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An Investigation Of The Design Criteria Of Dog Parks

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Abstract

The increased rate of dog ownership and the need for parks have been associated with increased demand for dog parks and an increase in the number of dog parks in the countries, where the same already exist. Dog parks serve to meet the social and behavioural needs of dogs beyond the private areas of the home, as well as providing the dogs with the opportunity to establish healthy communication with their owners and other dogs. This study aimed to investigate the criteria for a successful dog park design criterion. Accordingly, dog parks were investigated through certain research topics, including planning (accessibility, location, car parking and roads, other facilities) and design (entrances and exits, gates, boundaries, surface materials, activity areas, park furniture, planting). The study methodology included images, videos, articles, web pages, magazines, and books in the internet database to create a checklist upon literature review. The checklist was analysed against Hondo, Central, and River Bend dog parks in the USA. In conclusion, River Bend Park was inadequate in terms of planning compared to other parks and there were deficiencies associated with park furniture in all three parks.

Keywords: *Dog Park, Outdoor recreation, Urban space., Design*

1. INTRODUCTION

The rate of pet ownership has seen a boom especially in big cities as a result of the adverse economic developments and further impairment in the health status of individuals, the decrease in birth rates, and the decrease in the tendency to have a child. Furthermore, the increased proliferation of urban texture to the detriment of social settings and green areas available to residents and other living creatures have had an adverse effect on the life comfort. Many of the available outdoor settings are not safe for dogs, where the available parks and recreation environments seem to have been designed only for human ergonomics. Dog parks can allow pet dogs and their owners to socialise with each other and with other pet dogs and their owners. The dog parks directly or indirectly meet the natural needs of dogs as well as playing an important role with regard to dog training and community impact. Typically located in a public park and usually fenced, dog parks allow dogs running and playing off-leash with their owners and other dogs. Off-leash use in parks means that dogs are allowed without a leash within the boundaries of the dog park.

Playgrounds, football pitches, and picnic areas are considered important requirements in parks around the world. In addition to the foregoing incorporation of facilities for the use of dog owners was introduced as a new concept (Glasser, 2013). Planning (accessibility, location, car parking and roads, other facilities) and design (entrances and exits, gates, boundaries, surface materials, activity areas, park furniture, planting) principles should be taken into consideration in the

course of dog park design. Disabilities in pets can take many forms, including visible deformities (e.g. loss of a limb or an eye) and less obvious impairments such as deafness and anxiety (URL-1). A dog park should be designed so as to allow access to people with disabilities (e.g. people using wheelchairs or walkers). An accessible park surface features level ground or a suitable ramp system and doors with an appropriate minimum width.

The selection criteria of a dog park location include favorable topography, user accessibility, access to water for fountains, access to other park areas (if the site is located in an existing park space), and ease of inspection and maintenance. The parks should be located away from crowded roads or noisy areas next to industrial districts (Abban et al., 2022). Furthermore, the dog parks should not be located in the proximity of natural water sources, including rivers and lakes with an aim to minimize the transmission of zoonotic diseases (Procter et al., 2014).

Direct and safe access from the parking lot through the designated entrance of the dog park should be available. As a priority, park locations should be set close to existing road and footpath networks to provide people with ease in walking their dogs to the park (Dog and Cat Management Board, 2014). One out of every 20 parking lots must be reserved for disabled people, which would be marked with a disabled sign (Resmi Gazete, 2018). Human circulation outside the park increases safety in terms of daily surveillance and reduces the cost of infrastructure between the dog park and other facilities. The parking lots, lighting, and public toilets associated with dog parks helps the users in the vicinity to benefit from various activities and meet their respective needs (Dog and Cat Management Board, 2014).

