Exploring the Usage of School Green Spaces After-hours

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Abstract

Population growth and the quest for more compact cities are putting pressure on public green spaces, yet these green spaces have been shown to be associated with human health and wellbeing. In this thesis I explore the significance of school green spaces (SGSs) in the periods outside of school hours in Auckland. The thesis investigates the multiple factors motivating and hindering the use of SGSs and in doing so, demonstrates that schools should be recognised as multipurpose spaces that can lessen pressures on other public green spaces in cities.

The research is based upon field observations and semi-structured interviews conducted during January and February of 2015 on the sites of three Auckland primary schools. The participants in this research preferred SGSs as opposed to local parks and other public green spaces because they are considered more child-friendly. The findings suggest that while use is temporally constrained by school routines, out of hours they can be considered 'third places' that potentially benefit the community at large. The thesis conclusions suggest the importance of improving the accessibility and design of SGSs through initiatives at the local and national level, and greater dialogue between school Boards of Trustees and local government. SGSs, I contend, must be valued and sustained given the greater pressure on public green spaces for city residents in the future.

Keywords: Green spaces, Schools, Third place, Wellbeing, Policies, Sustainable, Auckland

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CHAPTER ONE

INTRODUCTION

1.1 Overview

Sustaining resources for the foreseeable future has long been recognised as an issue in the quest for liveable cities on a local, national and global scale. Rapid population growth and sprawl are increasingly putting pressure on resources such as green open spaces (RPH, 2010). While there are no remedies to reverse the urbanisation process, there are initiatives proposed to slow down resulting pressures in urban areas, such as schemes to promote active travel and attention to equitable access to services and facilities. One of the key concerns in cities is the 'supply and demand' dynamics around public green spaces (Wackernagel et al., 2006).

A popular solution for creating more sustainable cities is advocating the notion of compact cities. Compact cities are purported to promote energy efficient urban areas through situating shops, services and facilities within walking distance to residents, a process which also encourages active transportation (Neuman, 2005). Population growth in Auckland, as well a partial adoption of compact city philosophy by Auckland Council, is putting pressure on school facilities, resulting in classrooms increasingly 'invading' green playing fields (The New Zealand Herald, 2013). This thesis focuses on the public use of school green spaces (SGSs) after-hours in three primary schools in Auckland. It asks 'how are these spaces used, by whom and what for', thus contributing to literature on both children's geographies and the social geographies of schools and neighbourhoods. The thesis argues that schools provide similar opportunities for leisure and physical activity as do parks, recreation centres, walkways and other public open spaces. The research evaluates the perspectives of SGSs users regarding motivating factors and how SGSs are used after-hours in light of neighbourhood safety, accessibility, preference of facilities, and social and physical wellbeing.

The common notion of primary schools is that they exist for educational purposes. This thesis, however investigates the potential of viewing SGSs as 'third places'. The 'third place' is a concept derived from sociologist Ray Oldenburg (1989), and can be defined as spaces providing and encouraging social interactions within the community beyond the 'first place' (e.g. home) and 'second place' (e.g. work or school) (Oldenburg, 1999; Steinkuehler & Williams, 2006; Jeffres et

al., 2009; Carroll et al., 2015). I argue that SGSs can be both 'second' and 'third' places for children. They are spaces where children participate in formal interactions during school hours (second places), whereas, after-hours, SGSs are spaces where leisure and recreational activity can take place without the routines of the school day (third places).

1.2 Thesis Rationale and Research Question

Recurrent themes in the literature on urban green spaces are the levels of physical activity they encourage, health and wellbeing, perceptions of safety, efficient transportation, and aesthetic qualities (Badland & Schofield, 2005; Giles-Corti et al., 2005; Tyrvainen et al., 2005; Neuvonen et al., 2007). The present research will aim to draw on similar themes (health and wellbeing benefits, neighbourhood safety, regular utilisation, accessibility to SGSs and preference of facilities) to form a conceptual framework to investigate the usage of SGSs after-hours. The thesis examines the relevance of SGSs within the community, especially in light of increasing population growth of Auckland (The Auckland Plan, 2015c). According to Witten et al. (2007), schools and their green spaces are central to the community as a site for social interactions for children and families. However, the policies in regards to the access to schools are complicated, as not all public schools are open and accessible for public use despite the fact that the state owns public schools (MoE, 2014b). The Ministry of Education (MoE) determines the guidelines for all primary schools, such as student attendance, safety guidelines, education and school strategies, but each individual school Board of Trustees (BoT) creates their own guidelines for public access and use after-hours (MoE, 2014b).

This thesis fills a gap. Currently, there has been no research on SGSs after-hours. However, there have been many studies recognising the importance of relationships between public green spaces (e.g. parks) and physical activity, neighbourhoods, health and wellbeing, and sustainability (Powell, 2005; Maas et al., 2006; Bjork et al., 2008). As sustainability is a key concern at the local, national and global scale, finding solutions to remedy the current issues caused by climate change, global warming, and rapid urbanisation need to be addressed. This research offers ideas for alternative options for green spaces, public spaces and 'third places' by revealing how SGSs benefit the residents in the community. The findings provide new information for the relevance of SGSs to the community. Chen (2013) explained that urban planning involves adapting the built and natural environment to suit human needs. Societal demands define the supply of green spaces and influence the various planning approaches (Chen, 2013). I argue that SGSs can substitute for other green spaces and therapeutic landscapes in an intensifying city as they

provide similar benefits and opportunities. Therefore, if more SGSs were open for public use after-hours, the pressures on other urban green spaces would be lessened, as there would be more green spaces available.

The research focuses on three case study state primary schools located on the Auckland isthmus: Maungawhau, New Windsor and Oranga. The schools were chosen because they are all situated centrally, in a context in which public and private green spaces are under increasing pressure. The schools are characterised by different decile levels (low, middle, high). The study asks '*What is the importance of school green spaces for the future in regards to after-hour access?'* This question is relevant for a range of western cities undergoing population growth where the negative impacts can be expected to not only affect the landscape of areas, but importantly also the wellbeing of the populations.

1.3 Research Objectives and Thesis Structure

In order to recognise the importance of school green spaces in the community, the following objectives were established:

1. To survey the accessibility of school green spaces after-hours, and related policies
2. To assess the degree to which the design of school green spaces encourages physical and social activity
3. To evaluate the nature of activities taking place in school green spaces after-hours
4. To examine and analyse the importance of public green spaces for their contribution to the development of social and physical wellbeing

These objectives will be addressed initially, in Chapter Two, through assessing existing research focused on green spaces within the three sub-disciplines of urban geography, urban ecology and health geography. This chapter explores the multiple relationships between urban green spaces and physical activity, obesity, traffic, pollution, socioeconomic neighbourhoods, environmental justice and parks.

Chapter Three provides background information regarding the three case study schools and the suburbs in which they are located. The importance of socioeconomic deprivation is acknowledged as an important trait as it influences the walkability, transport modes and use of school green spaces. Governance at the national and local scale is reviewed, as the Ministry of Education and the school Board of Trustees were both important stakeholders controlling schools. The neighbourhood characteristics, landmarks and characteristics of the schools are

explained to provide a vivid image of the research setting, which aims to support the research findings.

The methodology used in this research of school green spaces is examined in Chapter Four. The research design was a mixed method approach consisting of field observations and semi-structured interviews. Participant recruitment and ethical considerations are also discussed in this chapter.

The research findings are analysed in Chapter Five. The qualitative and quantitative results from the primary data were used to present significant patterns and relationships relevant to the foregoing question and objectives of this study. The importance of studying the perceptions of the users of school green spaces through a novel research approach provides spatial planners, health and policy makers an insight into users' preferences regarding these green spaces.

Chapter Six expands on the notion of 'third places' and how SGSs are more significant than have been previously acknowledged because they can be multipurpose spaces. The factors hindering and motivating the utilisation of SGSs after-hours were also explored. This chapter discusses the most important factors in the utilisation of SGSs in the context of contemporary Auckland.

The final chapter summarises the key findings and main arguments established throughout this research. The conclusions of this thesis are made by addressing the research objectives. This chapter also includes limitations and future research recommendations based on this study.

CHAPTER TWO

THE ROLE OF URBAN GREEN SPACES

2.1 Introduction

Public green spaces in cities are under pressure due to an increasing rate of urbanisation and the ineffective spatial planning policies that threaten their use. Green spaces, and their implications for human wellbeing, have long been examined through a variety of disciplines including, but not limited to, environmental health, ecology, spatial planning, psychology and policy studies (Pretty et al., 2007). A better understanding of people's relationships with green spaces can lead to the development of improved frameworks and informed planning that would benefit the public in the future (Lachowyz & Jones, 2013).

The many benefits of urban green spaces have been well documented, with many researchers acknowledging their physical and psychological health benefits (Pretty et al., 2007; Abraham et al., 2010). However most of these studies have merely focused on parks as urban green spaces. While somewhat limited, the focus on parks is logical, for it grounds the foundation for other research. For example, the distribution of parks in relation to the socioeconomic status of neighbourhoods (Byrne & Wolch, 2009) and the role of urban planning in public health and wellbeing (Kellert, 2004) are all pertinent issues to be considered. In the context of this research project, the three sub-disciplines of urban geography, urban ecology and health geography will be explored to examine relevant processes involved in the key question driving this thesis: what is the importance of school green spaces for Auckland's urban future in regards to after-hour access?

2.2 Urbanisation and the Fate of Urban Green Spaces in Cities

Urbanisation is a process that can be defined in many ways. Herein, urbanisation is viewed as a process brought about by changes in socioeconomic arrangements, and a process which reproduces each society's structural, economic, historical and cultural backgrounds (Junliang et al., 2010). A key aspect of this in Auckland city includes the increase of population density due to the migration of rural and overseas populations to urban areas ('The Process of Urbanization', 2015), and intensified built environments, which have impacted upon the extent

and quality of green spaces in cities. Urbanisation progressed alongside industrialisation and the expansion of the market economy during the nineteenth century (Junliang et al., 2010). Initially, urbanisation was slow, but this process sped up in the twentieth century as a result of secondary industries. Secondary industries are defined as activities involving different levels of processing raw materials (e.g. manufacturing) (Insee, n.d.). According to the United Nations Development Programme (UNDP) (2005), by 2000, approximately 76% of the population in developed countries lived in urban centres. It has been recognised in recent decades that the rapid rate of urbanisation is an issue. The United Nations estimates that between 2000 and 2050, the population residing in urban areas is predicted to increase from 46.6% to 69.6% (United Nations, 2007).

Urban expansion has been recognised as a natural occurrence in the course of urbanisation but, if uncontrolled by planning regulations, can be regarded as out of control and the cause of negative outcomes (Junliang et al., 2010). In this sense, while urban expansion may be unavoidable, precautions need to be considered in terms of planning for infrastructure, land-use, and access to services and facilities if we are to mitigate the negative aspects of urbanisation (NYU, 2015).

Some Impacts of Urbanisation

Although urbanisation has created opportunities for residents, adverse effects and risks such as prolonged non-transmissible illnesses due to urban regimes, along with air pollution and climate change associated issues, are all in part an outcome of increased density in human population (Kumaresan & Sathiakumar, 2010). The majority of the effects of urbanisation are negative. According to The Department of Internal Affairs (2015), there may be higher rates of crime, costs of living, pressure on infrastructure and pollution because of increased urbanism. From an environmental perspective, the rapid expansion of urban areas has resulted in diminishing of cultivable lands, the pollution of natural environments and waterways, and damage to ecosystems (Liu, 2004). Urban areas have harmful emissions from vehicles and factories, which have been proven to cause respiratory problems, pneumonia and tuberculosis (*Urbanization,* n.d). From a sociocultural perspective, societies with different economic and social statuses are separated, traditional values are diminished, and people's tempers can be harmed by traffic jams (Bruekner & Largey, 2008). As the city increases, so will the cost of living, which leads to many urban dwellers finding the cost of living unaffordable, especially in the face of unemployment, homelessness, crime and drugs (Sanidad-Leones, 2006).

Godfrey and Julien (2005) conclude that the process of urbanisation has the ability to lead to social inequality among ethnic groups in terms of how communities are created through

urban planning, and what services are made accessible to residents in terms of walking distance for leisure and health. Some of the environmental impacts caused by the concentration of the population increase can potentially be alleviated by the natural environment within green spaces (Taylor & Hochuli, 2014). For example, green spaces can lessen heat storage, thus resulting in the reduction of deleterious heatwave outcomes (O'Neill et al., 2009; Onishi et al., 2010). Vegetation can also act to trap smoke and dust particles (Mwendwa & Giliba, 2012).

2.2.1 Green spaces

There are many definitions of green spaces, but they can generally be described as private and public open spaces for the purpose of influencing passive and active recreation (Haq, 2011). Tzoulas et al. (2007) described green spaces as containing man-made structures and natural features. These include nature reserves, forests, and built structures, for example those seen in urban parks and school grounds. Morris (2003) claimed that urban green spaces contribute to the health and wellbeing of the urban context in a large manner. So what is the purpose of green spaces and who benefits from them? The use of green spaces is largely dependent on their purpose (Giles-Corti et al., 2005). Activities such as walking and running make large empty green spaces more appealing to many, whereas green spaces that offer fixed structures may be more suitable in supporting the developmental and creative skills of children. Consequently, it is important to determine what the community needs, and the nature of the relationship between green spaces, their design and their users.

Some recent studies have offered some standards with which to assess the purpose of green spaces. Some important features are identified include the experiences, activities and supposed benefits for users, and accessibility in terms of the distribution and location of urban areas (Van Herzele & Wiedeman, 2003; Grahn & Stigdotter, 2003; Neuvonen et al., 2007). Urban green spaces consequently contribute to social, environmental, economic, cultural and recreational aspects of developments in urban areas (Haq, 2011). For instance, the UK charity organisation called 'Living Streets' consists of volunteers and professionals working towards creating liveable streets around the UK. The organisation believes that the purpose of green spaces is to stimulate physical activity, health and wellbeing. Green space audit tools have been created by organisations such as 'Living Streets' and other institutions to measure the attraction, accessibility and quality of green spaces (Living Streets, 2012). Bedimo-Rung et al. (2005) explained that public open spaces should be considered as places that can improve the general health of the public, and should be studied in the neighbourhood context. The public open space audit tools noted characteristics – such as safety, facilities and amenities – that need to be

measured when considering public green spaces (Giles-Corti et al., 2005; Crawford et al., 2008). It is therefore important to examine what types of activities are happening in green spaces, and to identify the target demographic groups using green spaces, to know how and where to invest resources for urban planning projects (Tappe et al., 2013). For instance, urban green spaces benefit children and adults in different ways. Recent literature has emphasised the many benefits that green spaces have for children such as supporting their developmental skills, increasing their autonomy, and influencing their behaviour patterns later in life (Kellert & Derr, 1998; Thompson et al., 2007; Grow et al., 2008). Children's preferences regarding features in green spaces are ones which support their social and motoric play opportunities (e.g. climbing, jumping) (Kytta, 2002; 2004), whereas, adults desire gaining the benefits of opportunities for physical activity and reduced stress (Pretty et al., 2005). Past studies have associated adults and the utilisation of green spaces with physical activity. The positive effects of physical activity are recognised for lowering the risks of getting type II diabetes, colon cancer and coronary heart disease, as well as for fostering healthy muscles and enhancing mental health (Pretty et al., 2004; 2005). Overall, both children and adults find green spaces uplifting given their ability to reduce cognitive fatigue.

Mwendwa and Giliba (2012) believe that urban green spaces should include a wide variety of vegetation in terms of colours and textures. Although the aim is to keep green spaces as green as possible, other features such as rubbish bins, children's play areas, public toilets and lighting were also recognised as being necessary (Mwendwa & Giliba, 2012). Urban green spaces achieve numerous purposes that benefit people's wellbeing. Creating green spaces in cities therefore results in the motivation and promotion of a stronger relationship between the natural environment and its human inhabitants.

Are green spaces more valuable in urban areas?

Rapid urbanisation suggests that urban green spaces are becoming more valuable than they have been previously. It is well recognised that urban green spaces offer economic, environmental, social and aesthetic benefits (NUFU, 2005; Tyrvainen et al., 2005). Indeed, urban green spaces have been seen to contribute to the quality of life within cities (Burgess, 1998). Historically, the 'leisure class', which has been defined by Birge-Liberman (2010) as the social elite consisting of politicians and merchants, valued urban parks as they provided a space for social and recreational activity (Cranz, 1982; Schuyler, 1986). Young (1996) claimed that the 'leisure class' believed that urban green spaces during the nineteenth century were necessary as a means to sanitise the city. Industrial cities were believed to generate poor drainage, poor air quality and overcrowding which eventually led to occurrences of cholera and malaria (Bender,

1975; Boyer 1978). Therefore the presence of green spaces has always been perceived as bringing positive impacts to people and their environment. For example, in countries such as the Netherlands, residents have demanded so called 'green living' due to the positive effects of green spaces to the quality of urban living, and hence policies have been developed to cater to citizens' requests (Caspersen et al., 2006). Urban green spaces such as parks have been linked to the physical and social frameworks of urban planning (Birge-Liberman, 2010). Damage to green spaces also impinges on the biodiversity of urban areas and makes us contemplate the significance of the existing natural environment in the process of urban planning (Yli-Pelkonen & Niemelä, 2005). Furthermore, Jim (2002) claims that the competitive use of green spaces in compact areas, public gardens and parks are often managed and well protected. Compact cities also mean that there are more restrictions on the green spaces available in urban areas as sustainability comes in to play (Jim, 2004).

2.2.2 Urban Governance

Urban governance refers to the regulation, management and directing of matters between stakeholders and specific subdivisions (Hufty, 2009; Nuissl & Heinrichs, 2011). Urban governance of public spaces such as parks and paths has changed administration in the UK in the last 15 years (Carmona & De Magalhaes, 2006). There has been a shift in management from local government towards more community and public sector organisations (Carmona & De Magalhaes, 2006). The UK provides a good model of urban governance strategies as they have effective urban environmental management strategies (RCEP, 2007). In the UK, the notion of sustainable cities has guided the objectives in urban and environmental policy in order to help mitigate issues such as climate change (Bulkeley & Betsill, 2005). Urban governance is relevant because it involves several stakeholders contributing to creating public policies as well as considering the factors involved in influencing the overall outcomes of decisions made. The rest of this section will review the planning, design, facilities of urban green spaces as well as the safety, maintenance and sustainability considerations involved in the process.

Policies and planning involved in governing public open green spaces

It is important to consider outsiders' views as well as insiders' views in the process of making policy decisions that define the character of spaces (Buttimer, 1980). Buttimer (1980) claimed that using people's experiences within these public spaces would help better inform planners in their decision-making, and that these experiences should also be the aim of health planners. The purpose of policy is to efficiently engage with new practices and long-term societal changes, and to convey routes of societal development (Voß et al., 2013). The task of policy

making for urban green spaces is, however, not as simple as just focusing on equal access, but more about how access to green spaces differs across the community and how the factor of access could be improved to include groups who are currently excluded (Barbosa et al., 2007).

In the fields of education, sociology and psychology, children have been recognised as active agents of socialisation and development (Qvortrup, 2005). However, they are often considered a low political priority and hence are not involved in planning and decision-making processes (Tranter & Doyle, 1996). Some reasons for why children are not involved in decision-making are that they are believed to lack experience, concerns around the ethics and safety of dealing with children, and the perception that procedures are too complex (Ministry of Social Development, 2015). Improvements to public green spaces should not be achieved by local authorities alone, but rather with more interactions with the users to make clear what is valued in urban green spaces (Randrup & Persson, 2009), including input from children because they are the experts of their own lives (Clark & Statham, 2005).

Randrup and Persson (2009) completed a study on the management and policies of public green spaces in Nordic countries. Their research provided an overview of how public green spaces were organised based on three levels: policy, tactics and operations. The policy level is described as the formulation of approaches for private, semi-private and public urban green spaces (Randrup & Persson, 2009). The tactical level is described as urban green space strategies that are produced to manage and organise green spaces. This could be, for example, the inventory of trees within spaces. This level also involves incorporating concerns for recreation, health and culture (Randrup & Persson, 2009). The operational level is explained as having access to information concerning the maintenance of urban green spaces (Randrup & Persson, 2009). For well-organised management of urban green spaces, all three levels of activity should therefore be used.

In terms of scale, public green spaces have particular laws at the municipal level but these are not usually attended to in statute at a national level (Knuth et al., 2008). Due to there being no exact laws related to the managing of public green spaces, local administrations have varying ways of overseeing the management of public green spaces (Randrup & Persson, 2009). Randrup and Persson (2009) showed that their findings demanded a strategic public green space management scheme which functions on three levels. Level one had one structural step between the political decision makers and the park authorities. There was no intermediary structural step. Level two was described as a group controlled by park authority unit within another expert group, such as a leisure or technical consultant. Level three has two levels of decision makers

beyond the park division. These are groups often related to the preservation process, for example, subdivisions within a specialised division (Randrup & Persson, 2009). The introduction of new organisational methods - for example, decentralised management models - have also played a large role in the hierarchical positioning managing public green spaces (Randrup & Persson, 2009). This is relevant in terms of exploring the importance of school green space (SGS) use within a community. The control of public green spaces also becomes more complicated when other organisations are brought into the equation due to budget purposes (Randrup and Persson, 2009). For example, outsourcing has been an essential part of park authorities in Norway, Denmark and Sweden (Randrup and Persson, 2009). Based on the evidence provided by Randrup and Persson's (2009) study, it is clear that the management of public green spaces should be redefined in terms of thinking and planning based on long-term objectives and targets. This is carried on from the past research of Chandler (1962), who claimed that adaptation was necessary for carrying out park management targets (Randrup & Persson, 2009). Voß et al. (2009) note that long-term policy is connected with broad and dominant public planning. Long term policies guide technological and social innovations for changing ways of completing tasks (Voß et al., 2009). Consequently, in order to generate and implement worthy guidelines and polices for a city or neighbourhood, it is important to have all key stakeholders available during the process of implementing designs (Rigolon and Flohr, 2014).

Even though it is a given fact that urban green spaces have multiple functions, this is not incorporated well into the design, planning and management process (Yli-Pelkonen & Niemela, 2005; Sandstrom et al., 2006). It is therefore important to recognise the major issues needing research, and finding evidence to assist decision-makers, academics and practitioners (James et al., 2009). It is important to plan policies that address controlling the effects of urban expansion, land development and organising ecosystem services (Junling et al., 2010). Anas and Rhee (2006) explained that the purpose of planning policies is being responsible for adapting urban space structures such as transportation systems and land use. The worth given to various urban green spaces and conserving them is therefore reliant upon not only the priorities of planners, decision-makers and politicians, but also on the priorities and actions of the public (Yli-Pelkonen & Niemelä, 2005). This can be carried out using initiatives evaluating past successes have often been encouraged as they increase the awareness of ecosystem services and their significance. Examples of some past projects are the 'Million Trees for New York' and 'Million Trees Los Angeles' projects. Projects such as these rely on competing for grants from various corporate sponsorships, government agencies and non-profit organisations for tree planting and tree care resources (Million Trees NYC, 2015). The aim of these projects is to plant one million trees in

spaces where they are most needed (e.g. parks, streets) and is a citywide movement (MTLA, 2006; NYRP, 2015). This initiative has been so successful that the set date to achieve the plantation of a million trees around New York is set to be complete by the end of 2015 (NYRP, 2015). The million trees project is a therefore a good example of effective planning and policies of urban green spaces where environmental education, public policies and volunteerism have contributed to the success of such initiatives towards greener, sustainable cities.

Stakeholders

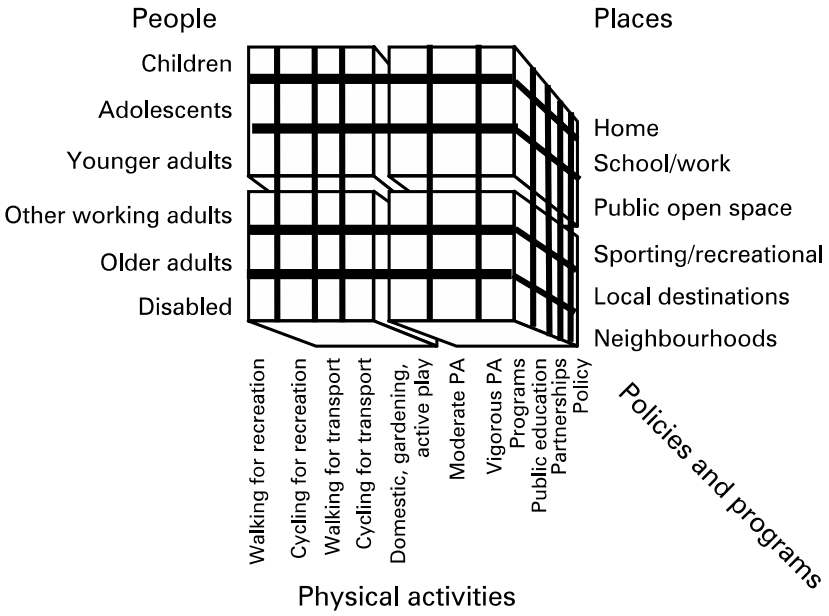
There are many stakeholders involved in the process of decision-making in regards to the development of urban green spaces. Partnerships between citizens, developers and the government ought to foster a community's determination and competence to strengthen the process of greening (Jim, 2004). Jim (2004) believes that developers should recognise their responsibility for urban green spaces as well as being able to provide alternatives for lost green space. According to Vlahov et al. (2007), the government's role is to encourage public wellbeing by offering municipal services and controlling actions that impact health, as well as setting the constraints for urban development. Governments are seen to have the ability to educate and affect the communities through their public engagement, which can also impact individual behaviours and social norms (Viscusi et al., 2011). In order to sustain green systems and embed an ecological culture in urban areas, long-term citizen engagement is encouraged (Schaffler & Swilling, 2013). Hence, the increased interest of the public in regards to their communities has been useful, as it has led to the decentralised thinking of several municipal authorities (Jim, 2004). Civil societies are also involved in decision-making processes and policies, and are believed to be a strong influence on health as community-based organisations are able to provide services, organise residents and sponsor resources (Vlahov et al., 2007). As a result of involving all parties and all levels of authority, effective and efficient planning is made possible. This can lead to the creation of high quality green spaces, vegetation and wildlife populations, and overall a healthy urban environment for people (Adams & Leedy, 1987; Johnston, 1990; Godefroid, 2001).

2.2.3 Urban Planning and Green Space

The planning of urban areas, especially in industrialised and developing areas, should be planned carefully as the children who live in these places often inhabit environments that are polluted, overcrowded and unsafe (Malone & Tranter, 2014). Urban planning thus requires the consideration of all demographics in various settings. Figure 2.1 shows all the physical activity, users and places to consider when planning and implementing policies. Freeman (2006) states

that planners shape the environment by primarily focusing on forward planning, development control and policy.

Figure 2.1 A diagram showing the association between people, places, physical activities and policies



Source: Giles-Corti & King (2008)

Professionals need to incorporate objective measures, such as the facilities and amenities available, and also subjective measures, for example user perceptions, into the process of urban planning (CABE, 2010). Resources such as the green space audit tool can be used to inform planners and decision makers, and to specify a baseline for strategies and future approaches concerning green spaces. Without these tools, insufficient planning and a lack of attention towards the wide range of behaviours in neighbourhoods and green spaces can occur (Giles-Corti & King, 2008). The repercussions of these issues may include noise, lack of safety and inconveniences that can lead to the negative outcomes of aggression, stress and anti-social behaviour (Kaplan & Kaplan, 1989).

An example of a relevant planning strategy is the notion of compact cities, which came into popularity during the 1990s. Scholars such as Choguill (2008) identified that compact urban areas and neighbourhoods generally resulted in the reduction of transport costs due to residents being in close proximity to services, shops, work and other facilities. For the Auckland context,

however, Arbury (2005) argues that the idea of compact cities is not a suitable long-term solution. Three aspects of compact cities were defined as mixed land-use, high density and intensified cities (Burton, 2002). The future of urban development should therefore only transpire within the existing urban boundaries in order to protect any existing natural resources and rural areas (Williams, 1999; Albury, 2005). Albury (2005) criticised the idea of compact cities, as the intensification of cities does not result in the protection of rural areas, reduced car journeys and lessened pollution in the way that it has previously been assumed. He described the failure to achieve positive benefits in areas that have implemented compact city policies. For example, Williams (1999) researched three intensified London Boroughs over 10 years and the outcomes exhibited no decrease in the use of private vehicles (Albury, 2005). Moreover, as no urban development expanded beyond the existing borders, there was a loss of public open green spaces within these urban areas (Williams, 1999). Hence this hindered opportunities to gain health and wellbeing benefits from engaging in passive and active activities outdoors. Other proposed critiques of the concept of compact cities are health risks due to the mixed land-use of industrial and residential areas, overcrowding that is socially undesirable, and expected rises in crime rates as these are often associated with high density areas (Burton, 2000; Albury, 2005).

School green spaces and other similar amenities can potentially encourage a wide range of individuals in the community to use outdoor school facilities afterhours and over the summer holidays. This process can also be a resource for the health sector, as they can advocate for creating partnerships and developing activities with other sectors such as transport, school and recreation (Giles-Corti & King, 2008). Planners need to have a clear understanding of the social relationships, policies and practices surrounding individuals' lives in order for them to create and develop spaces that will benefit their users (Freeman, 2006). For example, there are changes in social norms, such as the shift from traditional play spaces to encouraging children to play indoors at recreation centres and friends' houses (Bradford & Fielder, 2000). Yli-Pelkonen & Niemelä (2005) evaluated combining human-social systems and ecological systems in order to assist with land use planning in Finland. Cities in Finland have a lot of greenery due to the adaptable building and planning of urban areas, which preserve fair amounts of original nature (Yli-Pelkonen & Niemelä, 2005). Additionally, the urban areas generally cover large regions with low population density, and therefore allow for rural areas within the city boundaries. When focusing on planning for the future, the idea of sustainable societies therefore needs to be taken into account. This is because the dynamics of urban areas are constantly transforming, thus shaping the individuals that inhabit them (Gleeson & Sipe, 2006).

Urban areas are important in terms of sustainability as they add to global environmental issues that are harmful to individuals (Van den Berg et al., 2007). Simultaneously, individuals face local problems that are interconnected, such as meeting economic development goals, health risks, environmental pollution and social exclusion. Institutions and governments must therefore devise policies to make urban areas more sustainable (Van den Berg et al., 2007). These policies emphasise protecting economic and social resources such as prosperity and liveability, as well as environmental resources such as biodiversity and air quality (Van den Berg et al., 2007). Urban green spaces and facilities such as schools and parks therefore need to concentrate on supporting the needs of the community through effective planning of transport routes and increasing the desired accessibility to services such as shops.

2.2.4 Other important factors significant in urban green spaces

There have been studies in the past that have examined user attributes, park characteristics, and neighbourhood features (Floyd et al., 2008; Loukaitou-Sideris & Sideris, 2009). Many factors such as design, facilities, safety and accessibility are involved in urban planning. Past literature shows that the environment and landscape in the urban context is designed for the purpose of enhancing physical activity (Frumkin et al., 2004; McCormack et al., 2004; Powell, 2005). One of the objectives of this thesis is to assess the degree to which the design of school green spaces encourages physical and social activity. This includes the facilities, accessibility, safety and maintenance of urban green spaces. Important features of urban planning and design, which affect the health and wellbeing of individuals, have been recognised as green space, walking space and community space (Taylor & Hochuli, 2014). Green spaces can encourage exercise, thus maintaining physical health and mental wellbeing as well as mitigating pollution (Bergeman, 2012). The links between walking space, health, physical activity and transportation in urban projects are generally accepted (Badland & Schofield, 2005), and community spaces provide opportunities for social interaction that ultimately influence the health and wellbeing of community members (Matsuoka & Kaplan, 2008; Nurse et al., 2010; Miles et al., 2012; Mukerjee, 2013).

Urban green space design and facilities

Currently there is a shortage of information surrounding park characteristics associated with visitation trends for different ethnicities, genders and suburbs (Bedimo-Rung et al., 2005; Loukaitou-Sideris & Sideris; 2009). As Walsh (2006) explains, the design of public spaces needs to hold the interest of its users over long periods of time, which means that green spaces need to be usable and appealing to all age groups so as individuals will frequent them more. The facilities

provided within urban green spaces are an important factor in terms of encouraging physical activity. Past studies have considered the potential variations in shape, size and conditions of community facilities. For example, Lucas and Dyment's (2010) findings reveal that the majority of students using school spaces preferred green open spaces such as fields, gardens and trees because it supported their imaginative play. The second most preferred area or facilities were sports courts. Lee et al.'s (2005) research also analysed the environmental factors in neighbourhoods affecting physical activity, such as gyms, community centres, trails and schools. Their study intended to look into the neighbourhood factors that impacted physical activity in lower income neighbourhoods surrounded by public housing developments, in contrast to higher income neighbourhoods (Lee et al., 2005). As Brownson et al. (2001) explains, incivilities give a bad impression of an area and can encourage less favourable behaviour, such as drinking and drug trafficking, and hence do not promote the use of public green spaces.

Research carried out by Berggen-Barring and Grahn (1995) demonstrated that individuals preferred parks with facilities and playgrounds, which supported their various activities (Van Herzele & Wiedemann, 2003). The facilities and amenities in public green spaces were seen as factors influencing the use of these spaces, but they were not a strong predictor compared to other factors such as socio-environmental factors like club or recreational memberships (Giles-Corti & Donovan, 2002; Witten et al., 2008; Rasidi et al., 2012). Whether individuals decide to use green spaces is also influenced by different factors such as the aesthetic qualities of such areas (e.g. their perceived spaciousness). A study carried out by Veitch et al. (2012) indicated that having trees, walkways, little traffic and retail stores around green spaces helped to encourage recreational activity within these spaces. Physical and socio-environmental factors are therefore all important for defining and encouraging the frequent use of green spaces by communities.

