Walk, Run or Fetch:
Designing social spaces in shelters

by
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ABSTRACT

WALK, RUN OR FETCH: DESIGNING SOCIAL SPACES IN SHELTERS

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Professor Nathan Perkins

Approximately 22 000 dogs are admitted to Ontario Society for the Prevention to Cruelty to Animals (OSPCA) branches and affiliates annually. These dogs require stimulation and enrichment in their daily routine to maintain physical and mental health. However, many shelters have not been designed to foster these interactions, leading to potentially reduced dog welfare. The goal of this research was to examine the outdoor stimulation needs of dogs and their handlers at OSPCA branches and affiliates by reviewing shelter environments and determining how existing spaces fulfill the needs of humans and dogs. Facility assessments, along with employee and volunteer interviews were used to create design guidelines that enhance human-dog and conspecific interactions. Alternative design guidelines were developed, focusing on the comfort of people and variability of environment for dogs, which may help improve the welfare and adoptability of shelter dogs and quality of experience of those who work with them.
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CHAPTER I
INTRODUCTION

In 2013, there were approximately 75 million companion dogs in the United States, and approximately 39 percent of American households have a dog (Urbanik & Morgan, 2013). The pet industry is currently worth 40 billion dollars per year in the US alone. However, with canine populations becoming increasingly urban, there has been much debate recently over the question “is a dog still a dog, if it has no place to be a dog?” (Urbanik & Morgan, 2013). It is clear that inappropriate confinement can seriously impact the welfare of dogs (Wells, 2004).

In the UK, it is estimated 3.8 percent of the dog population is surrendered to a shelter each year (Diesel, Brodbelt and Pfeiffer, 2010). In Ontario, it is estimated that 22 000 dogs are annually admitted to Ontario Society for the Prevention to Cruelty to Animals (OSPCA) branches and affiliate shelters (McKibbon, 2012), a number which does not include municipality managed animal control facilities, or private rescue organizations. Private rescues are volunteer run, generally operate out of foster homes, and often focus on a specific geographical location or breed. Dogs in shelters, just as dogs in households, have basic needs for stimulation and enrichment in their daily routine, including dog-human and conspecific interaction, in order to maintain their physical and mental health. However, many shelters have not been designed to foster these interactions, and common reasons for behaviour problems in dogs include living in restricted environments, stress, lack of motivation, boredom, and anxiety. Outdoor play areas, training areas, and walking areas on shelter grounds, in particular, have the potential to provide ideal settings for fostering interactions between dogs, interactions between dogs and shelter volunteers and interactions between dogs and potential adopters. However, these spaces may not be currently utilized in the best way possible.

By assessing and reviewing the outdoor areas at OSPCA shelters and affiliates, it can be

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1 McKibbon (2012) polled 19 out of 46 OSPCA shelters and found 10 821 dogs were admitted in 2009. This population was doubled and rounded by the author of this thesis to assume a more accurate number of dogs in shelters.
determined if and how existing outdoor spaces are able to fulfill the various physical and social needs of dogs. Facility assessments, along with employee and volunteer interviews were used to create design guidelines that enhance human-dog and conspecific interactions. The outcome of this research is intended to improve the social interaction, welfare and adoptability of shelter dogs and the quality of experience of those who work with them.

**Need for Research**

Although literature describing the social needs and causes of stress in shelter dogs is plentiful, the majority of studies focus on the indoor kennel environment and not on the opportunities for diversity and enrichment outside of the individual kennel. There is a lack of research investigating the opportunities and effects that outdoor on- and off-leash walking areas can have on a dog’s well-being and stimulation needs. This research attempts to bridge such a gap by determining what opportunities exist for shelters in Ontario to improve outdoor spaces, which will increase enrichment and socialization opportunities and therefore welfare of dogs in Ontario shelters.

**Goal**

The goal of this research was to review the availability and quality of outdoor spaces in selected Ontario animal shelters, as well as how these spaces are used by canines and humans to determine user needs and, furthermore, to develop guidelines for spaces that promote usage and interactions in ways that are known to improve shelter dog welfare.

**Objectives**

The following objectives support the goal of this research:

- To determine the needs and potential benefits of conspecific and dog-person
interactions by reviewing the literature.

- To examine the role of environments in general and shelter environments, in particular in influencing the interaction needs of dogs and people based on the literature.

- To evaluate the current status of outdoor play areas, training areas, and walking areas on selected Ontario OSPCA branch and affiliate shelter grounds by conducting expert reviews of selected shelter facilities in Ontario.

- To assess how such spaces are used, by interviewing shelter managers, employees, and volunteers.

- To develop guidelines specific to the design of off-leash areas, training areas, and walking areas at shelters in Ontario based on the results from this study.

**Animal Shelters in Ontario**

There are a variety of places in which unwanted dogs end up in the Province of Ontario. Stray dogs are often taken in by animal control, which can be managed by the municipality, or can be contracted out to OSPCA branches or affiliates. Animal control is required to hold a dog for three days, at which point their legal responsibility is finished. Dogs are generally temperament tested using various methods, including but not limited to the American Society for the Prevention of Cruelty to Animals (ASPCA) SAFER Aggression Assessment, and become available for adoption if they meet temperament minimums. Dogs who do not pass the test are euthanized or if there are only one or two behavioural issues they may be transferred to the care of a private rescue organization. Private rescue organizations may be breed specific or size specific, or may focus on dogs that would otherwise be euthanized. Many private rescue organizations will place dogs in volunteer foster homes, and may or may not use kennels.
private home or kennel, the same legal standard of care requirements must be met (Animals for Research Act, 1980). There are an unknown number of animal control shelters and private rescue organizations in Ontario; however, there are 12 OSPCA branches and 32 OSPCA affiliates.

**Terminology**

OSPCA - The Ontario Society for the Prevention of Cruelty to Animals (OSPCA) has been in existence for over 130 years, and is one of the largest animal welfare organizations in Canada. The OSPCA’s main purpose is to provide shelter, care and protection for animals that require it throughout the province. They also have the authority to investigate and enforce animal cruelty legislation in the Province of Ontario, although this can also be delegated to branches and affiliates (OSPCA, 2012).

Branches - Branches are shelters formed by the OSPCA and administered from the central office.

Affiliates - Affiliates of the OSPCA can include local humane societies and SPCAs that are operated independently from the main OSPCA organization; these facilities each have their own board of directors. In order to be affiliates of the OSPCA, shelters must maintain policies, by-laws, and goals in line with those of the OSPCA, and pay an annual membership fee. In return affiliates can be granted the ability to conduct investigations, as well as benefits of belonging to a larger organization, including but not limited to training, leadership, guidance, support, educational opportunities, legal services, as well as marketing and fundraising assistance (OSPCA, 2012).

Guillotine Run – a type of kennel with indoor and outdoor portions, connected by a dog-door. Generally open during the day, giving dogs the option of being indoors or outdoors.

Kennel – an indoor housing unit, usually for one dog. May include connected indoor and
outdoor portions.

Meet and Greet Area – generally an outdoor space (occasionally indoor) used to introduce shelter dogs to adoptive families. These spaces are essential if there is another dog living with the prospective family. These spaces may be separate from other off-leash areas, or they may be used for dual purposes.

Shelter – a facility that cares for and houses animal available for adoption.

Off-Leash Area – a fenced outdoor space where dogs are permitted to be off-leash. Depending on the facility, dogs may be left in these areas unattended, or may be involved with active play with staff, volunteers, potential adopters, or other dogs. Training may also occur in this space.

Outdoor Run – a small outdoor enclosure for individual dogs. These areas are generally quite small, used for holding dogs in a space outside of their indoor kennel. May also be the outdoor portion of a guillotine run.

Walking area – a space able to be used by shelter dogs for on-leash walks. May be on-site or off-site.

**Summary**

As domestic dog populations have grown, the number of surrendered dogs has also risen. All dogs require socialization and enrichment to maintain the broad spectrum of physical and social health and this includes those housed in kennel or shelter environments, even more so due to the inherent isolation of these facilities. However, there is a dearth of published research examining the environments, particularly the outdoor environments, for dog socialization and enrichment in Ontario shelters.
By assessing outdoor play, training, and walking areas for a sample of Ontario facilities, it is expected that outdoor spaces can be improved through planning and design to enhance the socialization opportunities for dogs and people. Increasing both environmental enrichment and potential for interactions will provide opportunities for improved shelter dog welfare.
CHAPTER II
LITERATURE REVIEW

In order to further investigate the needs of shelter dogs, the needs and roles of dogs in modern society is presented. This section will provide examples in the literature that explain current notions of the ever-changing role of canines in western culture, from domestication to urbanization to the increasing need for parks dedicated for dogs. Concepts of shelter animal welfare and quality of life are also discussed, including causes of stress in dogs, and both physical and mental repercussions of stress. This leads to forms of enrichment that can help alleviate stress and improve welfare, including contact with employees and volunteers. Finally, the concept that dog welfare in shelters can be improved through outdoor design is introduced.

Dogs in Society – the social needs of dogs and humans

Dogs as Family

Anthropomorphism is the attribution of human mental states to nonhuman animals, and is a controversial concept in regards to canine behaviour. The habit of anthropomorphizing dogs is a universal trait among those who look after animals; it is a quality of modern humans that evolved approximately 40,000 years ago, and influenced domestication (Serpell, 2002). However, anthropomorphism has been beneficial for humans in addition to dogs, or it would not have evolved so.

Pets are becoming more important to families as they provide an outlet for nurturing, since many families are delaying or rejecting having children (Miller & Howell, 2008). Children who have a dog in their home are more popular with classmates, have higher self-esteem, and have a more positive outlook on life than children without dogs (Miller & Howell, 2008). Personal emotional satisfaction has become more important over the past few decades, and it is certainly possible that animal relationships are beginning to
compensate for disappointing human relationships (Endenburg, Hart, and Bouw, 1994). People and pet animals are developing a new type of family within the home, with seventy percent of families who own a pet claim they have increased happiness (Miller & Howell, 2008). Dog owners with significant compatibility to their pet were more attached to their animals, and experienced better mental and physical health, enhanced feelings of well-being, and less distress or anxiety in comparison to those less compatible with their dog or without a dog (Serpell, 2002). The amount of money spent by people on their pets doubled between 1994 and 2004, along with an increase in the number of dogs being kept as pets (Miller & Howell, 2008).

There are positive associations between dog walking, physical activity, and healthy body weight in humans, in addition to mental health benefits from interacting with dogs (McCormack, et al., 2011). However, many dog owners do not walk their pets enough. Urban design can affect both dog walking and physical activity in general; for example, less-walkable street patterns are negatively associated with participation in dog walking (McCormack et al., 2011). This has applications to shelters with walking areas in rural, industrial, or residential areas. There is also potential for community enrichment by way of dog parks, and providing a destination for dog walkers.

Needs and Perceptions of Urban Dogs

The increasing attachment between people and their pets leads to potential design issues when trying to determine how the needs of animals can be included into urban environments (Urbanik & Morgan, 2013). When regarding dogs in cities, it becomes a unique field combining animal geography (how human-animal relations are shaped by socio-spatial processes) with urban planning. Cities are not strictly habitat for people but are home to a variety of species, which is often contested in political debates (Urbanik & Morgan, 2013). More and more, there is a shift occurring in both the ideas of urban public spaces, as well as the boundaries of human-animal relations that occur in those spaces (Urbanik & Morgan, 2013). Dogs who provide companionship with people in
public spaces help to facilitate social interactions with a variety of strangers, which is especially important for seniors (Miller & Howell, 2008). People’s perceptions of dogs are being reconfigured as worthy of needing, sharing, and utilizing public spaces, to which dog parks are a solution (Urbanik & Morgan, 2013), the demand for which increases with higher density residences (Miller & Howell, 2008). Changing family dynamics to include pets has been directly linked to perceptions of good, tax-paying citizens, a belief in community, and the ability of a city to modernize its spaces (Urbanik & Morgan, 2013). Urban animal management rules and by-laws are intended to protect people from the perceived dangers of dogs; however, these rules tend to not consider an increasingly urbanized dog population, dog owners as the primary users of public open space, nor the roles of companion dogs in current society (Miller & Howell, 2008). Many such regulations reduce socialization and exercise, despite the fact that they aim to solve all dog-related issues (Miller & Howell, 2008).

