birrell et al. 2005) is to achieve the aims set out in the Principles by setting the long term limits of the city within a legislated boundary. In addition to the boundary, the strategy also provides for the protection of numerous areas of open space in the form of green wedges (similar in style to the London green belt scheme) between defined areas by of development within the urban growth boundary.

Outcomes of Melbourne 2030

Although only implemented less than five years ago, the Melbourne 2030 Strategy has generated a significant amount of discussion regarding the implementation of such a strategy within Australia. Some of the positive outcomes and criticisms of the Strategy are discussed below.

Scheme Benefits

The Melbourne 2030 Strategy has not been designed as a static entity within which all future growth of the Melbourne region is to be contained. This is shown in Figure 3.1 where, as part of the original planning of the strategy, possible future urban expansion fronts were identified for development to expand, should the supply of land be exhausted within the proposed boundary within the lifecycle of the plan. The growth strategy notes that these changes, however, should be “infrequent, and should only occur in relation to the needs demonstrated in the designated growth areas” (Department of Infrastructure. 2002. 62). Notwithstanding, the provision of this capacity to expand has also led to some criticism as to the actual strength of the boundary as a way of containing growth.

Another benefit which the plan provides is the maintenance of significant green wedges as open space and non-urban lands within the Greater Melbourne region. As Birrell et al (2005) notes, Melbourne has had a long history with green wedges, with their use extending back to corridor strategies implemented in the 1970s. Birrell et al also note that, as a consequence of these green wedges and of the Melbourne 2030’s desire for environmental sustainability, “any breach of the urban growth boundary will be seen, symbolically, as a failure of this aspect of the plan. Thus it will be difficult for the Government to rezone green wedge land for development purposes” (Birrell et at. 2005. 03-2). This, in effect, means that growth within the Melbourne region, will be confined to its existing corridors of growth and, hence, future extensions of the urban growth boundary will most likely be confined to these regions.

Criticisms of the Plan
Melbourne 2030 has been the subject of significant criticism since the implementation of the interim boundary in 2002. One of the greatest criticisms is the elasticity with which the boundary is managed. Birrell et al. 2005 identify that, based on data which has been published by Victoria’s Urban Development Program (a Government program directed to identify land availability on the fringe of Melbourne), current land within the boundary is sufficient (at the expected rate of growth) to accommodate up to 26 years of growth. However, some Councils, such as Melton on the western edge of Melbourne which has proposed increases to the urban boundary that encompass almost 2,200 hectares (www.melton.vic.gov.au), undermining the strength of the boundary to accommodate growth beyond the designated area.

A second criticism directed at the Strategy is the increase in land and housing prices as a result of the boundary’s implementation. The sixth planning principle of the Melbourne 2030 strategy is to create “a fairer city” (Department of Infrastructure. 2002. 4), and seeks the creation and supply of affordable housing throughout Melbourne. However, as the Housing Industry Association (2003) identified, the shortage of land supply is a contributing factor to increased house and land prices. The introduction of the restricted growth areas (created by the boundary), coupled with the retention of green wedges within and surrounding the boundary, has dramatically affected land affordability within the region, pushing prices beyond the reach of the average family.

A further problem of the urban growth boundary has been its ability to accommodate the growth densities which were forecast in the strategy. The Age newspaper reported that as recently as June 2007, “census figures showed a growth of more than 60 per cent in outer urban housing, [in contrast with] Melbourne 2030’s aim to reduce such development to about 30 per cent of the metropolitan total” (The Age, 26 September 2007). This failure to channel growth patterns, combined with an unexpected influx of immigration, (in particular during 2006 and 2007) has lead to critics increasingly questioning the ability of the growth boundary to remain intact.

**PORTLAND: THE 2040 GROWTH CONCEPT**

Within the past 25 years, numerous cities throughout the USA have adopted a process of urban growth management which incorporates the use of urban growth boundary programs. Seven states within the United States currently mandate the use of urban growth boundaries at the local level (Hamlin and Thomas. 2000. 3). These seven states comprise of Hawaii, Maryland, Maine, New Jersey, Oregon, Tennessee and Washington. Within ten other states throughout the country, urban growth boundaries are not required by state law, but due to their recognised importance and ability to manage growth, are strongly encouraged to be implemented at local government levels (Hamlin and
Portland, Oregon has been selected as a case study as it is widely considered to be one of the most successful in the implementation of urban growth boundary policies within the United States (Carruthers. 2002; Moore & Nelson. 1993. 294; Hamlin and Thomas. 2000. 3).

**Context and History**

Prior to 1973, urban growth and development was conducted in Oregon on a ‘piecemeal’ basis without any strong form of co-ordination amongst the various counties and city regions within the state. In 1973 the *Oregon Land Use Act (1973)* was enacted, requiring all local governments to “plan for and contain urban development in a manner acceptable to the state Land Conservation and Development Commission (LCDC)” (Moore & Nelson. 1994. 158).

The Commission, established under the Act, was given the assignment of establishing state goals and guidelines for local governments in order to allow them to undertake the development of urban growth boundaries for all cities in Oregon. One of the most significant of these goals was the setting down of criteria designed to assist local governments with the adoption of urban growth boundaries for their respective cities. The criteria included (Moore & Nelson. 1993. 294.; Moore & Nelson. 1994.159; Hamlin and Thomas.2000.3):

1) a demonstrated need to accommodate long-range urban population growth requirements consistent with LCDC goals;

2) the need for housing, employment opportunities, and liveability;

3) the orderly and economic provision for public facilities and services;

4) the maximum efficiency of land uses within and on the fringe of the existing urban area;

5) the environmental, energy, economic, and social consequences;

6) the retention of agricultural land;

7) the compatibility of the proposed urban uses with nearby agricultural activities

**The Metropolitan Service District**

Following the successful development of goals and guidelines by the LCDC, the Portland Local Government Association in 1977 proposed the creation of a separate government entity to oversee the future regional development of the urban growth boundary program for the Portland region. The Metropolitan Service District, or ‘Metro’, was created in 1979 (Daniels. 1999) and is administered by
an elected Council which serves more than 1.3 million residents across an area of almost 950km² comprising three counties and 24 municipalities (Daniels. 1999). The Council is responsible for the implementation and management of the urban growth policies which control the growth of Portland, including the establishment of urban growth boundaries and the encouragement of “infill development and protection of rural areas in the Portland region” (Hamlin and Thomas. 2000. i). In addition to establishing the urban growth boundary, it is the responsibility of the Council to effectively manage it. More specifically, Metro is “required by state law to have a 20-year supply of land for future residential development inside the boundary. Every five years, the Metro Council is required to conduct a review of the land supply and, if necessary, expand the boundary to meet that requirement” (www.metro-region.org).

Further to its role as manager of the urban growth boundary, Metro is also responsible for coordinating both regional and local comprehensive plans to ensure consistency between local comprehensive plans and regional and state-wide planning goals (Hamlin and Thomas. 2000).

