FINAL REPORT: KING COUNTY ANIMAL CARE AND CONTROL (KCACC) SHELTER EVALUATION 1/8/08-1/10/08

UNIVERSITY OF CALIFORNIA – DAVIS KORET SHELTER MEDICINE PROGRAM

Consultants:

Kate Hurley, DVM, MPVM
Program Director
UC Davis Koret Shelter Medicine Program

Sandra Newbury, DVM
National Shelter Medicine Extension Veterinarian
UC Davis Koret Shelter Medicine Program

Miranda Spindel, DVM, MS
Director of Veterinary Outreach
ASPCA

Barb Jones, DVM, MS
Senior Resident
UC Davis Koret Shelter Medicine Program

Catherine Mullin, VMD, MS
Senior Resident
UC Davis Koret Shelter Medicine Program

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History

King County, Washington covers approximately 2,134 square miles and is home to over 1.2 million people. It is one of the largest counties in the United States. King County Animal Care and Control currently provides field animal services to all unincorporated areas of King County and multiple (34) contracting cities from 7am -9 pm with 24 hour service available. The animal shelter is open to the public from 10 am -6 pm Monday-Wednesday and Friday and Saturday. On Thursdays, the shelter is open from noon to 6 pm and it is currently closed on Sundays. In 2006, approximately 12,000 animals were provided for by KCACS. Two physical shelters exist and provide for animal care and sheltering. One of these shelters is located in Kent and the other is in Crossroads.

King County is in the midst of involved decisions regarding animal care and control. In May of 2007, the King County Council successfully introduced an ordinance to establish new animal care and control policies. Among other things, ordinance 15801 mandates that euthanasia rates in King County animal shelters will be reduced to 20% in 2008 and 15% in the following year. An operational plan for the King County Animal Services was developed for 2008 based on recommendations from an advisory committee, policy direction from City Council, research and analysis of model jurisdictions and local animal shelters, industry best practices, and input from various stakeholder groups including volunteers and staff. This plan has four main purposes:

1. Provide a comparative study of communities that have adopted "no-kill" with local jurisdictional data for King County.
2. Provide an overview of the King County Animal Care and Control programs.
3. Review current programs, services and staffing levels, identify gaps and make recommendations to improve the care and health of animals in shelter care, reduce euthanasia, and improve the current program to achieve a model animal care and control program.
4. Identify performance measures to evaluate the agency's effectiveness in achieving the program objectives of drastically reduced euthanasia, improved health care, improved law enforcement, and increased placement of animals into permanent homes

Consultants from the UC Davis Koret Shelter Medicine Program and one consultant from the ASPCA along with a team of shelter medicine veterinarians and students visited the King County Animal Control Kent Shelter from January 8-10 of 2008 as part of the 2008 King County Animal Care and Control Operational Plan. The focus of this evaluation was assessment of the current facility and programs in the context of the goals described above, with a specific emphasis on shelter animal health and welfare. Initial verbal recommendations were offered on January 10th, and a preliminary report re-iterating the most urgent recommendations was provided on February 12th. The conditions described

in this report reflect conditions as observed during the January visit (and data from Chameleon® provided prior and subsequent to the visit). Reportedly some changes recommended in this and the previous report have already been made. Original observations have been included below in order to provide full context for the recommendations made in this final report.

By its nature, the consultation and report process is designed to identify problems and suggest remedies. The critical nature of the report that follows should therefore not be taken as an attack; rather, it is our hope that the information provided will be educational for the shelter and community, and will help identify substantial resource gaps that are preventing the shelter and staff from functioning optimally. Specifically, it is not our intention to place responsibility upon shelter staff for the deficiencies identified in this report. An evaluation process such as this one is difficult to undergo and required substantial time investment from an already-overextended staff and management team. We found staff at KCACC to be exceptionally welcoming and forthcoming in allowing the consult team to observe all areas of animal care. The vast majority of observations were of caring and hard-working individuals, many of whom had outstanding animal care skills. It is likely that without the efforts of these staff members, the situation at the shelter would be considerably worse than that currently observed.

Notes on the report

This report contains two sections; contents of the preliminary report in Parts A though C (Programmatic, Facility, and Staffing issues), and additional detailed information on Animal Care in Part D that was not included in the preliminary report. Information was included in the preliminary report because it was seen as either leading to urgent animal or human health or safety issues, and/or (more commonly) critical to provide the foundation for implementation of additional detailed recommendations. *Efforts to address the detailed concerns regarding animal care in section D are unlikely to be fully effective in the absence of functional programs or adequate facilities and staff levels as described in the first three sections.* Conversely, addressing the core issues identified in the sections from the preliminary report may well lead to resolution of many deficiencies in animal care resulting from inadequate programs or support rather than a lack of knowledge or carelessness on the part of staff.

We have made an effort to prioritize our recommendations below by identifying those that have a serious impact on shelter animal health or welfare, and which therefore may be reasonably considered “minimum” standards for care. In addition, we have included recommendations in some cases that reflect not only minimum, but model animal care standards, as functioning as a model shelter was identified as one of the goals of the operational plan. This is not intended to be an “ivory tower” document. All practices recommended in this report are in place in at least some open-admission shelters reflecting the highest standards of animal care and welfare.

As noted above, the focus of this consultation was an evaluation of programs and practices impacting health and welfare of shelter animals, in the context of legislative

directives and community goals identified in the 2008 operational plan. Creating an environment that supports shelter animal health and mental well-being and developing functional systems to move animals safely through the shelter and take advantage of all opportunities for live release will play an important role in achieving these goals. However, the goals identified above are unlikely to be achieved through improvements in the current sheltering processes *alone*. Specifically, reduction in euthanasia to the levels mandated by legislation will require a reduction of intake and/or increased live release (through increased adoptions, rescue/transfer, or reclaim by owner) amounting to more than an additional 2300 animals/year for 2008 and almost 3000 for 2009. Such dramatic improvements will likely require investment in reducing shelter intake via community-directed programs (e.g. spay/neuter outreach, feral diversion programs, behavioral counseling to prevent surrender) in addition to increasing live release. Analysis of the need for specific community level programs are beyond the scope of this report but such programs will likely be critical to reaching the legislative goals as well as creating a healthy and safe shelter environment.

Overall assessment

Overall, it was apparent during the evaluation that a significant disparity exists between the legislative and community goals identified in the 2008 operational plan and the facilities, programs and staff currently in place at King County Animal Care and Control (KCACC). Although most staff members were clearly dedicated and caring, and in some cases were exerting heroic efforts to provide for the animals in the shelter, it was evident that the capacity of both staff and facility was exceeded in almost every area of animal housing and care. The result was a breakdown in care leading to animal suffering, illness, and likely un-necessarily high levels of euthanasia and death, as well as creation of significant public health and safety risks for staff and shelter visitors.

Review of data and interviews with staff indicate that issues described in this report are ongoing and substantially pre-date the new legislation. According to data provided by the shelter, there is a trend of worsening crowding and increased illness and death over the past year compared to 2006. This can not be attributed to the recent legislation, which went into effect only two weeks before our visit. In fact, shelter staff reported that the level of crowding and illness observed at the shelter during our visit was at comparatively low levels, as would be expected during a time of year when cat intake is typically at or near its lowest ebb.

Issues overall fell into four categories: A. Programs, B. Facilities, C. Staffing, and D. Animal Care. The programmatic issues addressed in Part A describe a weak foundation that underlies the breakdowns in animal care and other areas. The lack of necessary programmatic underpinnings has led to an apparent inability to identify needs, such as required staffing hours, minimum housing units, and necessary facility improvements, or describe challenges the shelter and community face or may expect to face while trying to meet community expectations. Without the ability to clearly identify and plan for these needs and challenges, effective problem solving is impossible.

Through this report, we hope to help to clarify those needs and challenges in an effort to specifically target each with a recommendation for how to successfully achieve the goals that have been identified. In almost every case, those issues described in Section A must be addressed in order for solutions suggested in the later sections to be feasible.

PART A. Programmatic Issues

OVERVIEW

Two significant programmatic issues were identified which underlie many other problems: 1.) A lack of systems for animal care and management, and an organizational/staffing structure insufficient to support development, implementation, and enforcement of such systems; and 2.) Absence of a comprehensive population management plan: no standards for minimum acceptable levels of individual animal care/welfare, no defined maximum levels of capacity, and absence of any plan for what to do should intake exceed the shelter's capacity to provide even the minimum levels of care. *These issues must be resolved in order to implement additional recommendations provided in this and the final report.* Attempting to address specific concerns without a holistic approach to solving problems inherent to the current system will not be fruitful.

SECTION I: Systems for Animal Care and Management

In many cases, there were no clearly documented policies or procedures for critical animal care activities; in cases where written procedures did exist, there was often incomplete, contradictory or incorrect information provided; line staff frequently appeared unaware of written policies and consistently reported little or no formal training in key areas of animal care such as cleaning and disease recognition; and observed practices often differed from written procedures where these were available. In some cases, informal systems had been developed by staff members; some of these systems were acceptable, but because they were undocumented they were inconsistently followed. The most common answer received when staff were asked about any animal care process was "it depends on who you ask". Some specific examples are provided below.

The current organizational structure does not appear sufficient to support development, implementation or enforcement of well-thought-out animal health care systems/procedures. *Recommendations from outside consultants will have little benefit if there is no structure in place to implement those recommendations.* Designated personnel must have sufficient time, authority and accountability in order to establish and maintain functional systems. Policies and practices should reflect current standards in the sheltering profession and incorporate information available through continuing education resources, professional organizations, relevant journals and online resources. Where appropriate, input should be sought from outside sources including experts, colleagues and other community stakeholders.

Specifically, deficiencies in development and implementation of consistent procedures may stem in part from the absence of a full time in-shelter management position with authority to implement and oversee day-to-day animal care activities. In many organizations this role is filled by a Director of Operations or the equivalent, who reports directly to the Shelter Director/Manager, and to whom in turn lower level managers and lead staff members report. On the organizational chart we were provided it appears this would be the equivalent of the assistant manager; the acting manager is currently filling this position as well as his other role. Additionally, it was evident that veterinary staff did not have time even to keep up with core spay/neuter activities and medical care for shelter and foster animals, let alone assist with developing and training staff in shelter health care procedures.

Examples of issues with policies and procedures (these are provided here as examples of issues with policy development and implementation; the specific issues raised regarding animal care or shelter procedures are addressed in detail elsewhere in this report).

Lack of policy/procedure:
Animal evaluation/movement: There were no documented policies or procedures for identification of animals in need of evaluation/movement out of stray/owner release holding areas. As a consequence, some animals lingered in unsuitable housing for prolonged periods without any chance at adoption. Many of these animals became sick without ever having a chance to be adopted. Informal systems developed by some staff members were functional but not consistently followed or enforced.

Management of disease other than feline URI: Although animals were being treated for other conditions, including ringworm, no written information was available regarding the process for this. This creates risks that: animals will not receive proper treatment; sick animals will not be adequately isolated, leading to increased risk of serious disease spread; staff members, volunteers and the public will be exposed to zoonotic infectious diseases; no means was provided to determine recovery, so treatment and isolation may be un-necessarily prolonged.

Incomplete policy/procedure:
Feline URI treatment: There is a written policy titled “cat isolation protocol” stating that “all cats with URI will be started on Zithromax at the first sign of symptoms”. This protocol does not define what constitutes “URI”; it was apparent that some cats with upper respiratory signs were not being treated while others were, but unclear how this decision was being made. The protocol directs treatment of cats for 21 days; this was not consistently followed. It is not appropriate to use a single antibiotic for all presentations of URI, and this was reflected in provision of doses for other drugs in another part of the manual; however no direction was given regarding when to choose a different drug, or who had the authority to make such a choice. The protocol states that “all cats moved to the isolation area must have a treatment sheet started”, but provides no

information regarding the actual movement of cats to isolation, under what circumstances this should occur, nor what to do should isolation be full. This breakdown in policy and procedure was reflected in the presence of numerous sick cats, including severely ill cats, in every area of the shelter including the adoption room.

Contradictory policy/procedure:
Vaccination: The observed procedure for vaccination was that cats received a modified live subcutaneous vaccination for FVRCP. This is an appropriate practice and is partially described in the procedure manual. However, a sign posted on the refrigerator in the intake area instructed use of an intranasal FVRCP. Intranasal injection of an FVRCP vaccine intended for subcutaneous use can cause severe URI.

Lack of compliance with policy/procedure:
Dog run cleaning: The manual describes a procedure for cleaning dog runs in which one run is cleaned, then dogs from the adjoining run are moved into the clean run. The procedure as described was generally appropriate. However, at least one staff member was observed to follow a different procedure, utilizing the guillotine doors and middle cages for cleaning. Although this procedure may also have been acceptable, it is impossible to evaluate and troubleshoot the process if consistent practices are not followed.

Recommendations:

- Recruit or designate the equivalent of a director of operations/assistant manager. Given the number and complexity of policy and procedural issues that need to be addressed at this time, at least one full time person will need to be dedicated to this position.

- In the interim, identify current personnel with sufficient background and ability to write/review critical animal care protocols including those described in this report. This may include management staff, veterinary staff and senior/experienced animal care staff. Hire additional relief staff to assist in day-to-day activities such that designated staff have sufficient time to complete critical protocol development.

- Develop and document a process by which new and existing procedures will be communicated and implemented, including timing and responsibility for staff training and accountability. Hire additional relief staff if necessary to allow training of current staff.

SECTION II: Population Management

This section evaluates the current and historical shelter population dynamics in an effort to identify challenges that must be overcome to reach the goal of reducing euthanasia for shelter animals in the King County community. Careful comprehensive evaluation of

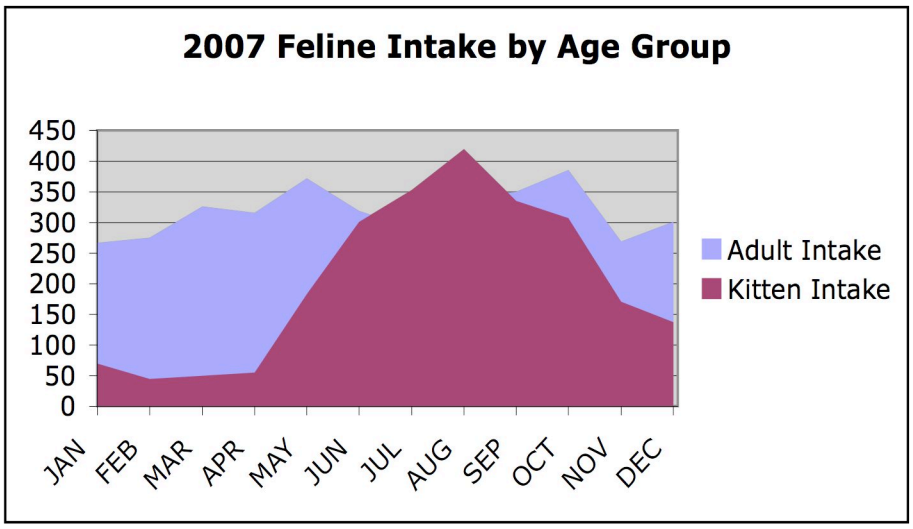
shelter population dynamics helps ensure goals are not misinterpreted in ways that may undermine efforts to save more lives.

Prior to and after initial delivery of this preliminary report, in consultation with UC Davis consultants and Chameleon, several data reporting errors were discovered in the shelter system. The Acting Manager has reported to UC Davis consultants that a consultation with Chameleon has been arranged. Current changes are reflected in this report. Data will be revised again if needed prior to the final report. It is expected by UC Davis team in consultation with Chameleon, that the changes in data are unlikely to cause substantial changes to either the statistics reported here or to the thrust of this report.

Section II. Part One: Shelter Population Dynamics

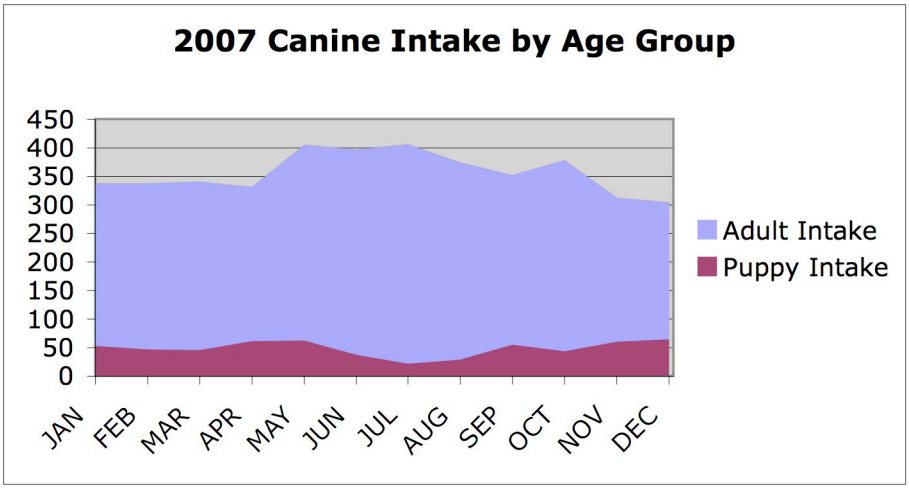
i. Shelter Intake

In 2007, 6,274 cats were admitted alive to the KCACC shelters. 61% (3,812) were recorded as adult cats while 39% (2,462) were recorded as kittens. Monthly intake ranged widely from 320 cats in February to 761 cats in August. Figure 1 below shows feline intake flow by month broken down by age group for the year.



(Figure 1)

In comparison, 4,856 dogs were admitted alive to the KCACC shelters. 88% (4,275) were recorded as adult dogs while only 12% (581) were recorded as puppies. Monthly intake ranged more narrowly from 369 in December to 467 in May. Figure 2 shows canine intake flow by month broken down by age group for the year.



(Figure 2)

While canine intake and adult cat intake were relatively consistent in 2007, "kitten season" is clearly and strongly evident in Figure 2 beginning in April, peaking in August and persisting into December. This graph indicates there is still much progress to be made in the community by spay/neuter efforts to reduce the feline birth rate. In addition, there was a 22% increase in feline intake (551 cats) in AUG – DEC 2007 compared to the same time period for 2006. While in comparison to the feline intake puppy intake appears consistent and is a small fraction of total intake 48 puppies on average are presenting to the shelter each month indicating there may be progress to be made for dogs with spay / neuter as well. There was a 4% increase in intake (82 dogs) for dogs.

Current Community Goals

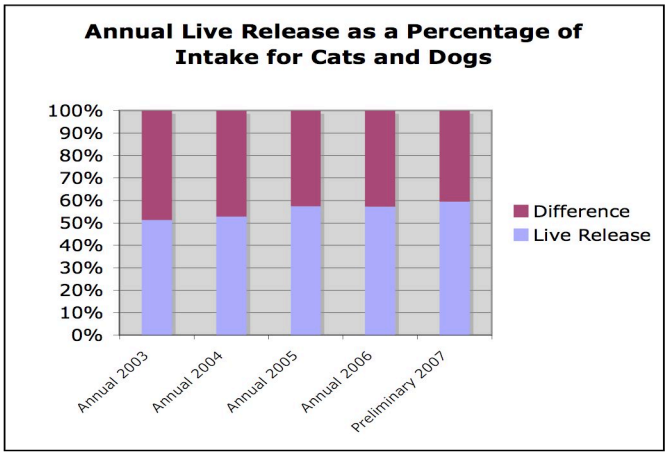
Current goals have been set by legislation to reduce euthanasia in the KCACC to no more than 20% of shelter intake in 2008 and 15% of shelter intake in 2009. equate to an expectation of a 80% live release rate for 2008 and a 85% live release for 2009. A current annual and historical mismatch exists between intake and live release in excess of 20%.

ii. Live release and euthanasia compared to intake

2007 feline annual total for live release as a percent of intake was 52.9% annually with monthly range between 81% (Dec 2007) and 41% (July 2007).

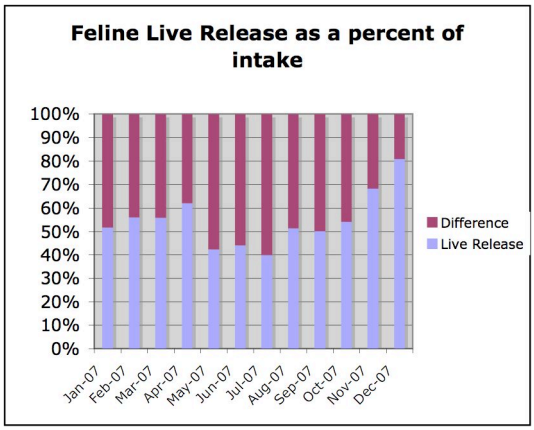
2007 canine annual total for live release as a percent of intake was 64.3% with monthly range between 69.6%% (February and November) and 54.4% (January).

Combined annual total live release for cats and dogs as a percent of intake was 57.9%. (Figure 3)



(Figure 3)*

*(*The statistics for Figure 3 were provided to the UC Davis team without raw data. No raw data for 2003-2006 was available at the time of the visit.)*



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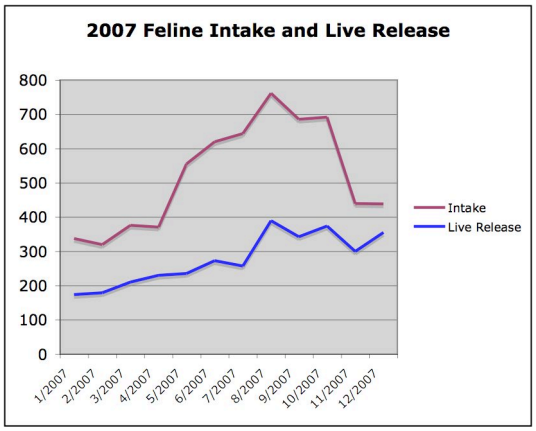

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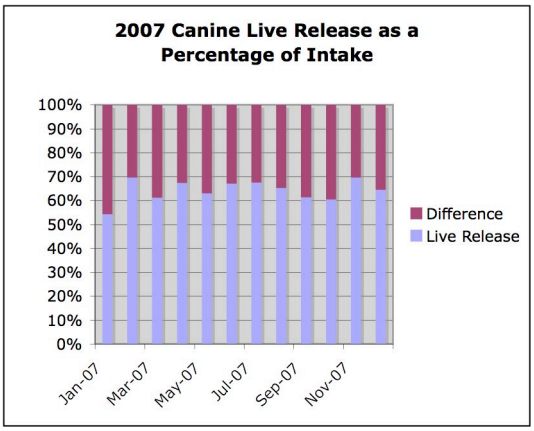

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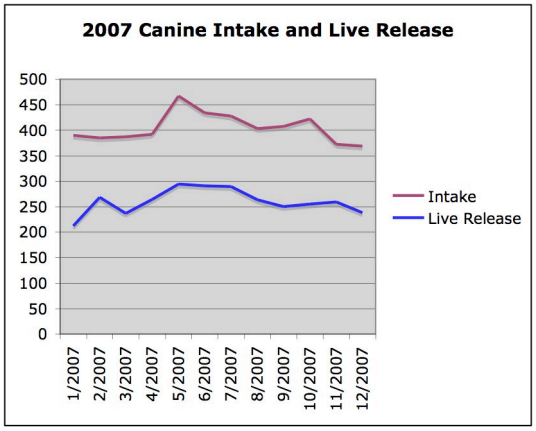
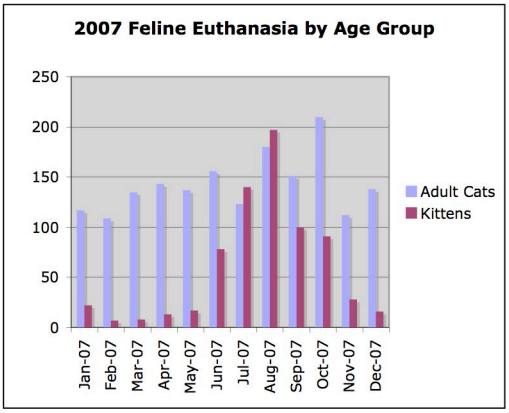


(Figure 7)

iii. Euthanasia compared to intake

In 2007, 2428 cats were euthanised and another 149 died at KCACC adding up to 2577 feline shelter deaths representing 41% of feline intake annually with a monthly range of 116 in February to 401 in August. 1606 dogs were euthanised and another 13 died adding up to 1619 canine shelter deaths representing 33% of canine intake annually with a monthly range of 97 in November to 150 in September.



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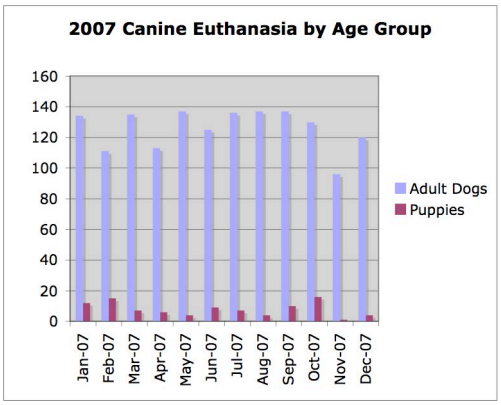

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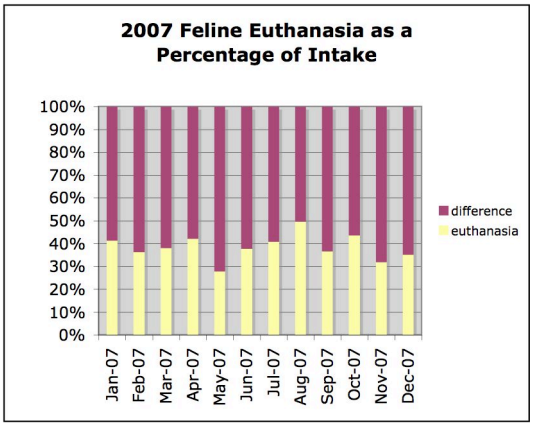

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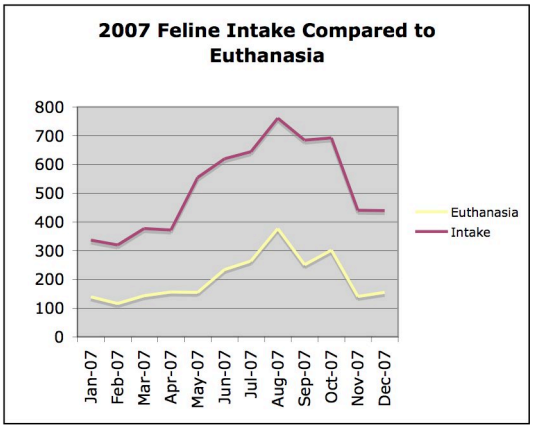

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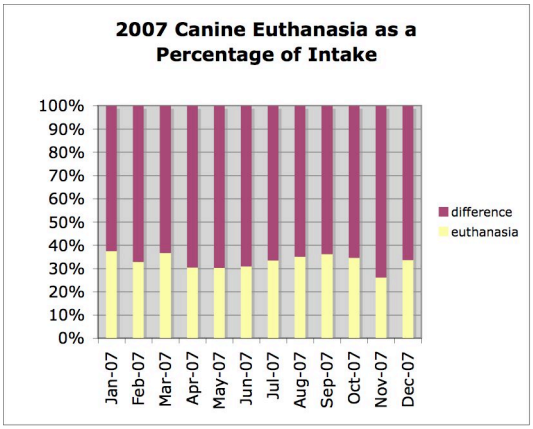
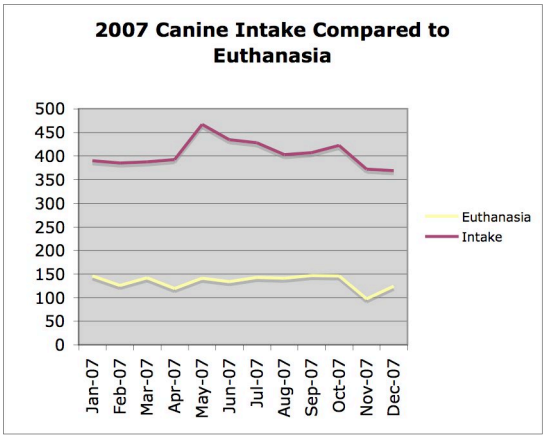




(Figure 12) (Figure 13)

Figure 4-7 and 10-13 above show the live release rate and euthanasia figures as both a percent of intake and the absolute numbers of animals admitted and released alive or euthanised. Both absolute numbers and percentage have been included to highlight the importance of monitoring both. The absolute numbers highlight the relationship between intake and euthanasia. Note that if absolute numbers for intake go up, absolute numbers for euthanasia may increase even if the percentage remains constant. Likewise, if intake decreases, as is hoped, absolute shelter death rate may decrease even if the percentage remained constant. This phenomenon should be considered when setting legislative goals.

iv. Holding rate

Live release and shelter deaths will most commonly not equal 100% of intake, as is the case for the KCACC. The holding rate is simply the remainder of intake after live release and shelter deaths. The number of animals in holding represents the number of animals who came in that the shelter is still responsible for at the end of the time period. It is possible to temporarily achieve reductions in the euthanasia rate by increasing the holding rate. Reducing euthanasia by increasing holding, leads to shelter crowding, uses shelter resources inefficiently, increases the risk of infectious disease and does not meet the goal of increased live release.

Holding rate is an indicator of the throughput of the shelter system. Holding rate is a means of monitoring the difference between the number of animals who come into the system and the number of animals who have outcomes. High or rising holding rates may be an indication of juvenile animal care, prolonged shelter stays, numerous undispositioned* animals, or increasing in-shelter population.

*(*An animal is considered to be "dispositioned" by shelter software when a final outcome has been entered into the database. Undispositioned animals may continue to appear as part of inventory, even if they are no longer present, since there has been no record made in the software that the animal has left. Undispositioned animals may confound data analysis. Daily reconciliation with actual animals present is crucial to good record keeping.)*

The number of animals in holding should be carefully monitored – although there are several constructive reasons for increased shelter holding, it may sometimes be an indicator of animal "warehousing". Warehousing is widely acknowledged to be an ineffective and potentially harmful method of attempting to address shelter euthanasia. When increased shelter holding is identified, therefore, the reason for it should be carefully evaluated. Even if increased shelter housing results from a legitimate reason, sufficient additional facility and staff support will be required to accommodate the change. (Please also see section on animal daily inventory.)

Shelter Holding / Undispositioned Cats	Monthly Intake	Monthly Outcome	(Intake – Outcome)	Animal count in system
Start				135
Jan-07	337	316	21	156
Feb-07	320	297	23	179
Mar-07	376	354	22	201
Apr-07	419	396	23	224
May-07	555	403	152	376
Jun-07	620	548	72	448
Jul-07	630	560	70	518
Aug-07	761	807	-46	472
Sep-07	685	615	70	542
Oct-07	692	691	1	543
Nov-07	440	446	-6	537
Dec-07	439	524	-85	452
ANNUAL	6,274	5,957	317	End

(Table 1)

Table 1 above shows the monthly difference between intake and outcome for KCACC. Starting animal count was available only for in-shelter animals on a spot checked inventory report. Records of cats in foster were reported to be only loosely tracked and so, were not included. To calculate holding, each month, the difference between the number of intakes and the number outcomes is calculated. That difference is added to the start number each month until the end of the time period.

Note that in negative holding months, if the shelter was not already over capacity, animals could be brought back from foster care. However, if too many animals are in foster care awaiting return to the shelter, that population may build up over time, eliminating those foster homes from population flow through with no further benefit in overall lives saved. Many of the animals who make up the animal count in system may be in foster care.

As shown above, feline KCACC statistics for 2007 show 5% of shelter intake with no outcome disposition (317 cats*). If all cats were appropriately dispositioned**, this would mean that KCACC started 2008 with responsibility for at least 317 cats or 5% of the total feline intake from 2007 in addition to the starting in-shelter count of 135 cats on January 1st or at least 452 cats in total.

317 cats annual holding
+135 starting in-shelter population count
452 cats remaining in the shelter system

These numbers appear to give a realistic account given the number of cats reportedly sent to foster and the number of cats in the facility at the time of the visit. Starting numbers and holding numbers could not be calculated for 2006.

(** *Spot checks of daily population compared to data based inventory reports were accurate showing that most animals were properly dispositioned in January of 2008. It is unknown if animals were being properly dispositioned prior to that time. KCAS staff report that dispositioning has improved steadily in the last year and a half since starting with Chameleon.*)

Summary of problems identified:
The data above show that the current mismatch between intake and live release is greater than the 20% mandated by law (15% for 2009), particularly for cats. In 2007, annual live release as a percent of intake was 53% for cats and 65% for dogs. Current live release falls short of legislative expectations for 2008 by 27% for cats and 16% for dogs (21% overall) if intake remains the same. Shelter deaths represented 41% of feline intake and 33% of canine intake. KCACC shelter holding represented 5% of intake for cats (305 cats) and only 2% of intake for dogs (82 dogs). In terms of absolute numbers, the difference between the rate of euthanasia in 2007 and the 2008 target equated to 1627 cats and 730 dogs, or a total of 2,356 fewer animals to be euthanized this year compared to last assuming the same rate of intake. 2009 minimum euthanasia legislation equates to 1940 cats and 972 dogs, or a total of 2,913 fewer animals to be euthanised.

Shelter intake of dogs (4%) and cats (22%) increased in AUG-DEC 2007 compared to AUG-DEC of 2006. This additional intake places a greater burden on all shelter resources.

These reductions must be accomplished by increased live placement or reduced intake. Clearly, given the magnitude of this discrepancy, this cannot be addressed simply by increasing the number of animals held in an already-crowded facility or foster care system, yet no plan or functional systems are in place for addressing this ongoing disparity on a daily basis while new systems are put in place to increase live release or decrease intake, nor was any plan evident for putting those new systems in place to meet the legislative mandates.

In 2007, it was reported that zero healthy, adoptable animals were euthanized. All euthanasia was attributed to barriers to adoption such as behavioral or medical conditions. It is unknown how many of the animals (or what percent of intake) who were euthanised represented animals with a significant barrier to adoption such as a terminal medical condition or dangerous behavioral condition versus those arrived healthy and behaviorally sound but deteriorated in the shelter for lack of adopters or those that could have been treated/rehabilitated if resources and facilities existed to do so. Clearly the challenges in meeting the current legislative depend in large part upon the answer to these questions.

Further complicating this analysis was the fact that numerous unintentional data entry problems were discovered during the process of evaluating data for shelter population dynamics. Those affecting the most basic intake and outcome data have been recently corrected. It is likely many other data entry errors remain present in the system. No

consistent system exists for how data entry, even for basic intake and outcome information, should be done.

Recommendations:

- **Immediately** develop and implement a plan for population management that addresses the mismatch between current legislation and the ongoing disparity between intake and live release. Limiting shelter animal euthanasia without controlling intake and/or having an immediate outlet for increased live release is not a functional plan.

- Monitor shelter intake and work within the community to implement strategies to reduce the number of animals presenting to the shelter. If intake continues to rise, increases must be matched with appropriate increases in resources.

- Plan and evaluate population dynamics for shelter animals by species. The challenges and solutions may vary. Only dogs and cats have been included in this evaluation but other species should also be similarly evaluated in order to identify challenges and potential opportunities for improvement.