Safety of green spaces

The value of green spaces as a health and wellbeing promoting resource is lessened if neighbourhoods are unsafe – whether this unsafety is real or perceived (Lachowycz & Jones, 2013). Safety is an important barrier to consider when evaluating green spaces, as a lack of safety discourages groups from participating in the use of green spaces (Wilson el al., 2004). Having safe neighbourhoods is important, as individuals must travel through neighbourhoods to get to green spaces. Bullying, traffic dangers, 'stranger danger' and parents' perceptions of all these concerns are factors that diminish the use of green spaces (Bedimo-Rung et al., 2005). Others include the lack of pedestrian traffic and sense of community, and increased traffic and air pollution due to increased car ownership (Witten et al., 2013). There was, however, a distinct difference in opinions in regards to the type of safety concerns, which generated most fear

among parents and guardians (Witten et al., 2013). For example, at mid-decile schools, concerns were highlighted around traffic speed and volume, while the primary concerns at low-decile schools were related to the unwanted behaviours of people around the school (e.g. drunken youths and gangs) (Witten et al., 2013). Collins and Kearns (2001) also carried out a study in the Auckland context of Gladstone primary school, in Mt Albert, Auckland. A major concern was traffic congestion around the school due to the perceived and real dangers faced by children actively traveling to and from school (Collins & Kearns, 2001). Traffic hazards and other influences have led to the diminished use of neighbourhood spaces. One study revealed that the main priority of Auckland parents is to encourage more skilled activities which would help their children in the competitive future, while they largely saw 'play' as a lesser priority (Witten et al., 2013). Parental fears regarding bullying, traffic dangers and stranger danger also contributed to many children having lost the opportunity to experience traditional play environments, such as their neighbourhood's streets and 'wild spaces' (Tranter & Doyle, 1996; Malone & Tranter, 2003). Children today are therefore encouraged to engage in environments that are regulated and supervised, such as within built infrastructures or at commercial recreation and play facilities (Hasluck & Malone, 1999; Malone & Tranter, 2003). In Western societies, it is not uncommon to have two incomes per family and more single parent families. Because of the number of people working away from home, there are fewer adults providing surveillance in the residential area (Tranter & Doyle, 1996). Tranter and Doyle (1996) linked this pattern to the increased number of paid childcare programmes such as after school and holiday programmes. However, Witten et al.'s (2013) findings showed that among parents who allowed their children independence, there were spatial and temporal boundaries used to protect them. Overall, there are factors which diminish the use of neighbourhood spaces and influence independent mobility in the Auckland context (Witten et al., 2013).

Planning the Accessibility of Urban Green Spaces

Referring to the initial objective regarding the accessibility of school green spaces, there are often limitations that can hinder an individual's use of green space such as distance, traffic and policies. Accessibility is a significant concept in this study as it is a barrier that often restricts the use of green spaces. Tsou et al. (2005) define accessibility as the relative nearness from one place to another. However, the challenge in the setting of schools is their unavailability to users after-hours. For the purposes of this thesis, two types of accessibility need to be considered to ensure public use of school green spaces (SGSs): locational accessibility (or physical proximity); and effective accessibility (concerned with whether the facility is available to people, e.g. opening hours) (Joseph & Phillips, 1989; Farrington, 2007). For example, in the context of schools, local

residents can have locational accessibility because they are located near the school, but may not have effective accessibility because they may not have permitted access to the school spaces after-hours.

Assisting physical access to green spaces relies heavily on connectivity. Connectivity refers to the access between destinations and is measured in terms of the characteristics of transportation systems, which could increase or reduce the travelling potential between different urban areas (Iojă et al., 2014). This includes features that support active transportation such as cycling and walking. Variables such as traffic, sidewalks and street connectivity determine whether individuals use active transportation (David & Lawson, 2006; Giles-Corti et al., 2011). Poor urban planning and busier lives have sometimes led to an increased use of private vehicles in order to manage 'time scarcity' (Freeman and Tranter, 2011; Witten et al., 2011). The quality and conditions of pedestrian infrastructure and footpath connections are therefore important for encouraging active transport and use of urban green spaces (Wang et al., 2015).

There are many studies that support the importance of accessibility in regards to green spaces. For example, earlier studies emphasised the importance of children participating in physical activities, which often rely on having better accessibility to play areas (Rosenberg et al., 2009; Evenson et al., 2007). This notion was further supported by Rigolon and Flohr's (2014) research on young people from various ethnic backgrounds and their access to parks in Denver, Colorado, in low, middle and high-income neighbourhoods. Each of the neighbourhoods analysed was classified according to residential density, distance from downtown, and the number of natural elements and vegetation in the area (Rigolon & Flohr, 2014). Rigolon and Flohr's (2014) study concluded that the more deprived neighbourhoods did not have access to parks with well-maintained facilities or a large number of natural elements when compared to those in higher-income neighbourhoods. Another study that emphasised the significance of accessibility was one by De Vries and Van Zoest (2004), which involved analysing several European cities and the accessibility of their green spaces. In the Netherlands, a large proportion of neighbourhoods (67% and 83%) had opportunities for recreational activities. The reason behind such a large proportion of neighbourhoods having easy access to green spaces was partly due to the fact that the Dutch government demanded that opportunities be made available for individuals to participate in outdoor recreational activities (De Vries & Van Zoest, 2004). Furthermore, infrastructure surrounding green spaces, such as walking and cycling paths and aesthetically pleasing environments, has been shown to increase walkability (Li et al., 2005; Titze et al., 2005).

Although accessibility has been shown to be an important factor for determining the use of green spaces (Rosenberg et al., 2009; Evenson et al., 2007; Rigolon & Flohr; 2014), other scholars have opposed this claim (Wolch et al., 2014). Wolch et al. (2014) claimed that accessibility was not considered to be as significant as other factors (e.g. design, quality and social attributes) in regards to green space use. Accessibility was not emphasised as being the most important factor, but is considered being more relevant when it was associated with other factors such as socio-demographic characteristics, and the range of green space facilities available (Sister et al., 2010; Lv et al., 2011; Wolch et al., 2014). The perception of the importance of accessibility is therefore mixed.

The Importance of Maintenance

The maintenance of facilities within urban green spaces influences individuals' choices to use the green spaces (Morris, 2003). Birge-Liberman (2010) also specified that when urban green spaces such as parks are deprived of routine maintenance, the green spaces might not carry out their function of providing the space that individuals use for the passive and active activities that are expected to benefit their health. The lack of maintenance of green spaces could also negatively impact the movement towards sustainability because of the removal of flora and fauna from the environment, resulting in further degradation of natural resources.

The purpose of green spaces is to benefit users' health and wellbeing through their potential for physical activity and aesthetic qualities. Certain factors such as effective design and maintenance of green spaces therefore need to be taken into account when planning and designing green spaces, because these factors will contribute towards attracting users and satisfying the physical and social needs of members of the public (Van Dillen et al., 2011). One factor alone is not strong enough guarantee that individuals will use green spaces (Wolch et al. 2014). The combination of factors such as the cleanliness, safety and attractiveness of urban green spaces will increase visitors' frequency and can be beneficial for urban planners and policy makers in the future (Rasidi et al., 2012).

Environmental Justice and Green Spaces

The environmental movement of the 1970s raised awareness of environmental and social concerns such as the links between deprivation and lack of urban green spaces, and other associated environmental injustices (Birge-Liberman, 2010). Historically, deprived residential urban areas and ethnic minorities have suffered from poor access to parks (Wolch et al., 2005). A majority of environmental justice issues regarding green spaces stem from the socioeconomic status of the neighbourhood, the unequal distribution of public green spaces (Bryne & Wolch,

2009), and the observation that ethnic minorities generally have poorer geographic access to urban green spaces, which in turn limits the frequency of use (Bryne et al., 2009).

Environmental injustice is also a result of the lack of distribution or access to green spaces and is generally common in low socioeconomic neighbourhoods (Groenewegen et al., 2006). Even the distribution of trees and the type of trees can represent an injustice of sorts when looking at access to environmental amenities (Heynen, 2003). Heynen (2003) explains that the quality of green spaces and trees distinguish middle and upper classes from lower classes. Marginalisation can therefore take place through the way vegetation is presented in urban areas.

There is increasing evidence confirming the association between health and park proximity, and this can be linked with the larger movement towards environmental justice (Wolch et al., 2014). As Carnegie et al. (2002) explains, individuals who live in close proximity to more attractive public green spaces are twice as likely to walk as opposed to individuals who do not have such access. Accessibility is also important when considering environmental and social justice, as expensive land prices can limit the extent of access and use of urban green spaces by residents (Wolch et al., 2005). Previous research has also stated that having access to green spaces is an environmental justice concern, as whether residents have access, facilities and time to use green spaces is linked to overall benefits in terms of health and wellbeing (Wolch et al., 2014). Environmental justice is thus an important issue to consider within urban planning, as resources and access to public green spaces such as parks should be well facilitated, maintained and accessible to all demographic groups across a spectrum of neighbourhoods.

2.2.5 Big picture – Sustainable cities?

The restoration, revitalisation and production of green spaces contribute to sustainability and increases the liveability of urban areas (Pincetl & Gearin, 2005; Birge-Liberman, 2010). The study of urban green spaces leads to the idea of building sustainable cities. In order to sustain green spaces, Biege-Liberman (2010) suggests three requirements. The first is routinely maintaining the green spaces. The second suggestion is to shift the focus from making green spaces aesthetically appealing, towards also concentrating on green innovations such as green infrastructure. An example of green infrastructure is urban forests, as they are able to benefit urban areas by improving the air quality and adding aesthetic value to cities (European Commission, 2013). This can involve tactical spatial planning of locations, and following a guide for infrastructural expansions (European Commission, 2013).

Policies surrounding the idea of sustainable development are an ideal for many countries (Baycan-Levent & Nijkamp, 2009). Baycan-Levent and Nijakamp (2009) suggest that in order for

a state to move towards urban sustainability, green spaces in urban areas need to be improved in terms of accessibility, quality and distribution. As well as planning for ways to encourage individuals to think in terms of the conservation of natural resources and the environment, Mwendwa and Giliba (2012) discusses how the increasing number of people and development in urban areas are a sufficient enough motive for requiring sustainable cities. They have therefore developed the aim of encouraging individuals to want fewer inputs of energy, and designing urban areas by bearing in mind overarching environmental impacts (Mwendwa & Giliba, 2012). In order to achieve successful cities, cities therefore need to aim to balance the economic needs of the population and the aspiration of also creating quality green environments (Department of Internal Affairs, 2015).

2.3 Green spaces and Urban Ecology

People and the natural environment rely on the ecological cycle as it is able purify and recycle the water we drink, provide us food and clean the air (Ugurlu & Aladag, 2009). Urban ecology is one associated discipline that seeks to improve the urban environment. This sub-discipline can be defined as the analysis of relationships and patterns of animal and plant populations in an urban context (Sukopp & Wittig, 1998 cited in Endlicher et al., 2007). This section defines the purpose and benefits of green infrastructure and ecosystem services, and how they help biodiversity. Studying urban ecology offers an opportunity to see flora and fauna in the city as contributing to adaptations to climate change in order to help us live healthier lives (Douglas, 2011). Adapting to climate change is necessary for avoiding increased food insecurity, poverty and the lack of resources (Spires et al., 2014). This involves adjusting human and natural systems as a response to probable climatic effects, in order to diminish harm (IPCC, 2007). Douglas (2011) believes that the aim of urban ecology is about understanding the complex relationship between the urban environment and the biological community as a result of exchanges between the natural environment and the human background. Overall, the variety of the natural resources available provides many community and economic benefits such as recreational and biological resources (Ugurlu & Aladag, 2009).

2.3.1 Green Infrastructure

Green infrastructure can be defined as engineered structures (e.g. green roofs and water treatment facilities) which are created to improve the natural environment and natural processes, including soils and vegetation, and to manage water and green spaces, thus forming healthier environments in urban areas (Benedict & McMahon, 2010; EPA, 2014). Through this, the ability

to shape and form the progression of sustainable societies is aided, and communities can adapt to climate change through reducing the risk of overheating and flooding, which improves the quality of life for the public (GLA, 2006). Green infrastructure is a solution for land conservation challenges as it aims to involve land development and conservation in the planning process, which will be in sync with natural environmental trends (Benedict & McMahon, 2010). Pauleit et al. (2011) trusts that green infrastructure can be incorporated in planning and ecology, and can act as a stepping-stone between disciplines. Iojă et al. (2014) assume that green infrastructure encourages sustainable management and supports the resilience of urban areas. Green infrastructure therefore defines the ecological framework necessary for social, economic and environmental sustainability (Benedict & McMahon, 2010).

2.3.2 Ecosystems services

Green infrastructure within cities also provides services that support social and ecological processes and activities (Kamnites and Owen, 2006; Iojă et al., 2014). These services are often referred to as ecosystem services. Urban development is made possible by ecosystem services (Alberti, 2005), and they can be defined as benefits that people gain from a functioning ecosystem. "Ecosystem services are the conditions and processes through which natural ecosystems and the species that make them up, sustain and fulfil human life" (*Urbanization*, 2015). The United Nations (2005) defines ecosystem services as benefits for humans, for example controlling aids (such as water regulation and air quality), cultural aids (such as social identity and natural resources for recreation), and material services (such as the manufacturing of timber, food and other resources) and hence sees ecosystem services as monetised benefits (Steiner, 2014).

These services are able to support the sustainability and resilient behaviour of urban areas (Jabareen, 2013). The Millennium Ecosystem Assessment (MEA) (2005) categorised ecosystem services into regulating, supporting, provisioning and cultural services. The range of the ecosystem services in urban green spaces thus relies on the biodiversity and naturalness, design, structure and distribution of green spaces (EEA, 2010). They also result in varying positive benefits such as regulating the urban climate and maintaining biodiversity (Mwendwa & Giliba, 2012). Some examples of urban climate regulation are the relative humidities, air temperature, wind speed and solar radiation, which vary considerably because of the built environment of cities (Heidt & Neef, 2008). Features such as water bodies and vegetation are also able to mitigate situations (Mwendwa & Giliba, 2012).

The MEA has encouraged the notion of implementing the services that ecosystems provide in policy (United Nations, 2005; Ernston, 2013). Ernston (2013) further explains that how the way local governments regulate ecosystems can generate environmental injustice and/or social injustice. Social justice therefore involves maintaining ecosystems and their services in urban areas, as they are important for the wellbeing of inhabitants (United Nations, 2005; Ernston, 2013). Social and environmental justice are therefore inextricably linked, for the wellbeing of one directly affects the other. In general, ecosystem services can help people to understand environmental benefits, however they should not be the only measure in decision-making because ecosystem services tend to monetise environmental systems.

2.3.3 Biodiversity

Biodiversity adds to the functioning of the ecosystem through various ecological processes (Benayas et al., 2009). Rands et al. (2010) described biodiversity as a variety of species and ecosystems that create life and support fundamental services for society. Biodiversity contributes to the thriving of agriculture, which is positive for human physical and mental health, as it secures environmental sustainability by providing resilience to disorder and environmental change (Rands et al., 2010). The use of green spaces relies on the visitors' perceptions, and areas with greater biodiversity are perceived to have a more positive impact on wellbeing (Taylor & Hochuli, 2014). Maller et al. (2006) stressed the importance of the accessibility of green spaces, as they are considered vital for the interdependent systems of biodiversity. Residents with access to proximate nature have been proven to have overall better quality of life compared to other individuals (Maller et al., 2006).

Features such as tree cavities provide habitats for nature, signifying that mature and distinct trees are needed to support biodiversity (Strohbach et al., 2013). Cities and urban areas disturb ecosystems as they can attract unwanted species such as mosquitoes, fleas and rats (Pongsiri et al., 2009). Taylor & Hochuli (2014) state that there are two approaches that aid how individuals perceive biodiversity in urban areas. The first method is referred to as the 'one health' approach, which aims to limit zoonotic illnesses and reassures the health of individuals and animals (Rabinowitz & Conti, 2010). Consequently, biodiversity and the ecosystem go hand in hand in regards to maintaining urban green spaces. It is thus important to keep a record of biodiversity in urban areas, as it will affect the overall health of inhabitants in the area.

It is important to incorporate biodiversity into private and public policymaking. The shift towards integrating biodiversity into economic, political and social decision-making will involve the crucial roles from the government, civil society and businesses (Rands et al., 2010).

Biodiversity considerations should therefore not be restricted to the country's environmental sector but rather should be extended as a consideration through all aspects of government down to the micro-scale of school governance by Board of Trustees (BoTs).

2.3.4 Nature-deficit disorder?

Green spaces in urban areas are becoming smaller and appear more manicured (Sandry, 2013). There is growing concern that children are not receiving enough exposure to the natural environment and the outdoors, and this issue has been defined as 'nature deficit disorder' (Louv, 2005). Louv's argument contends that children do not spend enough time outdoors, and they thus are growing up isolated and separated from nature. Faber Taylor et al. (2001) described that the contact with nature led to better attention functioning. Louv (2005) explains the outcomes of having less leisure time. In the context of American families, children have been shown to spend most of their time in front of the computer and television, a practice that has also played a role in the growing obesity among the population (Louv, 2005). Louv (2005) argues that letting children experience the natural environment, as generations in the past did, would solve the previously mentioned issues. But, what he fails to acknowledge are the overarching cultural norms of parenting. Pinkster and Fortuijn (2009) argued that parenting systems are a result of cultural and societal circumstances and expectations. Witten et al.'s (2011) findings indicated that parents prioritise sports and after-school tuition over outdoor play for their children, as they want to prepare their children for their competitive futures. Families are therefore often fatigued and time-poor due to their busy urban lifestyles and have therefore replaced utilising green spaces with indoor entertainment (i.e. movies, computer games, shopping) (Sandry, 2013).

2.4 Health-Geographical Perspectives on Urban Green Space

Current concerns around the health impacts of urban life have forced health experts and urban planners to work together more frequently (Godfrey & Julien, 2005). Hence we see growing efforts to design communities and cities which consider mental and physical health (WHO, 2015a).

2.4.1 Air Quality in neighbourhoods

The World Health Organisation (WHO) (2014) determined that air pollution in urban areas not only causes lung and heart diseases, but also bladder and lung cancers.
Molina et al. (2004) states that photochemical pollution comes from power generation, solvents and industrial activities, but is mostly produced by traffic and is therefore a concern for urban air

quality. Air pollution is not only a concern at the neighbourhood level, but also on a global scale as it seriously affects public health and impacts climate change (Molina et al., 2004). Air pollution also impacts respiratory and cardiovascular systems. However, urban green spaces are capable of alleviating pollution, for example by removing pollution through filtering air, filtering storm water and cooling temperatures (Groenewegen et al., 2006). Given this, urban green spaces can be beneficial for reducing air pollution because airborne contaminants are absorbed by the trees (Nowak et al., 2006). Shade from natural vegetation also helps to moderate temperatures, hence reducing the chance of heat related conditions for urban residents (Cummins & Jackson, 2001). In winter, trees slow wind speed down, whereas in summer, urban green spaces offer the decline of surface temperature and protection from the sun (Eoearth, 2007). Urban green spaces are therefore important in urban resilience because they generate ecosystem services, for example recreational and social benefits, air purification, sewage treatment and rainwater drainage (Barthel et al., 2010).

2.4.2 Physical and psychological effects

Green spaces have been recognised as causing health hazards as well as benefits from everyday opportunities within the natural environment (Douglas, 2012; Wolch et al., 2014). For example, green spaces have been shown to help reduce stress and promote social interaction through group activities (Lachowycz & Jones, 2013). One of the key objectives of this research is to examine and analyse the importance of green spaces for their contribution to the development of social and physical wellbeing.

Physical activity has been proven essential in terms of health because it has often been coupled with reduced risks of being chronically ill (Hartig, 2008; Woodcock et al., 2009). Lachowycz & Jones (2013) argued that these two categories (physical activity and health) are often separated, but that there are interactions between them. For example, when individuals are involved in passive outdoor activities such as sitting and talking, there are psychological as well as physical benefits, such as the reduction of stress (Ulrich, 1981; Ulrich et al., 1991), vitamin D from the exposure to the sun (Holick, 2004) and blood pressure reduction (Hartig et al., 2003). Most of the health and wellbeing benefits from using green spaces are recognised as only being short-term benefits (Pretty et al., 2007).

Previous research in regards to green spaces and physical activity has mainly been associated with the impacts of obesity (Pretty et al., 2007; Curtis & Riva, 2009; Abraham et al., 2010). While obesity studies have largely concentrated on behavioural, biological and psychological influences, they have also recently found environmental influences to be just as

important (Poortinga, 2006). Features such as pathways in an individual's environment are believed to predict obesity (Smith & Cummins, 2009). However, Davison & Curl (2014) also acknowledge that the benefits of a cyclable and walkable environment go beyond simply the physical health benefits, and also have positive impacts for an individual's mental health - for example relieving issues associated with loneliness and old age. Poortinga's (2006) study concluded that features of physical and social environment are correlated with levels of obesity, physical activity and health. Having access to, and being located within walking distance of, urban green spaces has been demonstrated to encourage physical activity (Li et al., 2005). It can therefore be speculated that living in reasonable proximity to a school that permits after-hours access may well be beneficial to wellbeing if that space is utilised for physical activity.

2.4.3 Positive impacts on health

Wolch et al. (2014) argued that the benefits of a natural urban environment include the reduction of air pollution, moderating temperatures and providing protection to users from the sun. In related work, Lachowycz & Jones (2013) decided to categorise the health outcomes of green spaces into two groups: the psychological effects, and the physical effects. The psychological effects relate to the mental health outcomes that occur due to exposure to green spaces and social interactions. Everyday exposure to nature is linked with better psychological health of urban inhabitants (Matsuoka & Sullivan, 2011). For example being in the presence of urban green spaces such as parks has been revealed to reduce stress (Woo et al., 2009), offer solitude, and provide opportunities for urban populations to be in the presence of nature (Fuller et al., 2007). However, more evidence is needed to support these claims regarding whether there is a relationship between mental health and urban green spaces. Urban green spaces also benefit residents' social interaction. Newton (2007) expressed how urban green spaces could diminish negative social behaviours such as violence and aggression, and act as places for social interactions and thus contribute to a sense of place, identity and social cohesion. Urban green spaces are said to encourage social ties within neighbourhoods as the natural vegetation encourages the use of green spaces, thus providing a meeting place for residents (Maas et al., 2009).

Iojă et al. (2014) analysed whether the connectivity and mutifunctionality of urban areas can be improved by school green spaces. Iojă et al.'s (2014) study examined public schools in Bucharest including kindergartens, primary and secondary schools. In this study, buffers were created to measure the connectivity of school green spaces to other public green spaces. The buffers were set at 50m, consistent with immediate proximity, at 300m, consistent with 5

minutes of walking, and 500m, consistent with 10 minutes walking (EEA, 2002; European Commission, 2000 as cited in Iojă et al., 2014). It was reported that the majority of schools involved in this research showed medium overall possible connectivity between school green spaces and other urban public green spaces. The key finding in this study was that school green spaces increased the connectivity of green infrastructure in urban areas, hence imposing multifunctionality through educational services. Focusing on the function of SGSs has been significant in the planning of urban green infrastructure to improve the role of other public spaces, such as small green spaces in urban areas (Cameron et al., 2012). Concentrating on green spaces within schools is important because they are some of the limited outdoor spaces where children are attracted to, seeing as the majority of their time is now consumed by being in front of a computer (Iojă et al., 2014). Therefore, with the use and diversity of school green spaces, services can be strengthened through proper good management and will benefit the public in the long term (Iojă et al., 2014). Galea and Vlahov (2005) suggest that urban areas with more walkable green spaces are correlated with the probability of physical activity, lower risk of cardiovascular disease and a higher functional status.

Green spaces are also believed to reduce violence, aggression, vandalism and incivilities (Matsuoka & Sullivan, 2011). According to a study carried out in Philadelphia, there was a recorded reduction in criminal damage and gun attacks after urban greening (Branas et al., 2011). Caspersen et al. (2006) concluded that the long-term and short-term use of green spaces is important for the life satisfaction of residents.

2.4.4 Negative impacts

A common negative effect of urban green spaces is airborne pollen as it can lead to the development of allergies in urban areas (Cardona-Dahl, 2008, cited in Cariñanos & Casares-Porcel, 2011). Some species that release large amounts of pollen are: cypresses, willows, palm trees and elms (Cariñanos & Casares-Porcel, 2011). Individuals who live in urban areas are more susceptible to being affected by respiratory allergies and air pollutants from pollen as opposed to people residing in rural areas (Riedler et al., 2000; Trasande & Thurston, 2005; Bateson & Schwartz, 2007, EPA, 2014). The World Health Organisation (2014) has also recognised the issue of air pollution being a rising environmental concern as it is accountable for approximately 3.7 million premature deaths per year. Cariñanos & Casares-Porcel (2011) have therefore suggested some strategies for designing hypoallergenic urban green spaces. These include, for example, using low pollen producing vegetation, and consulting with botanists for the effective management of species appropriate for green spaces (Cariñanos & Casares-Porcel, 2011).

Generally, urban green spaces are recognised for their positive associations with wellbeing. However, they can also have negative impacts on human health too. For example, children are the most vulnerable to the negative effects of airborne pollution) due to their narrower airways and require breathing more air compared to adults because their immature immune system (Gasana et al., 2012).

2.5 Schools as 'Third Places'?

Places of interaction in the city have been categorised by the types of engagement that occur there on a daily basis, and are defined as 'first', 'second' and 'third places' (Jeffres et al., 2009). 'First places' are recognised as places where private and intimate interactions take place and are usually the home space (Oldenburg, 1989; 1999; 2001; Jeffres et al., 2009; Carroll et al., 2015). 'Second places' are known as destinations where formal interactions happen, such as work and school spaces (Jeffres et al., 2009). The concept of a 'third place' was theorised by urban sociologist Ray Oldenburg as publically used places, which promote regular social interactions within the community beyond the first and second places of life (Oldenburg, 1999; Jeffres et al., 2009; Mair, 2009). Recent literature also notes the benefits gained from using third places, such as stress relief (Jeffres et al., 2009), strong social ties between members of the community (Meshramm & O'Cass, 2013), and even commercial gains for local businesses (Rosenbaum, 2006; Lin, 2012). Some characteristics Oldenburg (1989) used to outline third spaces are:

- Located on neutral ground
- People from diverse backgrounds are welcome
- A home away from home
- Main activity is conversation as well as a place for exercise, eating and drinking
- Accessible, with no physical barriers
- The overall impression and feel of the place is happy and lively

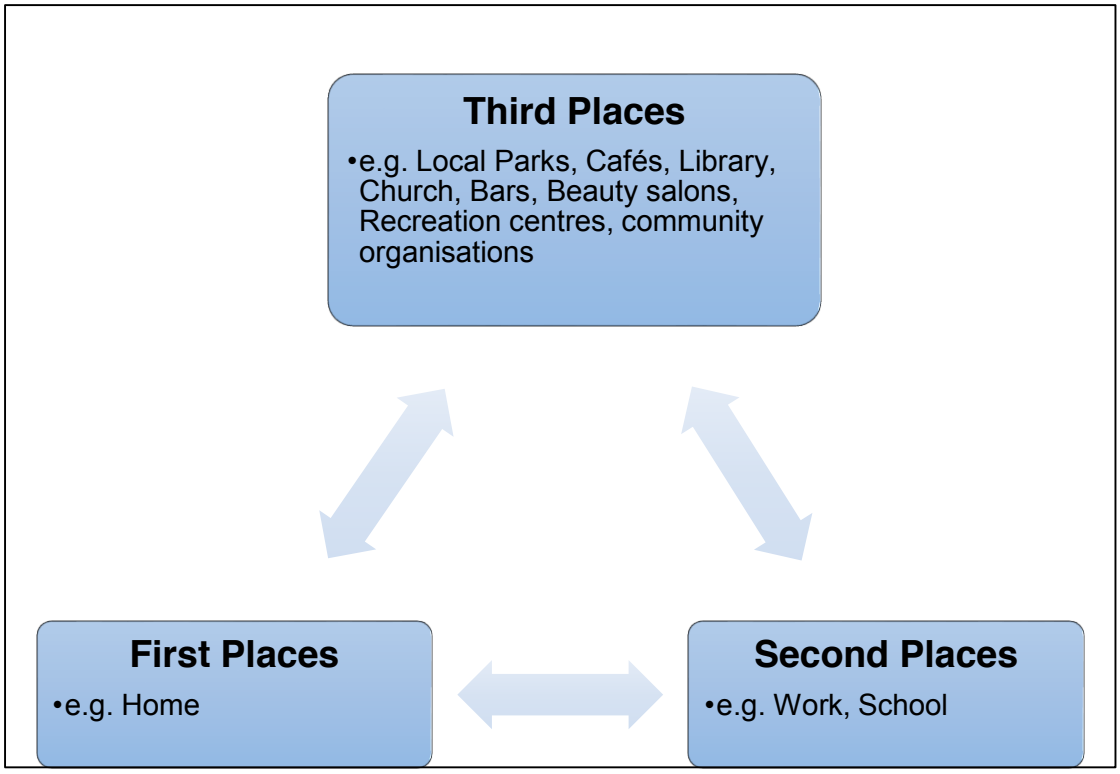
This concept of being able to have a place where people can have informal social interactions has been an essential part of society for centuries (Harris, 2007). 'Third places' have been considered the "anchors of community life" and have changed over time (Harris, 2007). For instance, the church used to be the common meeting place within a community, and over time have also considered other third places such bars, convenient stores, and cafes (Harris, 2007). Public green spaces are also becoming popular third places because they not only provide a place for social interactions, but also an opportunity to partake in physical activity. Oldenburg (1999) suggested that the attraction to third places is not determined by the number of seats, nor the availability of food or drinks, but rather by the people who set the mood and manner of the

space (Harris, 2007). Some third places are also more favourable for some people as opposed to others, depending on their socio-demographic background.

Earlier studies have evaluated the importance of third places in the lives of the elderly (Rosenbaum, 2006; Meshramm & O'Cass, 2013) and in children's lives (Carroll et al., 2015). For example, elderly populations are more vulnerable to negative wellbeing implications such as experiencing a decline in physical health, and emotional loneliness (Rosenbaum, 2006). Third places can therefore be used to help remedy these symptoms and issues (Rosenbaum, 2006; Gardner, 2011). Similarly, children are excluded from other third spaces due to design, decision-making and safety concerns, and therefore SGSs are some of the few spaces where they can have independent mobility (Carroll et al., 2015).

Third places can also benefit communities through social and economic aspects through small local businesses. Local businesses provide a place to build relationships as well as being a place for financial transactions. Mehta and Bosson (2009) discuss the importance of accessibility and place attachment to local businesses in neighbourhoods, which can result in many social interactions. Such local shops are spatially and physically accessible compared to large chain stores where it is unlikely that people will be able to feel comfortable and know the staff (Gardner, 2011). Businesses also gain customer loyalty due to the development of local businesses as third places (Rosenbaum, 2006).

Figure 2.2 Diagram of examples within first, second and third places



(Adapted from source: Oldenburg, 1989)

Two features associated with third places are known as transitory zones and threshold spaces. These features are linked to the use of third places in terms of motivating or hindering the use of third places.

2.5.1 Transitory Zones

Transitory zones are not destinations in themselves, but rather are the spaces between places, such as streets and pathways (Gardner, 2011). The importance of transitory zones is that they influence the experience of travelling to destinations such as schools. Transitory zones encourage active transport, social interactions and creative games (Carroll et al., 2015). Carroll et al. (2015) described that using transitory zones led to games such as children jumping off walls, avoiding cracks along the footpaths and skipping. In terms of this research, transitory zones would include the routes to and from school. The transitionary zones therefore impact the planning of urban green spaces, as they can be barriers to the green spaces. Well connected, safe and easily accessible green spaces are some of the factors planners should consider when designing transitionary zones.

2.5.2 Threshold spaces

Threshold spaces are described as semi-public third places that overlap between the first place (e.g. home) and the neighbourhood space (Gardner, 2011). Some examples of threshold spaces are porches, back yards, balconies, patios and driveways (Gardner, 2011; Carroll et al., 2015). In terms of this research, transitional zones and threshold spaces are considered when discussing urban green spaces because they are part of the built environment and impact upon how people choose to use these spaces.

Table 2.1 A summary of destinations and relationships in third places, threshold spaces and transitory zones

The Places	Examples	Relationships
Third Places Specific community destination	• Local parks • Coffee shops • Recreational centres • Churches • Beauty salons • Barber Shops	• Regular users/visitors • (Known and familiar)
Threshold Spaces 'Outside' spaces within the boundaries of first places (e.g. Home)	• Back yards • Porches • Driveways • Balconies • Elevator and lobbies in apartment buildings	• Neighbours • Residents who live next-door and across the street • Regular people who pass by
Transitory Zones • Spaces between places • On the way to get to destination	• Streets • Pathways • Train platforms • Lines at the bank and grocery stores	• Familiar faces who are also in the neighbourhood

(Adapted from source: Gardner, 2011)

Mehta and Bosson (2009) emphasise the importance of policy making for spatial design, community planning and economic development policies due to the necessity to preserve and develop current and future 'third' places. Oldenburg (2001) further emphasises the importance of having this link between the individual and the wider community, as life without community consists of the repetitive pattern of travelling between first (home) and second (work) places. This thesis will examine SGSs for their potential to act as third as well as second places within the lives of children and their families.

2.6 Gap in research

There is currently a gap in the literature regarding the importance of school green spaces after-hours. There have been studies based on the accessibility that individuals have to other public and public-private green spaces such as parks and other urban green areas, but none have explored primary schools afterhours. Earlier studies have focused on activities within school hours, but what are the factors encouraging the after-hour use of school green spaces? Policies regarding the use of schools' green spaces vary, as no constant guideline exists in regards to the use of school grounds. Rather, it is up to the individual boards of each school to create their rules. This thesis aims to gain a deeper understanding into why the various schools in this research have set their specific guidelines, and to observe the most popular activities carried out within SGSs along with what kinds of social relationships exist within these spaces. Theoretically, the degree of openness of SGSs after-hours and their use will determine the degree to which they can be regarded as second and third places in Oldenburg's terms. James et al. (2009) suggests that a better understanding of behaviours and shifting social ideals would direct the provision of green spaces. Gauging individuals' perceptions of green spaces thus promises to provide insights into what the catalysts are encouraging them to use school green spaces.

2.7 Summary

In summary, green spaces have been explored extensively through the sub-disciplines of urban geography, urban ecology and health geography. The recurrent themes throughout earlier literature have been that green spaces are inextricably linked to levels of physical activity, health and wellbeing, perceptions of safety, efficient transportation, and aesthetic qualities. This research aims to use these themes to form a conceptual framework for exploring the use of school green spaces (SGSs) after-hours. The key concern with urban green spaces is currently 'supply and demand'. With the wealth of individuals dependent on their consumption and use of material resources including land, energy and natural resources (Ugurlu & Aladag, 2009), the

focus remains on sustaining resources and providing equal access to facilities in order to prevent the endangerment of current urban resources and landscapes. The challenge for future spatial planners and policy makers is therefore providing citizens with equal opportunities in terms of efficiency and accessibility to services, and encouraging participation in leisure and recreational activities as they benefit social, mental and physical health and wellbeing (Sanesi & Chiarello, 2006; Neuvomen et al., 2007). In doing so, an implicit planning goal is to establish and sustain sites that encourage social cohesion – that is, 'third places' – in the city. The overall long-term goal is surely to diminish the negative impacts that result from urbanisation and create socially as well as physically sustainable cities. The remainder of the thesis will explore the potential for SGSs to contribute to this goal.