Program Description

The region’s first urban growth boundary was proposed in 1978 and was approved by the LCDC in 1981 (Moore & Nelson. 1993). This first boundary was based on the existing capacity and projected needs of the city’s sewer service through to 2000.

The objective of the urban growth boundary was to foster higher density development and to encourage redevelopment of existing urban areas. By limiting urban development in the region to areas within the growth boundary, the Metro Council sought to guide local development decisions by determining where major public facilities were needed in order to attract and underpin future development in those selected areas. As an example of the involvement of Metro in the management of growth within the Greater Portland region, a system of light-rail public transport has been incorporated into the development of the region. This growth management strategy is based on the centres policy form of management (as described in Chapter 2) and has been implemented as a complimentary strategy to facilitate containment of urban growth within the urban growth boundary.

The Portland urban growth boundary has not been designed to be a static ‘line on a map’. Small expansions have been allowed as amendments to the original boundary since its inception and, in 2002, the area behind the boundary was increased by almost 12km² to accommodate increased employment lands (www.metro-region.org). This was one of the largest increases in the boundary since its creation. In 1995, Metro completed a comprehensive review of the growth management of
the region at that time which included the preparation of a new management plan to guide the continuing growth of the region until 2040. This plan, known as the 2040 Growth Concept Plan, provided a review of the existing management and the success of the urban growth boundary and presented a series of conceptual growth options for the expansion of the boundary.

A map of the extent of the current urban growth boundary region which is currently part of the 2040 Growth Concept Plan is provided below in Figure 3.2.

**Figure 3.2: Extent of the Portland Urban Growth Boundary in 2006**

![Figure 3.2: Extent of the Portland Urban Growth Boundary in 2006](image)

*Source: Metro Data Resource Centre. 12 May, 2006*

**Outcomes of Portland’s Urban Growth Boundary**

Of the urban growth boundary programs which have been implemented across the USA (and, to some extent, in comparison to growth management strategies throughout the world) Portland’s urban growth boundary is often cited as one of the most successful. However, in Oregon itself it has been the only successful outcome for the Land Conservation and Development Commission with respect
to the Commission’s attempt to keep urbanisation from extending over the urban boundaries established for other cities in that state.

**Successful attributes**

A significant portion of Portland’s growth boundary success is attributed “to the ‘top-down’ style of government under which it [the urban growth boundary] was created” (Hamlin and Thomas. 2000. 1). This top-down style refers to the regional Metro Council which was created as a principal component in the overall implementation of the growth strategy. By establishing an overall regional government for the implementation of the scheme, the program has been able to co-ordinate growth and development across the Greater Portland Region in a holistic manner. A benefit of the regional nature of the Metro Council has been its ability to serve as an excellent example of inter-jurisdictional co-operation between various levels of government. This is seen in the Council’s implementation of the urban growth boundary for the Greater Portland region and its ability to consequently influence the strategies of neighbouring regions. This approach allows the Council to influence local government building capacities by encouraging development to occur in other districts whilst not negating the affect that the Portland urban growth boundary is designed to achieve.

Another important outcome derived from the implementation of the urban growth boundary is the increase of density in the existing and new urban areas within the established boundary. The growth boundary has contained development within this region and has continued to foster development at higher densities in new urban areas. Staley and Mildner (1999) note that housing densities on average have increase from five homes per acre to eight homes per acre within the same area and that multi-family housing units now make up almost half of the new housing development in Portland (Staley and Mildner. 1999).

Proponents of the Portland urban growth boundary argue that the boundary has resulted in the preservation of extremely valuable farming land and, through the increasingly compact nature of the city, has brought more efficient public transportation benefits to the city and its residents.

**Adverse impacts**

Although population densities within the Greater Portland region have risen since the implementation of the Portland urban growth boundary, a critique of the effective use of this strategy has shown that these density increases are significantly lower than the outcomes projected by the strategy at the time of its release. Staley, Edgens and Mildner (1999) note that even though some density increases have been experienced, actual densities inside the growth boundaries ranged from 33 percent to 75 percent of the level permitted by local comprehensive plans. It is estimated that if this
failure to achieve forecast urban density targets continues at current levels, “the Portland metropolitan area will experience a 42,060 housing-unit deficit by the year 2017” (Staley, Edgens and Mildner. 1999. 5). Even if density targets were to be achieved at the levels recommended in the most recent 2040 Growth Concept Plan, a housing shortage of almost 8,600 units would occur (Staley, Edgens and Mildner. 1999).

A second disadvantage which has been identified by some opponents of the urban growth boundary is its impact on housing prices. Critics such as Staley, Edgens and Mildner (1999) and Sitko (2005) argue that the use of an urban growth boundary has, through limiting the availability of land available for development, increased the costs of land and housing. Staley, Edgens and Mildner (1999), in particular, cite Portland as being among the 10 percent of cities in the United States with the least affordable housing when measured on the housing affordability index.

A further criticism which has recently arisen for the Portland growth boundary is the approval of an amendment to Portland’s legislation known as ‘Measure 37’. This measure was passed by Oregon voters in November 2004, becoming effective legislation on 2 December 2004. The aim of the Measure is to allow Oregon residents to seek compensation from the government where a public entity (such as the Portland Metro Council) has enacted land use regulations which establish restrictions on the use of private property (www.portlandonline.com) resulting in the reduction in the value of that property (where family ownership can be proved prior to the enacted land use restriction).

This legislation, therefore, leaves the government body that is responsible with two main options. The first is to pay the compensation for the loss of development potential resulting in the loss of property value. The second option is to simply remove the restrictions which have been placed on the property. As there is generally no funding provided to compensate residents, the only recourse which the government currently has is to remove the restriction(s). As a result, critics of this measure are concerned that, if increasing claims under this new legislation are made, and restrictions both within and outside the existing urban growth boundary are progressively removed, development within these regions will become increasing non-compatible with surrounding land uses and lead to increased ad-hoc development and sprawl outside of the planned urban region.

VANCOUVER: THE LIVABLE REGION STRATEGIC PLAN

Although smaller in size than Sydney, with a regional population of approximately two million residents (www.city.vancouver.bc.ca), the Greater Vancouver Regional District (GVRD) exhibits a number of characteristic similarities to the greater Sydney metropolitan region. These characteristics
include their geographical constraints, being encompassed by boundaries including oceans and steep, non-developable mountain ranges which are complemented by large tracts of relatively flat land in other zones. As such, the final case study which has been assessed as part of this research is the Livable Region Strategic Plan for the GVRD.

