GREEN BELT PLANNING IN EDINBURGH AND BALTIMORE: A CROSS-SITE COMPARISON

A thesis presented to

the faculty of

the College of Arts and Sciences of Ohio University

In partial fulfillment

of the requirements for the degree

Master of Arts

Erin G. McCarty

June 2007

This thesis titled

GREEN BELT PLANNING IN EDINBURGH AND BALTIMORE: A CROSS-SITE COMPARISON

by

ERIN G. MCCARTY

has been approved for

the Department of Geography

and the College of Arts and Sciences by

Geoffrey L. Buckley

Associate Professor of Geography

Benjamin M. Ogles

Dean, College of Arts and Sciences

Abstract

MCCARTY, ERIN G., M.A., June 2007. Geography

GREEN BELT PLANNING IN EDINBURGH AND BALTIMORE: A CROSS-SITE COMPARISON (107 pp.)

Director of Thesis: Geoffrey L. Buckley

Policy makers continue to develop ways to control sprawl, but the problem is growing. Many studies offer evaluations of current planning efforts or suggest new ones; however, few have sought to explain the evolution of sprawl, especially as it affects open space planning. This study compares the creation and current conditions of open space planning in Edinburgh, Scotland and Baltimore, Maryland. The research specifically focuses on the Green Belt around Edinburgh, Scotland and addresses several open space management programs in and around Baltimore. Results show that history, government structure, and adherence to a regional plan achieve open space preservation goal. Additionally, the future of each city's open space may be dependent upon their approach to planning. This study is part of the ongoing Baltimore Ecosystem Study, a multifaceted, long-term ecological research project devoted to understanding how cities function as ecosystems.

Approved: _____

Geoffrey L. Buckley

Associate Professor of Geography

Dedication

For my parents, Richard and Florence McCarty,

my sisters, Ashley, Annie, and Maggie,

and my brother, Henry.

Acknowledgements

There are many organizations and individuals whose help made this research possible. I would like to thank the Cockburn Association in Edinburgh and Director Moira Tasker for providing a base for my research. Thanks also to the Edinburgh Green Belt Trust, specifically Duncan Campbell and Charlie Cunning, who took the time to talk with me and point me in the right direction. In Baltimore, Mary Logan at the Regional Information Center for the Baltimore Metropolitan Council played a pivotal role in providing historic regional plans for the city, and patiently answered many questions. Thank you also to Guy Hager and Donald Outen who gave me much of their time as well.

I would also like to express deep gratitude to my advisor, Dr. Geoffrey L. Buckley who gave unfailing guidance, and to the Baltimore Ecosystem Study and the US Forest Service Northeastern Research Station, who provided the funding to make this study possible.

Finally, many thanks to Danielle Aiello for providing much needed morale support and to Renée Rigdon for her cartographic expertise.

Table of Contents

Page

List of Tables

Page

List of Figures

Page

Chapter One

1.1 Introduction

In the United States, 30 acres of prime farmland are lost every hour to sprawl (American Farmland Trust 1997). The amount is even higher on the outer fringes of some of our larger metropolitan regions. In Chicago, between 1990 and 1996, the area of land development was four times greater than the city's population growth (Sierra Club 1998). Every day California loses 46 acres of farmland to sprawl, central Ohio, 116 acres, and Texas, a massive 182 acres (American Farmland Trust 1997). Sprawl has other consequences as well. In Florida, sprawl costs each resident an extra $2,708 in taxes and over 55 additional hours spent in traffic (McKay 2006). In the U.S. few areas along the rural-urban divide are immune from the effects of low density development.

Baltimore, Maryland is no exception. Despite efforts to curb irresponsible growth through the state-wide Smart Growth Program, it is estimated that considerable development will occur outside of approved areas, creating the need for larger highways and devastating the farming economy (Gordon et al. 2001). Since 1980, Baltimore has lost 250,000 residents. At the same time surrounding suburbs grew by 67 percent (Chesapeake Bay Foundation 2002). Today the city is a hollow reminder of the investment governments continually place in new development.

In contrast, Edinburgh, Scotland is a vibrant city that has maintained the integrity of its urban-rural boundary. The virtual absence of sprawl on the urban fringe can be attributed to a green belt that encircles the city. First suggested by architect and planner Frank Mears (apprentice and son-in-law to Patrick Geddes), the green belt was designed to protect agricultural land around Edinburgh that could not be forfeited "except under

urgent necessity" (Mears 1948, 83). The green belt was officially designated in 1957 and today encompasses 17,000 hectares (approximately 42,000 acres) of countryside (EGBT 2006) extending from two to three miles from the city center (Elson et al. 1993). Pressure to develop some of the land within the green belt is mounting, but studies show it has been used successfully to manage urban growth.

As both cities move into the next century, each will be forced to compete in an increasingly global market. For Edinburgh, the European Union creates greater competition not only with other U.K. cities, but with cities across Europe. Baltimore, on the other hand, must devise a strategy that will allow it to recover from a prolonged demographic and economic slump. Because cities such as these create market economies using both urban and rural or undeveloped land, open space preservation must be factored into the equation. It is therefore a prudent time for both Edinburgh and Baltimore to evaluate their open space policies.

1.2 Research Areas

Edinburgh

Edinburgh is the capital of Scotland and the country's second largest city after Glasgow. (See Figure 1 and Table 1). The terrain varies from the high peaks of the southern Pentland Hills to the coastline along the Firth of Forth in the northeastern part of the city. Edinburgh's urban core is situated on hilly terrain, its streets and buildings conforming to the contours of the land. Arthur's Seat and nearby Salisbury Crags represent two of the highest points in the city, topping out at over 800 feet.

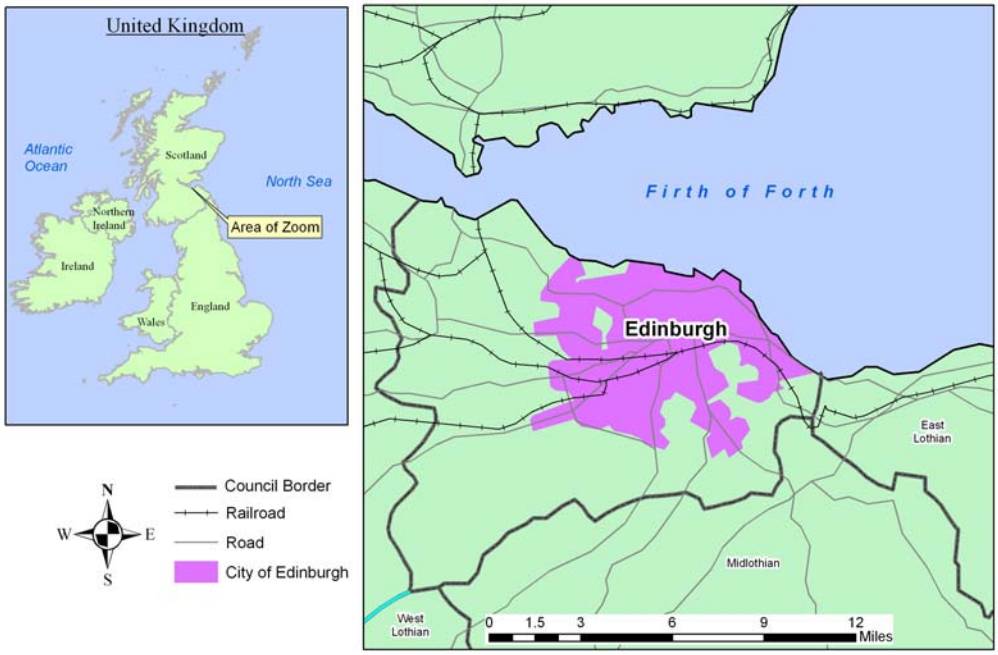

Figure 1. Map of Edinburgh and Lothians.

While living there, Robert Louis Stevenson described the city thus:

> On three sides of Edinburgh, the country slopes downward from the city, here to the sea, there to the fat farms of Haddington, there to the mineral fields of Linlithgow. On the south alone, it keeps

> rising until it not only out-tops the Castle but looks down on Arthur's Seat. (Stevenson 1879)

One of the oldest streets in Edinburgh is The Royal Mile. This cobbled road stretches from Edinburgh Castle, which sits upon a central, rocky mount, all the way to the Palace of Holyroodhouse, the official residence of the Queen when visiting Scotland. Both these places are popular tourist destinations and many of the other businesses along this route support the tourism industry as well. Whisky and souvenir shops, museums, and numerous historic sites line the street and attract visitors to the city. There is even an indoor water ride inside an old stone building near the castle, where visitors raft along a river in a whisky barrel as they tour a distillery. With handmade scarves, tartans, and street performers at every turn, The Royal Mile has become the prime destination for tourists to the city.

There is more to Edinburgh that tourism though. Beneath this surficial layer, the city has a thriving economy and population. It is home to the Scottish Executive and several universities, including the University of Edinburgh. It is also the sixth largest financial center in Europe. The result is that Edinburgh has a stable economy and low unemployment rate.

Beyond Edinburgh's borders one finds the outlying districts of West Lothian, Midlothian, and East Lothian, where much of the open space serving the city exists. Each of these places has an independently functioning council which falls under the unitary authority of Scotland. Each of their planning designs fall under the broader jurisdiction of the Lothian Structure Plan which guides the region's development.

	Area (sq mi)	Population	Density (people/sq mi)	Median Income (Pounds/ Dollars)
Edinburgh City	101	448,624	4442	17,439/ 34,205
East Lothian	262	90,088	344	16,965/ 33,275
Midlothian	137	80,941	591	14,903/ 29,228
West Lothian	164	158,714	968	16,550/ 32,462
Total or Avg	**664**	**778,367**	**1172**	**16,464/ 32,293**

Table 1. 2001 Census data for Edinburgh and Lothians(Source: Scotland's Census Results Online 2001)

Baltimore

Baltimore is the largest city in Maryland with a population of 651,154. (See Figure 2 and Table 2). The city is located at the mouth of the Patapsco River, which flows into Chesapeake Bay. Historically, this position along the coast gave the city early prominence as a port. Additionally, Baltimore sits astride the Fall Line, where the hills of the Piedmont region give way to the sandy soils of the Tidewater, a site that

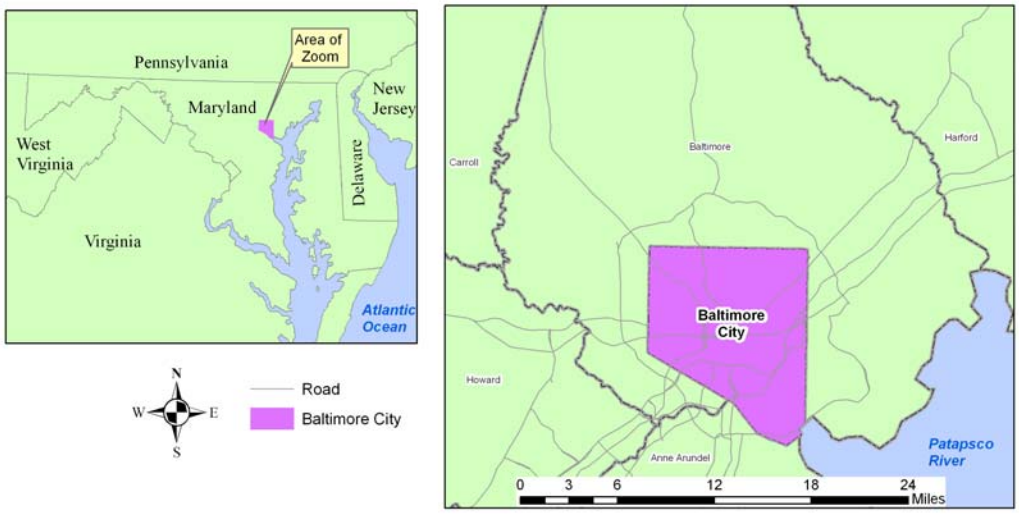

Figure 2. Map of Baltimore and surrounding region.

proved advantageous with regard to water power during the early years of the Industrial Revolution.

Like Edinburgh, Baltimore also attracts a large number of tourists every year, primarily to its refurbished Inner Harbor. Visitors come to see the Baltimore Aquarium, eat and shop along the waterfront, tour historic ships, ride in water taxis around the harbor, and watch jugglers, musicians, and other street performers.

Though the Inner Harbor contributes significantly to the local economy, a large source of employment comes from Johns Hopkins University Hospital which is located in the city. Baltimore is also home to Constellation Energy, a Fortune 500 company. Overall though, employment decreased in the city between 1990 and 2002 while it increased in the surrounding region (Baltimore Metropolitan Council 2006).

	Area (sq mi)	**Population**	**Density (pop/sq mi)**	**Median Income (dollars)**
Baltimore City	81	651,154	8,054	30,078
Anne Arundel County	416	489,656	1177	61,768
Baltimore County	599	754,292	1260	50,667
Carroll County	456	150,897	331	60,021
Harford County	453	218,590	483	57,234
Howard County	252	247,842	983	74,167
Total or Avg	**1,348**	**2,142,944**	**1590**	**55,656**

Table 2. Census data for Baltimore region(Source: U.S. Bureau of the Census 2000)

This study will consider both the city and its outlying regions, including the five counties surrounding Baltimore city: Baltimore, Carroll, Harford, Howard, and Anne Arundel. These counties form the region that has been historically included when

creating regional plans for Baltimore. This area is also one of two urban Long-Term Ecological Research (LTER) sites in the country. These urban LTER projects recognize the value of treating cities as ecological systems, paying special attention to the role that humans play in influencing structure and function.

1.3 Drawing Comparisons between Cities

It may seem counterintuitive to compare the open space planning experiences of Edinburgh and Baltimore (See Table 3). On the surface, they are quite different places. One is a European capital with a thriving tourism industry and under the rule of British government. The other is a larger American "rust belt" city. Despite these differences, comparisons are relevant for several reasons. This research will elaborate further on these points. In order to make an initial case for their comparison, it is practical to mention them now.

	EDINBURGH	**BALTIMORE**
City Area	101 sq mi*	81 sq mi
Total Population	448,624	651,154
Population Density	4,442 people/sq mi	8,058 people/sq mi
Median Household Income	17,439 pounds ($34,205)	$30,078
Housing Units	214,664	300,477
Percent Owner Occupied	68.6%	43.2%
Percent Vacant	4.1%	14.1%
Unemployment	2.9%	3.1%

**Includes entire council area*.

Table 3. Comparing city statistics between Edinburgh and Baltimore. (Source: U.S. Bureau of the Census 2000 & Scotland's Census Results Online 2001)

The first justification for this research has to do with the timing and similarity of open space plans created in both cities. These plans bear a striking resemblance to one another, but only one was fully realized. Comparing the two cities will shed light on why this happened. Second, the LTER-Baltimore Ecosystem Study research team encourages cross-site comparison as a tool for contextualizing and interpreting the past and planning for the future. Third, it is a pertinent time in Edinburgh to discuss and evaluate the green belt. Though it currently exists as an almost contiguous block around the city, there are ongoing debates about opening up the green belt land for development. In light of these factors, open space preservation in each city will be explored.

1.4 Research Questions

This research addresses the following questions:

1. What are the factors that contribute to the success of Edinburgh's green belt and what is the current condition of the green belt as an open space preservation tool?
2. What regional open space preservation programs have been implemented for Baltimore and surrounding counties?
3. What similarities and differences do Edinburgh and Baltimore exhibit in their approach to open space preservation?
4. What can each city learn from the other's experience?

1.5 Methodology

A detailed study of open space preservation in Edinburgh, Scotland and Baltimore, Maryland accomplishes two important tasks. First, it casts light on the

different planning mechanisms employed at each location, revealing to us the starts and steps and successes and failures each city experienced. Second, it allows us to evaluate the role that various levels of government – local, regional, and national – play in the planning process, the opportunities they create and the constraints they impose.

Geographer Don Mitchell identifies the landscape as a "vortex within which swirl all manner of contests" (Mitchell 2000, 139). He recognizes that every scene represents a struggle for power in some form. For instance, many ideas and designs were submitted for the Vietnam Memorial in Washington, D.C., but only one was chosen. The Vietnam Wall represents power struggles at all scales; those within the designer, the committee that chose the design, and public sentiment, not to mention the war itself. By illuminating the struggles that produce such landscapes, we come to better understand the *people* who created them. Much the same can be said about Edinburgh's green belt. It too was created by forces operating at different scales and with different goals in mind. Understanding these forces sheds light on the process that ultimately ended in the creation of the green belt.

Recent studies have explored urban land use in similar ways. Koontz (2005) evaluated the effects of stakeholder collaboration on land use policy throughout Ohio. Martin (2004) looked at grassroots organizations' effect on the urban landscape. Hurley and Walker (2003) discovered that the power of public opinion can have a dramatic effect on policy outcome. Others have evaluated the effect of power on landscape as well (Haueber 1999).

Admittedly, it is difficult to compare planning techniques across international borders. Each country is governed by different legislative bodies that direct the planning

process. To address planning at the most fundamental level, a study would almost need to evaluate the governing systems themselves, which would fail to help planners on either end find better ways to function within their systems. There needs to be a reference outside the boundaries of government to evaluate the effectiveness of planning policies, specifically as they relate to open space preservation - one that takes into account the institutional framework and historical context within which decisions are made in each city.

1.6 Chapter Outline

In order to answer these research questions, this paper is divided into several sections. In this chapter, I've attempted to present information about each city that will give the reader a foundation for understanding the subsequent chapters. Chapter Two is a literature review of research that is pertinent to the study. Specifically, I address research on sprawl, green belts, and regional planning.

Chapters Three and Four answer the first two research questions. Chapter Three provides the data necessary to understand the state of open space preservation in Edinburgh. It begins with a history of the city, from ancient times to the present, and highlights data found through archival research and interviews. This historical information is followed by a current evaluation of open space management in the city, the challenges resource managers face today, and goals for the future.

Chapter Four proceeds in a similar fashion, highlighting the same information for Baltimore. Beginning with the city's creation, I build a foundation for studying Baltimore's open space preservation methods since roughly the beginning of the 20th century. The chapter continues with a discussion of current preservation techniques,

specifically Smart Growth and conservation easements, and presents a case study of Baltimore County's current planning techniques. Finally, Chapter Four concludes by speculating about the future of open space for the Baltimore region.

In Chapter Five, I bring the information from the previous two chapters together and answer the last two research questions. I compare and contrast open space management strategies for each city, paying especially close attention to differences in government structure and function. I then consider if the two cities might benefit from one another's management experience.