- Closely monitor the holding rate in conjunction with the rate of live release and shelter death. Do not attempt to reduce the rate of euthanasia by increasing shelter holding without significant additional investment in facilities and other shelter resources. Even with additional resource investment, increased holding could not resolve the magnitude of the current difference between intake and live release but may allow some additional time for treatment or re-habilitation.

- Include starting population numbers in the denominator along with intake when calculating a live release rate over a given period of time. (See Appendix A for example calculations.)

- In order to clarify current goals are ultimately attainable, implement systems to better evaluate which animals are euthanised for non-shelter induced humane reasons or for public safety and which are euthanised because of shelter population dynamics or lack of resources. (See section on euthanasia practices and definitions below.)

- Implement systems at intake to examine and record behavioral and health status of animals as they arrive in order to monitor for systematic health or behavioral deterioration. If animals are arriving healthy and in good condition and are later being euthanised for medical and behavioral reasons, then changes must be implemented to increase preventative practices including stress reduction, interference with infectious disease transmission and decreased length of stay.

- Meaningful evaluation of shelter population dynamics relies on accurate data entry and regular data auditing. Compare kennel inventory reports generated by Chameleon daily to actual inventory of animals in both facilities as well as all

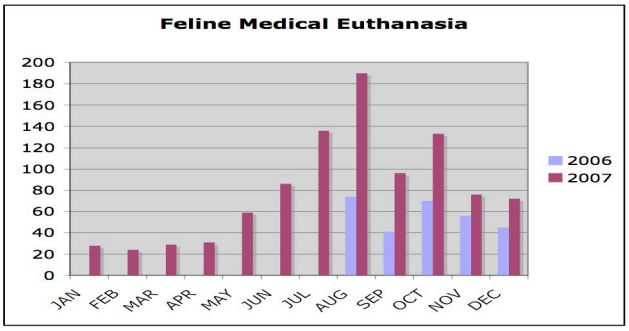
animals in foster. Ensure that animals are properly recorded at intake and disposition. Provide all staff using Chameleon with additional training from Chameleon and establish a comprehensive plan for data collection, monitoring, and auditing in consultation with Chameleon software.

- Provide shelter supervisory staff and management with training on the use of data reports and in-shelter access to reporting software (Crystal Reports) to be able to better monitor population dynamics and resolve data entry problems.

v. Euthanasia practices and definitions

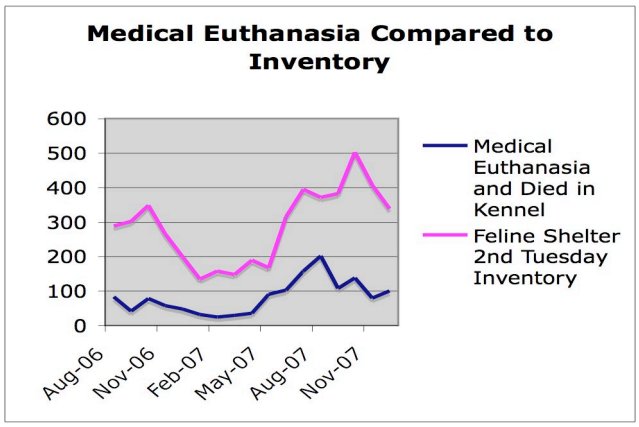
Previous legislation mandated that animals not be euthanized for space. Without added implementation of supportive programs to increase live release or decrease intake (e.g. to eliminate the need to euthanize for space) this may have led to substitution of an increased numbers of animals (particularly cats) euthanized for shelter-acquired illness, rather than the true decrease in euthanasia of adoptable animals the legislation was presumably intended to achieve. This substitution may be reflected in the increasing rates of medical euthanasia for cats. We do not have the historical data to compare beyond August 2006.

Medical euthanasia for cats increased by 98%, almost doubling, for the time period of August to December in 2007 compared to 2006. (2006 data prior to August was not available.) Even considering a 22% increase in feline intake, it is unlikely the number of cats presenting to the shelter with severe clinical signs of disease doubled from one year to the next. Instead this increase suggests a significant increase in shelter related disease. (Figure 15)



(Figure 15)

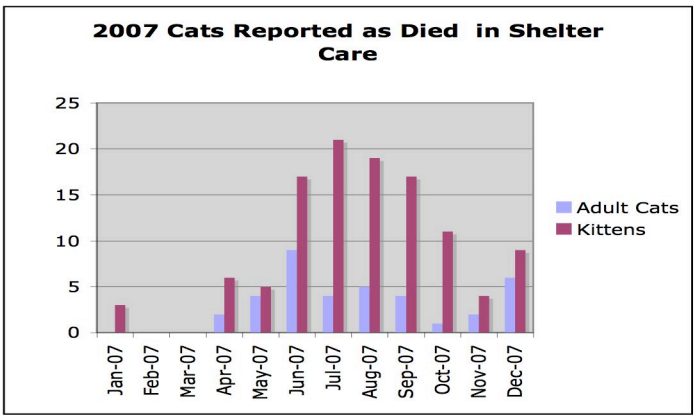
Figure 16 represents the close relationship between shelter crowding and medical euthanasia/death in 2007. The pink line represents the number of cats in the shelter on a chosen sample date (the second Tuesday of each month was selected by shelter management as representative of the likely norm for the month). The blue line indicates the number of animals euthanized for medical reasons or found dead in their cages during that month. Data from August to December of 2006 shows 286 medical euthanasias for cats. Data from the same time period in 2007 shows 567 medical euthanasias for cats. In all of 2007, 960 cats were reported as "medical" euthanasia.



(Figure 16)

In-shelter deaths also increased dramatically for cats in 2007 compared to 2006. The number of cats reportedly found dead in their kennels increased by 139%, more than doubling, from August to December 2007 compared to the same time period in 2006. (2006 data for the first half of the year was not available.)

99 cats (34 adults and 109 kittens) were reported to have died in their kennels in 2007. (Figure 16) In contrast, 9 dogs and puppies reportedly died in their kennels for all of 2007. Similar issues appear to exist for cats in foster care. In 2007, an additional 44 cats, mostly kittens, reportedly died in foster care bringing the total to 143 cats who died while in shelter or foster care.



(Figure 17)

This shift from euthanasia of healthy animals "for space" to euthanasia of animals who have become severely ill or who are dying in shelter care does not represent progress for animal welfare or the life saving capacity of the community. It represents a "loophole" that encourages poor welfare rather than a progressive plan to meet the goal of reducing euthanasia.

KCACC staff report that there is no defined system to decide when the prognosis for sick animals has become too grave or the animal is suffering too greatly to continue treatment. Staff reported that sick cats especially are not euthanised for "medical" reasons unless

death is clearly and obviously imminent. Feline treatment staff reported to UC Davis consultants that cats are "only euthanised once they have become non-responsive". Additional staff reiterated this statement. Staff and management further stated that their understanding of the current legislative requirement was that animals could no longer be euthanized when their condition could be considered "treatable" but could only be euthanized when they had deteriorated to a point that they were beyond treatment.

Staff encountered by the UC Davis team were clearly caring individuals. Several expressed great concern that there is no clear course of action to take if a staff member feels an animal is suffering too greatly or has become too severely ill to continue treatment. *Perhaps more importantly, there are few systems in place to prevent the animals who arrive healthy from becoming so sick; in fact, many practices at the shelter make illness nearly inevitable for cats.*

A similar lack of systems exists for animals identified to have behavior problems. Given the inadequate housing available for most cats, it is likely that many cats while in shelter housing, appear to have behavior that would make them unsuitable for adoption. The same is true of dogs. (Please also see facilities section) Extensive co-mingling and re-mixing is so stressful in the dog sections that evaluation of behavior is almost impossible. 770 cats (659 cats and 110 kittens) and 953 dogs (914 dogs and 39 puppies) were euthanised for observed behavior. The figures do not include feral cats and kittens who were recorded separately. Observed behavior reasons represented 32% of total feline euthanasia and 59 % of total canine euthanasia. Currently, minimal programs and physical space exist for enrichment, mitigation of stress or rehabilitation of behavior for dogs or cats.

Many animals fall into a kind of "limbo" where they will not be made available for adoption but no other options for outcome are identified. KCACC staff also report frequently being unable to meet the treatment needs of individual animals either during their stray holding period or during this poorly defined waiting period.

Figure 18 below shows a dog housed in the Eastside facility at the time of the visit. While touring the Eastside facility, UC Davis team members found the dog unattended in the kennel, minimally responsive and unable to rise with blood that appeared to be coming from the rectum covering the hind end and paws. When asked about the dog, KCACC staff at the facility reported that the dog had been to see a veterinarian and showed paperwork attached to the cage front. The animal description on the veterinary paperwork described a tan and brindle terrier. The dog appeared to be a white poodle. The paperwork was unclear and impossible to decipher even by the three veterinarians present. It was reported that the dog had been taken to see a veterinarian by the field officer who had picked the dog up. The veterinarian had reportedly said the dog could be appropriately housed in the kennels. When asked if the dog had been responsive or if blood had been present at that time of the vet visit, the staff person reported that those signs had been a more recent development and that the dog had not seen a veterinarian since the blood had appeared. Staff reported that the dog would be transferred over to the Kent facility the next day to see a veterinarian. There was no signage or other

indication that the dog may be injured, ill or potentially infectious on the kennel. The Acting Manager was present and instructed the staff member to contact a field officer to have the dog transported to the Kent facility that afternoon.

(Figure 18)

Figure 19 below shows a cat in the stray holding cages in the dog area. The code "15801" was written on his cage card by staff to indicate that he was not considered adoptable (for behavioral reasons) but would not be euthanized due to management instructions in response to the new ordinance. Staff had conflicting reports about this designation. Some reported this category meant "waiting for rescue," some didn't know what it meant, and most said there were no rescue options for cats. Staff members using the designation reported frustration with attempting to follow instructions where no resolution was likely or possible for an animal. Since this cat was housed on the bottom row, he was frequently exposed to dogs, forcefully examining his cage, either during behavior assessments, or when dogs escaped from their runs. (See housing section)

(Figure 19)

Shelter crowding and reliance on shelter-acquired illness or stress-related behavioral disorders as a "reason" for euthanasia appears to be a common short term response to an internal or external mandate to reduce or eliminate euthanasia for space. In some communities, substantial progress towards achieving euthanasia reductions has occurred *in spite of* increased shelter illness, suffering and death as a result of these practices. However, those achievements are most likely due to success of concurrent programs to reduce intake (e.g. through spay/neuter and other preventive programs) or increase adoptions (e.g. through off site events, rescue partnerships, trap/neuter/release programs etc.). Conditions of widespread illness or poor welfare need not be tolerated in the name of reducing euthanasia.

vi. Lost Animals

In 2007, 60 cats were reported lost or missing from their cages, equivalent of 5 per month as an annual average. KCACC staff reported the majority of those were lost from cat cages in the dog wards.


(Figure 20)

Figure 20 shows what staff referred to as the "lost list" for cats that had gone missing from cages in the dog area. KCACC staff members reported that once, they pulled the

Cat Owner Surrender cages away from the wall to look for a cat that had just recently escaped, and found 4 cats hiding behind the bank of cages. It was unknown how long the cats had been there. There was no system in place to keep the lost list up to date. Lost cat numbers would be included in the holding numbers. (Please see paragraphs on Owner Surrender capacity below and Housing paragraphs in the Facilities section.)

Problems identified:
Current legislation sets absolute acceptable rates for euthanasia regardless of reason, removing the "loophole" described above. Meeting this mandate will require an alternate plan be developed to address the current, ongoing disparity between intake and live release. Shelter acquired illness or death will no longer be an acceptable justification for the current rates of euthanasia or an acceptable response plan to address the disparity between intake and positive outcomes. Crowding to the point that animal health, behavior and welfare is compromised cannot logically be linked to progress towards ending euthanasia of adoptable animals.

Without functional systems in place to increase live release or decrease shelter intake, eliminating euthanasia for space has caused a substitution of euthanasia or death for health and behavior reasons that are often shelter acquired problems related to stress, crowding, and increased exposure to infectious disease. This systematic policy has led to significant animal welfare issues, individual animal suffering and has likely caused increased shelter death.

No system is in place for identifying which of the animals are euthanised because of non-shelter induced welfare concerns or public safety and which are euthanised because of population dynamics or resource issues. Shelter population dynamics and resource issues underlie the current levels of euthanasia for health and behavior.

Adequate support systems are not in place to prevent, treat or rehabilitate the most frequently identified causes of shelter euthanasia: health and behavior problems. While the more significant issue of mismatch in shelter population dynamics underlies these causes, programs and support will be required in these areas to meet the goals for reduced euthanasia.

Shelter staff report they experience significant stress from lack of systems for them to appropriately address animal health and welfare concerns.

Substantial numbers of cats, especially kittens, are dying while in shelter or foster care. Foster parents who have kittens dying in their homes are unlikely to have positive feelings about their foster experiences.

Many animals are lost while in shelter care. No system is in place to prevent this from happening or to do regular checks to find lost animals. (Please see paragraphs on Owner Surrender capacity below and Housing paragraphs in the Facilities section.)

There appears to be no recognized general understanding or defined minimum standard for shelter animal health and welfare or accepted limit to suffering for individual animals in the absence of capacity to provide adequate care.

Recommendations:

- Develop clear minimum standards for shelter animal health and welfare, including space allotment, stress reduction, environmental / behavioral enrichment and protection of health. Manage the shelter population based on these standards. Identify specific courses of action when minimum requirements for any individual animal's needs cannot be met.

- Implement preventive, enrichment, treatment, and rehabilitative programs to maintain health and behavior and treat illness or behavioral problems, when appropriate, as animals enter the shelter. These programs will require additional and improved housing capacity, staffing, training and supervision.

    - Minimize or eliminate co-mingling of unrelated animals unless sufficient space exists for appropriate group housing and compatibility is evaluated. .
    - Maintain shelter population at a level where staff can safely and effectively care for animals, detect illness, isolate sick animals and prevent disease transmission.

- Carefully and regularly monitor shelter animal care to ensure optimal health and welfare. See http://www.sheltermedicine.com/documents/daily%20rounds.doc for detailed instruction on performance of daily rounds (or type "daily rounds" into the search box at www.sheltermedicine.com and select "documents" as the search type)

- Immediately institute regular, daily checks for lost animals including setting live traps in the evenings whenever cats have been lost.

- Design and implement clear, written comprehensive systems with training for staff, volunteers, and foster parents to provide optimal care while recognizing, preventing and promptly responding to animal suffering.

- Ensure that a staff member with the authority for making decisions about animal care, animal movement, treatment and euthanasia is present in the shelter or available to consult whenever staff may need assistance or instructions for animals in need of care.

- Carefully monitor and report statistical data for trends that may indicate or encourage decreasing standards of animal health and welfare.

    - Monitor for increases in medical euthanasia and deaths in the shelter or in foster as indications of decreasing health and welfare.

- Decreases in total euthanasia are a better indication of life saving capacity than decreases in healthy euthanasia as defined at the time of disposition.
- Increases in the holding rate and daily animal inventory may also be used as indices of shelter crowding.
- Closely monitor numbers of lost and missing animals. Even small numbers or increases in lost or missing animals should be cause for concern as they may be early warning signs of a lack of functional systems for animal care.

SECTION II. Part Two: Capacity

(Capacity is a means of evaluating the fit of each area in the shelter facility that has been designated for animals compared to the needs or requirements of the area, as well as the facility and population of animals as a whole. Capacity is dramatically affected by intake numbers, physical space, housing units, staffing, and length of stay. The term "inventory" is used in this report to describe daily population, as this is the term used to obtain the Chameleon report calculating this number.)

For staffing recommendations as they relate to capacity please see examples and discussion in Appendix B.

Separate observations have been provided for the following areas.
i. Observed capacity
ii. Required stray holding capacity
iii. Owner surrender holding area capacity
iv. Adoption area capacity
v. Waiting-for-rescue/foster capacity and housing Requirements
Overall assessment of problems and recommendations regarding capacity follow.

i. Observed capacity and Co-mingling of Dogs at the Kent Facility

(Observed Capacity includes both what was counted and observed by UC Davis team members at the time of the visit and data-derived population information from the Chameleon shelter software system. Software derived data was confirmed by multiple KCAS staff members. Co-mingling describes mixing of animals within the shelter facility. Co-mingling does not include co-housing of bonded animals or littermates. Co-mingling increases stress, fighting, and the risk of infectious disease for shelter animals.)

Shelter crowding is at dangerously high levels. At the time of the visit, dog kennels in all areas commonly housed 3-4 dogs or more. While shelter staff attempt to prevent disease transmission by housing dogs and puppies who arrive at the shelter in proximity to each other in the same kennel, it was reported that field staff do not follow this procedure. Unrelated dogs and puppies from varying sources are commonly co-mingled, then re-housed with other dogs who have been housed with an entirely different set of unrelated dogs. This re-mixing process may happen several times during a dog's stay at that

shelter and is likely to happen several times even within a dog's short required stray holding period

On January 10th, one day of the visit, 83 dogs were housed in the Kent facility's 44 kennels available for use, giving an average of greater than two dogs in each kennel with an actual range of one dog in some kennels and three dogs in most kennels, while some kennels housed up to five dogs. Shelter staff reported animal population was unusually low. Dogs housed together did not arrive at the shelter together. Dogs were not housed by age group. Choices for co-housing were based primarily on size rather than compatibility or animal safety since more smaller dogs could be fit into each kennel. In most cases, intake dates varied widely, in some cases by more than two weeks, for dogs housed together meaning that newly arrived, susceptible dogs and puppies were co-mingled with dogs who had been in the shelter and exposed to other dogs for some time.

Dog to dog aggression was noted frequently within the intermingled kennels. In some cases, aggression within the kennels prevented dogs from eating or even approaching the food bowls during feeding. Staff report that if a dog or puppy shows dominant or aggressive behavior when housed with other dogs, that dog or puppy would be moved to a kennel housing more assertive adult dogs. (Please also see Facilities section.)

Crowding was particularly severe in the adoptable dog runs where each kennel housed at least two large dogs. The vast majority of kennels here housed 3-5 dogs per single sided kennel. Thirty-four dogs were housed in twelve kennels in the adoption area putting that area at almost 300% of capacity. Some dogs had been living in those crowded conditions for over a month. Staff reported and identified dogs in the holding areas who could not be moved into the adoptable areas even though they had been approved for adoption.

(Figure 21)

Even while crowding that number of dogs into the 13 adoptable kennels, many dogs who had been approved for adoption, waited for adoption in the stray holding area. This Miniature Pinscher (Figure 21) had been evaluated and authorized to be made available for adoption but no space could be found in the adoption kennels in order to allow a change in housing. The dog arrived on January 3rd with a release date of January 8th. This picture was taken on January 10th. Instead the dog stayed in the stray holding area while a constant flow of new dogs came in and out of the kennel. While this delay may seem short, the pup also pictured here arrived on the 10th. Two additional dogs were also present in the pen. If proper flow through had been possible, co-mingling would not have been required for these two dogs, at least. In this way, delays can have a significant impact on health.

There was no paperwork or other readily apparent signage that might have indicated to members of the public that the Miniature Pincher, as opposed to the others in the pen, was actually available for adoption. Although the outcome for this particular dog is unknown, this is an example of a highly adoptable dog at risk for developing a serious medical or behavior problem from being housed with so many other dogs – in some cases even being euthanized as a result - without ever getting a chance at being considered for adoption by the public. Staff reported this was a common and frustrating situation because dogs commonly became ill while waiting.

The situation for dogs became even more severe soon after the UC Davis visit. On January 23rd, for example, inventory reports show the in-shelter dog population at the Kent facility to be 112 dogs; 33 dogs higher than the population during the visit. Shelter staff confirm that these inventory reports are accurate and in keeping with the actual situation at the shelter. Staff noted 5-7 dogs in many kennels. Shelter staff also reported to the UC Davis team that during this time it was common to come to the shelter and find dogs covered in feces with blood and other evidence of fighting in many kennels.

ii. Required stray holding capacity

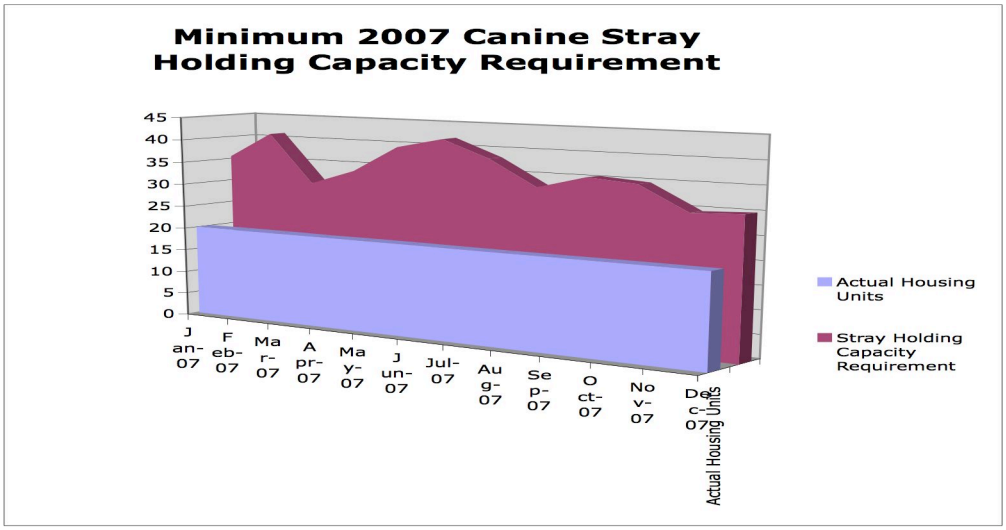
(Animals may arrive at the shelter and be designated as strays if they are picked up by field officers with no apparent owner present or are brought in by members of the public who reports having found the animal lost or unaccompanied by an apparent owner. Stray dogs are required to be held for 3 days, not including the day of impoundment, holidays or days when the shelter is closed. For this report, we have used 4 days as a minimal average stray holding period although the average is somewhat longer.)

Canine Required Stray Holding Capacity

19 single-sided runs are assigned and available for housing stray dogs in their holding periods. (21 runs are in the area, two are left open in order to facilitate cleaning.) Canine daily average intake by month for 2007 ranged between 12 and 15 dogs / day. Even if an

average absolute minimum stray holding time of 4 days is used to calculate stray holding time the average required stray holding in 2007 ranged between 29 to 41 dogs per day putting the stray holding area at between 154% to 217% of capacity. (Figure 22) A small fraction of the stray holding population may be due to litters of young puppies who could appropriately be housed 2-3 puppies (from the same litter) per cage if caging that allowed for easy cleaning with minimal handling was available. Only 9.6% of annual stray canine intake was puppies. It is unknown how commonly stray pups are found with their littermates. At the time of the visit, adult dogs, not pups made up the majority of the population.

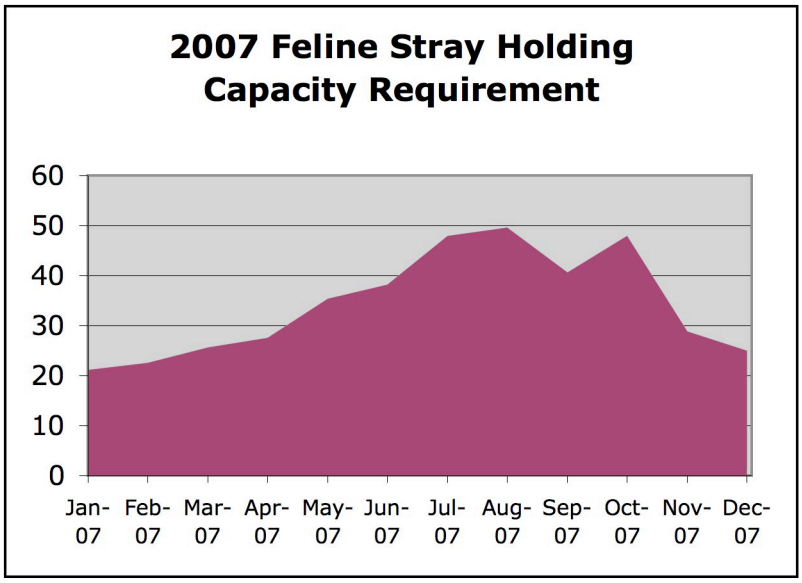
There was not a single month in 2007 when the canine stray holding area was required to house only as many dogs as there were appropriate housing units available. These figures likely underestimate the crowding because they do not take into consideration *any* extra time past the legally required stray holding period that may be required for evaluation, owner reclaim or additional care or intervention that may be needed. (Please see animal care days section below.)



(Figure 22)

Feline Required Stray Holding Capacity Requirement

Figure 23 below shows the average daily number of cats in stray holding by month based on 2006 and 2007 stray cat intake and a four-day stay in stray holding areas. This is an absolute minimum based on stray intake and legally required holding and does not include any additional time for waiting, evaluation or treatment. Because there were serious concerns about the quality and location of cat housing and because housing was not, in general, being used for population sub-groups as designated at the time of the visit, in this figure, only the requirement is shown without a representation of the current actual capacity.



(Figure 23)

At the time of the visit UC Davis team members counted:
20 cages in the cat stray room
18 cat cages identified for stray overflow holding in the dog holding wards
12 cages in cat quarantine
8 cages identified as kitten nursery
Totaling 58 cages identified for stray cats

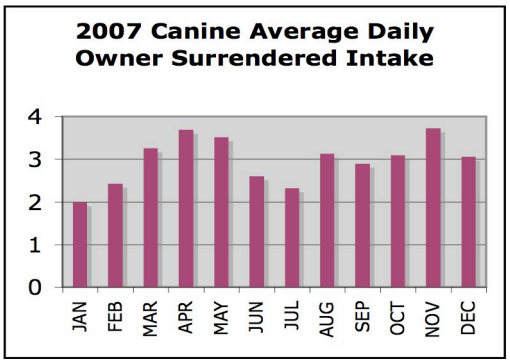
Average daily required stray holding population ranged from 21 cats in January of 2007 to 50 cats in August of 2007. Some of the increase in holding population may be due to litters of kittens who could appropriately be housed 2-3 kittens per cage if appropriately sized housing is available. 34% of annual stray feline intake was kittens. It is unknown how commonly stray kittens are found with their littermates. The number of cages identified for housing cats in their required holding period would be just adequate to house the average number of stray cats coming in for a minimal four-day stay but being so close to maximum capacity would mean it would be difficult to impossible to use the areas as intended to establish particular areas for adult strays, kittens or cats in quarantine. There was no specific area identified to house cats who arrive at the shelter with clinical signs of disease.

An additional 11 cages were in the stray unloading bay (intended for temporary intake holding cages).

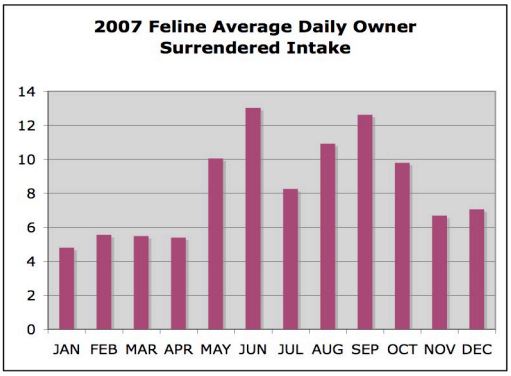
iii. Owner surrender holding area capacity

(Animals may be relinquished by their owners either in the field or at the shelter facility. There is no legally required holding period for owner surrendered animals prior to being placed for adoption, transferred, sent to rescue, euthanasia or other outcome.)

Figures 24 and 25 show the average daily owner surrendered canine and feline intake for 2007. For dogs, owner relinquishments range from, on average, 2-4 dogs per day. For cats, owner relinquishments range from 5 to 12 cats per day. Owner surrendered dogs represented 22% of total canine intake for 2007. Owner surrendered cats represented 44% of total feline intake for 2007.



(Figure 24)



(Figure 25)

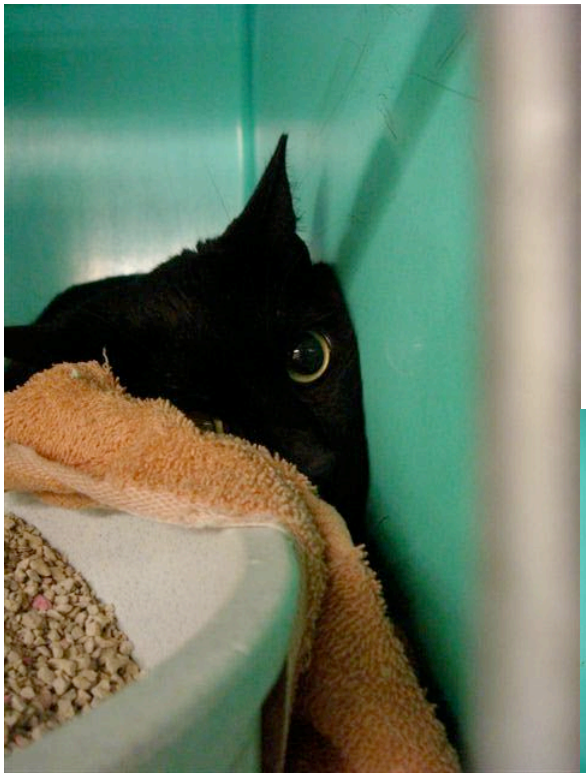
Current practice at KCAS, at the time of the visit, was to place owner surrendered cats in a bank of very small cages in the dog ward for at least 24 hours or until they could be evaluated. 16 cages in the dog area were identified for owner surrendered cats. Cats in these cages were subjected to constant loud barking with loose dogs running up to their cages intermittently throughout the day. This situation created such stressful conditions that during the time of the visit, the majority of cats in these cages appeared scared, indicated by widely dilated pupils, frozen body postures, and attempts to hide behind or within the dog food dish provided as a litter pan.

Several cats were noted not to move at all in their kennels, even to eat or eliminate, throughout the day. (Please see section on housing below.) This process was designed to take only a day but in reality many cats waited in this stressful area for days or even weeks because there was no effective process in place to move them through the system and no physical space to move them into. It is very unlikely that cats' behavior, health or potential for adoption will improve under these circumstances.

As mentioned above in the section on lost animals, the majority of lost cats were lost in this area, as well as the stray area in the dog run room. On at least one occasion, several cats were found hiding behind this cage bank who had been lost for an indeterminate amount of time.

Figures 26 and 27 below show cats housed in the owner surrender area described above at the time of the visit. The behavior and appearance of these cats was representative of

most cats in the owner surrender section on the day of the visit. Figure 28 shows a cat in the same area in September of 2007. Figure 29 shows his cage card. These pictures were taken by a UC Davis team veterinarian while touring the Kent facility with the Acting Manager and supervisory staff on September 26th, 2007. Even in a curled position this large cat nearly touched both sides of the kennel. The cage card shows an intake date of September 15th, 2007 indicating that this 12 year old cat had been made to maintain this cramped body posture, in housing that was far to small to accommodate him, for 11 days even though his release date was the same as his intake date. Nobody could say why he had been there for so long or identify any plan for him. During both visits, several other cats were noted to have been in this section for longer periods of time. As noted above in the section on holding rate, cats in these sections were frequently exposed to dogs, either during behavior assessments, or when dogs escaped from their runs. (See also Facilities Section.)



(Figure 26)

(Figure 27)

(Figure 28)

(Figure 29)

Placing owner surrendered cats in this dysfunctional evaluation area requires additional capacity. If as an example, we estimate conservatively that on average cats wait 4 days in this holding area, then a range of on average 20 (January through April) to 48 (August and September) will need care and housing in this section each day depending on the season. This additional housing time could be avoided for most cats by reallocating time for the evaluation process to intake and placing adoptable owner surrendered cats immediately for adoption. This would also avoid the stress of an additional move and adjustment period for cats within the shelter, a factor known to predispose cats to upper respiratory infection. If additional time is deemed necessary to evaluate an individual cat, the cat should be housed in an environment that provides stress mitigation and enrichment so that the additional time is likely to result in a more accurate evaluation. At present, no such housing exists in the Kent facility.

The Acting Manager has informed the UC Davis team, since the time of the visit, that cat cages have been permanently removed from this and other dog housing areas into another section of the shelter.

Dogs who were surrendered by their owners were, similarly, placed in the back row area of four to six runs (defined as the owner surrender area) to await evaluation. These same kennels were also used to house sick dogs intermingled with recently recovered dogs so that newly arrived, potentially susceptible surrendered dogs were housed just adjacent to clinically ill dogs. These runs were also adjacent to the area used to house the most aggressive dogs. If additional cages are needed for aggressive dogs, fewer cages are available for owner surrendered dog housing. Some staff report making individual efforts to identify highly adoptable animals and move them directly into adoption. Staff described that action as a personal decision to break with protocol for the benefit of the dog. Staff also reported that most often, it was not possible to move even highly adoptable dogs to the adoption area because all the kennels in the adoptable section were already overflowing. This process also requires additional housing capacity and could be avoided for most dogs by reallocating time for the evaluation process to intake and making adoptable dogs immediately available in designated adoption kennels. As for

cats, if additional time is deemed necessary for owner surrendered dogs, additional housing capacity would need to be provided.

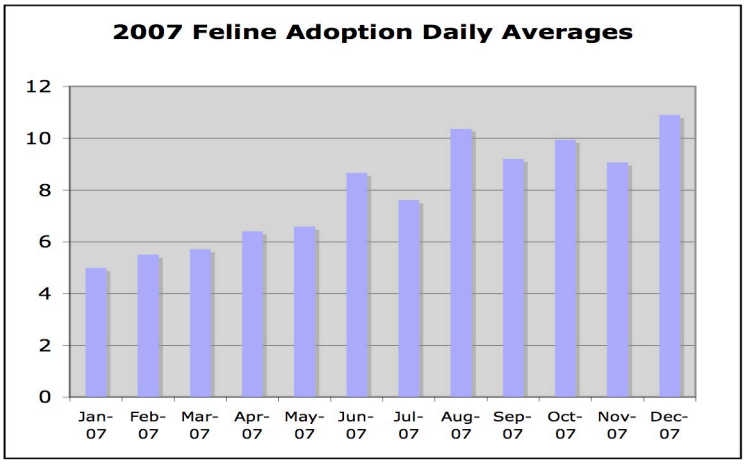
iv. Adoption area capacity

Canine Adoption Area Capacity

The number of dogs available for adoption appears to be a good match for the number of daily adoptions. There are a slightly increased number of adoptions on the weekends compared to the weekdays. The number and quality of housing units in the adoption area is inadequate and requires creating poor welfare with an increased risk of infectious disease exposure, stress and potential for injury in order to meet the capacity for adoption.

Given the success of the current program with the availability of 30-40 dogs, it is recommended that at least 40 - 50 runs be available to house dogs available and awaiting adoption. Expectations for 2009 would require annual average live release of 11-12 dogs per day or almost 80 dogs per week. Adoptions made up 46% of annual live release so expectations for adoptions could be projected to approximately 35-40 per week. This recommendation for at least 40 -50 housing units for adoptable dogs assumes that systems will be put in place to help ensure an average turnaround time of approximately 8 days. (Please see section on length of stay below.)