The Greater Vancouver Regional District

The GVDR comprises a large area of western British Columbia along the west coast of Canada. The region is made up of 21 different municipalities and contains “the Georgia Basin and Puget Sound regions, which include Squamish, Whistler and other communities in the southern Coast Mountains, the Lower Mainland, southeast Vancouver Island, and the cities which ring Puget Sound in the United States” (Greater Vancouver Regional District. 1996. 5). The overall greater Vancouver metropolitan region is bounded by the Strait of Georgia to the West and forest and mountain terrain to the East and North-East, providing a similar geographic characteristic to the Sydney Basin. This geographic setting provides natural limitations to the extent to which the region can expand.

Context and History

In 1949, the Provincial Government of British Columbia, under the provision of its newly legislated Town Planning Act, established the Lower Mainland Regional Planning Board which was provided with planning authority over the Vancouver region and other parts of lower BC (O’Toole. 2007). The initial plans implemented by the LMRPB were, as O’Toole notes “by today’s standards…minimally restrictive” (O’Toole. 2007. 5). However, during the 1960’s, the Planning Board produced a more regional plan for the Vancouver district – the Official Regional Plan 1966. This plan was considered to be much more restrictive as it increased the limitations on the amount of land available for future housing in the region which the previous plans had not done (O’Toole. 2007).

In 1967, the existing provinces of the Vancouver region were divided and the Greater Vancouver Regional District (GVRD) was formed at this time to take over the planning tasks for much of the lower Vancouver region (O’Toole. 2007). Between 1969 and 1975, two new plans for the region were developed based on a green belt for the city (similar to Abercrombie’s London green belt utilising the extensive green areas to the North of the city) and the development of satellite towns connected to the main central core of Vancouver (Hodge. 1991). Environmental concerns during the early 1990’s, as occurred in Sydney during the 1970s and 1980, became a planning priority for the region. In response, the GVRD developed, in 1994, the Livable Region Strategic Plan to manage growth to 2021 (Putner. 2003).
Program Description

The Livable Regions Strategic Plan is based on four fundamental policy strategies which are aimed at influencing the growth of the GVRD and protecting green space and farmland within this region from unrestrained urban development. The aspects of this Strategy that are of particular relevance to thesis are:

- Protecting the Green Zone; and
- Achieving a Compact Metropolitan Region (Greater Vancouver Regional District. 1996).

A map of the extent of the Livable Region Strategic Plan is provided below in Figure 3.3.

**FIGURE 3.3: THE VANCOUVER LIVABLE REGION STRATEGIC PLAN**

The use of the existing geographic circumstances of the region is a fundamental factor in the preservation of the existing green spaces of land which extend around the Northern and North-Eastern boundaries of the existing city. A related key component of the success of the Livable Region Strategic Plan is its integration of the identified green spaces with agricultural land South and South-East of the main metropolitan region. This area, established by the Agricultural Land Reserve
(ALR) during the 1970s, preserves agricultural land within the GVRD. Since its establishment, this area has helped to protect significant amounts of agricultural land in the form of a “de facto urban growth boundary” (Smith & Haid. 2004).

Plan outcomes

The implementation of the Livable Region Strategic Plan, has generally helped to maintain a high standard livability within the region, as shown by its current rank as the most livable city in the world (www.economist.com). From a world-wide list of over 140 countries, Vancouver scored a livability rating of just 1.3% (where 0% represents exceptionally qualities of living and 100% intolerable levels).

Positive attributes of the plan

Through the Livable Region Strategic Plan, (in association with successful previous plans for the region) Vancouver has met its objective of creating a compact metropolitan region with “62 percent of greater Vancouver’s residents now living in compact neighbourhoods, up from 46 percent in 1986” (Northwest environment watch. 2002. 2). The plan also appears to be currently achieving its goal of retaining its identified green spaces, with over 70% of the GVRD being either green zone open space or other non-urban land such as the agricultural land established by the ALR. The role of the ALR is seen as central to this success with the use of its farmland protection policies. Overall, the GVRD’s land-use policies have resulted in the restraint of suburban sprawl and have dramatically slowed the loss of rural land and open space during the past 30 years.

A third factor which has been identified as a component of the success of the green zone’s retention is the fact that it has been heavily “endorsed by the general population of the area, in particular by urban residents who look upon the zone as a recreational resource and aesthetic refuge from the city” (Tomalty. 2002. 21). Consequently, any proposed development which would encroach on this area is often met with significant public disapproval.

Criticisms of the plan

The main criticism of the overall strategic plan for the GVRD is that not all areas within the region have been equally successful at implementing the plans and at containing urban sprawl. Northwest Environment Watch, identifies the cities of Vancouver and North Vancouver as having achieved the most significant outcomes, with between 78 and 90 percent of their residents living in compact neighbourhoods in 2001 (Northwest environment watch. 2002). In contrast, however, localities such
as West Vancouver, Port Moody, and Langley District have only managed to attract or contain approximately 25 percent of their residents to this form of development.

O'Toole (2007) notes a second criticism of the plan in that, by protecting the open space of the surrounding region, the plan “prohibits development in 70 percent of the region, even though much of that land is not particularly valuable for agriculture or other purposes” (O'Toole. 2007. 3). He argues that by retaining so much of the land in open space and agricultural reserves, that this unfortunately creates a conflict with the need to ensure affordable housing. As with the previous case studies that have been assessed, by limiting the development of low density housing, through ‘artificial land shortages’ a resultant impact is an increase in the cost of land, and hence housing prices for each of the regions.

**SUMMARY**

This chapter has identified three cities in which urban growth boundaries have been implemented as the preferred method of growth management in those cities. Melbourne was identified as one of the more significant examples of urban growth management utilising urban boundaries within Australia, particularly being of a similar population size to Sydney. Portland was identified for its world-wide acclaim as a successful example of the implementation of this management strategy and Vancouver was identified for its similarities to the Sydney region in terms of geographic structure. Each of these case studies has identified strengths and weaknesses in the implementation of these plans. Chapter Four which follows will examine Sydney’s history of growth management strategies, highlighting the need for further development of growth strategies for this region. It provides a correlation between Sydney’s current situations and, drawing on the lessons learned from the case studies, provides recommendations for the future management of growth within the Sydney region.
INTRODUCTION

Up to this point, this thesis has concentrated on growth management and urban growth boundary theories and definitions. This chapter provides a detailed examination of the post-war trends in urban development within the Sydney metropolitan region, focusing on the various metropolitan strategies which have been proposed and implemented for the Sydney region. It identifies the growth management strategies employed at the relevant times by examining the proposed forms of development which each strategy aimed to provide and assessing the ability of these strategies to achieve their specified aims. The results of this analysis highlight the current need for a greater emphasis on urban growth planning within the Sydney region. A principle methodology component of this examination is the geographical mapping of the post-war expansion of the city. This investigation continues the style of investigation which was previously undertaken in the preparation of Sydney’s first metropolitan strategy.

