Converting a Barn to a Shelter for Rutgers University

A Temporary Solution to the Animal Overpopulation Problem

Tag Words: Animal shelter; Rutgers University; Conversion of barn to shelter; New Brunswick animal shelter; Companion Animal Science experience; Animal Science Program; Volunteering at shelters

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Summary (BBW)

Since the community of New Brunswick does not have an animal shelter, we are working to draw up plans to convert an old barn across Route 1 into a shelter and training facility. The general idea for this project is to construct a building plan to convert a barn at Rutgers University into an Animal Shelter. We will review the animal shelter regulations for the state of New Jersey, observe operating shelters in order to see which design options work best, research current animal shelter statistics to evaluate whether or not there is a need for an animal shelter, develop supportive reasoning for why having a shelter on campus would be beneficial, and submit our ideas to the appropriate parties.

Video Link:

Rutgers Animal Shelter: http://www.youtube.com/watch?v=wPkJXXxMzGw
The Issue: Barn to Shelter

Introduction (LT)
Animal overpopulation has long been an issue in the United States, especially in urban areas. Besides living a very harsh life, stray companion animals run a higher risk of carrying and transmitting disease, reproducing, and starving to death. It is critical to find homes for these animals: to adopt them and get them off of the street, and into a safe and healthy living environment. In addition to the shelter itself, having a space that will be able to train companion animals in the service field will be beneficial, as well as provide students with hands on experience. Providing training to companion animals for service is something that is unavailable in this area, however properly trained animals are always in demand. After completion of this project, the shelter and training facilities this space will offer will make a unique addition to the Rutgers community, and also the surrounding areas of New Brunswick.

Therefore, we are proposing a design of a current existing structure to be transformed into a shelter and training facility. Already having the structure and the large surrounding spaces open, make this a good location for our project. Further, we will discuss the care needed for the animals in a place such as this, regulations the state of New Jersey requires, and produce a possible architectural design that we are considering. This design will incorporate all the regulations, and include some suggestions we have received from local animal shelters in the area that they would apply to their locations if they had the chance. The contributions of our efforts will be forwarded to the Animal Science faculty and others involved in getting this project off the ground. We intend for our designs to help the busy faculty with design options, and also give them additional input that otherwise would not be available.

Animal Statistics for the United States (BBW)
- It is impossible to determine exactly how many stray dogs and cats live in the United States; estimates for cats alone range up to 70 million.
- The average number of litters a fertile cat produces is one to two a year; average number of kittens is 4-6 per litter, now multiple that by 70 million: if each stray cat had one litter, that comes out to 280-420 million kittens and to 560-840 kittens if each stray cat had 2 litters.
- The average number of litters a fertile dog produces is one a year; average number of puppies is 4-6.
- Owned cats and dogs generally live longer, healthier lives than strays.
- Most strays are lost pets who were not kept properly indoors or provided with identification.

Animal Shelter Statistics (BBW)
- Only ten percent of the animals received by shelters have been spayed or neutered. About 75 percent of owned pets are neutered.
- The cost of spaying or neutering a pet is less than the cost of raising puppies or kittens for a year.
Five out of ten dogs in shelters and seven out of ten cats in shelters are destroyed simply because there is no one to adopt them.

These statistics were taken from the ASPCA website, and if you are interested in learning more, the website URL is: http://www.aspca.org/about-us/faq/pet-statistics.aspx

Reasons to Have a Shelter (KE)

An animal shelter on campus would be a highly beneficial addition to the Rutgers University - New Brunswick campus. There is already a well-developed Animal Practicum program in effect that would provide the shelter with a constant source of volunteer employees. The students would also benefit from volunteering by gaining more hands-on experience with a wide variety of companion animals. The shelter would also provide a home for the significant number of feral cats that live both on campus and within the city of New Brunswick, and a spay and neuter program would help reduce the feral animal population. Another benefit to enacting an animal shelter would be that it would draw funding from major organizations that support the creation of animal shelters and also draw attention and publicity for the school. There are many positive effects that can come from converting an existing barn at Rutgers University into an animal shelter, not only for the students that attend the university, but also for the New Brunswick community and the surrounding animal population.