The best way to create dogs who are well socialized in an urban environment is to train them outside of their home, and to provide play and interaction opportunities with other dogs (Miller & Howell, 2008). Dogs benefit from daily exercise and socialization, and through this can maintain their standard of behaviour (Miller & Howell, 2008). By creating open urban spaces that match the needs of residents and their pets, responsible dog ownership can be facilitated (Miller & Howell, 2008). The OSPCA vision includes not only its work in animal welfare, but also being part of individual communities and “promoting mutually beneficial human-animal interactions” (OSPCA, 2012). Such interactions should not take place just in homes, but on streets, in public parks, and even in the generally restrictive shelter environment.

*Dog Parks*

Dog owners in urban areas believe dogs need places where they can be dogs and escape the confines of urban life, places such as off-leash parks (Urbanik & Morgan, 2013). Dog parks, or off-leash parks, are generally fenced areas where dogs can be legally
unconfined and provided with opportunities to interact with other dogs and run free, thereby reducing boredom and pent-up energy (Lee, Shepley, & Huang, 2009; Urbanik & Morgan, 2013). Such areas can be privately, publically, or owner-maintained (Urbanik & Morgan, 2013), and have the potential to turn reclusive dogs and their owners into socially well-adjusted community members (Gillette, 2004). They are a fast growing, urban amenity, developing after the widespread adoption of leash laws in the 1980s (Matisoff & Noonan, 2012). There are over 2200 legal dog parks in the United States, and 90 percent of park directors have reported park usage increasing (Matisoff & Noonan, 2012; Urbanik & Morgan, 2013). Dog parks generally rely on self-policing to enforce rules (Lee et al., 2009; Matisoff & Noonan, 2012).

Planning is required for developing appropriate dog parks, specifically by considering park size, adequate fencing, type of surfacing, issues of dog waste, provision of water, shade, human amenities such as benches, and the overall costs of the project (Urbanik & Morgan, 2013). However, municipalities will likely find that conflicts between dog owners and other park users will cause problems for city planners and landscape architects for a long time to come (Gillette, 2004). Landscape architects have potential to significantly contribute to assimilating off-leash parks into existing park infrastructure (Gillette, 2004).

Recommended features of dog parks include a long and narrow shape, as well as defined areas for free running (Lee et al., 2009). Water features were also ranked high by dog park users (including swimming ponds and water fountains), as was agility equipment and human restrooms (Lee et al., 2009). More dog owners tended to use off-leash parks when they are located near residential communities; parks within walking distance encourage dog owners, especially seniors, to exercise and improve social contacts (Lee et al., 2009; Miller & Howell, 2008).

There is potential to look at information collected by studies on dog parks and their users and apply it to off-leash areas at shelters. There may also be potential to develop
members-only dog parks at shelter sites to bring in additional revenue for shelters. For example, in Indianapolis the dog parks owned by the City require an entry pass. Residents are charged a fee of $75.00 USD per year, per dog (with discounts for second and third dogs), with proof of vaccination and the signing of a waiver form. A day pass costs $5.00 USD per dog. Dog owners receive a tag for their dogs to wear, and an access card to the City’s four dog parks (City of Indianapolis, 2013).

**Shelter Dog Welfare**

Relationships between humans and companion animals have changed quite a bit in the last few decades (Timmins et al., 2007). Today, the majority of pet owners consider pets to be part of their families (Timmins et al., 2007), however more dogs are also being housed in kennels today than ever before. Dogs living in visual, auditory, and olfactory communication with each other creates stress when the dogs are physically separated. This affects their physical and behavioural development in addition to the dog’s sense of well-being (Coppinger & Zuccotti, 1999).

“It seems that in most kennels, dogs live in highly controlled environments with controlled diets; dogs in kennels live in a disease-free environment with adequate food and water” (Coppinger & Zuccotti, 1999).

The term “animal welfare” is being used more and more often by a variety of corporations, consumers, veterinarians, and politicians (Hewson, 2003). Traditionally, veterinarians and farmers have viewed welfare strictly in regards to physical welfare, with no regard for mental welfare (Hewson, 2003). More recently, welfare has been viewed from both physical and mental standpoints, although often measured through physical parameters such as cortisol. Welfare extends beyond physical well-being and includes state of mind and the extent to which the animal’s nature is satisfied (Hewson, 2003; Hewson, Hiby & Bradshaw, 2007; Timmins et al., 2007). There is no definite definition of quality of life in the field of veterinary medicine (Hewson, Hiby &
Bradshaw, 2007); however, animal welfare and quality of life are connected terms, as enhancing welfare generally enhances quality of life, and vice versa (Timmins et al., 2007).

Research in animal welfare science looks at the behavioural and physiological measures as proxies for determining quality of life, as it is not something that can be measured directly, even in humans. Measuring physiological states can include measuring heart rate, circulating catecholamines (such as adrenaline), cortisol found in urine and saliva, and immune status (Hewson, Hiby & Bradshaw, 2007). However, such parameters may not be entirely effective, as stress can be influenced by both positive or negative events; for example, a dog may feel stress when they see their mate, as well as when they see a predator (Hewson, 2003). Scientists are now beginning to move into a more feelings-based approach that measures behaviour outcomes, such as willingness to work or behavioural signs of fear or frustration (Hewson, 2003).

When looking at behavioural indicators, abnormal behavior in dogs can include stereotypies or repetitive behavior, self-mutilation, coprophagy, behavior indicating frustration including chewing and vocalizing, conflict behaviours including body shaking and paw lifting, and finally a lowered fearful position (Hewson, Hiby & Bradshaw, 2007). All animals have natural behavioural needs that must be satisfied for optimal welfare (Hewson, 2003). Research has determined that forced exercise (such as utilizing a treadmill), spatial area, and activity are not the most important factors in determining psychosocial well-being (Hetts et al., 1992).

**Understanding Relinquishment**

Research has been done looking at reasons for relinquishment of dogs, providing insight into the shelter dog population. Surrendered dogs tend to be less than three years old, intact male crossbreeds (Diesel, Brodbelt & Pfeiffer, 2010). Reasons cited by those who surrendered animals included problems with accommodation, behaviour problems, and
owner lifestyle (Diesel, Brodbelt & Pfeiffer, 2010). Those who surrender their pets have been found to experience conflict, doubt, regret, and shame; providing superficial reasons for surrendering the pet and blamed either another person or the animal itself (Frommer & Arluke, 1999). Those who surrendered dogs were more likely to be of lower income, and had not taken dogs to training classes; few of them had received advice prior to acquiring the dog, or had obtained the dog without enough preparation (Diesel, Brodbelt & Pfeiffer, 2010).

Unfortunately, many animals euthanized in shelters were companion animals surrendered by owners. People often do not gather appropriate information before acquiring a pet; if more information had been gathered before the acquisition of the dog, perhaps a rational choice could have been made (Endenburg, Hart & Bouw, 1994).

**Causes of Stress in Shelter Dogs**

Living in a kennel environment can be difficult for dogs not accustomed to such confinement. Social isolation is the most stressful factor for dogs, and people are an important resource in relieving that stress (Coppola et al., 2006; Normando et al., 2009; Wells, 2004). Unfortunately, it seems that shelter environments are not generally designed to easily promote positive social interaction with humans (Coppola et al., 2006). The most common method of detecting stress in dogs is to measure cortisol, found in canine saliva (Coppola et al., 2006). Cortisol levels are most commonly influenced by exposure to new or threatening environments, separation from attachment objects, unpredictability of the environment, and lack of control over environment (Coppola et al., 2006). When a dog stays in a shelter environment longer than one or two weeks, it becomes more important that the space they live in is both mentally and physically stimulating (Association of Shelter Veterinarians [ASV], 2010).

The noise in shelters also increases the stress of the environment, as sound levels can exceed 100 db. Any sound that measures in the 90 to 120 db range can be felt as well as heard by humans, and can lead to hearing loss (ASV, 2010). It is recommended that
increasing visual contact between dogs can reduce barking and improve welfare (ASV, 2010).

Barking can be considered an internally motivated movement pattern in response to novel surroundings, fear, or the presence of other dogs. Barking is a response to conflicts with those in competition, including food, reproductive access, territory (Coppinger & Zuccotti, 1999), or human attention. When dogs cannot respond appropriately to stimulation in their environment (including visual, olfactory, and auditory stimulation) due to being caged, barking is increased and welfare is decreased (Coppinger & Zuccotti, 1999; Hetts et al., 1992). Living and eating in kennels surrounded by dozens of other dogs is extremely different from what would be considered a species-typical environment: opportunities for social behaviour must be given for the dog to be able to grow and adapt (Coppinger & Zuccotti, 1999). For example, nervousness around people is a developmental response to a component missing from the dog’s environment.

Examples of stereotyping, indicating stress, can develop gradually in dogs and may not indicate current stress, and some dogs seems to show repetitive behavior only when in the vicinity of humans (attention seeking) (Hewson, Hibi & Bradshaw, 2007). Stereotypies can also help a dog deal with stress, ultimately reducing stress (Hibi & Bradshaw, 2007). Dogs learn obnoxious behaviour can gain them attention without repercussion due to presence of a barrier or fence; this pattern is called the Fence Effect (Coppinger & Zuccotti, 1999). Dogs can learn such behaviours within hours of arriving at a shelter.

Domestication and breeding has also influenced how different types or breeds of dogs react to stress which can make it difficult to predict suffering; in fact, in regards to long-term kenneling, the fewer breed-specific behaviours the dog exhibits the better (Coppinger & Zuccotti, 1999; Hewson, Hibi & Bradshaw, 2007). For example, fighting dog breeds seem to have higher pain thresholds, and herding dog breeds like collies exhibit higher frustration than other breeds when they cannot reach objects that inspire herding behavior (Hewson, Hibi & Bradshaw, 2007). Other dog breeds such as beagles

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(often used in laboratories), whose traditional howling and rally calls are considered obnoxious and possibly even a welfare concern, although a natural behaviour for the breed (Coppinger & Zuccotti, 1999). Trainability is an important component of a healthy relationship between a dog and owner, and is one of the characteristics humans have selected over time. Dogs bred to work closely with humans, such as retrievers and herding dogs, tend to be more trainable than dogs meant to work out of sight from humans, such as terriers and hounds (Serpell & Hsu, 2005).

**Enrichment**

Coppola et al. (2006) found that positive social contact with a human can reduce stress in dogs and help them acclimatize to the facility and its stressors, especially when contact occurs within the first three days of arriving at the shelter, overall improving their welfare. Environmental enrichment is a term that includes anything from toys to beds, companionship, kennel complexity, as well as exercise. Adding environmental enrichment can also help to reduce stress in shelter environments (Coppola et al., 2006).

For dogs to be able to live in a natural state, they should be capable of adapting to their environment. Enrichment and general movement should be goal oriented, as there is a significant difference between dogs who are exercised and those who are trained (Coppinger & Zuccotti, 1999). Environmental boredom occurs in dogs when they are prevented from performing internally motivated movement patterns, not just that the dog does not have enough to do (Coppinger & Zuccotti, 1999). Dogs in outdoor pens have been known to spend more time manipulating their environment than those indoors, such as manipulating objects such as sticks, rocks, and grass that are easily available (Hetts et al., 1992).

Toys are frequently used to enrich confined environments of both domestic and captive animals, and although some studies have found toys enriching (increased activity, reduced abnormal behaviour) others have found no effect on shelter dogs (Wells, 2004).
It has been suggested that the shelter environment may be already too stimulating; however, the presence of toys in kennels have been shown to improve adoption rates (Wells, 2004).

Dogs housed in areas with environmental complexity (such as a raised platform and hiding space) tend to be more active (Hubrecht, 1993); however, rotating both toys and structures is important in preventing habituation (Wells, 2004).

**Social Enrichment**

*Dog-Human Interaction*

Human contact is potentially the most important type of enrichment, specifically in the form of grooming and stroking; it reduces stress levels in shelter dogs (Wells, 2004). Research has found that dogs both require and instigate human contact, and maintain such beyond initial instigation (Pullen, Merrill & Bradshaw, 2012). Increasing social interaction between people and dogs in shelters provides predictable interactions, and increases a dog’s controllability of their environment. In these situations, a dog is allowed to act on its environment (for example, a dog is asked to sit and chooses to sit in order to receive a reward of affection or food), which improves their personal welfare (Luescher & Medlock, 2008).