Chapter Two

2.1 Sprawl

The practice of relocating or developing a second home outside of dense cities dates to the Roman era (Boone and Modarres 2006). This overflow of city into countryside is commonly referred to today as sprawl. Defining sprawl is an arduous task that has been addressed by many scholars. In one synthesis of sprawl literature, a study group evaluated the working definitions of sprawl and defined it as "…a particular type of suburban peripheral growth. It refers to development that expands in an *unlimited and noncontiguous (leapfrog) way outward* from the solidly built-up core of a metropolitan area" (Burchell 1998, 6). The report goes on to say that it also includes "*consumption of exurban agricultural and other frail lands"* (Burchell 1998, 7) and is typified by low density development. Galster and others (2001) built upon this definition and attempted to break down the characteristics of sprawl into 13 signifiers. These included such items as continuity, clustering, and centrality of a development to the major urban core. Wolman et al. (2005) suggested the creation of an Extended Urban Area in which to study sprawl, including those census tracts that are connected to metropolitan areas via transportation corridors. These and other studies have enriched the debate

Historically, the cause of sprawl in the U.S. is generally attributed to three different events in the country's history: 1) federal home loans given at low rates after World War II; 2) government subsidies to create a national highway system under the Eisenhower administration; and 3) the rise in popularity of the automobile. Scholars and government officials generally recognize sprawl as a negative force upon the landscape. In the United States, researchers have linked sprawl to increased levels of resource and

energy consumption (Ewing 1997), declining public health (Frumkin 2002; Schmidt 2004), and social degradation (Morris 2005), among other problems. Jane Jacobs brought the issue to the forefront in her book *The Death and Life of Great American Cities* (1961). Sprawl occurs throughout the United States, from west coast to east and everywhere in between.

Sprawl has also been studied at an international scale (Sheehan 2001), often to evaluate its progress (Lopez and Hynes 2003), extent (Wolman et al. 2005), and effective measures of control (Anthony 2004). In fact, though sprawl is often linked to the plight of modern American cities, Bruegmann (2005) traces the origins of sprawl to 1740 in Paris, where wealthy residents began to move away from the dense city center. Though there are some contemporaries who believe the negative aspects of sprawl have been exaggerated (Bruegmann 2005; Gordon and Richardson 1997; Peiser 1999), most researchers and planners view it as a serious problem and continue to study it and seek solutions.

In addition to identifying the negative impacts of sprawl, research has also explored options for controlling it, including changing the existing infrastructure to promote more livable communities. Governments have applied innovative, albeit controversial, techniques. For example, Beijing implemented development zones to direct growth outward from the city. Later, research found that this may have direclty contributed to increased sprawl (Deng and Huang 2003).

Because of the latitude available to local governments in planning, cities in the U.S. have tried many different techniques to curb sprawl. The ideas of Ebenezer Howard and others have been promoted by Americans like Lewis Mumford, and have gained

popularity across the U.S. One of the first planned cities to incorporate Howard's ideas was Radburn, New Jersey. Other cities, such as Greenbelt, Maryland, Greendale, Wisconsin, and Greenhills, Ohio later followed suit.

In 1977 Portland, Oregon proposed an Urban Growth Boundary (UGB) to curb sprawl. Supported by farmers concerned about outgrowth from Oregon's cities, Portland's UGB was officially adopted in 1980 (Abbot 2002). Essentially, the UGB is a border that demarcates the extent of urban development, beyond which agriculture and natural heritage are encouraged by means of restrictive zoning. Even this successful program has been challenged by the pressures of development. In 2005, legislation was passed that may undermine the foundation of the UGB (Portland City Online 2006).

More recently, the concept of Smart Growth has gained in popularity, encouraging regional and local governments to work together to concentrate urban development in specified areas and preserve rural land through various public and private methods (Haeuber 1999). The popularity of Smart Growth is often attributed to the state of Maryland, which began its program in 1997. Since then many other jurisdictions have adopted it. Indeed, the cities of Wichita and Chicago, as well as the entire states of Massachusetts and Pennsylvania, have received recognition from the Environmental Protection Agency for their planning accomplishments employing Smart Growth concepts (Environmental Protection Agency 2006).

For some places, the means to better development have not been accomplished through controlling sprawl, but rather changing its form. A suburban community in Bellevue, Washington, for example, incorporated a surface drainage system as part of its open space plan (Girling and Helphand 1997). Such strategies are indicative of a

growing trend in planning and design – one that views urban places as ecosystems, where humans are but one of the components. Taylor et al. (1995) found that open space plans that rely on natural or ecological parameters are likely to be more successful than those that do not. This was exemplified by a case study of four Canadian communities where greenways that relied on the natural elements often had less desirable building sites available and therefore less development pressure. The authors felt this was one key reason for the plan's success in preserving open space. Greenways such as these (often created along streams or abandoned railway corridors) are quickly rising in popularity (Turner 2004).

The New Urbanism is another example of a fresh approach to development. Focusing on the architectural design of a community, rather than haphazard placement by developers, this concept incorporates more open space into suburbia, often coalescing homes in favor of common open space. An example of one such city is Seaside, Florida. This city was even used as the set for the movie, *The Truman Show,* to express the utopian idea of community. Many aspects of New Urbanism can be traced back to the Garden City concept (Miller 2002; Stephenson 2002) and current studies continue to weigh the benefits of such design (Day 2003; Garde 2004; Holcombe 2004). Critics of New Urbanism usually favor a free-market system, where the economy is the driving force behind new development (Ellis 2002).

2.2 Green Belts

Though green belts are certainly not the most recent attempt to curb sprawl, they are understudied and lack in critical research. What research exists can be broken into two groups. The first seeks to describe the development of the green belt concept, starting

with Ebenezer Howard's idea of the Garden City. Robert Freestone (2002) links the evolution of "garden cities" with similar designs, including parkbelts, green girdles, parkways and greenwebs, green backcloths, and green belt cities. Arnold (1971) shows how the New Deal policies of the Roosevelt Administration borrowed from Howard's ideal to establish the first American green belt towns. During this era sprawl was already becoming a problem for the U.S., and it was to Europe examples that governments looked for models of sustainable development. Other research has supported the connection between Garden Cities and green belts (Jacobs 1961).

The second major area of research is concerned with evaluating the effectiveness of the green belts. Here the literature is more plentiful. In the U.S., the success of the three "New Deal" green belts has been debated. In planning towns, Arnold (1971) found that the agricultural economy was often neglected, as was the case with Greenbelt, MD where land was considered not suitable for profitable farming. Though industrial sites were expected to bolster the economy, none of the final plans incorporated them. Some believe that low densities promoted sprawl rather than inhibiting it (Morris 2005) while others feel that they are examples of the ideal town (Bruegmann 2005).

Other research has evaluated lesser-known green belts. Tang et al. (2005) found Hong Kong to be a reflection of the policies of British imperialism: misdiagnosed and poorly executed. Authorities tended to favor small home development as opposed to higher occupancy dwellings, undermining the intent of the green belt (Lai 2001). According to Buxton and Goodman (2003), Melbourne's green belt has also been undermined by local government control.

Ebenezer Howard, Raymond Unwin, Patrick Abercrombie and Patrick Geddes each influenced the urban landscape in a lasting way when they incorporated green belts into their regional plans for various British cities in the twentieth century. In the U.K., where green belts remain an integral part of the landscape, their success is slightly less ambiguous.

Two major reports have specifically addressed the effectiveness and future of green belts in the U.K. In 1990 the Regional Studies Association commissioned *Beyond Green Belts: Managing Urban Growth in the 21st Century*, which found the green belt to be outdated due to a lack of regional planning. They instead proposed a transition from green belts to "green areas" that would be unlimited in shape or size, though they admit that such a policy in Scotland would be limited due to pressures for urban growth within already confined spaces (Herington 1990).

A second report by Elson and others sought to determine the effectiveness of green belts in the U.K. Finding that green belts did help to curb sprawl and urban amalgamation, they recommended the borders be more clearly defined to aid in interpreting what new development would be acceptable, recognizing exceptions to the strict building regulations when economically necessary (Elson et al. 1993). Other studies have also found fault with England's green belts (Amati 2004; Curtis 1996; Royal Town Planning Institute 2006).

In neglecting Edinburgh (and other Scottish examples), researchers have done a disservice to the study of green belts. In the report commissioned by the Regional Studies Association (Herington 1990), the intent of the green belt in Scotland, as compared to the rest of Great Britain, is uniquely identified. In England, it simply

protects the countryside from sprawl. In Scotland, it also serves to secure the town's identity (Herington 1990). This was specifically noted as a motive for the creation of Edinburgh's green belt (Bramley et al. 2004) and regarded as a more successful approach (Herington 1990).

Difficulty in defining green belts may contribute to the lack of research about them (Freestone 2002). Though they exist in the U.S., Australia, China, and in the United Kingdom, relatively little is known about how they were created. Most of what has been written concentrates on London and other English examples and is concerned primarily with identifying their effectiveness. This is a problem because research up to this point fails to create a context for the implementation of green belts at the local scale. Amati (2006) recognized the need for understanding the motivating factors in determining the functions of the green belt, implying that the success or failure of the green belt depends on what forces were important in forming it. Therefore, it becomes very important to understand how successful green belts, such as Edinburgh's, were established in order to qualify their success and perhaps apply it to new situations.

2.3 Regional Planning

One common thread that connects Great Britain's green belts, and perhaps explains their success, is the regional nature of their implementation. Some studies have shown that successful preservation programs are usually regional, multifaceted, and supported by stakeholders (Bengston et al. 2003). In the U.S., where open space planning is left to local government, it often takes the form of zoning regulations. There have been numerous criticisms of zoning plans. For example, zoning has been found to increase the cost of living within the city, causing exurban migration (Esparza and

Carruthers 2000). There is a need for state level regulations to establish regional standards.

Regional planning is identified as important for establishing greenways as well. Fabos (2003) suggests a national plan for comprehensive greenway planning. Some research suggests that local preservation policies in fact undermine regional efforts. Communities that are affluent, experiencing greater growth rates, and more recently established are more likely to adopt open space preservation regulations that are local in nature as opposed to regional (Howell-Monorony 2004). This can create an elitist fabric of preserved open space that is not subject to regional regulations.

Wassmer (2006) showed the benefit of regional planning in his research, finding a link between cities that implemented vertical and/or horizontal management programs and the containment of urban areas. The concept of vertical planning refers to the effects of having an over-arching governing body or development plan steering regional growth. Conversely, horizontal planning occurs when there are many local governing bodies, functioning on the same level, to generate plans for their own jurisdiction. In Wassmer's study, vertical planning proved to be twice as effective as horizontal planning. Wassmer estimated that Baltimore would have experienced 21.10 percent lower reduction in urban area if there had been no regional planning.

There is a need for more research that concentrates on the effectiveness of open space preservation programs and how such programs are implemented (Bengston et al. 2004). Few if any studies compare open space policies in the U.S. to those of other countries. This is an important facet missing from the ongoing preservation debate. Governments everywhere work within a specific framework of rules to obtain similar

objectives. In order to expand the tools available for land preservation, there is a need to sift through the government process and filter out successful management programs.

In the next chapter, we will see how Edinburgh has met the challenge of open space preservation. In the context of the city's history, the story of how the green belt was formed will be brought to light.

Chapter Three

3.1 Intro

> *"One cannot be said to plan the city of Edinburgh. The City is already there. It has grown through the centuries as necessity has required and permitted. It is extraordinary to find how harmonious and effective that growth has been. Like a natural plant it has evolved. But evolution in nature differs from the direction of man, who alters conditions to meet the designs of the living mind"* (Abercrombie and Plumstead 1949).

In 1957, the city of Edinburgh and the surrounding regions – West Lothian, East Lothian, and Midlothian - came together to protect a continuous strip of land around the city, aptly named the green belt. Whereas political strife is often the theme of planning processes today, at that time it was considered "unique to have such a measure of agreement among four authorities"(National Archives of Scotland, November 21, 1956). The cooperation that took place while creating the green belt reflects the accumulation of decisions from individual, city, and national levels.

Today the city occupies a compact area within the green belt. Walking down streets flanked by tall, stone buildings, with busses passing every minute, you get the sensation that this is what a city should feel like. Edinburgh's green belt has played an important role in the city's sustainable development, prompting Prince Charles to ask, "Is there really any need to look any further than this great city" for a model of successful urban planning (Prince Charles 2006).

3.2 History of a City

Edinburgh became the official capital of Scotland in 1437 and came under the parliamentary rule of Great Britain after passage of the Acts of Union in 1707. Starting out as a fortress city, it was protected by walls that encircled the castle, which was built on a high, rocky mount in the center of the city. These walls served to protect citizens during the Medieval period, and they created highly defined boundaries between city and country. Though the walls became obsolete from a security standpoint, they remained an important influence on the development of the city, causing it to grow upwards instead of outwards.

In the 16th century, Edinburgh was not a particularly pleasant place to live. There was no functioning sewer system, forcing chamber pots to be emptied into the streets every night with the shout of "Gardy Loo!" meaning "Look out for the water!" Anyone walking the streets at 10 o'clock at night when the buckets were released learned to heed the warning. Nor were other utilities available. City water, which was hand pumped from the wells, was often not available until after midnight. Animals were penned in back yards and their excrement flowed freely into the city streets (Brown 2001).

Edinburgh's compact nature produced some unusual social arrangements. Because space within the city walls was at a premium, there were no single family homes in the city. Instead, an entire row house was devoted to a wide range of inhabitants – from wealthy upper class citizens to merchants, artisans, and servants. Of course, there was still social stratification within these buildings. The poorest residents lived on the street level, where the effects of the dirty streets were felt most. Merchants and other tradesmen tended to take up residence on the top floors. The city's wealthiest residents

generally occupied the middle floors above the stench and filth at the street but not so high as to be inconvenienced by a climb of several flights of stairs.

Because living conditions inside the city were so poor, quick and easy access to the countryside was important. This need was magnified by the interdependent nature of rural and urban economies. Manufacturers needed access to the raw goods available in the countryside, while farmers came into the city to buy goods not available to them otherwise. The effects of this urban-rural interface remain in evidence today. The walls of the city have given it a lasting natural condensation while the residents of both the countryside and city intermingle in each territory.

During the next two centuries the Lothian region experienced a growing agricultural industry, drawing new population from the Highlands and Islands to the region in order to harvest crops. (See Table 4). This new industry prompted Edinburgh to create a turnpike network in 1713 in order to transport goods, the first major investment in transportation for the city (Houston and Knox 2001). Overall, the period between 1750 and 1901 saw a slower rate of population growth. (See Table 4). Prior to this time, the country was second only to England in world rankings of countries. Reasons for the declining growth rate have been attributed to the population boom of the previous period. The dramatic increase intensified housing, sanitation and health issues, and created economic inequalities which began to govern local planning in the city (Morris 2003).

Year	Population	Population growth
1801	67,288	
1811	82,624	2.07
1821	111,235	3.02
1831	136,054	2.03
1841	138,182	0.16
1851	160,511	1.51
1861	168,121	0.46
1871	196,979	1.60
1881	228,357	1.49
1891	261,225	1.35
1901	298,113	1.33
1911	293,491	-0.16

Table 4. Population change in Edinburgh. (Source: Roger 2001)

At the beginning of the 19th century, with a population of 82,560, Edinburgh was larger than Glasgow. However, in 1821 the tide turned, and Glasgow Scotland's most populous city. Edinburgh continued to grow in a fashion similar to other capital cities, though it was under U.K. control. The government provided for new industry. For example, the printing industry supported the court system in the city, and engineers were employed to improve the printing machinery. Edinburgh became well-known for its technological advancements in agriculture, and exports and trade became a staple of early industry. The future leaders of the nation were attracted to The Royal Scottish Academy, the National Gallery, and other cultural and intellectual centers. Many of these buildings were influenced by Greek architecture, helping to create the image of Edinburgh as the "Athens of the North" (Morris 2003).

Overall, the city's development remained highly compact throughout its history. (See Figure 3). This can be attributed to the early condensation that the city walls

provided. Walking in the oldest parts of Edinburgh today, the stone building rise high above the streets and reflect the history of a tightly linked, though highly stratified population. As the need for city protection waned, and agricultural and technological innovations created new industry, the city slowly expanded out from this core area. As the growth rate declined, and transportation development focused on trade routes, the city was able to maintain much of its inherent compact structure as it went into the next century.

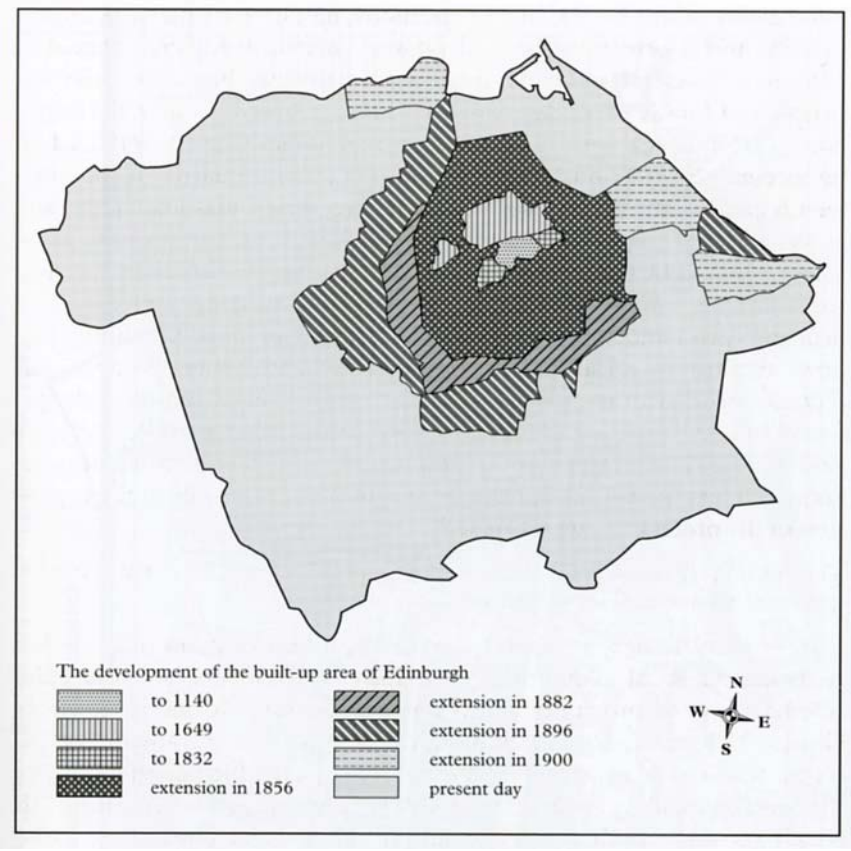

Figure 3. Map showing the gradual expansion of Edinburgh. (Source: Roger 2001)

The city continued to grow in small leaps. In the twentieth century, social and economic conditions began to change for Great Britain. London was at the center of this change due to crowding, traffic problems, and damage done to the city by WWII. Policy created in London gradually diffused to the rest of the U.K.