CHAPTER THREE

THE CONTEXT OF SCHOOLS AND GREEN OPEN SPACES IN AUCKLAND

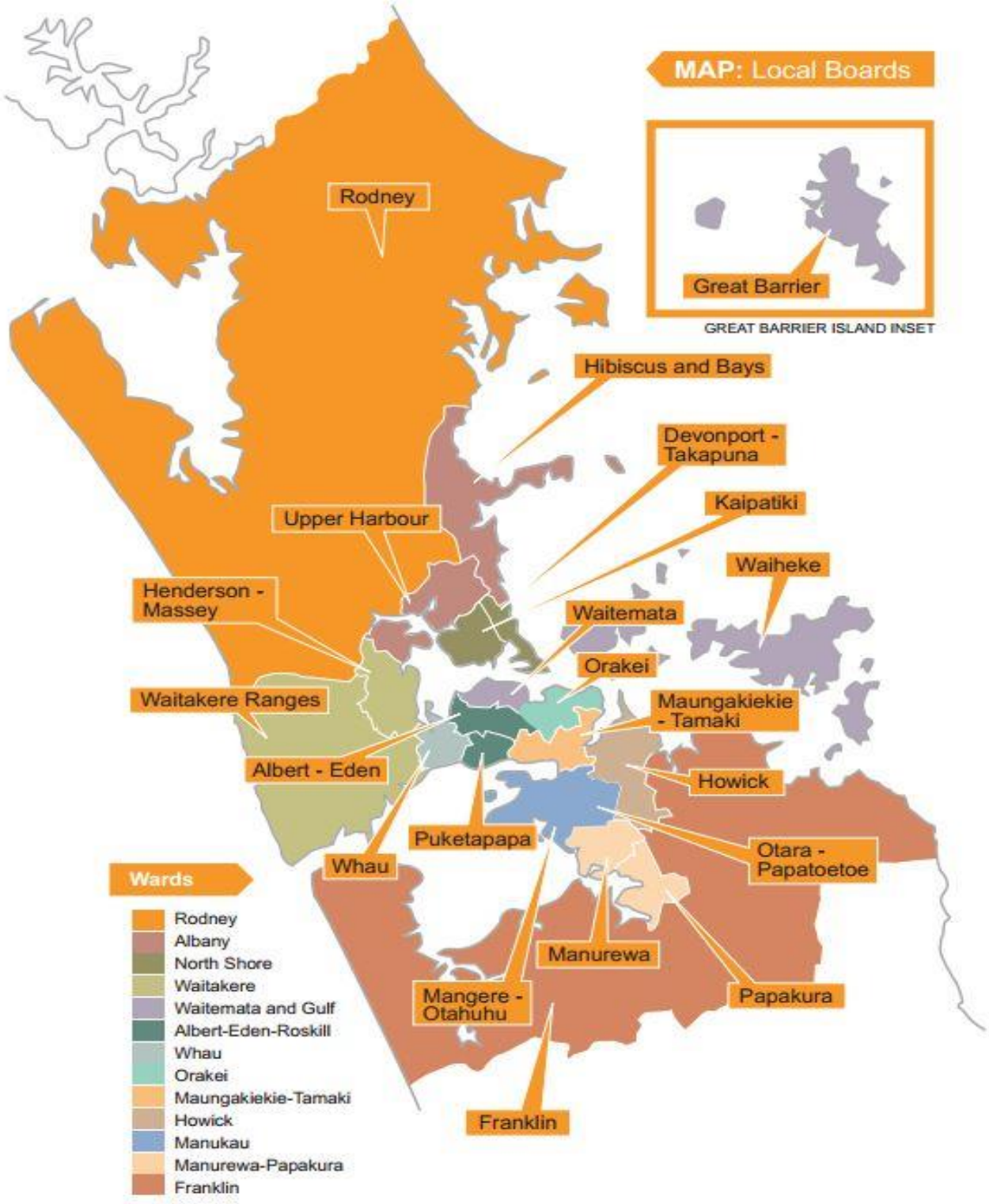
3.1 Introduction

This chapter introduces the sites of this research project by describing the context at the national scale, the local scale and then down to the specific case study schools used in this research. It also describes the physical and socio-demographic characteristics of Auckland and briefly explores the policies involved in governing schools in New Zealand and, more specifically, Auckland's state primary schools.

Auckland city is located within the larger Auckland municipal area found on the Auckland isthmus (Kästle, 2015). Since amalgamation into a 'supercity' in 2010, Auckland stretches well into the rural hinterland (as shown in Figure 3.2). The Auckland isthmus is the former Auckland City area. The green spaces in Auckland play a significant role in conserving the character and identity of Auckland as they protect the natural landscapes and ecosystems (Auckland Council, 2013). According to the most recent census data (2013), Auckland consists of 1,415,550 people and makes up one third of New Zealand's population (Demographic profile, 2014). This number is expected to significantly increase to approximately two million residents by 2031 (Statistics NZ, 2009). Population growth is influenced by births, domestic migration and international migration (Statistics NZ, 2009). Auckland is currently home to 180 ethnicities and is expected to grow most significantly in terms of Pacific and Asian population groups (Auckland Council, 2013).

This research used case study schools within the Albert-Eden, Whau and Maungakiekie-Tamaki local board regions within Auckland (Education Counts, 2015c) (see Figure 3.1). The responsibility of local boards is for decision-making, discussing the standards of local services, communicating the views of locals regarding bylaws, plans and policies to the governing group; and emerging board strategies every three years (Auckland Council, 2015a).

Figure 3.1 Map showing the 21 local boards and 13 wards in Auckland



Source: City Vision (2013)

3.1.1 Neighbourhood attributes impacting the utilisation of SGSs

Population size, household income, proximity, aesthetics, safety and the age of population affect residents' frequency of visitation to the SGSs. These neighbourhood characteristics, combined with the characteristics of green spaces and the characteristics of users, influence the use of parks (Loukaitou-Sideris & Sideris, 2009) and, in this context, SGSs. Some examples of green space characteristics are size, play structures, maintenance, and location. Examples of user characteristics comprise of age, gender and behaviour. Table 3.1 shows the local boards, the suburbs that each case study school is located in, distance from the Central Business District (CBD) and the increase in resident population between the censuses.

Table 3.1 Resident populations in the Auckland suburbs of Maungawhau, New Windsor and Oranga

Local Board	Suburb	Distance from CBD (km)	Resident population (2006)	Resident population (2013)	Percentage increase (%)
Albert-Eden	Maungawhau	4.73	3663	3918	6.96
Whau	New Windsor	7.99	6453	6468	0.23
Maungakiekie-Tamaki	Oranga	7.08	3849	4056	5.38

(Adapted from source: Statistics NZ, 2013)

All three suburbs are relatively close to the CBD, and were measured from the Sky Tower in Auckland to the location of each school in the suburb. New Windsor does not have enough public green spaces for the number of residents living in the area compared to the suburbs Maungawhau and Oranga, where local residents have easy access and are close in proximity to nearby parks and open public green spaces such as Potters Park, Cornwall Park and extinct volcanoes such as Mt Eden and One Tree Hill. Also, referring to Table 3.2, New Windsor has significantly less green spaces in total green space area compared to Maungawhau and Oranga, and is required to support as many as approximately 6468 residents (as shown on table 3.1).

Table 3.2 The number of parks in each suburb and the area of green spaces found within 3km radius from each case study school

School	Number of parks	Total Green space area (km^2)	Mean area (km^2)
Maungawhau	110	4.45	0.04
New Windsor	142	3.81	0.02
Oranga	87	4.98	0.05

Source: Auckland Council (2015)

It has been recommended by past literature that public green spaces need to be located within walking distance of residents, for their safety and convenience (World Environment Day, 2005; Jim & Chen, 2010). Having the SGSs available as public green spaces in the neighbourhoods of these case study schools therefore provides residents with another option besides potentially more distant parks.

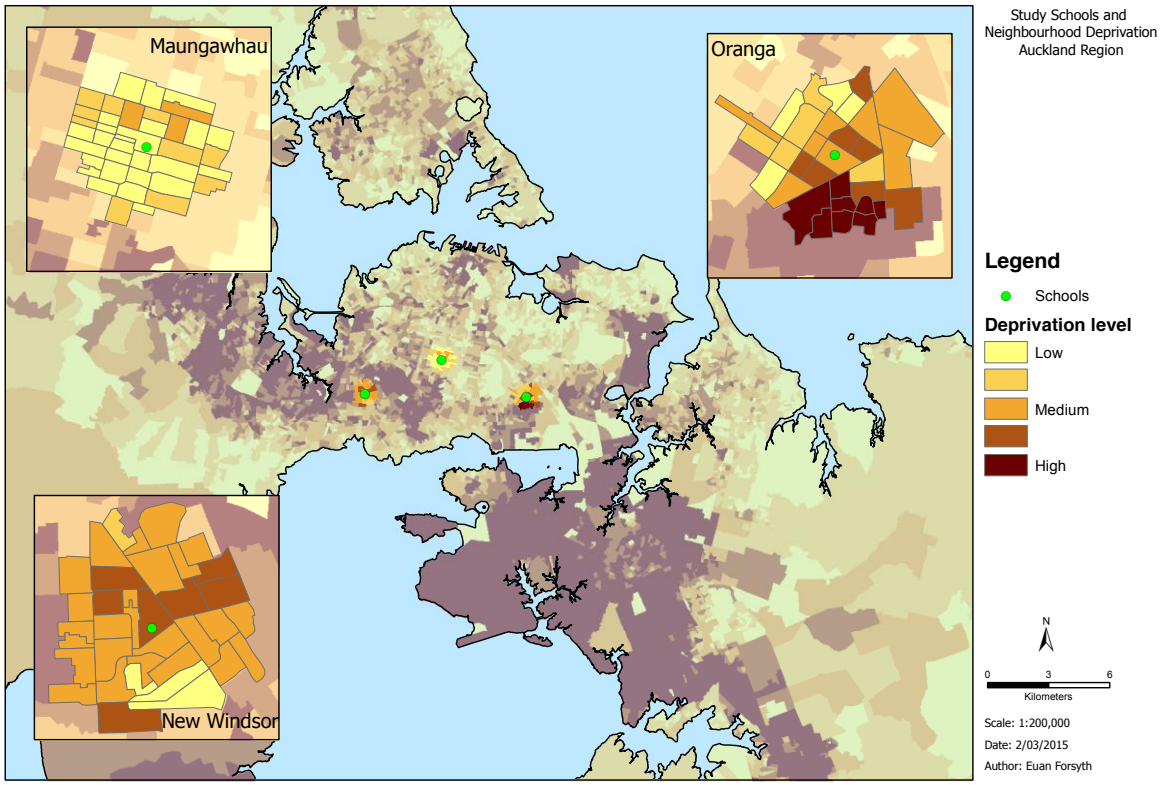
Socioeconomic Deprivation

The three case studies involved in this research are located in different geographically diverse neighbourhoods within Auckland city. Socioeconomic deprivation rates provide a means of measuring the broader concept of residents' socioeconomic positions (Salmond et al., 2005). The New Zealand Deprivation Index is a measure of the socioeconomic levels in geographic areas, which are measured in meshblocks (Atkinson et al., 2014). Meshblocks are defined as the smallest geographic unit, and these are added together to build a larger geographic area. The index levels range from 1 – 10, with 1 representing the residents living in the least deprived areas, whereas 10 indicates the most relatively deprived 10 percent of areas in New Zealand (Atkinson et al., 2014). However, what needs to be noted is that the deprivation index relates to areas, as opposed to the individuals who reside in them, therefore meaning that the deprivation index is based on the average socioeconomic conditions of the total number of residents in a meshblock and not specifically in reference to each individual per se (Atkinson et al., 2004). Witten et al. (2003) defined area-based indices as a measure of a residents' access to services, facilities and amenities, which support their health and wellbeing.

There is a significant gap in terms of access to local services and resources (e.g. health care services, supermarkets, parks) (Pearce et al., 2007) between high and low socioeconomic neighbourhoods (Macintyre et al., 2008). According to McWhorter (2013), residents in high deprivation areas are likely to have less access to green spaces due to financial constraints. The lack of core services in low socioeconomic areas, such as local shops, health and financial

support, likely results in issues such as increased crime, unemployment and poorer quality of life (Renewal.net, 2007). As Talen (1998) explains, residents in low socio-economic neighbourhoods are likely to be heavily reliant on having access to public facilities that are close in proximity for recreational and leisure activity, as residents in these areas often have restricted or no access to private facilities which also factor in cost and mobility. Poorer residents are less likely to have the transport to travel further away to use facilities elsewhere. Adding to this, Sparks (2012) emphasised the need for both spatial locations and social identities to be contemplated in juxtaposition to understand the sophistication of the population's transport requirements.

Figure 3.2 New Zealand Deprivation Index for Auckland and areas surrounding case study primary schools



This figure shows the deprivation level of the meshblock areas surrounding the three case schools

Figure 3.2 shows the case study schools and their location in meshblocks set against a backdrop of relative deprivation level of the area. The Maungawhau area has a rather low deprivation level, New Windsor has a medium deprivation level, and Oranga has a mix of a medium and high deprivation (see figure 3.2). The deprivation index is based on socioeconomic questions in the census related to an individual's qualification, housing, employment,

communications, transport and income (Demographic profile, 2014). The answers from the census provide a deprivation score that is assigned to each neighbourhood area in measures of meshblocks or patterns of meshblocks (Demographic profile, 2014). The majority of meshblocks in the suburb of Maungawhau show low deprivation because they have access to material and social services such as amenities, physical environment, membership to society, and other resources (Townsend, 1987). Using the example of access to internet and cell phones, the least deprived suburb was Maungawhau with a relatively higher access than the rest of Auckland, whereas Oranga was the most deprived suburb with less access in this respect compared to Maungawhau and New Windsor as well as the rest of Auckland (Statistics NZ, 2013).

Transportation Modes and walkability

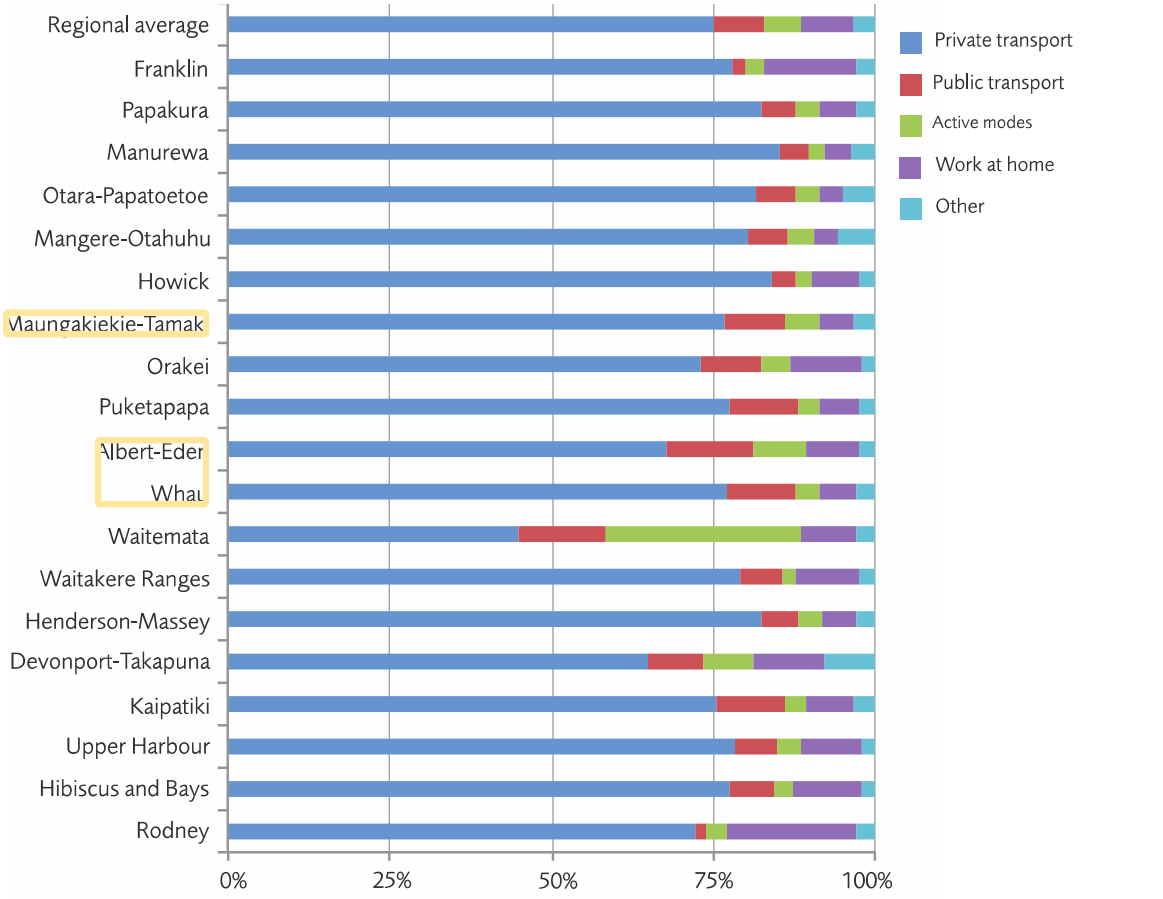
Transportation modes are an important factor as they influence peoples' perceptions concerning neighbourhood safety, because they are associated with traffic hazards and air pollution in neighbourhood spaces (Choguill, 2008; Fraser & Lock, 2010). People's perceptions regarding traffic hazards in neighbourhoods affect their choice of transportation mode used to travel to the schools. In the context of Auckland city, private vehicle use is lower in the Central Business District (CBD) and commonly increases further out from the centre (Paling, n.d). In general, the use of public transport is somewhat high in the isthmus because of the easy access to services and facilities in these areas. As the population escalates, the congestion on the roads will also increase. The built neighbourhood environment influences the active transport modes, leisure and physical activities (e.g. jogging, walking etc.) (Saelens & Handy, 2008; Brownson et al., 2009; Sallis et al., 2009).

Each local board in Auckland has goals and issues concerned with the transport status of the area. The Albert-Eden Local Board has emphasised the safety of pedestrians and is upgrading the walkways and pedestrian crossings in the area (Albert-Eden Local Board Plan, 2014). The Albert-Eden Local Board proposed the idea of introducing parking permits in residential areas in an effort to reduce the number of private cars and encourage the use of public transport. This Albert-Eden Local Board also wants to put in more walkways and cycle way routes, safer streets and encourage more people to use public transport into the future (Albert-Eden Local Board Plan, 2014). The people within the Whau local board area, which surrounds New Windsor School, have access to public transport such as the train and bus, however a weakness in the public transport system is the time it takes to get from one location to another. The board therefore aims to limit travel time to approximately 20 minutes to reach services and facilities (Whau Local Board Plan 2014, 2014). The Whau Local Board wants to put in place safe pathways that are well-lit, and provide its residents with affordable alternatives to

private cars by offering better access to bus and train stations (Whau Local Board Plan 2014, 2014). In the Maungakiekie-Eden local area, the roads are often congested with freight and cars, especially during peak hours (Maungakiekie-Tamaki Local Board Plan, 2014). The Board thus aims to facilitate residents to move through the neighbourhoods efficiently and safely, arranging more public transport to pass through more frequently, and also offering more active transportation routes such as walkways and cycle ways (Maungakiekie-Tamaki Local Board Plan, 2014).

Figure 3.3 Percentage of modal shares for journey's to work in local board areas, 2013

Source: Paling (n.d)

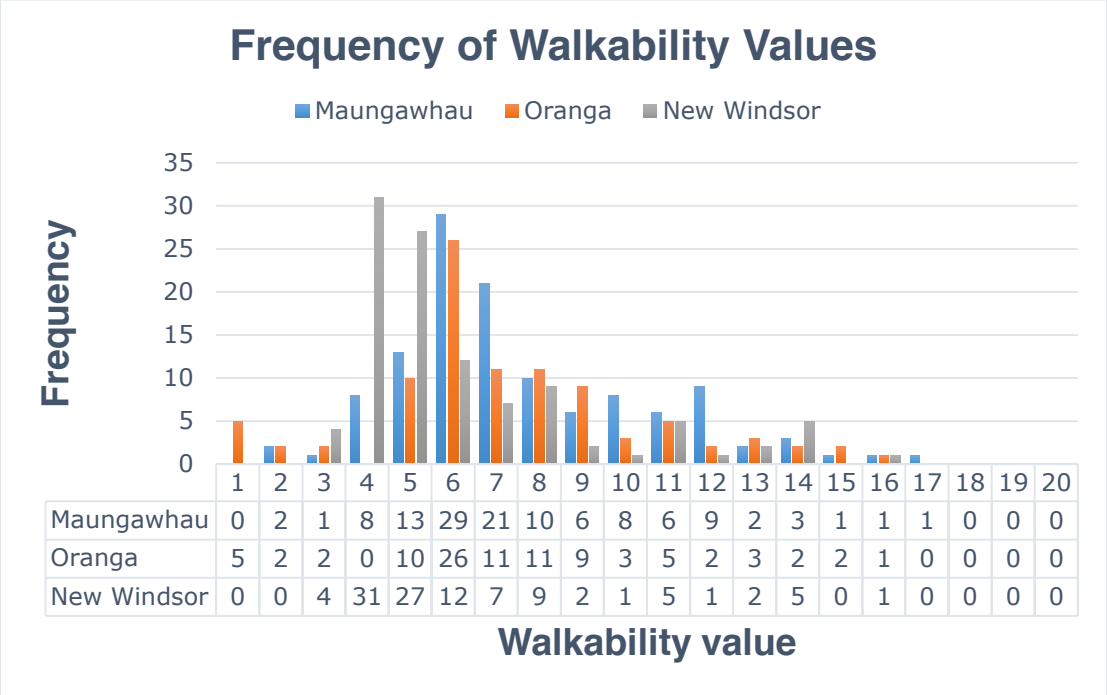


According to Figure 3.3, Albert-Eden has the lowest percentage of private transport use and its residents are most actively using public transport out of the three local boards in which the case study schools are located (Maungakiekie-Tamaki, Albert-Eden and Whau). This is, in part, because the Albert-Eden region is well connected to public transport. All three local boards have advocated to increase the frequency of public transport and create safer walkways and cycling paths, thus generating more effective and efficient transport modes for residents (Albert-

Eden Local Board Plan, 2014; Maungakiekie-Tamaki Local Board Plan, 2014; Whau Local Board Plan, 2014).

Built neighbourhood attributes such as aesthetics, street connectivity, traffic safety, land-use mix, pedestrian infrastructure and neighbourhood crime all influence residents' frequency of visitation to recreational spaces (Grow et al., 2008). For this research, how walkable neighbourhoods are was measured based on the three attributes: land-use mix, dwelling density and street connectivity. These were used in previous studies conducted by Sallis et al. (2006), Mavoa et al. (2009) and Van Dyck et al. (2010), as they are associated with active transport modes (Cao et al., 2007; Grow et al., 2008). Figure 3.4 and Table 3.3 show the walkability values within 1km of the three schools. The X-axis represents the walkability indexes, which are comprised of street connectivity, dwelling density and land-use mix (Mavoa et al., 2009). The higher the number, the more favourable walking conditions are in the neighbourhood, hence the likelihood of more people using active transportation modes. The frequency on the Y-axis represents the number of meshblocks in the neighbourhood. For example, there are five meshblocks in the Oranga neighbourhood that have a walkability value of one.

Figure 3.4 The walkability values in the Maungawhau, New Windsor and Oranga suburbs



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Maungawhau	0	2	1	8	13	29	21	10	6	8	6	9	2	3	1	1	1	0	0	0
Oranga	5	2	2	0	10	26	11	11	9	3	5	2	3	2	2	1	0	0	0	0
New Windsor	0	0	4	31	27	12	7	9	2	1	5	1	2	5	0	1	0	0	0	0

Source: Mavoa et al. (2009)

Table 3.3 Summary statistics of walkability values of Maungawhau, New Windsor and Oranga

	Maungawhau School (Albert –Eden)	**Oranga School** (Maungakiekie-Tamaki)	**New Windsor School** (Whau)
Mean	**7.67**	**7.32**	**6.27**
Min	**2**	**1**	**3**
Max	**17**	**16**	**16**

Source: Mavoa et al. (2009)

Out of the three schools, Maungawhau has the highest mean of walkability values, with Oranga falling close behind and New Windsor estimated as being the least walkable neighbourhood. These results suggest that residents in the Maungawhau area are more likely use active transport mode as opposed to residents in New Windsor and the Oranga area due to the high street connectivity, land-use mix and dwelling density.

Auckland population growth is unavoidable and has led to a proposed plan for the management of public open spaces and parks in the Auckland Plan in order to make it a liveable city (Auckland Council, 2013). Technological innovations and developments in the early twentieth century made urban development and urban sprawl possible (Arbury, 2005). For example, in Auckland, development dispersed from main Auckland roads such as Manukau Road and Dominion Road (Gillham, 2002 cited in Arbury, 2005). Auckland planners propose that in order to foster liveable conditions for urban dwellers residing within the inner city in the future, the addition of more outdoor areas and public green spaces should be considered (Cayford, 2014). There are areas that are impoverished in terms of green spaces in Auckland already, and there will be approximately 20,000 or more residents in the inner city without gardens, backyards and access to green spaces into the foreseeable future. This makes it crucial that public green spaces be considered within the city to meet the needs of its residents (Cayford, 2014).

3.2 Governance of School Green Spaces on a National Scale

In New Zealand, the Ministry of Education is the government's main consultant on the education system, determining the direction for education providers and contributing to the Government's goals for education (MoE, 2015b). The Ministry of Education (MoE) also determines the guidelines for all primary schools, such as those for student attendance, safety,

education, school policies and strategies. In particular regards to the guidelines around the green spaces of schools, safety, funding, supervision and insurance requirements need to be met (MoE, 2014b). The Board of Trustees (BoT) was introduced in 1989 as the governing body of primary and secondary schools (MoE, 2009). They are made up of staff representatives, the school principal and elected representatives and are responsible for the design and upgrading of structures within the school, as well as overseeing all aspects of school policy (MoE, 2012). The Board of Trustees is elected by parents within the school community (MoE, 2009). The justification behind the introduction of Boards of Trustees tends to the multiple layers of administration between local school and various central state agencies (Taskforce to Review Education Administration, 1988). All school boards are expected to abide by the MoE's project management requests and safety standards. The MoE also provides school boards with access to many guidelines to assist them with the developing policy on how schools can be safe for their users. The community therefore becomes part of adding to the performance of the school (Education Counts, 2015d).

In terms of access, the after-hours use of school grounds is a challenge even in public schools. The Crown owns public schools, but initially each individual school BoT creates their own guidelines for issues such as public access and after-hours use (MoE, 2014b). Even though public SGSs are located in the neighbourhood and recognised as being state owned, they can therefore potentially be regulated and perceived as mixed private-public spaces e.g. shopping malls and Aotea Square. Public spaces have been defined as "all areas that are open and accessible to all members of the public in society" (Orum & Neal, 2010:1). Public spaces can be free of charge or involve a payment fee, and is open for public use at any factual time (WCC, 2008). When planning public spaces, some significant characteristics considered is that the spaces are community driven, the function is prioritised over the form, is multifunctional (for the purpose of adapting to the unforeseeable future), and is context-specific to cater to the local residents (PPS, 2015). In the setting of this research, SGSs are not considered public spaces as they are highly controlled and governed by the school's BoT.

Schools in New Zealand refer to the procedures set by the MoE to assist in the management of all school and education related issues, which include school green spaces. For instance, legal frameworks such as the third party occupancy agreement are used to regulate the use of school grounds after-hours. The purpose of such agreements is to protect the school and all other parties involved. For example, the BoT must ensure that the school is not responsible for the supervision of users of the school grounds after-hours (MoE, 2014b). Non-school grounds use this agreement with respect to, for example, community sport teams' use of school

facilities. It is not common knowledge for many members of the community that public schools in their area have guidelines restricting access to public school green spaces, as it is common for individuals to use schools as shortcuts to pass through (MoE, 2014b). Parties such as Auckland Plan directors and the public have also supported the idea of having access to school green spaces as there has been much evidence acknowledging benefits for the community (e.g., to motivate community residents to be physically active and to use the spaces to boost their health and wellbeing) (Baker & Masud, 2010; MoE, 2014a; New Zealand Herald, 2015). Recreation and sporting opportunities are encouraged as they bring communities together (The New Zealand Herald, 2015). School green spaces are therefore central to the community in regards to children and families in the neighbourhood (Witten et al., 2007). The main focus of green spaces is to provide a site for low-cost and free opportunities for the community to participate in recreational and leisure activities, but what tend to be quite popular are "pay-for-play" sports, especially amongst youth, which do not often encompass a sense of community cohesion (New Zealand Herald, 2015). Pay-to-play involves individuals paying extra costs to participate in extracurricular activities to aid the running and costs of activities (Education-law.lawyers.com, 2015).

3.3 Green spaces in Auckland primary schools

The New Zealand Herald (2015) discusses ways in which schools, with their large areas of land with green fields and playgrounds, are being challenged by the reality of population growth. Auckland schools are increasingly facing issues of space-scarcity due to the pressure of housing intensification and the city's growing population. In some parts of Auckland, significant population increases have resulted in the Ministry of Education looking for possible solutions to remedy current and future rapid student roll increases. The Ministry of Education has predicted that within the next four years, approximately 200 additional classrooms will be needed in Auckland due to 5400 more children expected in primary schools (The New Zealand Herald, 2013).

Auckland consists of a young population compared to other cities in New Zealand (Demographic profile, 2014). Table 3.4 shows the percentage of the different age categories in the Auckland region compared to the rest of New Zealand. Auckland has a youthful population and ongoing growth is likely to be caused by migration of households to Auckland for education purposes (Demographic profile, 2014). Due to the continuing rapid population growth in Auckland, more facilities and infrastructure will be needed to support the population (Jones, 2014). Jones (2014) further adds that solutions put forward include: encouraging intermediate

schools to accept primary school aged students, shifting school zones, and building two-storey blocks.

Table 3.4 Distribution of residents by age groups

Age Group	Auckland Region	The rest of New Zealand
	Percentage (%)	**Percentage (%)**
0-4 Years	7.2	6.7
5-19 Years	21.0	20.3
20-39 Years	28.4	23.7
40-64 Years	31.9	33.6
65+ Years	11.5	15.7

(Adapted from source: demographic profile – report 1: census 2013, 2014)

The Auckland Plan is the big picture plan for Auckland for the next 30 years. It is a strategy that aims to work towards making Auckland the most liveable city in the world by improving the overall environmental, social, cultural and economic wellbeing of the city (Auckland Council, 2015b). The Unitary Plan is used to guide and implement the Auckland plan. (Auckland Council, 2015b). At present, the Auckland Plan contends that the intensification of the city will save the rural areas through encouraging public transport, thus lowering the number of car journeys (Laxon, 2012), hence automatically reducing the level of pollutants and decreasing the demand on fuels (Auckland Council, 2015b). The Unitary Plan has involved public reactions to the draft regarding the intensification of Auckland, and the responses have been positive (Krupp, 2014). A more compact Auckland City will also relieve issues such as an increase in school enrolments putting pressure on current green spaces, as more classrooms are needed to cater the needs of the many students. What is worrying is that just over a quarter of the school pupil population growth is expected to be centred on the isthmus, where land is scarce and more intensification is likely to occur (Jones, 2014). For example Pt. Chevalier School is one of the larger Auckland primary schools located in the inner city of Auckland (Bilby, 2013). Pt. Chevalier School's total school roll at the end of 2013 was 706 and this total roll increased to 780 by the end of 2014, meaning that 6 new classrooms were added to the school blocks (Bilby, 2013). Bilby (2013) illustrates that the BoT recognised the value of the existing school green spaces and did not want to risk losing any more, hence the decision to build classrooms upwards as opposed to spreading outwards.

The New Zealand Herald (2013) proposed that the best solution to preserving school green spaces was to ensure that the facilities within green spaces are well utilised now and by future generations. This idea of utilising school facilities more is not a new concept; governments

in England have purposely built new schools with gyms, theatres and fields, and have made these schools' facilities available to the public after-hours (Bilby, 2013).

3.4 Case study schools in Auckland

Auckland was chosen as the study site because it is New Zealand's fastest-growing, largest and most ethnically diverse city (Carroll et al., 2015). Due to the size of Auckland, there are many state primary schools that permit the utilisation of SGSs after-hours. All three case study primary schools in this research are public schools. Each school was chosen according to a checklist of characteristics. These characteristics are:

- All three schools were located in Auckland city
- All state primary schools
- High levels of foot traffic during preliminary observations
- Traditional playground design: defined as 'mass produced' equipment e.g. Jungle gyms and green field areas for sports (Brett et al., 1993)
- Different school deciles
- Located in different neighbourhoods
- Varying in proximity to arterial roads
- Different facilities and amenities e.g. outdoor versus indoor swimming pools

The purpose of the checklist was to make comparisons and contrasts between the three chosen case study schools. The three case study schools are: Maungawhau school (decile 10), New Windsor school (decile 4), and Oranga school (decile 3). Decile 1 schools consist of the highest proportion of students within the 10% of schools from low socio-economic communities and decile 10 schools consist of the highest proportion of students within the 10% of schools from high socioeconomic communities (MoE, 2014b). The school deciles are constructed based on a socio-economic indicator gathered from census data from households with students in each school's local area (MoE, 2014b). The lower the decile, the more government funding the school receives for resources to assist students and to support their education (MoE, 2015b). A decile, however, does not measure the quality of education provided at a school or suggest the general socio-economic combination of students who attend the school (MoE, 2015a).

Table 3.5 The approximate total area and perimeter of green spaces in each case study school

	Maungawhau School	New Windsor School	Oranga School
Total Area (m^2)	14196.25	13290.38	17440.40
Total perimeter (m)	1260.53	1039.70	1315.70

Source: Maps.aucklandcouncil.govt.nz (n.d)

3.4.1 Maungawhau School

Maungawhau School is located in the central suburb of Mt Eden, and both are named after the extinct volcano that is a focal point to many residents in the suburb (Mount Eden, n.d.). Originally a Maori settlement, then a European farming area in 1881 (Guide, n.d.), it became a train stop for the transport of people and goods, servicing other suburbs such as Mt Albert, Morningside and Kingsland. Eventually, other forms of transports such as electric trams connected the city with Mt Eden in 1902 (Mount Eden, n.d.). Later, land along Mt Eden Road was residentially subdivided, but some of the more valuable land was transformed into commercial buildings in what is now regarded as 'Mt Eden Village'. In the late 20th Century, gentrification took place with housing renewal and the appearance of commercial 'chic' is reflected in café's such as Circus Circus. Today, the unique features of Mt Eden are the bungalows and villas with ample private green spaces (lawns and trees). Along with these older forms of housing, there are also town houses and apartments in this 'leafy' neighbourhood (Guide, n.d.).

Figure 3.5 Maungawhau School

The total number of residents in the area of Maungawhau recorded in the 2013 census was 3918 people (as shown on Table 3.1). Maungawhau School is located in a quiet suburban area between Wairiki Road and Ellerton Road. Wairiki Road is parallel to Balmoral Road and runs perpendicular to Mt Eden Road, which are both busy arterial roads. Maungawhau School is a state school providing education for children years 1-6. The school roll has increased from a total of 607 in 2010, to 649 in 2014 (Education Counts, 2015c). The majority of students who attend Maungawhau School are European/Pakeha (68.6%). Other ethnic groups included are: Asian (22.7%), Pasifika (3.4%), Maori (2.8%), and MELAA (Middle Eastern, Latin American, and African) (2.5%) (Education Counts, 2015c). The streets surrounding the school itself are relatively heavy with traffic, especially intensifying during pick-up and drop-off peak hours. There is also considerable foot traffic around the neighbourhood, with local residents walking their dogs, recreationally walking, running and cycling along the pathways of Mt Eden. The Maungawhau School grounds are well used after-hours not only by current students who attend the school, but also by the community. Maungawhau School also runs an after-school programme from 1:30pm – 6pm. This programme encourages children to use the SGSs, whilst also ensuring a safe and secure environment.

