



Attachment I

WDC – Value of Greenspace



WAIMAKARIRI DISTRICT COUNCIL

MEMO

FILE NO AND TRIM NO: POL-08-51-04.02 / 160531050897

DATE: 30 May 2016

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FROM: Michelle Flanagan, Greenspace Regeneration Coordinator

SUBJECT: Red Zone Recovery – Value of Green Space

1.0 Introduction

Green space, in this case parks and reserves, provides a variety of direct and indirect benefits to individuals, the community and the economy. Green space, and its use for sport and recreation benefits community health and wellbeing, strengthens communities and enhances social cohesion, makes places vibrant and attractive to live in, enhances development and learning, and contributes to economic development. The benefits of green space can be summarized as follows:

Table 1 – Benefits of green space

Health and wellbeing	<ul style="list-style-type: none">• Enhancing physical health• Enhancing mental health• Ecosystem services enhancing wellbeing• Nourishing the body
Social Cohesion	<ul style="list-style-type: none">• Bringing people together – forming networks• Providing physical links in the community• Providing public, community space• Supporting different cultures• Building social capital
Place-making	<ul style="list-style-type: none">• Conserving cultural landscapes and history• Providing a local identity• Greening our cities, urban relief• Conserving nature and biodiversity
Development and learning	<ul style="list-style-type: none">• Enhancing physical and mental skills• Providing a variety of experiences• Encouraging co-operation between different groups and organisations• Encouraging creative and innovative thinking• Encouraging leadership and resolving challenges• Supporting environmental location

Economic value	<ul style="list-style-type: none"> • Contributing to the local and national economy • Ecosystem services
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1.1. Purpose of this paper

The purpose of this paper is to support the green space land use options proposed for the Kaiapoi Regeneration Areas (Kaiapoi South, Kaiapoi East, Kaiapoi West, The Pines Beach and Kairaki) in the Preliminary Draft Waimakariri Residential Red Zone Recovery Plan.

The aim of this paper is not to give a comprehensive account of the value of green space. Such a topic is incredibly complex with multiple aspects and interactions. This paper seeks to give a high level and broad overview of key points. It does not explore any of the benefits or value in depth, nor explore the connections between these. Valuing green space is a complex task, incorporating monetary and non-monetary values, market and non-market values and is often influenced by stakeholder or user values and perceptions. However it is useful to bring to the foreground the fact that green space has value over and above the ‘face’ value that is well understood (open, public and green space for our sport, recreation).

The first part of this paper looks at sport and recreation as a continuum of activities with green space as a multi-faceted space. The high level of participation by New Zealander’s in sport and recreation is then outlined. Each of the five key benefits of green space are then introduced.

2.0 Sport and recreation

Green space is one of the key places where sport and recreation takes place. Sport and recreation are not mutually exclusive activities; they can be viewed as being a continuum.



At one end is sport; generally physical activities or games that are organized and involve the observation of rules. Sport can be individual or team based. At the other end of the spectrum is recreation; physical activity for lifestyle, well-being and enjoyment. Recreation can be individual or team based. Both sport and recreation can take place in a variety of green spaces, recreation can occur in sporting spaces, conversely sport can occur in recreation areas. For this reason green space is typically flexible and adaptable to cater for different uses.

2.1. Participation

Sport and recreation is an important part of New Zealander’s lives. In the 2013/2014 Active New Zealand Survey, almost all adults (94%) identified that they took part in at least one sport or recreation activity in a year, and 74 percent identified that they took part in sport and recreation in



any given week. Recreational activities such as walking, swimming, cycling and exercising (with equipment) were the most popular activities for adults. The most popular sports for adults are netball, golf, cricket, football, tennis and touch rugby. 28 percent of adults were also involved as sport and recreation volunteers, most often as coach, parent helper or in an officiating or administration role (Sport New Zealand, 2015^a).