3.3. The Influence of City Planners

In 1898, a London planner named Ebenezer Howard published a book titled, *Tomorrow: a peaceful path to real reform*, later renamed *Garden Cities of Tomorrow*. In the canon of planning literature, this book ranks as one of the most important. Howard's book was unique in that it offered the first comprehensive, regional approach to planning a region. In order to decentralize an already congested city like London, he suggested that new places be developed outside of the city to relieve the pressure. These new cities were not to exceed 30,000 residents and would have planned transportation routes and business districts. Industry (a significant source of pollution) would be located outside the margins of the city. The cities would be served by an agricultural belt of land that completely enclosed the urban center. Once the threshold population was reached, a new site would be selected and the process begun again.

A key aspect of the garden city design was the establishment of a protective green belt to discourage the melding of cities. This space, which would consist of open land and forests, was intended to bring city residents closer to nature, encouraging "community identity and local civil pride" (Arnold 1971, 6). Howard believed that with such connectedness to the rural land, town and country would function in a symbiotic relationship. This was an ideal that could not be realized in London: the urban economy soon overtook the sparsely settled countryside (Freestone 2002). Others have also

condemned the model, claiming it created "a polka-dot pattern of hundreds of towns, each within its greenbelt" that would eventually lead to greater sprawl (Bruegmann 2005, 171).

Despite the criticisms, the concepts in *Garden Cities* rapidly spread from London to other parts of the U.K and generated many different versions. (See Table 5). Its popularity can be attributed to the book's adaptation of practical planning as well as the social conditions that were present at the time of its publication[1] (Thomas 1970). These ideas spread throughout the world as books by Howard and other London planners[2] were translated and sold in the Soviet Union, Hungary, France, Germany, the United States, and many other places worldwide (Miller 2002).

[1] Affordable housing in London was poorly designed at this time, with poor street schemes and inaccessibility to living needs (Thomas 1970).

[2] In *Garden Cities*, Howard brought together many concepts that had already been published. Raymond Unwin, a London planner during this time, was influenced by Howard's views. He and Barry Parker created the first garden city at Letchworth in 1903. Later, Unwin's book *Town planning in practice* (1909) would be published with German, French, and American editions (Miller 2002).

TYPE	PURPOSE	EXAMPLES
Garden City	Agriculture; Town-country	Letchworth, England
Parkbelts	Definition of urban form	Perth
Green Girdles	Recreation; Breathing Space	London's Green Belt
Parkways and Greenwebs	Urban "lungs"	Boston's "emerald necklace"
Green Backcloth	Delineation of town and country	Satellite town; metropolitan plans
Greenbelt Cities	Urban containment	Greater London
Green Wedges and Corridors	Open space and antisprawl	Copenhagen
Regional Cities	Restructuring agglomeration	Doncaster; Canberra
Greenways	Nature conservation and biodiversity	Harrisburg; Raleigh
Green Zones	Urban growth boundaries, resource conservation, and recreation; "Smart Growth"	Maryland
Ecological Cities	Responding to mixed uses; Active and passive green	Portland?

Table 5. Evolution of the Garden City (Source: Adapted from Robert Freestone's General Typology of Greenbelt City Forms, 1830s-1990s)

At the same time Howard's work was receiving worldwide attention, another planner was achieving success in Edinburgh. Patrick Geddes formed the concept of The Valley Section. This model explained the continuing landscape of the urban-rural setting and represented the area of influence over a city. Following a river system, it began in the high mountain regions and descended to the coast. Mining, timbering, and hunting all occurred at the highest elevations, farming in the hill region, and the city and fishing villages at the mouth of the river, next to the sea. Geddes believed this pattern was also manifested at the street level, where industrial and commercial enterprise depended upon

their outlying rural counterparts. The Valley Section exemplifies the formation of a city by its outlying regions (Welter 2002).

Geddes' influence is still prevalent today. Geddes himself began intensive restoration of Edinburgh's Old Town at a time when it was an unpopular place to reside. He also greatly influenced both Patrick Abercrombie and Frank Mears, the latter being his son-in-law. These men would heavily influence the shape that Edinburgh was to take. Today, Geddes is celebrated in Edinburgh as one of the city's most important former inhabitants.

3.4. The Influence of Central Government

In 1944 Patrick Abercrombie created the *Greater London Plan*, drawing from the work of Howard and others who had advocated the use of a "green belt ring" (Thomas 1970). Abercrombie's plan was accepted by the Minister of Works and Planning in 1946 and served as the footprint upon which post-war London grew.

There was no doubt that Abercrombie's plan was absorbed into the planning regime of London. At a meeting of the House of Commons in 1955, the Minister of Housing and Local Government stated he was "convinced that, for the well-being of our people and for the preservation of the countryside, we have a clear duty to do all we can to prevent the further unrestricted sprawl of the great cities" (National Archives of Scotland, April 26, 1955). This was followed by a request asking that all planning authorities submit plans for green belts wherever appropriate.

Later that same year, the U.K. central government issued a circular which recommended local planning authorities establish green belts around their urban centers. The Minister of Housing believed that green belts were "the only really effective way" to

control sprawl (National Archives of Scotland 1955). The circular described the types of development that would be allowed within the green belt, how it should be designated, and the logistics of submitting a plan to the Minister.

An article in *Official Architecture and Planning*, published after the circular was released, expressed concern. Identifying a lack of enforcement as a flaw in the circular, the author stated,

> If a planning authority makes up its mind to establish green belts for the purposes mentioned in the Ministry circular, the machinery and the Ministerial goodwill both exist for the purpose. But 'How if 'a will not?'[3]…No doubt some planning authorities think that the same result can be achieved by piecemeal control of new development (National Archives of Scotland, September 1955).

The article also noted that the Minister of Housing was disappointed that there were then no green belts in any of the regional development plans. At that time, this response may have been in part due to the severity of development restrictions associated with green belts. Many places did not want to impede potential future development (National Archives of Scotland, September 29, 1955).

Only one month later, attitudes had widely changed. An article in *The Municipal Journal* revealed the extent to which green belts had become accepted in many U.K. towns:

> While differing on some points of administration with the recent Ministerial recommendation that green belts should be established round all urban areas, the Town and Country Planning Association this week has evinced its general approval…The insidious sprawling of our towns must be halted and not simply slowed down (National Archives of Scotland, November 18, 1955).

[3] [But what if they don't?]

Little doubt remained as to the perceived effectiveness of the green belt. It had curtailed London sprawl and was deemed a useful planning tool. Therefore, it quickly became the general policy to include green belts around U.K. cities experiencing similar problems. The green belt had been developed by planners, used to some success in London[4], and eventually diffused to other parts of the U.K. The overall success of regional planning in London had left its imprint upon the U.K.

3.5 Funneling Down to Edinburgh

There was already significant planning strife in Edinburgh in the mid-20th century. In 1943, the city formed the Advisory Committee (AC) to work out a city plan. Hague (1984) notes that there was a great deal of conflict at this time. The AC opined that the planning schemes issued by the U.K. central government were too idealistic, while the central government believed Edinburgh was not planning thoroughly enough[5]. There were other differences as well. The central government tended to pay closer attention to industry and working class issues, while the city government sided more often with land owners and developers (Hague 1984). These arguments may have continued longer had it not been for the threat of coalescence from Edinburgh's neighbors, spurred on by a booming coal industry.

Eager to cement Edinburgh's identity, city officials attempted to create their own plan. Believing that a large population would be less unified, they decided to keep Edinburgh's population at 500,000 people or less, a measure that is still in effect.

---

[4] The article goes on to express its concern by stating that more development was allowed to occur inside London's Green Belt than had been initially permitted.

[5] London wished Edinburgh to conduct a civic survey, as was popularly done by Abercrombie, Plumbstead, Mears and others.

Additionally, they did not approve of the satellite communities that Howard's work suggested, instead desiring to expand on the infrastructure of already existing villages outside the potential green belt area (Hague 1984).

While the central government hired Frank Mears to conduct a civic survey of Edinburgh, the city hired Abercrombie and Plumbstead. Though differing in many ways[6], both plans supported the designation of a green belt around the city to protect it from coalescence and to preserve the character of the city and the countryside. Plumbstead stayed in Edinburgh for three years to help create the official Development Plan. It was approved by the council in 1953 and referred to by one councilor as "the end of a tedious journey in town planning" (Hague 1984). While planning influence resulted in the popularity of using the green belt in the various city plans, it was the central government that cemented its designation in Edinburgh. In 1956, the Department of Health for Scotland (DHS) convened a meeting between the Edinburgh Corporation, the Lothian Councils, and themselves. Hague (1984) notes that the DHS was the main vehicle for pressuring the councils for the statutory approval of the green belt; however, it was actually pressure that came down from the Secretary of State for Scotland that moved the process forward:

> The Secretary of State considers it desirable that the green belt should be defined, and he proposes to arrange a meeting of representatives of the Corporation, the County Councils of East Lothian, Midlothian and West Lothian, and the Department [of Health for Scotland] with a view to settling the inner and outer boundaries of the green belt (National Archives of Scotland, August 2, 1956).

[6] Abercrombie's plan called for the demolition and subsequent rebuilding of much of the city with new styles of architecture. Feeling that he was too influenced by London's post-war circumstances, the city rejected his model, wanting to keep the character of their city (Hague 1984). Mears was probably more influenced by his father-in-law's work in Edinburgh, as Geddes had great influence over the refurbishment of Edinburgh's Old Town.

The first official meeting took place at St. Andrew's House in Edinburgh on November 16, 1956, and consisted of 27 men representing the DHS, Edinburgh Corporation, East Lothian County Council, Midlothian County Council, and the West Lothian County Council. A.C. Sheldrake, a representative of the Department of Health for Scotland, called the meeting to order and quickly brought the issues of creating the green belt to light.

Sheldrake understood the importance of considering the depth of the green belt around the city by defining both an outer and inner boundary (National Archives of Scotland, November 16, 1956). Subsequent meetings focused on defining these lines as well as the character of the green belt. Initially, the Edinburgh Corporation felt that some development, including institutional and low density residential development, should be allowed within the green belt. Eventually though, all parties agreed that no new development should be permitted (National Archives of Scotland, November 16, 1956).

The discussion over the actual boundaries of the green belt included several issues. While the inner boundary line proposed by the Secretary of State for Scotland was eventually adopted, delineating the outer boundary proved more complicated (National Archives of Scotland, November 15, 1956). Initially, a preliminary meeting suggested that an outer boundary be placed at the 750' contour, reasoning that it "had a visual advantage over any other line in that it followed pronounced physical boundaries" (National Archives of Scotland, November 8, 1956). However, the committee felt that the green belt needed to be wide enough to discourage leap-frog development. The committee also discussed the possibility of a two-layered green belt, where the part closest to the city would be the most protected, and the outer periphery would be

moderately protected (National Archives of Scotland, November 15, 1956). However, this plan never came to fruition.

Cooperation was a key ingredient at these meetings, perhaps because they came at the request of the Secretary of State. The DHS acted as mediator for the four councils. A representative from the DHS stated that "He considered it essential that there should be agreement between the Planning Officers on the type of development which should be permitted in the above-mentioned areas, and that uniformity of treatment should be carefully exercised by all four authorities" (National Archives of Scotland, February 22, 1957).

3.6 A Vision Realized

With its inclusion in the city's development plan, the green belt in Edinburgh was officially created in 1957. After the committee approved its adoption, members sent their notes to the Secretary of State who simply replied, "Noted. Good. J.S." (National Archvies of Scotland, November 27, 1956), cementing the top-down governmental influence over the green belt's creation.

The objectives of the green belt, as defined by the committee, were:

- To assist in limiting the growth of the City of Edinburgh to a population of a half a million persons.
- To prevent the coalescence of the outer urban areas of the City and the built-up areas in the adjoining County districts.
- To prevent the use for urban development of agricultural land.
- To preserve and where possible to enhance the landscape setting of the capital City in an area of high agricultural and amenity value.

The approved green belt allowed for 1425.2 acres to be converted from agricultural to urban use, with an additional 1307.4 acres to be converted within five to twenty years (Hague 1984). This allowed for the expansion that the city valued at that time.

From the beginning, the feeling was that the green belt's success depended upon rigid standards of enforcement. One official noted that "…to hold the green belt principle involved being ruthless and refusing all development except in very exceptional circumstances" and "individual hardship," such as that resulting from decreased property values, should not be considered (National Archives of Scotland, February 3, 1956). In 1963, the DHS created a circular for the entire country, repeating the advice of England's own Green Belt Circular by encouraging all Scottish cities to consider establishing a green belt.

Open space was valued in Scotland even prior to the circular's publication. A pamphlet titled "New Houses in the Country" was distributed to explain why building new homes in the countryside could not be permitted unless associated with an agricultural operation (National Archives of Scotland, June 2, 1960). This helped to support the green belt as an agricultural ring and not a place of rural residences. The pamphlet explained the problem simply:

> Some of those wishing to live in the country would like to build their houses in isolated spots away from any village. If there were only a few such people, it might be possible to find enough sites where their houses would not make any serious inroad on agricultural land and would not harm the landscape. But if too many people were allowed to build in the open country, their houses before long [would] be dotted all over the countryside or strung out along the country roads. The country scenery would be marred: farmland would be lost to agriculture: and the ultimate cost

> to the ratepayer and taxpayer of providing services would be immense (National Archives of Scotland, June 2, 1960).

The committee's foresight was accurate. In addition to private building within the green belt, they were also concerned with the possibilities of ribbon development (National Archives of Scotland, February 22, 1957) and leap-frog type development (National Archives of Scotland, November 8, 1956; National Archives of Scotland, November 22, 1956; National Archives of Scotland, November 16, 1957). Not surprisingly, these are the very same issues that the current council is dealing with today.

It is interesting to note that at the time of the green belt's creation, Edinburgh was generally concerned with the city's aesthetics. The committee approving the green belt also suggested several other actions be taken by the local planning authorities. Among other issues, these included: special advertisement control, tree preservation, identifying areas of great landscape value, and cleaning up derelict areas.

Increasingly, signage along roadways was becoming a concern, especially since the advent of the automobile. One group complained that "anyone who goes about with his eyes open must realize that there are far too many advertisements displayed on unsuitable sites which ought to be removed" (Cockburn Association Archives 1956). Beautification did not stop here. In the years following approval of the green belt, the city intensified their efforts to clear slums, relocating families into the "New Towns," and rebuilding homes where the slums once stood (*Edinburgh Evening News*, March 7, 1962; *Edinburgh Evening News*, March 22 1962; *Evening News and Dispatch*, April 20, 1967).

Though the entire process of approving the green belt was relatively smooth, there was at least one dissenting opinion. Councilor Robert Farrer was apprehensive about

whether or not the area within the green belt would meet the future housing demand. His concern lay with future councils and the city's decision that the ideal population for Edinburgh was 500,000 people. "The day may come," he stated, "when we shall have to develop part of the green belt, but now we are tying ourselves down to the present boundaries" (National Archives of Scotland, July 18, 1957). His concern was valid. What if the goals of the city changed?

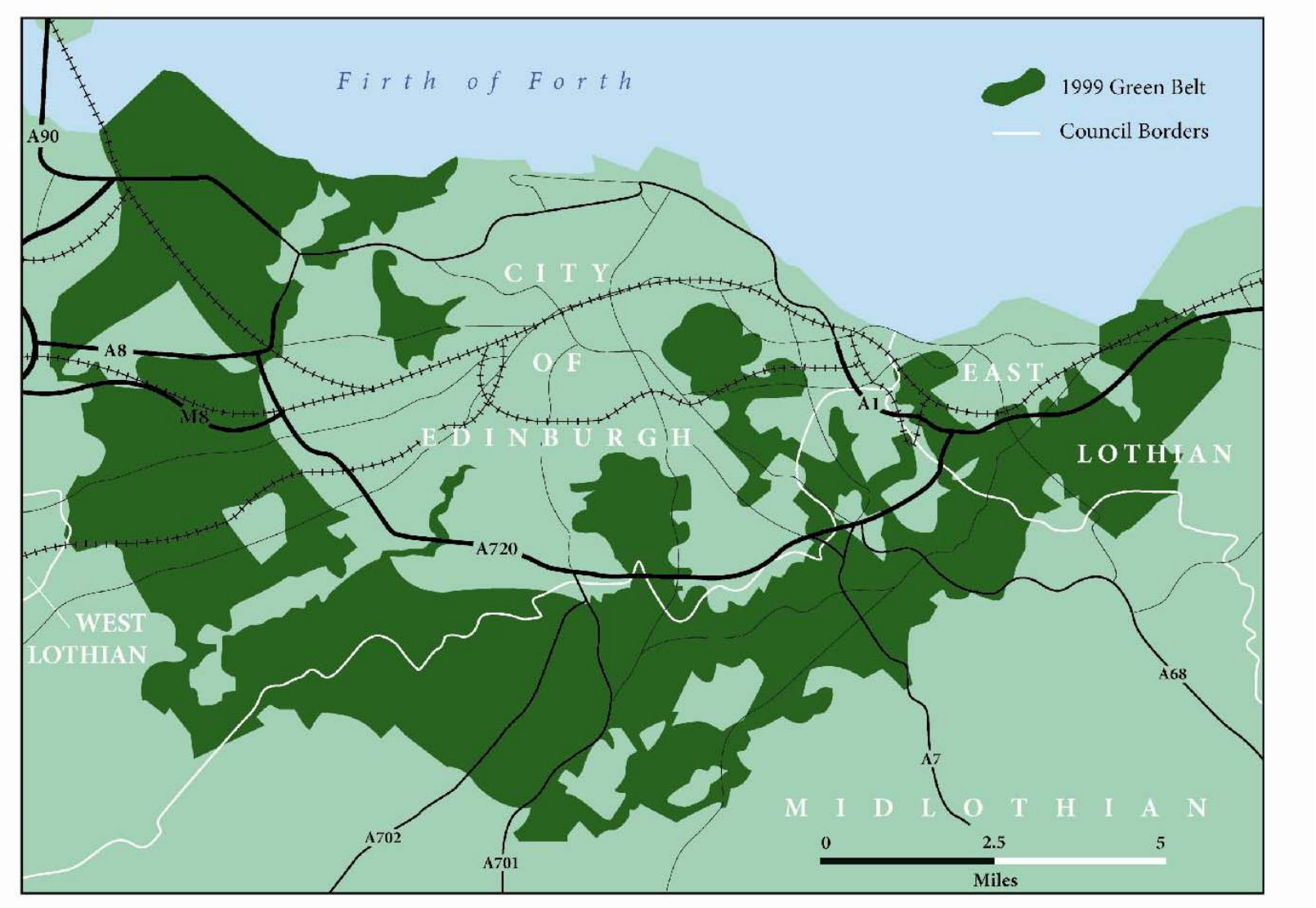

Figure 4. Edinburgh's Green Belt as of 1999. (Source: Friends of the Edinburgh Green Belt)
(Map created by Renée Rigdon, Ohio University Cartography Lab)