3.4.2 New Windsor School

The total number of people residing in New Windsor was 6468 in 2013 (see Table 3.1). New Windsor School is located in the western suburb of New Windsor in the Auckland local board region of Whau. New Windsor is approximately 7.99 kilometres away from the CBD (see Table 3.1) and is surrounded by the neighbouring suburbs of Blockhouse Bay, Mt Albert, Owairaka and Avondale (Qv, 2015). Maori primarily resided in this area until the development of railways in the mid-1800s led to European settlement. In 1865, its further development led to a residential area (Qv, 2015). The most common houses seen in the New Windsor are typically infill housing and weatherboard bungalows constructed approximately 30 years ago (Newey, 2005). Newey (2005) states that the inhabitants in New Windsor are made up of middle-class families. New Windsor School and Hendon Park are both facilities available for residents in the area. New Windsor School is also adjacent to a preschool play centre, which helps make the school a focal point of the community (New Windsor, 2013).

Figure 3.6 New Windsor School

New Windsor School is located on the busy arterial road of New Windsor Road, which is close to the southern motorway. Like Maungawhau, New Windsor School caters for children in

years 1-6. The school roll has increased from a total of 531 in 2010, to 576 in 2014 (Education Counts, 2015c). The majority of students who attend New Windsor School are Asian (35.2%). Other ethnic groups included are: Pasifika (22.4%), Maori (18.6%), European/Pakeha (14.4%), MELAA (8.9%) and other (0.5%) (Education Counts, 2015c). New Windsor school has one of the only public green spaces in the area and therefore offers a key resource in the community. New Windsor School also has an after-school programme but it is run independently from the school. It is called OSCAN (Out of School Care Activity and Network) and goes from 3pm to 6pm (New Windsor School, 2015).

3.4.3 Oranga School

Oranga School is located in the quiet suburb of Oranga, and is part of the Maungakiekie-Tamaki local area. The neighbourhood is quite peaceful due to the lack of foot traffic and vehicles passing through. Oranga School is located on the quiet Rangipawa and Maroa Roads in a suburban block near one of Auckland's volcanic peaks - One Tree Hill. This suburb is 7.08 kilometres from central Auckland, close in proximity to the Dressmart outlet mall, the Stardome Observatory and major routes SH1 and SH20. The majority of housing in the Oranga area is weatherboard state houses and infill housing (Newey, 2005). Oranga is also a popular suburb for individuals who work at the airport but do not want to reside in South Auckland (Newey, 2005). Today, houses in this area are recognised as being affordable substitutes for other areas closer to the CBD. It only takes approximately 15 minutes to drive to the CBD in light traffic (Newey, 2005). The total number of residents in the One Tree Hill area was 2664 (as shown in Table 3.1).

Figure 3.7 Oranga School

Oranga School is a state school catering for children in years 1-6. The school roll has increased from a total of 288 in 2010, to 295 in 2014 (Education Counts, 2015c). The most recent school roll total is 295 students (152 females and 143 males) (Education Counts, 2015c). The majority of students who attend Oranga School are Pasifika students, making up 50.8%. Other ethnic groups included are: European/Pakeha (22.7%), Maori (13.2%), Asian (10.1%), and MELAA (3.1%) (Education Counts, 2015c). Oranga School is not close to any main roads, and therefore this may impact on the degree of green space use after-hours at the school. Oranga School had a sKIDs programme running afterschool at the school. sKIDs is a franchise that started in 1996 and consists of more than 70 centres across the country (Skids.co.nz., 2011a). This programme offers affordable, organised care before and after school, and even during the holidays (Skids.co.nz, 2011a).

3.5 Summary

Auckland's population growth has put pressure on the number of green spaces available for Auckland residents to enjoy a comfortable lifestyle. The vision of Auckland's future involves planning for a more compact city as opposed to urban sprawl. As this vision is popular amongst developers, it is not a good enough long-term plan, according to Arbury (2005), who argues that

compact cities do not result in what they claim to achieve. Indeed, he argues that the intensification of cities does not save rural areas, reduce pollution and car journeys as it has been assumed (Arbury, 2005). Despite this, the idea of building schools upwards is still in favour, as this is believed to be a better option than reducing the green spaces.

SGSs essentially serve the same purpose as local parks. Both the parks in high socioeconomic neighbourhoods' parks and high decile schools tend to have more amenities and facilities compared to the parks in low socioeconomic areas and low decile schools (Crawford et al., 2008). From initial field observations, Maungawhau School had one more jungle gym, a pool, and a tennis court, which were not present at Oranga School. Councils do not determine the type of facilities allocated to schools in the same way as they do for local parks. Rather, the facilities at schools are dependent on the total school roll, and decisions are made by the school management and the BoT. Each school board is responsible for upgrading, designing and building playgrounds, but before a playground can be built, schools are required to obtain consent from the local council. Once the school has consent, the playground needs to meet the Ministry of Education's list of requirements to ensure the health and safety of its users (Minedu.govt.nz, 2015c).

This chapter has examined the location and status of each case study primary school, thus providing the background context for this research. The access to school green spaces is presumed to increase the recreational activities within green spaces. Previously, it was proposed that an adequate, decent supply of recreation opportunities encourages outdoor recreation (Henderson & Bialeschki, 2005). If more schools were to restrict the public access to school green spaces after-hours, there would be insufficient public green spaces to support the number to residents living in their suburbs and local board areas. Currently, the facilities at Maungawhau School, New Windsor School and Oranga School not only serve educational purposes but also provide students, their families, and the rest of the community with spaces for passive and active activity. What may need to be made more evident however, are the policies regarding the use of SGSs after-hours. The community of parents and other nearby neighbourhood residents should be better informed about the rules around public access, whether it is through signage on the school, on community notice boards or forums, or on school websites.

Witten et al. (2003) discuss that public access to these facilities not only provides a means for physical activity, but also a meeting destination for individuals outside of work and home settings and where new social bonds can form. The health benefits of social networks and belonging to a community has also shown to contribute to residents' health, independent of environmental factors (Rocco & Suhrcke, 2012). Kearns et al. (2000) conclude that local services

and the quality of facilities and amenities do not just influence the daily routines of residents, but also influence the impression of the community, thus impacting upon the quality of social interactions experienced within said community. These schools also cater to the needs of organised groups and sports teams after-hours. Identifying the location and environments of the chosen case study schools is essential to understanding the contributing factors encouraging the use of green spaces at schools after-hours. The methodologies used to conduct this research are presented in the next chapter.

CHAPTER FOUR

RESEARCH STRATEGY

4.1 Introduction

The availability and sustainability of public green spaces in urban areas has been an ongoing focus in geographical and public health research as they are significant to the health and wellbeing of the residents (Dyment & Bell, 2007; Lucas & Dyment, 2010; McAllister et al., 2012). It is well documented that different environments, including SGSs in this context, influence different behaviours and sometimes encourage some activities and discourage others (Paronen, 2005).

This thesis focuses on the associations between the concepts of neighbourhood characteristics, school governance, and the quality of facilities and amenities in order to investigate the value of SGSs. This chapter frames the research methods used to meet the objectives of this research project. This research aims to evaluate the value of school green spaces beyond their primary use (providing enjoyment for students during school hours). It also expands on the use of the school green spaces for after-hour use to benefit the community, as well as to support the future of Auckland's plan of being a liveable and sustainable city. Earlier research in the context of parks and their association with physical activities has largely used

quantitative methods (Kaczynski & Henderson, 2007). This research will use a mixed methods approach to explore the associations between various factors motivating and hindering the use of school green spaces after-hours. This approach will also ensure an in-depth understanding of the green space users in regards to their perceptions of the significance of the school green spaces within the community. As such, this research can influence future decision-making and planning, as stakeholders will have knowledge and a sense of awareness of how to cater to people's demands. This mixed methods approach will involve quantitative methodologies of categorising observations taking place within school green spaces after-hours, and qualitative methodologies of interviewing key stakeholders who were deemed most applicable for researching the significance of school green spaces after-hours in Auckland public primary schools. The qualitative methods can be used to complement the quantitative findings obtained through tallying the number of people observed interacting in each green space (e.g. field, swimming pool, courts, sandpit, jungle gym etc.) within each school. The qualitative findings can also be useful for explaining possible inconsistencies in the quantitative results (McCormack et al., 2010). This chapter introduces the research strategy and the methodologies conducted to explore the reasons behind the use of school green spaces after-hours in three Auckland primary schools.

4.2 A Case study approach

The focus of this study is to explore the factors influencing the use of SGSs by analysing the activities and perceptions of the public users of these spaces during out of school hours. A case study-based design examining three primary schools in Auckland was adopted. The purpose of using case studies is to study a distinct component in order to understand a larger phenomenon (Baxter, 2010). Investigating the underlying processes in real life settings is crucial for gaining an insight into phenomena that occur (Yin, 2008). Using case studies is also a useful technique for allowing generalisations to be made (Baxter, 2010).

Due to the size and complexity of the various green spaces and schools located in Auckland, a combination of secondary and primary data were used to work towards satisfying the objectives of this research. An enumerative approach using categorical tables to record observations, in combination with semi-structured interviews, allowed for the development of an understanding of factors influencing the use of SGSs. The main objective of this research is to investigate individuals' activities out of school hours. Specific times were therefore chosen to conduct observations and semi-structured interviews with public users of the school spaces. The times selected were from 7 – 8 am and 4 – 6 pm, so as to compare the use of green spaces in the morning and afternoon and determine whether or not this affected the demographic make-up of

those using green spaces. Specific days were also allocated. During the school term, each case study school was observed for five weekdays and two weekends each, for the purposes of comparing the frequency of activities between weekdays and weekends. Over the summer holidays, each school was also observed for three weekdays and one weekend each. This was done because the focus was on 'out of hours' engagement, and summer holidays are in fact the longest 'out of hours' time frame during the whole year.

4.2.1 Ethical Considerations

Prior to the observation and interviewing process, the research strategy was approved by the University of Auckland Human Participants Ethics Committee (UAHPEC) with the reference number 2015/013318. All participants being interviewed were provided with Participation Information Sheets (PIS). These explained the significance and purpose of the research, informed them that their involvement was voluntary, how the information which they provided would be used, stored and destroyed, their right to withdraw, protection of their identity, and the researcher's contact details for any further enquiries (see Appendix A). Participants who were willing to participate in the research were then asked to sign a consent form to ensure that they understood how their participation would contribute towards the research project (see Appendix B). The school principal and Chair of the Board of Trustees (BoT) from each case study school were contacted before conducting fieldwork to inform them of the study and to gain permission for the researcher to be present on school grounds after-hours. I also used this contact to secure an interview with the chair of the BoT. To ensure anonymity, all participants are hence protected with codes in this thesis. However, ethical allowances, the identities of the schools, and the chair of the school BoTs remained transparent to meet research objectives, and this was deemed acceptable by the ethics committee.

The PISs and consents forms were created to be applicable for the intended stakeholder groups (e.g. Principals, Chair of Board of Trustees and the general public). In terms of anonymity, all participants were protected with codes as opposed to using their names in this study. However, the schools and the chair of the school board of trustees will be revealed, as they are relevant for identifying trends in order to fulfil research objectives.

4.3 Data Collection

A variety of sources and tools were used to collect data to achieve the objectives of this study. Firstly, literature based on green spaces, schools and parks were gathered from various scholarly databases (i.e. PubMed, PsycInfo and ScienceDirect). Key themes and relationships

were frequently emphasised in the literature, and these assisted with the development the overarching framework for this research. Table 4.1 has summarised the methods and stakeholders involved in the research with the aim of satisfying each objective.

Table 4.1 showing the objectives, methods and participants involved

Objectives	Methods	Sources
To survey the accessibility of school green spaces after-hours and related policies	• Secondary data sources (eg. Policy and planning documents) • Semi-structured interviews	• Chair of the Board of Trustees
To assess the degree to which the design of green spaces encourages physical and social activity	• Semi-structured interviews	• Public users of school green spaces
To evaluate the nature of activities taking place in school green spaces after-hours	• Observations • Semi-structured interviews	• Public users of school green spaces
To examine and analyse the importance of spaces for their contribution to the development of social and physical wellbeing	• Secondary sources	• Articles, Newspapers

4.3.1 Secondary Data

Various sources have contributed towards this thesis, including secondary data drawn from national and international websites, census statistics and newspaper articles focused on green spaces, urban intensification, Auckland schools, and the future of Auckland. The secondary data provided a foundation for the primary data collection. Websites from the Ministry of Education and Education counts, for example, provided background information about the governance and deciles of schools, and specifically how green spaces are governed in public primary schools. Population statistics of specific regions shed light on the backgrounds of

inhabitants and determine the general socioeconomic level of the neighbourhoods surrounding the case study schools. Secondary data sources assisted in identifying contacts for key stakeholders who influence the use of school spaces, such as the Board of Trustees, who are responsible for the policies regarding the use of school grounds after-hours.

4.3.2 Primary Data

The data collection process started with the compilation of a list of primary schools in the Auckland city region from the website www.tki.org.nz/schools/Auckland-Region. This site was able to filter out integrated (mainly Catholic) and contributing schools, and revealed all schools educating students from years 1 – 6 (Education counts, 2015b). This filtering was needed because there are many schools in the Auckland region. I later used the list of primary schools further, and filtered them until three case study schools were chosen based on the varying levels of the socioeconomic status of the contributing neighbourhoods of each school. The list was separated into three categories according to each school's decile. For the purpose of this research, schools ranging from decile 1 to 3 were grouped into the 'low decile' groups, schools ranging from 4 to 7 were classified as the 'mid decile' category and finally, schools ranging from 8 to 10 were sorted in the 'high decile' group. The policies around school use after-hours were not publically available, so the school administrators were called to specifically ask whether schools were open for public use out of school hours. A process of elimination was used to remove the schools that were not open for public use after-hours from further consideration. Preliminary observations were conducted at the remaining schools on the list. This observational process consisted of travelling to the listed schools that were open to the public after-hours (see Appendix C). The open spaces on the listed school properties were observed to obtain a sense of the pedestrian traffic to and in each school. A preliminary observation table was created and used to note the features and layout of each primary school to calculate the number of facilities in the outdoor spaces of each school. This process determined the schools most suitable for the research. The three chosen case study schools were Oranga School, New Windsor School and Maungawhau School.

Table 4.2 Showing primary schools, deciles and total roll

Decile	Primary School	Total Roll
3	Oranga	295
4	New Windsor	576
10	Maungawhau	649

Source: Educationcounts.govt.nz

The principals and the Chair of the Board of Trustees from the chosen schools were emailed PISs and consent forms to inform them about the purpose of the research and to invite the Chair of the Board of Trustees to be interviewed. Once permission was granted by each school, observations within school grounds were conducted.

Sample and Recruitment

Sampling schemes are strategies used to select units such as people, groups and settings (Onwuegbuzie & Collins, 2007). When selecting a sample group, O'Leary & O'Leary (2010) suggest that the goal is to choose a sample that is small enough to manage but large enough to conduct the desired evaluations. Observations and interview data were collected over January to March 2015. This period was selected because it included school holidays, and it was during the summer period of daylight savings (hence longer evenings). Those observed were individuals and groups who were using the green spaces during the set research days and times. The sample population interviewed in the qualitative part of the research were selected on the basis of them being green space users, 16 years and older, and engaging in either active or passive activity. The age limitation was established as it was assumed that by this age users would have developed an understanding of the relevant issues surrounding SGSs. This age also coincided with that set by the ethics committee for people being able to consent to participate (Heath et al., 2009). The number of interviewees from each school varied due to the number of people present and their willingness to participate (See Table 4.3).

Table 4.3 List of Interviewees

Reference	Day	Period	School	Date	Time
Participant 1 – M1	Weekday	Summer holidays	Maungawhau	13/01/15	4-6pm
Participant 2 – O1	Weekday	Summer holidays	Oranga	14/01/15	4-6pm
Participant 3 – NW1	Weekday	Summer holidays	New Windsor	15/01/15	4-6pm
Participant 4 – M2	Weekend	Summer holidays	Maungawhau	18/01/15	4-6pm
Participant 5 – NW2	Weekday	Summer holidays	New Windsor	20/01/15	4-6pm
Participant 6 – NW3	Weekday	Summer holidays	New Windsor	20/01/15	4-6pm

Participant 7 – M3	Weekday	Summer holidays	Maungawhau	22/01/15	4-6pm
Participant 8 – NW4	Weekday	Summer holidays	New Windsor	23/01/15	4-6pm
Participant 9 – NW5	Weekend	Summer holidays	New Windsor	01/02/15	4-6pm
Participant 10 – M4	Weekday	School days	Maungawhau	02/02/15	4-6pm
Participant 11 – M5	Weekday	School days	Maungawhau	04/02/15	4-6pm
Participant 12 – M6	Weekend	School days	Maungawhau	07/02/15	4-6pm
Participant 13 – M7	Weekend	School days	Maungawhau	08/02/15	4-6pm
Participant 14 – M8	Weekend	School days	Maungawhau	08/02/15	4-6pm
Participant 15 – O2	Weekday	School days	Oranga	11/02/15	4-6pm
Participant 16 – NW6	Weekday	School days	New Windsor	16/02/15	4-6pm
Participant 17 – NW7	Weekday	School days	New Windsor	19/02/15	4-6pm

Interviews with the chairs of the Board of Trustees were organised through email and undertaken at a mutually convenient time and place (Table 4.4).

Table 4.4 showing the Chair of the Board of trustees from each case study school

Interviewee	**School**	**Date**	**Time**	**Location**
Georgina Pauling	Maungawhau School	02/03/15	4pm	Maungawhau School
Kerynn Brannigan	New Windsor School	03/03/15	11am	New Windsor School
Anne Younger	Oranga School	31/04/15	9am	Oranga School

4.3.3 Observations

"Taking part in the world, not just representing it" – Michael A. Crang (1997)

As discussed in Chapter two, SGSs essentially provide the same benefits as other public open green spaces. Observations within the green spaces of the three primary schools provided an insight into the everyday behaviours and interactions of users within the school green spaces after-hours. The data collection method used was non-participant observation. Kumar (2011) describes non-participant observation as drawing conclusions from being a passive observer of activities. The naturalistic method was used because observation of undisturbed behaviours was sought within each green space category. Observations from each school were recorded using a categorical recording table and narrative recoding where brief comments were made (see Appendix D). The preliminary observations table was used to organise field observations and included SGSs divided into multiple categories, where the number of individuals in each green space category were tallied along with additional observation notes such as social interactions, equipment used and physical activities. The preliminary observation tables and observation tables were adapted from Broomhall et al.'s (2004) public open space tool model and the Active living research (2014) SOPLAY (System for observing play and leisure activity in youth) table.

Each school was observed twice a day (in the morning and afternoon) over the school holidays and school days after-hours (before 8am and after 3pm), which included weekdays and weekends. The observation process involved blending in with the public, observing each green space category within the school, and noting the different types of users, equipment, activities and interactions seen. Being in the field led to an in-depth understanding of the context, as the experience of observation was more than just seeing, it was experiencing the sense of place with all senses (Kearns, 2010). For example, research has signified a relationship between human health and sensory views of natural environments (Grahn & Stigsdotter, 2010). In terms of my research, SGSs provide the same opportunities as other urban green spaces and can benefit residents when they are utilised and residents are exposed to the natural environment. As SGSs are also urban green spaces, they can claim the same benefits revealed by past studies based on the benefits of urban green spaces, including reducing stress, offering solitude, and increasing opportunities for the urban population to be present in nature (Fuller et al., 2007; Woo et al., 2009). Nilsson and Berglund (2006) discussed sounds in city parks and suburban green spaces. Their study's research findings showed that suburban green spaces produced more sounds from nature (e.g. insects, leaves, and wind) and less human (e.g. children playing, people talking) and

technological (e.g. road traffic, aeroplanes, boats) sounds. Suburban green spaces were therefore more pleasant, as the sounds from nature improved soundscape quality (Axelsson et al., 2005; Ge & Hokao, 2005; Nilsson & Berglund, 2006). The environment at all the case study schools seemed relaxing, and as the roads surrounding the schools were not heavy with traffic, more natural sounds were experienced during observations. Another widely explored sense is sight, as visual features of the natural environment impact people's aesthetic sensitivity and mental relief (Chen et al., 2009; Jim & Chen, 2010). Jim and Chen (2010) expressed the importance of the aesthetic quality of the natural environment, especially in dense cities like Hong Kong where the urban landscape consists of many high-rise buildings. It has been revealed in earlier studies that the aesthetic quality of landscapes is important, as this can encourage physical activity (Owen et al., 2004; Bauman & Bull, 2007). This component was relevant to observations because the aesthetic qualities of each school encourage various types of activities in the SGSs.

4.3.4 Interviews

Semi-structured interviews were conducted with a number of public users and the chair of Board of Trustees from each case study school. The participants for semi-structured interviews were chosen on the basis of being individuals who were observed using the school green spaces. It is essential to acknowledge the distinctive opinions of the green space users of the schools as they provide an 'insider's' perspective of the space. Insiders can be defined as individuals who share the experiences and realities of a community, institution, organisation or cultural environment (O'Leary & O'Leary, 2010).

Before the semi-structured interviews were conducted, the term 'school green spaces' was defined for the interviewees as 'open spaces for the purposes of influencing active and passive recreation in the school environment'. The interview questions were based on themes such as neighbourhood safety, frequency of use, accessibility, preference of facilities, and perceptions of how green spaces affect their social and physical wellbeing (see Appendix E). These questions were based on research objectives that were designed to encourage detailed and in-depth responses from participants. All interviews with participants were conducted face-to-face and on site. Semi-structured interviews were used to allow flexibility and a defined guided plan, which led to a more natural, free flowing conversation with participants (O'Leary & O'Leary, 2010). Conducting interviews in an informal manner and one-on-one allows participants to be more relaxed, thus providing detailed responses to the interview questions and giving them more confidence to express their own thoughts and feelings (O'Leary & O'Leary, 2010). All participants were given PISs with details about the purpose of the study, and a consent form to sign to ensure that this research project was undertaken in an ethically sound manner.

Semi-structured interviews conducted with the chair of the BoTs from each school were audio-recorded. The questions were based on the schools' policies in regards to green spaces, security and the future of green spaces due to possible increase in students and the subsequent pressure on school grounds for classroom and other building developments (see Appendix F). The chairs were contacted through email to organise a time and place to be interviewed. All interviews were conducted after field observations.

4.4 Coding and Data Analysis

The field data were analysed to explore the factors influencing the use of school green spaces out of hours with the aim of understanding the motivations for the interactions observed. The raw data collected from the fieldwork were coded and converted into useful forms for data analysis. The observations at each school were divided into green space categories, and the number of users after-hours during 7-8 am and 4-6 pm were tallied in tabular form along with additional comments noting the equipment used, interactions and activities witnessed. The observations were converted into histograms because they can illustrate distribution and trends in the data (Creswell & Plano Clark, 2007), including the number of green space users, their age categories, and the type of activity (passive or active, formal or informal) and the temporal regularity of green space use. Additional comments recorded during the observations were presented in tables showing the interactions, behaviours, and individuals in school uniform, and equipment used in each green space category.

In terms of the qualitative data, thematic categorising and coding was used to identify common themes within the research (Gibbs, 2007). Ayres (2008) described thematic coding as an analysis and data reduction strategy for categorising the qualitative data in order to capture the key concepts from the data set. Key themes determined from academic literature and from interviews were: social and physical wellbeing, accessibility, most popular activities and facilities, safety and surveillance, governance, and spatial planning. In the context of this study, participants' responses during semi-structured interviews indicated that SGSs encourage social and physical activity. Narratives are able to present the views and everyday realities of individuals as being meaningful (Bamberg & Cooper, 2012). The interest of narratives lies with the notion of being able to perceive and experience the world through the participants' stories (Webster & Mertova, 2007). In this research, narratives are not only providing an insight into their experiences but also support the framework of this research. The interviews conducted with the public users of the school green spaces provided various perspectives concerning factors influencing their use of the SGSs due to the diversity of the sampled participants.

The interviews that were audio-recorded were transcribed by the researcher. A denaturalised approach to transcribing was used. Oliver et al. (2005) defined this approach as excluding eccentric features of speech (e.g. pauses, involuntary vocalisations, stutters etc.) which draw focus to the meaning of the speech that creates our reality. Once the audio-recorded interviews were transcribed, key themes from the transcripts were highlighted based on their significance in terms of observations and the conceptual framework generated from past literature in Chapter 2.

4.5 Positionality

As a social science researcher, reflecting on one's own position as a researcher is important as certain biases can impact participants' responses and my own observations and analyses in this research (Merriam et al., 2001; Bourke, 2014). The way I dressed when I was conducting observations and semi-structured interviews made me blend in with other parents/caregivers of children. Being a young Asian female, I believe, was an advantage for recruiting participants my research.

This research topic was derived from the mere curiosity of how SGSs are utilised after-hours and their significance within the community. I personally had the joy of being in SGSs when I was younger. I would often go to my local school with my family after dinner during summer and play on the jungle gyms and on the field. As I got older, I stopped using the SGSs because my interests shifted from unstructured play to leisure physical activity (e.g. walking and running). I have a sense of place attachment for my local SGS, as it is associated with many sentimental memories.

SGSs provide a sense of place attachment and bring back nostalgic memories for their users. As stated by Bourke (2014), a researcher's cultural and educational background, political stance and beliefs can affect the investigation process. As I was born and raised in Auckland all my life, I was familiar with the some of the primary schools in the Auckland region. Although I have no pre-existing ties with any of the three chosen case study schools, I knew of them. Moreover, the fact that I am still in my twenties and do not have children limits my understanding of what parents and older age groups considered motivators and inhibitors of the usage of SGSs. In this situation, the boundaries of an insider and outsider were blurred, as I was an insider in the sense that I was also just a member of the public utilising the SGSs, but an outsider when my identity as a university was made apparent to the green space users. During the interview process for this research, as the interviewer, it was therefore necessary not to reveal my personal opinions, but to encourage theirs.

This research is merely a snapshot of the current situation of SGSs in Auckland within three state primary schools. This snap shot was within the small time frame of January – February 2015, which did not capture the full extent to which SGSs are utilised in a full 24-hour day, and throughout the year.

4.6 Limitations

While this research aimed to seek the significance of SGSs through investigating case study schools in the Auckland city region, there were various limitations identified during the research process. The geographic bias and limited sample size may not be an accurate and representative generalisation of the SGS users of the Auckland population. Furthermore, the field research only analysed the use of SGSs after-hours during the summer, and results can therefore only aim to generalise summer interactions at schools. According to Ergler et al. (2013), children's play is likely to be constrained during winter, as parents are more concerned about falling ill due to the cold and wet weather. Outdoor play has been shown to increase significantly during the summer months and this was something that needed to be taken into account when analysing the data (Mikkelsen & Christensen, 2009; Castonguay & Jutras, 2010).

4.7 Summary

This chapter has summarised the research procedures used to collect data in three case study schools in Auckland. The most appropriate method to achieve the goal of this research project was a mixed methods approach, as this combined components from quantitative and qualitative research approaches for the purpose obtaining of a full and thorough understanding (Johnson et al., 2007). Three case studies were chosen to represent three different levels of socioeconomic neighbourhood levels (low, middle, high) for the purpose of generalising the usage of SGSs of other state primary schools in the Auckland city region and on the larger scale of New Zealand too. Various sources were needed to assist with answering the research objectives, which contribute towards understanding the factors that influence the usage of SGSs in primary schools in the Auckland context. This insight ensures efficient policy and planning of the future and relies on the views of various stakeholders. The research findings in the following chapter will display the use, interactions and perceptions of the SGSs to show the significance of the public having access to them after-hours.

CHAPTER FIVE

THE IMPORTANCE OF SCHOOL GREEN SPACES - PERSPECTIVES AND BEHAVIOURS OF RESIDENTS

5.1 Introduction

The policies governing the school grounds are a key component influencing the accessibility to schools and their green spaces. The previous chapter drew on secondary sources to outline the steps and policies involved in governing state primary schools. The specific details of how each individual state school is governed depend on the key stakeholders within the school community, e.g. parents, Board of Trustees (BoT) and school staff. This chapter presents and interprets the research findings drawing on field observations and interviews with users of the SGSs and interviews with the chair of the BoT from each chosen case study school. The goal is to provide insight into the importance of school spaces for the community after-hours.

5.2 The Nature of Interactions within School Green Spaces After-hours

Schools are recognised for being important settings where children can participate in recreational activities (Willenberg et al., 2010). This research was interested in not only children but also all users of the SGSs. In all three case study schools visited, considerable activity within the school grounds after-hours was noted. The majority of the activity observed and recorded was in the afternoon observation (4 – 6 pm) as opposed to the morning (7 – 8 am), thus, all the semi-structured interviews with the participants that this chapter reports were conducted in the afternoon (see Chapter 4).

5.2.1 Passive versus Active Activity

For the purpose of this study, the level of activity was categorised into two groups: passive and active activity. Passive activity was defined as using the green space without being

engaged in any physical activity (e.g. picnics, sitting, stationary status). Active activity is defined as recreational activities that need substantial expenditure of energy (e.g. walking and recreational sports).

As figure 5.1 shows, the majority of the users participated in active activity during the school holidays. Often the users who were classified in the passive activity category were parents and guardians supervising children who were involved in active recreational activity. Maungawhau School also had the most passive users during the school holidays because they had significantly more people using the green spaces compared to the other two schools.

Figure 5.1 Comparing passive and active activities between schools during the school holidays

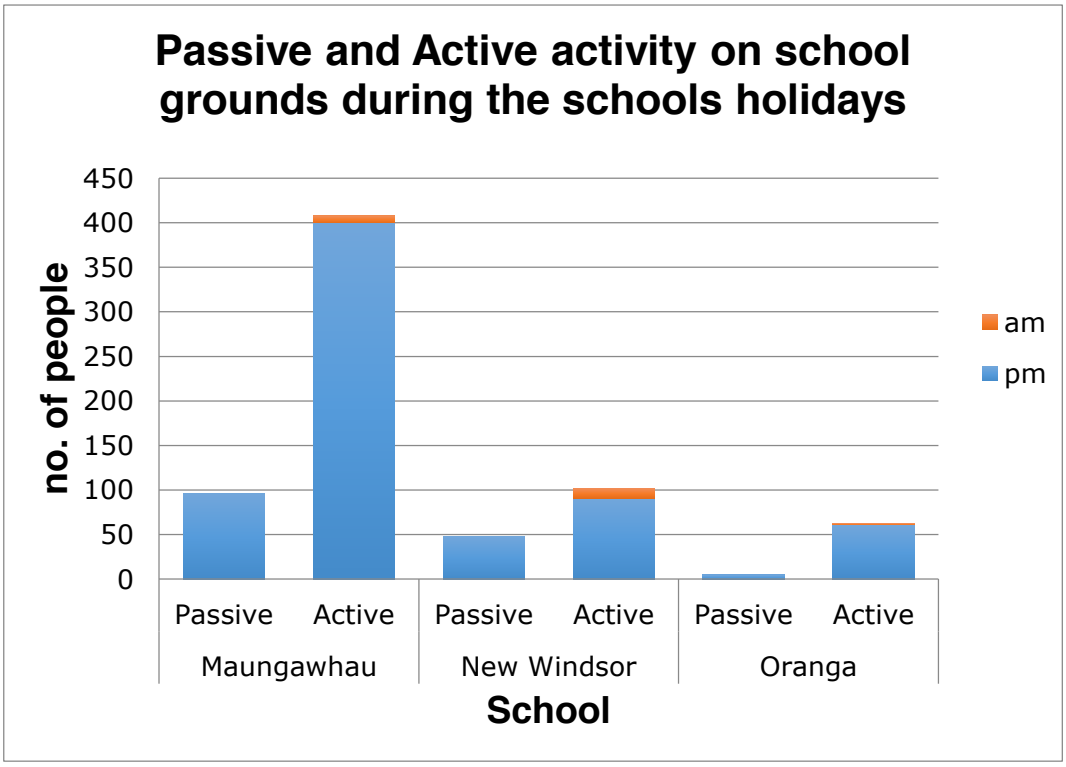
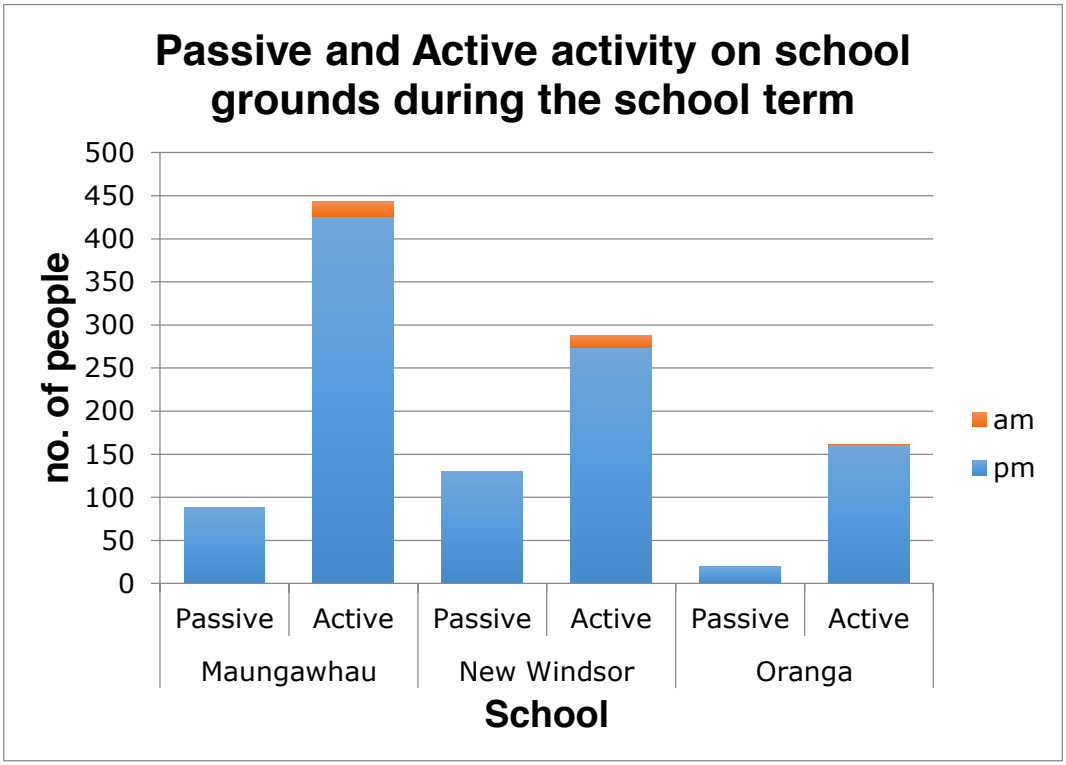


Figure 5.2 shows that the majority of activity at each case study was categorised as active. The types of activity taking place in the morning were all active at each school also. In this case, New Windsor School was recorded to have the most number of users involved in passive activity during the school term after-hours. The increase in the frequency of passive activity was due to the increase in the number of parents and guardians viewing their children's swimming lessons because more children were involved in this activity during the school term compared to the school holidays.