Students within certain science majors at Rutgers University are required to complete nine experience based education credits before they are able to graduate. Students can fulfill these credits by assisting a professor with research, participating in a Co-op program off-campus, or by working with the research animals that are located on campus, which is also referred to as participating in an Animal Practicum. Currently Rutgers University has Animal Practicum’s for dairy cattle, equine, pigs, sheep and goats. When undertaking an Animal Practicum, students help with the general care and maintenance of the species of their choice and their respective facilities. If a Companion Animal Practicum was enacted, students would be able to provide the shelter with a constant source of volunteers who are willing to assist the facilities employees. There already has been expressed interest in the expansion of companion animal science studies at Rutgers, by the creation of a new Animal Science concentration that focuses specifically on companion animals. Since there was enough interest to create a concentration devoted to these particular animals, it can be concluded that students would also be interested in learning more about them through an experience based education class, such as a practicum.

The addition of another animal species that the students can work with on campus is a perfect way to provide more opportunities for those who attend Rutgers University. For example, veterinarian schools highly favor applicants that have worked with numerous different species and a shelter would allow the possibility to work with both dogs and cats. Different programs within the shelter could also be initiated that would allow students to learn and observe how to perform routine procedures on the animals, learn how to teach animals basic training, and watch routine surgeries. Some of the routine
procedures that students could learn are; how to clip a dog or cats nails, how to properly restrain an animal, and how to insert an intravenous line into an animal. Once animals are in proper health, students could begin to work one-on-one with them and prepare them for their future homes. With the supervision of a trained employee, students could learn how to properly train an animal in some basic behaviors that will make it easier for them to be adopted. Some examples of these behaviors are; paper-training, sit, stay, and come. The students could also shadow a veterinarian when they perform a spay or a neuter on an animal. These experiences will not only help students decide if working with animals is right for them, but it will also provide them with valuable volunteer experience that may help them get a job later on in life.

Instilling a spay and neuter program would, in addition to providing students with important information about the reproductive anatomy of the animal, be an efficient way to decrease the stray animal population of New Brunswick. Even if the shelter could not house all of the animals, and created a spay and neuter release program, which would release the animals back into the community after they have properly healed, this would still have a tremendous affect on decreasing the feral population by decreasing the amount of feral litters. This will reduce the risk of both students and community-members coming into contact with possibly dangerous animals. Also, those who have severe animal allergies would benefit from the decreased chance of exposure.

Many colleges have clubs that will send volunteers to animal shelters or other animal organizations or co-op programs that will allow students to intern at a vets office, but very few have animal shelters located on campus. The University of Washington, located in Seattle, has an organization called ‘Friends of Campus Cats’ which is an all-volunteer organization that feeds and captures the stray animals found on campus, brings them to a veterinarian for check-ups and neutering, and if they can be socialized, are then put up for adoption. They have had tremendous success up to this point reducing the number of feral cats on campus and have found many loving homes for the cats they rescued. Rutgers University could be one of the first campuses nationwide to have an animal shelter located on campus that accepts both dog and cats. This would be a huge advantage to the university because many perspective students who either want to pursue a career involving animals or simply love being around animals would think of this as a huge positive.

There are also many organizations that are willing to donate money to fund those who wish to build an animal shelter, or that are willing to publish articles relating to the shelter. Government grants can be applied for by the university, which will lighten the financial cost of converting a barn into an animal shelter. Other funding opportunities can come from known animal welfare organizations such as; The Humane Society of the United States, American Society for the Prevention of Cruelty to Animals, or Animal Welfare Trust. Also, in response to the editorial written to DogFancy, the editor has expressed interest in an article regarding an on-campus shelter, and has asked to be notified when the project is completed. An article within a well-known magazine would create a large amount of publicity for Rutgers University and would possibly entice more potential students to apply to the school.
New Jersey Animal Shelter Regulation Review (KE)
Information on New Jersey Shelter Regulations can be found at the Animal Welfare Federation of New Jersey’s website (http://www.awfnj.org/?page_id=20).

A summary of the regulations are:

- **General Facilities**
The housing facility for the animals will be kept in good repair and will prevent the entrance of other animals, there will be access to an adequate amount of drinkable water, and the food and bedding for the animals will be kept in a location that will prevent any contamination of pests or fungi. There must be a system that will remove food waste and waste produced by the animals. Facilities for the employees of the shelter must have hot and cold water, soap and towels, and be kept in good repair. The grounds that the facility is located on must be well maintained in order to provide a safe environment for both the employees and the animals.

- **General Facilities (Indoor)**
The indoor facility must be adequately heated during the appropriate seasons in order to prevent the animals from hypothermia. Access to fresh air should be provided by using windows, vents or air conditioning and the building should be properly ventilated in order to minimize odors and drafts. The indoor facility should be well insulated so that moisture can not enter the building during inclement weather. Appropriate areas within the facility should have drains in the floor to aid in easy cleaning and should be kept in good condition to prevent clogging. Adequate lighting must illuminate all areas of the facility during the workday, and can be provided by either natural or artificial light sources. However, animals should not be exposed to excessive lighting within their main enclosure.