Providing shelter dogs with regular human contact and opportunities to visit out-of-shelter environments are valuable forms of both emotional and physical enrichment, which improves chances of re-homing and reduces chances of returns (Normando et al., 2009). Dogs exposed to people on a regular basis also increase tail wagging when people were present, were more active when exploring their environment, moved around their pens more, and were more social when engaging with other dogs (Normando et al., 2009). Play in kennel environments helps with socializing, more specifically to prepare the dog for potential adoptive homes and teaches them appropriate dog-human interactions.
relationships (Wells, 2004). Ten minutes of human contact is not enough companionship for a shelter dog (Pullen, Merrill & Bradshaw, 2012), and while any human connection provides enrichment, it should be noted that some dogs form bonds to people with only minimal contact and suffer stress when such contact is disrupted (Normando et al., 2009).

Conspecific Interaction

Increasing the social contact between dogs improves the controllability of their environment (Wells, 2004), promoting welfare. Dogs who are socially isolated from each other are not able to fulfill their need for social interaction, which leads to behavior inhibition or withdrawal, vocalization, stereotypy, and bizarre behaviour (Hetts et al., 1992; Mertens & Unshelm, 1996; Wells, 2004). Dogs are often kept segregated to reduce disease transmission, and to prevent aggression between individuals. In this kind of environment, two weeks in a shelter can create or enforce behaviours that can ruin a dog’s chances for adoption (Coppinger & Zuccotti, 1999). Restricting animals from interaction with conspecifics is known to be a major stressor for any social species, and dogs in particular are known to vocalize to show their distress (Hetts et al., 1992). In fact, dogs spent three times as much time sleeping when in pairs, in comparison to single housing (Hetts et al., 1992). Dogs need social environments that are species specific in order to maintain their mental health, and in fact being low status within a hierarchy is considered to be healthier for a dog than not being part of a hierarchy at all (Coppinger & Zuccotti, 1999).

It has been widely suggested that dogs residing in kennels live in groups of three or more, as the sights, sounds, and scents of other dogs increases environmental complexity (Wells, 2004). Hetts et al. (1992) found that when housed in pairs, dogs spent less time vocalizing and more time sleeping. Mertens & Unshelm (1996) found that shelters that housed dogs in groups leads to higher activity levels and more sociability and investigative behavior. They sometimes barked at visitors, but never for a continuous period (Mertens & Unshelm, 1996). Social isolation is more harmful or as harmful as
spatial restriction (Hetts et al., 1992), and even visual contact between dogs can be used as a strategy to reduce barking in shelters (ASV, 2010; Wells, 2004), reducing stress and increasing adoptability in dogs.

Social interaction opportunities (such as in off-leash areas) supervised by staff or volunteers allows for human-dog socialization in addition to dog-dog socialization (Mertens & Unshelm, 1996). Dogs receiving socialization with each other and with humans become more dominant, confident, friendly, and playful individuals (Hubrecht, 1993). It is important to note that care must be taken when selecting dogs to interact, as indiscriminate group housing could increase risks of aggression and disease transmission (Wells, 2004). Visual contact between dogs is generally preferable to no contact; however, it may also increase barking, which is a welfare concern due to the sensitive nature of dogs’ ears (Wells, 2004).

**Olfactory and Auditory Enrichment**

A dog’s olfactory surroundings can have a significant influence on its well-being. In studies exposing shelter dogs to lavender and chamomile essential oils, dogs spent more time resting, and less time moving and vocalizing (Graham, Wells, & Hepper, 2005; Wells, 2004). The opposite was true when exposed to peppermint and rosemary. This type of enrichment, which influences both mood and behaviour, is an often overlooked method of de-stressing the environment for both people and dogs (Graham, Wells, & Hepper, 2005).

Music can also significantly affect the behaviour and mood of shelter dogs, with dogs spending more time resting when listening to classical music, and more time moving with heavy metal. There was, however, no effect of pop music nor human conversation on the behaviour of shelter dogs (Wells, 2004). This area of research is ongoing in the welfare community.
Improving Adoptability

Although many shelters strive to improve dog welfare, the best way to improve a dog’s welfare long term is to ensure the dog is adopted into an appropriate home (Wells & Hepper, 2000). A dog’s experience in a shelter is important in terms of welfare, but also for the way it impacts a dog’s behaviour and adoptability (Hennessy, et al., 2002). Some dog owners do not understand the basics in canine behaviour and health. One study showed that when owners surrender their dog to a shelter, 18 percent did not understand that there are behavioural differences between breeds, and 53 percent of people thought that their dogs were misbehaving out of spite (Mondelli et al., 2010). Various studies have looked at adoption rates and returns, and have found that certain behaviors and enrichment activities promote adoption rates and reduce return rates.

Luescher and Medlock (2008) found that trained dogs are 1.4 times more likely to be adopted than untrained dogs, and that owners were more likely to continue training their dog if they had observed the dog enjoying a training session. However, different dogs also have different abilities to be trained. A dog’s trainability is based on its willingness to attend to its owner and obey simple commands, as well as high retrieval drive, low distractibility, and low resistance to correction (Serpell & Hsu, 2005). In females, it was found that spaying did not affect trainability; however, in select breeds neutering males did improve trainability (Serpell & Hsu, 2005). This is important to note as many dogs are altered while at the shelter, which affects their trainability from when they arrive at the shelter compared to when they are adopted out.

Studies have also found that the behavior of a dog was more important to potential adopters than physical appearance, and furthermore the ability to interact appropriately with other dogs was a significant factor (Luescher & Medlock, 2008). Potential adopters with previous dog experience were less tolerant of behaviour problems than those with no experience, perhaps due to higher expectations of the dog (Mondelli et al., 2010). The most desirable dogs in shelters are those who are in the front of their pens, and have a
quiet but alert demeanor (Wells & Hepper, 2000). Dogs are also found to be more desirable when they are housed in environments that seem complex and stimulating (Wells & Hepper, 2000).

Mertens and Unshelm (1996) found that dogs housed individually were adopted on spontaneous decisions, because adopters felt sympathy for the dog. Twenty-five percent of such dogs were also returned within three months of adoption. Mertens and Unshelm (1996) also found that dogs adopted from group housing situations were adopted based on a dog’s behavior and history as related by group supervisors, and that only nine percent of these dogs were returned within three months of adoption. The authors suggested that dogs housed in groups learned to respect social structure, which helped them to adapt better to new situations after being placed in new situations.

People generally keep pets for social reasons, specifically to provide companionship for themselves or their families. Research conducted by Endenburg, Hart, and Bouw in 1994 found that 79 percent of people adopted a dog for companionship, whether they were single people or families. Also, they found 79 percent of people with children adopted a dog so their children could learn responsibility, and that there was a correlation between people who had pets as children were more likely to have pets as adults (Endenburg, Hart, and Bouw, 1994). However, eight percent of those surveyed adopted a dog because they felt sorry for it, and an additional eight percent adopted based on the visual appeal of the animal (Endenburg et al., 1994). Acquiring an animal was also often not a planned decision, as people entering a shelter or looking online see an animal, decide they like it, and want it (Endenburg et al., 1994).

**Shelter Volunteers and Employees**

In many shelters, volunteers contribute significantly to the dogs’ welfare and quality of life by providing extra exercise and socialization. In some shelters, volunteers also assist in training the dogs, running programs, and fundraising. Research regarding why people chose to volunteer may have useful implications for shelters looking to increase their
Social research conducted by Boezeman and Ellemers in 2008 (based on the Social Identity Theory [Taifel & Turner, 1979]), found non-material outcomes such as self-worth are motives for volunteers. The types of groups or memberships people seek out helps to define their self-image. People want to be part of groups that give them pride, be part of an organization that is high-status, and organizations that give them respect so the person feels like a valued member of the organization (Boezeman & Ellemers, 2008). An organization’s prestige is based on its success, which encourages psychological engagement with the organization.

Within charitable organizations, volunteers often work towards achieving a mission and often the volunteer’s needs are low priority (Boezeman & Ellemers, 2008). Other research has found that people choose to volunteer for six reasons: 1) values (ability to express selflessness), 2) understanding, 3) social, 4) career, 5) protective, and 6) enhancement. When deciding to stay or leave an organization, volunteers consider the return of future volunteer work, how important surrounding people view volunteer work, opportunities to volunteer, and how clear the benefits are to the volunteer (Harrison, 1995; Willems, et al., 2012). Organizations can attract new volunteers by showing that they invest in and show respect to existing volunteers (Boezeman & Ellemers, 2008), and a lack of support for volunteers leads to high turnover (Willems et al., 2012).

There are very different motivations for employees to work at animal shelters. Shelter staff have been known to approach their work with a “missionary zeal”, and believe only those with the right motivations (i.e. “in it for the animals”) should enter their shelter (Taylor, 2010). Animals are often treated as people, with assumptions being made about their personality, and the animals’ right to care (Taylor, 2010). In shelters examined by Taylor (2010), there was very much a staff versus public attitude, creating a distinctive sense of self for those working in animal shelters. Based on the study conducted by Taylor (2010), shelter staff challenge the status of animals as property, and instead view
them as creatures who think, and to whom people owe care (Taylor, 2010). It is clear there are differences between employees and volunteers, and as such they should be treated as two separate groups, although both interact with shelter dogs.

**Issues and Potential in Design**

Several components to a healthy environment promote animal welfare, healthy employee conditions, and good landscape quality in order to create effective designs for animals (Stobbelaar, Van Ruth, Hendricks, 2010). Comparisons can be drawn between designing for hen welfare and designing for shelter dog welfare. In the poultry industry, farmers desire a smaller workload, production of quality and sustainable products (i.e. keep hens in good condition), and have a good public image (Stobbelaar, Van Ruth, & Hendriks, 2010). Similarly, shelter operators desire a more streamlined process; they desire to keep dogs active, healthy, and appropriately stimulated (i.e. in good condition), and to maintain not only a positive public image, but to promote education within their communities. As in any industry involved with animal welfare, keepers should be in contact with their charges and be socially responsible for them (Stobbelaar, Van Ruth, & Hendriks, 2010). These points will be taken into consideration when designing space for shelter dogs. The newly designed space will be successful if the animal can behave more naturally than in the original space (Stobbelaar, Van Ruth, & Hendriks, 2010).

As a dog stays in a shelter or kennel situation more than one or two weeks, the importance of spaces that are both mentally and physically stimulating become very important (ASV, 2010). Indoors, physical environments should provide opportunities for hiding, playing, resting, feeding, and eliminating (ASV, 2010). However, outdoors the areas must be protected from weather, vandalism, and should prevent escape or predation (ASV, 2010). Sanitation is also an important component of outdoor spaces. Surfaces should be non-porous, durable, and easy to disinfect with adequate drainage (ASV, 2010). There are currently no specific recommendations for outdoor environments regarding enrichment and interaction; however, there are a number of principles currently
applied to parks and public spaces that are easily transferrable to outdoor areas of shelters.

Research regarding public park use is potentially relevant to volunteerism in shelters. Lin, Tsai, Liao and Huang (2013) found that providing a range of thermal comforts can affect overall park attendance during different seasons, since when people are comfortable park attendance is greater. Areas that provide shade to users are very important for encouraging people to remain in a park during hot weather; it is believed that by providing more effective shading and seating in such areas, more people will be attracted to outdoor spaces (Lin et al., 2013).

Other researchers have found that walking conditions can be influenced by streetscapes, as these are not only paths for traffic, but also for relaxation, communication, and exercise (Wang, Zhang, Dong & Liang, 2011). This is certainly true for dog walkers using public roads or trails when volunteering. It has been found that linear parks encourage walking and jogging, activities that are also affected by weather conditions (note connection to shaded areas in Lin et al., 2013), temperature, and the amount of green areas (Wang et al., 2011). Although not specifically studying dog-walking volunteers this kind of research shows the environments people enjoy spending time in. This encourages the idea that if volunteers enjoy the spaces more, they may be inclined to spend more time volunteering.