Figure 5.2 Comparing passive and active activities between schools during the school term

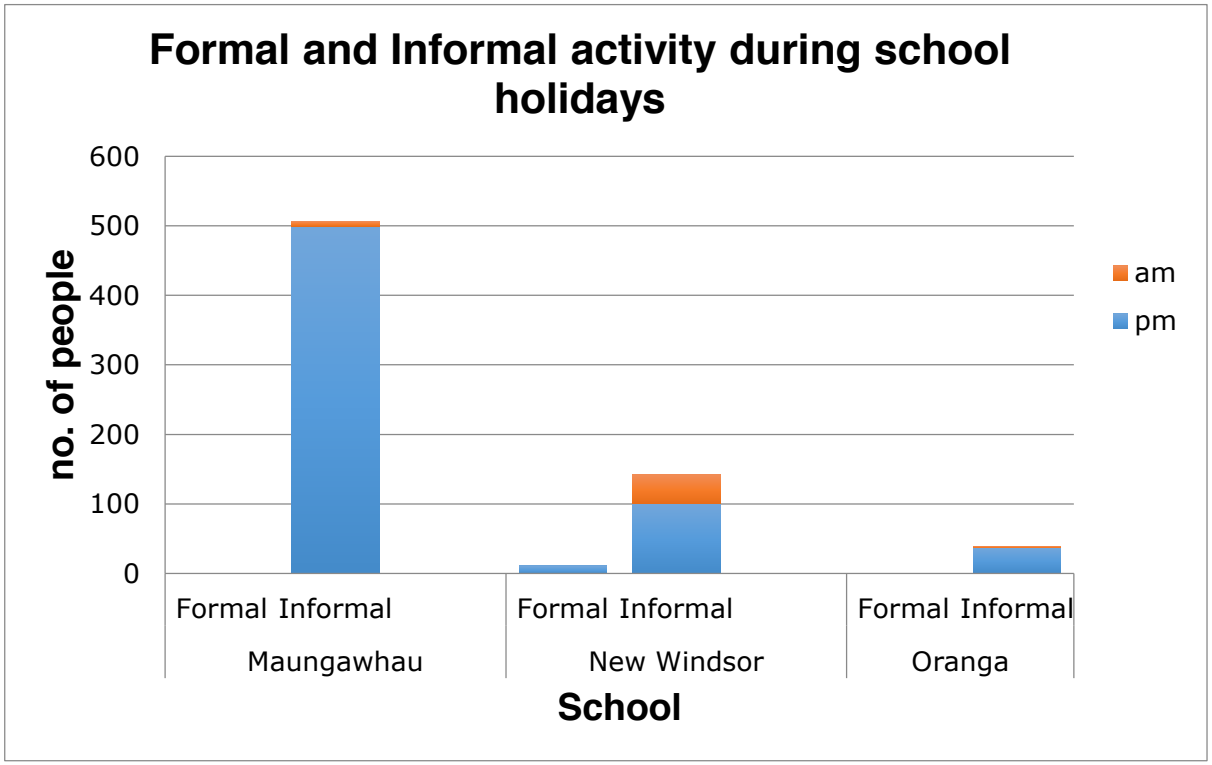


Making links between figures 5.1 and 5.2, there were fewer people acting passively at Maungawhau School during the school term than during the school holidays (conversely, the number of people participating in active activity increased in the school term). There was a significant increase in the overall number of users partaking in passive and active activity at New Windsor and Oranga School. There were more people using the school green spaces in the mornings during the school term than the school holidays (see figure 5.2). Active activity was observed to be the most frequent in SGSs after-hours because it offers so many opportunities to carry out physical activity in one location.

5.2.2 Formal versus Informal Activity

In this research, formal activity was defined as structured and organised activities comprising of goals and rules with designated leaders and an instructor or coach (e.g. club, school and organisation sports teams). Informal activity was defined as spontaneous activity with no specific rules and no or little prior planning (e.g. games, hobbies and crafts).

Figure 5.3 Formal and informal activity between schools during the school holidays



During the school holidays, no formal activities were observed within the school green spaces at Maungawhau and Oranga School in the morning (7 – 8am) or afternoon (4 – 6pm) (see figure 5.3). However, at New Windsor School, there was some formal activity recorded. This activity comprised of the Dean Swim school classes that users were participating in. There were also more people using the green spaces at New Windsor School in the morning compared to Maungawhau and Oranga Schools (see figure 5.3). This effect was due to the regular users, who were local residents living immediately near the school field. The school field is essentially their backyard, which gives them easy access and therefore motivates them to use the school grounds frequently. Informal activity was most popular among all three schools during the holidays. This is because there are neither formal lessons nor sports practices during the school holiday period.

Figure 5.4 Formal and informal activity during the school term after-hours

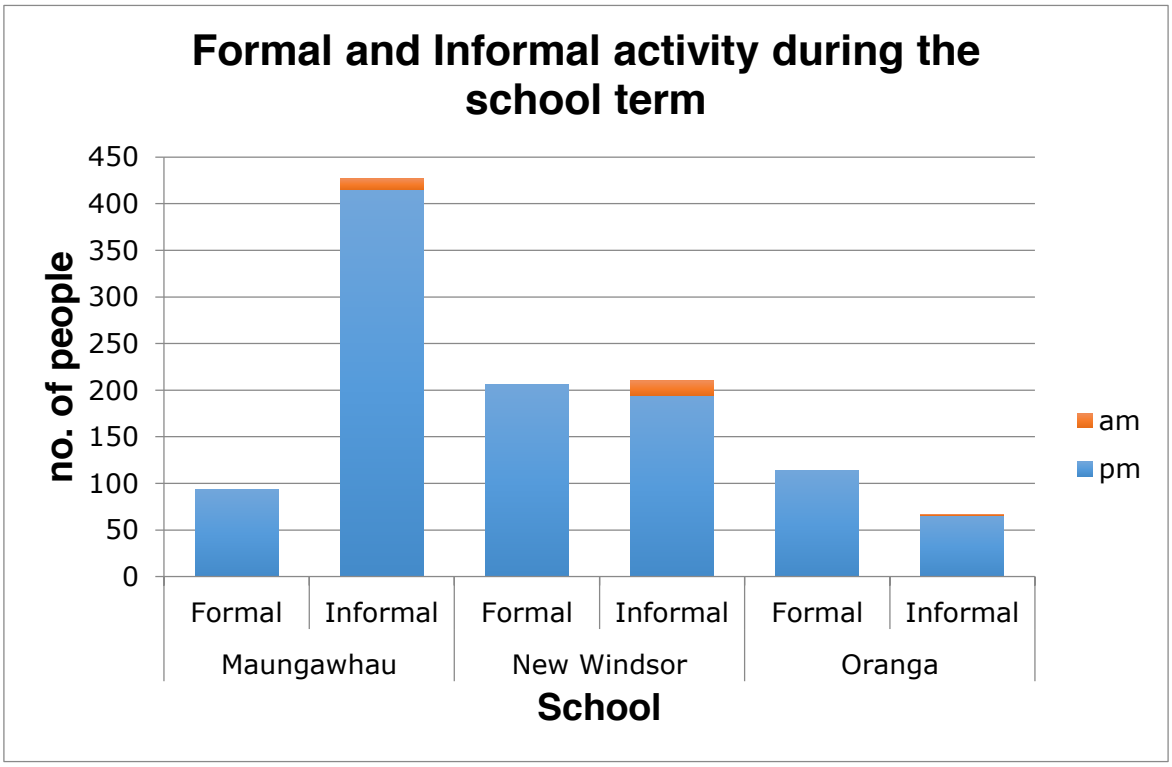


Figure 5.4 shows the number of users who were classified as using the school green spaces for formal and informal activity during the school term. At Maungawhau School, the majority of the activities were informal. The only types of formal activity at Maungawhau School were undertaken by those individuals involved in the after-school care programme, school sports practices and private sports club practices after-hours during the school term. The number of people partaking in formal and informal activities at New Windsor School were approximately equal during the school term (see Figure 5.4). The formal activities present in the SGSs after-hours were OSCAN (Out of School Care Activity and Network) - the after-school programme, and Dean Greenwood swimming lessons. The individuals who were participating in informal activities were usually local children after school and ex-students of the school, because some of the users observed were wearing a school uniform. However, at Oranga School, a different pattern was observed. Most users of the green spaces after-hours during the school term participated in formal activities. At Oranga School the formal activities people participated in were all part of the 'sKIDs' (Safe Kids in Daily Supervision) after-school programme. sKIDs is an out-of-school care programme for primary aged children, which started in 1996 and has expanded to approximately 70 chains nationwide (Skids.co.nz, 2011a). There were also users who were involved in informal activity, but not as many as people partaking in formal activities.

Overall, there were significantly more people present and participating in various activities during the school term after-hours compared to over the school holidays at all three schools. This was because more potential users were likely to be away and out of Auckland over the school holidays. The pattern seen when comparing figures 5.3 and 5.4 is an increase in the number of people using the SGSs at all three case study schools for formal activity during the school term compared to the school holidays. In terms of informal activity, there was a slight decrease in the number of SGS users at Maungawhau School and an increase of SGS users observed at New Windsor and Oranga School during the school term. This pattern was seen at Maungawhau School due to the strict schedules of potential green space users during the school term with other commitments, such as extracurricular activities, that take place outside of the school. However, New Windsor School had swim school lessons occurring within the school, and therefore more users were categorised in the formal activity category as opposed to being categorised as engaging in informal activity. At Oranga School, the majority of the informal activity was observed in terms of individuals playing and walking their dogs or using the school as a thoroughfare.

Afterschool Programmes

During the field observations in the school term, all three schools had after-school (out-of-school) programmes running. Maungawhau School runs their own after-school programme from 1:30pm – 6pm, whereas New Windsor and Oranga School have after-school programmes that are independent of the schools and run from 3pm – 6pm. At all three schools, the individuals in the after-school programmes were often outside using the green space facilities. Therefore, for the purpose of this research, all adults and children who were part of these programmes had their activity classified as formal.

At Maungawhau School the main aim of the after-school programme is to cater to working families. The children in this programme are often using the green spaces, as the programme encourages children to relax and develop skills in a secure and safe environment (Maungawhau School, 2014). This programme allows children to play outside under supervision wherever they want to. At New Windsor School there is an OSCAN registered programme. This programme put in place boundaries for the children who were in this programme. This is because it is hard to supervise approximately 40 children between 4 adults. They use the hall and bottom half of the school (between the main office and the front two jungle gyms). This means that the children did not have access to the field, the jungle gym on the field or access to the pool area. These boundaries were put in place to protect children from running towards the long driveway between the field and the pool because many cars drive along there quite fast (see

figure 5.5). The limitation hindering the use of the green spaces by the participants in the OSCAN programme is the weather. When it is raining, the staff and children are required to stay in the hall and participate in various activities (e.g. arts and crafts).

Figure 5.5 Boundaries of New Windsor School

Figure 5.5 shows the OSCAN programme boundaries restricting children's access to other green spaces within the school. The children in OSCAN only have access to explore the spaces shaded green on the map.

The after-school programme at Oranga School is called SKIDS ("Safe Kids In Daily Supervision") and is a franchise. This programme has a set timetable for activities. This is to protect children and entertain them efficiently. For example, when children arrive to the hall at 3pm, they are required to be present for the roll call and wash their hands for afternoon tea. At 3:30pm it is time for homework. Then, depending on the weather, the children are allowed to go outside and play at 4pm. From 4:30pm it is time for structured activities linked to a theme. The themes are determined by the day (See table 5.1). They use the SGSs on one side of the school (field #1, jungle gym #1, sandpit and courts).

Table 5.1 The themes for planned activities

Day	Theme
Monday	Arts & Crafts
Tuesday	Music and Drama
Wednesday	Sport
Thursday	Technology
Friday	Fun day

Source: Skids.co.nz (2011b)

All three schools are prime locations for after-school care for children as they offer facilities and open outdoor spaces for children to develop and learn new skills. These programmes are an easy transition from a school day to an after-school programme because they are both located on the school grounds. These after-school programmes increase the number of people using the green spaces after-hours.

5.2.3 The Types of Green Spaces Users

The school grounds at Maungawhau, New Windsor and Oranga School are open to the public after-hours, and therefore people of all ages are welcome to use to their green spaces. One of the important characteristics that proved to be of interest was age. The users of the SGSs were generalised into the different age categories of children, adolescents, adults and the elderly.

During the school holidays large numbers of the users of school grounds were children, with the total number of adult users being half the total number of users who were children. There were also adolescent and elderly users, but fewer than the number children and adult users of the green spaces during the school holidays after-hours (see figure 5.5). The numbers of children were significantly larger than the other age categories because children would often actively travel to the school (cycle, scooter, walk etc.) from where they lived nearby, and would often come to use the green spaces in large groups and occasionally supervised by an adult. This was established through a theme from the semi-structured interviews (Appendix E) concerning proximity to the school, transport mode and time it takes using stated transport mode.

Participant 13 (M)	*"Safe community. Like-minded people"*

Participant 13 from Maungawhau School trusts the school community and therefore supports the idea of allowing children to freely use the SGSs after-hours with the reassurance that the children will be safe because of the familiar faces and the notion of 'safety in numbers'. Also, the users who were recorded using the green spaces in the morning from 7 – 8 am were individuals

who belonged to the adult and elderly age groups. These morning green spaces users would often use the field to run around, walk their dogs and use as a thoroughfare.

In the case of New Windsor School, a few children and adults were observed using the green spaces in the morning (mostly the field). Referring to Figure 5.6, most of the users at New Windsor School were adult users, with children green spaces users following closely behind as the second highest user group. There were also only a few adolescents and elderly users of the green spaces during the school holidays. The children using the green spaces at New Windsor School were often supervised and sometimes a family using the green spaces consisted of more adults than children. For example, both parents would be supervising a child's swimming lesson.

At Oranga School, the majority of the green space users were children and adults. No adolescent users were recorded and there were only a few elderly individuals who were seen using the green spaces during the holidays (see Figure 5.6). In general, the number of children balanced the number of adults using the green spaces because the children using the green spaces were often quite young and therefore needed to be supervised.

Figure 5.6 Age groups of users in schools during the school holidays

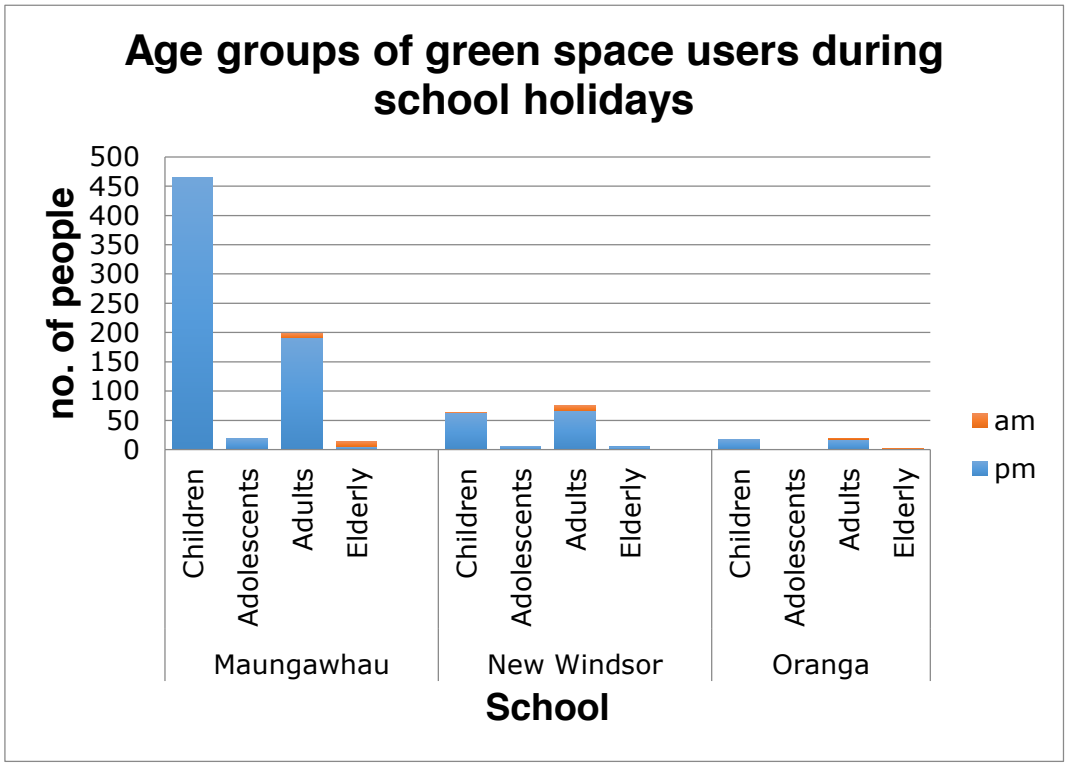
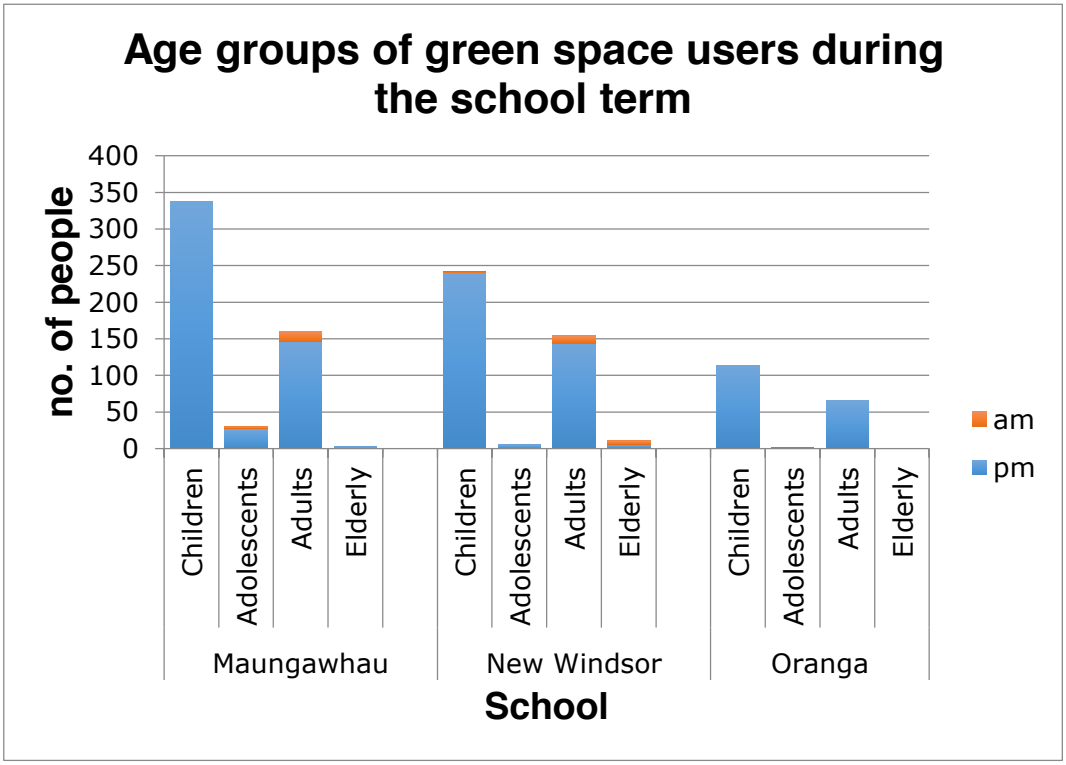


Figure 5.7 Age groups of users in schools during the school term



The majority of the users of the school grounds after school hours are children at Maungawhau and New Windsor School during the school term (Figure 5.7). This is largely due to the after-school programme which a large number of children are involved in, thus adding to the number of green space users who are children. The second largest group of users was adults at each school. The number of adults equaled to approximately half the total number of children using the SGSs during the school term. At Maungawhau School, there were some adolescents using the green spaces and very few elderly users. The morning green spaces users were only from the adult and adolescent groups. At New Windsor School there were very few adolescents and elderly users recorded. The users of the green spaces in the morning were children, adults and not many elderly. However, at Oranga School, there were a small number of adolescent users who were found using the school green spaces in the morning. Lastly, no elderly users were found at all using the green spaces at Oranga School during the school term.

Generally there were more children and adults using the school grounds at Maungawhau School over the holidays as opposed to during the school term. In contrast, at New Windsor and Oranga School an increase in the total number of green space users was witnessed in each age group during the school term. This increase in the number of green space users occurred due to the popularity of the after-school programmes at the schools and participation in sports and

other recreational activities. The number of users who would be present in the SGSs in the morning was approximately the same during the school holidays and during the school term.

5.3 Green Space Design in Schools

One of the objectives in this study was to assess the degree to which the design of SGSs encourages physical and social activity. From previous studies, the aim of public space design is to hold the interest of the intended users (Walsh, 2006), which in this case are the children who attend the case study primary schools. Therefore it was speculated that the schools would cater better for children between the ages of 5-11 years old because they have been designed with that prospect in mind. Malone and Tranter (2003) emphasised that the purpose of the design of school grounds is to encourage a variety of play and learning experiences, which would result in further developing the cognitive capacities of children.

5.3.1 Preferred Green Spaces

The green space categories from the field observations were further grouped into more compact groups because some of the case study schools had more than one area belonging to a green space category (e.g. three jungle gyms).

Grass Areas

Grass areas refer to all fields and small patches of grass. The fields were the most used grass areas at each school. Over the holidays, the field at Maungawhau School was used primarily for jogging, whereas during the school term the field was used for sports practices. At New Windsor School, the field was used for a variety of activities during the school holidays and during the school term, such as cricket, sprint runs, walking and people playing with their dogs. The activities on the field at Oranga School consisted of playing tag, walking and individuals playing with their dogs.

Jungle gyms

Jungle gyms are climbing structures provided within the school green spaces. Each school had more than one jungle gym. At Maungawhau School there were three jungle gyms and various wooden climbing structures around the field. The most popular jungle gyms were the two jungle gyms next to the swimming pool and tennis court. These two were most suitable for younger children because the climbing configurations were lower to the ground. At New Windsor School, there were also three jungle gyms and all three jungle gyms were used equally, with one clearly designed for older users, as the structures of the jungle gym were higher from

the ground. Oranga School has two jungle gyms with one that was more appropriate for younger users and another for taller and older users.

Other

The 'other' category signified facilities which were unique to each school or facilities which were not well utilised. Some examples in this green space category were sandpits and tennis walls.

Hard Surfaces

Hard surfaces are comprised of the asphalt, tennis, netball and basketball courts. All three schools had hoops on the courts for users to shoot hoops, and asphalt to play hopscotch and ride their scooters, skateboards and bikes. Only Maungawhau School had their tennis net up, which encouraged people to play tennis. The tennis court was the most used hard surface at Maungawhau School because it is a free facility where people of all ages can practice and play tennis. Generally there is a fee if people want to use tennis courts at clubs or on private property (e.g. Campbell Park tennis club, Mt Eden tennis club, Eden Epsom tennis club). Therefore, the notion that the school offers free use of a facility of a popular sport has resulted in the tennis courts being the most popular hard surface green spaces within Maungawhau School.

Swimming pool

Only Maungawhau and New Windsor Schools had a swimming pool. The swimming pool was the most used facility at Maungawhau and New Windsor schools during the school holidays and the school term after-hours (see Figure 5.8 and Figure 5.9). There were more people using the pool in the holidays as opposed to during the school term at Maungawhau School. Maungawhau's swimming pool is an outdoor pool with seating around the pool but no shade cover. Only families of students who attend Maungawhau School have the opportunity to buy a $150 key to access to pool from around November to March each year.

Participant 1 (M)	*"We mostly go swimming in the pool… If the school didn't have a pool, then we probably would not come and use the school facilities as often"*

As participant 1 from Maungawhau School pointed out, the swimming pool is largely why they come to the school after-hours. Participant 10 from Maungawhau School also expressed their desire to also have access to the swimming pool.

Participant 10 (M)	*"….I would like access to the school pool. My grandsons can't use it because they don't come to this school and only key holders are allowed to use it. I am willing to pay. It would be a good idea to make it a neighbourhood or community based pool instead of exclusively accessible just to the students who attend the school"*

The only issue participant 10 had with the SGSs was not having full access to the green space facilities. Participant 10 believed it was disappointing that access to the swimming pool was exclusive to the members of the school only. Therefore, there is a sense of the school being more private in terms of the pool. The pool has also influenced other activities such as cycling and playing on the jungle gym, and this was a common pattern noted during the field observations. The pool at New Windsor School is an indoor heated pool with a cover, changing rooms and benches around the pool. The swim classes (usually 30 minutes each) are available through the Dean Greenwood swim school run from 3:30 – 6pm on weekdays and 9am – 1pm on weekends. The pool is always busy due to the popularity of the swim school; therefore specific times are allocated for public use from Monday to Thursday (6 pm - 8:30 pm) and the weekends (1-5pm). Although it is not exclusively accessible to school students and their families as it was at Maungawhau School, New Windsor School's pool is still considered private in terms of being required to book lessons through the private business of Dean Greenwood. Alternatively, the public can choose to wait until the allocated swim times to pay and use the pool facilities.

Participant 3 (NW)	*"My daughter doesn't come to this school… If my daughter didn't have swimming lessons then I'd probably not use the spaces"*

As participant 3 asserts, the lessons, which the Dean Greenwood School provides, are obvious reasons for why the pool is the most utilised facility. It also benefits the students at New Windsor School and also those at other local schools which do not have pools. Many of the individuals participating in swimming lessons after-hours were members of the community and not just the children from New Windsor School.

Thoroughfare

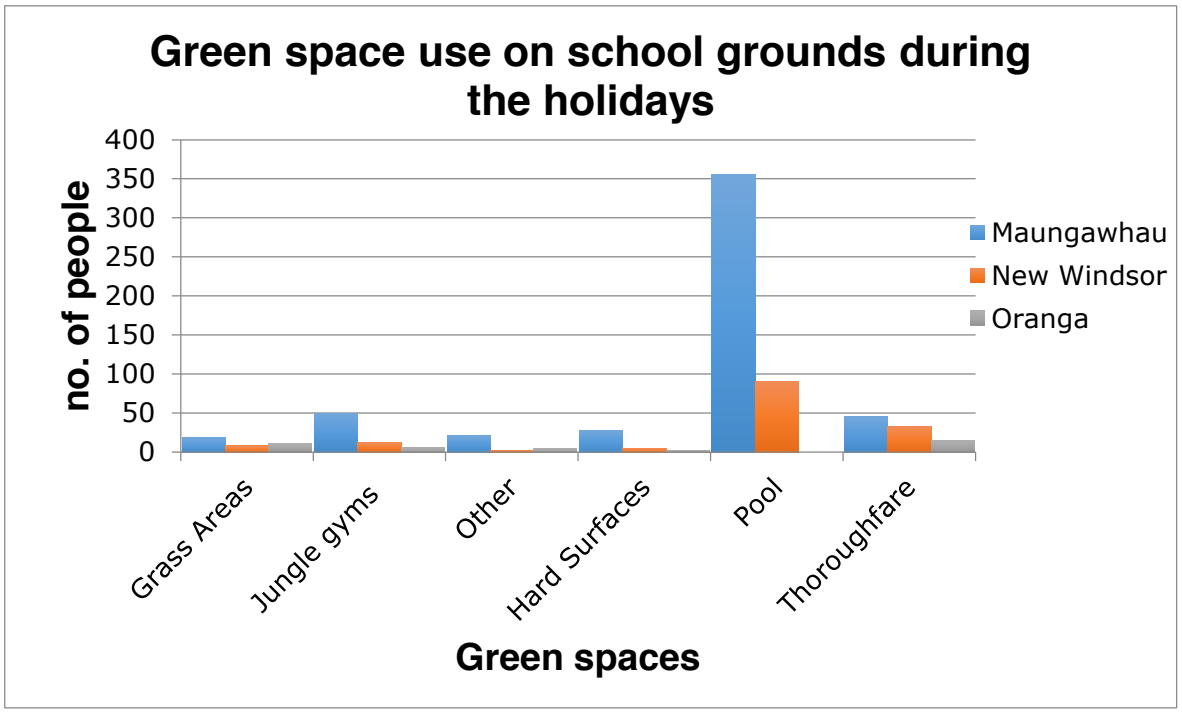
It is evident that all three schools are used for thoroughfare (see Figures 5.7 and 5.8), which I defined as shortcuts to pass through the school.

"The benefits for people being able to use thoroughfare between the two sides is really beneficial for people. It's probably beneficial for our shops here because people do walk straight through here and cut through to the shops like the dairy" - Kerynn Brannigan (New Windsor School chair of BoT)

As revealed in the foregoing quote, the chair of the BoT at New Windsor School believes that having the school open for thoroughfare has benefits. For example, the accessibility to the dairy and restaurants near the school benefits the community and the local businesses.

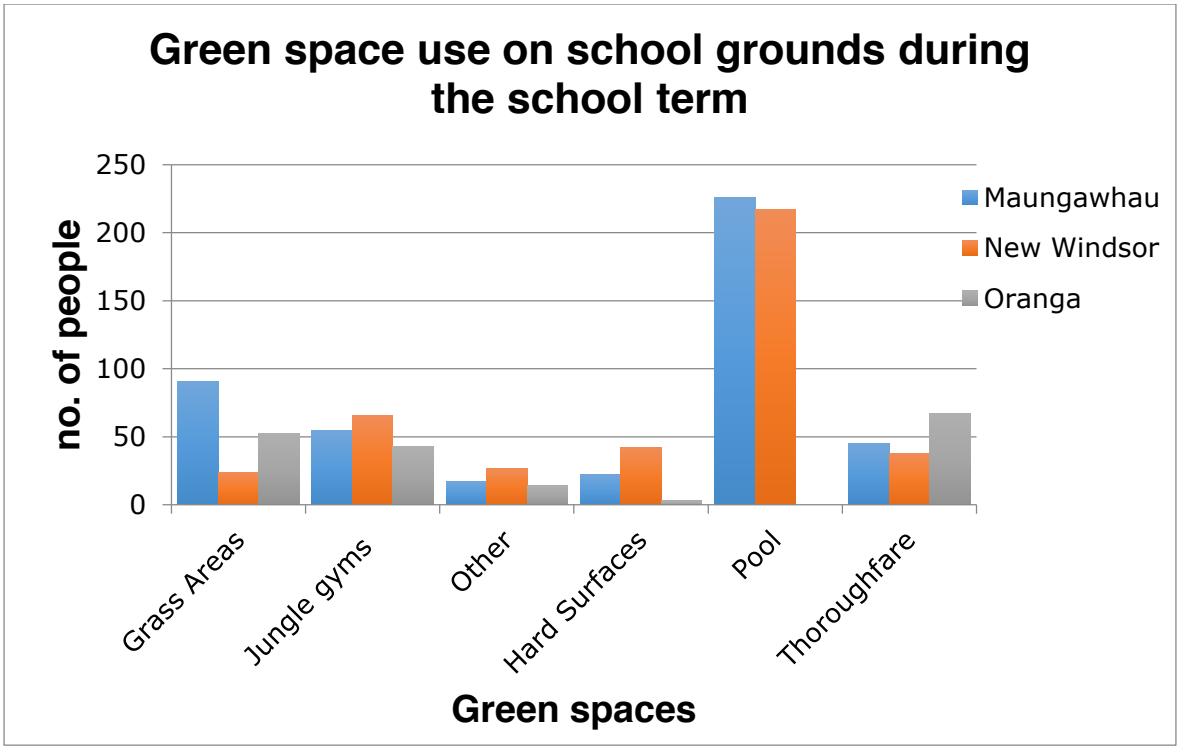
Figure 5.7 shows the total number of users present in each green space at each school during the fieldwork period. There were a significant number of people using the pool at Maungawhau and New Windsor School compared to the rest of the green spaces at the school, and this appeared to be the most utilised facility over the summer holidays. All age groups were seen using the pool at Maungawhau School, which explains the large number of individuals using the pool compared to New Windsor School. At New Windsor School, the swimming pool was used by predominately by children. As Oranga School does not have a swimming pool, its most popular green spaces were the grass areas, with the majority of people using the school grounds as a thoroughfare during the school holidays after-hours.

Figure 5.8 Use of green spaces between schools during the school holidays



During the school term, the same trend is observed but with an increase in the total number of green space users at each school (see figure 5.8). The pool was the most well used green space at Maungawhau and New Windsor School. At Oranga School, the grassed areas and thoroughfare were also the most utilised spaces.

Figure 5.9 Use of green spaces between schools during the school term



More people appeared to be present at Maungawhau School after-hours using the green spaces as compared to New Windsor and Oranga School during the school holidays and the school term. This was due to the layout of the school, which led to a spillover effect. For example, the swimming pool at Maungawhau School is located next to two jungle gyms, tennis and netball courts, and encourages people to use the various facilities in their reach. Based on the field observations, it was common for individuals to move between green spaces from time to time. This behaviour was apparent at all three schools. The size of green space was not the only factor motivating the use of space. Another important element was to do with the number and types facilities available, and how their very existence can attract the public to use them after-hours.

5.3.2 Motivating Physical and Social Activity

None of the three case study schools actively encourage the public to use green spaces after-hours. The findings show that the presence of the schools and facilities in the neighbourhood encouraged physical and social activities in the school green spaces.

Participants were asked, "How do these features encourage you to use the space?" This question determined the factors that motivate people to use the school green spaces after-hours.

Table 5.2 Some interviewee responses

Participant 2 (O)	*"because they're there"*

One of the participants from Oranga School expressed that simply having access to (and the availability of) the school green spaces encourages them to use the space whereas,

Participant 15 (O)	*"I like seeing my son try everything…. It challenges him"*

Participant 15 from Oranga School enjoyed seeing his son playing within the green spaces.

Participant 3 (NW)	*"Fun for the children. Is suitable for all ages"*

Participant 3 from New Windsor School commented on the school environment being entertaining for children as well as for all age groups. The interesting thing to note is that even though children spend the majority of their week and time at school, they still find the green spaces at the school enjoyable, and this results in their heightened overall use of the school grounds.

Participant 16 (NW)	*"Gives me a place to go…. Is cost efficient"*

Participant 16 was also from New Windsor School and emphasised the same notion of entertainment that was cost efficient.

Participant 7 (M)	*"I like watching my kids develop skills. Using the monkey bars and climbing for example. It's a big achievement"*

A Maugawhau School participant appreciated getting to observe their children learn and develop new skills right before them. The range of structures and facilities within the school are also able to offer children various levels of difficulty.