Sport and recreation is also an important part of young people's lives. Sport New Zealand's Young Peoples Survey identified that almost all participants engaged in some form of sport and recreation activity, that most like playing sport; that the majority of young people spend three or more hours a week taking part in sport and recreation; and that a substantial number of young people take on volunteer roles (Sport New Zealand, 2012).

The Young Peoples Survey showed that both schools and clubs play an important role in providing sport and recreation opportunities. About 50 percent of young people belong to a school sports team, and most 10-18 year olds had taken part in activities organized by their school. Similarly about 50 percent of young people indicated that they belonged to a sports club. Informal recreation spaces also play a key part in young people's lives with participation rates for sport and recreation activities highest when young people are 'mucking around' with friends and family (Sport New Zealand, 2012).

The top recreation activities participated in by boys include swimming; running, jogging, cross-country; football, soccer, futsal; athletics track and field; and cycling (not mountain biking). For girls the top activities were the same except football, soccer and futsal was replaced by walking for fitness (Sport New Zealand, 2012).

3.0 Health and wellbeing

Sport and recreation is a key contributor to individual and community health and wellbeing. Physical inactivity has been identified as being at a serious level with New Zealand being ranked 27 out of 122 countries for physical inactivity. Nearly half of our population does not engage in sufficient physical activity (Market Economics, 2013). This physical inactivity has both direct and indirect cost implications for health and wellbeing.

While most New Zealanders report being in good health (in the 2014/15 New Zealand Health Survey), physical inactivity rates are increasing. The New Zealand Health Survey indicates that one in seven adults is physically inactive, i.e. getting less than 30 minutes physical activity in a week (Ministry of Health, 2015). This rate is increasing, with the 2006/2007 rate being one in ten adults. The Survey also notes that three in ten adults are obese, with excess weight being *"leading contributor to a number of health conditions, including type 2 diabetes, cardiovascular diseases, some types of cancer (eg, kidney and uterus), osteoarthritis, gout, sleep apnoea, some reproductive disorders and gallstones"* (Ministry of Health, 2015, p.19).

Physical inactivity has a cost. As well as affecting health and wellbeing it can lead to premature death. In 2009, the premature death of 246 New Zealanders was attributed to physical inactivity (in comparison to 420 motor vehicle fatalities that year) (Market Economics, 2013). Physical inactivity



was estimated to cost New Zealand \$1.3 billion dollars in 2010; comprising both direct and indirect health costs (Market Economics, 2013). Direct health costs include actual health expenditure, e.g. spending on treatment and health promotion. Indirect costs include loss of productivity, pain, suffering and premature death. These costs are borne by individuals, the community, local and central government (Market Economics, 2013).

A 2011 report into the Economic and Social Value of Sport and Recreation to New Zealand looked at the direct benefits and costs of participation in sport and recreation. The direct benefits of activity included improved health outcomes and work productivity. The costs of activity focussed on injuries and accidental death (e.g. drowning) from sport and recreation activity. The following table summarises these costs and benefits.

Table 2 – Direct benefits and costs from participation in sport and recreation, 2009

Benefits and costs	Estimated Value (\$ millions)
Increased work productivity	\$281
Improved health outcomes	\$3,947
Total Personal Benefits	\$4,228
Accidental premature deaths	-\$336
Suffering from injuries	-\$1,887
Other costs of injuries	-\$967
Total Personal Costs	-\$3,190
Total Net Benefits	1,038

(Sport and Recreation New Zealand, 2011, p.19)

From the table it is evident that there is a net benefit (in 2009) from participation in sport and recreation activity.

In addition to the benefits of active sport and recreation, natural recreation spaces also contribute to health and wellbeing. A Department of Conservation study in 2013 identified that public conservation areas have positive mental health benefits. Aside from the mental benefits of physical activity in natural spaces, there are also restoration effects which encourage “*recovery from stress and attention fatigue, enabling people to reflect on issues beyond their routine thoughts and activities*” (Blaschke, 2013, p.10). Natural spaces also have therapeutic benefits with improvements in mood, reduced anger and aggression, and increased vigour (Blaschke, 2013).