**Summary**

By reviewing the place of dogs and their needs within modern society, as well as welfare concerns, solutions, and enrichment possibilities, it is clear there is potential for outdoor areas of shelters to improve the social spaces for dogs living in shelters. Is it possible to create outdoor spaces that provide disease control and canine enrichment, while being enjoyable for volunteers and employees to utilize? This research therefore explores whether shelter dog welfare can be improved through outdoor design.
CHAPTER THREE
METHODS

The following chapter presents the Methods. Each subsection presents a different data gathering activity and analysis strategy. To review animal shelters in Ontario both key informant interviews with Managers, staff and volunteers were conducted as well as site analysis and evaluations.

The evaluation section focused on determining what kinds of spaces exist at shelter locations, and the quality of the spaces including functionality and visual appeal. Interviews were used to pursue more in-depth information than possible with just a site review. Manager interviews focused on collecting basic information on the shelter (i.e., how many dogs, how many volunteers), in addition to how interactions are structured (who spends the most time with the dogs, what activities are they allowed to do). Employee and volunteer interviews were similar, and focused on how each of these groups uses the outdoor spaces available, what kinds of interactions occur, and whether each individual is satisfied with the outdoor spaces available at their shelter. (See Appendix A for copies of evaluation, manager, employee, and volunteer interviews).

Study Approvals

In order to gain acceptance by a variety of shelter managers and staff throughout the province, the OSPCA head branch was contacted. A meeting was held prior to the ethics application, in order to gain the support of the OSPCA. Attended by the researcher, advisor, committee member, and two OSPCA employees, the purpose of the study was discussed, as well as sensitivity awareness in dealing with the shelters, and potential questions that could be asked and answered. At this point ethics clearance was applied for, and was granted on July 5, 2013 (REB # 13MY028).
Scheduling Site Visits and Interviews

Following ethics approval, an introductory email was sent by an employee at the OSPCA, introducing the research study and encouraging shelter managers to participate. Shelters across southern and eastern Ontario were asked to participate. Shelters in northern Ontario were not asked to participate, as this would have required significant travel time and resources not available to the researcher. Several shelters responded to the email and were contacted directly to book an appointment. Any shelter that did not respond to the email was contacted by telephone by the researcher to schedule an interview and site visit.

Sample Selection

In May 2013 an email explaining the proposed research and asking for voluntary participation was sent to specific OSPCA Branch and Affiliate managers (N=28) from Amanda MacKibbon, Manager (OSPCA, Animal Welfare Operations). This introductory email explained the goal of the research and asked for participation in conducting interviews with Managers, Staff and Volunteers as well as time for a guided tour and analysis of each shelter.

Although there are 43 OSPCA branches and affiliates in Ontario, only those located in southern and eastern Ontario were identified for possible inclusion in the study due to time and resource constraints. Shelters not associated with the OSPCA were also not included (including local animal control shelters and private shelters). Figure 1 shows the distribution of all OSPCA branches and affiliate locations as well as those that ultimately participated in the study. Two northern shelters were excluded as outside the scope of this project.

Following the initial OSPCA email, shelter managers were contacted by phone. Managers agreeing to participate were then asked to schedule a time for a site visit and
interviews. Of the 43 eligible Branches and Affiliates, 22 were ultimately visited.

Shelter managers were informed that the visit would take between one and two hours, and the investigator would conduct short interviews with the manager, an employee, and a volunteer. In addition to a facility tour, focusing on the outdoor spaces. If it was not possible for a volunteer to be on site, the researcher would requested the opportunity to conduct a phone interview with a volunteer at a later date. Shelter managers were emailed between one and three days before the scheduled interview to confirm the visit. A follow-up email was sent to each branch or affiliate manager to obtain ethics consent and schedule personal interviews and a site visit.

Figure 1. OSPCA branch and affiliate locations.
Site Reviews

On site facility reviews were conducted by the investigator. Facilities were reviewed based on the presence of off-leash and on-leash areas in the outdoor environment. More specifically, the size, layout, and enrichment potential was recorded by photographs and written notes for later analysis. Each review lasted between 15 and 30 minutes, depending on the size of the grounds and the variety of spaces on site.

Between June 18 and September 27, 2013, 22 animal shelters were visited. Upon arrival at each shelter, the researcher asked for the manager of the facility, or the person the manager had previously stated would assist with the tour. Depending on the preference of the shelter, and availability of the manager, employee, and volunteer, different schedules were followed. Generally the site visit began with a tour lasting 15-30 minutes, where photos were taken and the use of the spaces was discussed. The tour was followed by a series of interviews (manager, employee, volunteer), each approximately 20 minutes in length.

At the beginning of each tour, permission was asked to take photos throughout the site visit. During the tour, photos were taken of outdoor runs, play areas, entrances to walking areas, as well as parking areas and the street view of the shelter. Depending on the shelter and the amount of time available, indoor spaces, including holding and adoption areas, were also viewed and discussed. The evaluation form for each shelter was generally filled out in the presence of the manager or employee, in order to fill information gaps not readily visible (for example, issues with disease control may not have been readily apparent).

Semi-structured interviews took place wherever there was space, often in the staff lunch room or manager’s office or occasionally in the front lobby if that was the only space available. Occasionally interviews were conducted in the presence of other staff or managers, which could have influenced the responses. Five volunteer interviews, two
employee interviews and one manager interview were conducted over the phone. One manager submitted responses to questions via email. One shelter was run strictly by volunteers and did not house dogs on-site; therefore only the manager interview was conducted. There were four locations where there were no volunteers available to be interviewed, and further communication with the shelter to try and obtain the interview was not responded to. At one location, two volunteers were interviewed together; at another shelter, two employees were interviewed separately. There were a total of 22 manager interviews, 22 employee interviews, and 18 volunteer interviews. The shortest site visit was approximately 40 minutes, the longest was approximately 2.25 hours. See Appendix for evaluation checklist and interview questions.

**Analysis**

The goal of the analysis of facility tours and interviews with staff and volunteers was to develop a broad understanding of the range and diversity of shelters, specifically how the practices, facilities and physical environment influenced and affected the behaviour and behavioural opportunities of dogs and people. Data were analyzed through use of a spreadsheet for quantitative data (e.g., size and number of spaces) and qualitative data (e.g., interview key words, phrases and concepts). Responses to interview questions were simplified and common words or meanings were grouped together (tallied). Grouped data was converted to percentages, in order to determine the most common responses. Data were also used to create graphs, which visually show trends or lack thereof.

**Summary**

The goal of the analysis of facility tours and interviews with staff and volunteers was to develop a broad understanding of the range and diversity of shelters. This included an investigation of how the physical environment may have influenced and affected the behaviour and behavioural opportunities of dogs and people.
CHAPTER IV
RESULTS

This chapter presents the data collected during site visits conducted between June and September, 2013. Quantitative and qualitative data were imported into one spreadsheet (Microsoft Excel, 2011) for easier accessibility and the opportunity to visualize similarities of differences among shelters. The following chapter reports the results of data collected from 22 shelters in Ontario.

Shelters and Evaluation

A total of 22 animal shelters were visited across southern and eastern Ontario, between June 18 and September 27, 2013. Twenty-one, on-site evaluations were conducted by the researcher. One shelter did not house dogs on-site as the dogs were housed in local foster homes and no evaluation was conducted. One shelter was 100 percent volunteer run, so only the manager (no volunteer or employee interviews) was interviewed. Another shelter provided two employees in different positions to be interviewed. In three shelters, volunteers were unable to be contacted for an interview. There were a total of 62 interviews conducted, between managers, employees, and volunteers.

There is a wide range in capacity of shelters in Ontario. The largest shelter in the study could hold a maximum of 78 adult dogs, and the smallest capacity was 10 dogs. See Figure 2 for a comparison of average and maximum dogs. The average number of dogs housed in any shelter at any given time (not capacity) was 23 dogs. Two shelters used their average dog population as their capacity, meaning they were nearly always full.

Thirty-six percent of shelters had indoor space where dogs could be trained or socialized. This may have included a dedicated room, or simply bringing the dogs out into office space or a lobby. Sixty-four percent of shelters reviewed either had no indoor space available, or did not use existing indoor space for this purpose.
Eighty-six percent of the shelters visited operate volunteer based dog-walking programs. Of those shelters without dog-walking programs, slightly less than five percent (or one in 22) shelters did not have dogs in a kennel environment (all dogs are fostered out).

There was a wide range of shelters that allowed certain amounts of play between dogs. Of the 21 shelters with kenneled dogs, one-third (33 percent) regularly socialize dogs with conspecifics, and almost one in four (24 percent) sometimes socialize dogs with conspecifics. Fourteen percent of shelters rarely allowed socialization between dogs, and 29 percent never allowed socialization between or among dogs.

**Off-Leash Areas (Evaluation)**

The maximum number of off-leash areas at any one shelter was six and these were of various sizes. There were only two shelters (nine percent) that did not have any off-leash areas. The average number of off-leash areas for all shelters visited was two. Although measurements were not taken of the size of off-leash areas, the largest area was estimated to be several acres and the smallest area merely nine square metres. The location of off-
leash areas relative to the shelters varied from those directly attached to doorways, to those separated from the facility by up to 50 metres.

All off leash areas had some type of fencing, primarily chain link in heights ranging from 1.2 metres to 2.1 metres (four to seven feet). Other types of fencing were rare and included steel mesh fencing or wooden privacy fencing (Figures 3 and 4). Managers and employees working at shelters with lower fencing expressed concerns about dogs climbing the fence and escaping the enclosure, although reports of this actually happening were rare.

The ground surface of off-leash areas varied from at least some turf grass (47 percent), bare ground or areas where turf grass was not present due to poor conditions or heavy use (18 percent) and gravel (15 percent). Twelve percent of off-leash areas featured concrete, likely due to the ability to clean and sterilize it and to reduce excessive wear (See Figure 5). In fact, considering its ability to be cleaned, it is surprising concrete was not featured

Figure 3. An example of steel mesh fencing.
more predominantly in off-leash areas. Small areas of synthetic turf, mulch, and straw were also found in three percent of off-leash areas.

Off-leash areas were generally more than just a fenced in area. The most common feature adding enrichment to these spaces was the addition of toys where 27 percent of off-leash spaces held toys for dogs. Human seating added complexity to the environment, and was the second most common feature with 22 percent of spaces containing seating. In addition, 20 percent of shelters visited had pools available for dogs in the summer months. Other moderately common features to off-leash areas include shade (ten percent), level changes including anything from a hill to a mild slope (nine percent), and doghouses (seven percent). Other features were found at only one location each, or at a rate of two percent, and include waste disposal bins, hay bales and agility jumps. Several shelters claimed to own agility equipment or have equipment on order, however only one shelter had jumps set up.

Figure 4. An example of the most common type of fencing, chain link.
Figure 5. Outdoor surfacing (Clockwise from top left: turfgrass, bare ground, gravel, concrete)

Walking Areas (Evaluation)

A total of 19 (86 percent) of the shelters visited had volunteer walking programs. Several shelters had opportunities to walk dogs in different environments, while others had only one location to walk dogs. Of the 19 shelters with walking programs, almost three-quarters (74 percent) had defined trails to walk dogs. Trails may have been on areas owned by the shelter, on land owned by neighbours who allowed use, or on public lands such as land owned and managed by Conservation Authorities or municipalities. Trails were often in natural areas, or part of an urban trail system. In Figure 6 the image on the left shows land owned by the local conservation authority that encouraged use while the image on the right shows a trail built by a shelter on their own property. Forty-seven percent of shelters with walking programs walked dogs through residential areas; Figure
7 shows the edge of the residential area where dogs can be walked on the image to the left and the image on the right is an example of an industrial area where dogs can be walked. Twenty-one percent of walking programs utilized open public spaces such as parks and cemeteries. An equal number (21 percent) of shelters had on-site walking areas

Figure 6. Two examples of trails available for shelter use.

Figure 7. Residential and industrial walking areas.
that were primarily turf grass. In Figure 8, the image on the left shows an open grassy space where the dogs can be walked anywhere; the image on the right shows an attempt at programming, however the path is overgrown. Eleven percent of walking programs had dog walks in nearby industrial areas, and 5 percent of shelters (or one shelter out of 19) walked dogs in nearby rural areas. Figure 9 shows the types of areas available for dog walking.

Few shelters had significant amenities along their walking areas. Existing amenities were noted by the researcher, or mentioned by the tour guide (whether manager, employee, or volunteer). The most common amenities were benches, with 42 percent of shelters with walking programs having benches available for use by dog walkers. Twenty-six percent of walking routes featured garbage cans along the route, and five percent had dog-watering stations along the route. An interesting note is that any walking route with garbage cans always had benches.