- **General Facilities (Outdoor)**
For the outdoor facilities, there should be enough shade to allow the animals to protect themselves from harsh sunlight. Shelter should also be provided for animals in order to protect animals from rain or snow, and if the animals are housed only outdoors, their bedding should be protected from the elements as well. Each enclosure’s entrance should have a way to maintain an appropriate temperature, and a windbreak should be at each entrance. During times of rain, an efficient method of removing water from the surface of the outdoor facility must be provided, and the surfaces must be constructed so that they can also be readily disinfected.

- **Primary Enclosures**
The main enclosures of the animal shelter must be kept in good condition so that the animals can be contained, have sufficient access to food and water, are protected from harm, predators and any inclement weather. Each animal should also be given enough space so that it can at the minimum stand, sit, turn around and lie in a normal position. Specifically for dogs, the primary enclosure provided must be at least equal to the mathematical square of the sum of six inches and the length of the dog (measured from
the end of the dogs nose, to the base of its tail). For cats, a minimum of seven cubic feet of cage space and a litterbin must be supplied. If any animals are housed within groups, the groups must be compatible in order to ensure the safety of each animal. Particular examples of this are: females that are not intended to be bred should not be housed with non-neutered males, young animals should only be housed with their mothers and their litter-mates, different species should not be kept within the same enclosure together, and animals that display any aggressive behavior must be housed separately. Each enclosure must be disinfected before another animal can inhabit it and if an animal is showing signs of illness they must be quarantined from other animals. The floor of all enclosures must also be constructed so that the animals’ feet will not slip through and cause injury to the animal.

-Feeding and Watering
Except for medical reasons, all animals being housed by the shelter must be fed at a minimum of once a day. All food should be fresh and should provide adequate nutrition for each individual animal and should be free from any contaminants. Young animals (less than one year) should be fed in accordance to a growing diet as specified by the particular food being fed. Clean water must be provided at all times of the day, except when medical reasons do not recommend it. The containers that the food and water are served in must be cleaned daily and when given to the animals must be placed in areas that would limit the amount of possible excrement that could enter the bowls.

-Sanitation
All primary enclosures must be cleaned of excrement as often as necessary and animals should be removed from the enclosures during the cleaning process. All floors and cages within the shelter must be disinfected at least once a day by washing with hot water and an effective disinfectant. Also, a program must be established to minimize the presence of insects and other pests.

-Disease Control
A veterinarian must maintain and supervise the shelter in regards to a program of disease control. Documentation of this program must be submitted to the State Department of Health and Senior Services yearly. The devised program must include plans on how to ensure both physical and psychological health of each animal being housed at the facility. An animal caretaker must observe animals daily and if signs of sickness are evident, then the animal must be provided with veterinary care. If an animal appears to be stressed, the stress must be alleviated based on the program devised by the veterinarian mentioned previously. If an animal is euthanized and had bitten a human within 10 days before, it must be examined for rabies at the State Department of Health and Senior Services laboratory. If an animal is suspected to have a contagious disease, they must be housed in a different area than the other animals, and any one who handles those animals must thoroughly wash their hands afterwards. After that animal has been removed from that holding area, that holding area must be thoroughly disinfected before another animal is placed there. Any cleaning tools used to disinfect the isolation area must be kept separate from cleaning tools used to clean the other areas of the shelter. The isolation area also must be completely separate from the other areas in the shelter that other animals are
The veterinarian working with the animals if they suspect any zoonotic diseases are present in one of the animals will inform the health officer at the local health department. If an animal is suspected to be rabid, they must be separated from the other animals and examined by a veterinarian or humanely euthanized. Zoonotic disease fact sheets must be given to all people who adopt an animal from the shelter.

-Holding and Receiving of Animals
To protect the public population from rabies; animals brought into the shelter must be kept alive for a week and observed for symptoms of rabies and to give the owners an opportunity to claim their pet, feral or surrendered animals which have bitten a person must be observed for ten days for symptoms or euthanized and sent to the laboratory for examination. Any specimen samples sent to the laboratory must be properly packaged and kept refrigerated during delivery. If an animal is delivered to the shelter by an owner who wishes it to be euthanized, proper documentation must be provided by that owner to demonstrate that the animal is theirs and not a stray.