The main entrance to the parking lot should be located near pedestrian crossings. Signage should be provided at the entrance informing users of safety arrangements and parking hours. Cycle parking spaces should be provided next to the park entrances in convenient locations for bicycles can be parked and locked. Litter bins should be located within the entrance area or adjacent to the dog park fencing near the entrance to encourage waste disposal and facilitate emptying. A separate entrance for maintenance vehicles should be provided away from the main gate (Lee, Shepley, Huang, 2009). Concrete or asphalt surfaces inside and immediately outside dog park entrances should be used for ease of maintenance, dog safety, and accessibility (FCPA, 2021). Access points in dog parks are the main exterior gates for the entrance areas, interior gates outside the entrance areas, and maintenance gates, which are usually twice as large or larger than the other gates and the locations of which are decided with the help of maintenance workers (Glasser, 2013). A section with double doors is better than a section with single doors. Double door system is more resistant to escape (Smith,2007). If a two-way entrance is made available, sufficient space should be designed to allow both exit doors to be fully opened without interrupting the rotation of the other doors (Doors should not open towards each other) (URL-2). Passage should be wide for dog owners with wheelchairs. Entrance doors should not have steps, as disabled pet owners should be able to enter the facility first (Glasser, 2013). Doors should have a latch lock for durability. All existing gates at the entrance should also have a board displaying parking rules (URL-3). A separate 2.8 meter wide lockable gate is recommended for maintenance access in designated dog areas (FCPA, 2021). It helps to benefit from various activities and meet the needs of users in the surrounding area (Dog and Cat Management Board, 2014).

Dog park fences should include both top and bottom rails and the bottom rails should be installed as close to the ground as possible. The height of the fence should be at least 1.5 m. When installing the fence, if part of the dog park runs along a wooded area, the fence can be set back 1.5-3 m, slightly inside the wooded line, as long as visibility is not affected (depending on the thickness or type of trees, shrubs, etc.) to monitor the dogs. 90-degree angles (and smaller angles) should be avoided in the design and shape of fenced areas (Glasser, 2013). Metal-type materials can withstand the impact, chewing, and wear and tear that dogs apply to fences. Wooden or plastic fences are vulnerable to a number of types of damage (URL-4).

The surface materials of the dog park are considered an important factor, which would affect the total construction cost. A large number of users can inflict damage to certain surfaces increasing the final cost.

Surfaces in common use for dog parks include mulch, decomposed granite, turf, and artificial grass (Melnick, 2013). Well-draining, durable, and all-weather materials with good drainage are essential for high-traffic areas such as safety airlocks. Drainage, topography and maintenance requirements as well as intensity of use should be taken into consideration, when selecting surface materials (Dog and Cat Management Board, 2014). The suitability of grass depends on the size of the park and the number of users (Brown, 2012). Pea gravel needs to be replaced periodically, but the maintenance requirements are lower compared to grass (Allen, 2007). Synthetic turf may be considered for partial dog parks but is not recommended as the primary surface material for the entire dog park (FCPA, 2021).

People tend to gather and socialize around the seating area (Smith, 2007). Seating spaces should be located in shaded areas and organized so as to facilitate conversation and personal contact (Hutchinson, 1994). Each seating area should be strategically positioned to provide a view of the activity (Melnick, 2013). Activity zones can be created by using mounds of soil or vegetation to create visual barriers within the park to prevent dogs from running towards and bumping into each other (King and Long, 2004). Dog parks should have areas to accommodate both small and large dogs (Lee et al., 2009). The agility area should be surrounded by fences. The basic components that should be included in these areas are jumps, platforms, obstacles, tunnels, bridges, circles, sandboxes, ramps, and running paths (URL-5). The lack of shade and seating in the agility area forces people to go to certain parts of the park areas (Melnick, 2013). In the agility area, the use of decomposed granite material can be recommended to minimize damage associated with high activity. All equipment and amenities in a dog park should be placed primarily on a hard surface for ease of maintenance.

As regards bench placement, it should be ensured that shade is provided in summer and to maximize sun exposure to the highest level during winter (Lee et al., 2009). Benches and tables should be mounted on a concrete surface where possible (FCPA, 2021). Shade should be provided so that dogs can rest, cool off, and be protected from adverse weather conditions. Trees are preferred as a natural source of shade, but they may need protection against dog urination during their growth (Dog and Cat Management Board, 2014). Securing new trees and fencing around them prevents damage, especially due to urine. There should be security lighting available for the entrance and parking ~~area~~ lot (Lee et al.,2009). Solar powered lighting can be used as a sustainable and low maintenance lighting solution (URL-6). Agility equipment should be robust, professional, and of commercial quality (i.e. not home-made). The fountain should be placed on a free-flowing, accessible concrete pad (FCPA, 2021). -Fountains should be designed to serve both dogs and users, approximately two per 15,000 meter squares (Brown, 2012). A hose is a plus in a typical installation for drinking water (Smith, 2007). Bins should be located within the entrance area or adjacent to the dog park fence near the entrance to encourage waste disposal and facilitate emptying. Some dog park waste bins provide only a gaping hole for the deposit of used bags and have no lid. This may cause problems associated with odor. The park should have at least two signs and ideally a notice board (Glasser, 2013). During the planning and design of a new dog park, the inclusion of a toilet was found to favor other uses of the park (FCPA, 2021).