There was a fairly wide variety of surfacing used along trails utilized by shelters, and while several shelters had walking areas on site, many of these spaces were off-site and
therefore the shelter had no control of the materials used. The most common surfacing in walking areas was gravel (42 percent) followed by paved and grass surfaces (32 percent each). Sidewalks and bare ground were each found in an additional 22 percent of walking areas. Bridges, as well as boardwalks were a component of walking areas in 11 percent of shelters and lastly, five percent of shelters had mulch as a walking surface.

**Interviews**

Ninety-six percent of shelters stated that the dogs in their care had some form of human interaction every day. In 55 percent of shelters volunteers spent the most time with the dogs, and in 14 percent of shelters employees spent the most time interacting with dogs. In the remaining 32 percent of shelters, an equal amount of employee and volunteer time was spent with dogs.

Out of the 62 interviews conducted, 52 (90 percent) of the interviewees expressed an
interest in improving the outdoor spaces at their shelter. The remaining 10 percent of interviewees either provided no response (2 percent), were not interested in improving outdoor spaces (3 percent), or provided an ambiguous response, neither stating they would or would not like to see improvement (5 percent).

Managers

Managers had quite an extensive list of desired improvements for their shelters. Looking specifically at their outdoor space, the most desired component was more outdoor space with 50 percent of the responses, followed by better disease control and sanitation (46 percent). In addition, almost a third of the managers (32 percent) desired more indoor space, and 23 percent would like space and equipment for an agility course. An equal number of managers (18 percent) desired more leashed space and more off-leash spaces. Fourteen percent of the managers wanted to see more outdoor kennels, more outdoor indoor/outdoor runs, and more covered areas. Fourteen percent of managers also desired better management of and training for their volunteer programs, and more community interaction for the shelter dogs. Nine percent of the managers wanted to see improved intake areas, better groundcover or surfacing of outdoor areas, development of a behavioural program, and more interactive toys. Finally, six percent (or one in 22) shelter managers desired components to their outdoor space such as snow or wind barriers, interactive kennel doors, trees, space for tracking with the dogs and better drainage.

Employees

There were a total of 412 employees working at the 22 shelters visited in Ontario. The number of employees at shelters ranged from a high of 100 to no employees, with an average of 19 employees per shelter. The total number of shelter employees primarily working in animal care was 242, or 59 percent of the total number of employees. The highest number of animal care employees for an individual shelter was 50 and the minimum was no employees (volunteer run). The average number of animal care
employees at each shelter was 11. For example, if there were 19 employees at a shelter, there might be 11 who were directly involved with the day-to-day care and maintenance of dogs and cats residing in the shelter; see Figure 10 for a comparison of total shelter employees and employees who work directly with

![Number of Animal Care Employees vs Total Employees](image)

Figure 10. Animal care employees versus total employees.

the animals). It is important to note that one shelter was entirely volunteer run with no employees. It is also important to note that in eight shelters (36 percent) all of the employees worked in animal care, in addition to their other roles.

There are a number of different activities shelter employees reported that might be considered as engaging with or providing enrichment for individual shelter dogs. The most common activity (64 percent) was grooming dogs including brushing and nail trimming, activities that are not necessarily positive. The second most common employee reported activity was training or behavior modification (59 percent). This number may not reflect all employees as several employees were selected by managers for interviews. The same percentage of employees (59 percent) reported play with shelter dogs. Forty-
one percent of employees walk the dogs, and the same percentage stated they spend time socializing, provide enrichment, or provide comfort time with dogs. An additional 27 percent of employees consider time assessing dogs as engagement or enrichment, and 18 percent of employees spend time with dogs while providing basic medical care or while cleaning kennels. Figure 11 shows the amount of time employees spend with each dog in an average day. Figure 12 shows the types of activities with which employees engage with dogs. In the interviews, employees were asked what kinds of activities they do with the dogs in the shelter.

In regards to how employees felt spaces were used, 68 percent considered their shelter’s outdoor spaces to be multi-use. Twenty-seven percent of employees felt their spaces were intended for more specific uses (not considered multi-use). Unfortunately, this question was not well understood by many respondents so responses are considered with some caution.

![Maximum Time Spent with Dogs by Employees](image)

Figure 11. Time spent per dog, by an employee.
There are several areas in which employees responded that their shelter requires attention. The request most often made was for general maintenance (36 percent) followed by eighteen percent of employees that thought the whole outdoor area needed a re-design and better fencing. Fourteen percent wanted to have more off leash areas while nine percent wanted more outdoor kennels. An additional nine percent of employees wanted an outdoor hose, covered areas, visual barriers, and more shade. Finally, five percent (or one in 22) employees requested one of the following components: more seating, better sanitation, new paint, guillotine door maintenance, an improved meet and greet area, another off-leash area, agility equipment, and enrichment tools.

![Figure 12. Types of activities with which employees engage dogs.](image)

Volunteers

The maximum number of volunteers at an individual shelter was 650 individuals and the
minimum number of volunteers at a shelter was 10. The average number of volunteers per shelter was 134. The large range of volunteer numbers per shelter can be seen in Figure 13. When viewed more closely it can be seen that six of 22 shelters have roughly 200 or more volunteers with 11 or half the shelters having less than a hundred volunteers.

![Number of Volunteers per Shelter](image)

Figure 13. The number of volunteers who volunteer at each shelter.

Volunteers spent various amounts of time volunteering in their shelter each week. Many commented that they stayed until all dogs were walked, and answered the question based on the average amount of time this took. Other volunteers mentioned they would spend more time when there are several high-energy dogs in the shelter, or several under-socialized dogs, as both types require more work than the average dog. Other volunteers stated their volunteer hours depended on the season, and which tasks were required in addition to spending time with dogs (for example fundraising). The minimum amount of time spent by a volunteer interviewed per week is 2 hours, while the maximum amount of time was 45 hours per week. Figure 14 shows the average amount of time spent per dog, per visit. However, not all volunteers spent this amount of time with each dog in the facility. Sometimes they spend 15 minutes with each dog, or 15 minutes with some and 30 minutes with others. A volunteer also might not spend time with each dog in the
shelter. This figure is meant to show an average amount of time spent by volunteers, when they visit with a dog. The average number of hours spent by shelter volunteers was reported to be 15 hours per week.

![Amount of Time Spent with Dogs by Volunteers](image)

Figure 14. Average amount of time spent by volunteers with individual dogs.

There are a number of ways in which volunteers spend their time at shelters. Sixty-one percent of volunteers interviewed spend time interacting with dogs, and 28 percent spend time interacting with cats. This may be biased, as on several occasions volunteers were chosen by managers to be interviewed and these may be the committed volunteers, those that had the time. As well, on occasion the interviewees were volunteers who happened to be volunteering during the time of the shelter visit. Twenty-eight percent of volunteers assisted in cleaning the dogs’ pens, and an additional 22 percent stated they spent their time walking dogs.

Twenty-two percent of volunteers also assisted with facility laundry. Seventeen percent of volunteers assisted in behavioural assessments and dog adoptions, while the same number helps to run volunteer programs, and 11 percent volunteer with special events
and fundraising. Eleven percent check individual water bowls when they volunteer, and six percent (or one in 18) volunteer with office work, transporting dogs, taking out the garbage, in addition to six percent each whom assist in an on-site clinic, and participate in training dogs.

Volunteers stated they spent various amounts of time with each dog when on site. The shortest amount of time spent per dog was 13 minutes, while the longest amount of time per dog was 90 minutes. Figure 15 shows the total amounts of time spent by volunteers with an individual dog. The values of zero represent shelters at which there was no volunteer available to be interviewed, and managers were not able to contact a volunteer for a phone interview. The average amount of time volunteers spend per dog was 26 minutes. These durations were reported in a range of time or as an average. Many volunteers stated it depends on the dog and their status in the shelter (adoptable versus intake, high versus low energy, healthy versus recovering from a spay or neuter). Some volunteers would spend time with each dog during some visits and during other visits they would spend time with only a few dogs on site.

Sixty-seven percent of volunteers consider outdoor spaces to be multi-use, and 22 percent consider spaces to be for specific uses. An additional 11 percent of volunteers provided an ambiguous answer to this question, in which no opinion was presented.

There were mixed responses when volunteers were asked if outdoor spaces were comfortable for people and for dogs. Fifty-six percent of volunteers stated that yes, spaces were comfortable, and offered few or no further comments regarding this question. In addition, 33 percent of volunteers stated that yes, the spaces were comfortable, however went on to list several potential improvements. Six percent (or one in 18 volunteers) did not think the spaces were comfortable and another six percent were not sure if the spaces were comfortable. Volunteers found spaces comfortable for several reasons, including the availability of chairs (28 percent), spaces were well maintained (17 percent), there was available shade (11 percent), and because there was space to leave the
dog (six percent). Volunteers found spaces to be uncomfortable because of mud (22 percent), a lack of shade (17 percent), ice (17 percent), and wind (11 percent). An additional six percent of volunteers thought spaces were uncomfortable for one of the following reasons: wet ground, not enough maintenance, snow, and they felt they were always in the way.

![Minutes Spent Per Dog (volunteers)](image)

Figure 15. Average number of minutes each volunteer spends with individual dogs.

Out of the 18 volunteers interviewed, three (17 percent) desired better quality spaces and 44 percent desired more physical space. The remaining 39 percent of volunteers did not provide a definitive answer, and may not have understood the question properly.

Volunteers desired both different and similar components to the outdoor spaces in comparison to managers and employees. The most desired aspect is a larger off-leash area, with 33 percent of volunteers requesting this. More off-leash areas, better maintenance, and better organization of space were components repeated by volunteers several times, with 17 percent each. Eleven percent of volunteers requested indoor areas, and outdoor water sources. Finally, one in 18 (or 6 percent) of volunteers requested
more shade, seating, more trees, a visual barrier, and more frequent staff check-in.

**Employees compared with Volunteers**

In this study, it was found that employees preferred off-leash spaces to walking areas; however, volunteers preferred them equally. Sixty-eight percent of employees preferred off-leash areas, while 14 percent preferred walking areas. An additional 18 percent had no preference in regards to their shelter’s outdoor spaces. Figure 16 shows the percentages of volunteers and employees who prefer different types of outdoor spaces. Forty-four percent of volunteers preferred off-leash areas, and 44 percent also preferred walking areas. Six percent of volunteers had no preference in regards to outdoor spaces.

![Preferred Outdoor Space](image)

Figure 16. Types of spaces preferred by volunteers and employees.

There were many reasons given by employees and volunteers as to why they preferred the spaces they did. Reasons for preference were grouped into four categories: stimulation, features, human comfort, and descriptive. In stimulation, 23 percent of
employees and 17 percent of volunteers preferred an area because it is easier to exercise the dogs. Six percent of volunteers preferred a space because it was easier to train dogs in. Five percent of employees preferred a space because of socialization opportunities, space for dogs to play with conspecifics, people can spend time with dogs one on one, and the dogs get to explore the space, all of which provide stimulation opportunities for shelter dogs. A number of people also preferred spaces due to the features or environmental complexity. Nine percent of employees and 33 percent of volunteers preferred a space because of the natural features, including trees and topography. Figure 17 is an example of both vegetation and topography in a walking area owned by a neighbouring park and sports centre, and used by shelter volunteers. An additional nine percent of employees and six percent of volunteers liked a space because it was private. Eighteen percent of employees and 11 percent of volunteers preferred a space because there were toys available.

Figure 17. An example of a walking area with trees and interesting topography.
Although walking areas were less preferred than off-leash areas, there were a number of common reasons for those who did prefer walking areas. The complexity of natural features, including topography and vegetation, was the most popular reason for outdoor space preference, followed by available shade, and privacy. Figure 18 shows the reasons why outdoor spaces were preferred overall (whether off-leash or leashed), while Figure 19 shows the reasons given for why walking areas are preferred, and Figure 20 gives the reasons why off-leash areas are preferred. Volunteers also stated they preferred walking areas because they felt dogs were happy and relaxed in these spaces. One volunteer preferred walking areas because there was less snow.

![Preferred Components of Outdoor Spaces](image)

Figure 18. Reasons why employees and volunteers preferred specific spaces.