THE SYDNEY REGION AND PRE WAR PLANNING

Sydney is a region highly constrained by its geography. Cardew (1992) notes that a number of these constraints, including flood-prone agricultural land, rugged terrain and extensive natural reserves to the north and south of the metropolitan region influence the extent and direction in which growth in Sydney can take place. In addition, “extensive water supply catchments…and national parks form an extensive green belt around Sydney, traversed by several communication and transport corridors which, inside the belt, underpin the stellate form of Sydney’s growth” (Cardew. 1992. 667).

In particular, the post-World War II planning of Sydney has allowed for a significant expansion of the city within these constraints. This is shown by the extensive expansion of the urban area of Sydney which has occurred in the past century. Prior to the development of Sydney’s first formal strategy for managing its urban area, the Royal Commission for the Improvement of the City of Sydney and its Suburbs in 1908-09, Sydney represented a compact urban region, generally comprised of medium density residential areas close to the central urban core of the CBD.

As the city expanded following the release of the Royal Commission Report, the urban area of Sydney continued to extend across inner city municipalities such as Randwick in the South, Waverley and Woollahra in the Wast and Glebe and Marrickville in the West, adding to the original urban core centred on Sydney Cove and the Rocks. Sydney managed to retain its compact development with minimal expansion across the Cumberland Plain, and with a majority of its urban area being retained within 10-15 miles (16-24km) of the CBD until the end of World War II in 1945. Sydney’s historical, pre-war urban compactness was a key feature in the background preparation of
Sydney’s next formal metropolitan strategy, the County of Cumberland Planning Scheme, and an image presented in the associated report depicting the pre-war historical development of the city is shown in Figure 4.1 below.

**Figure 4.1: Historical Urban Growth of Sydney 1856 - 1947**

Source: County of Cumberland. 1948. 26
VISIONS FOR THE FUTURE – INITIAL POST-WAR PLANNING

As previously stated in Chapter 2, Sinclair (1999) notes that urban areas can either grow upwards or outwards; with outward growth being called urban sprawl and upward growth being considered as urban consolidation. Sydney, in its post-war development history, has experienced each of these types of growth, the direction being generally determined through the use of various metropolitan planning policies throughout the particular time. Regional urban planning in Australia has traditionally been a State Government led responsibility. “Since the second world war, the majority of Australian capital cities has been the subject of metropolitan land and transport plans which sought to influence the overall physical structure of the cities” (Alexander. 1981. 145).

Up until the 1950s, the pattern of the city continued to be dominated by access to the rail and tram network as it had been in the first half of the century. Urban expansion continued in linear corridors along major transport routes, principally the rail network. Following World War II, however, major metropolitan areas across Australia, including Sydney, experienced unprecedented growth. Much of this growth was spurred on by rapid population increases and higher levels of private automobile ownership resulting in uncontrolled urban sprawl and the consumption of large areas of agricultural land on the fringe areas of Sydney. As Hamnett and Freestone note, this expansion occurred through a “tradition of unserviced land subdivision” (Hamnett and Freestone. 2000. p. 114).

The first major post-war metropolitan strategy which was used to develop the spatial shape of the Sydney Metropolitan Region was the County of Cumberland Planning Scheme. Initially drafted by the County of Cumberland Council in 1948, the Plan was finally released as a statutory document in 1951 as the intended “blueprint” for Sydney’s expansion. The Planning Scheme contained many concepts that were innovative for the time. As with each of the subsequent metropolitan strategies to follow it, it was based on an estimate of the population increase which Sydney was expected to achieve by 1980; that is, a population level of between 2,200,000 and 2,300,000 within the next 30 years of Sydney’s development (Ashton. 1988; Meyer. 1993).

Although the Plan’s report advocated centralised development of the region, noting that “centralisation has the greater advantages for industrial, commercial and administrative interests” (Cumberland County Council, 1948. 60) the Plan concluded that “the solutions involving decentralisation offer[ed] the greater social benefit” (Cumberland County Council, 1948. 60). The Plan therefore proposed a composite direction for the development of Sydney.
Figure 4.2: County of Cumberland Planning Scheme Map

Source: County of Cumberland Council. 1948.
This compromise proposed both a planned central city of a determined size and the dispersal of the remaining ‘overspill’ development from the central core of the city to a number of decentralised centres throughout the remainder of the region (Cumberland County Council. 1948. 61). As Alexander (1981) notes, the plan opted for substantial decentralisation of activity, particularly industrial and retail activity, from the central area to the suburbs. The identified districts, taken from the concepts of Ebenezer Howard and his Garden City movement, were to be separated by areas of open space and girdled by a ‘green belt’. The implementation of this concept into the County of Cumberland Plan can be seen in Figure 4.2 above.

The primary objective of the County of Cumberland Plan, and in particular the green belt, was to prevent the “extension of sprawl of premature subdivision around the city fringes”, a feature of the Sydney region which had occurred in the previous two decades (Toon & Falk. 2003. 59). Hamnett and Freestone also identify that the green belt’s purpose was to “secure ready access to rural areas for the burgeoning suburban population” (Hamnett and Freestone. 2000. 102). The use of a green belt for containing growth within the Sydney region was justified “largely in terms of providing suburban residents with a better range of jobs and services for their greater convenience and well-being” (Alexander, 1981. 148). However, from its initial inception, the green belt was under attack and its viability as a management tool questionable. Following the preparation of the draft County Scheme in 1948, before it was presented to the Parliament for approval, several changes to the plan were made by the Minister. Of importance to the green belt was the Minister’s conclusion (on the recommendation of the Town and County Planning Advisory Committee) that “insufficient land had been set aside for Living and Industrial Areas and that these areas should be increased by 6,400 and 600 acres (4,195 and 393 hectares) respectively (Winston. 1957). This increase was to be made at the expense of the green belt.

This was just the first in a number of steps which would mean that the green belt would not to last for long. With vigorous immigration occurring in the immediate post-World War II period, the population of the County had reached its estimated population target by 1960, 20 years ahead of the forecast date. This placed great strains on the existing areas of the green belt. As a result of the fast-paced increase in the population and the urgent requirement for residential areas, the State government was forced to disband the green belt in 1961 following recommendations from the Town and Country Planning Advisory Committee (Ashton, 1988). As Spearritt and De Marco state, the demand for housing at the time was so great that “it proved impossible to contain the urban sprawl that the Cumberland Plan sought to restrain” (Spearritt and De Marco. 1988. 22). In subsequent decades, this would eventually lead to the loss of almost all of this open space to urban development (See
Failure of the green belt and Sydney’s first growth strategy

One of the failures of the County of Cumberland Plan in maintaining the green belt was due to the ownership of much of the land which constituted the green belt zone. A significant amount of the land was, at the time of being zoned as green belt space under the Plan in private ownership. With the almost ‘overnight’ rezoning of private land to the green belt zone, severe restrictions on any form of development were imposed on land owners who held property within this area, resulting in consequential decreases in the values of these properties. The imposition of these restrictions and the resultant depreciation of the land value resulted in pressure from land owners on the Government to release this land for development.