Shrubs inside the parks should be regularly removed and weeds and vines should be cut back before they overgrow. Plant material that is native, low maintenance, and not harmful for dogs (low toxicity, thornless, etc.) is recommended (FCPA, 2020). Some bulbs, such as members of the lily family, are poisonous and should not be planted for ornamental purposes nearby a dog park. Plants can be planted along fences to prevent aggression towards dogs from outside the park (Allen, 2007). If a plant is prone to being chewed or damaged due to dog activity and urine, a small fence may prove to be the best option (Melnick, 2013). The structure of the tree (whether it will drop seeds or leaves) can be a burden for maintenance and in some cases can be a hazard or hide elements on the ground due to litter (Austin, 2002).

Although dog parks, the first steps of which were taken in the USA in 1979, have a history of 44 years, their

importance has increased since then and continued to be popular since the 2000s. The number of dog parks increased especially in countries with advanced economic development and social welfare. The present study aimed to investigate the design criteria for dog parks based on dog park examples in order to fill the gaps in the literature.

2. METHOD

2.1. Research Areas

Hondo Dog Park is more advantageous compared to other dog parks in question in terms of its location. There are many recreation areas, baseball fields, and football (American football, rugby) stadiums around it, making Hondo Dog Park more prestigious. During the course designing, the concept of user accessibility was attached importance. The park has its own parking lot. Here, vehicle spaces are also reserved for disabled people. Having easy access to bicycle paths and highways and being far from surrounding residential areas is indicative of the importance of site selection in design. Surface material choices and planting were considered and implemented in more detail compared to other parks. The integration of various activity areas and entrances are sufficient according to the criteria. Planting efforts aimed to provide both aesthetic and functional benefits. Maintenance and utilization inside and outside the park are carried out regularly. Generally, the park featured 3 sections including a playground, small dog area, and agility area. The dog playground is enriched with piles of soil and slopes aimed to prevent harm each other and avoid hindering the owners' viewpoint. It is possible to safely pass directly from the parking lot to the entrance gates.

Central Dog Park is located in the State of Texas. Texas is the most populous state after California and the largest state after Alaska (URL-2). Its size and population give a rise to the need for dog parks. Central Dog Park, a sub-facility of Slator Park in the State of Texas, meets the dog park needs of the neighboring residences in its vicinity. It has its own parking lot with certain lots reserved for the disabled individuals. Passage from the parking lot to the dog park is direct and easy. The grid system of the perimeter planning provides the users with convenien transportation. Slator Park's other sub-facilities, including the basketball court and children's playgrounds are close to the park, which adds to the prestige of the park. The surface material is comprised of gravel and weeds. The park includes 2 sections, i.e., the small dog area and big dog area. It has the same average size in meter squares. There are deficiencies compared to Hondo Dog Park, which include lack of afforestation, park furniture, agility area, and correctly orientated benches, where the presence of picnic tables is considered a disadvantage.

River Bend Dog Park is located in the State of Wyoming in the United States. The state of Wyoming is under the influence of continental climate due to its location. Climatic conditions in Wyoming climate are dry and windy. River Bend Dog Park was opened in 2015 according to the available data. It has many social areas in its surroundings. There is a high school, a hospital, a football field, hotels, and an airport 1.06 km north-west of the dog park. The Bighorn River runs through the city to the east of the park. This 1700-m^2 park, is in many ways considered an inadequate and dangerous park. The presence of the railway line to the west of the dog park, the Bighorn River to the east, and the motorway to the south of the park, which is about 5 m from the fence, make the park exposed to danger. The distance of this dog park from residential neighborhoods prevents residents from being adversely affected by dog noises. It is seen that there are deficiencies in surface coatings and landscaping.