The proposed green spaces in the Kaiapoi Regeneration Areas, including the sport and recreation reserve, recreation and ecological linkages, and Heritage and Mahinga Kai Area are expected to deliver the health and wellbeing benefits outlined above to the Kaiapoi community.

4.0 Social cohesion

4.1. Bringing people together

Green space is essentially community space, it is a neutral, public space that creates opportunities for sport, recreation and interaction. It is a third place, away from home and work, where there is freedom to enjoy activities and the environment.

Sport and recreation can be a catalyst for community gatherings, forming new relationships and bringing together parts of a community that may not otherwise interact. Shared physical activities under a common banner, via either a code or club association, can break down social and cultural barriers, connect people and create social networks (Auckland Council, 2014). The relationships and networks formed then often extend beyond the activity to strengthen communities. The proposed



sport and recreation reserve in the Kaiapoi East Regeneration Area will provide a recreation 'cluster' or hub via which multiple interactions can take place.

Sporting associations are not the only networks formed. The different types of green space proposed for the Kaiapoi Regeneration Areas will allow relationships to form across various social, cultural, play and sporting activities. The opportunities provided for edible landscapes will encourage like-minded community members to work (and relax) together. The proposed Heritage and Mahinga Kai Area will create opportunities for cultural education and interaction, thereby building shared understanding and respect. The green spaces throughout will also provide a flexible setting for incidental relationships based on shared interests (e.g. two dog walkers meeting and chatting over their pets).

4.2. Physical links

In the Kaiapoi East Regeneration Area the proposed green space serves an important role of linking communities previously separated by the residential red zone. The green space is a key link between the remaining northern residential neighbourhoods and neighbourhoods north of Beach Road. The green space provides a key pathway to the Kaiapoi Town Centre and the Kaiapoi River. Similarly, in the Kaiapoi South Regeneration Area the proposed Heritage and Mahinga Kai area links the Courtenay Drive neighbourhood to the river and existing reserves and the town centre.

4.3. Volunteering

Volunteering in the sport and recreation sector is significant and is a key activity for creating community and social cohesion. The latest Active New Zealand Survey (2013/2014) recorded that 28 percent of adults (aged 18 years or over) volunteered at least one during the previous year, In the Canterbury/West Coast Region sport and recreation activities were supported by 110,000 volunteers. These volunteers contributed seven million hours to sport and recreation in 2013/2014. The estimated market value of these volunteer services was \$107.3 million (Sport New Zealand, 2015). Volunteering is also valued by young people with just under 50 percent of young people (aged 10 to 18 years) taking on a volunteer role (Sport New Zealand, 2012).

Volunteering in the natural recreation spaces also has benefits. As well as facilitating social capital, volunteering enables people to interact with each other and their natural environment. This interaction encourages attachments or community networks, as well as attachment to the natural environment (Blaschke, 2013). The flow-on benefits from this are a sense of duty, care, pride and ownership.

Prior to and during the preparation of the Preliminary Draft Waimakariri Residential Red Zone Recovery Plan community groups expressed a desire to be involved in the Regeneration Areas. This could be via establishing and managing edible landscapes, through involvement in native planting programs, through involvement in sporting or other activities. The provision of green space in the Kaiapoi Regeneration Areas provides opportunities for volunteer involvement which in turn is expected to bring economic and social benefits.



5.0 Development and learning

The Ministry of Education publication, Physical activity for healthy, confident kids, Guidelines for Sustainable Physical Activity in School Communities states that *“physical activity experiences are an integral part of human development. They contribute to people’s physical health and well-being, growth, personal development, and self-esteem”* (Ministry of Education, 2007, p.11).

This guideline states that there are three key benefits to physical activity; health, mental and social and emotional benefits. The health benefits of physical activity have been discussed previously. The mental benefits of physical activity include higher levels of academic achievement and students who *“are in a better position to benefit from opportunities to learn”* (Ministry of Education, 2007, p.12).