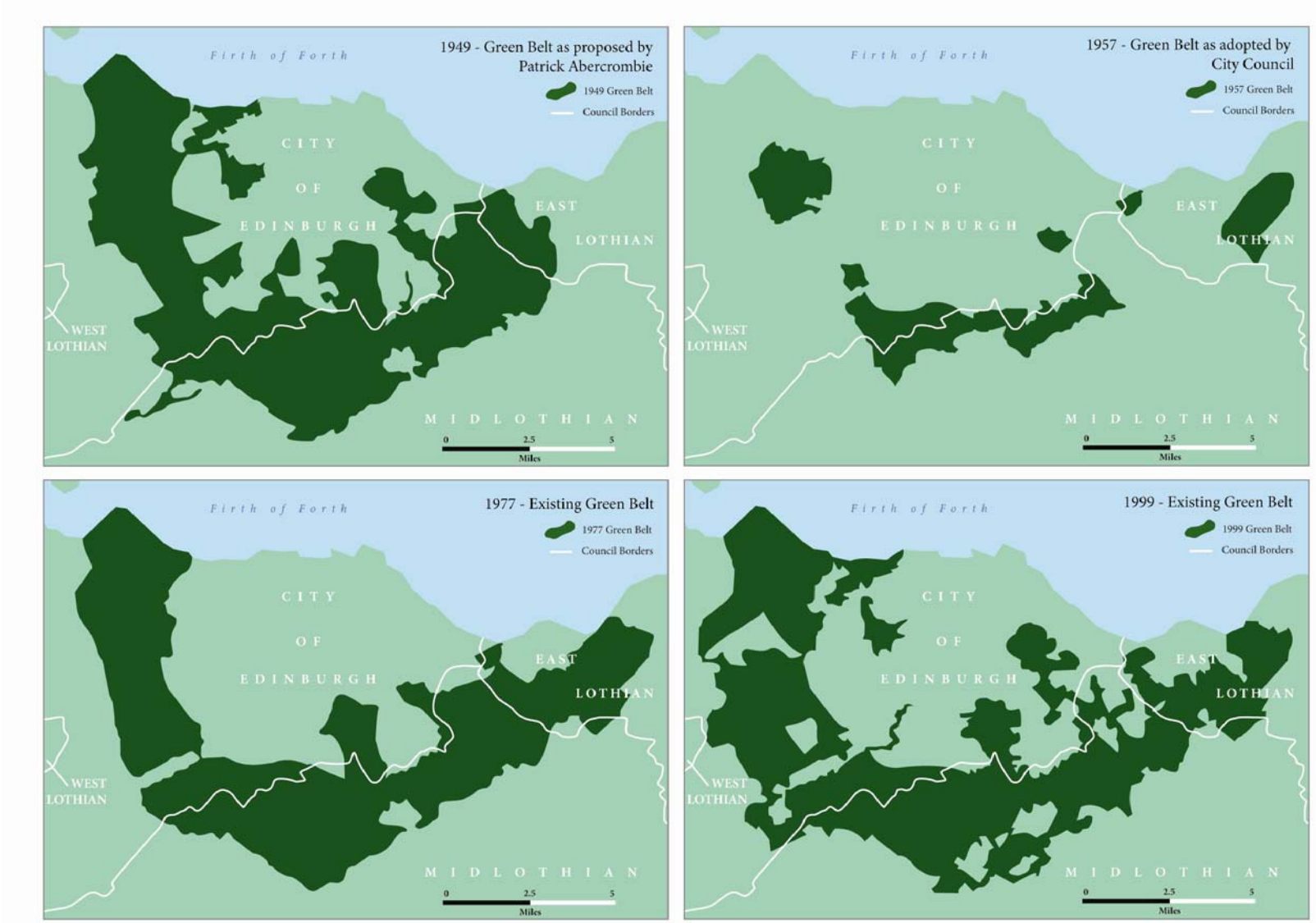

Figure 5. Evolution of Edinburgh's Green Belt (Source: Friends of Edinburgh Green Belt)
(Map created by Renée Rigdon, Ohio University Cartography Lab)

Today the green belt is one to three miles in width (Campbell 2004), and as of 2000, encompassed 52,510 acres around the city (Byrom 2001) (See Figure 4). Since its creation, there has been an overall addition to green belt land of 2,718 acres (Campbell 2004) (See Figure 5). This appears positive, but the net increase does not tell the whole story. According to research done by the Colinton Amenity Association, the green belt has effectively moved outward, migrating away from the city center over the past fifty years. They estimate that 4,000 acres directly around the edge of the city have been lost to development (the equivalent to 80 acres per mile of city edge) (Campbell 2004).

This green belt "migration" has generated concern in some communities because it creates problems of balance and equity. City residents, who rely on the green belt for recreation and aesthetic amenities, now must travel farther to satisfy these needs. Even the view shed of this open space has been depleted by over 7,413 acres (Campbell 2004). Sustained efforts to introduce new development and increase the global competitiveness of Edinburgh have also threatened the integrity of the green belt. The debate between pro-development and anti-development forces continues to shape the green belt today.

3.7. The Government and the Green Belt

In recent years, the role of the green belt as a planning tool has undergone revision. Indeed, scholars have found that a different approach may in fact be necessary in London (Amati and Yokohari 2006), Wales (Tewdwr-Jones 1997), and Scotland (Elson et al. 1993). The Scottish government has heeded this call of reforming green belt policy. Scottish Planning Policy 21 (SPP21), issued in April 2006, serves as a guide to

growing towns and cities, explaining how the green belt can be used to enhance a region. The policy discusses the importance of allowing Scottish cities to grow while recognizing the threat of sprawl. Though the main objective of the policy is to strengthen green belts (suggesting better boundary delineation, definition of appropriate use, etc.) it may have ultimately undermined the one around Edinburgh by redefining what a green belt can be. SPP21 states, "Green belts can encircle settlements but can take a variety of other forms including buffers, corridors, coastal strips or wedges, to take account of local circumstances" (Scottish Executive 2006). It also allows for coalescence of settlements where appropriate with sustainable development, without defining what exactly this means.

The City of Edinburgh uses SPP21 as the backbone for its "Vision for Capital Growth: 2020 – 2040" (Vision 2020). In it, the council warns readers that either the city welcomes a higher population and the infrastructure to support it, or there will be urban and economic decline. They draw comparisons between their city and Stockholm, Helsinki and Oslo, citing each as places Edinburgh should to emulate.

Though much of Vision 2020 argues for increasing the size of the city, a significant portion makes a case for modifying the green belt. Here, the council suggests expanding out into the belt, with nodes of development surrounding high capacity transportation corridors, separated by local "green buffers" as well as a wide expanse of green wedges (See Figure 6). Again, the Council references another city, Copenhagen and its "finger plan," as an example of where radial development corridors have worked well.

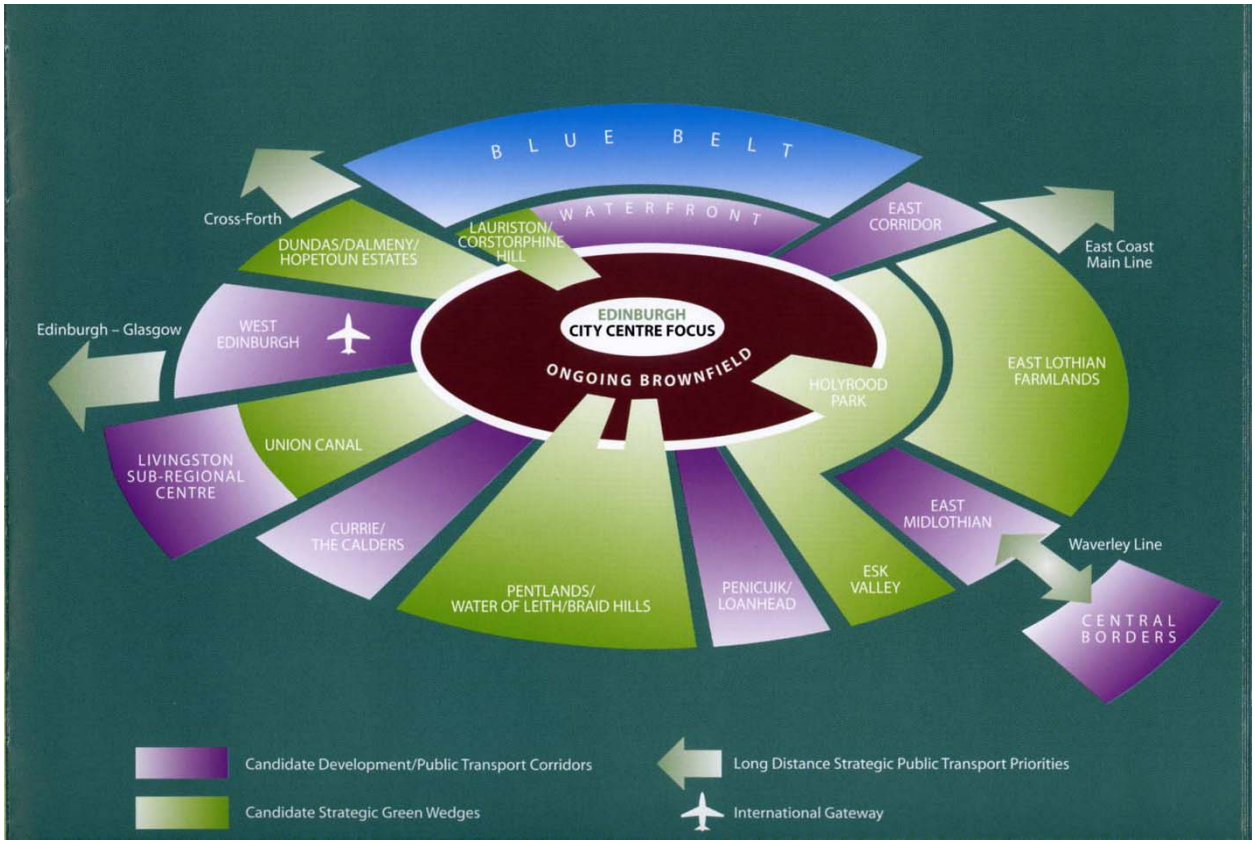

Figure 6. Edinburgh City Council's Vision 2020 (Source: Edinburgh City Council 2006)

There are several controversial points to this plan. First, there is doubt that the transportation corridors will be formed before the Council begins to release land. (Tasker, July 6, 2006). If this occurs, it will create a population that is more reliant on privately owned vehicles, which could lead to out-migration as well as ribbon development. Second, the plan supports opening up green belt land in order to attract industry. Vision 2020 states that "new growth industries want spacious green campus-style sites close to the city, a trend which is clearly at odds with a deep and continuous city green belt." The problem in this lies with planning a city based upon a current trend in business. Business trends come and go frequently (downtown shops, large box stores,

dotcom companies, etc.). Is it right to open up green space that has functioned for over fifty years to support one of these trends?

A third controversial point emerged after Vision 2020 was published. Though the Council states that a continued partnership with the Lothian region is essential (Council 2006), many neighboring authorities claimed to know nothing about the plan prior to its publication. On March 4, 2006, *The Scotsman* reported that all three Lothian Councils objected to Vision 2020 on the grounds that they were not consulted. "We have an Edinburgh and Lothians joint liaison committee" said one West Lothian representative "and you would think that would be the place this draft went first" (Harrell 2006). Other Lothian council members agreed with this sentiment. Edinburgh's planning committee representative responded by saying that he had let each council know of the Vision 2020 prior to its publication, and that the document was to be a point of discussion, not a concrete plan. This contention is perhaps the most troubling part of the plan. With animosity from the surrounding jurisdictions, the Edinburgh Council still seeks to plan for the region as they indicate the direction and location of future growth. This approach stands in stark contrast to the one adopted by the Council that originally approved the green belt.

The fourth issue concerns city size. Vision 2020 leaves no alternative to city growth and paints a bleak picture if this growth is not encouraged. The council points out that many of the most competitive cities in the European Union are also the largest. In order to be a competitive city, the Council maintains, Edinburgh would have to expand its population and industry base. But what of the other cities? Urban centers everywhere continue to expand, some more responsibly than others. These other places do not freeze

in time to wait for Edinburgh to catch up. Even if the city were able to grow its population, where would it expand? Fifty years ago, the Council believed they had planned enough space to meet the future needs of the city. Today's Council makes similar statements. It is logical to assume that a future Council may also deem expansion a necessary tool. Where are limits set and at what cost to open space and the environment? These are questions not addressed in Vision 2020.

3.8 NGO Response

While government attitudes toward green belts have shifted towards opening up land for development, public sentiment and NGOs have responded equally as strong for protecting green belt land. Several organizations today are utterly opposed to opening up the green belt for development. These organizations vary in approach, but work together to preserve green belt land.

The oldest of these organizations is the Cockburn Association. Formed in 1875, it is a non-profit civic group that works to save the historic and environmental amenities of the city. Though its members are involved in many projects within the city, they are well aware of threats to the green belt and have consistently challenged any development proposals. One of the Cockburn Association's goals is to prevent any build-up of green belt land that could possibly injure the options of future councils and citizens. They oppose Vision 2020 because they don't believe that the city will have the funding necessary to ensure that transportation will be in place prior to opening up the green belt to development. If the Council could prove they are ready for this, the CA would be more agreeable to Vision 2020 (Tasker 2006).

This is not to say that they are completely opposed to all development. Director Moira Tasker acknowledges that there is a de facto hierarchy of green belt land, and some areas are more highly valued than others. This reality is accepted by other NGOs as well (Campbell July 12, 2006). Prime agricultural land, as well as land that offers recreation and aesthetic amenities, is ranked the highest, while scrubby and unkempt land (such as that around the airport in West Lothian) is less valued. With this hierarchy in mind, the Cockburn Association is open to allowing some development, including one initiative that would enable developers to build on green belt land but return the land to its original use after the need for the developed area is met. With a variety of stakeholders as members, the Cockburn Association is well positioned to offer innovative policy recommendations that may help protect the green belt.

While the Cockburn Association is one of the biggest players in the preservation movement, they are by no means the only one. In fact, there are many other local and national parties involved in protecting the green belt. (See Table 6). These groups work together in various capacities to combat legislative measures that would undermine the green belt. Some of these groups were created by communities situated in the green belt, such as the Colinton Amenity Association (formed in 1927) and Friends of the Edinburgh Green Belt (formed in 2002). In 2003, several of these smaller groups got together, and with the help of the Cockburn Association, formed the Edinburgh and Lothians Green Belt Network (ELGBN). The purpose of this organization is to work together on common causes including development plans, consultations, and major development proposals. Between 2002 and 2004, the group made formal representations to protect green belt land in 21 different instances, ranging from the controversial development of

the Royal Bank of Scotland national headquarters to the regional Structure Plans in both the city and Lothian region.

Organization	Founded
Cockburn Association	1875
Association for the Protection of Rural Scotland	1926
Ramblers' Association Scotland	1935
Scottish Wildlife Trust	1964
Scottish Civic Trust	1967
Friends of the Earth Scotland	1978
Scottish Green Party	1979
Scottish Wild Land Group	1982
Edinburgh Green Belt Trust	1991
Historic Scotland	1991
Scottish Natural Heritage	1992
Scottish Environmental Protection Agency	1995
Dreghorn Polo Fields Campaign	1999
Edinburgh and Lothians Green Belt Network	2003

Table 6. Organizations Involved in Green Belt Protection. (Source: Scottish Green Belt Alliance 2003)

Though the battle for green belt land has two forceful players, time may not be on the side of the preservationists. Duncan Campbell, a representative and key founder of the ELGBN, said it was "sad to say I think we have more failures than successes" in their efforts to combat the development. Because of this, the ELGBN refocused their goal to identifying and publicizing the rate of erosion of the green belt. Consequently, they were not surprised and had even predicted the Council's attempt to open up additional land with Vision 2020 (Campbell July 12, 2006).

One group that has taken a different approach to protecting the green belt is the Edinburgh Green Belt Trust[7] (EGBT). The EGBT was established in 1991 by local councils in the Lothian Region. Their goal is to improve land within the green belt by creating better access to open space and improving its amenities. Though they do review and comment on the structure and local plans, the organization defines the green belt as a geographic area where they work and do not comment on individual applications to build within the green belt. They are "not a lobbyist type of organization, not planners" (Cunning July 7, 2006). Instead, they look to bring areas within the green belt under better land management, from public places such as parks to private farming operations, working with NGOs, communities, and council governments to meet their goals.

The EGBT works primarily in local communities because of the funding available for social programs. Many of their projects are located on the fringe of Edinburgh in some of the poorer areas of the city. The EGBT places great emphasis on what the community wants in a space, and conducts consultation meetings with the community before making plans to improve an area. Thus, their objectives vary from project to project, but always leave a tangible imprint on the land and community. (See Figure 7.)

[7] On September 1, 2006 EGBT changed their name to Edinburgh and Lothians Greenspace Trust to better reflect their purpose. Because of the timeliness of this research and relevance to the subject matter, they are referred to their former name throughout this paper.

2005-2006 Projects	EGBT OBJECTIVES: Community Development & Empowerment	Biodiversity	Lifelong Learning	Training & Employment	Recycling & Waste Minimisation	Physical & Mental Health	Social Inclusion & Diversity	Working together	Educatoin	Landscape & Amenity	Healthy Eating
Burdie House Burn Valley Park	x	x	x	x	x	x	x	x	x	x	
Ferry Glen Woodland	x	x	x	x	x	x	x	x	x	x	
Westburn Community Woodland	x	x	x	x	x	x	x	x	x	x	
Loanhead Community Garden	x	x	x	x	x	x	x	x	x	x	x
Dalkeith Campus		x			x	x	x	x	x	x	x
Muir Wood Park	x	x				x		x	x	x	
Dr. MacKay's Wood	x	x	x		x	x	x	x	x	x	
Green Belt & Countryside Awareness Trips	x		x			x	x		x		
Environmental Workshop Programme	x	x	x		x	x	x	x	x		x
Community Events Programme	x				x		x		x		
Loanhead Greenspace Awareness Event	x	x	x	x	x	x	x		x	x	
Mavisbank	x	x	x	x		x	x	x	x	x	
Harlaw Farm		x	x							x	
Turnhouse Golf Course		x								x	
Esk Valley Woodland Management		x								x	
Dalmeny Village		x								x	
Blinkbonny Farm		x								x	

Figure 7. List of Edinburgh Green Belt Trust's 2005-2006 projects and the objectives each met. (Edinburgh Green Belt Trust 2006)

3.9. Summary

Edinburgh has grown from a compact medieval city to a flourishing urban center, attracting people to its culture and history from around the world. The walls of the early city helped to define and separate urban and rural areas. This led to a natural condensation that created the foundation for the future green belt.