2.2. Methodology of the Research

In the scope of the study, a checklist was created in the light of The Americans with Disabilities Act (ADA) standards, American Society for the Prevention of Cruelty to Animals (ASPCA), City Parks, Recreation and Waterfront Commission (CPRW), Fairfax Country Park Authority (FCPA), The Assocation of Professional Dog Trainers (TAPDT), studies of guidelines, organizations and foundations and academic studies to analyze the adequacy of the spatial design principles of dog parks with an aim to suggest dog park design criteria. Data for the checklist in question were collected by using images,

Table 1. Research Areas (URL-7; URL-8; URL-9; URL-10; URL-11; URL-12; URL-13)

	Hondo Dog Park	**Central Dog Park**	**River Bend Dog Park**
Location	Hillsboro, Oregon, United States	Odessa, Teksas, United States	Thermopolis, Wyoming, United States
Coordinates	45°33′10″N 122°54′36″W	31°52’24.0”N 102°23’45.0”W	43°38’59”N 108°12’01”W
Area	3.75 acres (15,200 m^2)	3.13 acres (12.700 m2)	0.42 acres (1700 m2)
Created	2007	2017	2015
Amenities	Bicycles Allowed Dog Park Lawn Parking Paths & Walking Trails Shade Structure	Parking Bicycles Allowed Dog Park	Gravel Dog Park Recreation Areas
			
	Hondo Dog Park	Central Dog Park	River Bend Dog Park

videos, articles, web pages, magazines, books, satellite images in the Internet database. The checklist allowed an analysis of dog park planning (accessibility, location, car parking and roads, other facilities), design (dog park entrances and exits, gates, boundaries, surface coatings, activity areas (resting areas, play areas, agility area, maintenance area), park furniture (benches and tables, shading elements, lighting elements, agility and play equipment, fountains and fountains, covered garbage bins, waste bag stations, signboards, optional equipment (sculptures, figures, WC), and planting topics.

The three case study areas were taken from three different locations across the United States, considering their dog park design suitability including Hondo Dog Park in the State of Oregon, Central Dog Park, which is a sub-facility of Slator Park in the State of Texas, and River Bend Dog Park in the State of Wyoming.

The checklist took a total of 150 points in assessment; the headings were evaluated over different points by degree of importance, scope, and number of subheadings as follows, planning (24p); accessibility (3p), location (11p), car parking and roads (6p), other facilities (4p) were scored. Under the main heading of design (126p); dog park entrances and exits (20p), dog park gates (16p), boundaries (11p), surface materials (6p), activity areas (29p), park furniture (28p) and planting (16p).

3. RESEARCH RESULTS

Dog Park Entrance and Exits

There are 3 different entrance areas through the parking lot in the Hondo Dog Park; transition points to the agility area, main playground and small dog area. The width of the entrances is sufficient. Hard floor surface coating is used in the passage area. In the Central Dog Park, there is a single passage area from the parking lot to the dog park. This passage is divided into two and one of the doors opens to the small dog area, where the other to the large dog area. There is immediate and passage direct access from the parking lot. Hard floor surfacing is used in the passage area. River Bend Dog Park does not have a passage area. Access is provided directly through a gate. No surfacing is available.

Dog Park Gates

Hondo Dog Park has a total of 6 access area doors and 1 service (maintenance) door. Each of the doors is compliant with latches and locks. Suitable for the access of disabled individuals. Doors are made of durable material. Due to the short fences, the gates are short against the standards (1.5m). There are required signboards on the doors. There are a total of 4 access area gates and 1 service (maintenance) gate in the Central Dog Park. Each of the gates is compliant with latches and locks. Door height is suitable. The area designated to the dogs by weight is shown with signs on the gates. River Bend Dog Park has 2 normal entrance gates and 1 service (maintenance) gate. Each gate is self-latching and lockable. Features suitable width for the passage of disabled individuals. The gates are made of durable material. There are no rule signs on the gates.

Fences

The fence height at the Hondo Dog Park is less than 1.5 metres. The fences provided in the Central and River Bend Dog Parks are at the appropriate height. Chain link fences are used in all three parks. The fences are made of durable materials and there are warning and directional signs on the fences. Fences are used so that the back of the fence is visible.