Feline Adoption Area Capacity



(Figure 30)

As shown in Figure 30 above, average daily adoptions ranged from 5 cats in January to 11 cats in December in 2007. 48 cages (including hallway cages?) were reportedly used for cats awaiting adoption. It was reportedly common to house multiple adult or juvenile cats per cage, such that well over 100 cats could be awaiting adoption at any given time. Adopters were reportedly also encouraged to consider adoption of sick cats under treatment in isolation areas, which could equal an additional 50 or more cats at times of

maximum shelter holding. Cages were found in a defined adoption ward and in the hallway just outside the room.

In order to meet the current goals, if no reductions in intake or increases in transfers or owner reclaims are seen, an annual average of 14 cats per day, with a monthly range of 8 cats in February and 20 cats in August would need to be adopted. These numbers highlight the need for programs targeting shelter intake reduction and community partnerships. Higher numbers of adoptions would generally be needed to meet the goals in the warmer months with lower adoptions in the cooler months. Some of those adoptions may happen through off site adoption events.

Rather than simply housing as many cats awaiting adoption as can be fit into the shelter regardless of benefit or cost (in terms of welfare and compromises to customer service and animal care), an optimal number of adequate housing units for cats and kittens should be determined to meet the adoption goals while avoiding crowding or prolonged stays in inadequate housing. Having far more cats in adoptable sections than will be adopted on a daily basis will contribute to prolonged shelter stays and the associated risks of illness and stress related behavioral disorders; will not increase the actual number of adoptions unless adopters have previously been discouraged by an insufficient number of available choices; and may actually lead to reduced adoptions if staff or shelter visitors are overwhelmed by a messy, chaotic environment with numerous poorly presented, frightened or sick animals and limited customer service. (Please see section below on animal care days and turn around time.) A more realistic approach is to increase the number of cats available through suitable offsite locations rather than simply adding more in a single location. An appropriate number of staff should be assigned to care for the animals in the adoptable sections based on the number of animals present.

v. Waiting-for-rescue/foster capacity and housing requirements

Capacity for dogs and cats awaiting selection and pick up by rescue groups or foster homes must also be calculated and added into the total number of housing units in the shelter. Estimates of the number of animals that are likely to be transferred or placed with rescue groups multiplied by their average length of stay will provide estimates of the number of housing units required to safely and effectively support rescue and transfer placement. Crowding animals awaiting rescue into stray holding units leads to a host of problems. This is especially true in the current facility since the stray holding areas are grossly inadequate even to house animals still within their legally required stray holding period. Rescue groups and transfer agencies should be made aware of the importance of prompt pick-up of animals since delays in pick up may contribute to individual animal illness as well as further crowding in the facility.

Individual animal illness in turn increases the time and resources needed to care for animals on the part of rescue groups and transfer shelters, leading to a reduction in the

number of animals they can effectively rescue from this shelter or others. Given the severely limited capacity and housing quality of the current facility, rescue/transfer should be considered pro-actively rather than as a method of last resort. The sooner animals are transferred, the greater the benefit to the rest of the population in terms of reduced shelter crowding, and the greater likelihood that the transferred animals will remain free of disease.

Assessment:
Shelter crowding is causing significant stress and suffering for animals and staff, contributing to the incidence of infectious disease, and interfering with animal placement and live release. (Please see also section on animal inventory below.)

No plan or system is in place to define an upper capacity limit for shelter housing. The shelter facility is currently dangerously over capacity in all areas of housing for cats and dogs. If intake is allowed to continue at rates similar to those of the previous years, without immediate and sustained significant increases in average daily live release and/or decreases in length of shelter stay, crowding is likely to continue near current levels for dogs and is likely to worsen dramatically for cats as the warmer months approach and bring higher average numbers of animals presenting to the shelter system.

Systematic delays in moving animals through the shelter contribute to crowding by increasing the length of stay for each surrendered animal. Given the inadequacy of housing in owner surrendered holding, as well as other areas for dogs and cats, these delays also induce stress, suffering, greatly increase the risk of infectious disease, and likely lead to unnecessary euthanasia.

Problems Identified:

- Housing areas create extremely stressful conditions for cats and dogs. These stressful conditions result from crowding and lack of systems to help move animals through the system. The conditions are avoidable and should be remedied.

- Current holding area capacity is grossly inadequate for housing stray dogs at the current rate of intake.

- Current housing capacity in all holding areas is inadequate even to accommodate those animals requiring holding for stray, rescue, treatment of illness or other reasons; and can not additionally accommodate housing of animals with no required holding period as is currently being practiced for owner surrendered animals. These animals should be evaluated and, if deemed adoptable, be made immediately available.

- Crowded housing conditions in all areas have a negative impact on animal health and welfare through an increased risk of infectious disease, animal stress, and animal injury for the animals in the shelter.

- Crowded conditions negatively impact live release because animals become sick, deteriorate behaviorally, and may die or be euthanized as a result, who might have otherwise been placed through adoption or rescue.

- Crowded conditions may make effective behavior evaluation and disease detection difficult or impossible to achieve.

- Crowded conditions make it difficult for adopters to accurately assess characteristics of potential pets, as normal behavioral expression is suppressed when animals are crowded into single runs with potentially incompatible kennel-mates.

Recommendations:

- Establish an upper limit for shelter capacity and do not house more animals than can be safely and humanely accommodated in the shelter facility.

- Expand actual holding and adoption area capacity to allow for single housing for most dogs in double-sided runs with a guillotine door to facilitate safe and efficient cleaning; and adequate housing for cats, either sufficiently large single cages or colony-style areas. (Please see Facilities section below for recommendation on housing units.)

    - In the interim until housing is expanded to meet the capacity requirements, planned systematic all-in / all-out co-mingled housing for dogs will reduce risk of infectious disease, animal aggression and animal injury. Current cat caging is inappropriate and inadequate for co-housing other than littermates (or adult bonded pairs ONLY in the large wire carriers in the adoption hallway); co-housing of unrelated cats is not required to meet stray or adoption capacity provided problems with population management/spay/neuter are addressed; and should be immediately discontinued. (Please see Facilities section.)
    - Increasing co-housing is not an appropriate response to admitting animals above the safe capacity limit.
    - Use daily average intake to estimate the numbers of co-housings necessary.
    - Co-house only compatible dogs who come in together or come in on the same day.
    - Plan some single housing for animals who will do poorly if co-housed.
    - House aggressive animals or those with clinical signs of disease singly
    - Use all kennels in an all-in / all-out fashion
    - House intact animals with same gender

- Prioritize efficient daily evaluation and movement of animals through the shelter since doing so will reduce the numbers of animals present, and at risk, in the overcrowded shelter each day. Do not house animals past their release date in

holding areas that are already stretched beyond capacity just meeting the requirements of their intended purpose.

- Discontinue systematic holding periods for owner relinquished animals. There is no required holding period for animals who have been surrendered to the shelter by their owners.

- Establish processes and procedures to evaluate owner relinquished animals on intake and make clearly adoptable animals immediately available for adoption. The same staff time would be spent to evaluate dogs and cats at intake instead of after a waiting period. Shifting the timing would actually decrease workload by decreasing the number of animals needing care each day, if good flow can be established.

- If in the future systematic holding for evaluation of owner relinquished animals is desired, build appropriate holding capacity that will at least prevent deterioration of health and behavior (and ideally support behavioral improvement such that animals can be accurately assessed for adoption/rehabilitation potential) prior to re-implementing this practice.

SECTION II. Part Three: Length of shelter stay, animal care days and daily in-shelter animal population

Animal care days

Animal care days are a way of evaluating the burden placed on both the animals and the shelter facility. One animal care day is the equivalent to one animal in the shelter system for one day. Clearly, 1000 animals housed for 20 days each places a greater burden on a given staff and facility than 1000 animals housed for 10 days. The risk for each individual animal also increases with longer stays. When working with a shelter caring for thousands of animals per year, even minor delays at flow-through points such as movement to adoption or spay/neuter delivery can add up to very substantial numbers of additional days spent by animals in the shelter, not actively moving towards a positive outcome. In order to realistically track staffing, facility, and resource needs, animal care days are as important as monthly or annual intake.

Reducing the number of animal care days per animal can dramatically reduce crowding and improve the level of care available for each animal without increasing euthanasia or reducing live release. In fact, reduced crowding and illness due to improved speed of flow-through can lead to increased live release. For this report, animal care days have been limited to days animals are actually housed in the two shelter facilities as opposed to time spent in foster care.

Animal care days should be considered a precious resource, and expended carefully to best fulfill the shelter's mission. This requires constant monitoring of animal care day numbers as described below. In particular, every effort should be made to minimize "wasted animal care days"; that is, a day spent caring for an animal that did not bring

the animal any closer to a positive outcome. There are two main reasons for "wasted" care days.

One type of "wasted" care day is a day spent on an animal not actively available (viewable by the public) for adoption, nor actively being prepared or rehabilitated for the purpose of being placed for adoption, transfer, or rescue. The most obvious example is adoptable animals housed in areas of the shelter where they cannot be viewed by the public. More subtle examples come from delays in decision making or in carrying out necessary procedures (basically any time an animal spends "in limbo"). For example, if an animal comes in with a medical problem requiring evaluation by a veterinarian and that evaluation is delayed by a few days, those days are wasted care days. The same applies to animals with behavior issues; any delay in carrying out necessary evaluations, seeking out expert advice, initiating rehabilitation programs, etc. counts towards care days spent with no return for shelter or animal.

Another type of "wasted" care days are those days (beyond any required holding period) spent on caring for an animal whose final outcome is euthanasia. In these cases, shelter resources are expended, crowding and the associated risks are incurred, and the animal suffers with no benefit in lives saved. A particularly sad example is that of cats admitted to a shelter in good health and later euthanized for shelter acquired disease, spread as a result of overcrowding. Certainly, it is humane and appropriate to take some risks on animals that have barriers to adoption that they may or may not be able to overcome, and therefore, invest in an animal that ends up being euthanized. Those care days may not be wasted, especially if they lead to a life saved. However, it does not serve any good purpose to systematically admit and hold animals, without having enough resources and programs to keep them healthy, release, or adopt them, then euthanize them after prolonged investment when the animal has succumbed to disease or a stress related behavioral disorder.

i. In-Shelter Population ("Inventory") and length of stay

Note: "Inventory" is the term used by the shelter software system to describe a report noting all animals in the shelter and the status and location of each. Therefore, the term is used in this report to describe the total in-shelter population. Separate analysis is provide for dogs and cats; followed by a general summary of problems and recommended solutions.

Canine Inventory and Length of Stay

December 11th, 2007 (the second Tuesday in December) will be used as an example to describe effect of length of stay for the Kent Shelter. On that day, inventory reports show there were 123 dogs listed as being present in the shelter. At the time of the UC Davis consultation and once again as a spot check, computer animal inventory was compared to a hand count in the facility. The hand count and computer count had excellent correlation so it is assumed that most dogs listed as present were actually present. Obvious outliers have been removed prior to calculations.

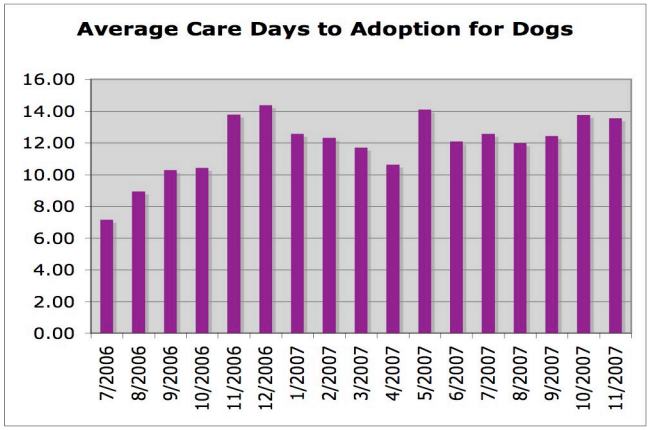
On December 11th, 2007, there were 123 dogs in the Kent shelter.
Of those, 71 were in the adoptable section's 12 occupied kennels. Average care days past release for dogs in the adoptable section that day was 16 days with a median of 8 days.
Another 32 dogs were in the stray holding area's 21 available kennels. Of the dogs in the stray holding area, 18 dogs (more than half) were more than one day past their stray holding period. Dogs in the stray holding area ranged from 1- 8 days past their release dates.
Similar calculations could be done for other days throughout the year.

Turnaround time has a dramatic effect on capacity and crowding. If we use the example above for the adoptable area combined with the goals for the community we can see that in order to adopt 5 dogs per day with an average turn around time of 8 days KCACC would need facilities to house 40 dogs while 78 dogs would need housing if the turnaround time averages 16 days. Since kennel space and capacity is limited, the effect of doubling or tripling the number of animals requiring housing is to force co-mingling of multiple unrelated dogs within each single kennel. When this happens, the result is a risk of infectious disease, injury and stress that most likely multiplies at geometric rates as the numbers of animals increase. (Please see section on adoption area capacity.)

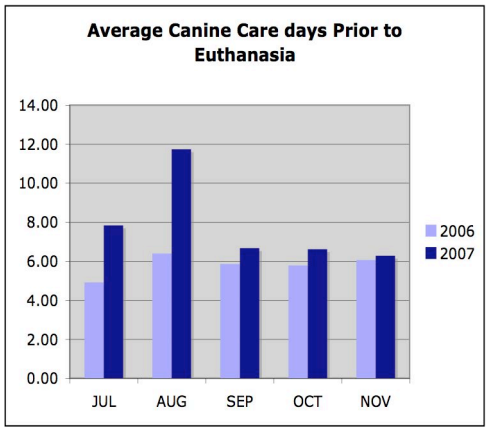
The same is true for the stray holding areas. As animals are delayed in moving to more appropriate housing sections, holding areas become overcrowded requiring newly arrived susceptible animals to be housed with animals who have been in the shelter exposed to other animals.

Average shelter care days prior to adoption for all dogs is shown in Figure 31 below. Average care days to adoption for the available data range from 7.2 to 14.7 days in the shelter. There is a trend towards increasing length of shelter stay prior to adoption seen between 2006 and 2007 in the months from July to November. If July 2006 is compared with July 2007, average length of stay prior to adoption has doubled.

Average length of stay prior to euthanasia Figure 32 was also increased from JUL-NOV 2006 compared to 2007. No data was available prior to July 2006.



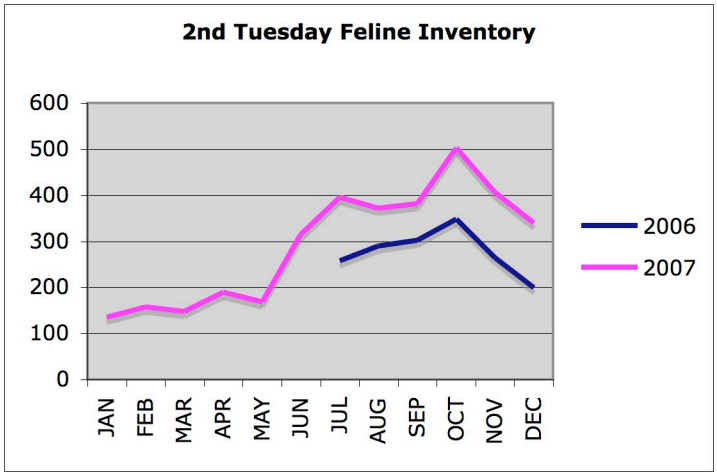
(Figure 31)



(Figure 32)

Feline Inventory

Figure 33 shows the increase in the number of cats housed in the shelter in 2007 compared to 2006. Inventory reports were generated for the second Tuesday of each month as a means of spot checking daily in-shelter population. Even when accounting for seasonal trends, on average 123 cats more (range 80-154) were in the shelter at each 2007 spot check compared to the monthly spot checks from 2006. No 2006 data was available for comparison of the first part of the year. Feline inventory for December 2007 was 204 cats greater than in January 2007. (Please also see section on holding.)

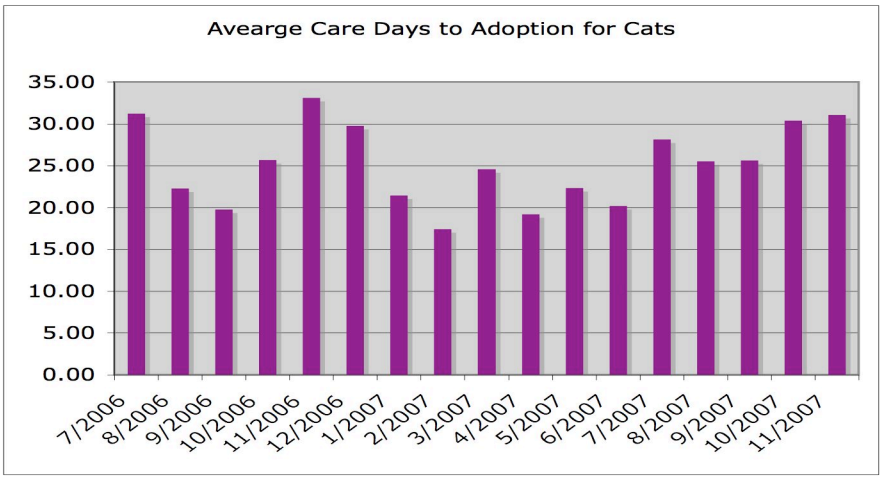


(Figure 33)

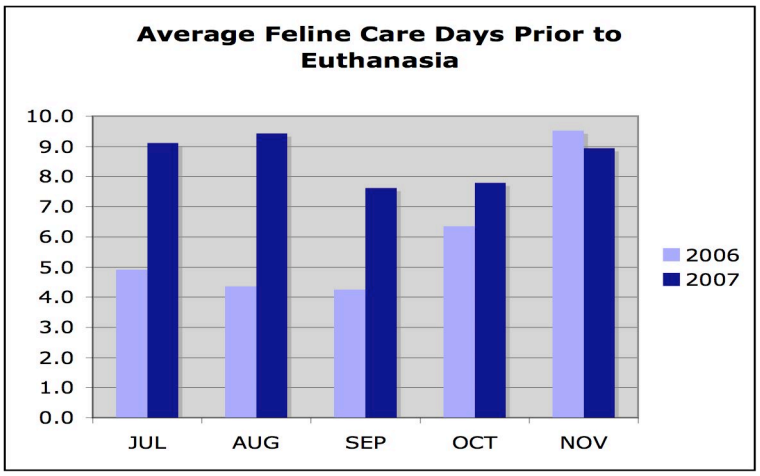
This trend of significantly increased daily feline population was not accompanied by increases in physical space, housing units or staff to care for the animals or assist with their placement.

Feline Average Length of Stay

From July of 2006 to November of 2007 average length of stay for cats who were adopted from KCAS ranged from 21 to 33 days. There is a trend towards increased average length of stay, doubled in some months, prior to euthanasia as shown in Figure 35. These prolonged stays contribute to crowding, individual risk of disease, stress, and in many cases decreased welfare and loss of life saving capacity for the organization.



(Figure 34)



(Figure 35)

Problems Identified:

There is a trend towards increasing length of shelter stay prior to adoption for dogs and cats. In some months of 2007 compared to 2006, average length of stay prior to adoption has doubled for cats and dogs. This increased length of stay has contributed to a substantial increase in daily shelter population and welfare concerns for animals who suffer from disease or who are housed in inappropriate housing.

A trend of significantly increased daily feline population was not accompanied by increases in physical space, housing units or staff to care for the animals or assist with their placement.

Cats wait for long periods of time prior to adoption. Average waiting times prior to adoption are up to one month long for almost half the months of the year.

Prolonged stays contribute to crowding, individual risk of disease, stress and loss of life saving capacity for the organization.

Recommendations:

- Implement systems to facilitate maintenance of daily animal inventory in alignment with actual capacity, staffing and resources for animals in need of care. Do not increase inventory without a commensurate increase in capacity and animal care resources.

- Establish preventive proactive measures to move animals through the system more efficiently in order to prevent a vicious cycle of illness, prolonged shelter stay, and crowding caused by delays. **Institute daily rounds as described at** http://www.sheltermedicine.com/documents/daily%20rounds.doc (or go to www.sheltermedicine.com and type "daily rounds" into the search box and choose the search category "documents")

- Ensure prompt evaluation of each animal on arrival.
  - Evaluate surrendered animals on arrival
  - Evaluate stray animals within 24 hours of the release date
  - Make decisions and take action promptly after evaluation
  - Re-evaluate needs for animals who must wait for outcomes

- Clearly define expectations and time frame for re-evaluation when animals are waiting.

- Monitor length of time to all outcomes by species to watch for potential pitfalls.
  - Outcomes of particular importance to monitor include:
    - Return to Owner
    - Adoption
    - Foster
    - Transfer
    - Rescue
    - Euthanasia
    - Died in kennel

SECTION II. Part Four: Isolation and Separation

(Segregating sub-populations is a critical tool for shelter animal health. Isolation and separation are population management strategies used to limit transmission of infectious disease and protect susceptible animals from becoming exposed or infected. Isolation implies a defined area that is physically removed form other animal areas. Separation implies an area that is set off from general housing and used for a defined purpose.)

i. Isolation

No plan or functional system is in place to isolate or separate sick, infectious animals from the general population.

At the time of the visit, sick animals were routinely housed in the general population while under treatment or awaiting outcome. This was especially true of cats. While an isolation area exists for cats at the Kent facility, it was filled to capacity at the time of the visit. The visit was at a time of historically lowest feline intake and inventory reports indicate that the number of cats present and in treatment was also far lower than normal. Staff reported that to be the case. In spite of this, more than 115 sick cats were housed in general population areas, with or without treatment. Staff reports this is common practice. Medication attached to the cage front was the only indication that cats were ill or under treatment. An additional 28 cats were being treated in the cat isolation ward.

There was some effort made to house sick dogs in a kennel with other sick dogs but when this was not possible sick dogs were housed with dogs who had recently recovered from illness. Even when sick dogs could be housed together in the same kennel, those kennels were directly adjacent to kennels housing recently admitted owner surrendered dogs or strays. Again, the only indication of illness (if any) was medication attached to the front of the kennel. No procedure was in place to prioritize cleaning and handling of susceptible and healthy animals prior to animals with clinical signs of infectious disease. This lack of separation or isolation procedures ensures infectious disease transmission.

ii. Separation for juvenile animals

Housing for Puppies and Kittens

No special housing areas were designated to protect the health and adoption potential of puppies and kittens. Housing areas with safe handling practices targeted for reduction of disease transmission should be established to safely house puppies and kittens without co-mingling these very susceptible, and potentially infectious, animals with adult animals. Double sided housing is most ideal for young animals, especially if they are to be housed as a litter if they come in together. Co-mingling kittens or puppies who are not of the same litter is not recommended because of the risk of infectious disease transmission. Housing more then 2-3 juvenile animals in one housing unit makes infectious disease detection more difficult because of difficulties monitoring normal behaviors, food intake, vomiting or diarrhea. Housing capacity for young animals can be calculated in a similar fashion as shown above. Housing needs for young animals in all categories must include a plan for quick identification and isolation of potentially infectious youngsters in addition to separation of young healthy animals from the general population.

iii. Zoonoses

There is no functional plan for identifying or area for isolating animals with conditions that may be contagious to humans as well as other animals. At the time of the visit, several cats who were suspected to be infected with dermatophytosis (ringworm) were housed in the stray intake unloading bay. Field officers used this area regular to admit new arrivals, potentially exposing both themselves and the newly arrived animals to that highly infectious pathogen. Cage were identified with a small piece of paper taped

loosely on the cage side. No instructions were given for special handling and no protective clothing was identified in the area.

iv. Feral cats

(The recommendations below were provided in the preliminary report because of the urgency of the situation. Additional detail is provided in Part D, Section V, Part II, feline stress and enrichment.)

The system for housing feral cats waiting release that was in operation in the Kent facility at the time of the visit is inhumane and should be immediately discontinued. In addition to the severe stress created by housing four unrelated sexually intact cats of mixed gender for long periods of time in small wire cages, these areas were functionally impossible to fully disinfect. During the time of the UC Davis visit the area was in quarantine following death of a feral cat due to panleukopenia. Although one shelter staff member told us this was uncommon, another reported that such deaths were frequent while feral cats awaited rescue. UC Davis team members expressed concern over this housing practice previously during an informal shelter visit and again at the time of this visit. The acting manager has recently reported that this housing practice, has been discontinued since the UC Davis visit.

Overall assessment and recommendations: isolation and separation. *The following were provided in the preliminary report; additional details are provided in several sections of this report, including the sections on housing, disinfection, and stress/enrichment.*

Problems Identified:

- Although a feline isolation area exists for cats, sick cats are routinely housed in general population. No specific area is available for isolating sick dogs from the general population.

- Current housing and husbandry practices put juvenile animals at high risk.

- No plan or functional system is in place to isolate, identify, or handle animals with zoonotic conditions.

- Extreme crowding, poor husbandry, lack of infectious disease control, and poor housing make the current system for feral cat holding inhumane.

Recommendations:

- At minimum, sick animals must be isolated from healthy animals, and ideally more vulnerable animals such as puppies, kittens and newly admitted animals should be housed separately. Animals held for prolonged periods ($\geq$ 1 month) must be provided with enrichment and housing suitable for long term care, while animals housed shorter term should be handled with greater infectious disease precautions. Ideally, some type of enrichment would be afforded all animals.

- Discontinue routinely housing animals with clinical signs of infectious disease in the general population or co-mingled with healthy animals while under treatment or awaiting outcome.

- Remove animals with clinical signs of infectious disease from the general population immediately after signs are identified.

- Create written procedures and train all staff and volunteers such that cleaning and handling of susceptible and healthy animals occurs prior to animals with clinical signs of infectious disease.

- Clearly identify animals who are under treatment, with special indications identifying those with potentially infectious conditions and additional notation for those with conditions infectious to humans such as ringworm.

- Create safe areas for housing with special handling and husbandry practices to protect juvenile animals.

- Remove animals with zoonotic disease from general population and common area that are open to the public. Isolate and identify cages with special instructions if animals are to be held in the shelter facility.

- While the UC Davis team applauds the effort to release spayed or neutered, vaccinated feral cats into appropriate outdoor environments, a humane system must be used to support this release program. In addition, diversion programs and relocation can be put in place to offer information to those considering trapping or relinquishing feral cats. Ideally, feral cats would be trapped, neutered and released without ever incurring the stress and disease risk associated with passing through the shelter. Meanwhile, unless adequate housing can be created to humanely house the cats while they await release, feral cats should not be held in the shelter beyond legally required periods. Once an outdoor home has been identified, cats can be selected from those in holding to be spayed or neutered and immediately released to the feral program coordinator. Even if appropriate facilities are available, animals should be spayed or neutered and vaccinated before co-mingling, and co-mingling should not be enforced by housing cats in very close proximity. If requested, additional information can be provided in the final report regarding humane housing options for feral cats awaiting release.

PART B. Facilities

The following observations, assessment and recommendations were provided in the preliminary report due to the urgent nature of the problems identified and/or the hope that information presented here would help inform ongoing decisions regarding facility repair versus replacement/expansion. Substantial additional observations are included in

the Animal Care section of the report, as the facility has substantial impact on almost every area of animal care. Summary recommendations follow specific observations regarding cat and dog housing provided below.

Overall

The size, condition and type of housing available at the Kent and Eastside (Crossroads) facilities renders it impossible to provide safe and humane housing for all animals even for the minimum required stray holding period, and will serve as a significant impediment in reaching the community's goals of attaining an 80-85% live release over the next two years. The consultant team was provided with an operational plan for 2008 which included substantial investment in repairing or improving the current facility. This investment should be carefully balanced against the clear need for dramatic changes including construction of at least some new structures, new dog runs and new cat kennels. Measures that will prove costly without truly solving the problems identified below should be avoided.

Canine housing issues from preliminary report:

Problems identified:

- **Insufficient number of runs/unsuitable runs in dog stray and adoption.** As noted in the population management section above, the stray runs are between 150% and 200% over capacity even with very conservative estimates of holding times. Single housing of dogs; or at minimum cohort housing such that all dogs that come in together stay together as a group; is an absolute necessity to control canine disease spread. There were many examples of highly adoptable dogs added to a run in which one or more dogs with clinical sings of disease were already housed (or vice versa). This creates a risk that highly adoptable dogs will be infected with serious illness before ever making it into the adoption area, at minimum creating increased expense and suffering, and potentially resulting in lost lives.

- **Insufficient quality of dog runs.** In addition to infectious disease concerns, the size of the runs and the fact that they do not have two sides separated by a guillotine (dividing) door rendered them insufficient to support housing multiple dogs safely or humanely, with the exception of litters of puppies or bonded pairs. Even where beds were provided, often one large dog occupied the bed and other dogs were forced to lie on the ground towards the back of the run where feces and urine had accumulated. Threatening behavior amongst dogs and outright fights were commonly witnessed even in the short time the team was present. In some cases, dogs were unable to eat because more dominant dogs were defending the food. Because of the absence of use-able guillotine doors, dogs had to be removed from runs for cleaning. It is difficult or impossible for a single staff member to safely remove more than two dogs at a time from a run – as many as six dogs per run were observed during the visit, the shelter population was reportedly

unusually low. Multiple dogs per run also serve as a hindrance to volunteer activity, as it can be challenging to remove just one dog for socialization without other dogs escaping. Escapes were very common, creating human and animal risk for injury. Escaped dogs also created additional stress for cats, as large dogs ran through cat housing areas either in the dog runs, or through open doors into cat areas.

- **Use of small, temporary holding areas for longer term housing.** When all single dog runs in the facility were filled to or beyond capacity, the "middle runs" which separate the two lines of single runs were used to house additional dogs. These runs were never intended for anything but very short term housing while the main runs were cleaned. They are dark, dank, cramped, out of clear view and can not be safely monitored or cleaned; cleaning of these runs was not even included in the written cleaning protocol provided.

- **Absence of isolation housing for dogs.** As noted in the isolation and segregation section above, there were no designated isolation runs for dogs. Consequently sick dogs were housed in stray and adoption runs, with or without treatment. Housing sick dogs in the general population creates an obvious risk for disease spread; dogs can spread germs via airborne transmission over distances up to 25 feet. In the case of serious illness such as parvo, the absence of an isolation area has reportedly necessitated euthanasia of exposed dogs to prevent even greater spread. Even in the case of non-fatal illness such as kennel cough, rampant disease adds to the cost of rescue and adoption, likely decreases the number of animals that can be rescued/transferred (by increasing the time and cost of each one for organizations with limited resources), and creates a poor image for adopters. Additionally, widespread treatment of animals with antibiotics in public areas creates a risk for selection of multi-drug-resistant bacteria which may be transmitted to humans.

- **Poor repair of dog runs.** Although commendable efforts were being made to improve the conditions in the dog runs (e.g. drain covers, holders for dog beds in adoption runs) repair of the dog runs was still an issue. Dog escape through feed bins was apparently common. Several staff members commented that they liked the "new cleaning system" in which dogs were removed and the run thoroughly cleaned and disinfected (because they felt the kennels smelled much better and were thus more welcoming to the public), but because the runs had not previously been subjected to vigorous housing and scrubbing, the paint was now peeling extensively. Dogs were reportedly eating the paint and had been observed to defecate visible quantities of paint.

Dog housing at the Crossroads shelter was of insufficient size even for single housing, as dogs were unable to defecate and urinate away from food and bedding. *However, if dogs are walked on a routine basis such that they do not have to soil these runs, single housing of this type is preferable to being housed with multiple other unknown dogs such that disease transmission and stress levels are high as in the Kent shelter.*

Feline housing issues from preliminary report

Although overcrowding in dog runs was severe, the situation for cats was even worse. **The majority of cats housed at the Kent shelter experience severe, prolonged and largely unmitigated stress due to unacceptably small cages; close proximity to dogs; and a lack of hiding areas.** Staff attempted to help the cats with gentle handling, careful cleaning, provision of blankets, and nutritional supplements to help prevent URI, but maintenance of cat health and well-being under the current circumstances is not possible.

Problems identified:

- **Exposure to dogs**: Banks of cages in the dog runs subject cats to constant exposure to loud noise from barking dogs, and doors are routinely left open such that even separate cat housing areas provide little relief from the noise; dogs are frequently walked directly past cat cages; escaped dogs commonly run through the cat housing areas; and caged cats are exposed to dogs as part of routine canine behavior assessment. The stress of dog exposure is likely exacerbated by the fact that the cages in the dog runs are particularly small such that cats have virtually no space to retreat or hide.

- **Cages are in poor repair and difficult to disinfect:** Many cages are in poor repair, tilted such that cats do not have an even surface to rest upon, and virtually impossible to effectively clean (particularly the "Carnation cages" which have extensive wire mesh segments that can not be readily disinfected or sanitized).

- **Feline isolation:** The isolation facility is poorly ventilated and not equipped with running water. Cats in all areas are exposed to illness from numerous sick cats housed in the general population.

- **Owner-surrendered cat housing:** Newly admitted owner surrendered cats are placed in the smallest cages directly in dog runs for at least 24 hours to "adjust" prior to evaluation for adoption; the vast majority of cats housed in these cages appeared highly stressed, evidenced by widely dilated pupils; hunched, tense body posture; untouched food and cowering in or behind dog food dishes used as litter pans. Positive "adjustment" to shelter life under these circumstances is unlikely.

- **Insufficient size of cages:** Cats routinely spend weeks in cages so small they can not take more than a single unrestricted step, stretch or lie down with legs fully extended. When all cages are full, two or more adult cats are mixed in small cages such that they are separated at most by a few inches and one cat must either remain in the litter box, or sit on top of the other cat in the cage. This is not acceptable even for bonded cats, and is a certain cause of severe stress for unfamiliar cats. Even the relatively large "cat condos" in the front hallway sometimes house as many as three unfamiliar adult cats. This leaves insufficient floor space for all three cats to be on the floor, requiring some cats to remain on

narrow resting benches at all times, and potentially preventing access to food, water and litter for less dominant cats.

(Figure 36)

(Figure 37)

Figure 36 on the left, a cat is curled in the dog food dish provided as a litter pan in a very small cage. The cat's widely dilated pupil indicated severe stress. On the right, (Figure 37) one adult cat straddles another cat in a cage too small to permit both cats to sit or lie down at the same time.

By contrast, cat housing at the Crossroads shelter included some cages of sufficient size to allow cats to stretch, relax, walk several steps, and have food and litter separated by at least three feet (which has been shown to promote normal feeding behavior). Although other cages were of inadequate size, they were at least well separated from dog runs and noise was minimal. Cats for the most part appeared less stressed in this facility than in the Kent shelter. Each cat cage at the Crossroads shelter was labeled with an appealing card giving the cat's name and describing its personality and ideal home. This was not the case at the Kent shelter.

Recommendations (feline and canine facility issues) from preliminary report:

- Recommendations regarding the number of required kennel/housing spaces for dogs and cats are given in the Capacity section, above.

- See Isolation and Separation section above regarding additional recommendations.

- Plan for a new facility containing a sufficient number of double sided dog runs separated by guillotine doors to house all stray and adoptable dogs singly. (Adoptable dogs may be co-housed for enrichment if compatible, but the facility size should be sufficient that co-housing is not absolutely required.) The size and single-sided nature of the dog runs in the current facility is such that repair and continued use of these runs should not be a long term strategy.