-Euthanasia
An animal that is going to be euthanized should be allowed to have contact with other animals unless sedated. Sedation can also be used if the typical method of transport or restraint of an animal is prevented due to the possibility of increasing the pain or injury of that animal. A list of acceptable and unacceptable methods for euthanasia are listed on the Animal Welfare Federation of New Jersey’s website. Any person administering euthanasia must be a licensed veterinarian or someone who has been certified by a licensed veterinarian.

-Transportation
Any vehicle used by the shelter must have a designated area for animal use and it should be constructed so that the car exhaust does not enter this area. The safety of the animals must be kept in mind when designing the layout of the transportation car. Proper ventilation, temperature, and size shall be provided for all animals that are transported in this vehicle. If animals are kept in groups within the car, the guidelines for proper grouping must be followed (which is outlined in the primary enclosures section). The driver of the car must be able to determine whether or not an animal needs immediate care, and if so be able to deliver that animal directly to a licensed veterinarian.

-Records and Administration
The shelter must keep records on all animals that it comes into contact with and these records should include the date the animal was received, description of the appearance, breed, age and sex. If someone surrendered the animal, that persons name and address should be noted as well and if the animal was adopted, the same information should be acquired from that person as well. Records for euthanized animals must be kept for a minimum of twelve months after the euthanasia.

Guidelines for Standards of Care in Animal Shelters (BBW)

Thanks to the combined efforts of organizations like PETA and the Humane Society, we
live in an era of heightened awareness of our furry animal friends. Despite this heightened awareness, enacted statutes protecting animals rights, and the increasing societal expectations for the standards of cares for shelter animals over the years, many companion animals are being mistreated in animal shelters. It is difficult for many animal cruelty laws to be enforced current day, because some of the laws are outdated, and definitions of animal cruelty vary from region to region.

The Five Freedoms were created in 1965 in the United Kingdom, and have become widely accepted as the framework for the development of Guidelines for Standards of Care in Animal Shelters. The Five Freedoms are listed as follows:

1. Freedom from Hunger and Thirst: by ready access to fresh water and a diet to maintain full health and vigor.
2. Freedom from Discomfort: by providing an appropriate environment including shelter and a comfortable resting area.
3. Freedom from Pain, Injury, or Disease: by prevention or rapid diagnosis and treatment
4. Freedom to Express Normal Behavior: by providing sufficient space, proper facilities and company of the animals own kind.
5. Freedom from Fear and Distress: by ensuring conditions and treatment which avoid mental suffering.

Facility Design and Environment
- Shelters must provide an environment that is conducive to animal wellness.
- They must be designed to fit the needs of the species, the number of animals staying there, and be suited to the lengths of their stay.
- The shelter must provide adequate partitions between animals based on gender, age, and predator/prey relationships.
- If services are offered to privately owned animals, they should be separated from shelter animals.

1. Primary Enclosure
- A primary enclosure is any area of confinement where an animal sleeps, eats, and spends most of its time.
- The PE must be in good structural condition (structurally sound), clean, and must be maintained in a safe condition in order to properly confine and protect animals, and also to keep other animals out. There must not be any sharp edges, wire, or any other materials that could cause injury to the animal.
- Proper latches must be on the doors to ensure that they stay closed.
- Wire mesh bottoms or slatted floors are not appropriate for cages for cats and dogs.
- In order to control disease transmission, enclosures that allow for cleaning without removal of the animals should be provided, and also provided for animals younger than 20 weeks, ill animals, or animals recently admitted. Newly arrived animals should also be kept separate from other animals, until they have been determined to not possess any diseases.
- Tethering is a 100% unacceptable method of confinement and is illegal as a means of primary enclosure.
- PE must be large enough to allow the animal to perform normal movements: turning around, pacing, lying down, etc.
- There must be sufficient space between eating, sleeping, and defecation areas. The recommended minimal space between each area is 2 feet.
- If stacked cages or crates are being used, they cannot be stacked in such a way that causes increased stress to animals, compromised ventilation, or allows animal wastes to fall from one cage to the next.

2. Surfaces and Drainage
- Nonporous surfaces are the best to be used in animal enclosures. They should be able to withstand repeated cleanings and be easily disinfected. Carpeting should not be used, as it is difficult to clean.
- Soft bedding or slip-proof mats are required for animals that need them, i.e. animals with arthritis, muscle weakness, or other mobility weaknesses as they will have a hard time getting up if the floor is slippery.
- Floors should be gradually sloped so water can flow into drains--waste water should not run into general areas. Areas around drains should be kept clean and sanitary.