Participant 12 (M)	*"Safe compared to a main road and drive way"*

Another theme stressed was by participant 12 from Maungawhau School, who believed that the school was a safe environment for children to explore freely because of the open spaces and the physical boundaries protecting them (e.g. fences and gates).

"I think it gives kids a place to come in and hang out… the kinds that walk to and from school can easily walk down here and utilise it… and I think with the popularity of scooter and bikes, that it gives kids a really good safe environment to do that"

- Georgina Pauling (Maungawhau School chair of BoT)

The chair of the BoT from Maungawhau School believed that one of the main reasons the school grounds are well used after-hours is because they provide a safe and wide-open space for children to play.

5.3.3 Proximity and Transportation Modes

Proximity and modes of transport are important factors that strongly influence the use of the SGSs, as the distance from the school is likely to impact the mode of transport chosen to travel to the schools. As Maleki & Zain (2011) stated, distance regulates and organises people and components in space. The benefits of being close in proximity to the schools will likely decrease the general number of motor vehicles on the roads, hence making it safer for pedestrians travelling to and from the schools after-hours. The majority of users recorded in each school were children. Therefore, neighbourhoods are encouraged to be child friendly (Tranter, 2006). Tranter (2006) explained the notion of 'social traps' as situations in which parents feel obliged to conform to a specific cultural behaviour. The ambiguity of other parents' decisions in terms of walking or cycling to school influences the decisions made by other parents (Tranter, 2006). With active transport modes substituting motorised vehicles, there is an increased sense of security due to more people being present in the neighbourhood (Gehl, 2010). Choguill (2008) stated that children would not be expected to actively travel more than 500 m to

their school, which weakens the idea of using active transport modes. The Green Cities Declaration coincided with the same idea by aiming to implement the target of situating neighbourhood parks within 500 m of residents by 2015 (World Environment Day, 2005). Hence it would encourage walking for more residents if all state primary schools were to consider permitting public access to SGSs after-hours, as this offers more options for residents who live close to SGSs.

A key determinant discouraging the frequency of visits to the SGSs after-hours is traffic hazards. It was expressed by interviewees from Maungawhau and New Windsor School that the traffic was heavy during peak drop-off and pick-up times, but other than that, traffic was reasonable after-hours. But the participants still wanted to encourage more individuals to use active modes of transport to ensure a safer neighbourhood.

Participant 13 (M)	*"I think walking to school needs to be encouraged…. for example, kids should walk if it is 500 m or less from school. The pattern is that the older children actively travel while the younger kids get dropped off"*

Participant 13 from Maungawhau School expressed that active transportation agendas should be implemented to enable a safe environment around the school.

New Windsor School is located along a main road and is close to the motorway, hence the comments about the busy roads around New Windsor School even after-hours.

"Parking is often an issue and we have a policy (there's a sign in the front), we say the public that are bringing their children for swimming lessons after school may access the staff park from 3:15pm. But if you're picking your child up then you are not allowed to access the car park…. It's difficult allowing parents to come up into this sort of space because there's a huge amount of children coming out and it's dangerous having a lot of cars coming up" - Kerynn Brannigan (New Windsor School chair of BoT)

At New Windsor School, parking is often an issue due to the long driveway that runs through the school, which leads to the staff car park and is located just outside of the swimming pool. Hence, the public are notified of the parking allowances at the entrances of the car parks. In the case of Oranga School, there were fewer concerns around traffic hazards compared to Maungawhau and New Windsor School, as Oranga School is located in a quiet neighbourhood.

With the aim of understanding how proximity and traffic affect the use of the SGSs, one of the interview questions asked was how far participants lived from the school, as well as querying the mode of transportation and the time it takes to travel to the school. All the

interviewees from Maungawhau School stated that they lived close to the school and walked or drove to the school.

In the context of this research, individuals who lived close to the schools were more likely to use active modes of transport travelling to and from school. Participant 12 from Maungawhau School stated that it only takes two minutes to travel to the school by car and 15 minutes to walk to the school because it is difficult to walk with her youngest daughter. All but one interviewee from New Windsor School claimed that they used a private car to travel to and from the school. Most of the interviewees also acknowledged that they lived close to the school. However, the single interviewee who did not use a private car as the mode of transport to the school claimed that they either walked or cycled to the school and also lived sufficiently close to the school to enable this active travel. In comparison, the interviewees from Oranga School lived further away. The mode of transport used was private car and takes approximately 15-30 minutes to travel to the school. This finding at Oranga School shows that distance was not a large enough barrier to discourage the use of the green spaces.

From the research findings, being close in proximity to the schools can encourage the use of the green spaces, but this alone is not a strong factor to motivate people to use the green spaces. Other factors impact the use of the school grounds after-hours such as the variety of facilities available, and having a space which supports physical and social activity. In terms of traffic hazards, the research findings showed a similar pattern to Giles-Corti et al.'s (2009) study, in which caregivers volunteered to drive their children despite predominantly being parents who are within walking distance from the schools. The net result was traffic congestion in the school neighbourhoods and a reduction in the use of active transport modes. In this research, in the setting of SGSs, the majority of visitors also chose to use private cars as the mode of transport even if they lived close to the schools because they perceived that it was more convenient to travel by car than to walk and deal with crossing roads.

5.3.4 Other Barriers Discouraging the Use of School Green Spaces After-hours

A significant factor previously mentioned in Chapter two are the real and perceived dangers that can affect the use of the school grounds after-hours. From the research findings, all the interviewees from Maungawhau, New Windsor and Oranga School claimed that they felt safe in the neighbourhood. The two most common reasons were because they were familiar with the other individuals present at the school after-hours and that they had not experienced anything negative at the school or in the neighbourhood. Perceived dangers could impact on how

frequently younger children are allowed to visit SGSs after-hours, as it is often assumed that they ought to have less autonomy to travel alone (Aarts et al., 2010). Reshauge et al. (2012) researched factors which motivated adults to take their children to parks, because it is recognised that children's independent mobility is limited. In the same context, during this research, the majority of the users were children and were often supervised when they were partaking in activities in the SGSs. Therefore a strong influence upon the use of green spaces involves factors which motivate parents and guardians to bring their children to use the school grounds after-hours and make the most of having the open public access to the facilities.

Reviews of the chair of the BoT's regarding public awareness of the openness of the school grounds after-hours

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Maungawhau School chair of BoT

"I would assume that generally the public thinks that they can use the school spaces. Some of them may ask permission but not all of them. I think there's the perception that you're allowed to"

New Windsor School chair of BoT

"If you lived in the area for quite sometimes and use it as a thoroughfare, then you know, but there may not well be a huge awareness in the greater community that it is completely open to use…….We just think it's a really good thing for the community to see the school as being a really central part of a community and if you shut people out, then we feel like we're closing ourselves off to the greater community….. It is in our policy that the grounds are open to the public"

"Not just people's children who attend the schools, but all these houses that are around the grounds and the businesses and things."

Oranga School chair of BoT

"So if it's not actively locked up or patrolled, they think it's free to use …. We're supposed to engage our community and our stakeholders, and part of that engagement is that they're on site"

A noteworthy reason for why the three case study schools are open to the public after-hours is because they all believe that the school itself is considered to be an integral part of the community. Since they are part of the community, it makes sense for the public to have access to the schools after-hours. The chairs of the BoT's from Maungawhau, New Windsor and Oranga

School have supported the notion of community being important in terms of the openness of the schools after-hours.

Maungawhau School chair of BoT

"Yeah it has a strong sense of community. It's really neat to walk, because we live within walking distance…. so if you're walking down here you'll see lots of people that you'll know and that sort of thing, so it's really good"

New Windsor School Chair of BoT

"We just think it's a really good thing for the community to see the school as being a really central part of a community and if you shut people out, then we feel like we're closing ourselves off to the greater community."

Oranga School chair of BoT

"…we would like to present an open and friendly face to our community, as a space for our community… so we would like them to use it"

The BoT chairs of Maungawhau, New Windsor and Oranga Schools all expressed how much the schools are seen as part of the community and therefore encourage the use of the SGSs after-hours. It largely makes the community part of the school and vice versa.

The public users of the green spaces were also asked for their view on the benefits of having access to the SGSs.

Participant 1 (M)	*"Having some sort of ownership"*

Participant 1 from Maungawhau School liked the idea of calling a space their own.

Participant 10 (M)	*"The school is effectively a park. Other parks, we'd need to drive. It's convenient and not too busy here"*

Participant 10 from Maungawhau School differed from participant 1 in that they focused more on the notion of convenience in terms of close proximity and the school green spaces being able to cater to their needs in terms of either recreational physical or passive leisure activities.

Participant 13 (M)	*"Safe for children to play. Familiar with their surroundings and they know where the pedestrian crossings are"*

Participant 13 was also from Maungawhau School and commented on the easy and safe access to the school because of the pedestrian crossings and the reassurance that their children are in a familiar environment.

Participant 16 (NW)	*"Shortcut. Don't have to bike up the hill"*

An important use mentioned by participant 16 from New Windsor School was being able to take a shortcut through the school as opposed to cycling up the hill.

Participant 15 (O)	*"For exercise…free for the public..."*

Participant 15 from Oranga School recognised that the benefits of having access to the green spaces at the school were that it was a free space to carry out physical activity.

A finding that was not considered was the concerns around the presence of dogs. For instance, the chair of the BoT's from each case study school recognised the importance of having more spaces for dogs and their owners but also mentioned some concerns. The chair of the BoT at Maungawhau School was concerned with the safety of children after school because of the number of children in after-hours programmes and using the school grounds between 3pm – 6pm. So far, no issues have been raised in regards to dogs being present in SGSs after-hours, however.

> *"We have those so that during the school days there aren't any dogs brought onto school property during school days where children are here till 5:30 or 6 O'clock. I suspect that in the weekends that those rules are breached…. Unless we either find that there's incidents with the dogs, safety issues or that dogs are leaving waste behind, I don't know how much monitoring of the rule we'd do outside school hours…" – Georgina Pauling (Maungawhau School chair of BoT)*

The chair of the BoT at New Windsor School was satisfied with the way dog owners used the school grounds because they took responsibility for dealing with their own dogs' waste.

> *"We don't have 'no dogs' signs. Lots of people walk their dogs here in the weekend and in the evenings and everyone brings their little bags" – Kerynn Banningan (New Windsor School chair of BoT)*

Many benefits as well as barriers were recognised by the chair of the BoTs and the general users of the green spaces at the schools after-hours. The relevance of the SGSs would be called into question if the public were not welcome to make use of the SGSs after-hours as the use and presence of the green spaces can positively impact the health and wellbeing of people (see Chapter Two).

5.5 A Healthy Community

The exposure to green spaces has been associated with the notion of improving individuals' quality of life and having a positive impact on individuals' health and wellbeing (Khotdee et al., 2012). One of the objectives of this research was to analyse the importance of green spaces for their contribution to the physical and social wellbeing of individuals.

Tables 5.4 - 5.6 show the various types of activities that took place in each green space over the school holidays and school term at each school in this study, as well as the equipment used in those spaces (the users of the green spaces after-hours provided their own equipment, excluding the sandpit at Maungawhau School).

Table 5.3 Types of activities carried out in each green space at Maungawhau School after-hours and the equipment used

Green space	Activity	Equipment
Field #1	Soccer training Cricket Jogging Walking Playing with dog(s)	Soccer balls Cones Soccer nets Cricket wicket Cricket bat Tennis balls Dog toys
Field #2	-	-
Tennis Court	Playing tennis Skateboarding Riding bikes Riding scooters	Tennis rackets Tennis balls Bikes Skateboards Scooters
Netball Court	Shooting hoops	Netball
Basketball Court	Playing tag	-
Jungle gym #1	Sitting Playing on jungle gym	-
Jungle gym #2	Playing on jungle gym	-
Jungle gym #3	Playing on jungle gym	-
Pool	Swimming	Paddling boards Boogie boards

		Inflatable ring Inflatable boat
Sandpit	Sitting and playing with sandpit	Spades Buckets
Other	Hopscotch	Twig
Thoroughfare	Walking Jogging Cycling Scooting Skateboarding Walking dog	Bikes Scooters Skateboards

Table 5.4 Types of activities carried out in each green space at New Windsor School after-hours and the equipment used

Green space	Activity	Equipment
Field #1	Walking Jogging Playing with dog Sprint training Cricket	Soccer ball Cones Cricket wicket Cricket bat Tennis ball
Field #2	-	-
Tennis Court	-	-
Netball Court	Shooting hoops Cricket Touch	Netball Cricket wicket Cricket bat Tennis ball Rugby ball
Basketball Court	Playing tennis	Tennis rackets Tennis ball
Jungle gym #1	Playing on jungle gym	-
Jungle gym #2	Playing on jungle gym Sitting	-
Jungle gym #3	Playing on jungle gym Sitting	-

Pool	Swimming Standing	Paddle boards Diving rings Platform step
Sandpit	Playing in sandpit	
Other	Blowing bubbles on the asphalt	Bubbles
Thoroughfare	Walking Cycling Scootering Jogging	Bikes Scooters

Table 5.5 Types of activities carried out in each green space at Oranga School after-hours and the equipment used

Green space	**Activity**	**Equipment**
Field #1	Walking Jogging Playing tag Playing with dog(s)	Dog toys
Field #2	Walking Jogging Playing tag Playing with dog(s)	Dog toys
Tennis Court	-	-
Netball Court	Shooting hoops	Netball
Basketball Court	Walking Cycling	Bikes
Jungle gym #1	Playing on jungle gym	-
Jungle gym #2	Playing on jungle gym Sitting	-
Jungle gym #3	-	-
Pool	-	-
Sandpit	Playing in sandpit	-
Other	Cycling on asphalt	Bikes

	Scootering on asphalt	Scooters
Thoroughfare	Walking Cycling Scootering	Bikes Scooters

To gain insight into the physical and emotional status of the green space users, participants were asked how they felt after participating in activities. The majority of the responses were similar to the ones in table 5.6.

Table 5.6 Experience of individuals after using the school green spaces

Participant 7 (M)	*"Feel good know we got some exercise"*

Participant 7 from Maungawhau School enjoyed the physical aspects of the green spaces.

Participant 2 (O)	*"Happy and tired"*

Participant 2 from Oranga School was tired from partaking in physical activity, but was also happy.

Participant 10 (M)	*"Good. Keeps my grandsons busy. It's relaxing and safe too"*

Participant 10 from Maungawhau School appreciated the idea of being able to go to a place where it was safe and entertaining for their grandchildren, but relaxing for themselves too.

Participant 16 (NW)	*"Energised. Fresh."*

Participant 16 from New Windsor School valued that being present in the school green spaces made them feel fresh and more energised.

Participant 6 (NW)	*"…can meet other people"*

Participant 6, also from New Windsor School, saw the benefits of the green spaces as an opportunity to be able to socialise with new people, thus positively impacting on their social wellbeing.

Green spaces have a positive impact on people's health and wellbeing. In the context of schools and their green spaces, their existence and accessibility are able to benefit the whole community as they offer opportunities for the residents to partake in various activities furthering their overall health and wellbeing.

5.6 Future Plans in terms of School Green Spaces

This research was also interested in the future plans of the school in terms of green spaces. Due to the continuing population growth in Auckland, how will this impact schools and

their green spaces, and would there be enough green spaces to meet the demand of the school's pupils as well as the school community?

> *"Well hopefully they won't impact on the green spaces too much. I know that we would probably consider going up before we continue going out. We haven't had a proper discussion, about that but hopefully we would be able to manage that. It is something we would be conscious of. But I suspect that green spaces are under threat in terms of bigger numbers, but I would hope we wouldn't lose them" - Georgina Pauling (Maungawhau School chair of BoT)*

The chair of the BoT from Maungawhau School claimed that if the numbers of students were to increase and the school had to build more classrooms to accommodate their pupils, the most favoured option is to build upwards as oppose to sprawling outwards.

> *"In terms of our own immediate community (like our students and staff), we've been having increasing roll growth for a couple of years to the point where the roll is really getting too big for the amount of spaces we have for our back paddock and for the asphalt areas… there are just so many bodies and is a contributing factor to enforcing an enrolment zone. The ministry wrote to us and advised us of that and the board decided to go ahead with that. We have not released that to the public yet because there are a couple of steps we need to do with the ministry before we release it to the public …. The ministry has actually given us four new classrooms (2-storey). I don't quite know where they're going to go but that's going to take out some green space…" - Kerynn Brannigan (New Windsor School chair of BoT)*

New Windsor School is already starting to undertake procedures in response to the increase in the student population by enforcing an official enrolment zone restricting the number of students attending the school. The existing green spaces are already in jeopardy due to the introduction of four new classrooms that will inevitably cover some existing green spaces.

> *"We have spare capacity anyway. So if we were to go to 370 …. Then the reading recovery block would be used. It would be a long time before we fill in the grass" – Anne Younger (Oranga School chair of BoT)*

Oranga School's green spaces are not under threat because the student roll is not extremely large and is not rapidly increasing. Not only is there more than enough space for the students, there is also a backup plan if more classrooms are required in the future.

The future of school green spaces is of importance for this study, as it will also impact the amount of green spaces available for the public. The potential for the over-utilization of the

SGSs may lead to more regulation over the school spaces after-hours, or even the closure of the school grounds in the future.

5.7 Summary

The findings suggest that the access to SGSs after-hours supported passive and active activity, including formal and informal activities. The three primary schools in this research were located in different neighbourhoods in terms of their socio-economic status, yet similar facilities were found at each school and were well maintained. Active activity was more popular across schools during the school holidays and the school term because the field observations showed that the public green space users enjoyed exploring and partaking in physical activity. In terms of the school holidays, more people participated in informal and unstructured activity. However, during the school term, the number of people involved in formal activity at Oranga School was more than the number of people participating in informal activity. The most popular facility at Maungawhau and New Windsor School was the swimming pool over the school holidays and school term. At Oranga however, the most utilised facilities were the grass areas, with thoroughfare being the most popular activity carried out during both the school holidays and the school term after-hours. The preferred time of day to use the school grounds was in the afternoon (4 – 6 pm) as there were significantly more people recorded present in the green spaces as opposed to the few individuals utilising the spaces in the morning (7 – 8 am). The participants stated that having open access to a wide range of free, safe facilities encouraged them to use the green spaces. The majority of the green space users' at all three schools in this research were children over the school holidays and also during the school term. Children were able to exercise their mobility within the large SGSs, with the school gates and fences serving as barriers preventing them from exploring beyond those boundaries and becoming exposed to traffic hazards and other perceived dangers.

Maungawhau School had significantly more people visiting the green spaces during the holiday and school term compared to the fewer number of people who were present in the green spaces at Oranga School. The reason for this was the smaller total school roll of 295 at Oranga School as opposed to the larger school roll of 649 of students who attend Maungawhau School. Referring back to some responses from the interviewees, adults and children are both relieved with the idea of being able to use and play in an environment that they are familiar with.

The Board of Trustees from each school determined the policies concerning the use and access to the school grounds after-hours. The chairs of the BoTs explained the importance of the school to the community. Also, they strongly believed that the school belongs to the public

due to the notion that all three schools are state schools, thus it was considered fitting that the SGSs should be available for public access.

The presence of SGSs in the neighbourhood encouraged residents to use the spaces for active and passive activities, which consequently positively impacts the social and physical wellbeing of individuals. An issue that was discussed with the chair of the BoT's was the future plans for the green spaces in the case study schools. In general, urban green spaces are believed to be in jeopardy. The three case study schools are also considered as public open green spaces because they are open after-hours, and therefore should be included in the decision making process of urban planning and the policy making of schools. The next chapter will discuss how the research findings can be used to improve the current and future circumstances of the community.

CHAPTER SIX

FACTORS CONTRIBUTING TO THE USE OF SCHOOL GREEN SPACES AFTER-HOURS

6.1 Introduction

This research aims to discover the role that school green spaces (SGSs) play within communities, if and when schools are open for public use after-hours. With the continuous population growth in the Auckland urban region, the future of public green spaces is unknown. Therefore, this study has focused on assessing the secondary use of the SGSs substituting the role of public open spaces and how they fit into Oldenburg's (1989) template of 'third places'. Drawing on naturalistic observations and semi-structured interviews, this thesis has provided findings that address gaps in knowledge regarding the importance of SGSs as 'third places' in the community. Schools, I contend, are under-recognised for their other contributions to human welfare and quality of life that they do and could potentially provide. Schools are more than sites for educational purposes (Kearns et al., 2009). In rural schools, Kearns et al. (2009) explained how schools are essential for facilitating social networks, emotional and informational support in the community, as well as providing a sense of identity and belonging. Using the concept of 'third places' as a conceptual basis, this chapter reflects on the importance of SGSs as an important resource for communities, and the factors that need to be addressed to encourage their use. The insights into how these spaces are used and viewed in terms of preferences will potentially aid in the future decision-making and spatial planning of urban areas.

The thesis findings are consistent with past studies that suggest that neighbourhood characteristics, green space facilities and perceptions of safety influence the frequency of visits to public green spaces and benefit wellbeing (Fuller et al., 2007; Loukaitou-Sideris & Sideris, 2009; Jennings et al., 2012). Green space users essentially base their decisions regarding visits and activity on weighing up the positive and negative aspects of the spaces themselves. The positive aspects comprise of physical, social and psychological health benefits from using the SGSs. Negative aspects consist of barriers that discourage users from using the school grounds after-hours. For example, traffic hazards in surrounding streets are a major concern for many parents and guardians of children. Younger children are also not granted independent mobility and

therefore need supervision when they want to travel to the school and use the green spaces. This can inhibit after-hours use.

6.2 Schools as 'Third Places'

This section focuses on Oldenburg's notion of 'third places' and how SGSs can be interpreted through this lens. As previously explained in Chapter Two, the concept of 'third places' was theorised by Oldenburg to define publically-used places that promote regular social interactions within the community beyond the first (home) and second (works) places of life (Oldenburg, 1999; Jeffres et al., 2009; Mair, 2009). Schools were seen to be 'second places' for children because they were where formal interactions take place (Jeffres et al., 2009). However, based on the research findings presented in Chapter Five, SGSs can also be considered as 'third places' because they provide some of the same benefits as other 'third places' (e.g. parks, libraries) and can therefore be considered as the 'heart of the community'. Witten et al. (2007) claim that schools have conventionally been a focal point within New Zealand's communities, and hence a key site for social interactions (Witten et al., 2013). The majority of users recorded at each case study school were children. This is because SGSs are considered as safe and secure 'third places' for children from the perspective of caregivers (parents, BoT members) (Soukup, 2006; Jeffres et al., 2009). We can therefore say that the status of SGSs changes temporally from the school day (when they are de facto children's work spaces – as a 'second place') to after-hours (when children and others are often welcome and see them as 'third places' of sociability and leisure). However, there are some limitations to the accessibility of SGSs and, in particular, temporal restrictions for the use of school grounds. These spaces can accommodate a range of users. For example, as previously discussed in Chapter Two, the elderly population highlight the significance of 'third places' as they encourage opportunities to build relationships, form attachments and remedy loneliness (Rosenbaum, 2006; Meshramm & O'Cass, 2013). Bird (2007) also claims that accessibility to green spaces can remedy inactivity, which causes poor mental health and obesity.

In earlier Auckland based research, children's 'third places' were found to be commonly local parks, local shops, community centres, libraries and churches (Carroll et al., 2015). I argue that, after-hours, SGSs are analogous to local parks as they provide the same and additional benefits of being safer and more secure spaces due to schools being better maintained and surveilled destinations as opposed to neighbourhood parks. As schools are primarily designed to accommodate children (when they are 'second places'), hazards such as broken glass, vandalism,

litter and evidence of drug and alcohol use are remedied as soon as possible by the school staff to ensure children's safety and therefore the public users safety too.

In my data, there were no significant differentiations between the levels of independent mobility of children utilising green spaces at each school. Approximately the same numbers of children were observed utilising the SGSs after-hours, and interviewees all expressed similar fears of neighbourhood dangers. This contrasts with Carroll et al.'s (2015) findings, which revealed higher levels of independent mobility for children in low-income areas compared to those in mid-income areas. Overall, the effect of outdoor 'third places' is to encourage social interaction, physical activity and place attachment, resulting in positive contributions to human wellbeing.

6.3 What brings people to public green spaces?

The findings from this research show that there are multiple factors contributing to the utilisation of SGSs after-hours. These factors can be grouped into three categories: socio-demographic factors, individual factors, and neighbourhood factors, all of which appear to influence the utilisation of SGSs after-hours at Maungawhau, New Windsor and Oranga School. The literature suggests that socio-demographic factors (e.g. age, gender, ethnicity, and family status) (Payne et al., 2005), individual factors (e.g. health and wellbeing benefits, facility and activity preferences) (Loucaides et al., 2011; Hezele & Vries, 2012; Khotdee et al., 2012) and neighbourhood factors (e.g. proximity and street connectivity) (Timperio et al., 2007; Rasidi et al., 2012; Lafortezza et al., 2009; Oka, 2011) are all influential. Specific characteristics of the aforementioned factors (socio-demographic, individual and environmental factors) are therefore explored in this chapter to help interpret which were most influential in the context of the present research.

6.4 How significant are socio-demographic factors for motivating the use of SGSs?

The socio-demographic characteristics that were explored in this research were age groups and gender. There was no significant pattern seen in regards to gender, however age groups were deemed important. As previously mentioned in Chapter Five, the majority of the green space users at each school were children and, secondly, adults. This is not surprising as playgrounds at primary schools are primarily designed to accommodate school-aged children between the ages of 4-11 years old. I was therefore also interested in how versatile the SGSs were in terms of being able to cater for other age groups. What was observed was that all age groups (children, adolescents, adults and elderly) used the fields and school as a thoroughfare. The use of SGSs

and fields as a thoroughfare can be considered as an expression of versatility. Age group is a significant factor determining the use of green spaces especially within primary schools. Adults were also the second largest group recorded within the school grounds after-hours because the majority of them were there to supervise their children. Primary schools are also considered a safe-haven for children to explore and play (Chawla et al., 2014). The common perception of believing that primary school spaces are child friendly is often part of the reason why children were the largest age category seen utilising school grounds after-hours. However, Allender et al. (2006) have summarised in Table 6.1 some of the reasons they believe motivate various age groups to participate in recreational activity. These can be applied to users of the SGSs, too, as schools provide the facilities needed to carry out various physical activities.

Table 6.1 Summary of motivations for participation in recreational activity

Age Group	Motivations
Children	Experimentation Parental support Safe environment
Adolescents	New social networks Weight management Body Shape
Adults	Enjoyment Skill development Sense of development
Elderly	Health benefits Enjoyment Social support

(Adapted from source: Allender et al., 2006)

This table shows the various influences motivating participation in recreational activity, which can be applied to the context of the SGSs.

Oka (2011) supports the summary of motivations in Table 6.1, claiming that there is a gender divide as women are often supervising children, whereas men are involved in competitive sports and therefore utilise the courts and fields in the context of public parks. He also stated that elderly populations were not likely to use parks unless formal/organised activities were planned. This was also evident in my findings as very few elderly individuals were observed using the SGSs at any of the three schools. In terms of gender, there was no significant trend displayed

in the research findings. However, Villanueva et al. (2012) emphasised the notion of gender being an important factor in the independent mobility of children as it gives them the freedom to explore their environment. Parents and guardians were more likely to let boys, as opposed to girls, explore a large area within their neighbourhoods (Villanueva et al., 2012). In general, some socio-demographic factors appear to be strongly influential, and age was the most important characteristic for motivating or hindering the use of SGSs.

6.5 Individual factors influencing the use of school green spaces

Individual factors in this research refer to someone's motives and perceptions impacting their behaviours. This section will discuss the various aspects of wellbeing, facility and activity type preference, and how these have encouraged the utilisation of the school green spaces.

6.5.1 Health and wellbeing benefits

The notion that interacting with nature benefits the health and wellbeing of individuals has been widely explored across various disciplines of ecology, biology, medicine, psychiatry, environmental psychology, environmental health, public health policies, leisure and recreation and horticulture (Maller et al., 2009). The motivation of this notion within these disciplines is the central idea that contact with nature is not only beneficial but is in fact essential to humans (Maller et al., 2009). There is a fundamental need to investigate how the use of SGSs influences the health and wellbeing of people, as this has not been explored before. For this research, the definition of wellbeing used is 'the state in which an individual feels happy and healthy' (MacKian, 2009). Wellbeing is a multidimensional phenomenon that is comprised of elements from various domains. The aspects that will be discussed in this chapter are physical, emotional and social wellbeing (see table 6.2).

Table 6.2 Description of physical, emotional and social aspects of wellbeing

Element	Key Attributes	Description
Physical	Health, fitness, illness, disability	The environment can enhance wellbeing and the recovery from illnesses through the use of therapeutic landscapes
Emotional	Self-esteem, personal growth	Live life in a meaningful way as wellbeing indicates a sense of agency

Social	Relationships at the personal, community, societal level	The interconnectedness in these relationships is beneficial to an individual's wellbeing

Source: MacKian (2009)

Traditionally, green spaces have been recognised as facilitating physical activity and sports (Hezele & Vries, 2012). Past literature has fixated on the idea of walkability and physical activity benefiting people's health and wellbeing e.g. chronic illnesses and obesity in children (Loucaides et al., 2011; Saksvig et al., 2007). The notion that human exposure to green spaces also positively impacts people's mental and emotional health needs to be promoted to encourage more individuals to use green spaces (Khotdee et al., 2012).

Therapeutic landscapes

In the past, infectious diseases (e.g. AIDS, common cold, plague) have been recognised as the key threat to human health (De Varies, 2010). Today, human health is also threatened by life-style illnesses such as asthma, heart disease, depression and obesity (Nilsson et al., 2007). De Varies (2010) states that life-style diseases are usually a result of living and working in cities, which therefore means that therapeutic landscapes can be solution to these diseases. The notion of therapeutic landscapes is not new, as in history, ancient wisdom from places such as China, early teachings and philosophies from Europe, and knowledge from native peoples in North America have all associated natural landscapes with healing (Souter-Brown, 2015). Souter-Brown (2015) explains that natural landscapes are filled with beauty, create the sense of awe, and hence have the ability to inspire, heal and give peace. Frequent visits to green spaces can therefore provide tranquillity and a sense of peace, and rejuvenate residents (Song et al., 2007).

Therapeutic landscapes have been acknowledged for influencing physiological responses such as muscle tension, blood pressure, and heart rate (Hartig, 2007). These benefits may be experienced simply through viewing or being exposed to the natural environment (Ward Thompson, 2011). Grahn et al. (2010) explain how therapeutic landscapes connect users through shared sounds, sights, and smells. Therapeutic landscapes can benefit people with illnesses such as PTSD as they provide a healing environment consisting of shade, seating and opportunity for light strenuous exercise (Souter-Brown, 2015). The idea of green spaces and SGSs being therapeutic landscapes creates a more appealing and welcoming perception of these spaces (Luxford et al., 2006).

SGSs benefit dog owners and their wellbeing

Dogs are understood to affect people's lives through encouraging social and physical activity (Wood et al., 2005; Cutts et al., 2007; Cutts et al., 2008). At all three case study schools in this research, there were no restrictions against the entry of dogs onto the school grounds after-hours, except for the time restrictions at Maungawhau School that allow dogs in the school after 5:30 pm and before 8 am. Even though SGSs provide space for dog owners to exercise with their dogs, few dog owners were witnessed utilising the school grounds after-hours. This is because the schools are open to the community after-hours and vulnerable children and parents might fear for their safety based on their individual perceptions of dogs. During field research, some dogs were observed to be off their lead, which is frowned upon by some people despite the fact that there were no obvious restrictions stated by the school. SGSs are so versatile that even dogs are able to be within the same spaces as people. Cutt et al. (2007) claim that dog owners gain positive physical, emotional and mental health benefits from interacting with their dogs. According to Wood et al. (2005), exercising dogs in public spaces encourage social interactions through conversations, resulting in providing a sense of community. Dog owners were recognised to have higher physical activity levels compared to non-owners (Cutt et al., 2008). Cutt et al. (2008) specified the health benefits of exercising dogs such as: higher self-esteem, lesser feelings of depression and loneliness, reduced mental stress, lower blood cholesterol level and improved systolic blood pressure. Also, dog owners tend to participate in physical activity for longer periods compared to non-dog owners (Cutt et al., 2008). The chair of the BoT at Oranga School has observed dog owners using the SGSs, but is not a supporter of allowing dogs off their leads.

> *"I've seen people walk their dogs through here so they can let their dogs off their leads. I'm not entirely sure I like that…" – Anne Younger (Oranga School chair of BoT)*

Overall, the chairs of the BoTs were aware and understood the benefits of allowing dog owners to exercise with their dogs on school grounds after-hours, as long as there were no issues regarding the safety of other green space users and no dog waste was found.

Physical wellbeing

The research findings show that users at each case study school participated in physical activities such as swimming, playing on the jungle gyms and playing soccer. Physical activity has been claimed to improve glucose metabolism, blood lipid, bone density, blood pressure and

reduce adiposity in children (Strong et al., 2005; Janz et al., 2009). As previously mentioned in Chapter Two, heat stress can be remedied by being in the presence of green spaces. Heat stress is related to the activities generally conducted in urban areas, such as the heat from traffic, factories, buildings, concrete, and asphalt (Kosatsky, 2005). With more green spaces available for public use, this can cure issues such as heat stress and reduce obesity rates.

Mental and Emotional wellbeing

There were many users who were observed using the green spaces alone at the three case study schools. Whether it was walking, cycling or sitting alone, being in the presence of SGSs provided people with a chance for mental restoration. The majority of users also had a connection with the school because they were familiar with the school grounds already, and had become emotionally attached. This attachment can influence the frequency of visits to the school, hence promoting the overall wellbeing of the individual. Payne et al.'s (2005) findings also showed that the mean mental health scores were higher for park users than non-park users. The common perceptions of green spaces were associated with sports, recreation and the benefits gained from these, yet knowledge of other benefits for mental and emotional wellbeing from interacting with nature is still lacking in the literature to date (Maller et al., 2009).

Social Wellbeing

School green spaces offer opportunities to strengthen social ties and social cohesion (Khotdee et al., 2012). 'Third places' are well recognised for being destinations where social interactions take place away from first and second place. Oldenburg's notion of 'third place' heavily emphasises community, and the case study schools clearly provided a safe and secure place to interact and build relationships. This was most evident at Maungawhau School as all the users greeted each other and would engage in conversation with one another.