Hondo Dog Park	Central Dog Park	River Bend Dog Park

Figure 1. Dog Park entrances (URL-7; URL-11)

Hondo Dog Park	Central Dog Park	River Bend Dog Park

Figure 2. Dog Park gates (URL-7; URL-11)

Surface Materials

Surface materials are used in accordance with the standards in Hondo Dog Park. Parking lot surface material and entrance points are made of hard surface materials. Pea gravel is used in the agility area. Natural grass was used in the playgrounds. Hard surface coatings are used in the fountain sections to prevent muddying and to help the drainage system. Hard surface materials were used on the walkways within the park and the road was free of obstacles. In the Central Dog Park, hard surface materials were used in the car park, passage area and seating area. Natural vegetation is dominant throughout the park. Natural grass occurs upon greening of seeds in summer and soil appears during winter. ·There is gravel on the ground of agility equipment in River Bend Dog Park. There are no surface materials in other parts of the park. The ground consists of soil and weeds.

Activity Areas

Hondo Dog Park has a playground, recreation area, agility area, and grooming area as activity areas. Access to each area is provided through different doors. The agility area meets sufficient acreage criteria. There are enough seating areas in the recreation area. Playgrounds make up a large part of the park. ·Central Dog Park has a resting area, playground, and a maintenance area. There is no agility area. The playground consists of 2 sections separated by a fence for larger and smaller dogs. The average acreage of the two sections is close to each other. The lack of play equipment in the playgrounds is considered a deficiency. The seating areas are designed with a roof cover to provide shade. River Bend Dog Park consists of an agility area and a seating area. The park consists of a single section. The lack of a grooming area and play areas is a deficiency. There is a grooming (service) gate and optimum width is provided. The seating area is not supported by planting or a roof cover such as an awning. It is unsuitable for and unprotected against climatic conditions. A sufficient number of agility equipment is provided in the agility area.

Park Furniture

In the Hondo dog park, benches, and tables are directed to the activity areas of the dogs. The absence of picnic tables is an advantage. Park furniture is anchored to the ground and fixed to the ground. Shade is provided to the seating areas by means of planting and roof systems. Agility and play equipment are used. Fountains do not exceed 80 cm and drainage systems are provided. Waste bag stations are used in the correct location, number and competence. Litter bins are covered but there are no lids for odor emission. There are signboards in many parts of the park and there is a notice board, which is not

Figure 3. Dog Park activity areas (URL-7; URL-11)

available in other parks. Fire hydrants and figures were used as optional equipment. Dog figures are used on the rubbish bins and fire hydrants. There is a portable toilet cabin outside the park (in the parking lot).

The seating areas are covered with a roof system. There is no agility and play equipment. Fountains do not exceed 80 cm and drainage systems are available. Waste bag stations are available. The number of rubbish bins is sufficient but without lids. There are signs on the fences and gates of the park, but there is no notice board. No sculptures were used as optional equipment. The figures are located at the entrance of the park as dog paws on the ground. There is no WC inside or outside the park.

Figure 4. Hondo Dog park furniture (URL-7; URL-11)

Figure 5. Central Dog Park furniture (URL-7; URL-11)

Apart from the picnic tables, there is one bench facing the agility area. Picnic tables are not anchored or fixed to the ground. There is no roof cover or planting in the seating area. Agility and play equipment are available. There are no drinking fountains pursuant to the specified standards. Waste bag station is available. There is a rubbish bin, but there are no lids to cover it. There are signs on the fence of the park, but there is no notice board. None of the optional equipment is available.

Figure 6. River Bend Dog Park furnitures (URL-7; URL-11)

Planting

Planting and landscaping are considered very important in Hondo Dog Park. The planting do not cause any obstacles against visibility. At the same time, there are no trees and vines that will prevent the view of the signs. Trees provide shade for the seating units. There is afforestation and planting inside and outside the park. There is a rich plant diversity. There is an area of planting used as a memorial and is surrounded by fences. In the Central Dog Park, there are irregularly arranged trees. These trees do not provide shade for seating areas. Dog urine resistant trees are used. River Bend Dog Park has no vegetation except for one perennial tree.