- Unless an entirely new facility is planned, one solution for use of the current facility would be to build additional dog runs on the existing property (in a separate building) and use the entire existing building for cat housing. The single dog runs could be rehabilitated for comfortable small-group cat housing. Additional single caging would be needed as described below and in the Capacity section for housing new intakes, quarantine, sick cats and those needing special monitoring.

- Expensive repairs of the current facility, such as adding new walls, should be carefully considered in light of the overall insufficiency of all current animal housing.

- Before implementing major investments in rebuilding or additional shelter housing, complete a comprehensive review of programs and goals to ensure housing is consistent with shelter goals. As an example, if behavioral rehabilitation is a goal, housing suitable for medium to long term care of animals during this process must be anticipated.

- Repair peeling paint in dog runs such that runs can be cleaned effectively and dogs are not at risk for paint ingestion.

- Immediately discontinue housing cats in dog runs.

- Discontinue use of the smallest "Carnation" cages.

- Replace all current cat cages with a sufficient number of cages at least 24' by 24' in size even for short term (< 1 week) holding. For holding > 1 week – and ideally for all cats from the moment of intake – cages should be of sufficient size to allow cats to lie down, stretch to their full body length, and provide three feet of separation between litter and food in order to facilitate normal behavior and food consumption. See notes in capacity section for number of housing units needed.

    - Double sided cages, condos with litter/bedroom cubbies, or cages large enough to accommodate a carrier greatly facilitate cleaning and care, promote display of more adoptable behaviors, and reduce stress and disease transmission. If housing quality is sufficient to keep more cats healthy, cats can move through to adoption more quickly. This will allow fewer cats to be cared for at any given time, in much better circumstances, without compromising overall shelter capacity or live release rate.

- Provide cats with hiding places, particularly newly admitted cats, feral cats, or those displaying fearful behaviors. Even cardboard boxes or paper bags can be used for this purpose. See Feline stress and enrichment section for more detailed information.

- Immediately discontinue housing unfamiliar cats together. Bonded pairs of adult cats may be housed in the wire condos in the adoption hallway. There are no other cages of sufficient size to house two adult cats. Up to 3 littermates may be housed together in smaller cages. Mothers with litters should be immediately sent to foster care or rescue.

- See feline housing below and feline stress and enrichment section for more detailed information regarding cage size, stress alleviation, and co-housing of cats.

- Do not discontinue use of the Crossroads shelter until alternate placement of the animals currently housed there has been identified. Do not simply redirect housing of these animals to the Kent shelter.

Additional observations, assessment and recommendations regarding dog housing (not included in preliminary report)

Overview and observations
The shelter has a total of 48 dog runs all of which are located indoors in one building. The entire kennel room has concrete walls and a dropped ceiling. The dog population and kennels are designated: "adoption", "stray", "owner surrendered" and "quarantine".

The adoption-kennels comprise a bank of 13 concrete runs each measuring 42 x 146 inches (approximately 3.5 x 12 ft). The runs are divided from each other by a concrete wall. A trench drain is located at the far end running the full length of the bank of kennels. This trench is fully accessible to the dogs and has two drainage areas at opposite ends of the bank of kennels. Some of the adoption-kennels have a removable customized metal grate placed over the trench access of each cage. The grates are new trial additions. The front of the cages consists of a wire door with a standard latch and a metal feeding bin panel. One run is always kept empty to allow for "move-down-one" cage cleaning protocols (see cleaning/disinfection section). At the time of survey the 12 available runs held 33 dogs.

Stray dogs are housed in the central section of the room. One side along a wall consists of 9 concrete runs similar to those in adoption. Opposite these runs are twelve 3.5 x 12 ft runs with trench drains and a guillotine door at the far end. The drains are as described for adoption but there are no trench grates. The doors of all these kennels are similar to those in the adoption room. One kennel is kept empty along each row to accommodate the cleaning protocol. The nineteen available runs held 30 dogs at the time of survey ranging from 1-3 large dogs or up to 5 small ones.

The last row of kennels facing a wall hold bite quarantine and owner surrender dogs. Six runs are designated for quarantine and 7 for owner surrender. A locking gate separates the two areas. This gate prevents public access to the quarantine dogs. Quarantine dogs

are those being held for various confiscation reasons including bite quarantine and court cases. The shelter does not have any separate isolation/quarantine areas for sick dogs. A guillotine door and trench drain form the far end of the kennel as described for stray-dogs. These 13 runs housed 14 dogs at the time of survey with only one run housing two dogs that had been surrendered together.

One stray-dog row of kennels with guillotines and the owner/quarantine runs both backed onto small chain link "holding area cages". Each of these areas is shared by two opposite runs. These holding areas are confluent with each other which prevent direct access except for the outer two cages. The rest can be accessed only by walking from the adjacent holding cage. There are two drains servicing this area.

There is a bank of 5 medium to large metal and plexiglass cages stacked in the outside loading area. Three cages measure 45x33x34 inches, two measure 32x33x34 inches. These cages occasionally house animals (mostly dogs) that are dropped off by police during the night. They are considered temporary holding cages. Staff report that dogs will only remain in these cages for a maximum of half a day until a run is assigned. This was observed to be the case during the consult team visit. There are 2 large chain-link outdoor, un-roofed runs near the loading dock. Staff report that these are no longer used to house animals as dogs can escape from them. They are currently used for storage.

Strengths identified:

- Some of the adoption runs have removable custom made grates over the trench. These appear to prevent access into the trench by dogs and are easily removed for cleaning.
- The adoption runs each had one large poly-resin Karanda® bed. The beds are kept at the front of the cages by a system utilizing two clamps that hold the legs against the wall. This prevents the beds from being moved by the dogs towards the back of the run where they would fall into the trench drain.

Problems identified:

- Most runs at the Kent facility are too small to accommodate the number of dogs typically housed there. Suggested minimum space allowances (floor area) for short-term individual shelter housing of dogs of different sizes are given below. These are based on a combination of standards for laboratories and recommendations for animal shelters (e.g. Home Office 1989. Animals (Scientific Procedures) Act 1986. *Code of Practice for the Housing and Care of Animals Used in Scientific Procedures.* Her Majesty's Stationery Office, London, UK; Loverdige GG 1994. *Provision of environmentally enriched housing for dogs.* Animal Technology 45, 1-19, Hubrecht RC, Serpell JA Poole TB 1992. *Correlates of pen size and housing conditions on the behaviour of kennelled dogs.* Applied Animal Behaviour Science 34, 365-383, Hubrecht RC 1993. *A comparison of social and environmental enrichment methods for laboratory housed dogs.* Applied Animal Behaviour Science 37, 345-361.)

    - Extra small dogs (<10lb): 12.0 sq. ft. (1.1 m2)

- Small dogs (11-20 lb): 18.0 sq. ft. (1.67 m2)
- Medium dogs (21-40 lb): 24.0 sq. ft. (2.2 m2)
- Large dogs (41-60 lb): 32.0 sq. ft. (3 m2)
- Extra large dogs (61-80 lb): 40.0 sq. ft. (3.7 m2)
- Giant breeds (>80 lb): 48.0 sq. ft. (4.5m2)

- The majority of the dog runs are entirely housed in one room with partial separation by walls. The ceiling of this room is low and the walls are concrete. Although not objectively measured, the noise level was uncomfortably high due to barking. Excess noise is stressful for animals, shelter staff and the pubic.

- The area with the stray dogs and owner surrendered dogs does not have a good ventilation system. Staff report that air quality can be poor although it has much improved since they implemented the new cleaning system. In order to ventilate the area staff will occasionally keep doors propped open.

- All of the dog runs have an open trench drain in the back of the kennel. This trench runs the length of the bank of runs. This permits direct exposure to potential pathogens from one dog run to the next.

- Although several banks of kennels do possess guillotine doors, the holding area behind them is not easily usable. The small holding areas are separated by chain link from each other; they do not have access other than via the adjacent cage, there are no individual drains and each is shared by two different runs. This makes this area difficult to clean, allows for potential direct dog to dog contact and runs the risk of inadvertent commingling of separately housed dogs. Therefore, even though there are guillotined runs the design of the back holding areas makes them unsuitable for use. Unless taken out by volunteers (only available for adoption dogs), dogs have no opportunity to avoid soiling their eating and sleeping areas.
    - Some staff members reported that the small holding areas are not used for the above reasons. However, they were seen used during cleaning (see cleaning/disinfection section), and management acknowledged that they are used for longer term housing when the shelter is especially crowded. It was reported by staff that these runs were in use for dog housing just two weeks after the visit when canine in-shelter population rose.

- None of the dog runs had outdoor access.

- The doors of the cages had metal panels that held food bins. These bins are rarely used by staff and escapes were observed after dogs managed to pop these panels out. The staff reports that this happens on occasion but no means of securing these panels has been instituted. An example of a group of dogs escaping by this means was described by one of the student accompanying the consult team:

> "I witnessed an escape from one of the stray dog runs. I was in another run with a dog that had been beaten up during dinnertime checking it for wounds when I heard a huge bang and looked up to see a shepherd

running free down the aisle. I got out of the kennel, grabbed the dog's collar and took it back to it's kennel. All the dogs were gone from the kennel- they had knocked their feeding bin out which had provided a perfect dog-door into the hallways. I found the other dog at which time the other student had returned. We put the feeder back on when she realized there had been 3 dogs, not just 2 in the kennel. There wasn't another dog anywhere in the dog area. She finally opened the door to the "cat room" and found the 3rd dog in there. Luckily we caught it fast enough that no other dogs (or cats) were injured. I told one of the ACOs about this and was surprised to see that she wasn't surprised in the least".

Recommendations on dog housing– additional for final report (see section above for preliminary report urgent recommendations)

- Complete covering of all trench drains in dog runs with custom grates. Amend the cleaning protocols to include scrubbing these grates.
- Discontinue using the small holding areas behind the runs except when cleaning runs containing aggressive or quarantine dogs.
- Secure all metal food bin door panels or replace these panels with metal sheets that are welded in place.
- If facility expansion or replacement is planned, all new runs should be double sided and separated by guillotine doors to facilitate safe, effective cleaning; to allow separation of feeding/resting and elimination areas (especially important for dogs that can not be walked on a sufficiently regular basis to prevent elimination in the kennel); to give dogs the opportunity to exercise control over their environment by choosing which side of the run to be in (environmental control is a significant factor in well being and stress relief); and allow provision of enrichment such as toys and blankets even for aggressive dogs (because dogs can be confined to one side of the run while objects are cleaned as needed).
- Consider indoor-outdoor runs to help improve air quality and potentially reduce indoor noise.
- Creating multiple smaller dog housing areas rather than few large housing areas, to allow flexible space for puppy housing, isolation of sick animals, special quarantines (e.g. for parvo-exposed dogs); animals awaiting rescue or other special-needs populations.
- Design new runs with either individual or covered trench drains. Well-designed drains of either type will be sufficient. The main disadvantage of individual drains (other than cost) is that it can be difficult to direct liquid into them using squeegees. This is easier with trench drains. As long as trench drains are not accessible to the animals, are cleanable, and don't overflow, they should be fine. Drains should be placed such that foot traffic does not routinely cross the drains.
    - Minimum floor slope of ¼ inch per foot toward drain is required (standing water promotes survival of bacteria). Drains and pipes should be oversized (at least 6 inch diameter - to avoid clogging with fur, toys, etc.)

Additional observations, assessment and recommendations regarding cat housing (not included in preliminary report)

Overview:

As noted above, although some efforts are made to provide suitable housing for cats, for instance through provision of towels, reduced cage moves, and theoretically designated areas to separate sub-populations, overall the housing for cats was of severely inadequate size and quality. In addition, there were insufficient numbers of cat housing units, necessitating frequent co-housing in cages too small for even one cat. There were no written protocols regarding where cats were to be housed, nor were there guidelines setting the maximum acceptable number of cats to be housed per cage. As noted in the preliminary report, the majority of cats housed at the Kent shelter experience severe, prolonged and largely unmitigated stress due to unacceptably small cages; exposure to dogs, a lack of hiding areas, and prolonged stays in housing that is markedly inadequate to provide reasonable quality of life for long term care. Additional detailed information on cat capacity issues (number of housing units needed to serve the current and anticipated needs of the shelter) is provided in Part II of Section II, Capacity. Observations are incorporated into the assessment of strengths and problems below.

Strengths identified:

- Within a given room, cats are generally housed in the same cage from day to day, rather than being randomly moved from cage to cage on a daily basis. Minimizing the number of times cats are moved from one cage to another reduces cat stress.
- At the time of our visit, *most* cages housed only a single cat, except for bonded pairs (see next section for significant exceptions to this.)
- Condos in the adoption hallway provide a reasonable amount of space (20.36 ft^3) for single cats, bonded pairs, or litters. Shelves in these cages allow cats to utilize vertical space. Multiple studies have demonstrated that cats prefer resting on shelves over resting on the floor (*Ibanez M, Dominguez MAM.* Cats showing comfort or well-being behaviour in cages with an enriched and controlled environment. *Third International Congress on Veterinary Behavioural Medicine 2001;50-52; Smith D, Durman K, Roy D, et al*. Behavioral aspects of the welfare of rescued cats. *Journal of the Feline Advisory Bureau 1994;31:25-28; Rochlitz I, Podberscek AL, Broom DM.* Welfare of cats in a quarantine cattery. *Vet. Rec. 1998;143:35-39.)*
- Cats are generally provided with towels for lying on. Multiple scientific studies have shown that cats prefer soft sleeping surfaces (such as towels) over harder surfaces such as metal. (*Ibanez M, Dominguez MAM.* Cats showing comfort or well-being behaviour in cages with an enriched and controlled environment. *Third International Congress on Veterinary Behavioural Medicine 2001;50-52; Hawthorne AJ, Loveridge GG, Horrocks LJ.* The behaviour of domestic cats in response to a variety of surface-textures. *Second International Conference on Environmental Enrichment 1995;84-94; Crouse SJ, Atwill ER, Lagana M, et al.* Soft surfaces: A factor in feline psychological well-being. *Contemporary Topics in Laboratory Animal Science 1995;34:94-97.*)

- Some cats have exposure to the outdoors, especially during mild weather. Exposure to fresh air is among the most effective methods of ensuring adequate air quality for shelter animals. In the United Kingdom, shelter cats are generally provided with indoor-outdoor housing, and the prevalence of respiratory disease in shelters is typically 10 times lower than that in most US shelters. Outdoor exposure can also provide environmental enrichment and sunlight, which is a powerful disinfectant.
- Designated areas for housing of kittens & nursing mothers (nursery), sick cats (feline isolation), and feral cats (outdoor feral area) do exist. In theory, these areas for population segregation should help reduce disease transmission and stress.

Problems identified:

- Despite a slight reduction in stress resulting from avoidance of daily housing changes, the vast majority of cat housing at the Kent shelter subjects cats to severe, prolonged and largely unmitigated stress due to unacceptably small cages; close proximity to dogs, inability to hide, forced pair and group housing of unfamiliar cats, and insufficient environmental enrichment.

- With the possible exception of cages and condos in the adoption areas, all cat cages in the shelter are un-suitably small for anything other than very short term housing of even a single cat.
  - ✓ Even without accounting for floor space occupied by litter pans and food dishes, most cat cages in holding areas have a floor area of just over 3 ft^2, and a total interior space ranging from 4.7 to 6.1 ft^3. Housing an average sized cat in a cage of this size is equivalent to holding a 9 year old child in a telephone booth. This is clearly suitable only for very short term housing.
  - ✓ The smallest cat cages (in the cat stray hallway/aisle) have a floor area of 2.4 ft^2 and an interior volume of 2.6 ft^3, which is just slightly greater than a typical plastic cat carrier. Again, this is acceptable only for very short term housing.
  - ✓ Most of the cat cages currently in the shelter would also be considered unacceptably small according to modest minimum space recommendations published by the Institute for Laboratory Animal Research (ILAR). (*National Research Council.* Guide for the Care and Use of Laboratory Animals. *Washington, DC: National Academy Press, 1996, p. 28.)*
  - ✓ Only cages in the cat adoption room (with a floor area of just over 4 ft^2) or condos in the cat adoption hallway (with a floor area of 5.43 ft^2) come even close to approaching the UC Davis Shelter Medicine program's recommended space allowance for individually housed shelter cats of 10.8 ft^2 (1m^2.) This recommendation is based on a published study which demonstrated that at least 1 square meter of floor area per cage for singly housed cats is required in order to prevent excessive stress levels (*Kessler MR, Turner DC.* Effects of density and cage size on stress in domestic cats housed in animal shelters and boarding catteries. *Animal Welfare 1999; 8:259-267.*)

- ✓ In addition to not meeting minimum space recommendations, most cages in the shelter are not large enough to allow cats housed in them to engage normally in nearly any routine behavior, such as stretching, hiding, using a litter box, playing, or even walking or resting comfortably. Some cages were too small to accommodate even a small litter box – cats in these cages were provided with 10" diameter round dog food bowls instead of litter boxes. These bowls do not allow for normal elimination behaviors (digging in litter), and are almost certainly too small for moderate to large sized cats to comfortably use (see photos below). Cats housed in this shelter routinely spend weeks in cages so small they can not take more than a single step or lie down with legs fully extended.

Feces spills over the sides of a dog food dish used as a litter pan in a very small cage

Presence of the litter pan further reduces the floor space available for this medium-sized cat to relax comfortably. Widely dilated pupils and a guarded body posture suggest stress in this cat.

- While most cats were housed singly at the time of our visit, this was not the case for all cats in the shelter. Individual housing of cats is also not the norm during most other times of the year. Mild aggression (e.g. hissing) is commonly observed between recently introduced co-housed cats. Cats are not adapted to living in close proximity to each other and typically avoid aggressive encounters by establishing distances between themselves. When cats are co-housed in an enclosure that is too small, they will often attempt to avoid each other by decreasing their activity, and will suffer from unrelieved stress. Published research indicates that the minimum space requirement per cat is even greater for group housed cats than for singly-housed cats: 18 ft^2 (1.67 m^2) of floor space is required per cat in order to keep stress at an acceptable level. (*Kessler MR, Turner DC.* Effects of density and cage size on stress in domestic cats housed in animal shelters and boarding catteries. *Animal Welfare 1999;8:259-267.*) None of the cages at the KCACC shelter are large enough to permit humane co-housing of more than one cat (with the possible exception of litters and bonded pairs.)
  - ✓ Groups of 3 to 4 unfamiliar, sexually intact male and/or female feral cats are routinely forced to co-habitate in crates which are designed for temporary holding of a single dog. The floor area of these crates is 10 ft^2, and nearly all of the space is filled with litter box, food dishes, and carriers. When 3 or 4 cats are housed in a carrier of this size, this results in a housing density of only 2.5 ft^2 per cat, even less than that afforded to cats even in the smallest individual cages in the shelter, and less than $1/7^{th}$ of the recommended space per cat in group housing. See Part A; Section II, Part Four, Isolation and Separation, iv; Feral Cats for more information and recommendations.
  - ✓ At the time of our visit, two of the cat adoption condos contained pairs of non-bonded cats, and staff report that these condos commonly house up to three previously unfamiliar adult cats. These condos are not sufficient for co-housing of cats unless they are littermates or bonded pairs. The floor space in these condos (5.43 ft^2) is insufficient for all cats to be on the floor at once, requiring some cats to remain on narrow resting benches at all times. In this type of inadequate housing situation, it is common for dominant cats to prevent access of other cats to food, water and litter.
  - ✓ At the time of our visit, the shelter cat population was well below average for this shelter. Staff reported that during most times of the year, two or more unfamiliar cats are co-housed in the majority of adoption cages. One staff member reported that the adoption room was emptier than she had ever seen it. As noted in the observations from the preliminary report above, when two or more cats are co-housed in adoption cages (or worse, even smaller cages), they can only separate themselves by a few inches at most, and one cat must either remain in the litter box, or sit on top of the other cat in the cage. Space

allowances per cat in these situations would range from 1.22 ft^2 to 2 ft^2 per cat, which is less than the space provided in a typical plastic cat carrier.

- Such severe space restrictions, combined with an inability to establish any appreciable distance from other cats, result in serious compromises in welfare and high levels of stress for cats housed at the KCACC shelter.

- The vast majority of cats in the KCACC shelter do not have any ability to hide. Hiding boxes were observed ONLY in feral cat housing. No other cats in the shelter are provided with any facilities for hiding. Published research has demonstrated that hiding is correlated with reduction of stress in laboratory cats, and that hiding may therefore be an important mechanism for cats to cope with uncontrollable and unpredictable captive environments. (*Carlstead K, Brown JL, Strawn W*. Behavioral and physiological correlates of stress in laboratory cats. *Appl. Anim. Behav. Sci. 1993;38:143-15.8.)* To promote health and welfare, all shelter cats should be provided with appropriate places for concealment.

- Exposure to dogs is an intense and constant cause of stress for cats housed in the Cat Stray/Cat Owner aisle. Loud barking is almost incessant, especially when any people enter the room. Dogs on leashes are frequently walked past cat cages in this room, sometimes as part of a canine behavior assessment, in which the dogs are encouraged to approach cat cages. It is also not uncommon for dogs that have escaped from their runs in this room to freely run up to cat cages. The stress of dog exposure is likely exacerbated by the fact that the cat cages in these areas are particularly small and do not contain any hiding boxes, so cats have virtually no space to retreat or hide from dogs. For cats in the cat condo hallway and some cats in the Stray/Quarantine room, dog exposure is more intermittent, but is still ongoing. Doors between cat and dog wards were frequently propped open, increasing barking noise in the cat stray room, and allowing escaped dogs to roam freely in this room as well. Dogs were routinely walked past and encouraged to approach cat cages in the condo hallway as part of canine behavior assessments. Published research has indicated that exposure to dogs is a significant stressor for shelter cats (*McCobb EC, Patronek GJ, Marder A, et al.* Assessment of stress levels among cats in four animal shelters. *JAVMA 2005;226:548-555*.)

- Despite the existence of some designated housing areas for population segregation, inadequate feline housing throughout the shelter and current shelter cat population dynamics make these segregation areas essentially meaningless, and negate any benefit they might offer. Significant numbers of sick cats, including severely ill cats, were housed in every area of the shelter, including the adoption room, at the time of our visit. The feline isolation facility is poorly ventilated, not equipped with running water, and according to staff reports is constantly filled to or beyond capacity. As is true of nearly all other cat cages in the shelter, cages in feline isolation are too small to be suitable for other than very short term care (e.g.

several hours). Due to high levels of shelter-acquired disease in the cat population the current feline isolation facilities are grossly inadequate.

- There is no adoption housing designated for kittens. The nursery, which consists of 8 small cages designated for holding of nursing mothers and litters, is inadequate both in terms of capacity and quality. Because kittens are generally much more susceptible to infectious disease than are adults, failure to segregate kittens from adults puts kittens at increased risk of contracting infectious disease. See section on Juvenile housing in the Isolation and Separation section for more information.

- Most cat cages are barren, with few to no environmental enrichment items. Cats in only a few cages are provided with shelves, and toys were not observed in any of the cages. One kitten in the adoption area exhibited severe signs of frustration (see video on CD), which commonly develops in cats kept in an impoverished environment for prolonged periods.

- While shelter cats may benefit from fresh air, the two circumstances under which cats are housed outdoors at the KCACC shelter are ill-advised.
  - ✓ As described above and in other sections of this report, the housing arrangement currently in use for feral cats is unacceptable.
  - ✓ While this was not observed during our visit, shelter management and staff report that sick cats are often housed outdoors in portable cages, similar to cages found in other areas of the shelter. Fresh air and insulation from dog noise may make this housing situation better in some respects than the situation in many other areas of the shelter. However, housing sick cats in outdoor-only cages that are of insufficient size/variety to provide opportunities for thermoregulation (through locomotion and/or hiding) may put the health and well-being of these cats at greater risk.

- Many cat cages are in poor repair and are difficult to disinfect. Some cages are tilted such that cats do not have an even surface to rest on. Others cages had doors that readily fell off when they were opened (see photo below) The "Carnation cages" are virtually impossible to effectively clean and disinfect because of their extensive wire mesh segments.

Doors readily fell off some cages as demonstrated here, and extensive small-diameter wire mesh on the sides of the "carnation cages" in this picture rendered these cages extremely difficult to disinfect, as contaminated organic matter such as kitty litter, mucous, and feces can easily accumulate in such small crevices.

Recommendations on cat housing– additional for final report (see section above for preliminary report urgent recommendations)

- Replace nearly all current cat cages with cages that are at least as large as those in the cat adoption room or condo hallway. Consider the UC Davis Shelter Medicine program's recommended minimum space allowance for individually housed shelter cats of at least 10.8 ft^2 (1m^2.) This recommendation is based on a published study which demonstrated that at least 1 square meter of floor area per cage for singly housed cats is required in order to prevent excessive stress levels. If it is difficult to meet strict space requirements, consider the following criteria for ensuring that cats have sufficient space for short to medium-term housing:
  - ✓ Enough space to stretch to full body length
  - ✓ Separation of feeding, resting, and elimination areas by at least 3 feet
  - ✓ Sufficient space to accommodate an adequately sized litter box and a hiding box
  - ✓ Sufficient floor space for locomotion & play

- Consider use of double sided cages, condos with litter box / sleeping compartments, and/or cages large enough to accommodate a cat den or carrier, as these facilitate cleaning and care, promote display of more adoptable behaviors, and reduce stress and disease transmission.

- Discontinue housing unfamiliar cats together, with the exception of single litters in adoption cages or cat condos, and bonded pairs of adult cats in the cat condos or equivalently sized cages ONLY. All other currently available cat cages are of insufficient size to house two adult cats. Co-housing of unrelated cats should not be used as a method to increase cat holding capacity except in designated, appropriately designed and managed group housing.

- ✓ Appropriate group housing for cats may be considered as a future goal. Published research has demonstrated that group housing has the potential to improve welfare of social cats that are housed longer term, but that group housing may actually increase stress for newly admitted or less social cats (Smith D, Durman K, Roy D, et al. Behavioral aspects of the welfare of rescued cats. *Journal of the Feline Advisory Bureau* 1994;31:25-28.)
- ✓ Group housing should be implemented by choice, in order to provide enrichment for those cats most likely to benefit, rather than relied upon as a method of simply fitting more cats in the shelter regardless of health and welfare. Ensure that sufficient single housing is available for cats that do not tolerate or benefit from group housing.
- ✓ Properly designed small-group housing may be more efficient to clean than standard single housing, and thus reduce staff time and shelter costs in the long term provided it is used appropriately as described above. However, done properly, group housing does not necessarily offer significant savings in terms of space, because it requires that all of the following criteria be met:
  - ☑ Maximum group size of 3-10 cats (depending on size of room)
  - ☑ Recommended space allowance of 18 ft^2 (1.7m^2) floor space per cat, and a minimum of 1 meter distance allowed between each cat at all times
  - ☑ Prior sterilization, health screening (including FeLV and FIV testing) and compatibility evaluation for all cats
  - ☑ Enriched environment, with multiple hiding boxes, feeding & elimination stations, shelves, and climbing structures
  - ☑ All-in/all-out housing or at minimum, infrequent remixing of small groups

- Discontinue the practice of allowing shelter dogs to approach or access cats housed in any area of the shelter. Minimize exposure to dogs for cats in all areas of the shelter by keeping doors between dog and cat areas closed at all times.

- Provide all shelter cats with a hiding place. As noted in the preliminary recommendations above, cardboard boxes or paper bags can be used to provide hiding places for little to no cost. Ensure that all newly purchased cat cages include at least one shelf or other elevated resting surface. A towel hanging over the front of a shelf can also provide a hiding place. Other options to consider include:
  - ✓ Cat EShack (made by C specialties, www.cspecialties.com/index1.html)
  - ✓ Hide-Perch-n-Go Box (BC SPCA, www.spca.bc.ca/hideperchgo/HidePerchGo.asp)
  - ✓ Feral Cat Den (Animal Care Equipment & Services, ACES, www.animal-care.com/product_list.cfm?sub2a=53&prod=1)

- While efforts to release sterilized and vaccinated feral cats to appropriate outdoor colony environments are laudable, the current housing system associated with this program is unacceptable and should be immediately discontinued. See section on isolation and separation for detailed recommendations regarding this.

- Discontinue the housing of sick cats in small, outdoor-only cages. Indoor-outdoor units of sufficient size can be considered as options for cat housing in future renovations or expansions.

- Establish and/or improve, and consistently use, separate areas for housing of special feline sub-populations, such as sick cats, kittens, nursing mothers/neonates awaiting foster care, etc. Discontinue the routine housing of sick cats in the general population. It is important to ensure adequate capacity of isolation areas in order to meet this goal. However, reductions in the incidence of shelter-acquired disease, through improvements in housing and reductions in stress and crowding, are even more important in preventing isolation areas from becoming filled beyond capacity. See section on Isolation and Separation and Capacity above for more information.

Part C. Staffing Issues

These observations and recommendations were provided in the preliminary report due to their urgent nature (e.g. leading to immediate and ongoing significant risks to shelter animal health or public safety; and/or planning needed in the context of ongoing decisions regarding the operational plan for 2008). In this report, staffing issues are addressed in more detail in the sections on animal care below as they pertain to specific areas (e.g. cleaning, feeding, enrichment, behavioral assessment and veterinary services). Staffing recommendations have been confined to those issues most relevant to shelter animal health. Field services, customer service, oversight of additional programs and general shelter management are also critical components of a functional program but are beyond the scope of this report. Additional details on staffing calculations are provided in Appendix B.

Staffing issues for general animal care

Although detailed calculations were not completed, it was clear that the Kent shelter was understaffed to care for even the relatively low number of animals present at the time of the consultation, a situation undoubtedly exacerbated when population levels are higher. Adding to the burden on staff was the fact that the type of housing, poor repair of the facility and high level of crowding resulted in unusually laborious requirements for basic cleaning and care procedures. (See facility section above for additional information.). Staff at all levels were observed to work hard and reportedly routinely put in long hours. Animals were adequately cleaned and fed on a daily basis during the time of our visit aside from dog feeding issues reported elsewhere. However, even with the relatively low animal population in the shelter, the staffing was insufficient to keep up with basic cleaning and still accomplish essential activities such as promptly evaluating animals, moving adoptable and recovered animals into the appropriate areas, and checking the population daily to evaluate sick, injured and suffering animals. Additional critical activities such as customer service, program management (e.g. foster care, offsite adoptions, rescue/transfer programs, licensing, etc.), and public outreach are beyond the

scope of this report but should be included in a comprehensive evaluation of staffing needs.

Specific problems identified:

- Insufficient staffing to ensure that all dogs were able to eat. Several dog fights were witnessed during a single evening feeding time such that some dogs were unable to eat and several dogs were injured and bleeding. This was at a time when the shelter dog population was at a relatively low level and is likely much worse when the population is higher.

- Insufficient staffing for dog run cleaning. Several dogs were observed to escape during cleaning. Although staff were observed to be adept at transferring multiple dogs from one run to another for cleaning, there is a limit to how many dogs can be safely captured and transferred by one person. This is likely much more difficult when there are many runs containing 5 or more dogs, as is commonly the case at KCACC Kent shelter.

- Insufficient staff/guidance to monitor, evaluate and move animals on a daily basis according to medical and behavioral needs, and stray/legal hold status. As described above, this resulted in many animals past their required hold lingering in "limbo" for prolonged periods, neither visibly available for adoption/rescue nor under active treatment or rehabilitation. This contributed further to shelter crowding, creating a vicious cycle.

<u>Recommendations:</u>

- Maintain animal care staffing at a level to meet the needs for animal care of all animals housed in the shelter

    - Immediately add staff such that two people are responsible for:
        - feeding dogs
        - ensuring that all dogs have the opportunity to eat
        - avoiding fights and antagonistic interactions between dogs
    - Any time when more than 2-3 dogs are housed per kennel, add staff such that two staff members may be assigned to dog movement.

- Observe and document time needed for adequate, safe, and effective cleaning, disinfection, and feeding for dogs and cats.

- Observe and document time needed for adequate performance of all "flow through" activities listed above and additional areas identified by staff.

- Calculate expected staffing needs for animal care, treatment and flow through based on expected daily intake, number of animals requiring treatment, turn over and in-shelter population. (See Appendix B)

- Monitor monthly average daily holding numbers or (as was done for this report) determine a representative date(s) each month to run and inventory report in order to establish the expected daily shelter population at different times of year, and plan staffing accordingly, including providing sufficient additional staffing to accommodate seasonal fluctuations in cat population without compromising minimum standards of animal care.

- See Appendix B for additional detailed information on staffing.

Veterinary staffing issues

The lack of veterinary input into staff training and shelter health protocol development has been referenced above. In addition, insufficient veterinary and medical support staff for spay/neuter led to breakdowns in live release programs and resulted in increased shelter crowding. This report focuses on veterinary staffing issues for animals in the shelter. However, spay/neuter outreach to the community is critical in order to decrease the birth and subsequent surrender of unwanted litters. Ideally veterinary capacity should include consideration of community outreach as well as ensuring that all shelter animals are altered without delay. (See Appendix C for additional detailed information on calculating anticipated staffing requirements for spay/neuter surgery.)

As noted above, additional detailed observations and recommendations regarding veterinary staffing are provided in the Veterinary Services section of this report. The assessment and recommendations below were included in the preliminary report because of the urgent nature of the resulting problems (sick animals going without appropriate care, delays in spay/neuter resulting in compromised adoption programs and/or increased shelter crowding).

Problems identified:

- There was minimal time available for veterinary oversight of diagnosis or treatment of medical conditions or routine shelter animal health assessment or monitoring. As a result, many sick animals went undiagnosed or were inappropriately treated.

- Possibly as a result of the lack of veterinary oversight, a single antibiotic was in widespread use for almost all sick cats in every area of the shelter, including areas to which the public had access. This leads to an increased risk of selection for drug resistant bacteria dangerous to humans and animals.

- The veterinary staff is not allotted specific time to perform any general shelter medical duties other than spay/neuter. The staff veterinarian described performing medical rounds as a "luxury", when "other obligations did not interfere". An additional comment was that "the amount of work far exceeds the staffing".

- Although the 2008 King County Animal Control Operational Plan states that the shelter veterinary staff "provides health exams of animals, diagnosis of maladies,

treatment regiments…" these duties were never observed as a part of daily operations.

- As noted elsewhere in this report, animals with severe, zoonotic (infectious to humans) and/or painful medical conditions sometimes went unrecognized or without sufficient care.

- Although the overall shelter intake has not dramatically increased in recent years, shelter animal daily population and ill animal needs have steadily been increasing, yet staffing levels in the veterinary clinic have remained constant. All staff members interviewed in the veterinary area reported the current staffing level to be inadequate for the tasks they are required to perform on a daily basis.

- There was no designated time allotted for coordination of the foster care program. This program has reportedly been significantly expanded without additional time provided for addressing the medical needs of this vulnerable population. 40 kittens died in foster care this year.

Recommendations:

- Maintain veterinary and technician staffing at a level to meet the needs for veterinary care and daily health evaluation and treatment of all animals who will be housed in the shelter daily.
    - This would likely require at least the addition of another full time veterinarian and two full time technicians given the current goals of the shelter to provide extensive treatment and foster care services

- Maintain adequate capacity for spay/neuter services to, at least, serve the adoption needs of the shelter without delays.