Another failure which led to the eventual demise of the green belt was the failure of the Commonwealth Government to provide funding for the land acquisition necessary for the implementation of the Plan. Toon notes that there was in fact “a long-run intention to acquire the land for public purposes” (Toon. 2006. 158). This funding was expected by the NSW Government to be provided by the Commonwealth to help in the implementation of the plan. However, as Ashton (1988) notes, this support was lost due to a change in government and hence government policy. The resultant impact of this change led to the reduction in the costs associated with the Plan by a third “to enable it to be shared equally between the State Government and the County Council” (Ashton. 1988. 24).

A further failure which the green belt experienced was its failure to identify exactly where the areas of ‘overspill’, satellite towns and their centres were to be located beyond the area of green belt (Myer. 1993). Without this indication of where growth could be located outside the green belt zone, increasing pressures from a rapid population growth rate (coupled with the pressure of land owners angry at the restrictions on development imposed by the green belt zoning) eventually forced the progressive abandonment of the green belt zone during the 1960s and its replacement by increased outward urban development (Toon. 2006).

Overall, the attempt to implement the green belt showed that a green belt was inappropriate for a rapid growth system of development. Although justifiable on the basis of the population projections identified by the County of Cumberland Plan, this method of city development could not constrain the population levels which Sydney was to experience in reality during this time. New methods of management for the region were required.
With the County of Cumberland Plan beginning to “crumble at the edges” (Ashton. 1988), after 13 years as a strategic document a new direction for Sydney’s urban development was required. In 1964, the State Planning Authority (SPA) was created to replace the County of Cumberland Council as the State’s Planning Authority and was initially charged with the management of Sydney’s rapid growth rate at the time. By 1967, the population was already 2.5 million and with the growth rate of 2%, Sydney’s population was expected to reach 5.5 million by the year 2000 (Meyer. 1993).

The Sydney Region Outline Plan

Following the abolition of the County of Cumberland Planning Scheme’s green belt urban containment attempt in 1961 and through an increased ‘pro-expansion’ stance from the State Government, “rampant speculative residential development” took over the development of urban areas in Sydney (McGuirk & O’Neill. 2002). The suburbs began to expand rapidly into the areas previously protected as ‘Green Belt’ open space, within a climate of high development expectation driven by both the public and private sectors (McGuirk & O’Neill. 2002). However, because of this stance which the State Government was pursuing in its latest strategy, this “promiscuous urbanisation was being made respectable and controlled” (Bunker. 2002b. 67). Development soon began to overtake the land previously identified as the open space under the now failed green belt. An indication of how rapid the expansion of urban development became during the 1960s can be seen in Figure 4.3 below which shows the loss of the previous green belt zone to urban development by 1968.

Following the drafting of a background report reviewing the successes and failures of the previous County Plan (known as Sydney Region Growth and Change – Prelude to a Plan and released in October 1965), the SPA released the second generation of Sydney’s metropolitan plans – the Sydney Region Outline Plan (SROP). One of the key factors of this plan was that, unlike its predecessor, this plan did not comprise a formal zoning scheme, but relied more on the technique of devising a physical structure or framework within which development should proceed (Alexander. 1982; Ashton. 1988).

“Metropolitan planning in the 1960s was primarily about meeting the needs of population growth, which in practice meant development at the urban fringe” (Hamnett and Freestone. 2000. 114). The SROP proposed a new trend for Sydney’s urban development with strong expansion corridors a feature of the Plan. As noted previously in Chapter 2, this technique of growth management allowed for directing the growth of cities, with particular emphasis on the growth of the city being channelled
FIGURE 4.3: AREAS OF LOST OPEN GREEN BELT SPACE BY 1968

Source: Barton, J. 2007
along corridors of existing infrastructure such as the existing rail network with a focus on establishing new towns along these rail networks (Spearritt and De Marco. 1988). In addition, the centres that were designated to come into existence along the corridors were to be encouraged to develop at higher densities in order to take advantage of the traditionally under-utilised transport, water and electricity infrastructure (Spearritt and De Marco. 1988; McGuirk & O’Neill. 2002).

Healey et al. (1997) furthermore note that the spatial (or structure) plan within the SROP allowed for a broader agenda of policies to be incorporated within a planning strategy (as opposed to more restrictive strategic policies such as the zoning style which the County of Cumberland Plan offered). As a result, the SROP, as the first of several structure plans for the Sydney region, has been a catalyst for a significant proportion of the development which has occurred in the Sydney region during the past 40 years.

Planning during the 1980s and 1990s

The growth strategies at the time built on the key characteristics of the SROP and led to the development of plans for the expansion of Sydney along key ‘fingers of growth’. These fingers radiated out from the core of the city North to Newcastle and Gosford, South to Wollongong and West towards Penrith and the Blue Mountains. They were developed in terms of staged and sequenced growth areas (under the guise and guidance of the Urban Development Program, and more recently the Metropolitan Development Program).

It is noted by Deakin (1989) that it was only during the mid to late 60’s that the problems of growth began to be noticed and, even at this time, not much was done to stop it. It was not until the major environmental movements of the 1970’s and 1980’s gained momentum that the environmental impacts of urban growth began to attract the attention of key decision-makers within governments and that the rural-urban fringes began to become a key area of urban land use analysis. Prior to this period, the urban fringe was generally seen only as an area for which future urban areas could one day expand.

As a result of uncontrolled sprawling development at the rural-urban fringe, the supply of land allocated under the SROP for projected increase in the population of Sydney to 5.5 million people had been exhausted, notwithstanding that such a population was far from achieved. This shortage of land arose because the nominated growth corridors had not been achieving the form of self-containment desired by the SROP and a new strategy to accommodate more people was needed.

A new strategy was developed to promote another direction for Sydney’s urban growth. Sydney into its Third Century was released in 1988 in response to the shortage of land allocated under the SROP...
and was the first of a series of plans to promote the policy of urban consolidation for the increasingly expanding metropolitan region and to allow a reprieve of development pressures at the urban fringe. As discussed previously in Chapter 2, this form of growth management strategy is generally confined to dealing with urban development issues within the existing urban area; however it can also have an impact on reducing pressures at the fringe.

Sydney into its Third Century, in fact, provided two alternative strategies as a basis for investigation. These were a “concentrated alternative” and a “dispersed alternative” (Department of Planning. 1988. 33). As with the previous strategies, the new plan was based on a predicted future population for the metropolitan area at a specified time in the future. For Sydney into its Third Century, the predicted population was 4.5 million people, which was estimated to be achieved by 2011.

Subsequent tweaking’ plans such as Cities for the 21st Century (1993) and the companion documents Shaping Our Cities (1998) and Shaping Western Sydney (which specifically dealt with issues facing western Sydney and its urban fringe) were also introduced for managing the Sydney region, however, these modified plans were created more in response to political pressures on the various governments during this period and to reinforce the ideas of the 1988 plan rather than to add any new substantial management strategies.