Figure 7. Dog Park Plantings (URL-7; URL-11)

Table 2. *Evaluations of dog parks*

	Total	Hondo Dog Park	Central Dog Park	River Bend Dog Park
PLANNING				
Accessibility	**3**	**3**	**3**	**2**
Level passage or ramp support at crossing points for dogs with disabilities	3	3	3	2
Location	**11**	**10**	**11**	**1**
Park layout on flat topography	3	3	3	1
Proximity to other parking areas / Located in an existing park	2	2	2	0
Residential units within 200 feet (60 meters)	1	0	1	0
5-10 meters access distance of the park entrance to the highway	1	1	1	0
The roads and trails in the park are free of obstacles	1	1	1	0
200 feet (60 meters) of public spaces	1	1	1	0
Recreation areas within 200 feet (60 meters)	1	1	1	0
No water sources, such as rivers and lakes within 200 feet (60 meters)	1	1	1	0
Parking Lots and Roads	**6**	**6**	**4**	**1**
Direct access from the parking lot to the park	2	2	2	1
A minimum of 1/20 lot allotted for disabled individuals in the parking lots	2	2	2	0
Traffic lights available on the street close to the park entrance	1	1	0	0
Pedestrian crossing within max. 100 meters from park entrance	1	1	0	0
Other Facilities	**4**	**4**	**3**	**0**
Availability of sports activity areas outside the park boundaries (courts, bicycle tracks etc.)	1	1	1	0

Water, electricity and drainage system	2	2	2	0
Public toilets inside or outside the park	1	1	0	0
Dog Park Entrances and Exits	**20**	**18**	**16**	**3**
Provision of multiple entry/exit points	3	3	2	0
At least 2.5 m x 2.5 m area surrounded by two main fences at crossing points	3	3	3	0
Lack of physical structures and facilities such as shelters, benches at entry/exit points	2	1	2	0
Establish entry/exit points away from corners and main activity areas	1	1	1	0
Separate entrance for maintenance vehicles away from the main gate	1	1	1	0
Hard surface coating (concrete, asphalt, etc.) inside and just outside the entrances	3	3	3	0
A sign informing about safety regulations and parking hours	2	2	2	1
Availability of a notice board	2	2	0	0
Cycle parking spaces at the park entrance or in the parking lot	1	0	0	0
Positioning litter bins within the entrance area or adjacent to the dog park fencing	2	2	2	2
Dog Park Gates	**16**	**16**	**15**	**11**
Two sets of doors with self-latching	2	2	2	2
Doors are lockable or have child locks	2	2	2	2
For wheelchair passage min. 815 cm wide door	3	3	2	1
The disabled person is at a height (100-110 cm) to reach the door lock	2	2	2	2
Made of durable material (metal, aluminum, etc.)	2	2	2	2
Availability of large and small dog park gates	2	2	2	0
Rule signs and illustrations on large and small dog park gates	1	1	1	0
A separate 2.8-meter-wide lockable door for maintenance access	2	2	2	2
Fences	**11**	**8**	**9**	**8**
Fences at least 5 feet (1.5 m) tall	3	1	3	3
Installing gates on the flat part of the fence	1	1	1	1
Fences do not make 90-degree angles (oval design is preferred)	1	0	0	0
Choice of a durable material (steel, aluminum)	2	2	2	2
Semi-permeable fences for visibility	2	2	2	2
Use of plants around the fence (length, density and species)	2	2	1	0
Surface Materials	**6**	**6**	**4**	**0**
Use of hard surface materials (concrete, asphalt, etc.) in dense circulation areas	3	3	3	0
Use of materials that do not affect dog health (natural grass, artificial grass, separated granite)	2	2	1	0
Use of low-cost materials (sand, pea gravel, sawdust, EWF)	1	1	0	0
Activity Areas	**29**	**28**	**12**	**15**
Provision of seating areas and lack of picnic tables	4	4	2	1
The movement area in the center of the large dog area away from the small dog area	2	2	0	0