The most changes requested for outdoor space components were the off-leash areas where 28 percent of the volunteers desired larger or more off-leash areas. Twenty-two percent of volunteers interviewed responded that the fencing or gates required attention, and the same percentage desired more shelter or shaded areas. Seventeen percent indicated that more trees were needed on site, and the same number suggested they would like to see improvements to the shelter “meet and greet” area.
Figure 19. Reasons why employees and volunteers prefer walking areas.

Figure 20. Reasons why employees and volunteers preferred off-leash areas.
Employees preferred leashed areas because they were able to spend time individually with dogs. Volunteers preferred walking areas for a number of reasons, including being able to spend time individually with dogs, added complexity of natural features, available shade, privacy, and less snow. In addition, volunteers found the dogs to be happy and relaxed when out for a walk.

There was a variety of reasons employees and volunteers preferred off-leash spaces, predominantly because dogs are easier to exercise, they can play with toys, and there is available shade. Thirteen percent of employees preferred off-leash spaces because of available tables or chairs, privacy, freedom of dogs, and natural features. Volunteers were not interested in tables and chairs or privacy; however, a larger percentage (25 percent) preferred off-leash spaces because dogs could be free and there are natural features, such as trees or hills. Volunteers also liked the availability of a pool for the dogs, and they felt the dogs were generally happy in the spaces, two aspects to the space that employees were not concerned with.

Eleven percent of the volunteer respondents felt that outdoor surfaces were in poor condition and that landscape maintenance required attention. Finally, six percent (or one in 18) volunteers stated their shelter required attention in maintaining a pet cemetery, maintaining guillotine runs, having or improving access to running water, getting rid of standing water, and altering the runs to create a visual barrier between dogs in runs and those in off-leash or walking spaces.

**Summary**

This section provides an overview of data collected through the methods outlined above. Data was organized by evaluations of physical space, both on-leash and off-leash spaces. Interview data was collected based on whether the interviewee was a manager, employee, or volunteer. As volunteers and employees were asked similar questions, data collected
from employees was compared with that collected from volunteers. Employees and
volunteers often preferred different types of spaces, for different reasons. Off-leash areas
were more popular with employees, who were more concerned with providing exercise
for the dogs and the opportunity to be in a comfortable microclimate. Volunteers were
more likely to prefer a space because it was interesting to them or the dog, for example
the availability of toys, pools, or natural features. Although there was a variety of spaces
throughout the different shelters, as well as various resources including volunteers and
staff numbers, nearly all managers, employees, and volunteers wished to improve the
spaces in one way or another.
CHAPTER V
DISCUSSION

The following chapter begins with the reasons why this research is important. This is followed by an analysis of current off-leash areas, conspecific play policies, meet and greet areas, leashed areas, passive areas and entrance areas. Issues such as disease control and variability of human interactions are also touched on, in addition to limitations of the study. This section has been discussed based on findings, the literature, and importance to the shelter system.

Importance of This Research

There is a significant amount of empirical research on the benefits of exercise and socialization, both human and conspecific, on the welfare of dogs in shelters. However, there is no direct research looking at this same research in regards to facilitating these activities through the design of outdoor environments. The welfare of shelter dogs is very dependent on the people around them, therefore addressing the needs or preferences of the people may increase participation and the overall amount of time spent with the dogs, eventually leading to improved welfare and adoptability of dogs. To the author’s knowledge, this is the first study to focus on the preferences of people who spend time within the shelter setting, and the first study to look at off-leash and leashed walking spaces from a design perspective.

Off-Leash Areas

The vast majority of shelters have outdoor spaces for off-leash exercise; however, there was significant variety in the number of spaces and quality of spaces. One shelter visited had six off-leash play areas, the most of all shelters visited. The average number of off-leash areas was two. The off-leash areas were identified by nearly one third of volunteers as the aspect of shelters most needing change. Volunteer requests were most often for
larger or more off-leash spaces. Employees were asked about outdoor spaces requiring attention, and 27 percent responded that they needed more or larger off-leash spaces. Nearly every employee was concerned with the maintenance of off-leash spaces, reporting problems with gates, fencing, surfacing, and drainage.

Employees overwhelmingly preferred off-leash areas to leashed areas, which likely had to do with the opportunity to sit down (chairs were a popular amenity), and watch the dogs getting appropriate exercise and enjoying themselves. Volunteers were split as to preferred space; 50 percent preferred off-leash spaces and 50 percent preferred on-leash spaces. The most popular reasons for on-leash area preferences were the availability of shade and natural features, including trees and topography. Volunteers seemed to enjoy walking areas because they felt more physically comfortable in those areas, and perhaps enjoyed moving through a varied landscape. It is suspected that volunteers might also enjoy the physical contact of a leash walk, and the increased exercise for themselves.

Chain link fencing is the most common form of fencing for off-leash areas, most likely because it is less expensive than most alternatives. Due to its lower cost compared to alternatives, it is possible shelters were able to enclose more or larger areas compared to if they had to spend more money on a different type of fencing. This type of fencing provides no privacy, an issue that arose with several volunteers and employees. It would also be reasonably easy for a dog to climb, if they were so inclined.

Based on employee and volunteer responses and on-site reviews by the investigator, off-leash areas are used and valued; however, they need features to make the spaces more comfortable and interesting for both dogs and people. Seating and shade should be available in every off-leash area. Pools and toys were popular components of off-leash areas based on volunteer responses, and a beneficial program would be to rotate toys between off-leash areas. The addition of small berms, or agility equipment such as tunnels and jumps, would add much needed variety to areas that are often simply fenced-in lawns. Care should be given to the surfacing of off-leash areas, specifically around the
gates, as ice or mud were found to be inconvenient and potentially dangerous to any human users of the space. The addition of even small amounts of gravel or mulch could reduce this problem.

**Conspecific Play**

Whether or not shelters should allow play between adoptable dogs is a controversial issue. According to the literature (Copping & Zuccotti, 1999; Hetts et al., 1991; Hubrecht, 1993; Mertens & Unshelm, 1996) social play, including conspecific interaction, is an important component of relieving stress in kennel environments, and can be essential in improving canine welfare. While there were quite a variety of shelters visited throughout Ontario, there was also quite a variety in the responses to this question. Only managers were asked outright if dogs were ever housed together or allowed to play together on site. However, when volunteers and employees were asked if there were spaces available for dogs to play together, there were a wide variety of responses, often differing from the responses of managers. Employees at five shelters indicated conspecific play occurred less often than managers had stated, although employees were not asked outright how often play occurs.

It was also difficult to define conspecific play in terms of this paper. One shelter manager stated they did not allow off-leash play; however, shelter dogs were taken for group (leashed) walks. Does this count as conspecific interaction? Will it help to relieve shelter dogs of social stress? At another shelter, the manager stated they never allow dogs off-leash in the same pen; however, discussion with a volunteer revealed that they allow two dogs to be off-leash in adjacent pens and run back and forth along the fence. As the definition of play was not defined prior to the interviews, all such responses were classified as conspecific interaction. Figure 21 shows dogs in close proximity, spending time with volunteers in the pools after a walk. While not interacting at the moment of the photo, the dogs were interacting with each other while on leash.
It is also important to note that several managers stated conspecific play was allowed; however, their employees stated it was rare, if allowed at all. It is also important to note that five shelters where conspecific play never or rarely occurred were hoping to begin such a program in the coming year. These shelters were counted as never or rarely allowing conspecific play, depending on their current state.

There were a few patterns that emerged from the data collected. One pattern was that the fewer play areas there are on site, the more likely conspecific play occurred, as seen in Figure 22. One possible reason for this may be that spaces are better utilized when two dogs can use one space at the same time, as opposed to having to wait and use the space one dog at a time. There was a weaker trend in the data where there was less conspecific play at shelters with fewer staff, as seen in Figure 23. This may have to do with how well staff were able to get to know the dogs. If there are more staff members, they may have more time to spend with individual dogs and therefore better understand their social
abilities and if or who they would be suitable play-mates.

There appeared to be no relationship between the number of volunteers per shelter and the occurrence of conspecific play, as volunteers do not generally monitor this activity. If conspecific play occurred, volunteers stated they were generally not allowed to take dogs out together. In some cases they were allowed if there were two volunteers present (one per dog). In most shelters that permit play between dogs, employees were in charge of determining which dogs and when they were permitted to interact, hence the correlation between more employees and more conspecific play. There was also no correlation between the average number of dogs per shelter and the occurrence of conspecific play. This was unexpected, as shelters with more dogs also tend to have more employees.

![Figure 22. Relationship between the number of off-leash areas and the occurrence of conspecific play.](image-url)
There are a number of barriers to conspecific interaction, the most significant being the fear of aggression between dogs. Interview data suggested employees and managers who make decisions regarding dogs fear aggression between them, since they often do not have complete histories of shelter dogs. However, other research (Mertens & Unshelm, 1996) has found true aggression to be rare. Since a dog’s history is often unknown, it can be difficult to make decisions regarding which dogs are suitable for conspecific play. There were also concerns with disease control in regards to the close interaction between individuals. It is suspected that a lack of time by employees to supervise such play was also a barrier to conspecific interaction, along with a lack of trust in volunteers, or a lack of suitable volunteers to entrust the supervision of play-groups.

Figure 23. Number of employees in relation to conspecific play.

In contrast to Mertens & Unshelm (1996), research conducted by Orihel, Ledger and
Fraser (2005) found that inter-dog aggression is a common problem in Canadian animal shelters, although it is unknown whether aggression was a problem before the animal was surrendered, or if it was a product of the shelter environment. Fifty-eight percent of shelters reported inter-dog aggression in 20-49 percent of intake dogs, and 16 percent of shelters reported inter-dog aggression in more than 50 percent of intake dogs (Orihel, Ledger & Fraser, 2005). Forty-seven percent of shelters rehabilitate dogs that show inter-dog aggression, reportedly through socialization, stress reduction, de-sensitization, and distraction; eighty-six percent of shelters will euthanize for dog aggression for reasons including liability and limited resources (Orihel, Ledger & Fraser, 2005). Lack of facilities was reported in the top four reasons as to why dog aggressive canines were not rehabilitated. Interestingly, while the Orihel, Ledger & Fraser (2005) research (the only Canadian research obtained) found that 93 percent of shelter respondents exercised dogs in social groups, while research presented in this paper found that a mere 55 percent of Ontario shelters regularly or sometimes allow dogs to play with conspecifics. It is possible there are Ontario shelters that have significantly different policies from the rest of the country; however, there is no clear reason to explain this discrepancy.

If shelter employees are managing conspecific play-groups, it is important they are properly trained to recognize signs of fear, aggression, and discomfort in dogs. Improving confidence in recognizing body language would allow staff to better pair dogs for group play. Training dedicated volunteers to recognize body language to this degree would allow them to participate in this form of enrichment, perhaps allowing dogs more conspecific access.

**Meet and Greet Areas**

Off-leash spaces dedicated to “meet and greets” were not a component included in the original investigation; however, this type of space had significant influence the outdoor spaces of many animal shelters. Many off-leash spaces were considered multi-functional because they were used for exercising shelter dogs, and for introducing shelter dogs to
potential adopters. If potential adopters have a dog and are considering adopting another, outdoor meet and greet areas become very important for introducing the dogs to each other. For optimum adoption success, shelters will generally not adopt a dog to a family without it meeting their current dog. Outdoor spaces are important, as shelters wanted to avoid pets passing through the shelter due to disease control issues. Introductions to a potential canine housemate generally occur on-leash, or with a fence between. If that goes well, dogs are let loose in a fenced area intended for off-leash use. While 43 percent of shelters visited rarely or never allow play between shelter dogs, nearly all shelters mentioned spaces for canine meet and greets.

It is interesting that while many shelters rarely allow dogs to play with each other, they are encouraged to meet existing pets of potential adopters. It is unclear why shelter staff cannot use this same protocol to introduce shelter dogs to each other and establish play-groups, although limited time may be a factor. Meet and greet areas can double as off-leash areas for adoptable dogs, and while these areas do not need to be as large as regular off-leash areas, there is no specific reason this use needs a separate space.