The World Health Organisation indicates that physical activity gives young people opportunities to *“express themselves, develop self-confidence, relieve tension, achieve success, and interact with others as well as learning about the spirit of solidarity and fair play”* (in Ministry of Education, 2007, p.12). Physical activity also promotes values of leadership, dedication, honesty, courage, fairness, resilience and encourages young people to tackle challenges (Ministry of Education, 2007). Physical activity also a significant contributor to the five key competencies identified in the New Zealand Curriculum; thinking, using language, symbols and texts, managing self, relating to others and participating and contributing (Ministry of Education, 2007).

While the guideline is directed at the provision of physical activities through the school environment, it does note that *“schools are not isolated places. They are part of their communities and the wider society”*. This means that green spaces play an important role in augmenting the physical activity culture of schools and providing experiences different to the school.

As well as providing additional sport and recreation reserve in Kaiapoi East and West to meet the district’s future needs, this green space also supports local schools and the physical and mental growth of local children. The Heritage and Mahinga Kai Area proposed for Kaiapoi South provides an additional and unique learning and development opportunity with physical, social and cultural benefits. The opportunities for edible landscapes and native planting in the proposed recreation and ecological linkages also create potential learning opportunities.

6.0 Place-making

Green spaces help make urban areas vibrant and attractive places to live. They also help create a local identity and can become a destination for locals, the wider district and tourists. The proposed green spaces in the Kaiapoi Regeneration Areas seek to enable Kaiapoi to build on a unique identity, including celebrating its riverside location. The green spaces enhance links to the Kaiapoi River and Town Centre, and detailed design of green spaces through any approved recovery plan would have a unique palette of materials, colours, style and plantings to support a local identity. The introduction of cultural and historical elements (for example a sculpture walk) will further reinforce the sense of place.



Recreation spaces make a significant contribution to place-making. A Department of Conservation study in 2013 suggested that New Zealanders derive a sense of identity from indigenous plants, animals and natural areas. This is supported by the New Zealand Biodiversity Strategy which states *“New Zealand’s biological world is the inspiration for our national icons – the kiwi, silver fern and koru. As New Zealanders, we are shaped by these symbols of our natural environment and our relationship to it – whether by cabbage trees or kahikatea forest, weta or whitebait. We would be impoverished kiwis indeed if our national icons went the way of the huia and the moa”* (Ministry for the Environment, 2000, p.3). As enhanced sense of identity is considered to evoke positive emotions and general wellbeing (Blaschke, 2013).

As well as the place-making values, biodiversity through direct use (e.g. food and raw materials), ecosystem services, and biological wealth is also significant economic contributor. A 1997 study suggested that the *“total annual value provided by New Zealand’s indigenous biodiversity could be more than twice that of New Zealand’s gross domestic product”* (in Ministry for the Environment, 2000, p.3).

Biodiversity also has strong intrinsic values. The Mahaanui Iwi Management Plan states that for Maori, *“indigenous biodiversity, and the landscapes and ecosystems that support it, is a fundamental part of the culture, identity and heritage of Ngai Tahu, particularly with regard to Mahinga kai and the connection between people and place through resource use”* (2013, p.131). The Iwi Management Plan goes on to identify that a *“healthy economy relies on a healthy environment” and that ecosystem services have “immense value to cultural, social and economic wellbeing”* (2013, 131).

The proposed green spaces in the Kaiapoi Regeneration Areas seek to enable Kaiapoi to build on its unique biodiversity. Recreation and ecological linkages contribute through native revegetation and links to the river. More importantly, the Heritage and Mahinga Kai Area enables the creation of a distinctive environment that focuses on enhancing biodiversity and natural habitats. It is through the provision of these green spaces that Kaiapoi will generate the place-making and identity benefits.