    - Any time after adoption that an animal is held awaiting spay/neuter contributes to crowding with no benefit to the number of lives saved.

- Because adoption rates for dogs are already very high, consider pre-adoption surgery at least for dogs and puppies deemed highly adoptable. This should be considered only if doing so would *not* lead to additional delays, other than the day of surgery, in being made available for adoption.

- Ensure that spay/neuter delays do not ever result in failure to take advantage of offsite adoption or rescue opportunities.

- Ensure that post-adoption surgery results in minimal additional holding – ideally surgery should be performed the day following adoption.

- Spay/Neuter services can be managed most efficiently through the shelter clinic but could also be managed through an off site agreement, especially during times when in-house capacity is exceeded.

- Animals should not be released to adopters intact; offsite agreements should include transport of the adopted animal by shelter personnel and pick-up by the adopter once the procedure has been completed.

- Ensure that individuals charged with maintaining the foster program have sufficient time designated to ensure that medical as well as logistical requirements of the program are being consistently met, or hire additional staff to ensure that this is the case.

- See Part D; Animal Care, Section III, Veterinary Services Section for additional recommendations.

PART D. Animal Care

Section I: Intake, Vaccination and Parasite Control

Overview:
The intake exam process serves as a critical control point in an animal shelter. Careful examination on intake ensures that animals are correctly identified, facilitating a quick re-union with owners. It also ensures that animals are housed appropriately according to age and physical condition. Recognition of infectious conditions at intake and prophylactic treatment for internal and external parasites ensures that animals already in the shelter are not exposed to disease from newly admitted animals and is essential to protect human health as well. It is also important to recognize that these new arrivals are among the most vulnerable members of the shelter population: many have likely never been vaccinated, and are likely to be severely stressed by the novel experience of being admitted to a shelter. Every effort should be made to prevent disease exposure and minimize stress at this critical juncture. All staff responsible for intake should be provided with sufficient training, supervision, and acknowledgement of the importance of their role in protecting the health of new and resident animals at the shelter.

Staff performing intake at KCACC at the time of the visit appeared concerned about the animals' health and interested in feedback from the consultants regarding improvements, Efforts appeared to have been made to develop a consistent and effective intake process. However, these efforts were undermined by inconsistency between written and posted protocols; a lack of staff awareness of written protocols; absence of important information in written or generally understood protocols; issues with manner of implementation (e.g. scanning of most animals, but not using a universal scanner); failure to include some important components of a model intake protocol (e.g. animals not treated for internal parasites at intake as is widely recommended); and insufficient staff and/or lack of training or compliance resulting in protocols not always being fully followed even as written.

Several staff members, including field officers and shelter staff, were observed performing intake of stray and owner surrendered animals during the consult team visit. Owner surrendered animals and strays brought in by members of the public were received and processed on the front counter. Animals brought in by field officers were processed in an area near the loading bay, adjacent to cat quarantine. Specific observations are included in the assessment of strengths and problems below.

Strengths identified

- Multiple staff members were seen to perform intakes. Two were especially helpful and courteous.
- Staff is aware of disease transmission within cat carriers and is compliant in using the method in place to disinfect the cages after intake.

- There are supplies near the two areas where animals are routinely processed for intake (front counter, back near cat quarantine) including a microchip scanner, vaccines, and cleaning supplies.
- Staff attempted to obtain verbal history of animals being surrendered by their owners.
- Animals were observed to be vaccinated immediately at the time of intake processing.
- A modified live, subcutaneous DHPP vaccine with a killed coronavirus and an intranasal modified live Bordetella vaccine were administered to dogs. Cats received a modified live subcutaneous FVRCP vaccine. With the exception of the Corona vaccine, these reflect the core vaccines recommended by the American Animal Hospital Association (AAHA) and the American Association of Feline Practitioners (AAFP) guidelines for shelter animals. Staff reportedly vaccinated sick animals, and one written protocol reflected this recommendation; in most cases, the benefit of this practice outweighs the risk and is consistent with the AAHA and AAFP guidelines. Vaccines were correctly stored and reconstituted immediately before administration.

Problems Identified

- Staff were unaware that a written protocol for intake exists.
- Animals brought in by the public were processed (e.g. scanned, vaccinated, examined to the extent this was done) on the front counter while other members of the public were served simultaneously by a single staff person. Although processing animals at the front desk ensures that vaccinations are given immediately, attempting to perform a careful and consistent exam in this distracting environment is unrealistic, and processing animals on the front counter interferes with public service and creates potential safety risks for humans and animals. Animals were tied at the front counter while awaiting processing. In one case, a puppy was tied for 30 minutes. The area in which they are tied was not seen to be cleaned.
- Animals brought in from the field were processed in a back holding area that was also used for housing infectious as well as healthy cats.
- Although gender was checked and an estimate of age made based on dentition, no systematic physical exam was performed at the time of intake. The written intake protocol provided to the consultants does state that an initial health assessment is to be performed and references document SH2-010 for detailed instructions. However, this document (SH2-010) could not be found in the intake section or elsewhere in the manual, nor were staff apparently aware of this requirement.
- Although most animals were scanned, the scanner in use was an AVID scanner which is not designed to detect microchips with a frequency of 134.2 kHz. In one instance, a staff member was noted to skip scanning an animal on intake during a particularly busy time.
- Only one animal was observed to have its photo taken at intake.
- An unmarked spray bottle, possibly containing KennelSol, was available near intake, but staff were not observed to disinfect intake exam surfaces, nor was hand sanitizer used or hands washed before or between handling animals.

KennelSol is not reliably effective against canine parvovirus, feline panleukopenia or feline calicivirus.

- No protective clothing was worn when performing intake processing to cover garments which may have been heavily soiled or contaminated with pathogens from earlier cleaning/animal care activities.
- A vaccine protocol posted on the refrigerator holding the vaccines contained information that contradicted the written (and preferable) protocol contained in the manual and provided to the consultants. Contradictory information included the guideline to use an intranasal rather than subcutaneous vaccine for cats. This is not recommended (e.g by the American Association of Feline Practitioners (AAFP) vaccine guidelines for shelter cats) as this may fail to provide adequate protection against panleukopenia. The posted vaccine protocol also instructed that sick or pregnant animals should not be vaccinated. This contradicts observed and described practices outlined in the written protocol in the manual (Appendix A of the manual, SH2-002). As per the AAFP guidelines for shelter cats and the American Animal Hospital Association (AAHA) Guidelines for shelter dogs, the risk of exposure and disease generally outweighs the risk of vaccination for mildly to moderately ill animals. Both the AAFP and AAHA recommend the risk to pregnant animals of vaccination be carefully weighed against the risk of infection and the ability to provide suitable isolation. In many cases, the benefit of vaccinating pregnant animals outweighs the risks. Recent studies have shown 50-70% of cats entering shelters, have low levels or no antibodies for panleukopenia. Pregnant cats coming in with no protection would be susceptible to infection if exposed when a decision not to vaccinate is made.
- Although shelter staff were observed to consistently vaccinate animals immediately upon intake, several instances were noted where a field officer had admitted an animal without vaccinating it. Notes on cage cards included “no shots or chip check”; “scared so not vaccinated”. In some cases, animals who were not vaccinated due to behavioral concerns appeared to be friendly and handle-able when observed by consult team members.
- Vaccination practices with respect to puppies and kittens were unclear and in contradiction to recommendations from the AAHA and AAFP regarding vaccination of shelter animals. The written protocol in the procedure manual instructs staff to vaccinate all puppies and kittens for DHPP/FVRCP at 3-4 weeks of age; the protocol posted on the refrigerator in the intake area gave instructions to vaccinate puppies starting at 6 weeks and kittens at 4 weeks, and a staff member reported vaccinating kittens as soon as they were “up and walking around” (likely about 2-3 weeks). Vaccination of puppies and kittens younger than 4 weeks with modified live DHPP/FVRCP is not recommended except in rare outbreak conditions where exposure is almost certain with no alternative holding location available. Intranasal respiratory vaccines may be safely used as young as 2 weeks of age, but other vaccines may be harmful in very young animals.
- No written guidelines exist regarding revaccination of puppies and kittens during their shelter stay or in foster care. Staff reports on when vaccines are repeated in the shelter were inconsistent. Three different staff members interviewed gave

three different responses regarding whether animals were revaccinated and if so, at what interval. Vaccinations for DHPP and FVRCP may not effectively immunize when administered to puppies and kittens < 16-18 weeks of age due to maternal antibody interference. To maximize chances for protection, vaccinations should be repeated every 2 weeks up to 16-18 weeks of age for as long as the animal remains in a high risk environment, as recommended by the AAFP and AAHA.

- No written guidelines are provided regarding how to recognize or manage an adverse vaccine reaction. One staff member said she would report it to the veterinary technician on staff, but it is unclear what would happen should an adverse reaction occur when the technician is not on duty. Although rare, adverse vaccine reactions may be life threatening and prompt recognition and response is critical to minimize this risk.
- Animals are not treated for internal parasites on intake, except in the rare event that internal parasites are actually observed. Studies have demonstrated that parasitic infestation in shelter animals is common, and infection in puppies and kittens is extremely likely as transmission to neonates is possible during pregnancy and/or nursing. The vast majority of internal parasite infestations do not produce visible clinical signs or externally visible worms; yet can be a significant source of environmental contamination (and are nearly impossible to disinfect), are contagious to other animals and humans, and in some cases can cause severe illness and even death
- Animals may be treated for common external parasites such as fleas and ticks if these are observed, but there is no apparent consistent policy regarding this. External parasites can cause discomfort and disease in themselves and may spread disease from animal to animal or animal to human (e.g. “cat scratch fever” or feline bartonellosis, a zoonotic disease thought to be primarily transmitted by fleas). In addition, external parasites may serve as a deterrent to adopters.
- Staff are unaware of any protocol for contacting veterinary staff concerning animals identified with problems at intake.
- Staff used inconsistent methods of documentation (one in the computer and one a hard copy) to obtain the history of an owner surrendered animal.
- There are no staff members dedicated to intake processing of animals. Duties of the staff member performing intake include answering phones, returning animals to owners, tracking information on microchips for found animals, assisting potential volunteers and taking volunteer forms, licensing, foster assistance, checking out fosters, processing faxes from off-site adoptions, checking phone messages and returning phone calls. The front counter had to be left unattended when animals were brought back to be placed in kennels, or another staff member found to cover the desk (this was often observed to be difficult or impossible). Making good decisions about animal placement in the shelter, especially assessing compatibility for dogs in co-housing, may be compromised if staff members feel rushed to get back to the front desk.
- There is no policy regarding contacting foster caretakers or rescue for underage animals or others for whom immediate transfer would be appropriate.

Recommendations:

- Designate specific staff members to perform animal intake and provide sufficient time and training to perform this critical task in a consistent and effective manner. Front office staff can be responsible for obtaining information from the finder or surrendering owner and performing initial computer data entry, but it is unrealistic that careful animal processing, including health exam, careful scanning for ID and microchip, vaccination, treatment for parasites, correct identification, and placement into appropriate housing can be accomplished while simultaneously attending to all the duties of the front office.
- Perform detailed and consistent history taking of all surrendered animals upon intake to facilitate adequate decision-making processes at the end of the stray hold. A written form or computer data field may be used for this purpose.
- Ensure that hand sanitizer, gloves, and protective clothing are available at every intake station and used as needed to ensure that newly admitted animals are protected from exposure to harmful germs. Suggested resources for staff training include:
    - "Hands down, feet first, clean clothing not optional"; article by Kate Hurley on controlling fomites for shelter staff, available at http://www.sheltermedicine.com/documents/shelter_medicine_jul_aug07.pdf
    - "Saving Lives Through Sanitation"; recorded Petsmart Charities webinar, available at: https://petsmartcharities.webex.com/mw0304l/mywebex/default.do?siteurl=petsmartcharities (click on "recorded sessions" on the left and scroll down to find this in chronological order on February 6, 2007.
- Use a universal scanner that detects microchips with a frequency of 134.2 kHz as well as 125 kHz. There has been at least one reported case of a shelter dog implanted with a 134.2 kHz microchip being wrongly euthanized because the shelter was not using a universal scanner (see Nolen RS. Pet's death rekindles electronic ID debate. *Journal of the American Veterinary Medical Association* 2004; 225.) The use of universal scanners is becoming increasingly important as the implantation of 134.2 kHz (ISO standard) microchips becomes more common. Several organizations, including the American Veterinary Medical Association (AVMA), American Animal Hospital Association (AAHA), World Small Animal Veterinary Medical Association (WSAVA), and American Society for the Prevention of Cruelty to Animals (ASPCA), support the use of ISO standard microchips and universal scanners in the U.S.
- Photograph all animals upon intake.
- Train all staff responsible for intake to perform an initial health check in which they systematically scan all body systems and note any abnormalities. This is not intended to replace a full physical exam by trained veterinary staff, which may take place at a later time if indicated. The focus of the initial health check includes: quick recognition and appropriate housing of animals with possible infectious conditions; recognition and documentation of identifying features such as tattoos; timely treatment of painful conditions such as injuries or abscesses; documentation of pre-existing conditions for legal purposes. For full instructions on performing a health check on shelter animals and a sample health check form, please see

http://www.sheltermedicine.com/documents/Performing%20a%20physical%20exam%20on%20a%20shelter%20animal.doc (or type "physical exam" into the search box and choose the "documents" category for the search)

- Develop and implement a de-worming protocol, including regular deworming for roundworms and hookworms as recommended by the Center for Disease Control, and other common internal parasites such as whipworms, Coccidia and Giardia as indicated.
    - Post instructions for de-worming at all intake areas.
    - De-worm all animals with pyrantel pamoate (e.g. Nemex, Strongid) or another product effective against roundworms and hookworms immediately on intake.
    - Repeat de-worming every two weeks for all puppies and kittens between the ages of 2 weeks and 12 weeks of age, and all pregnant and nursing animals. Chameleon® can be used to generate reminders for repeating treatments.
- Provide safe, effective products for treatment of common external parasite infestations, including fleas, ticks and earmites. If possible, treat all animals for fleas at intake. If this is financially prohibitive, at minimum ensure that all animals are carefully examined for signs of external parasites and treated as needed. Treatment on intake is important to prevent spread to other animals, especially given the widespread co-housing at the current facility.
- Develop and implement a consistent policy regarding what requires veterinary treatment at intake and how it will be provided. See Part D, Animal Care, Section III, Veterinary Services for more information regarding appropriate guidelines for identifying and bringing emergency and non-critical medical issues to the veterinarian's attention.
- Clarify the age at which to initiate vaccination of puppies and kittens in the shelter (4-6 weeks for puppies depending on risk of parvovirus and distemper for puppies and panleukopenia for kittens; during times of lower risk, the higher end of the age interval may be used). In the current KCACC shelter, the lower end of the age range would generally be appropriate unless animals are to be immediately removed to safe foster care or other low risk environment.
- Develop a schedule and assign responsibility to revaccinate all puppies and kittens for DHPP/FVRCP respectively every two weeks until 16-18 weeks of age or until they leave the shelter. Chameleon® may be used to generate reminders for this.
- Train all intake staff (shelter and field officers) in recognition and response to an adverse vaccine reaction. Prominently post the signs of an adverse vaccine reaction and clear instructions regarding what to do if an adverse reaction is suspected, including the procedure for after-hours or when the veterinary staff is unavailable. More information can be found at http://www.sheltermedicine.com/portal/is_vaccination.shtml#reactions.
- Update vaccine protocols around the shelter to be consistent and to reflect current vaccination policy. Immediately remove all outdated information.
- Coronavirus is currently included in the vaccine given to dogs (DHPPC). While not thought to be harmful, use of Corona vaccine in a shelter setting is not recommended because of a lack of demonstrated value in reducing clinical signs of any illness (e.g see the American Animal Hospital Guidelines for the vaccination of shelter dogs,

table 5, Not Recommended Vaccines , available at http://www.aahanet.org/PublicDocuments/VaccineGuidelines06Revised.pdf)

- Because a killed coronavirus vaccine is in use at KCACC, it would at any rate need to be boostered 3-4 weeks after initial administration prior to providing meaningful protection in naïve animals; in this time frame, most animals at KCACC would almost certainly already have been exposed. Therefore, if there is no additional cost or this vaccine is actually cheaper than other options, it is fine to continue using it; however, the Coronavirus component is not likely to provide any benefit and should not be continued if it contributes to increased costs. Vaccine with the Coranavirus component included is commonly substantially more costly than a DHPP alone.
- Identify whether animal handling concerns are hindering vaccination of animals by field officers. Provide additional training if needed in safe administration of vaccines; provide guidelines for obtaining shelter staff assistance if another set of hands is needed to safely vaccinate an animal
- Minimizing the amount of time vulnerable youngsters spend in the shelter will greatly reduce the likelihood that they will acquire an infectious condition, and maximize the chance of a good outcome for foster care. Create provisions for prompt contact of rescue and foster homes for animals less than 8 weeks or those who are otherwise appropriate candidates for immediate rescue/transfer (e.g. owner surrendered animals that would be better placed through foster, rescue or another shelter due to medical, behavioral, or breed/species specific needs the Kent shelter is unable to meet with current resources).
- When considering renovation or expansion of the facility, designate a specific, contained intake room (or, even more ideally, two areas, one for dogs and one for cats and other small animals). The intake room should include storage for all necessary supplies, an easily cleaned exam surface and several easily cleaned cages to hold just a few animals very short term while awaiting processing, so that dogs do not need to be tied out.

Section II: Cleaning and Disinfection

Overview:
Cleaning and disinfection are critical tasks to minimize disease spread in a shelter. A clean shelter encourages adoptions and public support as well as protecting animals from illness. However, incorrectly performed, disinfection and cleaning can be ineffective or may actually serve to spread disease. Disinfectants themselves can cause significant harm if used incorrectly. Providing staff with sufficient written guidance, training and supplies, and ensuring that the facility is optimally designed for easy and effective disinfection, serve as the foundation of a sound program for shelter sanitation.

Overall, staff expressed concern and care when cleaning, and seemed eager for input from consult team members. All animal housing appeared to be cleaned on a daily basis and there was not an overwhelming smell of animal waste in the main kennel areas. The

UC Davis shelter medicine program website and personnel had previously been contacted regarding cleaning methods and choice of disinfectants, and several staff members commented that they appreciated the improved smell of the shelter since implementation of a modified program last summer. Some written protocols were available for some aspects of the cleaning, and for the most part these represented effective practices.

However, the efficacy and safety of the cleaning program was undermined by the poor design of dog and cat housing which rendered efficient cleaning impossible; dog housing which necessitated movement of numerous dogs from run to run; cat cages that were too small to allow for an optimally effective spot-cleaning system in many cases; numerous cat cages which were difficult to clean effectively due to removable trays and small wire mesh; inadequate staffing reportedly resulting in some staff coming in early in order to complete cleaning in a timely fashion; absent protocols for many important aspects of cleaning/disinfection other than animal housing; and inadequate training and/or oversight resulting in inconsistent implementation of written protocols. General recommendations for overall cleaning and disinfection are given below; detailed observations, assessment and recommendations for cleaning of dog and cat housing and assorted other areas/items follow.

General recommendations for cleaning and disinfection

- Provide laminated signs detailing correct dilution and use of all available disinfectants (and any other chemical in use in the shelter). Provide adequate measuring devices for dilution of disinfectants, and mark fill lines on buckets, squirt bottles or other applicators to which a variable amount of water may be added. Provide designated, labeled squirt or spray bottles for each type of cleaner or disinfectant in routine use. Provide adequate safety equipment for application of disinfectant (e.g. gloves, eye protection).

- Clean all surfaces of organic matter using a detergent prior to application of a disinfectant. Combined detergent/disinfectants such as quaternary ammonium products or potassium peroxymonosulfate (e.g. Trifectant ®) may be used for this purpose.

- After cleaning with a detergent (or disinfectant with detergent properties as described above), disinfect all animal-contact surfaces with a product known to reliably inactivate un-enveloped viruses (e.g. canine parvovirus, feline panleukopenia, and feline calicivirus), such as bleach diluted at 1:32 or Trifectant ®

- Thoroughly dry all animal contact surfaces after cleaning in order to decrease survival of harmful germs not removed or inactivated by the cleaning and disinfection process.

- Repair damaged cages or runs such that all surfaces are smooth and easily cleaned.

- Obtain sufficient supplies such that each animal housing area has its own supplies including hoses, scrub brushes, squeegees, and disinfectant applicators. Mark supplies clearly for the area in which they are to be used, and inventory cleaning supplies

regularly (at least once a week) to ensure that all needed supplies are present. Always have back up supplies for critical items such as squeegees and disinfectant applicators, as these are prone to breakage under heavy use. Develop an inventory system such that sufficient disinfectant is always on hand.

- Provide employees with detailed guidelines regarding hand sanitation and preventing contamination of clothing. Gloves and protective smocks should be available and used when handling animals with suspect serious illness, or when cleaning cages following a contamination with a serious pathogen. Provide changes of clothing for staff after unexpected exposures.

- If staff are assigned to clean multiple areas, have them clean in order from healthiest to least healthy: Adoptable puppies and kittens, adoptable adults, stray healthy puppies and kittens, stray healthy adults, quarantine and isolation areas. Change clothing and gloves and wash hands between each area.

- Develop specific guidelines for cleaning runs, cages and other areas (including rooms, surfaces and walkways) after a possible contamination by serious illness (such as parvovirus, panleukopenia or ringworm). Include detailed guidelines as to product, concentration, application time, and time before the kennel/area can be re-opened for use. Example:

    - Suspected parvovirus contamination of dog run:
        - Remove all fecal material and discard. Use cat litter to absorb and remove diarrhea if necessary.
        - Spray gently with hose, being careful not to splash adjacent areas.
        - Spray area with quaternary ammonium disinfectant at correct dilution using a hose end applicator.
        - Rinse.
        - Spray area with bleach at 1:32 (4 ounces/gallon) dilution using a hose end applicator. Allow to dry.
        - Place sign on cage stating "parvo, do not use until (note following day)" – if in any doubt as to thoroughness of cleaning, consider closing parvo contaminated cages for 2-3 days to allow repeated cleaning cycles, or specify repeated cleaning cycles within the same day.

Additional resources on general cleaning and disinfection:

- Additional information regarding cleaning and disinfection is available on the UC Davis shelter medicine program website at http://www.sheltermedicine.com/portal/is_cleaning.shtml#top3 .This includes a link to a detailed article on managing fomite transmission, including clothing, hand and foot sanitation.
- Other resources include:

- Animal Sheltering Magazine (www.animalsheltering.org), July 2003: Disinfection overview
- Seif, D. and J. Freed "Operational Guide for Animal Care and Control Agencies: Sanitation and Disease Control". Denver, American Humane Association.

SECTION II. Part One: Cleaning and Disinfection of Canine Areas

Overview
Written cleaning and disinfection protocols for dog areas are not posted but are available for staff to read in an accessible binder labeled "King County Animal Care and Control 2008 Shelter Evaluation Materials" (Appendix A (SH2-006). The written protocol describes an effective process, but is basic and does not provide enough information for a new employee to follow without further instruction. Additionally, not all staff followed the written protocol. The current dog cleaning protocol used by most staff was implemented during the summer of 2007. A consult team member visited at that time and recommended the "move-down-one" system that is currently being used. Staff reportedly spend a large amount of their work day cleaning animal housing areas with some members choosing to arrive well before their allotted hours in order to finish this task at a reasonable time.

Staff report that the "move-down-one" system is a large improvement for overall kennel cleanliness and odor control compared to the former system of spraying water in runs still holding dogs. However, although an improvement, the limited facility size; functionally single-sided design of most runs; and number of dogs housed per run makes even this protocol difficult and unsafe in many cases. Kennel staff must leash all the dogs at a time in order to move them into an adjoining kennel. This practice could easily result in escapes (as was observed numerous times during the site visit) and injuries to animals or bites to staff or shelter visitors. There is no completely safe or efficient method to clean and care for so many dogs co-housed in single-sided runs. Long term recommendations to resolve this problem are provided elsewhere in the report. The focus of this section will be short term improvements for cleaning and disinfection given the current circumstances.

Observations: Supplies used for cleaning include: a water hose attached to the wall, several attachable automatic disinfectant disposal spray units, a bucket with a degreaser, a bucket with a plastic bag liner, a bleach bucket for scoopers, a bucket with Kennel-sol®, a sponge-on-a-pole, sponges and rags, squeegee and leashes for moving dogs from one run to another. The disinfectant used is Kennel-Sol® and the degreaser is Stinger®. Bleach is also used to disinfect the kennels during the final cleaning step. Bleach is reportedly used at a 1:32 dilution.

Cleaning procedures after a diagnosis of parvo: these procedures were not observed during the consult. Procedures for disinfection etc. are described in the KCACC policy

manual document #SH2-006 appendix E. The memorandum indicates when a diagnosis of parvovirus is made, a sign will be posted on the kennel door stating: "Parvo Positive Quarantine" and the kennel will be disinfected and held open for 48 hours prior to reuse. Dogs that had direct contact with the positive dog are placed on "Parvo Watch" for 14 days. It was observed during the consult that a "Parvo Watch" sign was attached to the adoption kennel ward door. Staff report that this sign was hung several months prior to the consult during a parvo outbreak but that no-one had taken it down.

Strengths identified:

- The shelter staff reportedly took quick measures to implement a new dog cleaning protocol after recommendations made last summer. Staff was mostly observed following these protocols.
- Staff took steps to ensure sufficient contact time of bleach disinfectant.
- Efforts were made to dry kennels before moving dogs into them.
- Although the movement of dogs could be problematic staff were observed leashing and moving them with care and relative efficiency.
- Staff report that this cleaning protocol has improved smell and cleanliness of the dog kennels.
- There were enough hoses and sprayer attachments for each section of the kennel (3). All attachments and tools appeared to be in working order.

Problems identified (cleaning of dog housing):

- The written cleaning protocol is not sufficiently detailed to outline the exact procedures.
  Staff report that "everyone" follows the same routine but in fact some staff members were observed to follow different procedures; although these procedures may not in themselves have been unacceptable, inconsistency in following written procedures creates a risk for ineffective or unsafe practices.
- It is unclear whether the holding areas behind the guillotined runs are to be routinely used or not. Staff report that some individuals use them routinely while others do not. Since these holding areas are shared by two opposing runs it is possible to inadvertently open two guillotine doors allowing multiple dogs to come into contact. These holding areas are difficult to clean and disinfect effectively.
- Feces are sometimes flushed into the trench drains which flow from one run to another. This can increase the transmission of infectious disease and parasites because dogs have access to the drains.
- Staff members need to move multiple dogs at a time from one run to another (up to 6 dogs per run were observed at the time of our visit). This is a difficult maneuver and can be dangerous for both dogs and handler.
- It was not always possible, because of time constraints, to completely dry runs before moving dogs into them.
- Staff perform cleaning wearing the same clothes that they then wear for the rest of the day. Clothing can become heavily contaminated during cleaning, especially as the current facility necessitates close handling and contact with all dogs in the

shelter. Staff clothing can then be a source of infection for dogs handled for the remainder of the day.

- Sick dogs and healthy dogs are intermixed in the population, and runs containing sick dogs are therefore cleaned and handled, randomly interspersed, with cleaning of healthy dogs. This is necessitated by the current practice of using the move-down-one system in concert with the lack of isolation or even separation of sick dogs, but creates significant disease transmission risk.
- Staff report that daily cleaning is very time consuming. It is difficult for them to finish cleaning before the shelter opens to the public.
- Water bowls were stacked during cleaning and not always replaced into their original run.
- A parvo incident happened several months ago but a sign indicating "Parvo Watch Quarantine" was still hanging on the adoption dog ward clearly visible to potential adopters.
- It is unclear what a "parvo watch" entails or if the current response to known parvo exposure in the shelter is sufficient.

Recommendations:

- Establish and post sufficiently detailed written cleaning and disinfection protocols, including products and supplies to used; specific, detailed instructions regarding chemical mixing and dilution; method for chemical application; order of cleaning within and between areas where possible (e.g. ideally puppies prior to healthy adults, healthy animals prior to sick animals); and protective clothing or equipment to be utilized. Provide staff with sufficient training in the use of these protocols and ensure that they are consistently followed. An example of a written protocol for cleaning double- or single-sided dog runs can be downloaded at http://www.sheltermedicine.com/documents/dog%20run%20cleaning%20protocol.doc (or type "dog run cleaning" into the search box, and select "documents" as the search type).
- Discontinue use of the holding areas behind the guillotines for cleaning except for bite quarantine or aggressive dogs. These dogs need to be clearly identified so that their holding area is used only by them. Ensure that runs dedicated to quarantine or aggressive dogs must have functioning guillotine doors. Place signage on the cages connecting (opposite) with the central cages so that the dog opposite will not have the door opened to the central area while the aggressive dog is being held within.
- Ensure that feces are first scooped before rinsing the runs.
- Partially drying runs as is currently practiced may be sufficient for routine use. However, during an outbreak or after contamination with serious pathogen such as parvovirus, runs must be completely dried prior to re-use. This may require use of towels, especially for irregular surfaces where water tends to pool.
- Provide staff with protective clothing to wear during cleaning, and change clothing or remove protective garments at the finish of clothing. This is particularly important for any staff member who will go on to handle newly admitted animals later in the day (whether in the field or shelter).

- House sick dogs in only one section of the building (see isolation and segregation section for more information) and clean these dogs after all healthy dogs have been cleaned. At minimum, scan the population each morning, prior to cleaning, for dogs with signs of serious infectious disease (such as parvo) and mark these cages for special cleaning only after general cleaning has been completed.
- Ensure that any infectious disease "watch" signs are accompanied by appropriate response to disease and are removed after the appropriate quarantine period. Leaving them on doors after the risk of infectious disease has declined will only discourage potential adopters and encourage complacency about the importance of true contamination.

SECTION II. Part Two: Cleaning and Disinfection of Feline Areas

Overview:
An appropriate and effective system for cat cage cleaning was described in posted, written protocols. These protocols were generally followed, although some deficiencies and inconsistencies were identified. These deficiencies may create some risk for disease transmission in the process of cleaning; ineffective cleaning; or safety risk to staff and animals through incorrect mixing of disinfectant. One of the most significant concerns associated with cleaning, however, is related to widespread housing of sick animals within the general population, rather than a problem with cleaning and disinfecting procedures per se. Observations are included in the assessment of strengths and problems below.

Strengths identified:

- Written cleaning protocols for cat housing areas are posted in the food preparation/storage area. For the most part these written protocols provided sufficient detail, and observed cleaning procedures accurately reflected these written protocols.
- Cats are generally left in their cages during cleaning, rather than being held in a temporary holding cage or being moved to a different cage. The practice of leaving cats in their cages during cleaning and minimizing moves from one cage to another helps to reduce cat stress and disease transmission.
- Staff uses a more thorough cleaning & disinfection procedure for vacated cat cages than that used for occupied cages. The procedure for vacated cages consists of thoroughly wiping out the cage with a clean rag soaked in Kennel-Sol solution, followed by spray application of bleach. The cage is then left to dry. The two-step procedure (cleaning with Kennel-Sol, which functions as a combination light-duty detergent & disinfectant, followed by application of bleach) ensures adequate disinfectant activity of the bleach. Bleach is an important follow-up to Kennel-Sol, as activity of Kennel-Sol alone may be insufficient to inactivate important feline viruses including calicivirus and panleukopenia. Allowing the bleach to dry on the cages ensures adequate contact time with cage surfaces. This practice helps ensure that vacated cages are adequately disinfected between occupants.

- An abbreviated cage cleaning process, modeled on a spot-cleaning approach, is generally employed for occupied cages. In this procedure, cages are wiped with a rag soaked in Kennel-Sol to remove any gross soil. This can save valuable staff time.
- Different staff members are assigned cleaning duties for different cat housing areas of the shelter. Within each area assignment, cleaning is generally done in the following order: healthiest & cleanest areas of the building housing the most vulnerable animals first, and the most contaminated & sickest areas housing the least vulnerable animals last (e.g. adoption areas and nursery cleaned first, isolation and feral areas cleaned last.) Following this order helps reduce transmission of disease from sick animals to vulnerable animals.
- All cleaning staff appears to reliably wear gloves while cleaning cages. Some cleaning staff reliably wash or dip their gloved hands in soap or disinfectant between cages.
- All cleaning staff appears to reliably use a clean rag for each cage, and avoid using the same rag to clean multiple cages.

Problems identified:

- While generally sufficient, the posted written cleaning protocol for cat housing areas requires a few minor modifications.
- While cleaning procedures generally reflected written protocols, significant details of cleaning procedures employed by different staff members are often inconsistent. For example, some staff use rags sprayed with rather than soaked in disinfectant solution. Several other examples follow.
- In some areas of the shelter, cats are held in a wire carrier while their cages are cleaned. The same carrier is used repeatedly for multiple cats and is not cleaned or disinfected between cats. This practice increases both cat stress and disease transmission.
- Observed cleaning procedures were sometimes inefficient. In some areas of the shelter, food and water dishes are refilled one at a time as each cage is cleaned, rather than being all filled at once after cleaning is completed. This is slow, and risks contamination of food and water dispensers from touching them with gloved hands contaminated by cage cleaning.
- In many cases, cleaning of occupied cages was more thorough than necessary. All surfaces of the cages were completely wiped – top, back, floor, sides, and door. Removable trays are taken out and thoroughly cleaned by some staff members, while the cat either sits atop the base where the tray normally rests or is placed in a temporary wire carrier; either practice is quite disruptive for the cat. When spot-cleaning is employed, it is only necessary to remove gross soil and "tidy-up" the cage. Overly thorough cleaning of occupied cages increases cat stress and fomite transmission of disease. In addition, it is un-necessarily time consuming, and increases the use of chemicals around cats.
- The disinfectant solutions prepared and used by staff are not measured. While measuring directions are provided in written cleaning protocols, and a measuring cup was available in the cat feed room, staff did not use this when preparing

disinfectant solutions. Staff often reported that they did not know the volume of buckets and other containers for disinfectant solutions. Measuring the disinfectant volume without knowledge of the overall volume would not be helpful. Preparation of disinfectant solutions was "eye-balled." For Kennel-Sol solutions, staff estimated the concentration of prepared solutions based on color. Testing of prepared disinfectant solutions by consult team members showed that some solutions were too dilute, and that there was variation in the concentration of solutions used in different areas of the shelter, with some solutions possibly being too concentrated. Disinfectant solutions that are too dilute will be ineffective, and using solutions that are too concentrated can be dangerous to both animals and staff. *Specifically, exposure to overly concentrated quaternary ammonium disinfectants such as Kennel Sol® have been linked to severe consequences including respiratory distress, severe oral and skin ulceration, pneumonia and death in cats.*

- Nearly all cat housing areas included a significant number of sick cats, including adoption areas. Within each cat housing area (e.g. adoptions) staff simply clean cages in sequential order (e.g. top to bottom, left to right). Within adoption or other cat housing areas, cages containing healthy cats are not reliably cleaned before those housing sick cats. This essentially negates the benefit of following an order of cleaning from healthiest/cleanest/most vulnerable areas first, and most contaminated/sickest/least vulnerable areas last.
- Staff does not wear protective clothing during cleaning or change clothes after cleaning. Most staff members handle new intake animals later in the day while wearing the same clothes that inevitably become heavily contaminated during cleaning.
- Staff reports that availability of cleaning supplies is frequently inadequate – Squirt bottles, buckets, and temporary holding cages are often in short supply.
- Loud noise produced by a shop-vac used for daily tidying of cat condos is likely stressful for cats housed in this area.