Ebenezer Howard, Patrick Geddes, and Patrick Abercrombie all developed and incorporated ideas into their city plans that led to the U.K.'s creation of green belts. After London's own green belt proved to be an effective measure against sprawl, the top-down structure of the planning regime caused the open space tool to be passed down to

Edinburgh and facilitated a swift and cooperative process for the green belt's adoption in 1957.

Right now, the future of the green belt appears to be uncertain. The debate boils down to one significant question: Does size matter? Edinburgh is facing greater competition in the European Union and seeks the answer to maintaining its economy and quality of life by increasing its population and industry base. Vision 2020 quotes John F. Kennedy: "Change is the law of life. And those who look only to the past or present are certain to miss the future" (City of Edinburgh Council 2006). In adopting this notion, the city faces constant competition in the E.U. and world economies. As we will see, size does not always equal competitiveness, and in releasing the green belt land, Edinburgh may be undoing the very instrument that has created a successful city. The effectiveness of the public response to this change remains to be seen.

Figures 8 – 11. (Clockwise) View of Edinburgh City and the green belt beyond; Looking down The Royal Mile; Green space abounds in Edinburgh in Princess Park and other parks within the city; The new and controversial Parliament building sits in stark contrast to the older buildings of Edinburgh (Source: Erin McCarty)

Chapter Four

4.1 Intro

Traveling throughout Baltimore, Maryland, it is easy to feel like you are moving through an inflated balloon. On the outskirts of the city, there is a sense of activity, development, and burgeoning economies. Likewise, the Inner Harbor and other selected districts near the water appear to be thriving. But then there is the empty space in between. It is here where street upon street of abandoned row houses create the hollow center of a region experiencing fast-paced, suburban development. This landscape reflects the area's population development: Baltimore City's population has declined since the mid-1960s while the surrounding region's population has increased.

Baltimore's land-use pattern begs the question: why could sprawl from the city not have been prevented as it was in Edinburgh? While there were several attempts to create regional plans, they each failed to preserve open space around the city, which would have concentrated growth within the urban core. This chapter outlines some of the major attempts at regional planning in the Baltimore area in order to provide a base for further discussion of American and European approaches to open space preservation.

4.2 History

The natural environment of Maryland has provided Baltimore with a varied economy through the years. The early economy was pluralistic, as the northern tidewater region was less settled than its southern counterpart, Virginia. The area was used primarily to obtain furs and establish trading posts with the Native Americans (Gray 1958). By the mid-17th century, settlers had traveled up the Potomac River to establish

an agricultural economy based on production of maize, a plant native to the region and a commodity to be exchanged for various English goods (Gray 1958).

Lord Baltimore held proprietorship over Maryland in 1650, granting large land parcels to the esteemed persons of that time. These grants, averaging 1,000 acres each, were primarily centered on the sandy soil of the Tidewater region, and used to produce tobacco, a plant native to the area. Valued both in America and abroad, the plant was often used as payment after coin currency became devalued (Land 1981).

The late 17th century was a time of fast paced change for the area as settlers moved to this area to work on tobacco farms. White indentured servants as well as black slaves were used to farm the land. There was an increase of agricultural competition and population, which created a need for government structure. In 1730, the town of Baltimore was created on a parcel of land, sixty acres in extent, dictated by the natural water features and hills surrounding it. Streets were laid out, and a courthouse and town center were built to serve a population of 6,000 residents.

By mid-century, the tobacco economy suffered a severe depression in Europe, affecting Maryland's market. In addition to this devaluation, new markets were opening up for iron and grain, creating a more pluralistic economy. Maryland was in a prime position to take advantage of these markets. Given its location on the Fall Line, Baltimore could take advantage of natural water power for the mills required to process grain. Mills were built on Jones Falls, Gwynns Falls, and Great Gunpowder and Little Gunpowder streams. Furnaces were built to manufacture iron. As these commodities became more valuable, settlements started to leave the coastal plains in favor of the hills of the Piedmont.

DATE	POPULATION
1790	13,503
1800	26,514
1810	46,555
1820	62,738
1830	80,620
1840	102,313
1850	169,054
1860	212,418
1870	267,354
1880	332,313
1890	434,439
1900	508,957
1910	558,485
1920	733,826
1930	804,874
1940	859,100
1950	949,708
1960	939,024
1970	859,100
1980	786,775
1990	736,014
2000	651,154
2005	608,481

Table 7. Baltimore City's Population Change (Source: U.S. Bureau of the Census)

By the late 18th century, Baltimore had become a sizeable city (see Table 7) based on the local market economy and it became necessary to establish better order in the city. In 1816, a surveyor by the name of T.H. Poppleton set out to survey the entire city of Baltimore. In addition, he laid out streets in a newly annexed part of the city and created a system of street names. Because of the condition of the older parts of the city, as well as an increase in economic activity, Poppleton's plan affected not only new but old Baltimore. In 1821, his plat was publicly displayed and showed a newly connected city. (See Figure 12).

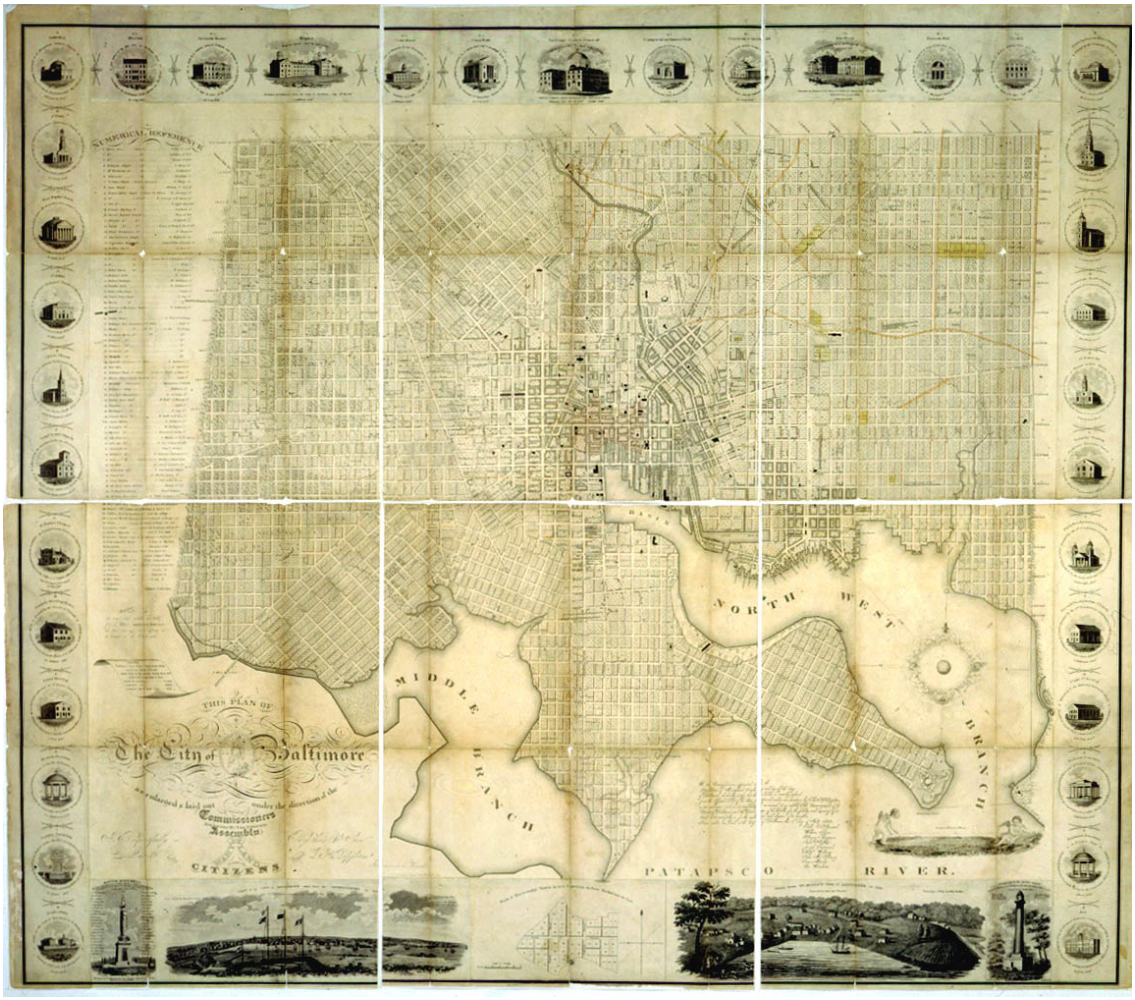

Figure 12. T.H. Poppleton's plan for Baltimore City, 1821.
(Source: Maryland Historical Society 2007)

The plan has been criticized for its lack of consideration for the natural environment of the city (Olson 1980). Poppleton had laid out the street system without the advantage of a topographical survey, so the streets, while architecturally regular, are superimposed on hilly terrain, giving Baltimore much of its present-day character. Poppleton's survey represents one of the first attempts at a regional plan for the city, and was followed closely as the city grew through the 19th century.

During the years of European and American conflict, Maryland "thrived on disorder and stagnated in years of calm" (Olson 1980, 10). By the start of the 19th

century, Baltimore was home to 30,000 residents and began to expand its trade beyond the stagnating European markets to those in the West Indies and Mediterranean. Settlers arrived from Germany, Scotland, Nova Scotia, and elsewhere, contributing to population growth and ethnic diversity. The city began to swell beyond its original borders, and overtook the once separate towns of Jones Town and Fells Point.

Health and environmental issues also were plaguing the city. At the time doctors incorrectly attributed outbreaks of yellow fever to the pollution in the city. However, the disease was contagious and quickly spread throughout the population, killing many. Fires were a hazard at this time too as they spread quickly and were hard to stop. City improvement emerged as a priority during this era as sanitation laws were created and fire companies established. Unfortunately, these improvements could not stop the disaster that was to come in the next century.

On a particularly windy and cold weekend in Baltimore in 1904, a fire began in part of the city and quickly spread. The cause and origin of the fire were never known. Fire companies were called from as far away as Washington and Philadelphia, but were unable to connect to fire hydrants along the streets of Baltimore. The fire raged through the city, burning a total of 70 blocks and 1,545 buildings (Olson 1980). Amazingly, no one was killed. However, most of old Baltimore was obliterated.

Reconstructing the city was a multi-faceted task. Surveyors hired by the city laid out the streets and property lines. Private homeowners sought insurance refunds to rebuild their homes. Railroad companies began to lay new track. In addition to reconstruction of old infrastructure, Baltimore sought to build anew what they lacked before the fire. Sanitation sewers were created from the best technology available at the

time. In fact, the city was one of the first to separate grey water from sludge (Boone and Modarres 2006). The post-fire era became a time of great renewal and development for the city.

In the next century, Baltimore would witness a swell in population and then, an abandonment of city life for the nearby countryside. As the population continued to spread out from Baltimore, from the Tidewater to the Piedmont, regional city plans attempted to evaluate the best use of space. Though not all of these plans addressed preserving open space, several did.

4.3 The Olmsted and National Forest Plans

Two years before the Great Baltimore Fire, the Municipal Art Society of Baltimore asked Olmsted Brothers, the most popular landscape architecture firm of the time, to develop a plan for the city's public land. (The city later reimbursed the Society). *The Report upon the Development of Public Grounds for Greater Baltimore* was published the same year the fire broke out, and though initially not highly prioritized, eventually became a foundation upon which the city's parks were planned. (See Figure 13). The report called for beautification of the city and an increase in public parks for recreation. Many of these public parks would follow river valleys, preserving the natural landscape while taking advantage of the lower property values of such areas. Olmsted Brothers also suggested the creation of three parkways throughout the city to connect public green spaces. In addition, this report recommended that the city purchase land outside of the urban core to meet the needs of future populations (Korth 2005).

The Olmsted plan reflected the natural setting of Baltimore. In this way it was strikingly different from the Poppleton Plan and many other plans of that time. Though

the report did not specifically address urban containment, the system of parks and parkways proposed took into account Baltimore's growing population and tried to anticipate the city's future needs. Clearly, Olmsted Brothers, as well as city officials at that time, were unable to predict the tremendous suburban growth that was about to occur. About twenty years later, the Board of Park Commissioners asked Olmsted Brothers for a follow-up report. The *Report and Recommendations for Park Extensions in Baltimore*, published in 1926, reemphasized the need to develop parks along stream valleys and connect them through parkways (Korth 2005).

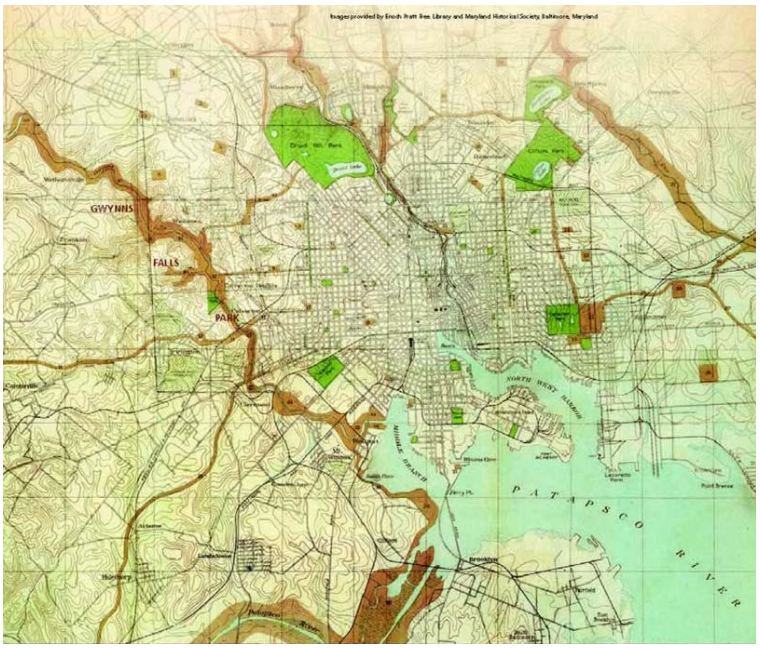

Figure 13. Olmsted Brothers 1904 park plan for Baltimore. Existing parks are shown in green. Proposed parks are shown in brown. (Source: Gwynns Falls Trail Council 2007.)

It was through the two Olmsted plans, as well as several large donations and acquisitions of land, that Baltimore created its current park system. The emphasis of these plans was on recreation, beautification, and preserving the environment instead of

urban containment. Looking back, the Olmsted Brothers' plans represented the first attempts to place a value on open space and address the issue of planning at a regional level.

Another regional attempt to preserve open space around Baltimore occurred when state forester, Fred Besley, and William Ellicott joined forces to promote the creation of a national forest in Maryland. Besley, appointed Maryland's first state forester in 1906, was a utilitarian conservationist in the mold of Gifford Pinchot who sought to reduce the state's dependency on outside sources of wood. Ellicott, a wealthy lawyer, was a member of an influential family that lived along a stretch of the Patapsco River.

Extensive logging operations had depleted Maryland of much of its natural beauty. This was especially the case along the Patapsco River, only partially protected by a section that was granted to the state in 1907. At this time, there was a lot of attention given to city beautification and park creation, much of which was pushed forward by the Municipal Art Society, which had commissioned the Olmsted report. In 1910, with Besley's assistance, Ellicott published an article in *American Forestry* to drum up support for the establishment of a national forest south of Baltimore stretching all the way to Washington, D.C along the Patapsco River Basin. Much attention followed their efforts and the Municipal Art Society resolved to recommend legislation that would approve of the forest's protection (Buckley et al. 2006).

In reality, Besley was in greater favor of a state-run forest so that it could be responsibly managed for logging and retain a healthy forest ecosystem. When state funds seemed to be falling through, he instead joined forces with the influential Ellicott to push the national forest plan forward. Eventually though, Baltimore City recognized the

potential for the forest to serve the expanding future population of the city. In 1913 the General Assembly of Maryland approved the purchase of ten additional miles along both sides of the Patapsco River to add to the current preserve that existed there. In subsequent years, the land within this preserve was either sold or given to Besley's Board of Forestry. Today the Patapsco River Valley State Park stretches for 32 miles along the river and includes more than 14,000 acres of land (Buckley et al. 2006).

The Olmsted Brothers' plan and the National Forest plan did not specifically address preserving open space in order to contain the urban infrastructure. Though population swelled at this time, people were still very dependent on city infrastructure. Creating parks that were accessible for residents of the urban core was an important part of city planning at this time. Emphasis on preserving open space for its environmental, aesthetic, and recreational qualities in addition to obtaining enough open space for future populations were all key components of the Olmsted Plan as well as Besley and Ellicot's National Forest plan. While the emphasis on the forest preserve was one of environmental health and utility, it quickly switched to recreation as individuals gained greater access to the countryside through the most important invention in the 20th century: the automobile.

4.4 Transportation and Development

The effects of new modes of transportation cannot be overstated when considering the expansion of any U.S. city. In Baltimore, particularly, omnibuses (horse drawn coaches) began to carry passengers within the city as early as the 1840s. Railroads made long-distance travel possible around the same time. Late in the same century, electric trolleys carried people to new suburbs located on the outskirts of the traditional

city (Baltimore Transit Archives 2007). Each of these advances in transportation left the public dependent upon the city infrastructure, thereby contributing to the city's growth.

With the advent of the gas-powered automobile in the early 20th century, the previous settlement patterns changed. As prices fell, more individuals were able to purchase their own auto, reducing dependency on the public transportation system. With the individual liberated from the fixed routes and schedules of public transit, land once unavailable for development became the new frontier for the housing market. This, coupled with federal home loans and government subsidies to build new highways, was a death sentence for the public transportation system as well as the rural, unsettled land that surrounded cities in the United States. This new growth led to a paradigm shift in regional planning. Greater attention was now being paid to protecting the countryside.

4.5 Baltimore Regional Planning Council

In 1933, Maryland created the nation's first state planning agency. The creation of the State Planning Department placed responsibility for Maryland's infrastructure on the state government. This Planning Commission evolved over the years, officially becoming the State Planning Department in 1959 and acquiring cabinet status in 1969 (Knaap 2004). Today, the Maryland State Planning Department exists to create "…growth that fosters vibrant, livable communities, preserves and protects the environment, and makes efficient use of State resources" (Maryland Department of Planning 2007).