3. Heating, Ventilation, and Air Quality
- The primary enclosure must be warm or cool enough in order for the animals to maintain normal body temperature. Temperature recommendations are over 60 degrees but below 80 degrees, humidity should range from 30-70%
- Proper ventilation is important for sanitary and health reasons. It allows for heat escape, gas escape, and bacteria escape.
- Dog areas should have a separate ventilation system then the rest of the facility, because a lot of canine respiratory pathogens can be easily transmitted through the air.

4. Light Control
- Facilities should do their best to offer as much natural light as possible. If artificial lighting must be used, it should emulate the intensity and duration of natural light.
- Animals should not be exposed to excessive light or darkness.

5. Sound Control
- Companion animal hearing is more sensitive than human hearing--so anything uncomfortable to humans is even more uncomfortable to them.
- Sound absorbent materials should be used, and should be durable enough to permit many cleanings.
• Cats should not be exposed to the noises of barking dogs.

6. Drop Boxes
• Boxes used by the public to drop animals in are extremely hazardous to the animals’ health, and should not be used. Other arrangements should be made for the public to drop off animals at other places where they can be cared for until brought to the shelter, such as the police department, etc.

Population Management

1. Capacity for Care
• Every organization has a limit to how many animals they can safely and humanely house. They should not exceed this limit.
• Factors to take into consideration are: size of the place, number of housing units (cages/crates), size of staff, services offered, staff training, average length of stay, and the total numbers of animals that come into the shelter as compared to the total number of animals that leave the shelter.
• The National Animal Control Association (NACA) and the Humane Society of the United States (HSUS 2010) recommends a minimum of 15 minutes per day for feeding and cleaning of each animal. 9 minutes for cleaning, and 6 minutes for feeding.

2. Monitoring Statistical Data
• A minimum of these statistics should be kept: monthly intake (stray, dropped off, etc.) and outcomes by type for each species (adopted, returned to owner, euthanasia, etc.)
• Animal census should be taken every day, recording number of animals of each species, age, gender, etc.

Sanitation

1. Cleaning and Disinfection
• While cleaning may not remove all harmful pathogens, it can rid most of them. It should result in a visibly clean surface. The proper use of disinfectants reduces the amount of pathogens present in the environment, decreasing the likelihood that the animal will get sick.
• In the case of an outbreak, sanitation protocols will need to be revised to address the specific pathogen that needs to be targeted.
• 9 minutes per animal per day is the minimum recommended minimum amount of time for cleaning.
• Disinfectants should be chosen with known particular pathogens for the species in mind.
• It is inhumane to spray down kennels or cages while animals are still inside them.
• Animals with longer stays at the shelter require less frequent disinfection cleaning of their enclosure, but still need daily cleaning.

2. Fomite Control
• A fomite is any object that can be contaminated with pathogens then used to transmit disease—for example: human clothing. It is imperative that shelter staff and visitors must practice good hygiene. It is important to wash hands both before and after handling animals.
• Hand sanitizers can be surprisingly ineffective against some animal pathogens, and should be used cautiously. It should never be used in place of washing hands, but instead should be used on already clean hands. The alcohol content should also be 60% or above.
• Protective clothing such as gloves, boots, aprons should also be worn when dealing with vulnerable animals, such as kittens, puppies, and those that are newly admitted.
• All equipment that comes into contact with animals should be disinfected afterwards, if not disinfected it should be thrown out after single usage.
• Scratched or porous surfaces can be difficult to disinfect and can become a breeding ground for pathogens and bacteria.
• Food and water bowls should be cleaned daily and disinfected before use by a different animal.

3. Other Cleaning
• Outside areas should be kept clean. If it is difficult to disinfect an outside area (such as a pasture or field), access should be restricted to animals that are up to date on shots, wormed, and are 5 months or older.
• Feces should be removed from pens daily.
• Water tubs should be emptied daily, as standing water can become stagnant and a breeding ground for bacteria and insects.

4. Rodent/Pest Control
• Food should be kept in sealed containers to avoid contamination by other animals.

Medical Health and Physical-Well Being

1. Veterinary Relationships and Recordkeeping
• Medications and treatment must be administered by advice/supervision of a vet.
• Accurate medical records must be kept. If possible, previous medical and behavioural histories should be attained from a previous owner.
• Medical care given must be documented by shelter.
• Documentation should include pet’s input date, source, ID information, records of tests and test results, treatments/medications given, procedures, and immunizations given while at the shelter.
• Records should be given to new owner at time of animal’s adoption.

2. Vaccinations
• Disease transmission is high at shelters, so animals must be vaccinated before entering the shelter or while there with general vaccines.
• Animals kept at the shelter for long term should be given routine vaccinations.