Recommendations:

- Avoid removing cats from their cages during cleaning unless absolutely necessary. When it is necessary, use a clean holding cage for each cat. Ensure that enough holding cages are always available to make this possible. Alternatively, assign each cat a cardboard carrier that can be used for temporary holding when necessary. This carrier should remain with the cat throughout its entire shelter stay.
- Establish more efficient cleaning protocols in which food and water containers are emptied as each cage is cleaned, and then refilled after cage cleaning is completed. This will also help to decrease contamination of food bins and water taps by dirty gloves.
- Employ true "spot cleaning" procedures for occupied cat cages that are only lightly soiled. When a cat remains in the same cage, cleaning should keep the cage looking and smelling tidy, but thorough disinfection is not necessarily required. The recommendation has already been made to discontinue use of the

"Carnation" cages; in the interim, do not remove the tray for cleaning while a cat is housed in the cage unless absolutely necessary to maintain the cage in a sanitary condition. A sample spot-cleaning protocol is provided below; this can be modified to fit the specific procedures and products used at KCACC. For more information on spot cleaning, see the article starting on page16 of the May-June issue of Animal Sheltering Magazine: http://www.animalsheltering.org/publications/magazine/back_issues/asm_may_jun05.pdf.

- Ensure that staff consistently measure amounts of water and disinfectant when preparing disinfectant solutions. Ensure that the volume of all containers for prepared disinfectant solutions is clearly labeled. Prepare and post detailed instructions for amounts of disinfectant stock solutions to add to containers of various sizes (e.g. 1 quart spray bottles, 2 or 4 gallon buckets.) Ensure that measuring devices are consistently available; consider tying these adjacent to disinfectant measuring stations.
    - Some disinfectant providers such as Animal Health Technology (http://www.htproducts.net/) offer products similar to KennelSol (quaternary ammonium disinfectant) and provide automatic dispensing systems that coordinate with dedicated, marked containers for disinfectant and degreasing products. These systems may be available free of charge in association with purchase of the disinfectant. Where possible take advantage of these offers, as they considerably reduce the risk of human error.
- Discontinue housing cats with clinical signs of infectious disease in the general population or co-mingled with healthy animals. Ensure that cleaning and handling of healthy and vulnerable animals occurs prior to animals with clinical signs of infectious disease. See Section II (Population Management), Part 4 (Isolation and Separation) for more information.
- Ensure that staff wear protective clothing during cleaning, or change clothes after cleaning.
- Maintain adequate supplies to ensure uninterrupted availability of all equipment required for cleaning and disinfection of cat housing areas, including spray bottles, buckets, and temporary holding cages.
- Consider quieter alternatives to the shop-vac for daily tidying of cat condos. A small hand broom and dustpan (one assigned to each cage) should suffice. The condos must be taken elsewhere for thorough cleaning and disinfection between occupants.

SECTION II. Part Three: Cleaning and Disinfection: Other

Cleaning of animal transport vehicles:

Observations:

Animal transport trucks are reportedly cleaned after each run. Cleaning supplies (hose, disinfectant sprayer attachment, sponges, and spray bottles) are kept in the truck loading

area. Basic cleaning with Kennel-sol® is done when an animal is removed but full disinfection with bleach is only done at the end of the day.

Problems identified:

- There are no written protocols outlining how and when animal control vehicles are cleaned.
- Animal control vehicles are a common source of infectious disease. There is no disinfection with a proven parvocidal disinfectant at the time an animal is removed.

Recommendations:

- Develop and implement clear written cleaning and disinfection protocols for vehicles. See notes below on general disinfectant protocol development.
- Consider using a parvocidal cleaner/disinfectant such as potassium peroxymonosulfate (Trifectant®) in spray bottles to clean and disinfect used cages after each run.

Cleaning of transport cages:

Observations:

Most of the transport cages used by the shelter are made of wire (for transporting cats at intake to a cage) or plastic airline-type. It is reported that these carriers are cleaned by the person who last used it. The wire cages are dunked in a bleach filled drum that is located in the outside loading area. Once dunked the cage is left to air-dry. The bleach solution is reportedly changed every Sunday but there is no written protocol.

Problems identified:

- The airline carriers are not taken apart for cleaning. These carriers are virtually impossible to properly clean and disinfect when left assembled, as hair and bodily fluids accumulate in cracks and seams.
- The bleach-filled drum was not covered when not in use.
- There is no written protocol for mixing the bleach solution.
- Bleach solution is not effective when contaminated by organic matter (e.g .from dunking cages containing feces or hair) or when used at insufficient strength (less than a dilution of one half cup per gallon). Both these circumstances are extremely likely when used in the manner described above. Bleach also becomes inactivated with time and at a minimum should be mixed fresh daily.

Recommendations:

- Make sure all airline carriers are fully disassembled, cleaned and disinfected before reuse.
- Supply an easily removed cover for the dunk drum. Rain could dilute the solution to an unacceptable level if the drum is left uncovered for extended periods.
- Write and post clear instructions on how to make the appropriate bleach solution (5% bleach diluted at one half cup per gallon)
- Clean organic matter from cages prior to dunking (using a scrub brush and water/detergent solution followed by rinsing).

- Mix bleach solution fresh daily or more frequently if the solution becomes visibly dirty.
- Consider using peroxymonosulfate (Trifectant®) as an alternative to bleach in the carrier dunk drum. Peroxymonosulfate (Trifectant®) could be mixed weekly, if kept covered and clean by scrubbing carriers before dunking.
- Develop a special cleaning protocol for any carrier contaminated by panleukopenia, ringworm or other suspected durable pathogen. This should include scrubbing with detergent and water followed by specific application of freshly made solution of parvocidal disinfectant (for panleukopenia) or bleach at 1.5 cups per gallon (for ringworm *only*).

Cleaning intake exam surfaces:
Observations:
The policy for surfaces of the intake counters was to spray them with Kennel-sol® after each exam and wipe immediately. However, several intakes were observed in which no cleaning of the intake surface was performed. There is no designated intake room or area; exams are conducted in the public intake area. The floor behind the counter where dogs were observed tied up waiting for processing was not observed to be cleaned until the end of the day. See Part D, Section I, Intake for more information.

Problems identified:
- Intake areas are especially vulnerable to contamination by infectious diseases and the incoming animals can be very susceptible to these pathogens. It is therefore important to use a parvocidal disinfectant on a regular basis in this area. Although the counters were frequently wiped the floor was not.

Recommendations:
- Consider using potassium peroxymonosulfate (Trifectant®) in all intake areas/surfaces. This disinfectant is parvocidal as well as being a mild cleaner and has relatively good activity even in the face of moderate organic matter contamination. Trifectant® will both clean and disinfect the counter tops and can be used to mop the floors after dog intakes as well.
- If Kennel-Sol® continues to be used, its application should be followed by bleach solution if there is any suspicion of parvovirus/panleukopenia contamination.
- Mop bucket solutions should be changed at least daily and after any suspected contamination by parvovirus.

Cleaning of dishes, toys and litterboxes
Observations:
Dishes are brought to the laundry area where there is one sink. The dishes are placed in the sink to soak in a Kennel-sol® solution. Periodically a kennel worker will wipe/wash these dishes with a sponge and place them in the commercial dishwasher. The dishwasher temperature is set to 130°F and uses a sanitizer (bleach) that is dispensed automatically during the cleaning cycle via a hose. Litterboxes were stacked next to the sink. These were soaked separately in the sink in Kennel-sol® and then rinsed before

being loaded in the dishwasher. Washable toys (e.g. kongs) were soaked, rinsed and placed in the dishwasher.

Problems identified:

- The size of the one sink is quite small. The large number of stacked dishes can easily render the soaking step ineffectual. No staff member is designated to make sure the dishes do not pile up. It was reported that this happens quite frequently.
- Although washed separately the same sink is used for food dishes and litterboxes.

Recommendations:

- Designate sufficient staff members per day to ensure that the sink does not pile up.
- Litterboxes are an obvious source of disease. Stack and hose off all litterboxes outside before bringing them into the food preparation/laundry room. Wash and disinfectant litter boxes separately after food dishes have been cleaned.
- Long term recommendations include building separate cleaning and food preparation areas with sufficient sinks.

Cleaning of bins used to store food
Observations

There are separate plastic bins used to store opened bags of adult dog and puppy food. These bins are wheeled into the dog wards to facilitate feeding. A separate scoop or the feeding bowl is used to dispense the kibble. A similar set up is used to dispense dry adult cat and kitten food, although the bins/buckets are smaller.

Problems identified:

- There are no written protocols to describe how or when these bins are to be cleaned. Staff reported that this is rarely if ever done.

Recommendations:

- Adequate cleaning and disinfection of large plastic bins is difficult to do. It is recommended that smaller buckets be used for the dog food which can be filled with enough kibble for the morning or evening feeding. The bucket should be cleaned, rinsed and allowed to dry on a regular schedule e.g. once or twice a week.
- The cat feeding bins should also be cleaned on a similar schedule.

Laundry
Observations:

The shelter has three sets of washer/dryers. Two are for shelter use, one for the veterinary clinic. One shelter washer was replaced with a new large unit during the consult. Laundry is piled next to the units during the day. Occasionally a kennel worker will load the units and replace the towel and blanket supply; blankets and other soiled laundry may pile up in the meantime.

Problems identified:

- In the absence of a designated system or staff to routinely attend to laundry, there may be a tendency for an excessive amount of laundry to accumulate, which may contribute to odor and disease spread.
- Staff reports that it can be difficult to keep up with the amount of laundry generated during the day. One of the washing units was broken at the time of visit but it was replaced by the time the consult team left.

Recommendations:

- Consider contracting some of the laundry to an off-site service if necessary. This may be especially necessary if all dogs start receiving blankets or towels for bedding.
- Designate one employee to be in charge of laundry per day. This will help to keep backed up wash to a minimum.

Cleaning of other areas and equipment; routine deep cleaning

Not all cleaning and disinfection procedures were observed during our visit and are therefore not specifically covered in this report. General recommendations for cleaning given below should be followed for cleaning of these areas and any other areas, surfaces or equipment with which animals have contact.

- Survey the shelter, including general areas, "get-acquainted" and play areas, transport vehicles and equipment, and identify all areas, surfaces and objects exposed to animals and therefore in need of routine cleaning and disinfection. Create and implement written protocols as needed to address specific cleaning/disinfection methods, including:
  - Required protective clothing/gloves/footwear or eye protection
  - Method of cleaning prior to disinfection, if indicated (removal of organic matter such as scooping of feces, scrubbing or rinsing with detergent and/or water)
  - Method of disinfection, including chemicals to be used, correct dilution and method of application (e.g. scrub brush, spray bottle, hose-end applicator)
  - Special cleaning/disinfection considerations following a known or suspected contamination with serious, environmentally-resistant pathogens such as parvovirus or ringworm.
- Special periodic deep cleaning/degreasing practices and timing (e.g. at least monthly deep cleaning is recommended for dog runs; more often if visible body grease or other contaminant is noted to build up)

Specific recommendations for disinfection and cleaning of dog outdoor play areas, cat ward floors, and "night drop":

- Cleaning and use of outdoor play areas:
  - Write clear protocols outlining the cleaning of the outdoor play areas that include the following points:
    - Designate someone to coordinate the cleaning schedule.

        - Scoop dog waste after each dog's visit.
        - Make sure there is no garbage etc. being left in these areas at the end of the day.
        - Only healthy adult dogs that received a DHPP vaccine at least 5 days ago should be allowed in play area. Puppies should not be allowed in grass play areas as risk of parvo infection is higher in this population regardless of vaccine status; a disinfectable (e.g. paved) outdoor area should be designated for puppies.
- Cleaning of floors in cat housing areas and common areas:
    - Write clear protocols for staff to follow. These should include:
        - Sweep debris from floor once all cage cleaning is completed
        - Either clean the floor of the cat housing room with a detergent such as Kennel-Sol before disinfecting it with bleach or use Trifectant. Other common areas can be cleaned with Kennel-Sol.
        - Launder mop heads daily to reduce build up of organic matter within mop heads. Use a "double bucket system:" rinse the mop or other applicator in a clear water bucket between each application of disinfectant. Two sided buckets are available from janitorial supply houses, or you can simply use two mop buckets.
- Cleaning of outdoor temporary holding cages ("night drop").
    - The outdoor cages occasionally used as "night drop" are an area of the shelter highly likely to be heavily contaminated by pathogens, since sick, shedding animals may spend hours in these cages. The amount of time that newly deposited animals, who have not yet received any vaccine protection, spend in night deposit cages should therefore be minimized.
    - Thorough cleaning and disinfection of these enclosures is especially crucial to minimize risk for susceptible animals left there. Clean and then disinfect daily with a parvocidal disinfectant such as bleach or potassium peroxymonosulfate (Trifectant).
    - Finally, exposure of these newly admitted animals to the contaminated clothing of staff who have just completed cleaning should be avoided if possible.

Section III: Veterinary Services

Veterinary Services
Note: Some of the recommendations provided here also appear in the Staffing section of this report; this section provides more detailed information regarding the basis for those recommendations.

Overall
Four specific areas of veterinary services were to be assessed:
- adequacy of services
- standard surgical practices

- oversight of veterinary services
- treatment of common diseases

On January 3, 2008 the consultation team was made aware that the shelter's full-time veterinarian would not be present for the site visit. Dr. Marilyn Christensen was contacted via e-mail and responded to an electronic questionnaire and telephone interview on January 4, 2008. Additional observations and interviews with other medical staff members were conducted during the site visit. Because oversight of foster care and medical treatment of foster pets was reportedly the responsibility of the veterinary department, comments with respect to the foster care program are also included, although a full assessment of the foster care program is beyond the scope of this report.

I. Adequacy of Veterinary Services

Observations

At the time of this visit, the Kent shelter's veterinary services are staffed by one full time (40 hr/wk 4 days/wk) veterinarian and one full time technician with similar hours. There is no veterinarian at the Eastside shelter. A part time employee works Monday and Thursday during busy times of year at the Kent facility. A regular relief veterinarian fills in for the full time veterinarian approximately seven weeks out of the year when the staff veterinarian is on vacation or otherwise out of the office. The shelter veterinarian and technician work four, ten-hour days, although overtime was reportedly common. Thus, the spay and neuter clinic is operational for these days. The foster care program is overseen by the veterinary department. Several area clinics contract with the shelter for emergency care of animals.

As noted in the Staffing section above (Part C), the veterinary staff is not allotted specific time to perform any general shelter medical duties other than spay/neuter. The staff veterinarian described performing medical rounds as a "luxury", when "other obligations did not interfere". An additional comment was that "the amount of work far exceeds the staffing". Although the 2008 King County Animal Control Operational Plan states that the shelter veterinary staff "provides health exams of animals, diagnosis of maladies, treatment regiments…" these duties were never observed as a part of daily operations. Although the overall shelter intake has not dramatically increased in recent years, shelter animal daily population and ill animal needs have steadily been increasing, yet staffing levels in the veterinary clinic have remained constant. *All staff members interviewed in the veterinary area reported the current staffing level to be inadequate for the tasks they are required to perform on a daily basis.*

Assessment

Most shelters of similar intake employ multiple veterinary staff in order to provide surgical, preventative and ill animal care. For example, the animal control facility in Fort Collins, Colorado (annual intake 10,000 dogs and cats)has one full time veterinarian, one part-time veterinarian and three support staff. Team approaches, common in spay/neuter facilities, utilize one veterinarian and a minimum of two highly trained support staff dedicated only to spay/neuter tasks to accomplish 20-30 surgeries per day. Many

organizations have found that having a ratio of two or more support staff per veterinarian, with two or more veterinarians performing surgery simultaneously, is the most efficient strategy.

Strengths

- After hours and emergency care provisions exist when veterinary staff are not scheduled on duty
- A regular relief veterinarian familiar with this shelter is available.

Problems

- The current staffing level is inadequate for the tasks required on a daily basis.
- Shelter animal daily population and ill animal needs have steadily been increasing, yet staffing levels in the veterinary clinic have remained constant.
- The veterinary staff is not allotted specific time to perform any general shelter medical duties other than spay/neuter.

Recommendations

- Employ sufficient veterinary staff to provide scheduled daily time for veterinarians to walk through the shelter, examine sick animals, examine animals that are candidates for adoption, and oversee and implement infectious disease management and prevention protocols in addition to operating the spay and neuter facility. See http://www.sheltermedicine.com/documents/daily%20rounds.doc for general instructions for daily rounds.

- The veterinary team is a valuable resource for policy development and personnel training. Give veterinary staff the time to develop protocols to improve shelter animal health and ensure a means of managing these protocols effectively among staff.

- Initially seeking veterinary and medical support staff with a strong interest and background in shelter medicine is recommended when hiring, as this is a specialized area of veterinary medicine that requires unique skill. Providing financial support and sufficient time for all veterinary staff to pursue continuing education specific to shelter medicine is also suggested. Shelter medicine training is available at many regional and national veterinary conferences, as well as online. If internet access is provided in the workplace, staff may also join the Veterinary Information Network and the Association of Shelter Veterinarians/Technicians[1] to consult specialists and participate online regarding shelter medical issues and current practices.

Suggested resources:

- UC Davis Koret Shelter Medicine Program information sheet: "Hiring a shelter veterinarian": http://www.sheltermedicine.com/portal/is_hiring_a_vet.shtml#top3

- Association of shelter veterinarians: www.sheltervet.org

II. Standard Spay and Neuter Practices

Observations:
County policy requires that every animal adopted from a King County operated animal shelter is sterilized. The staff reported spays or neuters were performed on more than 3,000 animals last year before adoption but that occasionally some animals do go home intact due to illness. The shelter veterinary technician reports that this is the first year that the demand of animals in the shelter has exceeded the ability of the spay/neuter clinic to "keep up". *Animals are frequently not moving out of the shelter after adoption because they are waiting for spay and neuter to occur.* This is contributing to the already severe overcrowding at the shelter. Adoption opportunities are also being lost due to insufficient spay/neuter services; for example, a volunteer was observed looking for cats to transport to off-site adoption programs. She was unable to find enough cats that had already been altered to fill all available slots for off site adoption, and reported that this was a routine occurrence. Removal of more cats to off site adoptions will alleviate shelter overcrowding and maximize live release.

On average, veterinarians are performing 25-30 surgeries daily. The surgical patients are a mixture of un-adopted but highly adoptable candidates from the shelter, adopted animals in need of surgery, and foster animals. No public animals are sterilized at the clinic. Animals are selected for surgery in the morning primarily by the veterinary technician, placed into holding cages in the veterinary treatment hospital, which also houses ill animals, and returned to the shelter or to their adopter by the evening of the surgery day. It was reported that animals rarely receive examinations before surgery. Dogs have been historically pre-medicated with Atropine and Acepromazine. Torbugesic was added to this protocol within the week prior to our visit. Cats have been premedicated with Telazol. Torbugesic also was recently added to the feline protocol. The staff veterinarian did not list Torbugesic as a medication routinely in use. Canine induction is with Ketamine and Valium, and all animals are intubated for surgery and maintained on isoflurane and oxygen inhalant anesthesia. Cats are tested for Feline Leukemia and sometimes Feline Immunodeficiency Virus while anesthetized. The test results are often not reported until surgeries are complete. A low positive rate is reported. An esophageal stethoscope is used for monitoring purposes. Controlled drugs are noted through chameleon records. Animals are clipped and prepared in the treatment area, and then moved to the surgery room. Nolvasan surgical prep is followed with dry gauze. The veterinarian on duty during the team visit was observed to perform a surgical scrub prior to gloving with cap and mask for all surgeries. A separate surgical pack and sterile suture was observed to be in use although a cold tray was present and is reported to be used by other veterinarians for re-use of suture. No further medications are given post-

operatively. At the end of the day, the surgical suite is swept and mopped by the veterinarian. Other chores like changing instrument milk, cold sterile solution, or soda-lime canister were reportedly done as time allowed. No written list of these duties was available. A post-operative instruction sheet is provided to adopters with the shelter's veterinary clinic number provided for post-operative problems. This number is answered during daytime hours. A reported rate of post-surgical infections is high although not directly observed during the visit.

KCACC also helps partner with Pasado's Safe Haven who conducts free or low-cost spay/neuter surgeries in a mobile van that comes twice monthly to the Kent Animal Shelter parking lot. The shelter is additionally housing small groups of feral cats, then performing their spay and neuter surgeries for a feral cat rescue group, and placing these cats with individuals desiring feral cats.

Assessment:
The Kent Animal Shelter has a functioning spay and neuter clinic. It is absorbing close to 100% of the shelter veterinarian and technician's time to run at its current level, is not fully meeting the spay/neuter needs of the shelter and is not providing any additional assistance to the community.

High volume-high quality spay and neuter programs should meet or exceed current standards of practice and levels of care. While volume is clearly high in this clinic, there are several areas that are not ideal.

- Animals should be individually examined prior to surgery to detect any major medical issues that may create a surgical risk. Written medical records including log of physical examination, log of anesthesia including a separate controlled substance log that meets state and federal Drug Enforcement Administration requirements[2], and written or electronic records of any complications should be kept.

- Frequent use of a cold sterile tray without adequate cleaning of items being placed into solution or without regular solution exchange when soiled, may allow for contamination of instruments or suture. The current system may be insufficient for re-use of suture and may be linked to the reportedly high rate of incisional complications.

- It is important that animals receive pre-emptive and ideally multi-modal pain medication with surgery and be monitored following surgical procedures to ensure pain control is adequate. Pain management should include non-pharmacological means as well as pharmacological methods. Animals at the Kent shelter are either sent home without further pain medication to adoptive owners or returned to shelter cages where multiple animals are housed in one kennel and where bedding is not provided, often within hours of surgery. Non-pharmacologic methods of pain management include management of environmental stress through provision of warmth, clean and dry surroundings, and a quiet setting. Until a week ago, animals were not receiving pharmacologic means of pre-

emptive pain control with surgery. Surgery without pain medication is inhumane. Torbugesic (butorphanol), while an analgesic, is an expensive and somewhat short-acting medication. From the American Animal Hospital's 2007 Pain Management Guidelines[3]:

> "There is a misunderstanding regarding the degree and duration of analgesia provided by butorphanol. Butorphanol is not as effective or long-lasting as other opioids. Limited uses of butorphanol include anesthetic premedication and prior to minimally invasive procedures.

The relief veterinarian commented that he would prefer to use another opioid agent, but is not likely to order drugs under his own DEA license for the animal shelter at this point as he is not a full-time employee and there is potential associated liability in doing so.

- Healthy surgery patients in the spay/neuter clinic should not be housed in close proximity to ill animals undergoing treatment, as this practice puts surgery patients at high risk for infection. This is particularly damaging as these animals by definition have either been adopted or been determined to have a very high potential for adoption. It was not clear how it was decided which animals will be housed in the veterinary clinic for treatment vs. being treated in isolation vs. remaining housed in the general adoptable or stray population for treatment. Many animals as a whole in this area were without identification and the sick animals were reported to be long term residents who were "near death" and now being nursed back to health. Several cats with upper respiratory infection were seen and one kitten was observed from a litter returning for spay/neuter from foster. This kitten was much smaller than the littermates and the foster home reported he was having trouble defecating. He smelled strongly of feces and had no anal tone or tail tone. A large fecal mass was evident at his rectum. The veterinary staff were planning to anesthetize and explore the rectal area before deciding what medical options existed for the kitten.

Strengths:

- The shelter recognizes the importance of sterilizing all animals prior to adoption.
- The veterinary and surgical facilities are very functional

Problems

- Although the Kent Animal Shelter has a functioning spay and neuter clinic, it is absorbing close to 100% of the shelter veterinarian and technician's time to run at its current level, is not fully meeting the spay/neuter needs of the shelter, is not providing any additional assistance to the community, and is not operational every day of the week.

- Some animals go home needing follow-up for spay and neuter due to illness

- The demand of animals in the shelter has exceeded the ability of the spay/neuter clinic to "keep up". *Animals are frequently not moving out of the shelter after adoption because they are waiting for spay and neuter to occur.*

- Animals reportedly rarely receive examinations before surgery

- The animals for surgery are housed in the veterinary treatment hospital, which also houses ill animals

- All recordkeeping is brief, including controlled drug logging which is noted only through chameleon records.

- Until a week ago, animals were not receiving pharmacologic means of pre-emptive pain control with surgery. The day of surgery, animals at the Kent shelter are either sent home without further pain medication to adoptive owners or returned to shelter cages where multiple animals are housed in one kennel and where bedding is not provided, often within hours of surgery.

- A reported rate of post-surgical infections is high although not directly observed during the visit.

Recommendations:

- Review several model high volume-high quality programs

  Suggested references:
  http://www.aspca.org/site/PageServer?pagename=aspcaprosn_landing
  http://www.humanealliance.org/HA2/ha-index.htm

- Recognize that spay/neuter efficiency is key to animal flow in the shelter and work to improve program, staffing and overall efficiency of the system to match population needs

- Increase support staff such that veterinary time does not need to be spent on maintenance activities such as cleaning the clinic

- Streamline staffing of the spay and neuter clinic to operate 7 days/week

- Utilize two simultaneous surgical tables with sufficient technical support and veterinary staff to keep both operational if necessary to meet demand for spay/neuter

- Consider volunteer veterinary and technician/assistant resources
  - The surgeon should not need to assist in animal/instrument prep, as this is not a cost-effective use of veterinary time

- Create a system for animals to receive an examination before the time of surgery

- Update anesthetic/analgesic protocols. Modify and implement pre-emptive pain management as a whole in the shelter

Suggested references:
http://www.aahanet.org/PublicDocuments/PainManagementGuidelines.pdf

- Stop using a cold sterile tray and evaluate whether incisional complications decrease

- Evaluate other community options for populations like feral cats and owned animals and consider the current goals in light of the current resources. A significant discrepancy exists between what the shelter's veterinary services department is being asked to accomplish and what is feasible. Rather than doing too many things marginally, develop initial programs at a higher level and expand outward once functioning well.

III. Oversight of Veterinary Services

Observations:
Recognition & Reporting of Disease
Neither daily monitoring rounds nor rounds for ill animals are regularly conducted. Medical treatments are generally done by shelter staff. When asked whether daily veterinary observation of animals under rabies quarantine occurs, staff report no. They report that veterinarians get involved when these animals die. There is no formalized training in place for staff on prevention or recognition of zoonotic disease (diseases transmitted from animals to humans), although the shelter does reportedly treat ringworm (e.g. see photo below) and houses rabies suspect animals. No formal system exists for reporting medical concerns to the veterinary department. Staff either bring cage cards to the vet staff and leave them on the counter or verbally inform veterinary staff of their concerns. Follow-up occurs when time allows, and no formalized protocol, list or check-off system was observed.

Photo: Cat with ringworm housed near nursery and intake areas. Treatment provided (tube of ointment in envelope on front of cage) is ineffective and inconsistent with stated protocols for ringworm treatment at KCACS. Precautions of hanging a towel partially over the cage and advising hand washing after treatment are insufficient to protect human or animal health. For example, no precautions are given regarding cleaning; caretakers could easily transmit disease to themselves and other cats in the course of caring for the cat and cleaning the cage without wearing protective garments/gloves (which were not evident).

Responsiveness to Severely Ill or Dying Animals

No formal system exists for monitoring the welfare of individual animals or of the population as a whole. When medical reasons are noted as reasons for euthanasia, a member of the veterinary department and a supervisor must agree and sign together for the animal to be euthanized. It is unclear what occurs when veterinary staff are not on duty (which is currently the case 3 full days/week as well as hours when the veterinarian is not present). There is also a general lack of clarity as to who is accountable for medical euthanasia decision-making. The veterinary department indicates that these decisions are generally brought forth by supervisors or staff. Supervisors and staff indicate that the veterinary department brings the decisions forth. Staff comment that when they have questioned supervisors as to whether an animal's medical condition might necessitate euthanasia, they have been asked in return "Is the animal unduly suffering?" Medical conditions are cited as the second most common reason for feline euthanasia (accounting for euthanasia of 960 cats and kittens in 2007); although the specific reasons are not recorded, reportedly upper respiratory infection (URI) is the most common reason for medical euthanasia.

In spite of the frequency with which this reportedly occurs, the veterinary technician was unable to answer when or if a cat with URI might be euthanized. She was asked if three rounds of antibiotics without response might be indication, and responded no. Eventually, she answered that not eating for several days might be an indication for euthanasia. One staff member reported that euthanasia of URI cats often took place when the animals were "barely breathing, non-responsive and near death".

Animals were noted by multiple evaluation team members with medical issues that had not been recognized or addressed such as severe URI or skin issues (see photos below). A poodle was observed lying in a kennel at the Crossroads shelter. There was a sling hanging on the kennel, and it appeared that the dog was unable to rise in the back-end. This dog's rear limbs were badly abraded and the skin was scarlet in color, bloody and scalded by feces and urine. When questioned about the case, a staff member indicated the

dog had been found by a good Samaritan who took the dog for veterinary care and the vet said the dog did not require further care. She provided an exam sheet dated 12/30/07 for a dog brought to the shelter 1/8/08. This paperwork described a 35# tan and brindle terrier cross, although the dog in the kennel was a white poodle. After our discussions, the dog was sent to the Kent shelter. Otherwise it appeared that no plan had been developed other than holding the dog for the remainder of its stray period. This situation is further described above in Part A, Section II., Part One: Shelter Population Dynamics.

Photos: Examples of animals with medical conditions housed in the general population, with no evidence of evaluation or treatment by a veterinarian. The cat on the left had severe URI resulting in bloody and mucoid nasal and ocular discharge, and clearly painful eyes. The dog on the right had a skin condition resulting in extensive hair loss.

Other

The veterinarian or technician must sign off on euthanasia certification of staff members in the facility and sign animals out of rabies quarantine status. This was not observed directly. The veterinary department reportedly helps to develop policies for vaccination, parasite prevention and disease control in the shelter. Several policies were posted. Several other, different written policies were provided to the consult team. For example, the vaccination protocol that was provided to the team and that which was posted provided conflicting recommendations. The Chameleon® computer software system was in use. Animals receive a kennel card/impound sheet on intake which is computer generated. Some staff report using Chameleon® for making and checking updates related to treatment and medical concerns while others report making and searching for notes on the cage cards. The veterinary staff report that they will administer standard treatments like parasite medications if no handwritten notes are made on cage-cards before searching the database for records other staff may have made about previously administering treatments.

Assessment:

Many of the components of a shelter medical program other than spay and neuter are absent or incomplete at KCACC at the present time. The sole staff veterinarian and technician reportedly oversee the shelter medical services, foster program and spay and

neuter facility; however these same staff are responsible for the high volume spay/neuter program which as noted above in itself constitutes a workload greater than these staff members are able to keep up with. A need clearly exists for broader oversight of the veterinary programs but is constrained by the current staffing level and expectations associated with treatment and recovery within the facility. The veterinary staff should be involved in policy and protocol development as well as staff training and strive for a consistent approach reflecting model shelter practices, to reflect currently identified goals for the shelter.

It appeared that the current computer system is not being utilized by the veterinary department. When it is utilized, it is not done in a consistent manner. An efficient system for monitoring health and welfare of individuals and the population, performing medical rounds, and noting treatments helps to manage staff time and identify health issues rapidly, thus potentially avoiding widespread and severe illness. It appeared that no staff member has clear responsibility and accountability for medical euthanasia decisions and there was no plan apparent to change the system in place at the time of the consult. Instead, severe and debilitating medical conditions are reportedly a primary means by which animals either are slated for euthanasia or die within the shelter. Most of these medical conditions develop in animals that were healthy at the time of admission and develop over the course of their stay in the shelter. At the time of the visit, the acting manager was particularly interested in establishing criteria by which "undue suffering" could be determined as a guide to euthanasia decisions. Instead of making a practice of using suffering as a primary guide to euthanasia decisions - which implies an expectation suffering and disease will happen routinely - implementing preventative health programs; effective population management; and proactive placement programs, in tandem with veterinary evaluation of prognosis and effective care and treatment practices would help to eliminate severe disease and suffering. *Animals should not be expected to suffer as a systematic practice under the care of a humane shelter*. The manual provided with shelter policies and procedures does have a section on euthanasia, in which some general criteria are listed for euthanasia determination and the approval process is outlined, but these policies were not consistent with practices observed. See the section on Euthanasia Practices and Definitions in this report for more information.

Strengths:

- Chameleon software program is in place. Used correctly this can facilitate medical record keeping, scheduling of treatments and exams, and assist with monitoring measures of population health.
- Many staff members expressed deep concern over animal health and appeared eager for information on additional practices that may help to keep animals healthier.

Problems

- Many of the components of a shelter medical program other than spay and neuter are absent in this facility at the present time or incomplete.
- Neither daily medical rounds nor ill animal rounds are regularly conducted.

- No formal system exists for reporting medical concerns to the veterinary department.
- No formalized system for following up on animals under medical treatment exists.
- No formal system exists for monitoring the welfare of individual animals or of the population as a whole.
- Nobody has clear responsibility and accountability for medical euthanasia decisions.
- Policies posted or in use are not in accordance with written policies provided to the consultants from training manuals and are not consistent among staff.
- Medical recordkeeping that is consistent via use of written and/or computer records that are detailed and clear for interpretation is not occurring.
- Consistent veterinary observation of animals under rabies quarantine is not occurring**.**
- There is no formalized training in place for staff on prevention or recognition of zoonotic disease.

Recommendations:

- Increase staffing levels such that sufficient veterinary and technical support staff are available to perform the veterinary services listed below.
    - Consider a shelter medical staff separate from shelter veterinary spay/neuter staff. Volunteer veterinarians and technicians from the community could be recruited, but sufficient support and oversight of a volunteer veterinary program will still require investment from the shelter. A volunteer program can be an adjunct to, but not a replacement for, a staff veterinarian with primary, consistent responsibility, time, authority and accountability to maintain shelter animal health, provide staff training, and help develop policies and procedures with regards to shelter animal health.

- Institute daily morning veterinary rounds for all animals. Monitoring the welfare of individual animals as well as the health of the population of animals should be looked at as an integral part of the shelter medical program at KCACS.

- Medical records were not observed for shelter animals other than brief treatment records or anesthesia drug/surgery procedure entered by staff. KCACS veterinarians should maintain shelter records that are in keeping with Washington State veterinary laws. Records of physical examination, diagnostics, treatments and any other necessary information should be kept.

- Instruct staff to use one computerized system for medical record keeping and have easily accessible computer work stations in the shelter.

- Utilize a computerized report of animals on medical treatment to regularly recheck patients

- Create one clear system for staff to report medical concerns to the veterinary department (e.g. a clipboard in a central location on which staff and volunteers note all medical concerns, that is checked at least daily by veterinary staff; Chameleon may also be used for this purpose provided sufficient computer stations and technological expertise are available to ensure a functional system). If a non-computerized medical log is used, it should include, at minimum:
    - the date the problem was observed
    - the animal's ID# and name
    - where in the shelter the animal is housed
    - a description of the animal (in case it has moved by the time a vet check is completed)
    - a description of the animal's symptoms
    - the name or initials of the person entering the information (in case the veterinarian needs more information)
    - space to note when the exam was completed and by whom (and outcome of exam if desired)
- A sample form can be found at: http://www.sheltermedicine.com/documents/medical%20log.doc (or type "medical log" into the search box at www.sheltermedicine.com, and choose the category "documents" from the drop-down menu).