In 1957, the Maryland State Planning Commission created the Baltimore Regional Planning Council (BRPC) by request of Baltimore City and the neighboring counties. The BRPC encompassed the area shown in Figure 14. After World War II, a

boom in the housing and transportation sectors led to increased development and sparked concern in communities across the region. The goal of the BRPC was to create regional plans that would address these planning issues. One of their first concerns was to establish a regional plan for open space.

Figure 14. Map of the region over which the BRPC (now the Baltimore Metropolitan Council) functions. (Source: Baltimore Metropolitan Council 2006)

Three years after its creation, the BRPC published Technical Report Number Five, suggesting methods to preserve open space. Made up of two advisory subcommittees ("Parks and Recreation" and "Conservation of Natural Resources"), the committee suggested a plan which incorporated both state and local governance. One of their first tasks was to define open space in order to evaluate existing conditions and create relative goals for the future. The committee separated open space into two distinct categories: Park and Recreation Areas and Green Space. The former category considered any land usually open to the public and used for "leisure time pursuits"

(Baltimore Regional Planning Council 1960, 7). Conversely, green space was defined as land "open in character,…used at a relatively low intensity," (Baltimore Regional Planning Council 1960, 7) institutional in use and therefore not a prime destination for recreation. For example, the grounds around a hospital are often open in nature, but are not a prime destination for recreation and therefore would fit under the green space category.

The first step in the process was to inventory what existed in the region at that time. Noting that there was a difference between effective and ineffective open spaces, the committee characterized the spaces according to location, size, use, ownership, percent building coverage, and area served. Further, the committee recognized 25% of reservoirs and watersheds as having recreation value, discounted 75% of large "military installations," and classified schoolyards as recreational areas as opposed to green space.

Using the information obtained from the inventory, the committee then projected the open space needs of future populations. Using a measure of 25 acres per 1,000 people in each of the five counties, the committee estimated that by 1980, the Baltimore region would need at least 49,300 additional acres of open space (Baltimore Regional Planning Council 1960). The results of the overall survey appear in Table 8.

	Acres/ 1,000 persons	Existing Acreage	Deficiency 1960	Need 1960-1980	Total Deficiency and Need	Desirable Acreage
Regional						
Public Parks and Recreation	15	16,000	10,700	11,400	22,100	38,100
Private Recreation	2	2,800	800	1,500	2,300	5,100
Green Space	25	40,200	4,400	19,000	23,400	63,600
Total	42	59,000	15,900	31,900	47,800	106,800
Non-Regional						
Public Parks and Recreation	14	9,700	15,300	10,600	25,900	35,600
Private Recreation	5	9,700	-700	3,800	3,100	12,800
Green Space	17	23,100	1,300	19,000	20,300	43,400
Total	36	42,500	15,900	33,400	49,300	91,800

*Data based on 25 acres per 1,000 people for the five counties in the BRPC and 3 acres per 1,000 in Baltimore City

Table 8. Summary of existing and projected need for open space in the Baltimore Region, 1960. (Source: BRPC Technical Report Number Five.)

One disappointing aspect of the report was its negligence of agricultural land. Though this land was included in the overall study, it lacked the relative position of the open space discussed above. The report addresses this:

> …it must be noted that neither the inventory nor the proposed standards reflect the largest green space uses – namely, agricultural lands, pasture and forests. Yet it is the retention of these uses in the more urban areas of the Region that will provide at least part of the open space needs. These uses have been considered important enough that they have been measured and analyzed in Appendix B. (Baltimore Regional Planning Council 1960, 25)

Oddly, though the report admitted that public open space accounted for only ten percent of the land area of the region, other open spaces were only referenced outside of the main report. This appended information did include an inventory and projection of these spaces for fifteen years down the road. The results appear in Table 9.

	Percent Total Land Area (1,444,804 acres)	Cropland and Pasture		Forests and Woods		Other (Including Federal land)		Urban Areas	
		1960	*1975*	*1960*	*1975*	*1960*	*1975*	*1960*	*1975*
Region	100	43.9	40.6	30.3	27.0	12.5	11.9	13.3	20.5
Baltimore City	3.6	--	--	--	--	--	--	3.6	3.6
Anne Arundel Co	18.4	4.3	3.6	8.2	7.4	3.6	3.2	2.3	4.2
Baltimore County	27.0	10.5	9.1	8.0	6.3	2.9	2.8	5.6	8.8
Carroll County	20.1	14.4	14.0	4.0	3.9	1.1	1.1	0.6	1.1
Harford County	19.8	8.7	8.5	6.7	6.2	3.6	3.4	0.8	1.7
Howard County	11.1	6.0	5.4	3.3	3.2	1.4	1.4	0.4	1.1

Table 9. 1960 Conservation Needs Inventory Summary as Percent of Regional Total (Source: BRPC Technical Report Number Five.)

By excluding the above types of land from the main report the committee seems to innately define open space as that land which is usable in some form. Though the report also referred to the visual importance of forests and the ability for such open spaces to act as buffers between urban and rural areas, it offered general suggestions (such as zoning restrictions) for the preservation of these spaces. The goal of the report, it seems, was to increase recreational land while recognizing the importance of farms, forests, and waterways. To do this, it identified critical areas for preservation, and encouraged local governments to comply with the committee's suggestions.

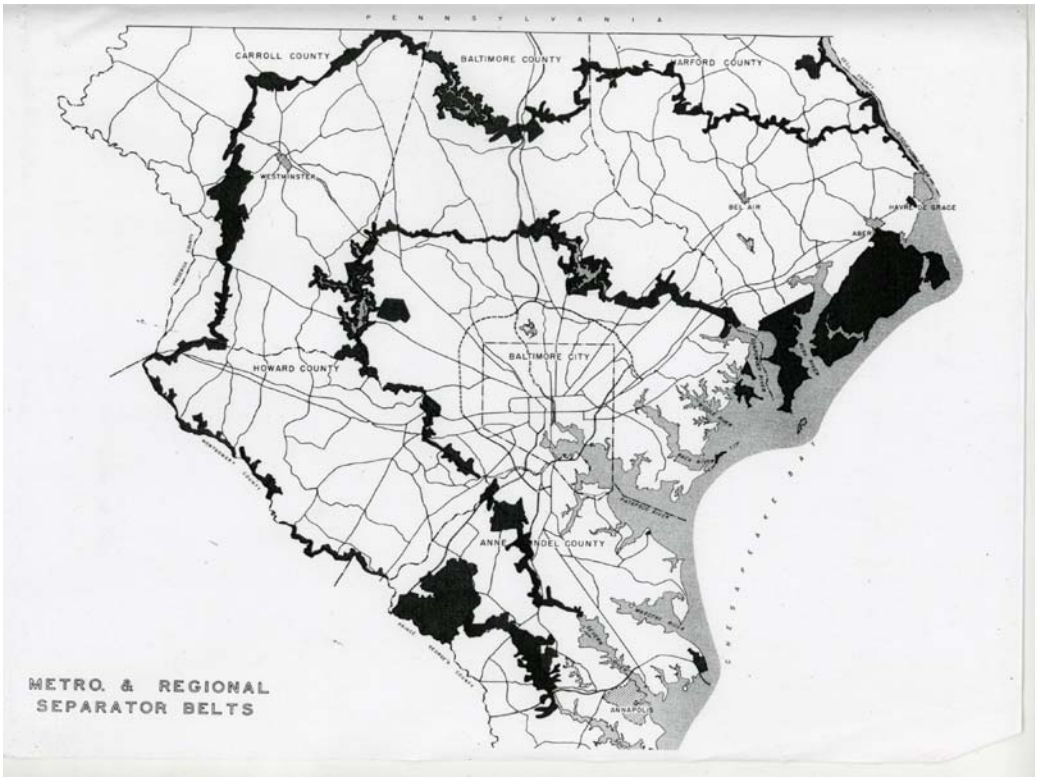

Figure 15. The separator belts as proposed by the BRPC in 1960. Source: BRPC Technical Report Number Five.

One of the most important contributions of the report was the inclusion of a plan for separator belts. The committee suggested an open space plan for the region that included both a metropolitan and regional separator belt located outside of the city. (See Figure 15). These belts would link existing parks and waterways with land rural in character to form an imaginary horseshoe around the city that would prevent sprawl:

It was described as follows:

> One of the objectives of the Baltimore Regional Planning Council has been to encourage the creation of a green belt around the urbanized metropolitan area of Baltimore. The metropolitan separator belt, if it is to serve its functions properly, must be distinct enough from its surroundings to be easily recognizable as such and it must be wide enough to be effective. Since, by definition, a separator attempts to serve as a break, this function must be implemented by

> reducing the communications across it to a minimum; in other words, the fewer the highways crossing a separator, the more self-contained the units on either side are likely to be. If the metropolitan separator is to be effective, it must be so located as to provide the best barrier (Baltimore Regional Planning Council 1960, 15)

The report goes on to describe the separator belts further:

> …the metropolitan separator must be made as effective as possible and it must be pulled in as close to the fringe of present urban development as is consistent with the topographic features and other factors. All efforts must then be directed toward first providing the incentives to have the future growth occur in those sections inside the metropolitan separator where land use plans call for additional residential and other growth; secondly, it appears advisable to establish policies which would concentrate growth outside the metropolitan separator to a few sections, permitting varying densities, but preventing continuation of urban sprawl by surrounding these sections with well planned separator strips of their own (Baltimore Regional Planning Council 1960, 33).

If these guidelines sound familiar, one would have only to look at Ebenezer Howard's Garden Cities to see the similarities. His proposed green belts around large urban centers with condensed satellite cities in the outlying region have much in common with the BRPC's 1960 recommendations. The ideas presented in this report were not new and had been tested and implemented successfully in many European cities. Two years later, the BRPC would again create a foundation for these de facto green belts in their 1962 recommendations for establishing Metro Towns (Outen 2007). Why then is there not a clearly marked separation between the rural and urban landscape around the Baltimore region today?

If these separator belts had been executed as proposed by the BRPC, one might see a different Baltimore today; a city of condensed housing protected by natural buffers. owever, this plan was never implemented in full. The lack of enforcement of these plans was perhaps the biggest weakness of both the report and the BRPC. While local governments may publicly support and value such a regional board, economic decisions are usually made at the local level and often do not mesh with priorities established at other scales. When the BRPC was created, it was given no legislative or executive powers. Had it been granted this authority, the Baltimore region may have ended up looking very similar to some of its European counterparts. Instead, much of today's open space preservation exists in non-contiguous patches of land.

4.6 Modern Day Preservation Efforts

Accessing the website for Maryland's Smart Growth homepage, one is immediately confronted with a picture that defies logic. (See Figure 16). A picturesque farmhouse, barn, and silo sit in the middle of rolling hills next to a country road with no sign of traffic. A wall of townhouses is situated in the near distance, shouldered together like soldiers protecting a city. Beyond the roofs of these homes, the city skyline appears. This picture is the poster-child for Maryland's Smart Growth program, a nationally renowned initiative to curb sprawl and preserve the state's natural resources. It represents the state's desire to preserve the agricultural landscape while at the same time promote growth and home construction.

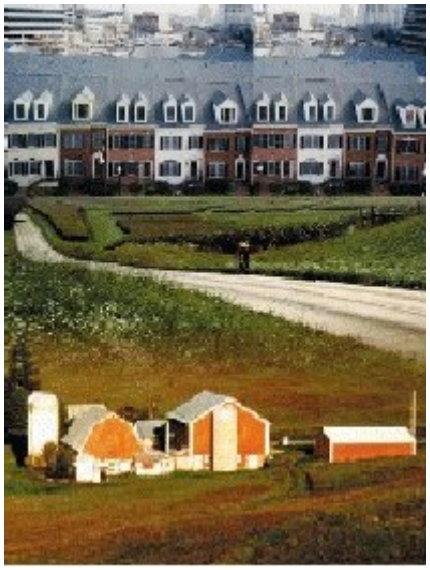

Figure 16. Photograph on Maryland's Smart Growth Website

In 1992 the Economic Growth, Resource Protection and Planning Act created a "vision" for development across Maryland. This vision promoted responsible development and emphasized protection of natural resources and rural areas (Maryland Department of Planning 2007). Though nonspecific in both methodology and measurement, this Act was significant because it required local planning authorities to revise their comprehensive plans and include the new state vision (Freece 2005). It also laid the groundwork for Maryland's nationally recognized Smart Growth plan.

In 1997, one year after he took office, Governor Parris Glendenning introduced a new land use plan. This new initiative combined pieces of the 1992 Act with prior legislation to create the Smart Growth program. It consisted of five main points:

1. Creation of Priority Funding Areas
2. Incentives for Brownfield Cleanup
3. Live Near Your Work Program
4. Tax Credits for Job Creation
5. Rural Legacy Program

(Knaap 2004)

Research shows that the five parts of the program, coupled with the Smart Growth nametag, are easily identified and help to promote the program (Freece 2004). Smart Growth and, by extension Governor Glendenning, are nationally recognized as "trail blazers" when it comes to promoting good land use practices.

Glendenning enacted the Rural Legacy Program within Smart Growth "to enhance natural resource, agricultural, forestry, and environmental protection" (Maryland Department of Planning 2007[2]). As of December 2002, the program had protected more than 35,000 acres of land (representing over 50 percent of all privately-owned land protected in Maryland to that point) (Maryland Environmental Trust 2007). Though farmland protection has advanced under the program, measures of how the Rural Legacy program has helped the agricultural industry have not been explored.

In addition to the state's Smart Growth plan, there are a variety of tools available at the national, state, and local levels to protect open space. One of the most commonly used tools is placing land under a conservation easement. Conservation easements are legal instruments that restrict development rights on specific pieces of property. Once

created, they are passed on to subsequent owners. These contracts can either void or limit development rights on an individual's property.

Both government and non-government organizations create and hold these contracts. Within the government, organizations such as the Maryland Agricultural Land Preservation Foundation, founded in 1977, purchase easement rights to farmland using tax money created from the development of agricultural lands. Outside of the government, NGOs such as the American Farmland Trust, Land Trust Alliance, and various other regional, county, and local organizations work toward the same goal, often encouraging donations of development rights instead of outright purchase.

These organizations also enable individual landowners to create an imprint on the land. Where state agencies have limited power over zoning and legislation to protect farmland and other open space, landowners with a vested interest in preserving the land are able to place restrictions on the property. Because these restrictions last not only through their ownership of the land, but all ownership thereafter, individual property owners have a profound effect on the landscape. These organizations also further the state's vision of Smart Growth by creating additional open space.

4.7 Baltimore County: A case study in the region

Baltimore County exemplifies the structure of open space preservation under the Smart Growth system. In 1967, county planners created an Urban-Rural Demarcation Line (URDL) to direct growth nearer the city of Baltimore and prevent sprawl in the northern parts of the county. When Smart Growth was enacted, Baltimore County also created Priority Funding Areas inside of the URDL and protected Rural Legacy areas outside the URDL. In addition to these government initiatives, NGOs have helped to

protect over 30,000 acres of farmland in Baltimore County since the 1970s (Baltimore County Maryland 2007). Looking at its land management plan and a current land use map, it appears that the county has been quite successful in its efforts to curb sprawl.

Donald Outen is the Natural Resource Manager for the Baltimore County Department of Environmental Protection and Resource Management. He has worked in Baltimore County since the 1970s, and has seen a plethora of changes to the planning approach, both within and outside the county. Most recently he has worked on a project to incorporate the Montreal Process Criteria and Indicators (an effort by the United States and eleven other countries to practice sustainable forestry) into a county-wide plan. In November 2005, a draft for a forest sustainability plan was adopted with guiding principals, goals, and actions to address 15 key issues such as deer control and forest health. The county was one of only three counties nationwide to adopt these measures. Later, these same three counties were used in a case study by The Communities Committee of the 7th American Forest Congress to promote the idea of sustainable forestry (Outen 2007).

Outen identifies the new sustainability plan as "more than a measurement tool" indicating that, though data collection is mandated by the guidelines, it may not always be readily available. This is in contrast to many environmental management plans that focus on acquisition of data as the ultimate goal. Instead, the forest plan represents a "holistic approach" to planning, taking the emphasis off of urban development and placing it on ecosystem health. The goal then is not simply to document status, but to use data collection to evaluate the progress of moving towards healthy forests (Outen 2007).

In June 2006, the county held the 5E Forum to update the forest sustainability plan. The five "E"s stood for ecology, education, easements, economics, and environmental indicators, and helped to promote the concepts of the plan throughout the community. The forum received over 80 recommendations for additions and changes to the plan, and developed subcommittees for each of the five subjects to implement the necessary changes. Thus the process of creating the plan was highly integrated between community and government members. The committee also received a Capital Improvement Budget of $270,000 to further their program. One of the first steps taken was to hire a professional forester to evaluate the health of a thousand-acre patch of city-owned forest. The county plans to use that study as a template to build future forest surveys (Outen 2007).

With the new emphasis on forest management, Baltimore County implemented several tree management programs. For example, under the Chesapeake Bay Initiative, the county found they had a canopy deficit of fifty percent. In order to meet this need, the county marketed a ten dollar coupon for tree purchases, cooperating with local nurseries which are reimbursed half the coupon's value once redeemed. This coupon was available on the county's website, and quickly became the second most downloaded document on the entire website. The coupons had the added benefit of a customer survey, and after the coupons were collected back from the nurseries, the county was able to include the placement and type of tree in their GIS database, and can consequently now map and track the number of newly planted trees. The program was deemed highly innovative and successful and has been written up twice in the Chesapeake Bay Journal within the past two years (Outen 2007).

The tree management also extends to rural areas through the Rural Residential Stewardship Program. Noticing that many large-acre lots were residences as opposed to farms, the county created a method to reach these home owners and try to persuade them to replace their large lawn areas with forest. Approaching a group of rural residents as they would a suburban community, the county asked if there was interest in learning about land stewardship and forest management. Once a group was formed, a forest specialist would come to the community and discuss the benefits of adding trees to the property. If property owners were interested in pursuing it further, the county would fund the design and installation of a forest on the property, without requiring any easement or long-term commitment, and educate the owners about monitoring and management techniques. The forest plans considered home owner desires as considerations were made for amount, type, and placement of trees. The county officials also talked to lawn care companies about best mowing practices so that the newly established forests would function as habitat and not simply become mowed parks (Outen 2007).

The Rural Residential Stewardship program was successful. In one instance, the county was able to place 17 acres of new forest on 12 separate lots, with some of the owners even benefiting from tax breaks that came with at least five acres of forest. Though there is some conflict about using public money to improve private land holdings, the overall attitude is one of support and community value. Outen feels that community involvement is key to these successful forest management programs as "citizens are the managers of the resource" (Outen 2007).