3. Emergency Medical Care
• An emergency medical plan must be in place to provide appropriate and timely care to animals that are in distress, injured, or showing symptoms of serious illness or disease.
• The emergency medical care plan must ensure that animals receive proper medical care and pain management quickly or else be euthanized in accordance with state standards.

4. Monitoring and Daily Rounds
• Rounds must be conducted at least once every 24 hours by someone who is qualified and capable of monitoring the health of each animal. This can include things such as: food and water intake, behavior, interaction with other animals, waste production, attitude, and signs of illness. Any issues noted, need to be assessed.

5. Nutrition
• Water should be changed at least once daily and more often than that if it is visibly dirty.
• Food should be consistent with nutritional requirements.
• Food should be fresh, palatable, and free from contamination.
• Animals who aggressive when it comes to their food should be housed separately, i.e. they guard their food, prevent others from eating.
• Food that is uneaten within 24 hours must be removed and thrown out.

source:

For a more complete, thorough list of Guidelines for Standards of Care, please visit the link above.
The Service Project: Proposal for Design of Shelter (KR)

The proposed shelter site is located on College Farm road on the Milltown side of Route 1. The building is Rutgers BLDG-6390 and is a pre-existing barn that is currently used for research that is soon going to be discontinued. The barn is a 20ft by 40ft rectangle with a completely open floor plan (Figure 1). The site is set on a vast amount of property that leaves plenty of space for exercising dogs, and training areas for service animals.

The main structure is built on a concrete slab which unfortunately has no integrated drains. It also lacks heating, cooling, plumbing, and insulation. There is an exterior cold water source near the building and it does have electricity. The barn has two sliding doors that are beneficial for access to the recreational areas.

Figure 1: Current structure of the barn

The current floor plan of the barn will need to be drastically renovated before the barn can be used as a shelter. Luckily there are no load bearing beams in the center portion of the barn so changing the floor plan is a relatively easy task. The barn will need an office for managerial purposes, an adoption room, separated dog and cat boarding facilities, a laundry/storage/food preparation area, as well as an isolation area (Figure 2). The isolation area needs to be completely separated from the other animal holding areas in order to be efficient. It will also have a door leading to a separate isolation pen for exercising animals away from the general population. The dog area will have a door to exercise pens, as well as a training pen.

Figure 2: Proposed Floor Plan for Temporary Structure

The new facility will need a washer and dryer unit to handle the large amount of laundry necessary for sanitary purposes. We will also need to incorporate a refrigerator into the food preparation area to hold animal foods, as well as vaccines and any diagnostic testing equipment. The vaccines and testing equipment must be separated from the foods in the refrigerator as per OSHA standards. This can be done by placing food on the shelves and vaccines and tests on the doors. The food preparation area will require a sink for cleaning dishes and litter boxes. Their will need to be a hot water heater to provide hot water to the sink and the laundry equipment (again, for sanitizing purposes).

We are planning to add a few environmentally safe alternatives for the appliances needed within the shelter. One example is a geothermal heat pump. It has been estimated that heat pumps can provide approximately four times the amount of energy they require in order to run. These pumps use the surrounding ground temperature to either heat or cool a building. This is more reliable than other varieties of heat pumps, and is more effective during cooler months; this is beneficial for a shelter because it will need to run all night in order to maintain an appropriate temperature for the animals. In addition to the heat pump a toilet needs to be on the premises, but since the current structure lacks these amenities, it would be most cost efficient to rent a portable restroom. These also conserve water while providing necessary facilities as required by law.
We will need to purchase cages to hold the cats and the dogs in the boarding areas. Cat cages will be stacked three cages high and across both sides of the room. Dogs will have doubles cages on the bottom row, and single cages along the top row. All cages will be stainless steel with bars as doors and will be fixed in position but will not feature drains. They will not be connected to runs, as every dog will require walking at least four times a day. This would negate the need to incorporate drains in the dog and cat rooms. The isolation room will contain both large and small cages so the room can accommodate cats or dogs as needed.

To make the barn look more presentable, we believe that it would be beneficial to give the barn a fresh coat of paint. As avid Rutgers fans, we will paint the barn scarlet. The fences surrounding the exercise and training pens would also benefit from minor detail work. A new front door would also be advantages, as the current lacks windows and has rust spots in places. It would be aesthetically pleasing to incorporate climbing plants (ivy) in order to hide the necessary electrical wiring equipment on the front of the building. A new sign will be placed to the right of the door signifying the change in building designation and parking spaces will be painted on the asphalt in front of the building (Figure 3).