Participant 13 (M)	*"Safe community, like-minded people"*

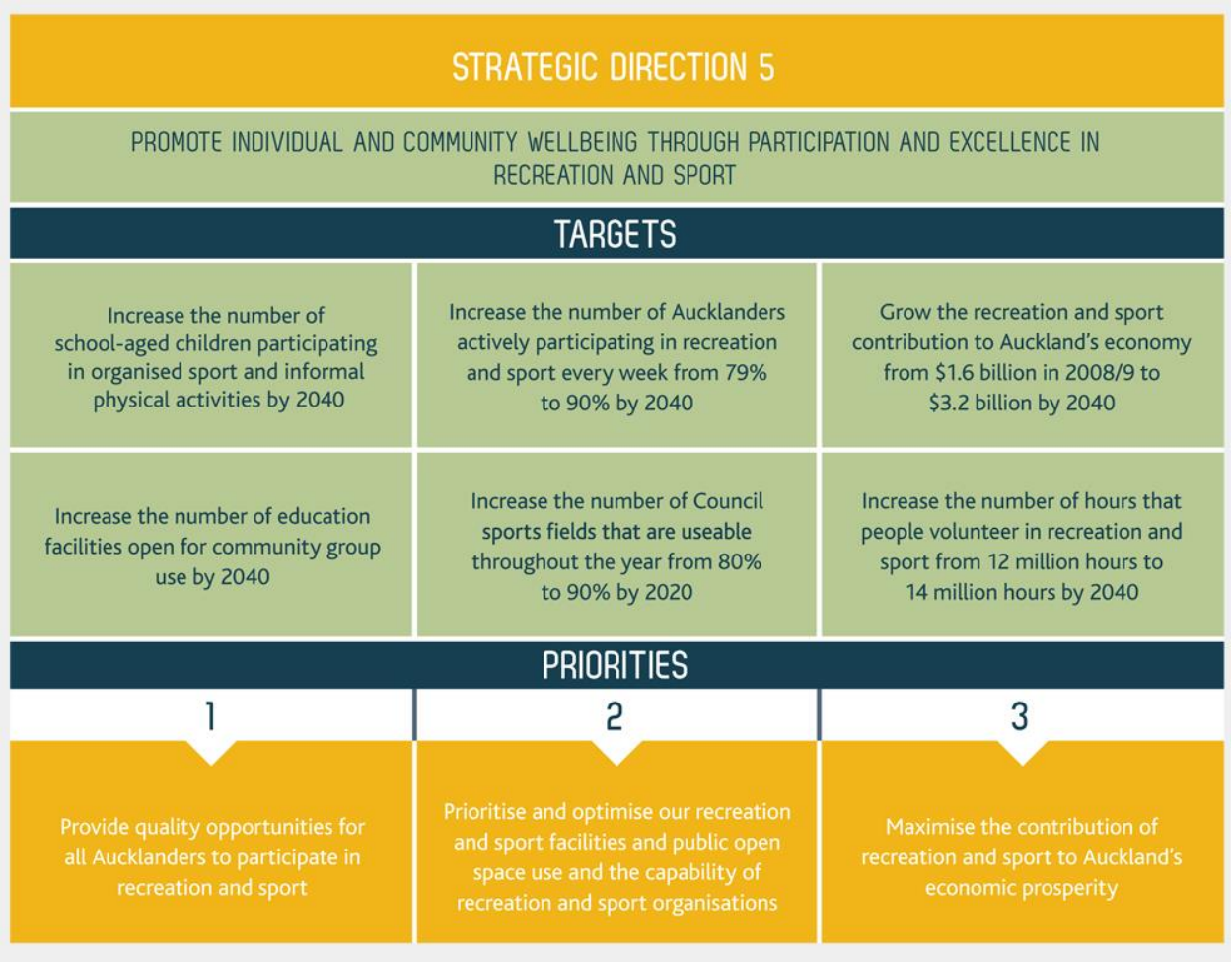
Participant 13 from Maungawhau School believed that it was a safe community because other members in the school community were likely to have the same perceptions.

However, this degree of social cohesion was not as evident at New Windsor and Oranga schools, because there were less people utilising the green spaces compared to Maungawhau School. Also, the people using the SGSs at New Windsor and Oranga School were not linked to the school through being a student attending the school, as opposed to at Maungawhau School where the majority of users belonged to the school community. This situation made it easier to develop relationships. In terms of the afterschool programmes at each of the schools, social cohesion was obvious because individuals involved in the afterschool programmes were encouraged to interact

with each other through partaking in activities and exploring the green spaces afterschool. Maller et al. (2009) explained how parks contributed to people's social health by providing them a place to enrich their personal relationships and social networks. This same theory can be applied to the context of SGSs as they also provide the facilities to accommodate social interactions within the community.

Interventions and preventative policies for life-style diseases such as cardiovascular disease take approximately 20 years to reveal their effect (Franklin, 2013 as cited in Souter-Brown, 2015). Franklin (2013) also notes that the natural environment could prevent life-style diseases and lessen pressure on health care resources. This is a necessary step as there is no country which can afford to maintain current levels of health care for epidemics (e.g. of depression and obesity) (Souter-Brown, 2015). The World Health Organisation (WHO) highlighted the importance of physical activity and encouraging healthy lifestyles, as this is how nations will be able to combat the rising costs of healthcare (WHO, 2013). Figure 6.1 shows how the Auckland Plan seeks to improve the wellbeing of residents by promoting and encouraging people to take part in recreational activity and sport. This plan emphasises the availability of well-maintained settings that provide opportunities to exercise and play. School green spaces can assist with achieving Strategy Direction 5 (see Figure 6.1) as they are available for the informal and formal activities proposed, and are also suitable spaces for school-aged children, which is one of the target populations in the plan.

Figure 6.1 Auckland Plan promoting health and wellbeing through participating in physical activity



(Theplan.theaucklandplan.govt.nz, 2015b)

Health and wellbeing are important characteristics for motivating the use of SGSs. The three aspects of wellbeing explored proved to be relevant and significant to users in this study. This idea is endorsed by Payne et al. (2005) and Sugiyama et al. (2009), who have both demonstrated that the main motive of park use was health-related and concerned with sustaining a better quality life.

6.5.3 Preferred activity type in school green spaces after-hours?

Passive versus active

As discussed in Chapter Five, active activity was noted as the more popular activity type as opposed to passive activities during the school holidays and during the school term. For

this study, active activity is defined as recreational activities that need substantial expenditure of energy, whereas passive activity is defined as using the green spaces without engaging in physical activity. Examples of passive activity observed in SGSs were sitting or standing and conversing with peers, activities that arguably promote mental and social health. Active activities include various sports activities and physical engagements facilitating physical health and wellbeing. Active activity is important as it prevents the likelihood of being affected by life-style diseases (Nilsson et al., 2007). The New Zealand Ministry of Health explains that taking part in regular physical activity can help with depression in adults and children (Ministry of Health, 2009). As previously mentioned in this chapter, the health benefits as a result of physical activity are more widely recognised as opposed to the emotional and mental health benefits (Maller et al., 2009).

Formal versus informal

Almost all of the users during the school holidays from each school engaged in informal (unstructured) activity. As previously defined, informal activity is spontaneous activity with no specific rules and little to no prior planning. However, during the school term, each school differed in the number of people participating in formal and informal activity. At Maungawhau School, more individuals engaged in informal activity opposed to the lesser number of people involved in formal activity. Formal activity for this research is defined as structured and organised activities comprising of goals and rules with designated leaders and instructors. The formal activities recorded at Maungawhau School were the sports practices and the afterschool programmes. At New Windsor School, the numbers of people engaged in formal and informal activities were equal. This was a result of the popularity of the Dean Greenwood swim school and the individuals who were part of the OSCAR afterschool programme. Lastly, at Oranga School, there were more people engaged in formal activities as opposed to those who were involved in informal activities. A valid reason for this outcome was the lack of overall utilisation of the SGSs.

6.5.5 Facilities and amenities

Tsou et al. (2005) claimed that urban public facilities have two major functions: providing services for residents, and maintaining a quality environment for urban living. SGSs fulfil these functions. Each of the case study schools differs in terms of their shape, size, and layout of facilities and amenities, therefore providing a variety of opportunities for people to utilise the school green spaces after-hours. One of the research objectives was to assess the degree to which the design of green spaces encourages physical and social activity. This was measured by recording the number of users at each green space, the behaviours and interactions observed,

and the personal perceptions of the users of green spaces in regards to what features encouraged them to use the school green spaces. The designs of the green spaces of the three schools fall under the same design typology of the contemporary playgrounds defined by Brett et al. (1993) and adapted from Frost and Klein (1979) and Rohane (1981).

Table 6.3 Summary of design types

Design type	Description
Traditional	Typically classified as "mass produced" equipment, e.g. jungle gyms, with a lot of green field area for sports and recreation.
Designer	Aesthetics are a main feature within these spaces. This design consists of a variety of textures and pre-determined play equipment, e.g. a wooden car.
Adventure	This design relies on the natural environment of trees, grass, hills, tires and mud. The aim of this design is to encourage flexibility. It is popular in the Nordic countries.
Creative/Comprehensive	This is essentially a combination of all the previously discussed designs. It is therefore also the most diverse type and offers a wide variety of chances for formal and informal play.

Source: Malone & Tranter (2003)

Most studies are more focused on adventure playground designs and how they benefit children and aid their development (Fjørtoft, 2004; Louv, 2005; Lucas & Dyment, 2010; Parsons, 2011; Chawla et al., 2014). These studies contend that adventure playgrounds provide the most benefits when children can use their imagination. The three case study schools included traditional playground design (see Table 6.3). Schools around the world have also embraced the idea of transforming their grounds into more diverse and natural spaces (Dyment & Bell, 2007). The design and environment of public spaces should preferably hold the interest of diverse users in order to assure and encourage regular visits and usage of the space (Walsh, 2006). In terms of aesthetics, Maungawhau, New Windsor and Oranga Schools all had similar features in terms of vegetation and trees surrounding the perimeter of the fields. Overall, users of SGSs were satisfied with what each school had to offer as it catered to their needs. It was highlighted in

earlier literature that children prefer playing in the natural environment - defined in Table 6.3 as the 'adventure' design type. There was no evidence from the findings of this research, however to suggest that children preferred playing on 'adventure' designed playgrounds. There were a few children observed climbing the trees, but the majority of children involved in this study preferred playing on the 'traditional' playground facilities. In terms of amenities, park users in previous findings preferred the presence of more vegetation, especially the elderly population (Bjerke et al., 2006; Alves et al. (2008). Not many elderly users were observed utilising the SGSs in this study. This is because they require and want different services and features within green spaces compared to the other age categories. Alves et al. (2008) explored the facilities and natural features preferred by the elderly population in the UK. The findings from their research suggested that the elderly favoured parks which had toilets, cafes, dense vegetation, seating and light traffic surrounding the park (Alves et al., 2008). Overall, the rest of the age category groups preferred urban parks with dense vegetation (Bjerk et al., 2006).

If schools were to fulfil the role of other public open green spaces, they would not only be expected to provide the same opportunities that open spaces provide (e.g. such space for leisure and physical activity), but would also be expected to be rich with natural vegetation (Jim & Chen, 2010). If schools were to use their resources to promote physical activity, they would need to ensure that SGSs were appealing for the public, as the population is diverse in their interests and abilities (Dyment & Bell, 2007). Moreover, the youth population were interested in the idea of multi-purpose spaces for relaxing, playing and socializing (Pincetl & Gearin, 2005). Referring back to the notion of 'third places', the public are also restricted in terms of temporal limitations for the use of the swimming pool at Maungawhau and New Windsor School as there are allocated opening hours for pool use.

Blue spaces within green spaces

Blue spaces have also been considered in this research as part of the broader consideration of green spaces within the schools. Völker and Kistemann (2011) define blue spaces as visible surface waters. In the context of this research, blue spaces constitute the swimming pools at Maungawhau and New Windsor School. Former studies have focused on how blue spaces were preferred by individuals when they were feeling happy, stressed or relaxed and have been recognised for their therapeutic purposes (Regan & Horn, 2005; Velarde et al., 2007; Williams, 2010). The swimming pools at both Maungawhau and New Windsor School were well utilised. However, the majority of users of the swimming pool at Maungawhau School were engaging in informal activities whereas most of the people using the swimming pool at New Windsor School were engaged formal swimming lessons.

Referring back to the notion of 'third places', public users of the swimming pools were restricted in terms of temporal limitations at Maungawhau and New Windsor Schools because of the allocated opening hours for pool use. Maungawhau not only had temporal restrictions in regards to the use of the swimming pool, but the people allowed to use the pool had to be students (or family of the students) who attended Maungawhau School. In Chapter Five, although Participant 10 was willing to pay to use the pool facilities, the research findings suggest that the swimming pool at Maungawhau School may not be large enough to accommodate additional users, as it is already well utilised. The chair of the BoT also claimed that the Board had not considered granting pool access to the public.

Having access to an extra facility can, however, enhance the attractiveness of a space, and in this context, having a swimming pool led to the use of other aspects of the SGSs. This phenomenon can be regarded as a 'spillover' effect, where one activity influences and promotes another. Users of the swimming pool at both Maungawhau and New Windsor School observed individuals using other spaces such as the jungle gyms and courts whilst waiting for their peers or parents. Adults therefore actively used school green spaces, which proved to be versatile and suitable for all ages. In the spaces catered to school-aged children, such as the jungle gyms and sandpit, adults were usually passively supervising.

Overall, the findings suggest that the size of the green space was not a significant attribute alone to impact people's use of school green spaces, despite the correlations seen between park size, physical activity and park use in other studies (Giles-Corti et al., 2005). However, the facilities available were important for influencing the utilisation of SGSs. For example, the presence of a swimming pool led to a 'spillover' effect, thus encouraging the use of other green spaces within the school.

6.5.6 Perceptions of safety

The notion of safety is complicated as there are many components of urban life regarded as 'threatening', such as maintenance, traffic hazards, 'stranger danger', bullying, and personal injury (Carver et al., 2008; McMillan, 2006) and crime (Jorgensen and Anthopoulou, 2007). These perceived dangers have usually been linked to parents' and guardians' fears for their children. McMillan (2006) claimed that this fear and anxiety of their children being kidnapped, molested, or bullied has resulted in the social norm of parents chauffeuring their children not only to and from school, but also to and from other structured activities too. This has resulted in what Louv (2005) has termed a 'nature-deficit disorder', which surmises that children are not receiving enough exposure to the natural environment. These experiences of being outside and

in contact with the natural environment are being replaced by electronics and viewing nature on a computer or television screen or in the car (Louv, 2005).

My findings suggested that the most common perceived and real dangers amongst green space users were traffic hazards. However, earlier studies conducted by Birge-Liberman (2010) and Van Dillen et al. (2011) regarding parks stated that the lack of maintenance was a concern, which resulted in poor park quality, and these were shown to be dependent on the socioeconomic level of the neighbourhoods. Safety and danger are socially constructed ideas and are therefore fluid concepts that vary in different contexts.

Maintenance of school green spaces versus local parks

All the case study schools were well maintained with no litter or graffiti observed, thus making them appealing open green spaces. Even though each school was a different decile and located in different neighbourhoods, there was little difference in the quality of the green spaces and the upkeep of the school grounds. However, past studies have concluded that the quality of local parks differed significantly depending on the socio-economic status of the neighbourhood (Moore et al., 2008, Byrne & Wolch, 2009). Parks located in low socioeconomic neighbourhoods were not well maintained, and were unsafe and unappealing, thus discouraging their use (van Lenthe et al., 2005). However, in this study, the pattern of amenities and facilities present was the same for parks in high socioeconomic areas versus low socioeconomic areas, and also between high decile schools and low decile schools. Schools are also vulnerable to dangers such as vandalism and, compared to the managers of parks, are more inclined to cope with these issues as soon as possible because it is their responsibility to keep their students safe from possible hazards within the school grounds.

"Drinking, that is what we are quite vulnerable for. You can quite often come in on a Sunday or a Monday and along the car park, sometimes along the field; there are bottles and cans… it is a bit of a pain because the caretaker has got to pick stuff up because you really don't want kids coming in on Monday morning and seeing a big pile of beer bottles…"- Kerynn Banningan (New Windsor School chair of BoT)

Mitchell (2005) summarised that individuals from higher socioeconomic backgrounds were less anxious about neighbourhood safety, but were more concerned about the lack of facilities available for recreational activity. Residents in lower socioeconomic neighbourhoods were more anxious about issues concerned with safety (e.g. traffic hazard and stranger danger). In this research, the findings suggest that traffic hazards were a concern for all residents from all socioeconomic backgrounds. In a study conducted by Porter et al. (2007), the aim was to explore

parents' views on children when they participate in unsupervised activities. Parents in this study believed that the mean age was nine years old for allowing children to cross a busy road without holding hands, whereas the mean age for allowing a child to cycle along a busy road without supervision was 12 years old (Porter et al., 2007). However, Porter et al. (2007) concluded that children's behaviour and interactions in the environment depended upon how effective the behaviours of parents were while supervising them.

Parental Supervision

In this research project, adult(s) generally supervised children using the SGSs after-hours. This was because social norms today encourage parents to constantly supervise their children. Morrongiello (2005) defined supervision as a readiness to intervene. According to Mitchell's (2005) study, parents believed children were irresponsible and inexperienced and therefore needed constant supervision. This was also reflected in the choice of modes of transportation in my research, as the trend presented was that public users of the green spaces often chose to use private vehicles to travel to and from the school after-hours because of fear of perceived dangers such as traffic hazards. Karsten (2005) terms this phenomenon of the 'over protected' children as the 'backseat generation', as parents would chauffeur their children to activities on a regular basis. The issue with parental supervision is that parents and guardians will often have to make time to supervise their children within green spaces. This can also be a motivator for parents to encourage their children to go to school after-hours to play, as parents will also receive the positive emotional and mental wellbeing benefits from being exposed to green space. This theme of being 'over protective' has influenced guardians' preference for children to play indoors as it is easier to supervise them (Neuwelt & Kearns, 2006). However, indoor play limits the opportunities for children to explore and be physically active (Neuwelt & Kearns, 2006). Parental concerns over children's wellbeing has led to a decline in outdoor play (Mitchell et al., 2007; Carver et al., 2008), hence the deterioration of health in children due to the lack of green space use. Bean et al. (2008) stated that although Auckland parents regularly transported their children to activities, they were aware and have expressed a degree of concern for their children's lack of autonomy and physical activity.

Traffic Hazards

Consistent with the literature, the findings in this thesis suggest that the social norm among parents and guardians in regards to the perception of traffic safety influences the independent mobility of children. It reduces their freedom to explore their local neighbourhoods, which also limits children's freedom to use school grounds after-hours (Villanueva et al., 2012). Parents often supervised younger children to cross roads safely.

Morrongiello and Barton's (2009) findings also suggest that adults who crossed roads with children actually deprived them of instructions or guidelines that taught them how to cross roads safely by themselves. Specific characteristics of children such as age, sex and ethnicity also influenced parents' willingness to allow their children to explore their neighbourhoods alone (Morrongiello & Barton, 2009). Morrongiello and Barton's (2009) findings concluded that parents were more likely to closely supervise younger children as opposed to older children, and also more likely to ensure that their boys had safer crossing habits and models to follow compared to girls. This finding can be interpreted as a claim that parents trust their daughters to be more responsible and calm whilst crossing roads compared to their sons, as they are more likely to behave more impulsively (Morrongiello & Barton, 2009). The research findings in Chapter Five show a correlation between traffic hazards and transport modes. The traffic present in each neighbourhood surrounding each case study school was shown to impact the transportation modes people chose to travel to school after-hours. Even residents who claimed to live five minutes away from the school would drive as opposed to using active transportation modes such as walking, cycling or scootering.

Other neighbourhood dangers

There were no broader neighbourhood dangers and fears brought up by interviewees from this study, perhaps because traffic hazards reigned in all neighbourhoods as the most conversed danger. The media therefore fuels an ideology that views children as being too vulnerable and incompetent to navigate the environment on their own. This in turn prevents them from gaining knowledge through experience and further diminishes their confidence in public spaces (Rudner & Malone, 2011). However, the BoT from New Windsor School shed some light on issues that they were aware of and were monitoring.

"We've known about drug issues. Like some drug deals going down in the car park…the community constable is aware of it so we monitor that, and that's another reason why we installed security cameras…" – Kerynn Branningan (New Windsor School chair of BoT)

Evidence of these interactions and activity was not made apparent within the school green spaces of the other two schools, are these unlikely to happen often in school spaces as they are primarily recognised for being a space for school-aged children. Studies have also revealed that unfavourable conditions such as the presence of litter, broken glass, graffiti and evidence of alcohol consumption were seen in third places such as local parks (Timperio et al., 2007). Prior studies have also emphasised how residents were fearful of bullying and stranger danger

(Bedimo-Rung et al., 2005). My findings were not consistent with these findings. However, referring to the idea of autonomy and the independent mobility of children, it is logical to acknowledge why parents are over protective of their children based on these perceived and real dangers of bullying, 'stranger danger' and crime in the neighbourhood (Bedimo-Rung et al., 2005).

6.6 Remedying the concerns of stakeholders

Introducing traffic calming measures such as pedestrian crossings, lower speed limits, crossings with lights, improved lighting and speed bumps can alleviate the perceived fears of individuals (Oka, 2011). Participants in this research were more eager to encourage the idea of active transportation as opposed to the proposed examples of traffic calming strategies.

Participant 13 (M)	*"I think walking to school needs to be encouraged…for example, kids should walk if it is 500m or less from school. The pattern is that the older children actively travel while the younger kids get dropped off"*

Participant 13 from Maungawhau School stated that the traffic around the school is a significant problem and suggests that policy should be in place to encourage individuals who live in close proximity to the school to use active transportation modes. It makes sense theoretically to see active transportation as an effective solution not only in terms of reducing traffic flow, but also in terms of enabling safer neighbourhoods in regards to having more people present in the community. Active transportation also results in better physical and social wellbeing, with exercise and social interactions taking place in transitory zones on the way to and from the school spaces after-hours. Timperio et al. (2006) further suggest that in order to make children's active journey to school safer, they should be encouraged to take a safer route that other children also use.

The strategy of promoting and educating people about active transport can be effective in overcoming barriers to achieve safer active transport behaviours. The positive factors of low cost, time efficiency, lower levels of pollution and benefits to human health are key motivators to make this approach successful at increasing active transportation.

6.7 Neighbourhood factors

Neighbourhood attributes such proximity, accessibility, street connectivity and mixed land use are believed to be predictors of active transportation and walkability, which ultimately

become significant factors in influencing the public use of SGSs (Oka, 2011). As reviewed in Chapter Three, walkability is defined as the walking conditions measured in terms of street connectivity, land-use mix, and dwelling density, which are correlated with the rates of active transport in neighbourhoods (Mavoa et al., 2009). Based on the summary statistics calculated in Chapter Three (see Table 3.3.), Maungawhau School was expected to have higher rates of active transport use as opposed to New Windsor School with lower active transportation rates. The findings from this research do not reveal any significant difference between active transportation modes, as the majority of the interviewees stated that they used private vehicles as their chosen mode of transport to the school after-hours. The walkability of neighbourhoods results in less traffic and less air pollution due to the reduction of private vehicles, and lower obesity rates due to more people walking, running, cycling, scootering and skateboarding (Frank et al., 2006).

6.7.1 Barriers and stimuli affecting walkability

Walkability, as previously shown in Chapter Five, is important for influencing the use of active transport modes. The theme of walkability is important as it implies how safe a neighbourhood is in terms of the three attributes of land-use mix, dwelling density and street connectivity. Through these attributes, walkability impacts the modes of transport used and social norms. For example, in the Netherlands, with improved infrastructure, an increase in the use active transport modes was observed and is this becoming a more popular and safer option for children (Fisher & Cambpell, 2010). Walkability depends on the built environment of the neighbourhood, which explains why residents in less walkable areas prefer to be more dependent on their cars (Badland et al., 2012). This is seen in the research findings where participants who lived close to the school chose to drive due to the low walkability rating of the neighbourhood.

Unwalkable neighbourhoods are often associated with lower socioeconomic areas (Cutts et al., 2009). In this research, Oranga School had the lowest school decile and is therefore recognised as being in a low socioeconomic suburb.

Participant 2 (O)	*"At night there are drunk people"*

As Participant 2 stated, they do not use SGSs at night due to their fears of drunk people. Cutts et al. (2009) describes other barriers such as crime, the quality of facilities and traffic hazards that make spaces less attractive to people. However, the factors that were relevant and impacted the utilisation of SGSs were street connectivity, proximity and accessibility to the schools.

Street Connectivity

Street connectivity refers to the arrangement of streets and is measured by the availability and directness of alternative routes (Oka, 2011). Better street connectivity in neighbourhoods usually forms a grid-like street arrangement with few cul-de-sacs, whereas low-walkability neighbourhoods have more cul-de-sacs (Oka, 2011). Spatial planning for the future therefore needs to take into consideration the level of street connectivity as it can impact the walkability of neighbourhoods and influence residents' decisions to use more active transportation modes. For example, incorporating more recreational outdoor facilities (e.g. local parks and trails) near more pedestrian-oriented streets could encourage more people to engage with the facilities (Oka, 2011). Roemmich et al. (2006) argue that street connectivity is considered irrelevant for children as they have restricted independent mobility and therefore are unlikely to cross roads alone and will often remain in their home blocks. Features such as scenery, traffic conditions and footpath conditions can also influence the level of walkability as it impacts pedestrians' walking experience (Brown et al., 2007). In summary, better connected street networks with easy access to public transport and mixed land-use increases active transport due to the reduced reliance on private cars (Sallis et al., 2006; du Toit et al., 2007).

6.7.2 Proximity and accessibility to school green spaces

The research findings from Chapter Five are not consistent with the literature that suggest that proximity is a strong predictor of the frequency of visitation to public spaces such as parks, which is a significant predictor of recreational activity (Giles et al., 2005; Timperio et al., 2007; Rasidi et al., 2012). Scholars such as Hillsdon et al. (2006) have, however, believed that there is no relation between proximity and green spaces. The data collected in this research suggests that proximity alone is not a strong factor influencing green space use, but still has the ability to affect the use of green spaces. The interviewees from Oranga School claimed they lived quite far from the school (approximately 20 minutes' drive), yet they still utilised the school grounds. Overall, proximity along with other factors such as facilities, amenities, and maintenance contribute to influencing people's use of green spaces and in this context the SGSs. Proximity is also associated with social limitations in terms of socioeconomic status and social justice issues. Knowles (2006) explains that not all people can afford a car, time to travel or have access to quality facilities. State-owned schools could remedy these issues if the school boards were to allow public access to SGSs after-hours. Based on the findings from this research, all the primary schools were well maintained even though they were located in different socioeconomic neighbourhoods. Social isolation can be, in part, the result of a lack of availability to public

services and facilities, and the lack of accessibility to SGSs in urban areas. As previously discussed, green spaces are known to be beneficial to mental health, physical health and social connections (Souter-Brown, 2015).

In Chapter Two, I discussed a taxonomy of accessibility and described how, in the context of schools, local residents can have locational accessibility because they are located near the school, but may not have effective accessibility because they may not have permission to access school spaces after-hours. This study found that the BoT has the authority to allow effective accessibility so the community can benefit from using the SGSs. Accessibility is a significant factor impacting the use of SGSs after-hours. Gaining permission to use the school grounds is the first barrier that needs to be overcome before thinking about the use of school grounds at all. Maller et al.'s (2009) findings also agreed that accessibility was a significant factor for encouraging people to utilise urban green spaces. Additionally, with the ageing population in countries such as Australia, it is essential to make public green spaces even more accessible to all people (Maller et al., 2009).

Accessibility to public spaces where dogs are permitted is important as there are limited public open spaces where dogs have the freedom to be both on and off their leads due to the perceived fears of dog bites and dog attacks (Boyd et al., 2004; Cutts et al., 2007). It is therefore encouraging that the three case study schools have not banned dogs on school grounds after-hours, because this benefits the residents' physical, mental and social wellbeing (Wood & Giles-Corti, 2005; Cutts et al., 2008).

In general, proximity did not prove to have as much of an impact on SGS usage as proposed in past literature. However, accessibility in this research is recognised as an important neighbourhood factor that determines public access to school green spaces after-hours. Proximity, it seems, is merely one neighbourhood factor (such as street connectivity and accessibility) that impacts the use of SGSs.

6.8 Social and Environmental Justice

Unequal access to essential public facilities such as healthcare, sporting and recreational facilities, education, supermarkets, facilities for children and public open/green spaces are recognised as contributing to social and environmental injustice concerns (Dempsey et al., 2009). There is some overlap between social and environmental justice, as the equal access to urban green spaces is influenced by geographic location and social privilege (Kay, 2005). For example, in a study based in Milwaukee, white populations with a higher median income resided in areas where more urban forest was present, compared to neighbourhoods with higher Hispanic

populations and less urban forest (Heynen et al., 2006). Social justice has functioned under the claim of addressing equity discrepancies and aiming to redistribute economic and environmental opportunities as an approach to develop "greener cities" (Gilbert, 2014). Environmental justice has operated under the general claim that there should be no victims (e.g. the vulnerable social groups and/or powerless) subjected to unwarranted harm (Cutts et al., 2009). This therefore relies on the implementation of environmental policies, regulations, and laws which can be used to ensure significant involvement and fair treatment of all residents (Garcia et al., 2009). As urban green spaces benefit public health, the uneven access to them is recognised as an environmental justice issue (Dai, 2011; Jennings et al., 2012).

There have been past studies focused on the distribution of urban parks in relation to public health in various cities in Australia, the United Kingdom and the United States (Wolch et al., 2014). When it comes to environmental facilities and amenities, they are often disregarded as a component of environmental justice (Pastor et al., 2005; Brulle & Pellow, 2006). Although the uneven distribution of high quality environmental amenities has been researched little, it needs to be studied and improved because these amenities affect the health of residents in regards to air quality and the facilities in place to help improve their health (Cutts et al., 2009). Most of these studies have been based on local and urban parks, which tells us little about the uneven distribution of these facilities. I therefore argue that the distribution of state primary schools in Auckland would lead to no social and environmental injustices, as the dispersal of SGSs are even. All residents would therefore benefit from having access to low cost, well maintained facilities that cater to all social groups.

6.9 Power Relations

In order to create liveable cities, evaluations, adjustments and new policies need to be implemented in order to ensure adequate location of parks, design of public spaces, zoning and building density, street engineering and urban development (Moore & Cosco, 2010). 'Third place' ideas are helpful in this regard. These concepts are concerned with facilitating community in semi-public places in a way that is frequently beyond the policy reach of national politics and planning but can be encouraged at the local level. In the context of this research, 'local level' refers to the individual BoTs from each school, as they determine the school policies in regards to the governance of the schools, including the use of the school grounds after-hours. Green spaces tend to be defined as lying within private or public domains. Rasidi et al. (2012) defines private spaces as those designed for specific users only and, public spaces as those designed for all people. The case study schools can be considered 'private-public' spaces. They are private in

terms of the BoT governing the school spaces so that they are specifically available for students and school staff during school hours, but public in regards to the school being funded by the public taxpayer and its spaces being available for the public afterhours. There are therefore temporal factors that determine the type of space and governance of space for users.

The process of decision-making differs at various scales in terms of governance at the global, national and local level. This research focuses on the governance at the local level, where bottom-up decision-making is generally used (Farrington, 2007). Planning for access to services, facilities and amenities for residents seems to be most efficient and effective when the scale is set at the neighbourhood level. At the neighbourhood level, the population is large enough to allow for social interactions within the community, as well as being small enough to provide residents with access to local shops, public transport, schools and facilities (Choguill, 2008). Oka (2011) highlights the effectiveness of designing future neighbourhood spaces at the local level as there is more of an understanding and insight into what the community wants and needs. Giles-Corti et al. (2011) conclude in their Australian study that efforts made to encourage walking to school are insufficient, and claim that transport and urban policies would have a larger impact on walking uptake as they can guarantee well connected streets surrounding schools and hence increase walking behaviours. With cross-disciplinary efforts, a long-term supportive social and physical environment can be fostered at the local level (Oka, 2011).

6.9.2 School Policies

My research findings establish that the public is not aware of the policies regarding schools being open to for public use after-hours at all of the case study schools. Only current and previous students, along with some local residents, were aware of schools being open to the public after-hours. It is confusing for individuals to know what policies exist regarding the access to school grounds after-hours due to every state primary school being governed by individual Board of Trustees committees with their own policies. The Ministry of Education (MoE) is the national organisation in New Zealand responsible for dictating school activities. However, the MoE is not directly involved in regulating SGSs. One of the aims of this research was to survey the accessibility of SGSs after-hours and related policies. Essentially, state primary school spaces are considered as public-private spaces because private control is entangled with notions of public access (Dovey et al., 2001). The state determines the regulations in regards to educating the nation and also has the power to equitably distribute schools and therefore their facilities. The challenge is not availability of green spaces, but rather the accessibility to the green spaces. As previously discussed in Chapter Two, the state owns public schools, but they are governed by

individual school boards. The school boards at each case study school in this research permit public access after-hours by individuals.

6.10 Supply and demand for ensuring sustainable cities

The promotion of creating cost effective communities that conserve natural resources and enhance natural processes is central to the notion of a 'sustainable city' (Ignatieva, 2008). This can be achieved by using the 'low impact urban design and development' (LUPP) model, which promotes health and urban sustainability through the effective organisation of waste, energy, storm water, ecosystem and transport services (Souter-Brown, 2015). This model assumes that people minimise their desires and live close to their needs (e.g. local services and facilities) (Souter-Brown, 2015). Souter-Brown (2015) defines desires as not being essential to an individual's health and wellbeing.

This research project has provided an indication of the function of SGSs and their relevance to sustainable communities within cities. Due to the expected significant increase of population in the next 30 years, precautions within spatial planning and decision-making amongst various disciplines need to be considered seriously in order to avoid the negative consequences such as pressure on infrastructure, inefficient transport networks and permanent damage to the natural resources and environment (The Auckland Plan, 2015a).

6.10.1 Environmental Education for Sustainable Cities

Barriers preventing the development of sustainable cities include a lack of public awareness and understanding of diminishing natural resources (Ugurlu & Aladag, 2009). Ugurlu and Aladag (2009) explain that for sustainability to be successful, people need to be made aware of the goal and what is expected of them in terms of how their own skills and knowledge can contribute to reaching the target of a sustainable city. Environmental education has therefore been encouraged in many fields and institutions. At the global scale, the United Nations Decade of Education for Sustainable Development from the period of January 2005 to December 2014 is an example of policy in action (Combes, 2007). The three sectors that are involved in the process of education for development processes are the environmental, social and economic sectors (Ugurlu & Aladag, 2009). The aim of environmental education towards more sustainable cities is an efficient method of managing the individuals and groups from diverse backgrounds with various skills and knowledge that is effective (Ugurlu & Aladag, 2009).

6.11 Summary

"At a time of rapid changes and uncertain futures, there is a need for constant adaption and innovation"
– Halleux et al., 2012

This chapter has aimed to demonstrate the importance of SGSs within community settings through the investigation of SGS public use after-hours. By the very design of SGSs, they offer more opportunities for various leisure and recreational activities resulting in positive impacts for human health and wellbeing. School grounds are recognised as providing satisfaction for children as they are spaces where they can still exercise their independence (Tranter & Malone, 2004), as well as providing the community with a setting for social networking and emotional and informational support (Kearns et al., 2009). This chapter has also attempted to show how SGSs can be considered as 'third places' and how specific socio-demographic variables, individual and neighbourhood factors were significant motivators influencing the use of SGSs. In summary, all three factors were important in their own way.