**Leashed/Walking Areas**

Leashed walking areas were significantly less popular with employees, with only 14 percent choosing leashed areas as their favourite space. While leash walking is important in learning leash manners and improving adoptability, it was generally considered more difficult to exercise dogs in this manner. Employees generally felt their time was better-spent taking dogs to off-leash areas, perhaps because they could take a break and exercise dogs at the same time. Volunteers preferred leashed spaces equally to off-leash spaces, perhaps because they felt more of a connection to the dogs when connected by a leash. Throughout the interviews, several volunteers stated they liked to get dogs away from the shelter environment, even if only for a twenty-minute walk. In several cases, leashed areas were preferred because of the environment; for example, users appreciated the shade or relaxing nature of trees and topography. Twenty-five percent of volunteers
preferred leashed spaces due to the natural features, although the majority (50 percent of volunteers and 33 percent of employees) preferred these spaces because they allowed them to interact one on one with individual dogs.

Many leashed areas surveyed offered a few basic amenities. The most common of these were benches and garbage cans. Interestingly, any walking route with garbage cans had benches, but walking routes with benches did not always have garbage cans. Forty-two percent of shelters with walking programs had benches available for use by dog walkers. Twenty-six percent of walking routes had at least one garbage can along the route, and five percent had dog-watering stations along the route.

Leashed areas were less preferred than off-leash areas by employees, likely because dogs were able to run in off-leash areas and employees were easier able to multi-task, which provides better exercise than leashed walks. However, leashed areas potentially provide more opportunities for socialization with people and opportunities to experience new environments. By adding features to leashed spaces such as benches, a variety of pathways or routes, and the opportunity to traverse different obstacles or environments such as rocks, beaches, pet cemeteries, or other places new to the average shelter dog, there would be improved opportunities for stimulation, while improving exercise.

**Passive Areas**

Many shelters featured quiet, out of the way spaces on site, sometimes part of a walking path. These passive areas were places in which volunteers, employees, and potential adopters could sit and watch the animals or quietly interact with them. Some areas included a gazebo, benches or chairs overlooking a pet cemetery, play areas, or the front entrance. Passive areas were commented on by a limited number of volunteers as a favourite space or as a problem area. Figures 24 shows two examples of well-done passive areas that promote peaceful companionship for people and dogs. These areas are shaded, and exemplify prospect refuge principles. Figure 25 is an example of a passive
area that did not utilize prospect refuge theory. There is open space behind the benches, on the other side of which is the main entrance to the shelter. The benches face a pet cemetery on a berm, creating closed views. This scenario could be improved by angling the benches 45 degrees to the right, and moving or adding bushing behind them. This would create the feeling of a private cove, from which bench users could view both the cemetery and main entrance.

Figure 24. Examples of appropriate passive spaces.

Several passive spaces were mentioned by a few volunteers as nice places to sit and relax with a dog; however, other volunteers commented on how these spaces were cumbersome and created problems for people trying to move reactive dogs from one area to another. Intended passive areas would ideally be organized to utilize prospect refuge theory, which operates argues that people prefer environmental settings that are enclosed and sheltered, but provide views to potential threats (Appleton, 1975). At two shelters visited these spaces were observed in use, both for quiet social time with individual dogs. In addition, the theory of environmental affordances (Gibson, 1979) suggests all environments have action possibilities; however, such actions are dependent of the capabilities of the user. For example, a space cannot be used for quiet sitting and petting if the dog is highly reactive to its surroundings (for example, barking at cars or other
Passive spaces can be important for those looking to sit and quietly stroke a dog, including potential adopters, employees, or volunteers. These spaces could be optimized by providing several benches or chairs, allowing small groups of people to sit. They should be separate from main pathways, and out of sight from main entrances or exits. Although these spaces may be forgotten or non-existent at many shelters, they could potentially be useful and enjoyable spaces for a variety of people and dogs at the shelter.

**Entrance/Initial View**

The design of animal shelters no doubt influences the perceptions of visitors, potential adopters, employees and volunteers. When people visit an animal shelter there may be expectations of what they will find. These expectations may be negative in nature and
influenced by common television and print images of sick and starved animals behind chain link fences or bars. Managers at shelters seem to be aware of what may be a stereotypical image of shelters as places of hardship and suffering for animals. Many managers strive to turn their shelters into places of education, where people go to learn about animals and their care, in addition to choosing a compatible animal companion. First impressions can make a difference; however, for many cash-strapped shelters the unfortunate “sad animal” stigma begins as people approach shelter grounds. Do they see well-kept gardens, easy to read directional signs, and happy dogs interacting with people? Or do they see patchy grass, empty crates strewn around, and dogs lined up in tiny runs?

Regular grounds maintenance has the potential to remedy this issue and create more welcoming environments for visitors. Nassauer’s (1995) ‘cues to care’ postulates that visual evidence of care as seen by maintenance or human activity (mowed turf grass, weeded planting beds) can create favourable impressions among viewers even when some elements of the area are more natural and visually complex or ‘untidy’. If the landscape is well cared for, cues to care suggests that the people looking after the space have personal pride and the time or money to look after their grounds (Naussauer, 2011). If a shelter’s grounds are not well-maintained visitors may doubt the resources of the shelter to properly care for its animals, which defies the perception many Managers desire to create.

Disease Control/Accessibility

Mangers and employees mentioned disease control as an on-going issue, often due to poor building and grounds layout, or poor building ventilation. Three shelters installed portable buildings for either intake animals or those with easily communicable diseases (e.g., kennel cough in dogs and upper respiratory infection in cats) in order to keep them out of the main shelter environment. A number of shelters struggled with moving dogs through the shelter, as it was not allowed for adoptable and intake dogs to use the same spaces. However, due to poor layout, several shelters are forced to take these dogs out
through the same doors, although they go to different runs or off-leash areas once they are outside. A complaint from managers and employees at several shelters was the lack of exits. Often shelter dogs with employees, volunteers, and potential adopters had no choice but to exit through the main entrance, passing potential intake dogs or members of the public. There were similar issues outdoors, where in one case dogs and people visiting for a meet and greet passing close by the outdoor runs of intake dogs, as this was the only way to access the meet and greet area without travelling through the shelter itself.

There were also issues with the accessibility and safety of entrances and exits. Employees at one shelter used a concrete stairway to move intake dogs to their outdoor runs, often dealing with snow and ice issues in the winter. Another shelter had a low-headroom doorway that employees and volunteers had to duck through on a daily basis.

Although difficult to remedy in existing buildings, new shelters or those undergoing renovations should ensure intake dogs and adoptable dogs do not share any spaces. Intake dogs should have their own entry and exit from the building, and their own off-leash area. Adoptable dogs should have again a separate entry and exit, and a separate set of off-leash areas. Dogs should be able to enter and exit the building without the use of stairs, and special concern should be paid to surfacing outside doorways to reduce mud and ice build-up.

**The Human Factor**

Ultimately, a significant part of this research was to see how people and dogs were using current outdoor spaces, and how they are (or are not) interacting with each other in the spaces. Interactions between employees and dogs occurred daily but were of short duration at most shelters, often restricted to handling during nail trimming and cage cleaning. Sixty-one percent of employees reported they spent 15 minutes or less per dog, per day.
Many employees also reported when their required work was finished that they would spend as much time as they had with the dogs, and in such cases would spend more time walking, playing, and training. This indicates that employees, for a range of motivations and perceived rewards, wanted to spend time with shelter dogs. Those shelters with employees dedicated to behavioural management were able to devote more time to individual dogs, spending up to several hours per day with dogs who required extensive training or socialization. In this research, a slight trend was found between the average number of dogs and the total number of employees, as seen in Figure 26. Also, there exists a fairly strong relationship was found between the number of staff members and volunteers per shelter, as seen in Figure 27. For example, the more people employed at a shelter, the more people volunteered at the same shelter.

Figure 26. Relationship between the number of employees and the average number of dogs.
Volunteers spend more time interacting with the dogs compared to employees (compare Figures 11 and 14). Volunteers predominately spent time stroking, walking, and playing with shelter dogs, compared with employees who conducted similar activities secondary to interactions regarding basic care. Volunteers spent little time training shelter dogs, while it was common for employees to spend time training or working on behaviour modification with dogs. In some shelters training was a priority, which was good to see as research indicated training improves adoptability (see Luescher & Medlock, 2008; Wells & Hepper, 2000). However, in other shelters training was a luxury to occur only if there was time. In general, volunteers were less interested in behaviour and training than expected.

Figure 26. Relationship between number of employees and number of volunteers.
This human connection is a very important, perhaps the most important component of a dog’s welfare and shelter experience (Luescher & Medlock, 2008; Normando et al., 2009; Pullen, Merrill & Bradshaw, 2012; Wells, 2004). However, 61 percent of volunteers thought the outdoor spaces needed improvement, and just over half, 56 percent, found the spaces to be physically comfortable. All employees wished for some kind of improvement to their outdoor spaces. Improving outdoor spaces may improve the contentedness of the human users, therefore improving the quality of time spent with the dogs. Most employees are already spending as much time as they have with dogs, but with improved training and better spaces, volunteers might begin to spend more time, or more volunteers might be more dedicated to their work. Figure 28 is an example of a volunteer who spends 20 hours per week volunteering at the shelter, both walking dogs and managing the dog walking program by pairing volunteers with appropriate dogs. More volunteers willing to give the same level of commitment would not only improve human-dog interaction, but also potentially conspecific interaction.

Figure 28. A dedicated volunteer.
Limitations

There were several limitations to this study, which had the potential to influence the results. The range of shelters visited was limited to southern and eastern Ontario. Five shelters were excluded due to the resources required to travel long distances. In addition, only OSPCA branches and affiliates were selected for study excluding a number of municipal shelters. With the variety of different kinds of shelters in Ontario, it was thought the best course of action would be to focus on shelters with a well-known affiliation to the OSPCA. Municipal-run animal control operations and shelters, as well as private shelters, may be quite different facilities from OSPCA branches and affiliates.

Another limitation of this research was its timing. Fieldwork consisting of site visits and interviews with managers, staff and volunteers was conducted in the summer months of 2013 (June to September). Several shelter managers and employees were unavailable for interviews and site visits, likely due to their holiday schedules. If there was no response after three or four initial contact calls or emails, the shelter was subsequently dropped from the list of prospective shelters. Ideally all shelters would be included in this study and shelters not visited may be substantially different than those that were studied. The season also likely influenced the responses given by employees and volunteers, as in many cases the provision of outdoor shade was more of a concern than cold weather, ice and wind. In other words, some of the Managers, staff and volunteers were likely responding to summer concerns regarding outdoor areas and neglecting other seasonal concerns that would most likely influence their evaluations of the outdoor environment. The researcher suspects that if the study were to be conducted in the winter months, different environmental issues would surface.

During this research, 22 OSPCA branches and affiliates were visited (50 percent of the total number in Ontario). Seventy-five percent of 12 branches, and 38 percent of 32 affiliates were visited. Although a fewer number of branches were visited than affiliates, they represent a higher proportion of the total shelters. This is significant because
OSPCA branches work under the same board of directors, while the affiliates each have their own board of directors. While not necessarily a limitation there is a wide variety of shelters in Ontario, some very large, or very small, some located in cities, towns, or rural areas and all with largely varying resources and different capacities. This variation in shelters, at the outset of this research, suggests that there is no standard model and each shelter reviewed was a single case.

**Summary**

Off-leash areas were preferred by employees, and preferred equally to leashed areas with volunteers. Nearly all shelters visited had off-leash areas and leashed areas. There was a significant difference between the number of shelters that allow dogs to interact off leash with each other, for various reasons discussed in relation to the literature. Meet and greet areas were featured on many shelter grounds, which should have been part of the research conducted. Passive areas in outdoor spaces were found to be of importance to number of volunteers, and were spaces that could easily be improved. Designing for disease control, and visitor perception was also discussed, as it pertains to usability of the sites and adoptability of the dogs. The amount of time and types of activities between dogs and people at the shelter (predominantly employees and volunteers) was also discussed, as they are important components which feed into potential design solutions.
CHAPTER VI
APPLICATION OF RESULTS

Recommendations

The following is offered as a checklist for improving the functioning of outdoor spaces for dogs in shelters based on the results of this research.

Outdoor Spaces

Spatial Arrangement of Outdoor Areas

A common desire for managers, employees, and volunteers was the desire to have larger spaces. Although many shelters have a number of off-leash areas, they tend to be quite small.