Figure 3: Exterior Modifications

Suggestions to Other Barn Owners (Breana Badger-Watson)
In order to create an animal shelter, there are a few basic things that you must have:

- different enclosures so animals can be separated from one another (cats from dogs, sick from healthy, compatible from incompatible, etc.)
- access to outside areas.
- hot and cold water (for cleaning/feeding purposes)
- a washer and dryer
- proper drainage
- a bathroom
- a veterinarian
- proper ventilation/temperature control

For a complete and more specific list of requirements and recommendations, please visit: http://sheltervet.org/associations/4853/files/Shelter%20Standards%20Dec2010.pdf

Grants
—Trying to find investors/donors/funding for a shelter (particularly a new one) can be difficult. —In order to ease the cost of financial burden, there are a few different grants that can be applied for. —Each grant usually has a different purpose, so getting a few different grants can help out with many different areas around the shelter.

- —Second Chance Fund
  o To be eligible, must be an animal shelter agency (public or private)
  o —Can only be used to cover medical procedures of abused/neglected animals.
—Can also be used for animals who require medical treatment before adoption.
—Does not cover routine medical treatment (vaccines etc.), behavioral modification, and training are not covered under this grant.
—Funding is limited to $2,000 per fiscal year.
—Applications for grant must be received no later than 6 months after taking in animal.

- Meacham Foundation Memorial Grant
  —Up to $4,000 can be awarded.
  —Can be used for: Animal environment enrichment, veterinary equipment, spay/neuter, renovation of kennels, construction improvements, and equipment that positively impacts the welfare of animals in the shelter.
  —Cannot be used for: reducing shelter deficit, supplementing budget, buying cars/trucks for the shelter, or performing routine maintenance.
  —Grants are only available to agencies that are duly incorporated and classified as 501(c)3 nonprofit organizations or public (local government) agencies.

For more information on grants, please see:
http://grants.library.wisc.edu/organizations/animals.html
www.animalsheltertips.com/grants.html

Conclusion (LT & KR)
In conclusion, by combining the needs to have a training facility, shelter, and to improve the Animal Science curriculum, there is a definite need for a facility of this type. By upgrading an existing barn into a facility that can provide all of these services and more would be beneficial for the Rutgers community, and the animal community. By reviewing all the statistics, it shows that the animals would greatly appreciate the love and care that can be provided at this new facility. By receiving this care, it is teaching Rutgers students and volunteers valuable lessons about care, training, and preparing them for their futures. The animals that will benefit from this shelter will be able to get off the streets and many more can be welcomed into loving homes, not to mention they will have their training to be more appealing to families looking for their newest family member. On top of basic training, being able to provide the New Brunswick area with service training will highlight our university, making our name even more respected.

To offer a spay and neuter program, the shelter can utilize existing facilities that are already available on the Rutgers campus. The University already has a Veterinarian on staff to care for the numerous large animals as well as many research Veterinarians. It also has sterile lab/surgery suites that could be used to spay/neuter shelter animals. We hope that by showing our research on how this project can benefit our community, human and otherwise, we have proven that this is a very attainable goal. Our design with animals
in mind can make this current barn into an exceptional facility for our students to apply their newly learned skills and produce some highly trained animals. The conversion of the barn will be the biggest challenge but the benefits will far surpass the costs. By having this facility, we can make a difference one companion animal at a time.

**Editorials**

**Editorial by Katie Entwistle:**
Sent to DogFancy Magazine (3/22/11)

Unfortunately, we live in a world where there are not enough loving families able to adopt all of the stray companion animals that need homes. There are many stray dogs and cats in the United States, which is not only dangerous for the animal, but also for the surrounding human population. The danger to the human population arises from the increased risk of zoonotic diseases, which are diseases that can spread between animals and humans, that is associated with increasing populations of feral animals. Thankfully, shelters have been built that will house, feed, medicate, and train these animals so that they can have the chance to be adopted by a family. Sadly, there are not enough animal shelters to house the entirety of the feral animal population, and many must be euthanized to provide room for an animal that may have a greater chance of being adopted. Rutgers University, however, has thought of a way to help the surrounding feral population, while also helping its students. Rutgers has begun discussions regarding the conversion of one of their pre-existing barns into an animal shelter. Students would then be permitted to help train these animals and provide them with human interaction, which would both increase the chance that the animal will be adopted and provide the students with a great way to gain hands-on experience with companion animals. Also, by building an animal shelter, Rutgers would be helping to reduce the surrounding communities’ feral population which will decrease the spread of certain diseases and will also help more companion animals find loving homes.