- Improve zoonosis awareness and training and preventative health care.
    - Create standardized protocols for zoonoses that include recognition, diagnosis, whether treatment occurs, and precautions for employees
    - Provide parasite control on intake for common internal parasites that have zoonotic potential (roundworms/hookworms)
    - Conduct regular staff training on zoonotic disease risks in the animal shelter

- Keep one central binder with current protocols that is readily accessible

- Develop means of ensuring that staff work effectively with veterinary staff and that once policies and protocols are in place, they are enforced. Regular staff reviews can help define and meet goals. There must also be a system of stepwise consequences for failure to follow procedures.

- Categorize health and behavioral status of animals at intake and outcome. Update and clarify criteria and protocols for euthanasia decision making that do not rely on shelter-acquired illness and provide staff with sufficient authority and guidance in making these decisions in a transparent manner supported by management and stakeholders.

- Statistics, including specific disease and death rates, should be monitored by the veterinary department as well as the shelter as a whole and should be compared on a regular basis to other open-admission well-managed shelters

IV. Foster Program

Observations:

The KCACC is working to develop a foster program and has approximately 100 foster homes. Foster volunteers take mainly immature animals into their homes for care, but may also provide rehabilitation for sick and injured animals. Potential foster homes are notified via mass email of the need to foster an animal. Administration of the foster program is done primarily by the veterinary technician, with assistance from shelter veterinarian and shelter operations. No additional time has been provided for this task even though the foster program has been identified as a high priority for implementation of the shelter's goals. Foster homes reportedly receive an initial training and orientation from the shelter veterinarian. Consultants did not receive detailed information about the contents of this training. Medical care of foster animals is provided by the shelter. Foster animals receive pyrantel pamoate dewormer while at the shelter and then doses are sent home to be given by the foster home every 10 days. Vaccines are generally given when returning for surgery. Animals are either adopted through the shelter or through foster homes without return to the shelter. The shelter's veterinary technician provides her cell phone number to foster families and comes in for foster emergencies or problems. The manual provided by the shelter to the consultants contained written policies for the foster care program, including an application, agreement, and foster parent manual. Although the manual mentions ringworm and refers to an appendix, this was not included and no other discussion of screening, how or what to clean with or potential risks was found.

Assessment:

It is commendable that the shelter is expanding capacity into foster homes. Foster animals and volunteers still require substantial resources, including staff time, to support and care for these animals. In order to be successful, a foster program must be well managed, and animals must have regular follow-up provided. The kitten observed, who was returned for spay/neuter with no anal tone, is an example of a major medical issue that might have been diagnosed during an earlier recheck or follow-up examination. In addition, vaccinating only at the time of return to the shelter for surgery provides insufficient protection at a highly vulnerable time for juvenile animals. A full assessment of the foster care program is beyond the scope of this report, but would be desirable to ensure this critical component of a balanced model shelter program is functioning well.

Strengths

- The shelter reportedly has a network of dedicated foster homes in existence.
- In some cases, foster animals are adopted directly out of foster homes rather than being returned to the shelter. This helps alleviate shelter crowding and reduces the risk of disease in foster animals.
- Although it is inappropriate to rely on a staff member contributing personal time to maintain a medical program for foster animals, the veterinary technician seemed very committed to supporting the success of the program and reportedly spent a great deal of effort attempting to provide suitable medical care for foster animals.
- The existing program can serve as an excellent base for developing a more extensive foster program.

Problems

- No additional staff or staff time has been provided for oversight of the foster program
- Foster animals are not receiving regular medical monitoring or rechecks, including physical examination and vaccination boosters.
- After hours and emergency care provisions for foster animals are provided only through a staff member coming in on personal time.
- The training provided to foster parents does not encompass some of the major aspects of bringing shelter animals into a home environment

Recommendations:

- Develop a foster care coordinator position.

- Make explicit provisions for after hours medical and emergency care for foster animals.

- Update foster care training and recruitment to ensure that foster parents are aware of medical risks to themselves and their pets, and are aware of steps they can take to eliminate or reduce those risks.

- Recheck, vaccinate and deworm foster puppies and kittens every two weeks or until 18 weeks of age. Repeated deworming is important to protect human as well as animal health, as many puppies and kittens carry internal parasites transmissible to humans.

V. Treatment of Common Diseases

Observations:

Most medical conditions are treated at KCACC, including URI, kennel cough, ringworm, demodex, diarrhea, and mild seizures. URI and kennel cough were reported to be most frequent and are apparent throughout the shelter population. Every kennel in the dog adoption area had at least one dog on treatment for kennel cough at the time of our visit. More than 28 cats had URI medication on their cages in the general population (not including the isolation room).

The population at the time of our visit was reported to be much less than at other times of the year, and reportedly the level and severity of disease was lower as well. For example, there were reportedly sick cats housed in outdoor cages during the summer, in additional to full isolation areas and numerous sick cats being treated in the general population at that time.

Treatment decisions were made by the shelter staff and medications were prescribed by staff with little or no veterinary oversight. Decisions may also include transportation of an animal to an outside veterinary hospital for emergency care if shelter veterinary care is unavailable. Decisions are not made according to written guidelines, protocols or provided training and do not require supervisory consent. It was unclear what criteria

staff believe to necessitate medical therapy, and it seemed to vary from person to person. When asked whether an animal coming in at night with a broken leg would be taken to an emergency clinic for care if the vet staff had gone home, staff report that some staff might, while others would put the animal into a kennel until the vet could look at the animal in the morning.

When treating URI and kennel cough, one antibiotic is typically used throughout the shelter. At the time of this consult, it was reported that Zithromax was being utilized for the cat population primarily, and Doxycycline for the dogs. When asked what happened when animals did not recover with initial medications, which are given for 7 days, staff reported a second round of the same medication to be employed and often a third. A doseage chart was available that covered Zithromax, Orbax and Vibramycin for cats and kittens and Doxycycline for dogs. Some cats are moved to an isolation ward that does not have running water during the winter, or to outdoor cages during warmer months. Most animals are typically treated in their original kennels. There was no defined process for choosing where sick animals would be housed.

Medication bottles hang on the cage in plastic bags, even in the adoption area where public has access (see photo below). Multiple prescriptions were examined and varied significantly in information included. Example labels read: “Give one small and one big tablet”. The shelter veterinary technician reported that she typically spends 1-2 hours daily verbally advising post-adoption clients on illness issues and often hospitalizes these animals and even takes them home until they have recovered. She also verbalized being frustrated with the responsibility of caring for such ill animals, and not having the veterinary support or knowledge required to make decisions in their best interest. Over the summer she reported bringing several shelter cats with severe ocular signs of URI to a referring DVM that she had worked for in the past for consultation because she “did not know what else to do”. This veterinarian reportedly advised euthanasia for several of these cats.

URI so severe that cats’ eyes rupture and have to be removed is reportedly not uncommon at this shelter, and the technician asked us whether this was an appropriate medical decision. There is no clear system in place for monitoring recovery or failure of treatment or condition of animals undergoing treatment. No system exists for recognition of welfare issues in any of the shelter animals and it was apparent that the veterinary technician is uncomfortable making distinctions at this point.

Photo: Medications hanging on dog adoption run with full public access.

Assessment
A balanced and healthy animal shelter is not equivalent to a veterinary hospital. While some illness is unavoidable in a population of animals, preventing severe and widespread illness is much more humane, effective, and efficient than attempts at treatment on a massive scale**.** Treatment and health protocols that identify illness and provide clear guidelines for treatment will significantly improve animal welfare.

Problems:

- Treatment decisions are made by the shelter staff and medications are prescribed by staff with little or no veterinary oversight. Decisions are not made according to written guidelines, protocols or provided training.
- When treating URI and kennel cough, one antibiotic is typically used throughout the shelter. A second round of the same medication is employed and often a third when animals do not recover. Widespread and longterm single agent use of potent antibiotics currently used in the human medical arena creates a situation where bacterial resistance mechanisms are liable to develop. This constitutes a potential public health concern and needs to be recognized and addressed.
- There is no defined process for choosing where sick animals are housed.
- Many sick animals are not housed in isolation or separated from the general population.
- Medication bottles hang on the cage in plastic bags, even in the adoption area where the public has access.
- Labeling of medication is incomplete and inconsistent.

- There is no clear system in place for monitoring recovery, failure of treatment or condition of animals undergoing treatment.

Recommendations

- **A realistic understanding of the current challenges faced by this shelter and the expectations of the legislative mandate must be achieved. Infectious disease in a shelter cannot be "cured" with treatment alone; this approach will only serve to increase disease as more sick animals receive ever-decreasing levels of care. Veterinary guidance for a focus on preventative strategies versus therapeutic strategies is recommended.** There is a very big picture to the health of a shelter and the animals housed within that includes every aspect of this report. Without adequate isolation facilities, thousands of dollars could be spent fruitlessly on Zithromax. Without proper stress reduction, the same phenomenon will be seen. Without staff to provide veterinary monitoring, disease recognition is delayed or non-existent. Without protocols for response to illness, outbreaks may ensue. It is vital that the shelter be looked at as an operational system, and the strengths and weaknesses of each system be carefully scrutinized. A new facility may be very helpful, but until the shelter's programs and staffing are balanced, will not, in itself, lead to success.

- Animals undergoing treatment for infectious disease should be isolated from the general population. When there are more ill animals than isolation areas support, a clearly documented strategy must be in place to prevent ill animals from accumulating in the healthy areas.

- Provide clear written protocols and staff training for recognizing and responding to injuries and signs of illness. Because there is not always a veterinarian on site, provide shelter staff with a written list of commonly recognized medical conditions that fall into the following categories:
    - Requires immediate veterinary attention (e.g. acute trauma such as broken limbs, open wounds, serious or potentially zoonotic illness, respiratory distress)
    - May be handled via phone consultation with a veterinarian (e.g. minor wounds, some chronic conditions)
    - Treatment may be initiated by designated shelter staff following written protocols, and entered on the medical log to be examined on the next working day for the veterinarian (e.g. common, non-life-threatening conditions such as upper respiratory infection)
    - May be left temporarily untreated but should be placed on the medical log to be examined on the next working day for the veterinarian (e.g. non-infectious conditions that should be diagnosed/addressed prior to adoption such as chronic skin conditions, minor abrasions, congenital abnormalities).

- **Treatment for disease should be implemented only when sufficient veterinary staff and isolation facilities have been developed to support proper treatment.** Until such time as this is accomplished, off site care, foster care, transfer to another shelter/rescue organization with sufficient resources, or

euthanasia should be considered rather than permitting rampant spread of disease and insufficient care leading to suffering and death.

- Provide veterinary staff with sufficient time to develop standard protocols for the common diseases encountered in the shelter. More information on development of infectious disease policies and procedures can be found at http://www.sheltermedicine.com/documents/policy%20development%20without%20profiles.doc

- Where appropriate, clearly delineate appropriate stepwise antibiotic choices. Ensure ongoing veterinary guidance and monitoring of antibiotic treatment choices. A sample URI treatment protocol is available at: http://www.sheltermedicine.com/documents/spca%20treament%20protocol%20no%20doses.doc. This is intended for general guidance only; specific antibiotic and supportive treatment choices will vary and may change over time.

- Any medications dispensed should be in a manner that is in keeping with the veterinary practice laws of the state of Washington[4].

- As recommended above, develop a system for monitoring animals undergoing therapy on a regular basis in order to document treatment response or failure.

References

1 http://www.sheltervet.org, http://www.vin.org
2 http://www.usdoj.gov/dea/index.htm
3 http://www.aahanet.org/PublicDocuments/PainManagementGuidelines.pdf
4 http://www.animallaw.info/statutes/stuswast18_92_010_900.htm
5 http://www.sheltermedicine.com

Section IV: Behavior Assessment

Section IV. Part One: Canine Behavior Assessment

Overview: The shelter utilizes a written test for canine behavior assessment. However, this test is not standardized, is subjective, and is open to misinterpretation. In order to meet increased canine adoption goals, while ensuring public safety and minimizing adoption returns, valid and reliable behavioral assessment should be a critical component of management of the canine population at the Kent Shelter. Currently, the lack of staff training in behavioral assessment and an acceptable standardized objective test protocol make the current behavior assessment system unlikely to be reliable or valid tool.

Observations are included in the assessment of strengths and problems below.

Strengths identified:

- The shelter utilizes a printed form for canine behavior assessment.
- Dogs generally have the opportunity to eliminate before undergoing behavior assessment (because assessments are performed outside – see below for comments on this.)
- Staff generally performs behavior assessments promptly at the end of the holding period for stray dogs. Staff checks intake and due-out dates for errors before performing assessments.
- A group of dedicated volunteers provide fairly regular exercise and socialization for dogs available for adoption. The activities of this group were not evaluated during the UC Davis team's visit, but it is possible that this group may be able to provide basic training and rehabilitation for dogs with minor behavior problems that are important in adoptability (e.g. "poor manners" such as pulling on leash, barking, jumping up, or mouthing during play.)

Problems identified:

- Staff report that they do not receive any specific training in performance of behavior assessments. According to a workload calculator provided to the consultants, no time is formally allotted to performance of behavior assessments. During our visit, a single staff member performed all behavior assessments, without another staff member to assist or observe. Assessments are performed in a rushed manner due to overwhelming demands on limited staff time.

- Facilities for performing behavior assessments are inadequate. Some staff members reported that they are performed in the conference room, but observed assessments were done in a small fenced area of grass just outside the dog holding room. Dogs being tested were distracted by dogs running around with volunteers in adjacent fenced areas. During our visit, assessments were not performed until dusk; the low light levels make close observation of dogs difficult and put staff safety at greater risk. There is no place to safely store a bowl of dog food for the food aggression test in this outdoor area. In the absence of any other storage option, a bowl of dog food was put on the ground and partially covered by a dirty floor mat (see photo)

Food bowl used in behavior assessment partially covered by dirty floor mat

- The written canine behavior assessment protocol currently in use is inappropriate for the KCACC shelter in many respects. Staff and supervisors report that the document was provided by another agency, and it has not been adapted for use in the KCACC shelter.
  - ✓ In the kennel behavior section, one choice reads "hiding outside, will not come in, exits to outside in avoidance." This behavior is not possible in the KCACC shelter kennels, because there are currently no indoor-outdoor dog runs.
  - ✓ Under current shelter conditions (multiple dogs per kennel), the kennel behavior section is impossible to accurately perform and interpret, because it is difficult to differentiate behavior triggered by and directed toward the tester vs. run-mates.
  - ✓ The dog introduction section indicates that dogs are supposed to be introduced to two dogs – one of the same sex and one of the opposite sex. However, staff report that assessments of interactions with other dogs are based on behavior of dogs toward their kennel-mates. This situation illustrates how very common co-housing of dogs in the KCACC shelter is, due to insufficient capacity to house dogs singly. It also underscores the insufficiency of current staffing levels to implement basic practices, such as controlled dog introductions for purposes of appropriate behavior assessment.
  - ✓ At the top of the assessment form is a set of special instructions regarding assessment and scoring of certain breeds (presumably Rottweilers, Pit Bulls, and other bull breeds.) Irrespective of the value of these instructions, there is not sufficient staff or any protocol currently in place at KCACC to allow these instructions to be followed.

- The written canine behavior assessment protocol currently in use is of poor quality.
  - ✓ The protocol contains subjective, vague language that is open to interpretation (for example, "'listens" to other dogs", "becomes nervous", and "can be around other dogs if they are not interacting".) For "kennel behavior," two consecutive choices are "becomes defensive" and "becomes offensive," but the behaviors described for both choices are almost exactly the same.
  - ✓ For several sections (e.g. kennel behavior and dog introduction) choices consist of a few specifically described categories, and many dogs are unlikely to be accurately described by any of the categories. Staff reports that mismatches

between observed behaviors and available assessment choices are extremely common, and this phenomenon was also observed by UC Davis consultants.

- ✓ The ranking order of choices is often inconsistent and inappropriate. For example, in the food bowl behavior section, a dog that bites without any warning (without growl) if scored higher (e.g. more likely to be consider a safe candidate for adoption) than a dog that bites with warning (growls). "Uninterested in other dogs" and "can be around other dogs if they are not interacting" are very similar, but the scores for these two choices differ significantly (4 on a scale of 1-5 for the former, and 2 on the same scale for the latter.) For body handling and restraint, "stiffens" is inappropriately included in a category assigned a score of 4 out of 5.
- ✓ The scoring system and Score Key section are confusing and cumbersome. Somewhat arbitrary automatic child restrictions that may not be appropriate are automatically assigned for various scores. Staff reports that they do not typically use the written scoring system when performing assessments.
- ✓ The protocol does not specifically address problem behaviors that are unrelated to aggression but are nevertheless important in adoptability (i.e. "poor manners," such as jumping up, pulling on leash, barking, and mouthing.)

- During one observed canine behavior assessment, a dog that showed severe food aggression was inappropriately handled. The staff member conducting the assessment reacted to the dog's food aggression by screaming at the dog, repeatedly hitting it with the assess-a-hand, and jerking on the dog's leash. Physical punishment of a dog that has exhibited aggression during a behavior assessment is counter-productive at best. At worst, it is extremely dangerous.
  - ✓ Behavior assessments are not intended to be dog training sessions. Behaviors exhibited by the dog should be observed and recorded, but the evaluator should not react to any observed behaviors, except as absolutely required to protect the evaluator's safety. Reactions (either in the form of praise or correction) to a dog's behavior during an assessment will likely influence a dog's response to subsequent parts of the assessment. Punishing a dog for aggression may affect the dog's subsequent performance on the test either positively or negatively, depending on the dog.
  - ✓ Even if it were appropriate to correct a dog for problem behavior observed during a behavior assessment, no currently accepted training techniques recommend punishment as a response to food aggression. This behavior is most often caused by fear and/or anxiety, and the evaluator's physical punishment may worsen the dog's fear and anxiety, thus worsening the food aggression.

- Staff notes that it is very common for dogs to not show any interest in playing or in rawhides or other resources during behavior assessments. This is likely due to high stress levels of many dogs at the KCACC shelter. The extensive co-mingling and re-mixing currently practiced in the shelter dog population is potentially so stressful that accurate evaluation of behavior may be severely compromised.

- Due to the combination of a poor quality protocol, insufficient staff training, limitations in staff time, inadequate testing facilities, and current shelter housing conditions for dogs, performance of reliable canine behavior assessments is not possible at KCACC at this time. Dramatics improvements in all of the aforementioned areas will be necessary before implementation of an appropriate behavior assessment program can be achieved.

- It is routine for behavior assessments of dogs to include walking the dogs past rows of shelter cat cages and observing the dogs response. This practice of purposefully and repeatedly subjecting shelter cats to close contact with dogs is inhumane, since exposure to dogs has been documented as a significant source of stress for shelter cats (*McCobb EC, Patronek GJ, Marder A, et al.* Assessment of stress levels among cats in four animal shelters. *JAVMA 2005; 226:548-555*.) In addition, walking dogs past cats that are confined in cages is unlikely to be effective in accurately assessing dogs for cat aggression, because many "cat aggressive" dogs only respond to a moving cat.

- Owner-relinquished dogs typically undergo behavior assessments 1-2 days after intake. There is no evidence that waiting 1-2 days after intake before performing behavior assessments on owner-relinquished dogs is necessary or increases accuracy of the results, and there is no legal holding period for these dogs. Efficient processing of these dogs as soon as possible after will reduce turnover time, which in turn will decrease overall animal care days, reducing crowding and the overall burden on the shelter (which is already constantly filled beyond capacity). Published research has suggested that stress levels in dogs entering one animal shelter do not decrease appreciably until at least 4 days after intake. (*Hennessy MB, Davis HN, Williams MT, et al.* Plasma cortisol levels of dogs at a county animal shelter. *Physiology & Behavior 1997;62:485-490.*) Under current housing conditions for dogs at the KCACC shelter, however, stress levels are unlikely to subside at any time during the shelter stay. Therefore, behavior assessments are least likely to be affected by stress before the dog is even admitted to the shelter, and should be performed at the time of intake.

- There is currently no system in place to differentiate the following sub-groups of dogs that are euthanized for behavior problems:
  - ✓ Dogs that were behaviorally sound at intake, but whose behavioral health deteriorated under shelter conditions (were healthy at intake, and became unhealthy due to shelter-acquired behavioral problems)
  - ✓ Dogs that had relatively minor behavior problems at intake that the agency does not currently have sufficient resources to treat (unhealthy and treatable)
  - ✓ Dogs with severe, pre-existing behavior problems at intake that make them a significant public safety risk (untreatable)

- In response to recently enacted legislation which limits the number of animals that can be euthanized, the process of using behavior assessments for making increasingly rare euthanasia decisions was under revision at the time of the UC Davis

team visit. Supervisors are being much more selective in authorizing euthanasia for dogs that score poorly on behavior assessments.

- ✓ Staff performing behavior assessments report that when dog shows aggression during an assessment, supervisors sometimes require the staff person to repeat the portion of the assessment during which aggression was elicited. In the interim, the dog may be replaced in co-housing with other dogs, where the aggressive behavior may continue. Supervisors report that this is due in part to staff shortages that require single staff members to perform assessments, without another staff member to observe. While this policy could improve accountability for euthanasia decisions, prolonging the time potentially aggressive dogs are held and causing them to repeat the aggressive behavior increases safety risks to dogs and humans. It would be preferable to have sufficiently trained staff present for the first evaluation, or video tape all evaluations as described below.
- ✓ While volunteers may be able to provide training for minor behavior problems affecting adoptability (e.g. poor manners,) it is not realistic expect that effective rehabilitation for dogs with aggressive behaviors can be accomplished within the shelter under the current circumstances. Changes in criteria for euthanasia due to aggression (i.e. being less likely to authorize euthanasia for dogs that perform poorly on valid behavior assessments) without concurrent increases in resources for rehabilitation for these questionable dogs – or other options identified for transfer to a group or agency known to have resources to safely manage them – leaves only the possibility of housing these dogs permanently in the shelter or releasing them to adopters in spite of the identified risk. Clearly, neither of these are desirable options.

- The animal receiving form used at intake includes only very cursory information about canine behavior. A behavior assessment performed in the shelter is distinct from, and should be an adjunct to, a behavioral history obtained from a previous owner.

- It does not appear that any appreciable adoption counseling program exists, and currently staffing levels would not allow for implementation of such a program. Behavior assessments are most useful when used in conjunction with an adoption counseling program.

Recommendations:

- Improve shelter housing, husbandry and animal population management to decrease stress for dogs coming in to the shelter. (Please see sections on population management, facilities and housing.) Without dramatic improvements in housing to reduce co-mingling, re-mixing of dogs, and noise levels combined with environmental enrichment and some level of focused personal attention, behavioral evaluation is likely to continue to provide a more questionable assessment of each dog's characteristics and may instead be a reflection of the conditions the dog has been subjected to while in the shelter.

- Immediately discontinue exposing shelter cats to dogs as part of canine behavior assessments. Reconsider the importance and value of testing dogs for aggression to cats, given that the likelihood of misleading results is high with any humane system (e.g. a dog that does not chase a caged cat or one that does not run may be still be cat aggressive under other circumstances; there is no validated method to reliably rule out cat aggression through testing that can be accomplished in a shelter). If testing dogs for aggression to cats is considered necessary, it should only be done using either a non-caged cat that is unafraid and tolerant of dogs, or a cat simulation. Cats currently being held in the shelter must not be used as subjects. Repeated use of a permanent shelter resident cat that meets the description above would likely be acceptable.

- Increase staffing levels to support a functional behavior assessment program. Ensure that two staff members are present for all canine behavior assessments. Also consider video recording behavior assessments.

- Provide comprehensive training in performance of an accepted behavior evaluation system (see below). All staff members involved in the program should be properly trained in interpretation of canine body language and in implementation of the behavior assessment protocol. Ensure that all staff performing assessments are sufficiently trained such that supervisors do not find it necessary to routinely require that assessors re-create aggressive test results. Suggested resources for training include:
  - ✓ Dowling JM. Putting your Behavior Evaluation Program to the Test, Part I: Why Every Shelter Should have a Behavior Evaluation Program. *Animal Sheltering*, September-October 2003;14-25.
  - ✓ Dowling JM. Assess with Success Part Two: Evaluating Animals for Adoption. *Animal Sheltering* November-December 2003:15-26.
  - ✓ Sternberg, S. Great Dog Adoptions: A Guide for Shelters. Alameda, California: The Latham Foundation, 2002.
  - ✓ Sue Sternberg's Assess-A-Pet. Information available at www.suesternberg.com
  - ✓ Weiss E, Wellens V. Animal behavior assessment program. *Operational Guide for Animal Care and Control Agencies*: American Humane Association, 2005. Information available at www.americanhumane.org/site/DocServer/web_catalog0507.pdf?docID=4861
  - ✓ Weiss, E. SAFER: The Safety Assessment for Evaluating Rehoming. Information available at www.emilyweiss.com/safer.html.
  - ✓ Canine Body Postures and Evaluating Behavioral Health. Animal Care Technologies Information available at www.4act.com/canine.htm.
  - ✓ Evaluation Your Shelter: Are You Ready to Implement a Behavior Program? Humane Society University. Information available at www.humanesocietyu.org/workshops_and_classes/evaluating_your_shelter.html
  - ✓ Allan, Carrie. Assessing the Assessors. *Animal Sheltering Magazine*, May-June 2005.

- ✓ Bark, Stop, Drop and Roll, American Humane Association. Information available at: www.americanhumane.org/site/DocServer/web_catalog0507.pdf?docID=4861
- ✓ Robertson B. Dog is in the details. *Bark Magazine*, Spring 2004. (www.thebark.com/ezine/features_specialFeatures/specialFeatures_04.html)
- ✓ Sacramento Veterinary Behavior Services, Animal Shelter Behavioral Consultations. Information available at www.sacvetbehavior.com/Services.html#ASBC

- Replace the current written canine behavior assessment protocol. Unfortunately, a proven behavior assessment that is practical for in-shelter use does not exist. However, there are two standardized assessments that are commonly used in shelters (SAFER and Assess-A-Pet.) These tests do have some unpublished evidence and many anecdotal reports supporting their validity and reliability. Experts agree that standardized methods in canine behavior assessment are important (see *Diederich C, Giffroy J-M.* Behavioural testing in dogs: A review of methodology in search for standardisation. *Appl. Anim. Behav. Sci. 2006; 97:51-72.*) "Custom" tests created by combining bits and pieces from various protocols run the risk of missing critical components. Therefore, use of one of the two aforementioned standard assessments is recommended for shelters that do not have their own behaviorist on staff. Detailed suggestions for modification of the behavior assessment currently in use at KCACC are beyond the scope of this report. However, selected general guidelines for developing and performing behavior assessment protocols are listed below.
  - ✓ Testers should carefully and consistently follow a written test protocol (which describes the actions they will take during the test), and document their findings on a standardized results form.
  - ✓ The tester(s) should objectively observe and record the dog's behavior, rather than subjectively try to describe the dog's feelings or personality.

- Arrange for appropriate behavior assessment facilities. A comfortable, quiet indoor area that is easily disinfected and free of distractions and foot traffic is recommended. Ensure that the area has adequate storage and other facilities and equipment required for behavior assessment activities. If future facility expansion and improvement leads to lower stress levels in dogs, assessment of kennel behavior will become a more valid tool as an adjunct to specific behavior assessment procedures.

- Perform canine behavior assessments at the time of shelter intake, or as soon as possible afterwards, especially for owner-relinquished dogs, but also for stray dogs.
  - ✓ Unpublished studies by Dr. Emily Weiss have demonstrated that results of positive behavior assessments performed immediately at intake are not significantly different from those of assessments performed 3 days after intake. Questionable results may improve *provided substantial enrichment and intervention are provided in the intervening period.* In the KCACC shelter, where crowded conditions cause almost all dogs to be subjected to constant high

levels of stress, behavior assessments are least likely to be influenced by stress if performed before the dog is even placed in the shelter.

- ✓ Performing behavior assessments at intake will allow those owner-relinquished animals who are clearly adoptable to be made available for adoption immediately. Making adoption decisions to be made at the earliest possible moment for highly adoptable dogs will help reduce turnover time and improve the chances of adoption for those dogs. As noted in the Population Management section of this report (Part A, Section II, Shelter Population Dynamics, part iv, holding rate) each reduction in turnover time, however small, will contribute to reduced total animal care days. Reductions in animal care days can dramatically reduce crowding.
- ✓ For dogs with questionable behavior, behavior assessments performed at intake will allow problem behaviors to be promptly identified, so that plans for transfer to foster care, rescue or another shelter with resources to manage the problem can be made; or appropriate behavior modification plans can be developed and implemented as soon as possible after the animal is admitted. However, as noted below, substantial increases in staff numbers and training will be required before it will be realistic for such plans to be successfully developed and implemented within the shelter itself.

- Track the proportion of dogs euthanized for behavior reasons that fall into each of the following three categories:
  - ✓ Dogs that were behaviorally sound at intake, but whose behavioral health deteriorated under shelter conditions
  - ✓ Dogs that had relatively minor behavior problems at intake that the agency does not currently have sufficient resources to treat
  - ✓ Dogs with severe, pre-existing behavior problems at intake that make them a significant public safety risk

- Efforts to rehabilitate and place more dogs with questionable behavior, particularly potential aggression, must be accompanied by appropriate increases in resources dedicated to rehabilitation of such dogs. Attempting to maintain dangerous dogs in the shelter without reliable programs in place to correct aggressive behavior is not a functional plan.
  - ✓ Until such time as these programs are developed, dogs should be transferred to other organizations with sufficient resources already in place; or euthanized if this option does not exist or it is deemed that release of the dog would pose a risk to human safety.
  - ✓ It is strongly recommended that efforts by KCACC to provide rehabilitation for dogs with behavior problems start with a foundation of successfully identifying and addressing relatively minor behavior problems that are unrelated to aggression but that are nevertheless important in adoptability, such as barking, pulling on leash, jumping up, and mouthing. Treatment for more serious behavior problems (e.g. aggression) should generally not be attempted until the agency has solid ‘basic’ behavior programs.

- In order to facilitate the most accurate decision making based on behavior assessment results, those relinquishing their pets should be asked to provide as complete a behavioral history as possible. This should include history of co-habitation or exposure to children, other dogs, cats and other species; history of formal or informal training the dog has received; a listing of fears or phobias observed; the frequency with which potentially problematic behaviors occur (frequency is preferable to simply asking whether the behavior, e.g. house soiling, has ever been observed); and activities enjoyed by the animal. Ensure that this information is available to staff or volunteers involved with adoption counseling.

- Increase staffing or volunteer levels and provide training to support a functional adoption counseling program. Consider additional behavior evaluation such as the ASPCA's Canine-ality® program which is designed to help match dogs with potential adopters.

Section IV. Part Two: Feline Behavior Assessment

Overall: Behavior (either historical or observed) was the most common reason for euthanasia of adult cats, and the second most common reason for euthanasia of kittens in 2007, accounting for euthanasia of a total of 872 cats and kittens. This figure does not include cats and kittens categorized as feral. In order to successfully meet substantially reduced euthanasia and increased adoption goals for cats, it will be very important to accurately characterize behavior in order to identify those cats with the greatest potential for rapid and successful adoption, identify those cats that may need additional intervention or be better placed through another venue, and correctly identify those that are truly not suitable for adoption. Characteristics commonly desired by adopters include sociability and non-aggression, and an objective behavior assessment is a useful tool for evaluating these characteristics. In addition, behavior evaluations can assist with matching cats with potential adopters.

While the Kent shelter has a generally objective behavioral assessment available for cats, it is not regularly utilized. In addition, under current stress-inducing shelter conditions, it is difficult or impossible to obtain valid behavior assessment results in cats. Finally, staff is not adequately trained in performance of behavior assessment, and the shelter does not perform follow-up on adopted cats to determine whether the test results are predictive of behavior in the home environment.

Observations are included in the assessment of strengths and problems below.

Strengths identified:

- A printed form for feline behavior assessment does exist. This assessment protocol is straightforward and practical to implement, and generally consists of objective descriptions of behavior ranked in logical order (from friendly to aggressive.) Published research has indicated that standardized feline behavior assessments can

provide an accurate and consistent measure of a cat's sociability, adaptability, and aggressiveness and can be a reliable predictor of future behavior (see *Siegford JM, Walshaw SO, Brunner P, et al.* Validation of a temperament test for domestic cats. *Anthrozoos 2003;16:332-351*.)

- Staff report that attempts are made to take cats housed in the dog kennel room (in cat stray and cat owner aisles) to a slightly quieter area for behavior assessment (intake room or cat stray/quarantine room.)

Problems identified:

- The printed form for feline behavior assessment is rarely used. Instead, staff members usually just enter brief notes about cat behavior in Chameleon. Because these notes are not standardized, they may be subjective and arbitrary.

- Staff does not receive any specific training in performance of behavior assessments. According to a workload calculator provided to the consultants, no time is formally allotted to performance of behavior assessments.

- In one case observed during our visit, aggression between non-bonded cats co-housed in a cat condo was used as a criterion to recommend that a cat be adopted only into a single-cat household. Aggression observed when two previously unfamiliar cats are forced to cohabitate in a cage that is clearly of insufficient size for two cats does not indicate that either cat is behaviorally unsuited to sharing a home with other cats. This example illustrates a great need for increased staff training in feline behavior. Placing adoption restrictions on cats that are based on faulty conclusions may slow adoptions, and is very unlikely to provide any benefit in terms of reducing adoption returns.

- Owner-relinquished cats typically wait for 1-2 days after intake before they are informally assessed and potentially made available for adoption. There is no reason to wait 1-2 days before performing behavior assessments on owner-relinquished cats.
  - ✓ A holding period for cats that is not legally required reduces overall efficiency of processing cats through the shelter system. Inefficient processing increases turnover time, which in turn will increase overall animal care days, increasing crowding and the overall burden on the shelter (which is already often filled beyond capacity).
  - ✓ Owner-relinquished cats are typically housed in a bank of very small cages in the dog ward for at least 24 hours while they wait for behavior assessment. Cats in these cages are subjected to constant loud barking and frequent dogs walking past or running up to their cages. The majority of cats housed in these cages exhibited signs of intense anxiety and/or fear. While the holding period was intended to only be 24-48 hours, in reality many cats waited in this stressful area for days or even weeks. It is extremely unlikely that cats' behavioral health,

potential for adoption, or physical health will improve or even be maintained under these circumstances.

- Under current housing conditions for owner-relinquished cats at the KCACC shelter, stress levels are unlikely to subside at almost any time during the shelter stay. Therefore, behavior assessments are least likely to be affected by stress if performed immediately upon intake to the shelter.

- While standardized feline behavior assessments can provide valuable information, it is likely impossible to accurately assess cat behavior in the current highly stressful shelter environment. Many cats in various areas of the shelter exhibited behaviors indicative of severe anxiety and fear. Many of these behaviors would cause cats to score poorly on a behavior assessment, despite the fact that the behaviors may be attributable in large part to the poor shelter environment rather than the disposition of the cats. Until significant improvements are made in the quality of cat housing areas, they can not be considered adequate facilities for performing feline behavior assessments.