In Outen's experience, sustainable forest management is an untapped resource and the best solution for region-wide planning. Such initiatives place the focus on

environmental health, and other planning tools function to support it. Though admittedly, Baltimore County had a solid open space plan implemented before the forest management plan (through restrictive zoning and the URDL), this latest initiative has placed the former planning tools within the context of the greater forest plan.

One example of this was the downzoning of the Patapsco Granite Area in southwest Baltimore County. This swatch of forested land was originally put aside as a holding zone to be used for future growth. Recently, county planners decided to preserve this area instead of use it for new development. The planners approached Outen's organization to come up with rural design guidelines to curb development, a type of "New Ruralism" counter to the popular New Urbanist movement. They suggested the county create a base density to minimize forest fragmentation through development. This base density was a unique approach as it would not include acreage that was in buffer zones around riparian areas or fifteen acres and more of contiguous forested land. These buffered zones were considered "no disturbance zones," though future allowances may be made for sustainable forest management. Under this implementation, a property of 75 acres with 25 of those acres in buffers would have only 50 acres available for development. If the base density were one building per fifty acres, then the entire 75-acre lot would be allowed only one home (Outen 2007).

4.8 The Region as a Whole

How is the region doing today with preserving open space? If Baltimore County is doing such a great job protecting land through downzoning and sustainable forestry plans, it would seem that the region as a whole could also be having a positive

experience, especially in light of the state's Smart Growth Act. So how do other places compare?

The Baltimore Metropolitan Council (formerly BRPC) conducts research to gauge the region's status on these issues. Taking a look at 2002 Land Use statistics in Figure 17, we can see that each of the jurisdictions in the Baltimore region had a large amount of property zoned in agriculture. This would seem promising at first, but a deeper understanding of agricultural zoning for each county reveals a greater truth. Agricultural zones in Baltimore County allow building densities of one building per fifty acres. In Harford County these same zones allow one per ten acres, and in Carroll County, one unit per three acres is still considered "agriculture" (Outen 2007). Though these zones may look the same viewed through statistics or maps, the reality is quite different. Because land use zones differ so significantly, they are not good indicators of preserved open space.

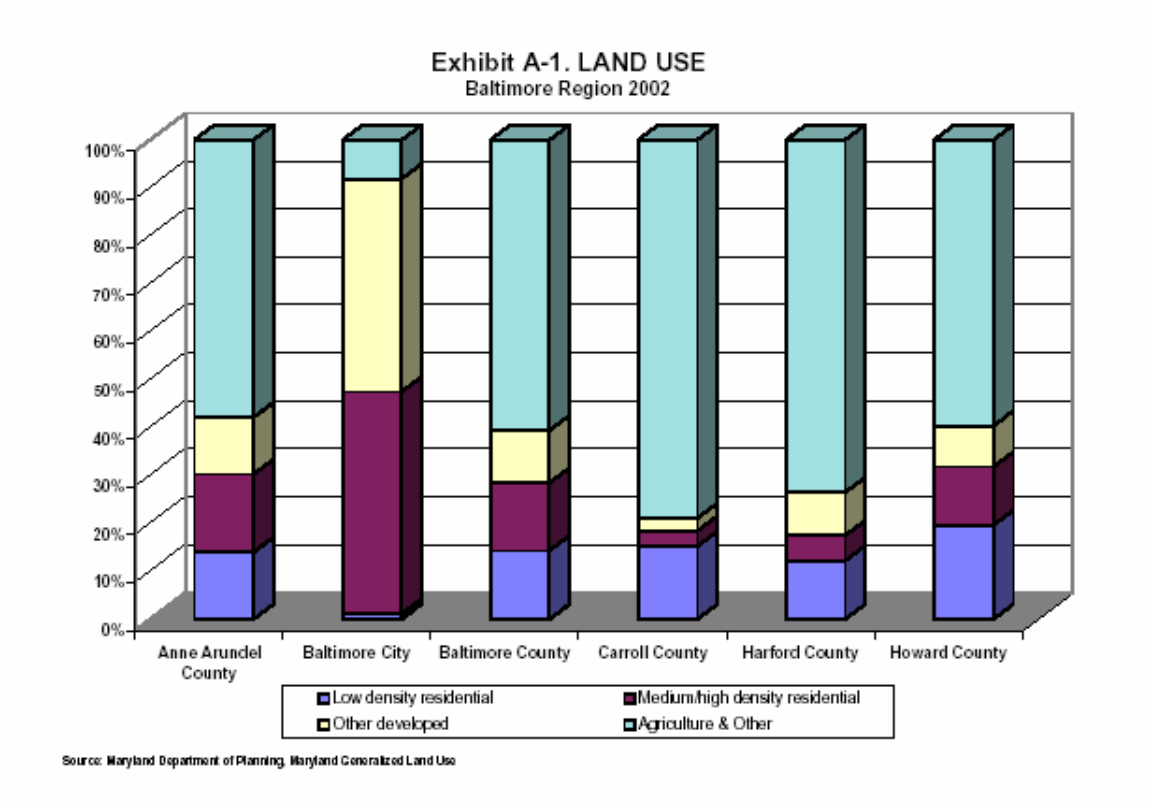

Figure 17. Land Use in the Baltimore Region.
(Source: Baltimore Metropolitan Council 2006)

The number of permits for new homes issued across the region portrays this fact. Baltimore County is one of the closest jurisdictions to the city, and logically one of the best choices for home owners who commute to the city to locate a new home. However, the largest number of permits was not given here. (See Figure 18). Instead, Anne Arundel and Harford Counties had the largest number of added homes. The high number of permits in Anne Arundel County makes sense because it is not only proximate to Baltimore City but also within commuting distance of Washington, D.C. Harford County, however, may have experienced a high number of permits due to its less restrictive density requirements. People unable to build homes in Baltimore County due to the strict regulations may have flowed into Harford County.

Anne Arundel County	Units	Permit Value
One Family-Detached	996	$153,786,533
One Family-Attached	570	$41,911,928
Two Family	13	$1,356,376
Multi-Family	1,391	$80,013,946
Mobile Homes	44	$2,618,300
Other Shelter	0	$15,000
Total	**3,014**	**$279,702,083**

Baltimore City	Units	Permit Value
One Family-Detached	143	$17,102,000
One Family-Attached	491	$57,155,050
Two Family	11	$1,185,130
Multi-Family	592	$79,695,750
Mobile Homes	0	$0
Other Shelter	6	$300,000
Total	**1,243**	**$155,437,930**

Baltimore County		
One Family-Detached	1,188	$277,497,282
One Family-Attached	370	$46,049,500
Two Family	34	$4,565,000
Multi-Family	397	$33,837,500
Mobile Homes	0	$0
Other Shelter	1	$367,200
Total	**1,990**	**$362,316,482**

Carroll County		
One Family-Detached	545	$121,082,271
One Family-Attached	35	$5,550,000
Two Family	20	$2,361,000
Multi-Family	70	$3,380,000
Mobile Homes	5	$253,500
Other Shelter	21	$2,338,000
Total	**696**	**$134,964,771**

Harford County		
One Family-Detached	983	$217,608,955
One Family-Attached	812	$92,186,972
Two Family	2	$350,000
Multi-Family	339	$34,689,200
Mobile Homes	14	$830,799
Other Shelter	0	$0
Total	**2,150**	**$345,665,926**

Howard County		
One Family-Detached	744	$187,462,968
One Family-Attached	592	$92,333,988
Two Family	4	$320,000
Multi-Family	438	$45,807,500
Mobile Homes	3	$52,000
Other Shelter	0	$0
Total	**1,781**	**$325,976,456**

Baltimore Region Totals		
One Family-Detached	4,599	$974,540,009
One Family-Attached	2,870	$335,187,438
Two Family	84	$10,137,506
Multi-Family	3,227	$277,423,896
Mobile Homes	66	$3,754,599
Other Shelter	28	$3,020,200
Totals	**10,874**	**1,604,063,648**

Figure 18. Home sales in the Baltimore Region.
(Source: Baltimore Metropolitan Council 2006).

Sales of new and existing homes also suggest a population that is migrating further from the city. Carroll County had the largest increase (73%) in average sale prices of homes from 1995 to 2004, while Baltimore County and City had the lowest (44% and 43%, respectively) (Baltimore Metropolitan Council 2006). This would indicate that development pressure is increasing with greater distance from the city, and

that sprawl continues to be a problem in the region as a whole. These data also indicate that Baltimore County's planning has not only preserved open space but has done so without increasing home prices and development pressure. This is atypical of successful open space plans and is perhaps due to the fact that development can leap to other counties.

One example of how differing county approaches have affected regional outcomes was the protection of the Prettyboy reservoir bordering both Baltimore and Carroll counties. Building densities on each side of the reservoir differed, with Baltimore County being more restrictive on their development allowances than Carroll County. Watershed protection was a key issue and because no regional standards were set, disparate development standards were allowed. The two counties had to take the issue to state court to be resolved. The incident further underscores the need for a regional plan.

The region is starting to show signs of cooperative planning. Surrounding counties have expressed interest in Baltimore's successful forest management plan. Baltimore County has invited representatives from these counties to attend their planning forums and Baltimore County representatives have traveled to meetings outside their jurisdiction to promote the forest plan. Baltimore City has specifically requested a meeting to learn more about the county's successful tree planting program. Still, the surrounding jurisdictions are slow to follow suit. Much of their hesitancy over integrating the forest management plan is due to lack of time. Baltimore County has employed a full-time forester for ten years, enabling them to build upon an already sound foundation in forest sustainability. Many of the surrounding counties do not have such assets, and are simply trying to keep pace with the development rate. Implementing a

new framework for planning may take valuable time away from fighting current sprawl (Outen 2007).

With agriculture on the decline in the Baltimore region, municipalities will soon need to look for other reasons to protect open space. Watershed and forest management, with their emphasis on sustainability, may provide such a justification. These new strategies will prepare the Baltimore region in trying to protect open space as the failing agricultural industry may undermine existing open space. Sustainability is not only the driving force behind open space preservation, but it also is changing planning overall. Baltimore County is leading the region with this paradigm shift.

Discussing open space through the lense of overall development plans is important. The way the government and community view open space is reflected in the use of zoning, forest management, and other planning tools. Baltimore County is one jurisdiction among many applying new standards that emphasize the protection of ecosystems by downzoning and creating functional open space. However, the disparities between planning approaches can have a profound impact on the region as a whole. While some counties impose strict standards, others are slow to follow suit. Meanwhile, development continues to occur, seeking out the path of least resistance. Hope lies in the success that Baltimore County has experienced and the attention they draw to new and innovative planning. If the surrounding areas mimic these new approaches, then perhaps a de facto regional plan will emerge, governed not by the top-down influence of an overarching planning regime, but by market competition for open space.

4.9 Summary

By the end of the 19th century Baltimoreans had begun to appreciate and value open space. Prior to this, the population of the city had not reached a critical point and open land existed as farms close to the urban center. Poppleton's 1822 plan highlighted the need to build and enhance to support the growing city. Once immigrants began settling the city in greater numbers, health and environmental issues came to the forefront of city planning, and created a new appreciation for open space. This marked the first major paradigm shift in open space planning for the city, and opened the door for the Olmsted Brothers plan as well as establishment of the Patapsco State Forest.

During the early years, emphasis was placed on open space preservation with an accent on aesthetics, accessibility, and the environment. The Olmsted plan preserved the natural stream valleys while creating parks for urban residents. Besley and Ellicot's plan addressed both the environmental and visual degradation of the forest along the Patapsco River Valley. Once realized as a State Park, the area became highly valued for recreation.

With the onset of the automobile, people were liberated from public transportation, enabling them to move to new areas previously untouched by the housing markets. In addition, federal home loans and subsidies for the construction of new highways in the mid-20th century created a new type of development never before seen in Baltimore: sprawl. A second paradigm shift in planning thought occurred at this time, and planners began to preserve open space in order to contain the spillover of development from the city. Recognizing sprawl as damaging and regional in nature, state and regional planning authorities were created to address the issue. By this time, however, the priorities of local governments won out over the concerns of regional

planners, and broader visions for sustainability failed. This is the reason why the BRPC's separator belts were never fully realized.

Today, the state of Maryland has created the umbrella of Smart Growth as a means to develop a regional standard. This "new" idea, however, relies on time-tested preservation techniques that are grouped into one tool for towns and counties to use at their own discretion. Through zoning though, political entities may create their own definitions of what is rural or open in nature, and what is not, thereby creating extreme discrepancies over the definition of open space. These discrepancies then bring into question how much open space has been effectively preserved.

Open space, as defined by planners, is ambiguous. It represents all measures of access and use, linking together spaces unified only by this undeveloped nature. The region around Baltimore is no exception. Planners measure undeveloped land, calling it preserved open space or in some cases even rural or agricultural space. The question that they have not yet asked is: what is the purpose of preserving open space? If it is to protect the environment of the area, then measures of habitat and ecology need to be considered and absorbed into zoning or other development regulations. If their purpose is to protect the region's rural legacy, as Smart Growth presumes to suggest, then investment in the rural community needs to be made at a more fundamental level. If, however, their purpose is to protect open space for its aesthetic quality, then perhaps the ratio of developed to undeveloped land works. Surely, looking out across fields only spotted with rural homes offers an expansive feeling to the viewer. But is it right that this visual connection be the foundation upon which open space preservation occurs? Could

so-called progress in open space preservation in the Baltimore region be shrouding environmental and economic conditions?

Figures 19 – 22. (Clockwise) Migration from the city has left much of the housing in shambles; The Inner Harbor draws many tourists to Baltimore; Empty row houses along a street in the city; Park space within Baltimore is quite abundant thanks to Olmsted Brothers. (Source: Erin McCarty)

CHAPTER FIVE

5.1 Conclusion

Open space preservation in Edinburgh and Baltimore has evolved in several characteristic ways, described by the following:

- History
- Structure of government
- Adherence to a regional plan
- Approach to open space planning

Each of these processes acted in a way that created two very different landscapes, and consequently, two very different methods of preserving open space. Understanding the roles of these processes helps to explain how each city meets the needs of open space preservation today, and forecasts the direction it will take in the future.

First, the history of each city created initial settlement patterns that would later influence urban condensation. Edinburgh had walls to keep its citizens safe, causing the city to grow *up* before it grew *out*. This sharp boundary between urban and rural created the foundation for its green belt. Baltimore had no such boundary, and the city grew as a result of its close-knit relationship with the outlying countryside.

Second, government structure played an important role for each city. Edinburgh fell under control of Great Britain's central government. When green belts were placed around London, devastated by WWII, the policy gradually diffused until most large cities in Great Britain had incorporated green belts into their regional plans. Today, Edinburgh's green belt continues to function despite requiring the cooperation of several different jurisdictions, creating a near-solid area of open space around the urban core. In

Baltimore, the government structure fosters local planning, as opposed to regional. Though a regional plan was created, there was no authority in place to implement it.

Third, each city's adherence to – or dismissal of - a regional plan helped shape open space. In Edinburgh, continual investment was made towards the creation of the green belt as it was originally proposed. There is even more land within the green belt area today than when it was originally created. In Baltimore, several plans were proposed for open space preservation. These plans offered myriad reasons for open space preservation, including recreational, environmental, and eventually, containment. However, none of these plans was adopted to the same extent as Edinburgh's green belt. If one plan has come close, it is the Olmsted Brothers' 1904 plan, which organizations and communities continue to promote.

Today, both cities are dealing with open space issues. Edinburgh is feeling pressure from increased competition within the European Union, and looks to open up land within its green belt to attract new development. Baltimore also seeks to attract new industry. Though sprawl has already had a dramatic effect on the city and the surrounding region, many counties attempt to contain further sprawl using Smart Growth tools. Baltimore County in particular has changed its preservation philosophy to focus on forest sustainability and watershed management instead of agriculture or mere open space. There is extreme variability within the region, as each county uses different definitions for rural zoning. However, the overall approach to open space planning, which can be considered the final determining factor, seems to be multi-faceted and includes environmental, recreational, and agricultural aspects. Such approaches could

prove to be more suitable for both cities in the future as development pressures undermine more traditional approaches.

Considering all of these differences, it is difficult to rank the success of open space planning of one city over the other. In Edinburgh, open space preservation is visually apparent; it is easy to look out across the city's landscape and see the effects of the open space plan. There is little doubt that the green belt has helped to contain urban development. This has not only led to the preservation of open space within the green belt, but also to a compact city, where residents and tourists can easily maneuver between different parts of the city. The green belt's aesthetic value is also successful as it serves to visually balance country and city, in the same way that Patrick Geddes or Ebenezer Howard envisioned. Though not visible from within the heart of Edinburgh, the green belt is deeply ingrained in the minds of residents, and therefore highly protected. Environmentally though, the green belt does not always offer sustainability. It follows neither watersheds nor natural habitats, so its function as an environmental protector could be questioned.

In Baltimore, the visual effects of open space preservation are not as readily seen. The city has sprawled into the countryside, and there is a strong contrast between the abandoned row houses in the inner city and the half-a-million dollar homes at its periphery. The region's green space has hardly contained suburban and exurban growth. While there is no overall feeling of open space around the city, the pockets of green space serve the specific communities they are near. This perhaps leads to a less expansive feeling of open space, but one which serves a higher number of people.

Baltimore's green space often preserves environmental qualities. Olmsted's park plan followed the stream valleys, providing protection to the watershed and corridors through which animals could move. In addition, the Patapsco State Park protects a large wooded area along the river, preserving the natural (as opposed to agricultural) state of the land. Though the forest may be young in terms of tree growth, its protection will lead to long-term environmental quality. Smart Growth and conservation easements, while unintentionally protecting valuable habitat, do not make environmental protection their first priority. This casts a shadow over the ability of the newer programs to conserve ecosystems.

Measuring open space is a significant problem as well. With Edinburgh's solid expanse of green belt, the city can easily assess the amount and use of the open space. Such a contiguous swath of land may not be suitable though for protecting environmental amenities and does not currently seem to function as a primary recreation destination. By contrast, Baltimore relies on a mixture of planning initiatives, including easements, zoning, natural resource buffers, and other tools. Such variety is good in that it creates multiple foundations for preserving open space; however, it also can give an inaccurate picture of actual preserved area, such as when viewing a land use map showing agricultural and forested zones. Disparity in defining open space in each county is partly to blame.

Open space is ambiguous in nature. A concrete definition of the term, if defined by planners at all, is often all encompassing and precludes any functional use of the land. Considering this problem, open space could be evaluated based on three agendas: 1) the

ability to contain the city infrastructure, 2) the ability to protect the environment, and 3) the ability to provide aesthetic value to communities.