Integration of seating areas with shading elements (trees, roofs, gazebos)	3	3	3	0
Direction of banks towards areas of activity	2	2	0	0
Seating units made of durable materials (aluminum, steel)	2	2	2	2
Use of earth mounds or natural vegetation in playgrounds	1	1	1	1
Separate areas for large and small dogs	3	3	3	0
Play equipment suitable for small dog ergonomics	2	2	0	2
Play equipment suitable for large dog ergonomics	2	2	0	2
Availability of agility space	2	2	0	2
Availability of agility equipment	1	1	0	1
Unobstructed view from the seating units to the agility area	1	1	0	1
Presence of seating units in the agility area	1	1	0	1
Use of material (such as split granite) to minimize damage in the agility area	1	1	0	1
Fixing parking equipment to a hard surface	1	1	1	1
The presence of sandboxes	1	0	0	0
Park Furniture	**28**	**24**	**17**	**7**
Benches and tables away from the entrance (min 5m)	3	2	3	0
Availability of specially designed benches (specific dog metaphor)	1	0	0	0
Use of shading elements in the seating area	4	4	4	0
Use of lighting elements	2	1	1	0
Use of solar lighting elements	1	0	0	0
Use of professional agility elements	1	1	0	1
2 dog fountains per 4 acres	2	2	1	0
Locating dog fountains away from the entrance	1	1	0	0
Finding hoses in dog fountains	1	0	0	0
Drinking vessels not exceeding 80 cm in height	1	1	1	0
Availability and number of covered garbage bins	3	2	2	2
1.5 Waste bag stations per acre	2	2	2	2
Notice board and at least 2 signs	2	2	1	1
Presence of fire extinguishing equipment	2	2	1	1
Use of sculpture in the park	1	1	0	0
Use of figures in the park	1	1	1	0
Planting	**16**	**13**	**10**	**8**
Plantings do not interfere with signage and visibility	2	2	2	2
Use of dog-friendly plants	3	3	1	1
Fencing around the trees	2	1	0	0
Use of trees for shading	2	2	0	0
Low-maintenance plant use	2	1	2	0
Use of weather-resistant plants	2	2	2	2
Using plants resistant to dog urine	3	2	3	3
TOTAL	**150**	**136**	**104**	**56**

4. DISCUSSION

This study aimed to develop dog park design criteria upon an investigation of the standards for dog park design with an aim to improve the quality of dog parks and create dog park design strategies by focusing on Hondo Dog Park, Central Dog Park and River Bend Dog Park examples in the United States.

The first dog park was officially opened in 1983 and the dog parks proliferated across America between the years 1980 and 2000. Pairwise comparisons showed that residents living closer to a dog park perceived it as more beneficial in terms of human health, social interaction with neighbors, and property value compared to other residents in the community (Lee et al., 2009). Specifically, the presence of an off-leash dog park within 1.6 km of residence positively contributed to the frequency of walking dogs in a typical week. Residents without dogs may also benefit because well-exercised dogs are less likely to bark (Stecchi, 2006). From a community perspective, dog parks can encourage responsible pet ownership and contribute to building a sense of community (Batch, 2001).

Hondo Dog Park is a successful dog park in terms of design criteria compared to the Central and River Bend Dog parks. The park furniture in use featured a successful design compared to other parks in a number of aspects, including choice of material and planting. Design strategies for dog parks should aim to reinforce those benefits and reduce the associated problems. Providing multiple entrances and direct access from the parking lot is an advantage. It is also an appropriate practice to position the service entrance separately from other entrances. It was a disadvantage that the fences in the Hondo Dog park were set at a height below the standards. The use of trees and roof cover in shading was correctly implemented. A canopy should be provided so that dogs can rest, cool down, and be protected against bad weather conditions. Trees are preferred as a natural source of shade, but they may need protection against dogs due to urination until they can grow resilient (Dog and Cat Management Board,2014). There is a variety in terms of choice of material and the correct use thereof. Its proximity to the recreation areas added to the prestigious status of the dog park. The suitability for use by disabled individuals was taken into account. The presence of an agility field was considered an advantage, but there was no equipment available in the playgrounds. The game elements found in larger dog areas can be created in the form of high hoop jump, dog seesaw, high obstacles, and platforms with 5 or more steps (URL-14).