One of the many issues with urban areas is the distribution and maintenance of public green spaces. Less socio-economically privileged people have limited alternatives to move or travel to greener areas due to financial constraints (Khotdee et al., 2012; McWhorter, 2013). However, this research shows that SGSs can remedy the lack of access to green space as schools occupy more areas and are reasonably spread out compared to parks and other public spaces. SGSs are essentially the same as other third places and public open green spaces, as they provide the same opportunities for interactions and the same benefits are gained. If all schools were open to public use, more activity and green space exposure would be encouraged and SGSs would be used more after-hours, therefore benefiting all residents.

In order to sustain the green spaces that are left, the number of users within green spaces should be managed (Hamberg et al., 2008; Niemelä et al., 2010). As suggested by the Maungawhau School chair of the BoT, SGSs are currently well utilised. The findings show that the three case study schools are well-maintained and provide opportunities for formal and informal leisure and physical activities, which can ultimately reduce life-style threats. SGSs have shown to be suitable substitutes for parks, green spaces and therapeutic landscapes that lessen the urbanisation pressures on the natural environment. This will involve efficient planning and use of SGSs, as planning and management should involve all citizens. The primary goal of such planning is to encourage residents to engage with the green spaces (Burls, 2007). The challenge is therefore to see and achieve the bigger picture of sustainable and liveable cities rather than only focusing on short-term benefits for human health and wellbeing.

CHAPTER 7

CONCLUSION

7.1 Introduction

The availability and sustainability of public green spaces in urban areas has been an ongoing focus in geographical and public health research. It is argued that if changes are not made in urban planning to emphasise nature in urban areas, the process of increased urbanisation will diminish direct experience with the natural environment and associated social and health benefits (Charles & Louv, 2009). Although urban green spaces provide cultural, recreational and psychological 'services' and are recognised as being important to residents, Yli-Pelkonen and Niemela (2005) contend that there remains a lack of evidence regarding how exactly benefits from urban ecological systems can be measured. In order to benefit public health, policy measures are needed to improve a range or dimensions of factors which influence quality of life such as the cleanliness of the air in urban areas (Molina et al., 2004). Green spaces have long been regarded as the 'lungs of the city', and in order to affirm the value of urban green spaces, values associated with the natural environment, urban policies and urban planning practices need to be combined in order to advance local residents' wellbeing as well as the sustainability of urban areas.

This thesis has built on the foregoing concern by recognising SGSs as 'third places' outside of school hours, and has examined the multidimensional importance of SGSs for community wellbeing. Children's third places have also often been overlooked during the planning of cities, however using the notion of mixed land-use of SGSs provides children with a site for social interaction, a sense of place and independent mobility (Carroll et al., 2015). The utilisation of SGSs at the three case study schools was observed and used to generalise likely factors motivating and hindering the use of other similar SGSs. Having assessed these cases, I can conclude that allowing public access to SGSs after-hours benefits the overall community through providing a space for organised and unorganised leisure and physical activities, thus encouraging social interactions and offering a substitute for other urban green spaces such as parks. For example, physical activities in green spaces have been associated with decreased anger, tension, confusion and depression, and greater feelings of revitalisation and increased energy

(Coon et al., 2011). Additionally, Smith and Cummins (2009) suggest that walkability and good access to public green spaces is believed to reduce obesity of individuals by encouraging more physical activity.

7.2 Addressing the Objectives

This research employed a mixed methods approach to address the four objectives that were described in Chapter One. The first objective of the thesis was to survey the accessibility of SGSs after-hours and the related policies around them. To accomplish this objective, secondary data sources (e.g. policy and planning documents) and semi-structured interviews with the chair of the BoTs were constructed. The secondary data resources provided information concerning school policies in terms of public and private use of the school grounds, and the stakeholders involved in the school. As previously discussed in Chapter Three, the Ministry of Education (MoE) is responsible for dictating school procedures concerning student attendance, safety guidelines, education and future strategies of all schools in New Zealand. Nonetheless, the individual BoTs of each school is directly accountable for the policies of SGSs. The secondary data sources steered the direction of the research towards gathering information from the chair of the BoT from each case study school as they represented the key party involved in determining the policies in regards to the public access of the SGSs after-hours. Interviews provided an understanding of why these three schools were willing to permit public access to the school grounds after-hours. All three chairs of the BoT believed that the SGSs are an important part of the community, for they offer opportunities for social interactions between local residents and the school community as well as being a place in which children can feel safe.

What if schools were closed off after-hours? We can speculate that there would be many negative impacts if these schools were no longer open for public use after-hours. As indicated in Chapter Five, thoroughfare was considered an important use of the school grounds, making them in Carroll et al's (2015) study into 'transitory zones'. Based on the same key concepts from Kearns et al.'s (2009) study of school closure, a closure of access would likely generate a loss of social capital, community-based interactions and access to an important facility. The social bonds observed within the Maungawhau School community were particularly strong. The majority of the interviewees stated that they lived in closer proximity to the school compared to their local parks. If the public was denied access to schools after-hours, not only would there be one less destination and transitory 'third place' available to people, but there would also be one less space in which to engage in passive and active activity in close proximity to residents' homes.

The second objective was to assess the degree to which the design of SGSs encourages physical and social activity. Alongside the analysis of literature on the green spaces (mostly parks and playgrounds), semi-structured interviews with the public users of SGSs were also used to achieve this objective. The interview questions were based on themes associated with factors that could motivate and hinder physical and social activity within SGSs. Questions were based on the recurrent themes in recent studies dedicated to the utilisation of local parks, school playgrounds, and therapeutic landscapes. The overall responses from interviewees emphasised how SGSs were well designed and best suited for children, hence revealing that the majority of SGSs users at all three case study schools were children.

In Chapter Two, the notion of SGSs being 'third places' was introduced. As discussed, third places are recognised for being sites that encourage frequent social interactions within community settings beyond 'first' (home) and 'second' (work or school) places. Third places emphasise social activity and promote building relationships. SGSs are worthy third places as they also fulfil the characteristics which outline third places. These characteristics include: accessible with no physical barriers, a neutral setting where people from diverse backgrounds are welcome, and the core activity is conversation. SGSs can thus be considered as second places as well as third places for children because they participate in formal social interactions during school hours and informal social interactions after-hours. SGSs are therefore spatially the same but differ in terms of temporal factors such as opening hours.

The third objective of the thesis was to identify the nature of activities taking place in SGSs after-hours through field observations and semi-structured interviews with public users. The most popular green space was the 'blue space' of the swimming pool at Maungawhau and New Windsor School. At Oranga School, the majority of the visitors used the school grounds as a thoroughfare. An interesting observation was the 'spillover' effect which the swimming pool caused. Simply having access to one attractive facility, such as the swimming pool, can influence visitors to use the other green spaces too, as seen at Maungawhau and New Windsor School. For example, children would play on the jungle gyms while they waited for their friends and parents to finish up at the pool.

The last thesis objective was to examine and analyse the importance of public green spaces in their contribution to the development of social and physical wellbeing within communities. To accomplish this, a variety of secondary sources were used. Multiple studies, as examined in Chapter Two, have highlighted the importance of green spaces benefiting all aspects of wellbeing. The purpose of this objective was to show the significance of public green spaces and how they positively influence the wellbeing of individuals in a community.

7.3 Implementing policies

In Auckland and the wider New Zealand context, policies should encourage active transportation modes such as walking, cycling and scootering to promote human health and protect the environment (Fraser & Lock, 2010). Active transport policies can also be used to ensure safer neighbourhoods for residents and increase the likelihood of more people using the public green spaces, as well as providing people with opportunities to exercise (Alexander et al., 2005; Cooper et al., 2006; Page et al., 2009). Moreover, active transportation can also assist with developing social relationships within the local community (Spilsbury, 2005). As this thesis was based in school spaces, the implementation of policies such as 'Travelwise' within each school community may be effective in advancing the appreciation of green spaces. This approach aims to educate students and school staff, as well as local members of the community, and promote a safer travel environment for all residents. One implication of Travelwise policies could be the development of more routes (e.g. walkways and cycle ways) that transect school grounds, exposing community members to the SGSs.

My research has acknowledged that SGSs are alternative public green spaces which provide the same benefits as other 'third places'. Local schools play an important role within the community for promoting physical, emotional and social benefits to human wellbeing as well as existing spatially in neighbourhoods. The main barrier hindering the use of state-owned SGSs are the policies regarding access after-hours, which each individual school BoT determines. Therefore, the school boards have the power to influence community dynamics such as social interactions, safety, health and wellbeing. It is important to encourage more active transport (e.g. walking and cycling) as opposed to use of private motor vehicles if we are to aim for a sustainable future (Maleki & Zain, 2011). The ideal design for communities should involve more interconnected networks of pathways, which make travelling to retail areas, services and recreational parks more accessible and safe (Handy et al., 2002). SGSs can play a role in such developments.

7.4 Limitations of the Current Research

A limitation of this study is that it only examined three case study schools, and that these schools were located reasonably close together. This research also took place over the summer school holidays and at the start of the school term. Therefore, there degree of utilisation of SGSs over the winter remains unknown. There may be more organised sports during winter and less informal activity, given that weather conditions might lead parents to be less likely to permit their children to play outside (see Ergler et al., 2012).

7.5 Future Research

Based on the relevant literature and research findings, further investigation is recommended on this topic. Drawing from urban planning literature, child-friendly communities incorporate safe and accessible green spaces, enabling children to exercise their independent mobility and engage in social interactions and physical activity (McAllister, 2008; Carroll et al., 2015). Designing child-friendly cities is viewed as an effective solution for the overall community. This research investigated the perceptions of adults in regards to the utilisation of SGSs. As children are often supervised during their utilisation of public green spaces, their experiences can therefore be limited due to parents' availability. Parents prioritise work arrangements over spending more time with their children (Cohn, 2007).

Overall, cities that are child-friendly benefit the whole community as they promote long-term sustainability, promote wellbeing, guarantee a better quality of life for all residents and assure parents that their children are in a safe environment. When cities are safe for children, they are assured to be appropriate for all ages. As previously stated by McAllister (2008), community planning and management strongly impact the environmental, economic and social sustainability of the community. Future research may wish to include children's opinions, given that, as the findings from this research have shown, children used SGSs after-hours most often. Therefore, all stakeholders should have the opportunity to contribute during the design process. Land-use planners need to consider children's thoughts during the planning process, as there tends to be a lack of consideration when it comes to designing spaces for children (McAllister, 2008). Involving children in decision-making processes is supported by United Nation initiatives (UNICEF, 2007, UNESCO, 2007). Spaces designed with children tend to be used more by them (McAllister, 2008).

Current research has highlighted the importance of 'third spaces' and green spaces, and how the local environment influences how people respond in terms of chosen activities. Urban

designers, decision-makers and health professionals thus need to collaborate to improve approaches so as to make public green spaces and the surrounding neighbourhood more appealing to all people (Oka, 2011). This entails making transitory zones and threshold spaces more appealing, safe and well connected to destinations such as 'third places'. Regardless of the limitations mentioned above, this study has succeeded in introducing and emphasising the importance of SGS use as a substitute for other urban green spaces.

7.6 Concluding Statement

The availability and sustainability of public green spaces in urban areas has been an ongoing focus in public health and geographical research. The main themes in this research are transport, health and wellbeing, safety, community, sustainability and policies, which all contribute to the bigger picture of creating sustainable cities. Currently, concerns regarding rapid urbanisation are expected to lead to growth in urban populations, which will eventually result to the over utilisation of scarce green spaces. Carroll et al. (2015) also expressed a concern that more compact cities will lead to the reduction of 'third places', hence reducing opportunities for play, socialisation and exercise, which would further hinders children coming from poorer areas. Depending on the future decisions regarding policies of Board of Trustees (BoT), school green spaces can remedy these fears as they fulfil Oldenburg's (1989) characteristics of 'third places'. My research findings can therefore help to ameliorate some of the effects of the urbanisation process through explaining how relevant school green spaces are within wider conversations around urban sustainability and community wellbeing. Past studies have only focused on universal urban green spaces such as parks and how they encourage physical activity (e.g. Timperio et al., 2008), and there has been a lack of information about the use of SGSs. Schools in general are, to date, not recognised for their contribution beyond their primary purpose of educating children. More schools should therefore consider acting as open public spaces for the community as their secondary role. There are temporal limitations regarding school access, but they will still supplement the amenity value of public green spaces and third places such as parks, trails and libraries.

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APPENDICES INDEX

Appendix A: PIS form for school green space users

THE UNIVERSITY OF AUCKLAND
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Te Whare Wānanga o Tāmaki Makaurau

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Email: geography@auckland.ac.nz

The University of Auckland
Private Bag 92019
Auckland, New Zealand

Participation Information Sheet (*Participants being interviewed)*

Title of Project: Exploring the usage of schools green spaces after-hours
Researcher: Isabel Lam

My name is Isabel Lam and I am a Masters student in Human Geography at the University of Auckland, under the supervision of Professor Robin Kearns and Dr. Ann E. Bartos. I am conducting research exploring the usage of the green spaces within school properties after-hours.

Exploring the usage of schools green space after-hours
This study defines school green spaces as open outdoor spaces for the purposes of influencing active and passive recreation in the school environment. These include features such as pools, fields, playgrounds, courts and outdoor seating areas. This research aims to investigate the reasons behind why individuals/groups use school green spaces after-hours. This study will explore the policies regarding public-private spaces (school green spaces) to better understand the degree to which this amenity is made available and used by the members of the school and wider community. This study is significant because the findings from this study could be used to recommend the need for, and suggest improvements to, public green spaces, as they are associated with positive social and physical aspects of health and wellbeing.

I would like to invite you to take part in this study, which will involve observations and semi-structured interviews within primary schools in Auckland. You have been chosen because you are a user of school green spaces after-hours.

Project procedures
I will undertake informal observations at this primary school over various days from 7-8am and 4-6pm during December 2014 to February 2015. This study will involve observing and interviewing individuals and groups using the different facilities, amenities and playgrounds in green spaces.
The semi-structured interviews will take 5 to 10 minutes long and the questions asked will relate to your perceptions of the green spaces and why you use them. Interviews will take place at a time of your convenience in the school green spaces. Your participation will be voluntary and all participants will be anonymous.

At the completion of each interview, participants will receive a $10 book, music or movie voucher.

Data storage/retention/destruction/future use
In the future, the data from this research may be used in academic presentations or publications; individuals will not be identifiable in any of these. The information gathered from this research will be electronically stored and will be kept confidential on a password-protected computer for six years. After six years, the data will be deleted.

If you choose to participate in this research, your consent form will be kept in locked cupboard on the university premises for six years at which time it will be shredded.

Right to Withdraw from Participation
Participation in this research is entirely voluntary. If you do not wish to participate, you do not have to give a reason for this. If you initially consent but later wish to withdraw your support from the research, you can withdraw the data at any time up until the 1st of March 2015.

Anonymity and Confidentiality
The name of the primary schools will be mentioned in this project. Observed users of the green spaces will be anonymous. Individuals who chose to participate in this study will remain unnamed in the thesis and subsequent publications. The participants may have their quotes published and reported under coded names.

If you have any questions or concerns regarding the research, please contact Professor Robin Kearns or Dr. Ann E. Bartos.

For general research queries, please contact Isabel Lam

Contact Details

Researcher:
Isabel Lam
ilam010@aucklanduni.ac.nz

Research Supervisors:
Professor Robin Kearns Ph: 3737599 (ext: 88442)
r.kearns@auckland.ac.nz

Dr. Ann E. Bartos Ph: 3737599 (ext: 82571)
a.bartos@auckland.ac.nz

Head of Department:
Professor Paul Kench Ph: 9238840
p.kench@auckland.ac.nz

If you have any ethical concerns about this research, please contact: The Chair, The University of Auckland Human Participants Ethics Committee, the University of Auckland, Private Bag 92019, Auckland 1142. Phone: (09) 3737599 (ext 87830). Email: humanethics@auckland.ac.nz.

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON 25/11/2014 FOR 3 YEARS, REFERENCE NUMBER: 013318

Appendix A: PIS form for school principals

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Phone: +64 9 373 7599
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Email: geography@auckland.ac.nz

The University of Auckland
Private Bag 92019
Auckland, New Zealand

Participation Information Sheet (Principal)

Title of Project: Exploring the usage of schools green spaces after-hours
Researcher: Isabel Lam

My name is Isabel Lam and I am a Masters student in Human Geography at the University of Auckland, under the supervision of Professor Robin Kearns and Dr. Ann E. Bartos. I am conducting research exploring the usage of schools green spaces after-hours.

Exploring the usage of schools green space after-hours
This study defines school green spaces as open outdoor spaces for the purposes of influencing active and passive recreation in the school environment. These include features such as pools, fields, playgrounds, courts and outdoor seating areas. This research aims to investigate the reasons behind why individuals/groups use school green spaces after-hours. This study will explore the policies regarding public-private spaces (school green spaces) to better understand the degree to which this amenity is made available and used by the members of the school and wider community. This study is significant because the findings from this study could be used to recommend the need for, and suggest improvements to, public green spaces, as they are associated with positive social and physical aspects of health and wellbeing.

I would like to invite your school to take part in the usage of schools green space after-hours study. This study will involve observations and semi-structured interviews with users of the school green spaces. Your school has been chosen because this study is interested in state primary schools that are open for public use after-hours.

Project procedures
I will undertake informal observations at this primary school over various days from 7-8am and 4-6pm during December 2014 to February 2015. This study will involve observing and interviewing individuals and groups using the different facilities, amenities and playgrounds in green spaces. The selection of participants being interviewed will be based on them being users of the school green spaces. Each semi-structured interview will be approximately 5 to 10 minutes long and the questions asked would relate to the participants perceptions of the schools green spaces and why they use them.
The school's chair of the Board of Trustees will also be interviewed and audio-recorded, but can choose to have the recorder turned off at any time. The researcher will transcribe all audio recordings from the interview and participants being interviewed will have the option to review the transcripts of the recordings. Participation will be voluntary

and all participants will be anonymous except for the name of the school and the chair of the Board of Trustees.

Data storage/retention/destruction/future use
In the future, the data from this research may be used in academic presentations or publications; individuals will not be identifiable in any of these. The information gathered from this research will be electronically stored and will be kept confidential on a password-protected computer for six years. After six years, the data will be deleted.

If you choose to participate in this research, your consent form will be kept in locked cupboard on the university premises for six years at which time it will be shredded.

Right to Withdraw from Participation
Participation in this research is entirely voluntary. If you do not wish to participate, you do not have to give a reason for this. If you initially consent but later wish to withdraw your support from the research, you can withdraw the data at any time up until the 1st of March 2015.

Anonymity and Confidentiality
The name of the primary schools and the chair of the Board of Trustees will be mentioned in this project. Observed users of the green spaces will be anonymous. Individuals who chose to participate in this study will remain anonymous. The participants may have their quotes published and reported under coded names.

If you have any questions or concerns regarding the research, please contact Professor Robin Kearns or Dr. Ann E. Bartos.

For general research queries, please contact Isabel Lam

Contact Details

Researcher:
Isabel Lam
ilam010@aucklanduni.ac.nz

Research Supervisors:
Professor Robin Kearns Ph: 3737599 (ext: 88442)
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Dr. Ann E. Bartos Ph: 3737599 (ext: 82571)
a.bartos@auckland.ac.nz

Head of Department:
Professor Paul Simon Kench Ph: 9238840
p.kench@auckland.ac.nz

If you have any ethical concerns about this research, please contact: The Chair, The University of Auckland Human Participants Ethics Committee, the University of Auckland, Private Bag 92019, Auckland 1142. Phone: (09) 3737599 (ext 87830). Email: humanethics@auckland.ac.nz.

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON 25/11/2014 FOR 3 YEARS, REFERENCE NUMBER: 013318

Appendix A: PIS form for school chair of Board of Trustees

THE UNIVERSITY OF AUCKLAND
NEW ZEALAND
Te Whare Wānanga o Tāmaki Makaurau

Geography and Environmental Science
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Email: geography@auckland.ac.nz

The University of Auckland
Private Bag 92019
Auckland, New Zealand

Participation Information Sheet (Board of Trustees)

Title of Project: Exploring the usage of schools green spaces after-hours
Researcher: Isabel Lam

My name is Isabel Lam and I am a Masters student in Human Geography at the University of Auckland, under the supervision of Professor Robin Kearns and Dr. Ann E. Bartos. I am conducting research exploring the usage of schools green spaces after-hours.

Exploring the usage of schools green space after-hours
This study defines school green spaces as open outdoor spaces for the purposes of influencing active and passive recreation in the school environment. These include features such as pools, fields, playgrounds, courts and outdoor seating areas. This research aims to investigate the reasons behind why individuals/groups use school green spaces after-hours. This study will explore the policies regarding public-private spaces (school green spaces) to better understand the degree to which this amenity is made available and used by the members of the school and wider community. This study is significant because the findings from this study could be used to recommend the need for, and suggest improvements to, public green spaces, as they are associated with positive social and physical aspects of health and wellbeing.

I would like to invite your school to take part in the usage of schools green space after-hours study. This study will involve observations and semi-structured interviews with users of the school green spaces. Your school has been chosen because this study is interested in state primary schools that are open for public use after-hours. I would also like to invite the chair of the Board of Trustees to take part in an interview based on questions around policies regarding the public use of the school green spaces after-hours. The interview will be audio-recorded and transcribed by the researcher.

Project procedures
I will undertake informal observations at this primary school over various days from 7-8am and 4-6pm during December 2014 to February 2015. This study will involve observing and interviewing individuals and groups using the different facilities, amenities and playgrounds in green spaces of the school. The selection of participants being interviewed will be based on them being users of the school green spaces. Each semi-structured interview will take place at a time of the participants' convenience in the school green spaces and they will remain anonymous.
The interview with the chair of the Board of Trustees will be audio-recorded, but can choose to have the audio-recorder turned off at any time. The researcher will transcribe

all audio recordings from the interview and chair of the Board of Trustees being interviewed will have the option to review the transcripts of the recordings. Participation will be voluntary and all participants will be anonymous except for the name of the school and the chair of the Board of Trustees.

Data storage/retention/destruction/future use
In the future, the data from this research may be used in academic presentations or publications; individuals will not be identifiable in any of these. The information gathered from this research will be electronically stored and will be kept confidential on a password-protected computer for six years. After six years, the data will be deleted. If you choose to participate in this research, your consent form will be kept in locked cupboard on the university premises for six years at which time it will be shredded.

Right to Withdraw from Participation
Participation in this research is entirely voluntary. If you do not wish to participate, you do not have to give a reason for this. If you initially consent but later wish to withdraw your support from the research, you can withdraw the data at any time up until the 1st of March 2015.

Anonymity and Confidentiality
The name of the primary schools and the chair of the Board of Trustees will be mentioned in this project. Observed users of the green spaces will be anonymous. Individuals who chose to participate in this study will remain anonymous. The participants may have their quotes published and reported under coded names.

If you have any questions or concerns regarding the research, please contact Professor Robin Kearns or Dr. Ann E. Bartos.

For general research queries, please contact Isabel Lam
Contact Details
Researcher:
Isabel Lam
ilam010@aucklanduni.ac.nz

Research Supervisors:
Professor Robin Kearns Ph: 3737599 (ext: 88442)
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Head of Department:
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If you have any ethical concerns about this research, please contact: The Chair, The University of Auckland Human Participants Ethics Committee, the University of Auckland, Private Bag 92019, Auckland 1142. Phone: (09) 3737599 (ext 87830). Email: humanethics@auckland.ac.nz.

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON 25/11/2014 FOR 3 YEARS, REFERENCE NUMBER: 013318

Appendix B: Consent Form for school green space users

THE UNIVERSITY OF AUCKLAND
NEW ZEALAND
Te Whare Wānanga o Tāmaki Makaurau

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The University of Auckland
Private Bag 92019
Auckland, New Zealand

CONSENT FORM FOR USERS OF GREEN SPACES

THIS FORM WILL BE HELD FOR A PERIOD OF 6 YEARS

Title of Project: Exploring the usage of schools green spaces after-hours
Researcher: Isabel Lam

I have read the Participation Information Sheet; have understood the nature of the research and why I have been selected. I have had the opportunity to ask questions and have them answered to my satisfaction.

- I agree to take part in this research.
- I understand the interview will take 5-10 minutes to complete
- I understand that I am free to withdraw participation at anytime, and to withdraw any data traceable to me up to a specified date (1st March 2015).
- I understand that data will be kept for 6 years, after which they will be destroyed.

Name _____

Signature _____ Date _____

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON 25/11/2014 REFERENCE NUMBER: 013318

Appendix B: Consent Form for school principals

THE UNIVERSITY OF AUCKLAND
NEW ZEALAND
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The University of Auckland
Private Bag 92019
Auckland, New Zealand

CONSENT FORM (PRINCIPAL)
THIS FORM WILL BE HELD FOR A PERIOD OF 6 YEARS

Title of Project: Exploring the usage of schools green spaces after-hours
Researcher: Isabel Lam

I have read the Participation Information Sheet; have understood the nature of the research and why I have been selected. I have the opportunity to ask questions and have them answered to my satisfaction.

- I agree to take part in this research
- I understand that the green spaces at _____

  _____will be involved in the research.
- I give permission for the researcher to conduct research at

  _____
- I wish / do not wish to receive the summary of findings.
- I understand that the name of the school will be identified in the research.
- I understand that children using the school green spaces after-hours will not be identifiable
- I understand that I am free to withdraw participation at any time, and to withdraw any data traceable to me up to a specified date (1st March 2015).
- I understand that data will be kept for 6 years, after which they will be destroyed.

Name _____

Signature _____ Date _____

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON 25/11/2014 REFERENCE NUMBER: 013318

Appendix B: Consent Form for School chair of Board of Trustees

THE UNIVERSITY OF AUCKLAND
NEW ZEALAND
Te Whare Wānanga o Tāmaki Makaurau

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The University of Auckland
Private Bag 92019
Auckland, New Zealand

CONSENT FORM (CHAIR, BOARD OF TRUSTEES)
THIS FORM WILL BE HELD FOR A PERIOD OF 6 YEARS

Title of Project: Exploring the usage of schools green spaces after-hours
Researcher: Isabel Lam
I have read the Participation Information Sheet; have understood the nature of the research and why I have been selected. I have the opportunity to ask questions and have them answered to my satisfaction.

- I agree to take part in this research
- I understand that the green spaces at _____

  _____will be involved in the research.
- I give permission for the researcher to conduct observations at

  _____
- I wish / do not wish to receive the summary of findings.
- I understand that the name of the school will be identified in the research.
- I understand that children using the school green spaces after-hours will not be identifiable
- I agree / disagree to be interviewed
- I understand that I will be audio-recorded for the purpose of this research
- I understand that the audio-recordings from the interview will be transcribed by the researcher
- I wish / do not wish to review the transcripts from this audio-recording
- I understand that I can ask that the audio-recording is stopped at any time without providing a reason
- I understand that data will be kept for 6 years, after which they will be destroyed.

Name _____

Signature _____ Date _____

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON 25/11/2014 REFERENCE NUMBER: 013318

Appendix C: Preliminary observation chart

PRELIMINARY OBSERVATIONS – SCHOOL GREEN SPACES TOOL (SGST)
Date:
Name of school:
Location:
Time:

Age	Code
Children	C
Adolescents	T
Adults	A
Elderly	E

Are dogs allowed on school grounds? • Yes • No • No dog information	**Comments**
Other restrictions? *Are policies/rules stated at the gate or on a notice board?*	**Comments**
Entrance signs	
Aesthetics/overall impression	
Other comments	

Amenities	**Comments**
Seating	
Picnic tables	
Rubbish bins	
Lighting *Where is lighting located?* • *Around courts* • *Along paths* • *Perimeter some sides* • *Random throughout* • *No lighting within green spaces*	
Drinking fountains	
Car parks	
Public toilets	
Public art	
Other	

Access	**Comments**
No. of access points	
No. of pedestrian crossings	
Types of gates	
Pathways	
Other	

Recreational facilities	**Comments**
No. of pieces of equipment e.g. • *Jungle gym* • *Balance beams* • *Sand pit* • *Other*	

No. of fields e.g. • *Soccer* • *Rugby* • *Athletics* • *Cricket* • *Other*	
No. of courts e.g. • Netball • Tennis • Basketball	
Other	
Natural features	**Comments**
Grass	
Trees *Where the trees are places?* • *Perimeter all sides* • *Perimeter some sides* • *Along walking paths* • *Random throughout green spaces*	
Shrubs/plants	
Flowers	
Other	

Incivilities	**Comments**
Litter	
Graffiti	
Noise	
Other	

Appendix D: Observation Chart

Observations
Date:
Name of school:
Time:

FIELD #1

Age Category	Children	Adolescents	Adolescents	Elderly

GENDER

Male	Female

ACTIVITY TYPE

Passive	Active
Formal (Organised)	**Informal (Unstructured)**

EQUIPMENT USED

SIZE OF GROUPS

1	2-4	5-9	10 or more

OTHER COMMENTS

FIELD #2

Age Category	Children	Adolescents	Adolescents	Elderly

GENDER

Male	Female

ACTIVITY TYPE

Passive	Active
Formal (Organised)	**Informal (Unstructured)**

EQUIPMENT USED

SIZE OF GROUPS

1	2-4	5-9	10 or more

OTHER COMMENTS

COURTS

Age Category	Children	Adolescents	Adolescents	Elderly

GENDER

Male	Female

ACTIVITY TYPE

Passive	Active
Formal (Organised)	Informal (Unstructured)

EQUIPMENT USED

SIZE OF GROUPS

1	2-4	5-9	10 or more

OTHER COMMENTS

JUNGLE GYM #1

Age Category	Children	Adolescents	Adolescents	Elderly

GENDER

Male	Female

ACTIVITY TYPE

Passive	Active
Formal (Organised)	Informal (Unstructured)

EQUIPMENT USED

SIZE OF GROUPS

1	2-4	5-9	10 or more

OTHER COMMENTS

JUNGLE GYM #2

Age Category	Children	Adolescents	Adolescents	Elderly

GENDER

Male	Female

ACTIVITY TYPE

Passive	Active
Formal (Organised)	Informal (Unstructured)

EQUIPMENT USED

SIZE OF GROUPS

1	2-4	5-9	10 or more

OTHER COMMENTS

POOL

Age Category	Children	Adolescents	Adolescents	Elderly

GENDER

Male	Female

ACTIVITY TYPE

Passive	Active
Formal (Organised)	Informal (Unstructured)

EQUIPMENT USED

SIZE OF GROUPS

1	2-4	5-9	10 or more

OTHER COMMENTS

OTHER:

Age Category	Children	Adolescents	Adolescents	Elderly

GENDER

Male	Female

ACTIVITY TYPE

Passive	Active
Formal (Organised)	Informal (Unstructured)

EQUIPMENT USED

SIZE OF GROUPS

1	2-4	5-9	10 or more

OTHER COMMENTS

OTHER:

Age Category	Children	Adolescents	Adolescents	Elderly

GENDER

Male	Female

ACTIVITY TYPE

Passive	Active
Formal (Organised)	Informal (Unstructured)

EQUIPMENT USED

SIZE OF GROUPS

1	2-4	5-9	10 or more

OTHER COMMENTS

OTHER:

Age Category	Children	Adolescents	Adolescents	Elderly

GENDER

Male	Female

ACTIVITY TYPE

Passive	Active
Formal (Organised)	Informal (Unstructured)

EQUIPMENT USED

SIZE OF GROUPS

1	2-4	5-9	10 or more

OTHER COMMENTS

OTHER:

Age Category	Children	Adolescents	Adolescents	Elderly

GENDER

Male	Female

ACTIVITY TYPE

Passive	Active
Formal (Organised)	Informal (Unstructured)

EQUIPMENT USED

SIZE OF GROUPS

1	2-4	5-9	10 or more

OTHER COMMENTS

OTHER:

Age Category	Children	Adolescents	Adolescents	Elderly

GENDER

Male	Female

ACTIVITY TYPE

Passive	Active
Formal (Organised)	Informal (Unstructured)

EQUIPMENT USED

SIZE OF GROUPS

1	2-4	5-9	10 or more

OTHER COMMENTS

OTHER:

Age Category	Children	Adolescents	Adolescents	Elderly

GENDER

Male	Female

ACTIVITY TYPE

Passive	Active
Formal (Organised)	Informal (Unstructured)

EQUIPMENT USED

SIZE OF GROUPS

1	2-4	5-9	10 or more

OTHER COMMENTS

Appendix E: Semi-structured interview questions for school space users

Semi-structured interview Questions

SCHOOL GREEN SPACES (SGSs) = open spaces for the purpose of influencing active and passive recreation in the school environment. These include features such as pools, fields, playgrounds, courts and outdoor seating areas.

1. How often do you come to use the School Green Spaces?
2. On average, estimate how long you spend using School Green Spaces afterhours
    i. Per day
    ii. Per week
    iii. Per month
3. In what weather conditions do you use the green spaces?
    a. Why?
4. What activities do you usually do in the green spaces?
5. Which features of the school green spaces do you like most?
    a. How do these features encourage you to use the space?
    b. If you have a choice, what would you like the space to have added or changed?
6. What features may discourage you from using the school green spaces?
7. How do you feel after using the green space?
8. What is your emotional status when choosing to use the green spaces?
9. Safety
    a. Do you feel safe in this neighbourhood?
        i. Why?
    b. How is the traffic around the school?
10. Rules
    a. Do you skateboard in the school green spaces?
    b. Do you bring your dog with you?
11. How far do you live from school?
    a. What mode of transportation did you use?
        i. Approximately, how long does it take to get to the School?
12. What are the perceived benefits of having access to school green spaces?
13. What is your overall impression of the space?

Appendix F: Semi-structured interview questions for the school chair of Board of Trustees

Interview Questions for the Head of the Board of Trustees

SCHOOL GREEN SPACES= open outdoor spaces for the purposes of influencing active and passive recreation in the school environment. These include features such as pools, fields, playgrounds, courts and outdoor seating areas.

1. Has this school always been open for public use after-hours?

2. Why does the school allow public users to use school green spaces after-hours?
    - *What are your views on letting the public use schools spaces? (This school specifically/in general)*
3. How does the school encourage the use of the green spaces after-hours?

4. Would you like more people to use the green spaces? *Why?*

5. Have there been any issues in the past having the green spaces opened to the public?

6. Do the public ignore any rules posted within the green spaces?
    - *(No dogs allowed, no smoking, no skateboarding)*
7. What are the benefits the community receives from having access to the school green spaces?

8. What are the most popular facilities used in the Green spaces?

9. What are your thoughts on the awareness of the general public regarding the use of the school green spaces?

10. Who do you believe use the school green spaces most frequently?

11. How often are the facilities booked regularly and by whom?

12. Are there any facilities that the school receives payment from?

13. Have there been any comments by the school staff, parents and general public concerning the public use of school green spaces?

14. What are the time restrictions of the use of school green spaces after-hours? How are they determined?

15. Do you feel there are enough green spaces to meet the demand of the users?
    - *With the increase in students, there will eventually be a need for more classrooms. What will this mean for the future of green spaces?*