Many policy makers continue to work against sprawl, but the speed with which health problems, energy consumption and environmental degradation devastate the human and cultural landscape is surmounting. Planners need greater knowledge of the tools available to combat irresponsible development. State, county, and city governments in the United States will benefit from understanding how Edinburgh is able to accomplish this task. Moreover, once comparisons are made between Baltimore and Edinburgh urban areas, the Scottish city may reevaluate the importance of their green belt and more carefully consider future changes.

5.2 Future Research

This research bridges a gap in international open space planning literature. Few studies thus far have attempted such research because of the challenges involved in comparing different political structures. However, if these differences are elucidated, then comparisons can be made. This research has specifically drawn on differences between government structures, though economy and society of each place is certainly a pertinent factor in the evolution of open space.

It was the intention of this study to act as a foundation for future research in Edinburgh, Baltimore, and other cities where open space preservation is practiced. This research also highlighted the ambiguous nature of open space with its many different definitions and rationales. Further research could investigate these differences in light of

the planning authorities' intentions to ascertain whether or not the plans are meeting the said goals.

It would be ideal to see the evolution of other open space preservation techniques studied in urban areas throughout the world. This research has demonstrated that much of the open space landscape is determined by the level of planning authority as well as their intentions. Understanding the preservation of open space as an evolutionary process will lead to better planning decisions in the future.

Works Cited

Abbot, Carl. 2002. Chapter 8. "Planning a Sustainable City: The Promise of Portland's Urban Growth Boundary" in *Urban Sprawl: Causes, Consequences & Policy Responses*. The Urban Institute Press: Washington, D.C. 207-235.

Amati, M., and M. Yokohari. 2006. Temporal changes and local variations in the functions of London's green belt. *Landscape and Urban Planning* 75:125-142.

American Farmland Trust. 1997. "Farming on the edge." Accessed May 15, 2004. http://www.farmland.org/resources/fote/default.asp

Anthony, Jerry. 2004. "Do state growth management regulations reduce sprawl?" *Urban Affairs Review*. 39 (3): 376-397.

Arnold, Joseph L. 1971. *The new deal in the suburbs: a history of the greenbelt town program, 1935-1954*. Ohio University State Press: Columbus.

Baltimore County Maryland. 2007. Facts About Land Preservation. Accessed online. http://www.co.ba.md.us/Agencies/environment/ep_landfact.html

Baltimore Metropolitan Council 2006. Home. Accessed online April 5, 2007. http://www.baltometro.org/

Baltimore Regional Planning Council. 1960. Technical Report No. 5: Open Spaces. Maryland State Planning Department: Baltimore.

Baltimore Transit Archives. 2007. A Concise History of Baltimore's Transit. Accessed online. http://www.btco.net/bthist.htm

Bengston, D. N., J. O. Fletcher, and K. C. Nelson. 2004. Public policies for managing urban growth and protecting open space: policy instruments and lessons learned in the United States. Landscape and Urban Planning 69:271-286.

Boone, Christopher and Ali Modarres. 2006. *City and environment*. Temple University Press: Philadelphia.

Bramley, Glen et. al. 2004. "Review of Green Belt Policy in Scotland" *Scottish Executive Research*. Accessed online May 15, 2006. http://www.scotland.gov.uk/Publications/2004/08/19785/41543

Brown, K. M. 2001. Reformation to Union, 1560 - 1707. In *The New Penguin history of Scotland from the earliest times to the present day*, eds. R. A. Houston and W. W. J. Knox. London: Penguin Group.

Bruegmann, Robert. 2005. *Sprawl: a compact history.* University of Chicago Press: Chigago.

Buckley, G. L., R. F. Bailey, and J. M. Grove. 2006. The Patapsco Forest Reserve: Establishing a "City Park" for Baltimore, 1907 – 1941. *Historical Geography* 34:87-108.

Burchell, Robert W. et al. 1998. Transportation Research Board of the National Research council. *Report 39: The costs of sprawl – revisited.* National Academy Press: Washington, D.C.

Buxton, Michael and Robin Goodman. 2003. "Protecting Melbourne's Green Belt" *Urban Policy and Research.* 21 (2): 205 – 209.

Byrom, J. 2001. A greater greener Edinburgh. Edinburgh: Cockburn Association.

Campbell, D. Chair and Planning Convenor of the Colinton Amenity Association July 12, 2006. Interview. Edinburgh.

Chan, W. F. 2005. Planning at the limit: immigration and post-war Birmingham. Journal of Historical Geography 31:513 - 527.

Chesapeake Bay Foundation. 2002. "Growth, sprawl and the Chesapeake Bay: Facts about growth and land use" *CBF Fact Sheet*. Accessed online May 29, 2006. http://www.cbf.org/site/PageServer?pagename=resources_facts_sprawl

City of Edinburgh Council. 2006. A Vision for Capital Growth, ed. C. Development: City of Edinburgh Council.

Cockburn Association Archives. 1956. Leaflet: The control of outdoor advertising. *Advisory Council for the Control of Outdoor Advertising*. Edinburgh.

Correll, M. R., J. H. Lillydahl, and L. D. Singell. 1978. The effects of Greenbelts on residential property values: some findings on the political economy of open space. Land Economics 54 (2):207-217.

Cunning, C. Edinburgh Green Belt Trust. July 7, 2006. Interview. Edinburgh.

Curtis, Carey. 1996. "Can strategic planning contribute to a reduction in car-based travel?" *Transport Policy.* 3 (1/2): 55-65.

Day, Kristen. 2003. New Urbanism and the challenges of designing for diversity. *Journal of Planning education and Research.* 23: 83-95.

Dehaene, M. 2005. A conservative framework for regional development: Patrick

Abercrombie's interwar experiments in regional planning. Journal of Planning Education and Research 25:131 - 148.

Deng, F. Frederic and Youqin Huang. 2003. "Uneven land reform and urban sprawl in China: the case of Beijing." *Progress in Planning* 61: 211-236.

Department of Health for Scotland. February 3, 1956. Letter to Hawley, McGuinness, Kelly: Scottish National archives.

———. February 22, 1957. Meeting minutes: Scottish National Archives.

———. November 16, 1956. Metting minutes: Scottish National Archives.

Edinburgh Evening News. March 7, 1962. Accessed in Edinburgh Room, Central Library, Archives.

Edinburgh Evening News, March 22, 1962. Accessed in Edinburgh Room, Central Library, Archives.

Edinburgh News and Dispatch. Apirl 20, 1967. Accessed in Edinburgh Room, Central Library, Archives.

Edinburgh Green Belt Trust. Accessed May 15, 2006. http://www.egbt.org.uk/what_is_greenbelt.html

Edinburgh Green Belt Trust. 2006. 2005-2006 Project Programme Report: The Edinburgh Green Belt Trust.

Ellis, Cliff. 2002. The New Urbanism: Critiques and rebuttals. *Journal of Urban Design*. 7(3): 261-291.

Elson, Martin et al. 1993. *The effectiveness of Green Belts*. HMSO: London

Erickson, D. L. 2004. The relationship of historic city form and contemporary greenway implementation: a comparison of Milwaukee, Wisconsin (USA) and Ottawa, Ontario (Canada). Landscape and Urban Planning 68:2004.

Environmental Protection Agency. 2006. *National Award for Smart Growth Achievement*. Accessed online April 13, 2007. http://www.epa.gov/smartgrowth/awards/sg_awards_publication_2006.htm

Esparza, A. X., and J. I. Carruthers. 2000. Land use planning and exurbanization in the rural mountain west: evidence from Arizona. Journal of Planning Education and Research 20:23 - 36.

Ewing, Reid. 1997. "Is Los Angeles-Style Sprawl Desirable?" *Journal of the American*

Planning Association Vol 63: 1. 107- 125.

Fabos, J. G. 2004. Greenway planning in the Untied States: its origins and recent case studies. Landscape and Urban Planning 68:321-342.

Frece, John W. 2005. Symposium 2005: Twenty Lessons From Maryland's Smart Growth Initiative. *Vermont Journal of Environmental Law* 6 (2004-2005).

Freestone, R. 2002. *Greenbelts in city and regional planning*. Edited by K. C. Parsons and D. Schuyler, *From Garden City to Green City: The legacy of Ebenezer Howard*. Baltimore: The John Hopkins University Press.

Frumkin, Howard. 2002. "Urban Sprawl and Public Health" *Public Health Reports* vol. 117: 3. 201-217.

Galster, George, et al. 2001. *Wrestling Sprawl to the Ground: Defining and measuring an elusive concept.* Housing Policy Debate 12(4): Fannie Mae Foundation.

Garde, Ajay M. 2004. New Urbanism as sustainable growth? A supply side story and its implications for public policy. *Journal of Planning Education and Research*. 24: 154-170.

Girling, C. L., and K. I. Helphand. 1997. Retrofitting suburbia. Open space in Bellevue, Washington, USA. Landscape and Urban Planning 36:301-313.

Gobster, P., S. I. Stewart, and D. N. Bengston. 2004. Introduction: The social aspects of landscape change: protecting open space under the pressure of development. Landscape and Urban Planning 69:149-151.

Gordon, Adam et al. 2001. "Planning for sprawl? A look at projected residential growth in the Baltimore region" *Baltimore Regional Partnership*. Baltimore, Maryland.

Gordon, Peter and Harry W. Richardson. 1997. "Are Compact Cities a Desirable Planning Goal?" *Journal of the American Planning Association.* Vol 63: 1. 95 - 107.

Gray, L. C. 1958. *History of Agriculture in the Southern United States to 1860*. 2 vols. Vol. 1. Gloucester: Peter Smith.

Gwynns Falls Trail Council. 2007. Olmsted Parks Plan. Accessed online. http://www.gwynnsfallstrail.org/images/pics/Panels/Exhibit__3.jpg

Hague, C. 1984. *the development of planning thought: A critical perspective*. London: Hutchinson & Co.

Harrell, E. March 4, 2006. City sparks row with plans for green belt. *The Scotsman*.

Haueber, Richard. 1999. "Sprawl tales: Maryland's Smart Growth Initiative and the evolution of growth management" *Urban Ecosystems* 3: 131-147.

Herington, John. 1990. *Beyond green belts: managing urban growth in the 21st century*. Kingsley and the Regional Studies Association: London.

Holcombe, Randall G. 2004. The New Urbanism versus the market process. *The Review of Austrian Economics*. 17(2/3): 285-300.

House of Commons. 1955. Circular No. 42/55, ed. M. o. H. a. L. Government.

———. April 26, 1955. Notes on Green Belt Policy: Scottish National Archives.

Houston, R.A. and W.W.J. Knox. 2002. The New Penguin History of Scotland: From the Earliest Times to the Present Day. Penguin: USA.

Howell-Moroney, Michael. 2004. Community characteristics, open space preservation and regionalism: is there a connection? *Journal of Urban Affairs*. 26(1): 109-118.

Hurley, Patrick T. and Peter A. Walker. 2003. "Whose vision? Conspiracy theory and land-use planning in Nevada County, California" *Environmental and Planning* Vol. 36: 1529-1547.

Jacbos, Jane. 1961. *The death and life of great American cities*. Random House: New York.

Knaap, Gerrit-Jan. 2004. *A Requiem for Smart Growth?* Paper presented at Planning Reform in the New Century. St. Louis: Washington University Law School.

Koontz, Tomas M. 2005. "We finished the plan, so now what? Impacts of collaborative stakeholder participation on land use policy" *The Policy Studies Journal* Vol. 33 (3): 459-481.

Korth, Cassandra. 2005. Olmsted's Influence on Gwynn Falls/Leakin Park. Masters thesis. Ohio University.

Lai, Lawrence W.C. and Winky K.O. Ho. "Low-rise residential developments in Green Belts: A Hong Kong empirical study of planning applications." *Planning Practice & Research* 16 (3/4): 321-335.

Land, A. C. 1981. *Colonial Maryland, A History*. New York: KTO Press.

Lopez, Russ and H. Patricia Hynes. 2003. "Sprawl in the 1990s: Measurement, distribution, and trends." *Urban Affairs Review* Vol. 38 (3): 325-355.

Martin, Deborah G. 2004. "Nonprofit foundations and grassroots organizing: reshaping urban governance" *The Professional Geographer* Vol 56 (3): 394-405.

Maryland Department of Planning. 2007. *About Us*. Accessed online. http://www.mdp.state.md.us/mdpbio.htm

Maryland Department of Planning². 2007. *Smart Growth Background.* Accessed online. http://www.mdp.state.md.us/mdpbio.htm

Maryland Environmental Trust's Land Conservation Center. 2007. *Measuring Progress*. Accessed online. http://www.conservemd.org/progress/index.html.

Maryland Historical Society. 2007. Plan of the City of Baltimore, 1823. Accessed online. http://www.mdhs.org/library/MappingMD/19poppleton.html

Maryland State Data Center. 2004. PFAs and Residential Single-Family Development in Maryland, 1990 – 2004. Maryland Department of Planning: Baltimore.

McKay, Rich. March 27, 2006. "What urban sprawl costs you" *Orlando Sentinel* Accessed online May 29, 2006. http://www.orlandosentinel.com/news/custom/growth/orl-sprawlintro2706mar27,0,943130.story?coll=orl-home-promo

Mears, Frank Charles, Sir. 1948 *A regional survey and plan for Central and Southeast Scotland* Prepared for the Central and South-East Scotland Regional Planning Advisory Committee. Morrison and Gibb Ltd: Edinburgh and London.

Miller, M. 2002. Garden cities and subrubs: at home and abroad. Journal of Planning History 1 (1):6 - 28.

Ministry of Housing and Local Government. June 2, 1960. Leaflet: "New Houses in the Country": Scottish National Archives.

———. September 29, 1955. 94th Planning Meeting of Principal Regional Officers Meeting Minutes: Scottish National Archives.

Mitchell, Donald. 2000. *Cultural Geography: A critical introduction*. Blackwell Publishers Inc: Massachusetts.

Morris, Douglas E. 2005. *It's a Sprawl World After All*. New Society Publishers: British Columbia, Canada.

National Archives of Scotland. 1956-1961. *Green belts: General, including proposals and plans; meetings with local authority representatives and schedules nad notices on planning restrictions.* Files DD!2/2244 and DD12/1699. Edinburgh.

Office for National Statistics. 2001. *Scotland's Census Results Online*. Accessed online April 10, 2007. http://www.scrol.gov.uk/scrol/analyser/analyser

Office of the Secretary of State for Scotland. August 2, 1956. Letter to Edinburgh Corporation. Edinburgh: Scottish National Archives.

Olson, Sherry H. 1980. Baltimore. The building of an American city. The John Hopkins University Press: Baltimore.

Outen, Donald. Natural Resource Manager. Baltimore County Department of Environmental Protection and Resource Management. April 4, 2007. Interview.

Paker, Eugene Philip. 2006. When Forests Trumped Parks: The Maryland Experience 1906 – 1950. Maryland Historical Magazine. Accessed online http://www.magicalliance.org/articles.html.

Peiser, Richard B. 1989. "Density and Urban Sprawl" *Land Economics* 65 (3). 193-204.

Portland City Online. Accessed May 15, 2006. http://www.portlandonline.com/index.cfm?c=39960

Prince Charles. 2006. A speech by HRH The Prince Charles, Duke of Rothesay, Organisation of World Heritage Cities Conference, Edinburgh. *The Prince of Wales: Speeches and Articles.* Accessed online April 13, 2007. http://www.princeofwales.gov.uk/speechesandarticles/a_speech_by_hrh_the_prince_charles_duke_of_rothesay_organisa_83.html

Rodger, R. 2001. *The transformation of Edinburgh: Land, Property and Trust in the Nineteenth Century*. New York: Cambridge University Press.

Royal Town Planning Institute. 2006. "RTPI renews calls for a change to Green Belt Policy" *Press Notice*. Thursday 13 April 2006.

Schmidt, Charles W. 2004. "Sprawl: The new manifest destiny?" *Environmental Health Perspectives*. 112 (11): 621-627.

Scottish Executive. 2006. Scottish Planning Policy 21: Green Belts, ed. D. Department.

Scottish Green Belts Alliance. 2006. Organisations: Accessed December 14, 2006. http://www.greenbelts.ukos.com/gborgs.html.

Sierra Club. 1998. "30 Most sprawl-threatened large cities" *1998 Sierra Club Sprawl Report*. Accessed online May 29, 2006. http://www.sierraclub.org /sprawl/report98/cities.asp

Sheehan, Molly O'Meara. 2001. "City limits: Putting the brakes on sprawl." *Worldwatch Institute* Paper 156: 1-85.

Stephenson, Bruce. 2002. The roots of the New Urbanism: John Nolen's Garden City ethic. *Journal of Planning History* 1(2): 99-123.

Stevenson, Robert Louis. 1879. *Edinburgh: Picturesque Notes*. Accessed online April 2, 2007. http://www.gardenvisit.com/travel/edinburgh/10-pentland-hills-edinburgh.htm

Tang, Bo-sin, Siu-wai Wong and Anton K.W. Lee. 2005. Green Belt, Countryside conservation and local politics: a Hong Kong case study. *Review of Urban and regional Development Studies* 17(3): 230-247.

Task force to study the Maryland Agricultural Land Preservation Foundation. 2003. Interim Report. Maryland General Assembly: Annapolis.

Tasker, M. Cockburn Association Director. July 6, 2006. Interview. Edinburgh.

Taylor, J., C. Paine, and J. FitzGibbon. 1995. From greenbelt to greenways: four Canadian case studies. Landscape and Urban Planning 33:47 - 64.

Tewdwr-Jones, M. 1997. Green belts or green wedges for Wales? A flexible approach to planning in the urban periphery. *CHECK* CHECK:73-77.

Thomas, D. 1970. *London's Green Belt*. London: Faber and Faber.

Towne, M. A. 1998. Open space conservation in urban environments: lessons from Thousand Oaks, California. Urban Ecosystems 2:85 - 101.

Turner, T. 2004. Greenway planning in Britain: recent work and future plans. Landscape and Urban Planning 76:250 - 251.

United States Bureau of the Census. 2000. *Detailed tables for Summary File 3*. Accessed online April 5, 2007. http://www.census.gov/Press-Release/www/2002/sumfile3.html

Wassmer, R. W. 2006. The influence of local urban containment policies and statewide growth management on the size of United States urban areas. Journal of Regional Science 46 (1):25 – 65

Welter, Voker M. 2002. *Biopolis*. The MIT Press. Cambridge, Massachusetts.

Wolman, Harold, et al. 2005. *The Fundamental Challenge in Measuring Sprawl: Which land should be considered?* The Professional Geographer, 57(1): 94-105.

.

Wood, R. C. 1958. Metropolitan government, 1975: an exrapolation of trends the new metropolis: green belts, grass roots or gargantua? The American Political Science Review 52 (1):108 - 122.