Both of these strategies had a number of key policy features. A shift towards urban consolidation was a foundation of these strategies and this was especially true for future development in established urban areas where higher densities were to be encouraged with the development of town houses, villas, duplexes and semi-detached dwellings (Spearritt and De Marco. 1988). A second key feature which helped to somewhat modify the trend of urban development of that time within the metropolitan region was the promotion of a “centres policy.” It was considered that improvement and increased development of already established major centres would be achieved through concentration of services and activities such as employment, education, and health services around such designated centres.

However, one of the disadvantages of the metropolitan strategy plans during the 1980s and 1990s was the short period of time that was given to allow the plans to be executed and to make a contribution to the management of Sydney’s growth. Daniels (1999) points to time as a crucial ingredient in the development of growth management strategies and, in particular, to the estimation of population growth over periods of ten to twenty years.
In the last decade, Sydney has seen a continuing shift away from development in outer fringe areas of Sydney and an increased emphasis being placed by the State Government on consolidation policies and urban renewal at higher densities. The continued encouragement of infill development in established areas as a means of achieving better outcomes for the city has had a dramatic affect on the diversity of housing which is available within the Sydney region. However, this has been in parallel with a significant increase in the overall footprint of Sydney since initial post-war planning began. As mentioned above and shown in Figure 4.3, the growth strategies of the SROP led to a dramatic destruction of Sydney’s first urban containment strategy, the green belt. By the time of the release of the 2005 metropolitan strategy, most of this region had been completely lost through continued outward expansion of Sydney’s urban area. This is evidenced by the map provided in Figure 4.4 which identifies the small portions of land that remain from the original green belt zone.

As an outcome of this increased development within established areas, the period between 1993/94 and 2000/01 in Sydney saw “the proportion of new dwellings built in the outer urban ring fall by 15 percentage points, and the proportion of new dwellings built in the inner urban ring grow by 13 percentage points” (www.metrostrategy.nsw.gov.au). The latest metropolitan strategy which aims to shape the metropolitan region of Sydney is the Department of Planning’s City of Cities plan released in 2005. This Strategy proposes that 60-70 per cent of new housing to 2031 should be built in existing urban areas, concentrating on centres focused on public transport hubs and networks.

The remaining 30-40 per cent of new housing will be built in the new release areas, and these are to occur within the North-West and South-West areas of the current urban fringe. These new areas will accommodate approximately 171,000 dwellings (Department of Planning. 2005a) within an area of approximately 350km² (Rock. 2007). With the NSW Government’s aim of accommodating a majority of its new greenfield urban areas within two distinct growth centres, the current metropolitan strategy establishes some of the principles of an urban growth boundary management scheme, however with a less regional scope.

Another key component of the strategy is the maintenance of natural and resource land outside the proposed metropolitan footprint (Department of Planning. 2005b). Overall, the current strategy represents a strengthening and continuation of the trend initially established with the urban consolidation and centres policy of the 1988 Sydney into its Third Century strategy.
FIGURE 4.4: AREAS OF LOST OPEN GREEN BELT SPACE BY 2005

Source: J. Barton 2007
Sydney’s metropolitan region has experienced a significant amount of growth in the half century following the end of World War II. This growth has, to a large but variable degree, been in line with metropolitan planning policies and strategies implemented at various times during this period. Most of these plans acknowledge the legacy of the original, landmark Cumberland Planning Scheme of 1948 with each being a little more practical and pragmatic than each previous one. With the recent rise of environmental concerns and decreases in the predicted rate of growth of the population of Sydney, the trend has turned towards a policy of centralisation and urban consolidation. Consolidation is now the favoured strategy to help slow the increase of environmental impacts on the city and to facilitate management of urban expansion.

Notwithstanding, this period of time has also seen a considerable expansion of Sydney’s urban area as evidenced by the urban area progression map shown in Figure 4.5. When compared to the map presented in the County of Cumberland Plan (Figure 4.1) it is evident that these strategies, in particular the SROP and its designation of corridors of growth, have had a significant impact on Sydney’s growth.

Kahn notes that “there is a certain irony in the fact that environmentalists focus so much attention today on the costs of sprawl”. He states further that “in the past many of the country’s urban environmental problems revolved around high-density living. Before transportation innovations such as the internal combustion engine, rising urban population levels translated into higher residential densities” (Kahn. 2006. 128). It is through this irony that we again need to look at ways of regaining the higher densities translated though increasing population levels. What trends the future will bring is unclear, but judging by more recent trends and strategies that have been implemented by the State Government (in addition to increasing concern for environmental issues) it is likely that, in the near future in any case, a continuation of urban consolidation is likely to be experienced.

As it has been shown from this discussion of Sydney’s post-war metropolitan plans, the two critical factors of time and population projection as a method of determining growth strategies have been Sydney’s planning downfall. Although not typically within the control of the planners producing strategies of the growth of Sydney, population projections for the County of Cumberland Plan and the SROP were first dramatically under-estimated and then over-estimated for the respective plans. This inaccuracy of forecasting, coupled with the inability (and unwillingness in the case of the County of Cumberland Plan – Ashton. 1988) of the plans to be flexible enough to respond to these changed conditions, highlighted the need for a revised method of growth management for the region.
FIGURE 4.5: EXPANSION OF URBAN AREAS: 1948 - 2005

Source: J. Barton 2007
SUMMARY

This chapter has focused on the various metropolitan strategies that have shaped Sydney and have been utilised to manage its growth since 1945. Several different growth management techniques have been used during this time ranging from the containment of the County of Cumberland Plan Green Belt, the use of urban corridors of the Sydney Region Outline Plan (which have effectively shaped Sydney’s current urban form) to the use of urban consolidation and centres policies from the 1988 Metropolitan Strategy onwards.

It is evident from this chapter that a growth management strategy which is able to effectively manage the future growth of Sydney as a complete region is required. The current strategy provides for some management of urban expansion at the urban fringe through the creation of the North-West and South-West growth centres as partial urban growth boundaries, however it is felt that a more flexible and broader management strategy is required for the whole of Sydney’s metropolitan region.
Chapter Five presents an analysis of the opportunities which urban growth boundaries provide for managing metropolitan growth at the urban fringe and assesses the potential success of the implementation of an urban growth boundary for the Sydney Metropolitan Region. This analysis is based on a combination of reflection on the theories with respect to growth management, analysis of the characteristics of successful existing urban growth boundary implementation and the lessons which have been learnt from Sydney’s previous urban growth management strategies. This chapter also identifies some of the limitations of Sydney’s current metropolitan planning processes and suggests the use of an urban growth boundary as an alternative to Sydney’s current growth management strategy, drawing conclusions on the potential effectiveness of the implementation of this growth management tool within this region.