7.0 Economic value

7.1. Value of sport

The value of the sport and recreation sector to the New Zealand economy is significant. A national study on the value of sport and recreation identified that in 2012/2013, sport and recreation contributed \$50 billion, or 2.3% of New Zealand’s gross domestic product (GDP) (Dalziel, 2015).

A study commissioned by Sport New Zealand in 2015 sought to value the benefits of sport and recreation in the Canterbury/ West Coast area. The study found that the sport and recreation sector contributed \$593 million to the region (2% of the region’s GDP) (Sport and Recreation, 2015). This



contribution comprises the estimated value from 17 key sport and recreation industries¹ (\$382.3 million), the estimated value from physical and human infrastructure (\$103.7 million) and the estimated market value of volunteers (\$107.3 million) (Sport and Recreation, 2015, p. 7).

It is anticipated that the additional sport and recreation reserves proposed in the Kaiapoi East and West Regeneration Areas to serve the future wider district will potentially contribute to the local and regional economy.

7.2. Value of ecosystem services

Ecosystem services can be defined as *“the benefits that people obtain from ecosystems”* (Roberts et al, 2015, p.1). Services can be considered to be supporting (e.g. soil formation), provisioning (e.g. fresh water), regulating (e.g. climate regulation), and cultural (e.g. recreational) (Roberts et al, 2015).

Ecosystem services contribute to our health and wellbeing by satisfying our fundamental needs (as identified by Max Neef’s (1991) theory of Human Scale Development) as follows:

- Sustenance – the essentials for our existence (fresh air, clean water, food, shelter, clothing)
- Protection – from floods, drought and disease
- Affection – relaxing and restorative effects
- Understanding – opportunities for learning and knowledge gain
- Participation – being involved with others and sharing experiences
- Leisure – settings for sport and recreation
- Creation – inspiring creativity and innovation
- Identity – sense of self-identification is bound up with our natural world
- Freedom – the right to explore and experience different settings
- Material wealth – employment opportunities, primary production, tourism, energy generation.

(Roberts et al, 2015)

Valuing ecosystem services is a difficult task given the complexity of the services and their interactions, the perceived value from stakeholders, the market, and the timeframe. Patterson and Cole (2013) attempted to identify the total economic value of New Zealand’s land based ecosystems and their services through measuring their use values (provisioning, cultural, regulating, supporting). The study by Patterson and Cole identified that in *“2012 New Zealand’s land-based ecosystem services contributed \$57 billion to human welfare (this is equivalent to 27% of New Zealand’s GDP)”* (2013, p.1).

7.3. Value of a recreation reserve

A study undertaken by Lincoln University in 2013 sought to value the benefits of a recreation reserve or river park in the Avon River Residential Red Zone in Christchurch. The benefit value was

¹ These businesses include manufacturers and retailers of sports and recreation equipment, as well as individuals involved in sports coaching, recreation guiding and related activities (Sport and Recreation, 2015, p. 10).



estimated using qualitative (in-depth interview) and quantitative (choice experiment) methods. The study estimated the following:

- Benefits (willing to pay) to Christchurch residents (excluding tourists) of a recreation reserve could be as high as \$35 million each year.
- Savings to public health costs could be as high as \$50.3 million each year.
- The incorporation or restoration of various ecosystems services, including water quality improvements, flood mitigation and storm water management could yield a further \$8.8 million (\$19, 600) per hectare/year at 450 ha).

Based on the above the study estimates that the combined annual benefits to Christchurch of a recreational reserve in the Avon River Residential Red Zone are about \$94.1 million per year (excluding benefits from tourism, property equity gains, or the effects of economic rejuvenation) (Lincoln University, 2013, p.57)

The Avon River Residential Red Zone is approximately 450 hectares. If a simple extrapolation exercise is undertaken, it could be estimated that there are \$209,111 worth of benefits for each hectare developed for recreation. Given that similar green space areas and activities are proposed for the Kaiapoi Regeneration Areas there is the potential for such benefits for Kaiapoi (although at a smaller scale).



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