- One or two larger areas would be more useful for exercising dogs than four or five smaller areas, as it was rare all areas were in use at the same time. Two areas would be most ideal, as people would have their choice of areas to use, which would also provide more variability in their off-leash spaces.

- Areas between 3000 square feet and 43 500 square feet (1 acre) would be ideal, based on areas available to most shelters.

- It is recommended that areas be of basic shapes, for example rectangular or circular, to ensure best use of the whole space. Spaces in an “L” shape, for example, would be a less effective use of space.

Changing the spatial arrangement has the potential to reduce reactivity (which causes barking and stress) between dogs, especially those in kennels or runs that feature limited enrichment opportunities.

- Physically separate off-leash areas from each other and from the direct vicinity of outdoor runs
• Separating off-leash spaces would also improve disease control, as off-leash areas for intake dogs should also be isolated.

Barriers and Fences

If it is not possible to physically separate off-leash areas, providing visual barriers could also reduce reactivity. Contact between dogs (visual or physical) should be voluntary, to improve socialization or for exercise groups.

• An example might be a wooden fence, or mesh screening along the sides of a chain link fence to reduce visibility. An example of mesh screening can be seen in Figure 29, on the left hand side.
• Depending on the orientation of the site, barriers may also help to reduce wind and snow buildup.
• Fences should be 6 feet high, tipped at the top if the shelter is prone to housing climbers.
• Gates and fencing should be kept in repair, both to maintain the safety of dogs using the space, and to encourage “cues to care”, or the feeling that employees, volunteers and managers truly care for the site and all that goes on within it.
• The type of fencing can also provide an aesthetic component to the site. Solid, wooden fencing can assist in keeping visitors out of spaces they are not welcome in (for example, dog intake areas), or chain link or wrought iron fences could welcome people into play or meet and greet areas.
• Play areas should have double gates where possible, to ensure the safety of shelter dogs. Double gates are especially important in spaces where two or more dogs are playing off leash, as they allow one dog to be separated more easily. An example of a double gate can be seen in Figure 29, on the right hand side.
Winter and spring are difficult seasons when allowing dogs time outdoors. Ice can be dangerous for volunteers, and mud creates additional mess, adding to the workload of employees who try to ensure adoptable dogs are clean. Surfacing that reduces mud and ice in high traffic areas is an important component to outdoor spaces. Figure 30 is an example of mixed surfacing to improve drainage and reduce wear.

- Concrete is an ideal surface for high traffic areas, such as gateways and along fence lines if fence running is common.
- Gravel or mulch is suggested for wet areas or low spots within off-leash areas.
- Grass or mulch is ideal for areas that are not particularly high traffic or wet, as it is easy on the dogs’ bodies, attractive, and fairly easy to maintain.
- There are also options to be explored such as K9 Grass, a synthetic turf now in use at several dog parks in the United States; however, this option may be cost prohibitive.
Figure 30. An example of mixed surfacing, grass and gravel.

*Trails*

If a shelter does not have access to public parks and trails for use, they have potential to make decisions regarding paths and walkways used by volunteers, employees, and potential adopters.

- Walking areas should have a destination, for example a gazebo or bench.
- Based on the length of time volunteers spend with each dog, trails should take approximately 20 to 30 minutes to traverse.
- Opportunities should exist for variability within the trail, for example the choice of multiple trails or side loops.
- Even small platforms or rocks for dogs to jump on, or walk around, can improve the complexity of a walking area.
- Path widths should be adequately wide for easy maintenance and accessibility. A
width of one metre is recommended. Maintenance of areas on either side of the path should also be well-maintained to reduce the risk of ticks.

• Ideal surfacing of trails includes mulch, gravel or limestone screenings, which promote drainage.

Shelter

Shade was a popular and desired feature of both leashed and off-leash areas. Research also shows people prefer comfortable microclimates, as enhanced by shade. Figure 31 is an example of three shade structures on shelter grounds. Left and centre images are located within off-leash areas, the right image is more isolated and while technically part of a leashed area, there are no paths leading to the shelter.

• Provide shade and shelter in all outdoor spaces.
• There are opportunities to create shade by planting shade-heavy trees, constructing gazebos, or developing shade structures or screens.

Figure 31. Three examples of shade structures on shelter grounds.

In order to improve or maintain positive neighbor relations, and keep off-leash areas clean and disease free:

• Provide trash bins and bags for animal waste at regular intervals along the pathway.
• Ensure regular maintenance of bins, perhaps in cooperation with the local municipality if walking areas are off-site.

Providing multiple seating opportunities in off-leash areas, along walking areas, and in quiet spots on site is important. These areas create comfort for volunteers and employees, and add a bit of complexity to the environment, which benefits the dogs. Human comfort is important in such spaces, as canine use is dependent on human supervision.

• Examples of appropriate seating may include benches, picnic tables, individual or small groups of chairs. The top left image of Figure 32 shows a single chair in an off-leash area. The top right image is a bench in a leashed area, near the facility parking lot, that also provides an example of donor recognition. The bottom image gives another example of a bench, viewing outdoor cat social areas.

• Seating in both shaded areas (for summer use) and sunny areas (for winter use) would provide the best use of space.

• Opportunities also exist for donor recognition, in the way of donated benches, trail maintenance, or shade structures.

**Environmental Complexity**

Many years of research has shown how important enrichment is for dogs living in kennel environments. Enrichment opportunities should be provided in both leashed and off-leash spaces, if on site.

• This may include benches, or a variety of routes and loops in leashed areas.

• Enrichment can occur in the form of jumps or tunnels that can be moved and changed in off-leash areas, or built right into the ground. This could also include platforms, ramps, or similar structures for dogs to jump on or run around.

• Level changes in both leashed or leash-free areas also provide interest in an area, including small berms or larger hills within areas. Figure 33 shows an off-leash area interesting topography, giving the area more interest (left image). The image
to the right shows a combination of enrichment opportunities, including a chair, and a jump and a ramp utilizing hay bales.

- Olfactory enrichment is another aspect to potentially improve outdoor spaces. Depending on the climate of the shelter location, there may be potential for plants such as lavender or chamomile to be planted in the vicinity to outdoor spaces.

Figure 32. Three examples of seating.
Figure 33. Unique environmental enrichment (left, grassy hill; right, jump and ramp).
CHAPTER VII
CONCLUSION

There are a number of simple ways to improve employee and volunteer satisfaction with outdoor areas and provide improved enrichment and socialization for dogs. By providing appropriate seating and variety of enrichment opportunities for dogs, outdoor spaces can be improved tremendously. Many of these solutions are inexpensive, and shelters may have the opportunity to partner with local companies to receive reduced rates or free labour for components such as fencing or ground surfacing.

Interaction between people and dogs, as well as conspecifics, is important to shelter dog welfare. In Ontario most of the focus seems to be on socialization with humans, which is an important component of shelter dog welfare. However, in many shelters interaction between dogs occurs with less consistency, despite its beneficial effects of reducing stress and increasing sociability of dogs.

There might also be opportunities for members of the public to use off-leash spaces, for a small fee. There are precedents for this (City of Indianapolis, Edmonton Humane Society), in which off-leash areas are assigned a fee based on a certain length of time. By sharing off-leash spaces with the public or developing an additional off-leash space for public use, shelters could obtain an additional source of income, increase the number of visitors, and improve.

It would be beneficial to see more research completed on this topic. Gaps to be filled include the uses of meet and greet areas, including the potential to better design such spaces to be more multi-purpose. In addition, research focusing on how different dog breeds use outdoor spaces, and what types of environments would benefit specific dog breeds (for example terriers versus retrievers), would be useful. Additional information on the demographics of shelter employees and volunteers would also be beneficial when
designing specifically for the shelter environment.

Due to the increasing importance of dogs as part of modern families, shelter dog welfare will continue to gain prominence both in the field of research and in the design of public spaces. Dogs in any environment require socialization and enrichment to reduce stress, behaviour problems, and improve quality of life. Both public spaces and outdoor shelter spaces have significant potential to improve the lives of the dogs who use them, specifically by providing choices and allowing for breed-specific behaviours (such as retrieving and scenting) to improve the welfare of canines in general.

This research is significantly applicable to the field of landscape architecture. As the number of urban dogs is increasing, planning for canines in public spaces is a new aspect to public planning and design that will only become more prominent in the coming years. Much of this thesis (including dog and human needs) is applicable to public spaces in addition to shelters, for example dog parks or legal off-leash areas. There is also potential to work with boarding kennels and other large scale kennels to improve their use of outdoor spaces.
REFERENCES


APPENDIX

Managers

What I want: to find out basic information on the shelter, and how interactions with dogs are structured.

What is the minimum and maximum number of dogs you can house in your shelter at one time?

   How many dogs, on average are here at any time?

How many employees do you have?

   Animal care workers versus other employees?

   Full time versus part time?

How many volunteers (on average) do you have?

What is the square footage of the facility (indoor space)?

What is the square footage (or equivalent) of the site is devoted to dogs (outdoors)?

What is the size of the property?

Are dogs often housed together, or are they given time and space to socialize with each other on a regular basis?

Do the dogs spend time interacting with people daily?

   What does this interaction usually involve? (walking, playing, training, grooming, other)
Is there more interaction between dogs and employees or dogs and volunteers?

Can you explain?

Are there outdoor spaces available for:
  1) Walking
  2) Playing
  3) Training?

Are there indoor spaces available for:
  1) Walking
  2) Playing
  3) Training?

Do you think the spaces you have are suitable for your needs?

If not, how would you like to see them improved?
Employees

*What I want: to find out how outdoor spaces are used, what kinds of interaction occurs between dogs and employees, are employees satisfied with the spaces available*

Do you normally spend time with individual dogs?

- On a daily basis?
- For how long?

What activities do you do?
1) Walking
2) Playing
3) Grooming
4) Training/behavior modification
5) Other, please describe

Are there specific places on site where the dogs can be:
1) Walked
2) Played with
3) Play with each other
4) Trained
5) Other, please describe

Are these spaces multi-functional, or are they meant for individual purposes?

What is your favourite outdoor space at the shelter and why?
Are there other outdoor areas that might require attention? For example could use a re-design, added features, or just some sprucing up?

Do you think these spaces are comfortable for human users as well as the dogs? (examples: icy, muddy, windy, too hot in summer, etc.)
Volunteers

What I want: to find out how outdoor spaces are used, what kinds of interaction occurs between dogs and volunteers, are volunteers satisfied with the spaces available

How much time do you spend volunteering at the shelter on average every week?

Is there a minimum amount of time you are required to spend?

Is most of your time spent interacting with the dogs and cats, or do you have other chores as well?

How much time do you normally spend with an individual dog?

What activities do you do?

1) Walking

2) Playing

3) Grooming

4) Training/behavior modification

5) Other, please describe

Are there specific places on site where the dogs can be:

1) Walked

2) Played with

3) Play with each other

4) Trained

5) Other, please describe

Are these spaces multi-functional, or are the meant for individual purposes?
What is your favourite outdoor space at the shelter and why?

Are there other outdoor areas that might require attention? For example could use a re-design, added features, or just some sprucing up?

Do you think these spaces are comfortable for human users as well as the dogs? (examples: icy, muddy, windy, too hot in summer, etc.)

If you could change them in any way, how would you improve the spaces for walking, playing, and training?

Do you wish there were more specific spaces or better quality spaces on site?
Evaluation

*What I want: to find out what kinds of spaces exist on site, and the quality of the spaces. This includes both functionality and visual appeal.*

Are there separate spaces for walking, playing, training?

*Playing and Training*
For playing and training areas, how are they fenced? (height, type, entrance)

What are the surfacing materials of these areas?

Are these areas separate, or multi-use?

What is the proximity to outdoor runs/main transit areas?

What is the approximate size of these areas?

Is there any complexity to these areas? (level changes, toys, furniture, etc.)

Do these areas look well used?
Are they protected from the elements?

Walking Areas
Are there trails available, or specific locations to walk?

What is the approximate length of walk? Or are there trails of varying lengths?

Do trails feature garbage cans, places to rest (benches or rocks)?

Do trails pass through a variety of environments, with different amounts of activity?

Are there limitations to the trails in terms of disease control?

What is the surfacing material of the trails?

Are trails muddy, icy, windy, too hot, etc.?

Are they relaxing places for both humans and dogs?