According to the checklist, the Central Dog Park was a less successful dog park compared to Hondo Dog Park and a very successful dog park compared to River Bend Dog park. For the Central Dog Park, it was a correct practice to have the seating units away from the entrance of the park, but it was a disadvantage that the dog fountains were close to the entrance. The lack of seating units, game elements, and agility elements across the park is considered a disadvantage. Play equipment motivates dogs and their owners, helping dogs with becoming more self-confident (Allen, 2007). In the parking lot, space was reserved for the vehicles of disabled individuals and hard surface material was used. The entrances to the dog park complied with the specified standards of level entrance. Small and large dog playgrounds of the dog park had the same acreage on average. Although the fence height surrounding the park is considered adequate, a separate place was allotted for use as the entrance of the service gate. Lee suggested that a separate maintenance door entrance should be provided for maintenance vehicles away from the main door (Lee et al, 2009). The trees were not surrounded by fences. Planting new trees inside fences can prevent damage, especially due to urination. is the park was located close to the residences. The presence of a park nearby with subunits, which used a common infrastructure reduced the cost.

River Bend Dog Park is a failed dog park in many respects compared to the other two dog parks. The dog park area consists of a single section. The design of the dog park area, which can be in almost any configuration, should include three areas: a passage or entrance area, an area for larger or all dogs, and an area for small dogs (Glasser, 2013). The material in use and height of the Dog Park fences were suitable, but the places that need repair on the fences and the dog

park should be maintained periodically. The size, type, and location of maintenance (service) doors should be determined with the help and input of employees, who would be responsible for maintenance tasks. Ideally, all the equipment and amenities in a dog park should be placed on a hard surface, primarily for ease of maintenance. Possible site locations with appropriate topography, accessibility, access to water for sprinklers, other parking areas (if the area is in an existing park), proximity to neighbors, and ease of inspection and maintenance should be considered. The final location selection should be determined with the help of the municipality's parking specialists. Dog parks provide an accessible place for apartment dwellers, the elderly and disabled pet owners to provide their dogs with the opportunity to exercise (Glasser, 2013). Puppies, dogs with disabilities, dogs in training, and some breeds need a safe (fenced) area. Common deficiencies were identified for the Hondo, Central and Bend River Parks, upon assessment and recommendations were made, taking into account their respective advantages and disadvantages. It is necessary to provide parking space for bicycles, scooters, and motorcycles in the parking lot for visitors using two-wheeled vehicles in these dog parks, and posts that can be locked for these vehicles should be placed in the parking area. For the safety of dogs, the park corners should have an oval design (the inward-facing side of the 90-degree fence should be mounted with oval parts of the same material).

Adding play elements to the smaller dog area will also help small dogs meet their daily exercises. It is necessary to add a sandbox to prevent the toilet needs of dogs from damaging other park furniture and surface materials. Although there are garbage cans in all three dog parks, they must be closed with a lid to prevent odor, image pollution, and wetting of garbage in case of rain. Adequate lighting elements should be provided in these dog parks and they should be supported by solar systems to contribute in sustainability. The availability of a hose in dog fountains is an important factor in terms of hygiene and should be present in fountains. The use of figures and sculptures (optional) that will evoke the dog park in all three dog parks will increase the prestige of the dog park. Shortcomings were identified in the use of dog-friendly plants in planting.

Table 3. Summary e*valuations of dog parks*

+	Hondo Dog Park			Central Dog Park			River Bend Dog Park		
	Bad	Medi-um	Good	Bad	Medi-um	Good	Bad	Medi-um	Good
Planning									
Accessibility			✓			✓		X	
Location			✓			✓	X		
Parking and Roads			✓			✓	X		
Other facilities			✓			✓	X		
Design									
Dog Park Entrances and Exits			✓		X		X		
Dog Park Gates			✓			✓		X	
Fences			✓			✓		X	
Surface Materials			✓	X			X		
Activity areas			✓	X				X	
Park furniture		X		X			X		
Planting			✓		X			X	

5. CONCLUSION

The present study aimed to contribute in the relevant literature with preliminary data for future studies by suggesting criteria for consideration during the design stages of dog parks based on the examples of Hondo Dog Park, Central Dog Park and River Bend Dog Park, and it is aimed to create. As a result of the study the planning and design of River Bend Dog Park was inadequate compared to other parks in question, and it was necessary to add urban furniture in all the three parks.

In conclusion, this study makes an important contribution to the relevant literature in terms of suggesting a checklist that can be used to improve and increase the quality of use of dog parks, mainly from a design point of view, and improve the comfort of park visitors. The resultant checklist if used during the design stages of a dog park can prove to be important in improving the quality of dog parks.

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