Towards a New Management Strategy

Sydney is a classic example of an expanding, global metropolitan city which is in need of a new growth management strategy. Milward observes that “growing cities are like inflating balloons: if you hold them in on one side, they will expand more on another” (Milward. 2006. 484). By this interpretation he is noting that even the most stringent of urban containment policies can only be viewed as an encouragement of development towards selective locations and that the greater the containment, the greater the re-direction of growth (Milward. 2006).

As the conceptual strategies presented in Chapter Two suggest, effective urban containment can be undertaken in several forms, some of which require the designation of some form of development boundary, either through a formal line such as an urban growth boundary or through a less distinct boundary as zoning for specific uses. In any event, these policies and strategies are designed to provide defined urban areas beyond which development is severely curtailed.

As it has been shown in Chapter Four, Sydney has evolved from a time when attempting to manage growth was through the use of a simple green belt and then by encouraging development along defined ‘fingers’ of urban growth with green ‘wedges’ of open space between them. Since this time, subsequent plans have aimed to fill in these ‘gaps’ with increasing development. With the release of the 2005 City of Cities Metropolitan Strategy, we can almost see the culmination of this ‘natural’ infilling process.

We therefore find that metropolitan and regional planning for the Sydney metropolis is coming to a cross roads. With an expected population increase of approximately 1.1 million persons in the
coming 25 years (Department of Planning. 2005b. 3), important growth management decisions need to be made about the future urban growth and expansion of Sydney. The move to create the urban growth areas within the North-West and South-West of Sydney is a positive step which incorporates some of the methods of urban growth boundary control which will help limit intrusion on diminishing natural and agricultural land.

**PROBLEMS WITH SYDNEY’S CURRENT GROWTH MANAGEMENT METROPOLITAN PLANNING**

Having reviewed the success of the post-World War II management strategies that have been implemented for the Sydney region, it is evident that there are a number of challenges and opportunities which exist for future growth management strategies to address in order to more effectively manage the growth of the metropolitan region, and hence its impact on the rural-urban fringe. The main areas which have been identified as challenges for Sydney’s current growth management structure are described below.

**Lack of regional governance**

As Chapter Two identified, one of the largest problems at the urban fringe of Sydney is the fragmentation of land between agricultural uses and rural-urban including the impact of ‘rural residential sprawl’ which is currently proliferating within this region. Although principally the responsibility of State Government, through the implementation of the various metropolitan strategies which have been described within this thesis, it is generally left to individual local government authorities to determine the detailed land use requirements within their respective Local Government Areas. Notwithstanding, the State Government does have the ability to reject rezoning proposals if it feels that it is in contradiction to its objectives for the overall management of a region. This process, without a holistic reviewing body and significant strategic planning between councils, can lead to land use conflicts. This situation was identified in Chapter Three, as one of the main reasons leading to the need for a new metropolitan strategy for the Melbourne metropolitan region.

The fundamental issue is not that there is no ‘regional governance’ which is able to influence development across the Sydney region, the essential problem is that the strategic plans which have been created for the Sydney metropolitan region do not have any real ability to be implemented.

The growth and development processes within Sydney region have many implications including environmental, social, economic, cultural as well as political. As noted in Chapter Four, political pressures on and from within the State Government can play a significant role in how a city develops. Although far beyond the scope of this thesis, it should be recognised that the political
imperative does have an impact on development and growth. As such, a potential option for the future development of Sydney’s growth management (described in more detail below) could be an emphasis on the creation of a more independent body which would control regional governance and management of the region.

Population Projections

A second problem identified above with respect to the various post-World War II growth strategies for Sydney is the population projection targets upon which they are predicted and the capacity of urban planning to predict the rate of growth in population per annum. The assessment of these plans showed that, especially with the implementation of plans such as the County of Cumberland Planning Scheme (1948) and the Sydney Region Outline (1968) that basing expected growth on population targets for a certain period in time were generally ineffective as future populations could not be reliably predicted. This led to the need for considerable reviews of each of these plans, and in the case of the County of Cumberland Planning Scheme, led to the failure of its major growth management strategy, the green belt zone.

Timing

A further problem which appears to be an increasing issue for the implementation of growth management strategies is the period of time which growth management strategies are allocated to reach their effective potential. As identified by Burrows (1978) and Daniels (1999) in Chapters Two and Four respectively, time is a crucial ingredient in the development of growth management strategies and, in particular, the estimation of growth of a metropolitan region over a period of ten to twenty years or more. However, as it has been shown in Chapter Four, the recent planning strategies for the Sydney region have been developed and implemented with much more frequency. This is evident with the preparation four separate metropolitan planning schemes within the period between 1988 and the present – a total of less than twenty years.

Decreasing Plan Detail

An additional issue which has arisen with a majority of the post-World War II metropolitan plans for Sydney is their decreasing detail with respect to identification of specific land uses, as had been employed in the creation of the County of Cumberland Scheme, and increasing control of urban activity systems such as transport and communication networks and employment centres (Toon & Falk. 2003). Although this style of metropolitan planning provides aid to governmental and private investment decision making, it also leaves much of the decision making of actual land uses within
Local Government Areas to individual councils. In particular at the urban fringe, this ‘freedom’ of individual councils to allocate the land within its own council boundaries can lead to ad-hoc development and exacerbate the fragmentation of the urban fringe.

APPLICATIONS TO SYDNEY

Based on the case studies which have been discussed, several conclusions can be drawn from their successful (and unsuccessful) implementation attributes. These key characteristics have been assessed with respect to the viability of their implementation for a future growth management scheme for the Sydney metropolitan region. The key characteristics and how they could potentially be applied to the Sydney region is summarised below.

Regional Control Programs

As the case studies have identified, an important consideration of the success of an urban growth boundary is the organisational structure which administers and implements the plans. Clearly, the success of an urban growth boundary management program is not strictly contingent upon a regional or ‘top-down’ style of government, where an overarching ‘independent’ regional council controls land use for the entire region. However, as the case study for Portland shows, the use of a ‘top-down’ mandate can be considered quite successful with its ability to control and coordinate the land use in three counties and 24 separate municipalities. The Vancouver case study also exhibited a similar structure of regional management, with the creation of the Greater Vancouver Regional District in 1967 which oversees strategic and growth management for the Greater Vancouver region.

While metropolitan strategies such as Sydney’s most recent plan, City of Cities, provides some guidance as to the proposed direction of Sydney’s growth, local councils are still the responsible agencies for land use allocation and decisions within each Local Government Area. Notwithstanding that some councils such as Campbelltown and Camden are currently working together on a co-ordinated approach to the South-West growth sector, most councils located at the urban fringe of Sydney still generally operate independently of each other with respect to land use allocation.