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**Editorial by Lauren Taglienti:**
Sent to the Star Ledger Newspaper (3/22/11)

New Jersey has such a large number of stray animals, and the shelters never have enough space all of them. Shelters are able to give strays a second chance at having a loving home, all while helping with animal population control by spay and neutering. Since stray animals spread disease more readily than those with permanent homes, there is a physical as well as moral reasoning behind shelters. Shelters help train companion animals and give them a head start before their permanent homes. This makes them even more attractive to families looking for an additional furry family member.

Unfortunately, many animals often need to be euthanized to control the overpopulation of shelters. There are simply not enough establishments with enough space to hold all the animals that would benefit from human families. Using this information, Rutgers
University in New Brunswick has acknowledged this is as a growing problem and would like to help the cause. A team at Rutgers is in the beginning stages of converting an existing barn structure on campus into an animal shelter. By creating another space that will be able to house animals from the New Brunswick and surrounding areas will greatly decrease the amount of stray animals, and keep the future numbers down by spay and neutering. Having a facility so close and accessible to the students will also give valuable experience to all volunteers who give time to the shelter. The large student population will give the animals more time with humans who will help train them, making them more easily adoptable.

With Kitten Season quickly approaching, animal shelters across New Jersey will very soon go from crowded to overflowing with loving animals that need homes. Regrettably, many of these cats will never get to meet their potential human families because there is just not enough space at the shelters to hold all the animals coming in. Rutgers hopes to use this new shelter as a training facility for adoptable animals, to host adoption events, to control the stray population, and as a teaching venue for students and volunteers. This project will prove to be a successful attempt at helping the hundreds of strays in the New Jersey area, we hope that you will support our efforts along the way.

Editorial by Breana Badger-Watson:
Sent to Press of Atlantic City (3/22/11)


As a student living on Cook Campus in Rutgers, there is no doubt in my mind that we have a huge stray animal problem. Feral cats and stray dogs can be seen everywhere, both on campus and in town: circling hopefully around dumpsters, skulking around apartments, stalking the local wildlife (aka dinner). As an animal lover, my first inclination is to go over to the stray, pick it up, take it home, feed it, and love it. But unfortunately, I have to temper the inclination, as students are not allowed to have pets. So, I just leave them be—hoping instead that someone else will come along, pick the animal up, and give it a home.

In my hometown, if you find a stray animal that you cannot care for...you call the animal shelter to come pick it up or drop it off yourself, and they will take it in and care for it. But New Brunswick does not have an animal shelter to take in all the strays, so the majority of the animals are left to continually wander the streets and fend for themselves. Animals are wild, you may argue, they can care for themselves. Which is absolutely true, if the animal has lived outside its whole life. But what if it was a house pet? What if it was a pet that got separated from its owner, or a pet that for whatever reason, got loose? In comparison to the survival skills of feral animals, a pampered house pet will surely lose.
Which is exactly why New Brunswick needs an animal shelter. There have been talks of converting a now unused Rutgers barn across Route 1 into one for community use. A shelter in Rutgers would solve a lot of problems: it would get stray animals off the street, provide a place for people to drop off pets they can no longer care for (and prevent those pets from becoming strays), and provide a place for people to learn about caring for and adopt a pet of their own.

The shelter itself is still in the planning stage, with a group of my fellow classmates and myself proposing a plan for the barn to shelter conversion, and another group of classmates proposing a plan to get Rutgers students involved with learning about/getting hands on experience with companion animals. We just hope that you, as a community, will support us in these efforts as we try our best to make New Brunswick a more pet friendly society.

Editorial by Kurt Roman:
Sent to the Daily Targum (3/22/11)

Everyday abandoned and unwanted animals are euthanized in shelters across New Jersey. This is due to lack of funding by both state and local governments. In the greater New Brunswick area there are only a handful of shelters both privately and municipally run. These shelters are small and overflowing, many having to turn down new drop offs.

Rutgers University could prosper from having an animal shelter as well as providing a public service. By converting a pre-existing barn on campus into a fully functioning animal shelter, the University can effectively help protect unwanted animals in the surrounding areas. A shelter on campus also opens up new courses to Animal Science students. This is especially important now that Rutgers has started a new companion animal option to its Animal science major.

A shelter will provide prospective students with a new practicum class that will teach husbandry and other aspects of kennel/cattery management. This will also reduce the need for a large permanent staff. The shelter will also allow for the addition of behavioral classes and behavioral research on companion animals. Student and community involvement will ensure the success of the shelter, translating into the reduction unwanted pets on the streets.
References