However, if a co-ordinated approach such as that of Vancouver or Portland could be established under the authority and control of a single body, greater management of the urban fringe could be achieved. One method of achieving this may be the expansion of the responsibilities and authority of organisations such as the Western Sydney Regional Organisation of Councils (WSROC) and the Macarthur Regional Organisation of Councils (MACROC) to provide a greater management role of land at the urban fringe.
The introduction of the two growth centres in Sydney’s North and South-West regions is a positive move towards beginning to limit the impact of urban development on these areas of diminishing natural and agricultural land. The management of these centres is a positive example of where a form of regional control program is already being used within the NSW context is the Growth Centres Commission. This NSW Government body operates as a semi-independent regional control authority in the management of the development of these centres.

Population targets and density

One of the key issues identified as part of the assessment of Sydney’s past metropolitan strategies was their reliance on population-based targets for a certain period of time in the future to enable successful implementation of each metropolitan strategy. However, as this assessment showed, relying on this method has been problematic because the population of Sydney has constantly fluctuated and estimated population levels have either been greatly inflated or underestimated.

Each of the three case studies, however, by their nature as urban growth boundary strategies, rely on targeting a certain population to occur within a specifically identified area, rather than being preoccupied with achieving this population target over an identified time period. Melbourne, with its boundary, aims to provide for increases in density that would accommodate 70 per cent of Melbourne’s future growth within the area designated by the boundary. Similarly, Portland aimed to control its urban expansion by increasing the effective use of land within the boundaries of its identified growth boundary. This process allows for development rates of new urban areas to be more easily altered to accommodate fluctuations in growth rates. However, as each of these case studies have shown, these density targets have not been effectively met with both cities failing to meet their targeted density objectives.

Sydney, within City of Cities, is beginning to head in the right direction for managing growth in line with what may be termed ‘population area targets’ as opposed to ‘population time targets’. The North-West and South-West Growth Centres (if they are the only significant land releases that become available) will essentially act as ‘mini’ urban growth boundaries for Sydney’s short-to-medium future urban development. Furthermore, the implementation of the Growth Centres has highlighted the need to strictly control densities in these regions to ensure success through the mandating of higher density residential development by the NSW Government in the town centres within the Growth Centres (Property Council. 2005).
Natural characteristics

An urban growth boundary strategy for Sydney which maximises the use of its existing natural and geographic features could also be a successful component of a new overall growth management strategy for the Sydney metropolitan region. Sydney’s natural growth boundary of national parks and the topography of the lower Blue Mountains could be utilised as a natural growth boundary in a similar manner to the geographic constraints which have been used within the Greater Vancouver Regional District. These areas would essentially become the ‘green zone’ of the Sydney region and act as a form of ‘expanded green belt’ for the Sydney basin.

However, the Vancouver Livable Regions Strategic Plan also promoted the infill of the areas within the green zone as the areas for developing the higher density regions used to accommodate the increasing populations. If this was to occur within the Sydney basin, a significant portion of Sydney’s agricultural land would be lost. Utilising the application of the Portland case study, however, an alternative or even complementary option could be the formalisation of agricultural land as a boundary between urban and rural areas at the fringe. By adopting a similar process to the agricultural zoning of land in the United States, as identified previously in Chapter Two, a boundary could be established around Sydney’s existing urban area whilst retaining and promoting agricultural land outside of this boundary. This would result in a number of benefits for the region and mitigate some of the negative outcomes which currently occur at the urban fringe.

These benefits include:

- Retaining significant food production for the Sydney population;

- Minimising the opportunity for land use conflict between urban and rural interfaces through the retention of urban areas on one side of the boundary; and

- Influencing the need to increase densities within the existing urban area by retaining the remaining land outside of the urban growth boundary as agricultural land, thereby constraining increases in population to the existing urban areas.

One additional issue which need to be considered as part of a future growth management strategy but which has not been considered within the scope of this thesis is how to manage areas such as the Blue Mountains National Park and the Royal National Park once the developable urban areas of Sydney are completely utilised. Once this has occurred, should Sydney continue to develop within the same area through even higher densities? Alternatively should Sydney use these natural
regions as the ‘expanded green belt’ as discussed earlier, or should development be allowed to
encroach and expand into these currently protected regions?

Housing Costs

One of the common themes evident throughout each of the case studies was the impact of increased
densities and constriction of land supply on housing prices. It has been noted that within each of the
different cities that land and house prices have risen as a result of limiting the land supply of the city
through the imposition of an urban growth boundary. Additionally, the Melbourne case study also
highlighted that, as a key component of its plan, affordable housing would be included within the
redeveloped and new urban areas, however this has not as yet been successfully achieved.

A key element of a planning strategy for Sydney based on an urban growth boundary should be a
parallel and linked strategy for housing development that:

- Releases sufficient land near the boundary to meet the expected (or as described above
targeted) population growth coupled with a requirement for housing to be designated densities;

- Rezones land in established regions throughout Sydney to require much higher densities around
teach, commercial and retail nodes that currently exist, thereby reducing demand for land at the
fringe zones. One example of this approach is the 2d(3) zoning in parts of Ku-Ring-Gai where
previously there existed 2b zones.

A strategy of this nature would clearly require some form of central planning and control similar to
Portland’s Metro and Vancouver’s GVRD structures.
CONCLUSION

There have been several studies in recent years relating to the rural-urban fringe and to the issues and land use conflicts which arise in these areas that examine issues such as the effects of traditional land use regulations, growth controls, urban containment and open space conservation in this fringe zone. In contrast, there appears to be comparatively little literature on the management of growth of these areas, in particular the use of urban growth boundaries as a management tool in these regions. Scholarly examination of this topic, particularly the use of urban growth boundaries within an Australian context, is relatively small (although not non-existent). This thesis has aimed to begin to fill the gap in this scholarly literature by evaluating how the use of an urban growth boundary strategy may be implemented to manage growth within the Sydney region.

This thesis has shown that there are a number of growth management techniques which can be applied to urban areas to manage urban growth at the rural-urban fringe. A review of the available literature regarding urban fringe issues and the growth management of these areas has shown that there are a number of good management options which exist, even if they exist in isolation of one another. In particular it has shown that urban growth boundaries are a successful planning tool which could potentially be applied to the Sydney metropolitan region.

Furthermore, by identifying some of the limitations of Sydney's current metropolitan planning processes, suggestions about how this could be improved have also been provided. The bases for these suggestions have been through the application of some of the successful characteristics of existing urban growth boundary implementation as identified in the case studies, applying them to the lessons which have been learnt from Sydney's previous range of urban growth management strategies and drawing conclusions on the potential effectiveness of the implementation of this growth management tool within this region.

If an urban growth boundary was to be considered as a future growth management option for the Sydney region, policy initiatives would need to be planned and implemented as part of the overall development of the strategy. The need to accommodate future growth in locations which minimise impacts on the rural-urban fringe is of the utmost importance in today's environmentally conscious society. With the NSW Government's current stance on metropolitan planning unlikely to change in the near future, it is hoped that this thesis has provided a starting point for further consideration and viability of alternative forms of growth management.

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