- There are no documented procedures for reliable identification of cats in need of behavior assessment and/or evaluation for adoption potential. As a consequence, some cats lingered in unsuitable housing for prolonged periods without any chance at adoption. Informal systems developed by some staff members were functional but not consistently followed or enforced.

- In response to recently enacted legislation which limits the number of animals that can be euthanized, some animals, especially cats, are placed in a newly established category called "15801." These animals are not considered adoptable (because they are relatively poor candidates for adoption, compared to many other cats in the shelter also awaiting adoption,) but are also not considered for euthanasia due to management instructions. Staff understanding of what this category means is inconsistent. Some staff and supervisors report that cats in the 15801 category are "waiting for rescue or rehabilitation," but other staff reported that they had received no instruction regarding how to manage cats in the new category. Multiple staff members reported that few to no options for cat rescue seem to exist. The 15801 category appears to be a sort of "limbo," in which cats will not be made available for adoption, but for which no other options for a positive outcome have been identified.
  - ✓ At the time of our visit, it had not yet been established whose responsibility it will be to periodically review the status of animals in the 15801 category, to ensure that these animals do not languish for long periods in the shelter without any possibility for either adoption or rescue. Staff members using the designation reported frustration with attempting to follow instructions where no resolution was likely or possible for an animal.
  - ✓ If prolonged housing is required to take advantage of scarce rescue opportunities, improved housing environments must be provided. Current conditions are inadequate to support maintenance of normal behavior long term, let alone foster rehabilitation of cats with behavioral challenges.

✓ At the time of the UC Davis team visit, at least 3 cats in the shelter had been placed in the 15801 category. Histories for two of them are provided below.

1) Cat #A019985 arrived at the Crossroads shelter on 11/2/07. She had been found tied to a tree and brought in (as a stray) over the counter.

- On 12/29/07, the following notes were entered in Chameleon, presumably by a staff member at the Crossroads shelter: "To Kent – cat's attitude has declined over the past week, she is no longer friendly and has begun hissing, striking, and trying to bite, no longer a good candidate for adoption, recommend 175"
- On 1/3/08, the following notes were entered: "Went to euthanise this AM and was not in kennel."
- On 1/5/08, these notes were entered: "Cat has had good behavior down here, will try adoptions here."
- Also on 1/5/08, this was entered: "Hold, may have rescue."
- On 1/9/08, the cat was housed in a cage in the Cat Owner Aisle (in the dog kennel room.) No further plan for her had been identified.

2) Cat # A021798 arrived at the Kent shelter as a stray on 12/29/07. He was housed in a small cage in the bottom row of the Cat Stray Aisle (in the dog kennel room). At least three times during our visit, dogs were observed to closely approach his cage (either dogs being walked through the area or dogs that had escaped from their kennels.)

- On 1/4/08, the following two notes were entered in Chameleon, by two different staff members: "Acts scared, doesn't like to be handled, struggles when held, in back of kennel, whale eyed, escaped when kennel was cleaned, timid" and "Cat is at back of kennel, allows handling but not social, does not warm up, tries to escape arms when picked up, when cleaning cat dashed from kennel, unable to handle but cat luckily went back into the kennel after running around the shelter, not suitable for adoptions."
- On 1/5/08, these notes were entered in Chameleon: "On 1/1/08 cat hissed, growled and escaped from kennel. Today on 1/5/08, cat is still here? Not friendly, unable to handle, tries to escape, growls and hisses."
- On 1/9/08, the photograph below was taken. Cat #A021798 was still housed in the same cage, with "15801" is written on his cage card. No shelter staff or supervisors were able to identify any future plan for him.

- The history of cats A09985 and A021798 and their situations at the time of the UC Davis visit illustrate several problems:
  - ☑ The gross inadequacy of current housing conditions for cats at the KCACC shelter.
  - ☑ The difficulty of performing meaningful feline behavior assessments under the current conditions.
  - ☑ The high likelihood of cats being lost in the shelter.
  - ☑ The limitations of relying on unstructured, subjective descriptions of feline behavior rather than a standardized behavior assessment protocol.
  - ☑ Frequent failures in communication among shelter staff regarding actions to be taken and options for outcomes for shelter animals.
  - ☑ Significant numbers of animal care days expended on cats that were not actively available for adoption, nor actively being prepared for transfer, or rescue. These animal care days contribute to crowding and animal stress without contributing to lives saved.

- There are no consistent procedures in place for collecting feline behavioral histories from people relinquishing cats. The animal receiving form used at intake includes only very cursory information about behavior, much of it not relevant to cats. Chameleon contains a profile area that is used by some staff to record feline behavioral history, information, but this is inconsistently used. A written history form reportedly exists, but this was never observed during our visit. In addition, information on this written form is not entered into Chameleon, and the forms are usually lost, so they are of little value. Behavior assessments performed in the shelter are distinct from, and should be an adjunct to, a behavioral history obtained from a previous owner. Arguably, behavioral histories are even more important for cats than they are for dogs, since accurate in-shelter feline behavioral assessments are more challenging to perform than are canine assessments.

- Clear procedures for dealing with cats that have a reported history of behavior problems do not exist. For example, when cats with a history of inappropriate urination are relinquished, there are no protocols in place for how staff should proceed with these cases. Some staff members report that in this situation, they

question the owner about the duration of the problem and steps the owner has taken to correct it. If it is a long-standing problem and the owner has made significant efforts to correct it, the staff member will usually advise that the owner request euthanasia. If it is a recent problem and the owner has not taken many steps to correct it, this staff member will usually attempt to monitor the cat for litter box use in the shelter, and place the cat up for adoption if it uses the litter box. Monitoring litter box use in shelter cat cages is not a valid approach for estimating severity or prognosis of inappropriate urination. The staff member reported that she is more likely to take this latter approach since legislation limiting the number of animals that can be euthanized took effect.

- In some cases, behavioral histories on cage cards are decreasing the likelihood of cat adoptions.
  - ✓ At the time of the UC Davis visit, a cage card for a cat housed in the adoption area stated: "Return. Urinates all over house." UC Davis team members observed a potential adopter who was initially interested in this cat, but then noticed the information on the cage card and emphatically commented that she was definitely no longer interested in this cat. It is unknown if this person left the shelter without selecting a cat to adopt. This is a combination of inadequate behavioral history, a behavioral problem that has not been resolved, and presentation of a cat in such a way that its chances for adoption are substantially decreased.
  - ✓ Another cage card in the adoption area read: "Per RP this cat is not social. Very fearful." At the time team members observed it, this cat was behaving a very friendly manner, yet the sign on the cage card was likely to be discouraging to potential adopters.

- It does not appear that any appreciable adoption counseling program exists, and current staffing levels would not allow for implementation of such a program. Behavior assessments and behavioral histories are most useful when used in conjunction with an adoption counseling program.

Recommendations:

- Consistently utilize the current written behavior assessment protocol for cats. While a universally accepted feline behavior assessment protocol does not exist, it is nevertheless important to have some standardized criteria for evaluating behavior, particularly given that behavior is the most frequent reason for euthanasia of adult cats, and the second most frequent reason for euthanasia of kittens at KCACC.

- Increase staffing levels to support a functional behavior assessment program, and provide comprehensive training. All staff members involved in the program should be properly trained in interpretation of feline behavior and body language,

and in implementation of the behavior assessment protocol. Suggested resources for training include:

- ✓ American Association of Feline Practitioners, Feline Behavior Guidelines. Information available at: www.aafponline.org/resources/guidelines/Feline_Behavior_Guidelines.pdf
- ✓ ASPCA Meet-Your-Match Feline-ality program. Information available at www.aspca.org/site/PageServer?pagename=aspcapromym_felineality (a training session for this program will be held in Spokane Valley, WA in April 2008)
- ✓ BC SPCA's CatSense Program. Information available at www.spca.bc.ca/specialprograms/EmotionalLifeCats.asp.
- ✓ Dowling JM. Assess with Success Part Two: Evaluating Animals for Adoption. *Animal Sheltering Magazine.* November-December 2003:15-26.
- ✓ Kitty Comforts. *Animal Sheltering Magazine*, January-February 2005;25-28.
- ✓ Sacramento Veterinary Behavior Specialists, Animal Shelter Behavioral Consultations. Information available at www.sacvetbehavior.com/Services.html#ASBC
- ✓ Weiss E. New Research Helps Adopters Meet Their Feline Soul Mates. *Animal Sheltering Magazine*, May-June 2007;61-63.

- Avoid using feline behavior assessment procedures to draw inappropriate or unreliable conclusions about the overall temperament of cats. Recognize and remain cognizant of the limitations of feline behavior assessments performed in a shelter setting.

- Perform feline behavior assessments at the time of shelter intake, or as soon as possible afterwards.
  - ✓ Performing behavior assessments at intake will allow those owner-relinquished cats that are clearly adoptable to be made available for adoption immediately. Allowing adoption decisions to be made at the earliest possible moment will help reduce turnover time and improve the chances of adoption for each cat (by increasing the likelihood that it will be adopted before succumbing to shelter-acquired illness). Each reduction in turnover time, however small, will also contribute to reduced total animal care days. Reductions in animal care days can dramatically reduce crowding while maintaining or increasing live release, as noted in the Capacity section of this report.
  - ✓ For cats with questionable behavior, behavior assessments performed at intake will allow problem behaviors to be promptly identified, so that plans for transfer to foster care, rescue or another shelter with resources to manage the problem (if available and appropriate) can be made; or behavior modification plans can be developed and implemented as soon as possible after the animal is admitted. However, as noted below, substantial increases in staff numbers and training will be required before it will be realistic for such plans to be successfully developed and implemented within the shelter itself.

- Take all possible steps to create a less stressful environment for shelter housing of cats. See specific recommendations in other sections of this report (including

Facility and Stress Reduction and Enrichment). One of the many benefits of a less stressful shelter environment for cats will be an improved ability to perform accurate feline behavior assessments.

- Establish documented procedures for prompt and reliable identification of cats in need of behavior assessment and/or evaluation for adoption potential. Avoid communication failures that allow cats to linger in unsuitable housing for any period of time, without options for a prompt outcome.

- Establish and implement detailed plans for securing options for cats that are poor adoption candidates but will not be euthanized (i.e. cats in category 15801.) Simply forbidding euthanasia of questionable cats without having any alternate outcome available for them is not a functional plan. Avoid holding a greater number of poorly adoptable cats in the shelter than there are options for live release of such cats. Many of these cats may be (or appear to be) poor adoption candidates in large part because they cope especially poorly with the shelter environment. In the current situation, the only option available to these cats is continued housing in this environment, waiting for as-yet undefined other positive outcomes. This inhumane situation is not in the best interest of these cats nor can it be logically linked to an improved overall live release rate.

- In order to facilitate the most accurate decision making based on behavior assessment results, develop a behavioral history form for owner-relinquished cats. This should include history of co-habitation or exposure to children, other dogs, cats and other species; history of formal or informal training the dog has received; a listing of fears or phobias observed; the frequency with which potentially problematic behaviors occur (frequency is preferable to simply asking whether the behavior, e.g. house soiling, has ever been observed); and activities enjoyed by the animal. Ensure that this information is available to staff or volunteers involved with adoption counseling.

    - While honestly with potential adopters is important, behavior histories that are likely to be barriers to adoption should be presented carefully, and in a complete context, in order to avoid adopters simply being turned off the manner in which a cat is presented – if the cat is considered a candidate for adoption it should be presented in such a way that maximizes the chances for a a successful match and a positive experience for both cat and adopter. If cats can not be successfully presented at the main Kent facility these may be better candidates for placement through foster, rescue or offsite options where a more personal presentation of the cat is possible.

- Develop consistent protocols for dealing with cats that are surrendered for behavior problems that are likely to be a significant barrier to adoption, such as inappropriate urination. Protocols should include:
    - ✓ Methods for assessing the severity and prognosis of the problem. For inappropriate urination in cats, monitoring litter box use in shelter cat cages is

not a valid approach for estimating prognosis. Much better tools would be a complete written history, copies of any veterinary records, and monitoring the cat for litter box use in a calm, quiet foster home.

- ✓ Decide which steps for investigating and addressing the problem are reasonable and practical for the agency to pursue. Carefully consider the value of steps considered. Because urinary tract infections are rare in cats with inappropriate urination, performing a urine culture on all cats with this problem is unlikely to be rewarding or cost-effective. Involve veterinarians with expertise in behavior are involved in the process of developing a plan for evaluation of cats with a history of litter box problems.
- ✓ If and when cats with a history of problem behavior are made available for adoption, provide honest and complete information for potential adopters describing what steps have been taken to mitigate the problem, and other information that might encourage the animal to be considered for adoption. This should all be presented in the context of good marketing.

- Increase staffing or volunteer levels and provide training to support a functional adoption counseling program. Consider additional behavior evaluation such as the ASPCA's feline-ality® program which is designed to help match cats with potential adopters.

Section V: Stress Reduction and Enrichment

Section V. Part One: Canine Stress Reduction and Enrichment

Stress Reduction, Enrichment, and Behavioral Health - Dogs

Overview

While substantial efforts are made to provide enrichment to dogs (through provision of dog beds and opportunities for socialization and exercise with volunteers), these efforts cannot adequately address multiple causes of significant stress for dogs in the Kent Shelter. Crowding and inappropriate co-housing of dogs, necessitated by grossly inadequate capacity of the facility, is the most significant problem. Overt and subtle aggression between co-housed dogs results in significant stress for many dogs, and severe stress for some dogs, including injuries due to fights, and an inability of some dogs to eat or even sleep. Inadequate staffing, poor kennel design, and lack of enrichment for dogs in holding areas also contribute to compromised behavioral and physical health of dogs at the Kent Shelter. Under current shelter conditions, dogs housed at the Kent shelter are at high risk for deterioration of behavioral as well as physical health. Observations are included in the assessment of strengths and problems below.

Strengths identified:

- Dogs in adoption areas are provided with regular opportunities for exercise and socialization by volunteers. Staff report that most dogs in adoption areas are walked at least once daily.
- Runs in the adoption area are furnished with beds. Each adoption run had one large poly-resin Kuranda® bed.

Problems identified:

- While intentional co-housing of compatible, healthy dogs in adequately sized runs following a suitable quarantine period can be enriching for dogs, the type and size of kennels and management practices surrounding co-housing at the Kent shelter did not meet acceptable standards of care (see below and sections on population management).

- Shelter crowding causes increased physical and psychological stress on the shelter dogs because it increases noise, likelihood of disease transmission, demands on ventilation systems, and risks of staff and animal injury. It also increases the overall burden on staff, decreasing staff opportunity to provide enrichment for any one dog. While many volunteers rose to the challenge, multiple dogs per run create potential difficulty for volunteers attempting to remove just one dog for socialization or exercise without others escaping.

- Choices for which dogs to co-house are made by hurried, overworked staff that have received little to no training in behavior assessment of dogs. Incoming dogs are placed into already occupied kennels with no formal protocol to determine compatibility. A brief introduction is performed, with the new dog on a leash. If no immediate obvious aggression is seen, the new dog will be left in the run. Co-housing decisions were based primarily on dog size, because more small dogs than large dogs can be fit into a run. Intake date was also considered. In general, staff reportedly did not have the luxury of taking age or animal health into account, because of severe space limitations.

- Re-mixing of kennel partners was frequently done, in order to separate dogs that were obviously aggressive to each other, and to accommodate new dogs arriving at the shelter. Studies in several species of animals have demonstrated that frequent changes in group composition result in social turmoil, causing increased stress for all group members (see *Nordlund KV, Cook NB. Co-mingling dairy cows: pen moves, stocking density, and health. Meeting of the American Association of Bovine Practitioners 2006; Coutellier L, Arnould C, Boissy A, et al. Pig's responses to repeated social regrouping and relocation during the growing-finishing period. Appl. Anim. Behav. Sci. 2007;105:102-114; Kondo S, Hurnik JF. Stabilization of social hierarchy in dairy cows. Appl. Anim. Behav. Sci. 1990;27:287-297; Ottway DS, Hawkins DM. Cat housing in rescue shelters:*

a welfare comparison between communal and discrete-unit housing. Animal Welfare 2003;12:173-189.)

- Staff report that if a dog or puppy shows dominant or aggressive behavior when housed with other dogs, that it is generally moved to a kennel housing more assertive adult dogs. In some cases, this practice may suppress overt aggressive behaviors. In other situations, however, this action could escalate aggression, or put some dogs at increased risk of severe stress and/or injury.

- Overt and subtle aggressive encounters between co-housed dogs are extremely common at the KCACC shelter. During our visit, the UC Davis team commonly witnessed threatening behavior between dogs, and multiple incidents of dog fighting were observed. In some cases, dogs were unable to eat because more dominant dogs were defending the food. When the shelter dog population increased to 112 dogs, shelter staff reported to the UC Davis team that during this time it was common to find evidence of fighting in many kennels, including dogs covered in blood and feces.

- At current staffing levels, it is not possible to sufficiently observe dogs in order to consistently detect signs of aggression, especially subtle aggression.
  - ✓ UC Davis team members observed one dog (A021999) to be falling asleep while sitting up near the front of its run. When questioned, staff commented that the dog always appeared to be in this position – they did not remember ever having observed her lying down. This dog had been co-housed for 4 days (since intake) with a pit-bull (A021970.) Staff had not noted overt aggression between the two dogs. During our visit, both dogs underwent behavior assessment. Dog A021999 was shy and scared, but passed the assessment. Dog A021970 exhibited severe food aggression during the test. Shortly after A021970 was removed from the cage, A021999 was observed lying on the floor of the run, sound asleep. These findings strongly suggest that A021999 had become severely sleep deprived because she had been unable to lie down to sleep throughout her shelter stay. She was probably also unable to eat throughout her stay due to subtle threats from her kennel-mate. Dog A021999 likely suffered from constant, severe stress for 4 days. This provides an example of severe stress that may not be noted if staffing levels or training are such that only overt signs of aggression trigger concern.

- Only one staff person is assigned to feed dogs. Since most dogs are co-housed, one staff person is insufficient to monitor for aggression and ensure that all dogs are able to eat. During a single evening feeding session at the time of the UC Davis team visit, several dog fights were witnessed, which were severe enough that several dogs were injured and bleeding. The single staff member had to spend considerable time breaking up dog fights, and during that time, was unable to monitor any other dogs. At least 3 dogs were observed to be completely unable to eat because they were housed with other dogs that were defending the food, either through overt or subtle aggression. This was at a time when the shelter dog

population was at a relatively low level; this problem is likely much worse when the dog population is higher.

- Dogs in most areas of the shelter are provided with little or no social or environmental enrichment.
  - ✓ Only dogs in adoption are consistently provided with blankets or beds. Only a very few dogs in holding areas are provided any bedding. In the adoption runs, where runs are furnished with beds, often one large dog occupied the bed and other dogs were forced to lie on the concrete floor towards the back of the run where feces and urine had accumulated.
  - ✓ Dogs in holding areas are not generally taken out of their cages and provided with opportunities for exercise or socialization, even after legally or medically indicated holding periods are completed.
  - ✓ Housing of dogs in single-sided runs without outdoor access forces dogs to eliminate in their feeding and resting area. This surely causes stress for some dogs, especially those that are house-broken.
  - ✓ Dogs are not generally provided with toys or other objects to provide mental stimulation. In current group-housing conditions, provision of such resources must be approached with caution, because it may increase of aggression between dogs.
  - ✓ Staff notes that it is very common for dogs to not display any interest in playing or in rawhides or other resources during behavior assessments. This could be due to high stress levels of many dogs at the KCACC shelter.

  Under the conditions of environmental deprivation described above, dogs at the KCACC shelter are at high risk for deteriorations in behavioral health (see *Tuber DS, Miller DD, Caris KA, et al*. Dogs in animal shelters: problems, suggestions and needed expertise. *Psychological Science 1999;10:379-387; Hubrecht RC. A comparison of social and environmental enrichment methods for laboratory housed dogs. Appl. Anim. Behav.Sci. 1993;37:345-361.*) This is an especially important concern since dogs that are available for adoption may remain in holding areas for prolonged periods because there is no room for them in the already severely-crowded adoption runs. Increased length of shelter stay has also been linked to increased risk of shelter-acquired disease (*Edinboro CH, Ward MP, Glickman LT.* A placebo-controlled trial of two intranasal vaccines to prevent tracheobronchitis in dogs entering a humane shelter. *Prev. Vet. Med. 2004;62:89-99*.)

- In the current widespread co-housing situation, most dogs are provided with inadequate amounts of space. Dog runs have dimensions of 3.5 x 11 ft (42 ft^2.) Minimum space recommendations for singly housed dogs generally range from 12.0 ft^2 to 48 ft^2, depending on the size of the dog. These recommendations are based on a combination of standards for laboratories and guidelines for animal shelters. If each of the runs at KCACC were used to house a single dog, they would be of adequate size for the vast majority of dogs. However, space recommendations for group-housed dogs are necessarily larger. Space

recommendations for group housing of medium-sized dogs housed in laboratories is 24.4ft^2 PER DOG (*Hubrecht R. Comfortable quarters for dogs in research institutions In: Reinhardt V,Reinhardt A, eds. Comfortable quarters for laboratory animals. Washington, DC: Animal Welfare Institute, 2002;56-64*.) At 42 ft^2, the runs at KCACC clearly do NOT provide adequate space for group housing of dogs.

- ✓ Like environmental deprivation, long-term housing with inadequate space allowances can also result in deterioration of behavioral health in dogs (see *Beerda B, Schilder MBH, Van Hooff JARAM, et al.* Chronic Stress in Dogs Subjected to Social and Spatial Restriction. Physiology & Behavior *1999;66:233-242; Hubrecht RC, Serpell JA, Poole TB*. Correlates of pen size and housing conditions on the behaviour of kennelled dogs. *Appl. Anim. Behav. Sci. 1992;34:365-383*.)

- Staff reports that behavioral deterioration of shelter animals is uncommon. However, the accuracy of this perception is impossible to evaluate, for two reasons. First, the ability of staff to accurately recognize behavioral deterioration due to shelter conditions is unknown. Also, there is currently no system in place to differentiate the following sub-groups of dogs that are euthanized for behavior problems:
  - ✓ Dogs that were behaviorally sound at intake, but whose behavioral health deteriorated under shelter conditions.
  - ✓ Dogs that had relatively minor behavior problems at intake that the agency does not currently have sufficient resources to treat.
  - ✓ Dogs with severe, pre-existing behavior problems at intake that make them a significant public safety risk.

- Stereotypical behaviors (pacing, jumping, wall-bouncing, and rhythmic barking) were observed in dogs in one of the adoption runs (see video on CD.) It is unknown how long the affected dog had been housed in the shelter. Stereotypical behaviors are defined as abnormally repetitive non-social behaviors, often locomotory in nature. They typically develop as signs of chronic stress in dogs that are unable to cope with poor quality captive housing. While some are obvious, stereotypical behaviors can often be missed because dogs may cease to perform them when people enter the kennel area.

- Noise levels in dog housing areas were often excessive. While they were not measured with a dosimeter, they were uncomfortably high, due mostly to dog barking. It is known that sound levels in animal shelter dog kennel can regularly exceed 100 decibels (*Coppola CL, Enns RM, Grandin T*. Noise in the animal shelter environment: building design and the effects of daily noise exposure. *Jour. Of Appl. Anim. Welf. Sci. 2006;9:1-7*.) The Occupational Safety and Health Administration (OSHA) requires employers to develop and implement a noise monitoring program when employee are regularly exposed to noise levels of 85 decibels or greater. The hearing of dogs is much more acute that of humans. The

noise in the kennels at KCACC is very likely often at a level that has the potential of causing damage and noise stress to humans, which can lead to physiological changes and health problems. It seems probable that dogs housed at the KCACC shelter are also at risk of noise stress and hearing damage.

Recommendations:

- Take all possible steps to reduce and avoid shelter crowding, as this contributes significantly to the current inability to provide conditions of good welfare for many dogs at the shelter. (See population management, housing and facilities sections of this report for specific recommendations..)

- Ensure that dog housing is expanded to meet required capacity in plans for expansion or rebuilding of the facility. Required capacity should be based on single housing of all dogs throughout their shelter stay, so that co-housing can be optional but is not necessary.
  - ✓ Appropriate pair or small group housing of dogs may be considered as a long-term future goal. However, co-housing should implemented by choice, in order to provide enrichment for dogs. Co-housing should not be relied upon by necessity as a method of simply fitting more dogs in the shelter, and it can not be relied upon as a sole method of enrichment. Co-housing must be of adequate size and quality. Appropriate single housing must always be available for dogs that do not tolerate or benefit from group housing.

- Plan and implement an all-in/all-out co-housing system for dogs until housing is expanded to meet capacity requirements. Avoid re-mixing co-housed dogs unless absolutely necessary.

- Plan and implement more comprehensive methods of evaluating compatibility between dogs before co-housing (until housing is expanded to meet capacity requirements.) This will require increases in staffing levels, training in canine behavior, and supervision.

- Increase staffing levels in order to allow for adequate monitoring of co-housed dogs for overt or subtle aggressive encounters. Again, this will also require increased training in canine behavior. Suggested resources for training include:
  - ✓ Allan C. Giving Dogs Another Chance. *Animal Sheltering Magazine*, March-April 2000.
  - ✓ Canine Body Postures and Evaluating Behavioral Health. Animal Care Technologies Information available at www.4act.com/canine.htm
  - ✓ Humane Society University's Pets For Life Certificate Program. Information available at: www.humanesocietyu.org/degrees_and_certificates/certificates/pfl.html
  - ✓ Open Paw in Shelters Program (www.openpaw.org/about/shelters.html)
  - ✓ Sternberg, S. Great Dog Adoptions: A Guide for Shelters. Alameda, California: The Latham Foundation, 2002.

- ✓ Sacramento Veterinary Behavior Specialists, Animal Shelter Behavioral Consultations. Information available at www.sacvetbehavior.com/Services.html#ASBC
- ✓ Tuber DS, Miller DD, Caris KA, et al. Dogs in animal shelters: problems, suggestions and needed expertise. *Psychological Science* 1999;10:379-387.

- Immediately add sufficient staff so that at least two people (more if necessary when crowding levels are especially high) are responsible for feeding dogs, monitoring for fights, and ensuring that all dogs have the opportunity to eat. See nutrition and feeding section for more information.

- Within reasonable limits for safety, provide all dogs with increased opportunities for social and environmental enrichment, including:
  - ✓ Sufficient bedding for all dogs, including multiple resting surfaces for cages containing multiple dogs
  - ✓ Regular opportunities to eliminate away from feeding or resting areas (indoor/outdoor runs and/or regular outdoor walks)
    - o For infectious disease prevention (especially parvo), newly admitted adult dogs and all puppies under 4-6 months of age should not be walked in grassy play areas that can not be fully disinfected. The parvo virus vaccine provides rapid protection, so there is minimal risk for adult dogs (> 4-6 months) 3-5 days after vaccination.
  - ✓ Regular opportunities for exercise
  - ✓ Regular socialization with humans
  - ✓ Novel and varied toys (especially food dispensing toys)

  Double-sided runs (preferably indoor/outdoor) will make provision of many of these items easier for dangerous dogs that cannot be directly handled.

- Ensure that trained and empowered staff monitor dogs carefully and regularly for any signs of deterioration in behavioral health. If and when signs of declining behavioral health are noted, immediately take all necessary corrective actions. Observing declines in behavioral health without taking steps to correct it is tantamount to leaving a sick animal without any treatment.

- Of dogs that are euthanized for behavioral reasons, monitor the numbers of:
  - ✓ Dogs that were behaviorally sound at intake, but whose behavioral health deteriorated under shelter conditions.
  - ✓ Dogs that had relatively minor behavior problems at intake that the agency does not currently have sufficient resources to treat.
  - ✓ Dogs with severe, pre-existing behavior problems at intake that make them a significant public safety risk.

  Track these numbers and use them, as appropriate, to develop future goals for the shelter and/or community.

- Decrease barking noise within dog housing areas. Suggested solutions, listed in order of a combination of effectiveness and practicality, include:

- ✓ Behavioral conditioning program using positive reinforcement for quiet behavior. This is likely the most effective and least expensive method. It will require staff or volunteer time and training.
- ✓ Playing classical music in dog areas (also inexpensive.)
- ✓ In renovated or expanded dog housing areas, create multiple smaller dog housing rooms rather than fewer larger housing areas. A maximum of 8 runs (for single housing) per room is recommended. This is the most reliable shelter design method.
- ✓ Baffles or other sound-absorbing materials hanging from ceilings. These are of limited usefulness and can present challenges in terms of disinfection.

Section V. Part Two: Feline Stress Reduction and Enrichment

Stress Reduction, Enrichment, and Behavioral Health Care- Cats

Overview

While some efforts are made to relieve cat stress (by minimizing cage moves, providing bedding, and gentle handling) and to provide enrichment through volunteer socialization programs, the majority of cats housed at the Kent shelter showed physical and/or behavioral signs of severe stress. The major causes of these high stress levels include lack of hiding places, auditory and visual exposure to dogs, insufficient space provisions, inappropriate co-housing, and long-term holding in grossly inadequate conditions. See the section on Facility, (feline sections from preliminary and final reports) for more detailed information on cat housing. Observations are included in the assessment of strengths and problems below.

Strengths identified:

- Cats are generally housed in the same cage from day to day, rather than being moved from cage to cage on a daily basis. Minimizing the number of times cats are moved from one cage to another reduces cat stress.
- A volunteer cat socialization program exists for cats in adoption areas.
- There is a cat socialization area for volunteer use.
- Cats are generally provided with blankets or towels.
- Staff handle cats gently.
- An appropriate method of restraint (nets) is used as necessary for feral cats.

Problems identified:

- Despite a slight reduction in stress resulting from avoidance of daily housing changes, the vast majority of cats housed at the Kent shelter experience severe, prolonged and largely unmitigated stress due to unacceptably small cages; close proximity to dogs, and inability to hide, as well as many other stressors.
  - ✓ Many cats at the KCACC shelter exhibited signs of severe anxiety and/or fear, including widely dilated pupils, immobility, crouching at the back of the cage, body and ears lying flat, tail curled tightly around body, attempting to hide,

failure to eat or eliminate, and rapid and shallow breathing (see photos below and videos on CD.) These signs were most common and severe in cats that were housed in the same room as dogs, but were also frequently seen in cats housed in other areas of the shelter. In the cat stray/quarantine room, almost 1/3 of cats were observed to be too frightened to eat.

- ✓ Stress is often more difficult to recognize and identify in cats than in dogs, because signs of stress in cats are typically more subtle than those in dogs. Cats often respond to stress by decreasing self-maintenance activities such as eating, grooming, and eliminating, by feigning sleep, by hiding, and by developing illnesses such as respiratory infection and diarrhea.
- ✓ Stress is a substantial risk factor for disease, particularly upper respiratory infection (URI). Stress is directly linked to activation of feline herpesvirus, one of the two most common causes of URI in shelter cats. At the time of the UC Davis team visit, over 40% of the cats housed at the KCACC shelter were under treatment for URI. A significant number of additional cats were showing signs of URI but were not under treatment.
    - Feline herpesvirus is particularly associated with corneal infection and ulceration; reportedly last summer a technician became so frustrated over numerous kittens with ruptured eyes (likely from severe herpesviral infection) that she took them to her own veterinarian for recommendations.

Left: A cat exhibits signs of stress as described above: dilated pupils, hunched/tense body posture and flattened ears. Right: Two cats exhibit signs of stress, including

hunched/tense body posture and widely dilated pupils (the cat in the back) as one cat attempts to hide behind the other. The Siamese mix cat in the front had signs of upper respiratory infection.

- ✓ A kitten in the adoption area exhibited classic signs of anxiety manifested as frustration (see video on CD), which commonly develops in cats kept in an impoverished environment for prolonged periods. Frustration can develop as a sequela to severe, chronic anxiety. Signs include repeated vocalization, escape behavior, and shredding or destruction of cage items. Urine spraying can also sometimes occur as a result of frustration.

- Published studies have identified 3 primary causes of stress in shelter cats: lack of a hiding space, auditory and visual exposure to dogs, and frequent housing changes. (*Gaskell RM, Povey RC.* Experimental induction of feline viral rhinotracheitis virus re- excretion in FVR-recovered cats. *Veterinary Record. 1977;100(7):128-133; McCobb EC, Patronek GJ, Marder A, et al.* Assessment of stress levels among cats in four animal shelters. *JAVMA 2005;226:548-555; Carlstead K, Brown JL, Strawn W.* Behavioral and physiological correlates of stress in laboratory cats. *Appl. Anim. Behav. Sci. 1993;38:143-158.*) The first two of these three stressors are ubiquitous at this shelter.

  - ✓ The vast majority of cats in the KCACC shelter suffer from an inability to hide. Hiding boxes were observed ONLY in feral cat housing. No other cats in the shelter are provided with any facilities for hiding.

  - ✓ Exposure to dogs is an intense and constant cause of stress for cats housed in the Cat Stray/Cat Owner aisle. Loud barking is almost incessant, especially when any people enter the room. Dogs on leashes are frequently walked past cat cages in this room, often as part of routine canine behavior assessments, in which dogs suspected of aggression to cats are encouraged to approach cat cages. It is also not uncommon for dogs to escape from their runs in this room, and freely run up to cat cages. The stress of dog exposure is likely exacerbated by the fact that the cages in this room are particularly small, so cats have virtually no space to retreat or hide.

  - ✓ For cats in the cat condo hallway and some cats in the Stray/Quarantine room, dog exposure is more intermittent, but is still ongoing. Doors between cat and dog wards are frequently propped open, increasing barking noise in the cat wards, and allowing escaped dogs to roam freely in these rooms as well. Dogs are routinely walked through the Cat Stray room when taken to euthanasia. Cats in the condo hallway are preferentially used as "test" cats for behavior assessments of dogs that are not suspected of cat aggression.

  - ✓ Even cats in the adoption room must sometimes endure constant barking noise. At the time of the UC Davis visit, a puppy that barked constantly was housed in the cat adoption room.

- For feral cats, some stressors are somewhat reduced (hiding boxes are provided, and they have less exposure to dogs.) However, the group housing arrangement of feral cats observed at the time of the visit is unacceptable. Groups of 3 to 4 previously unfamiliar feral cats are forced to co-habitate for 1 to 4 weeks in crates which are designed for temporary holding of a single dog. The groups may consist of various combinations of sexually intact and/or sterilized male and/or female cats. At the time of our visit, the feral cats in this area had been housed there for a minimum of 25 days, and an average of 34 days. The purported intention of this housing approach is to socialize the cats to each other while they await sterilization and release (as a group) to a feral cat colony.
  - ✓ This process of "forced socialization" is known in behavior modification terms as "flooding." Flooding is the continuous exposure to a stimulus (e.g. unfamiliar cats) until the negative responses to the stimulus (e.g. avoidance, tension, unsocial behavior) cease. To be effective, flooding must continue until the negative responses stop (e.g. until the cats are relaxed and behaving socially with each other.) Premature termination of a flooding procedure (e.g. ending the forced co-habitation before cats are fully relaxed with each other) may actually serve to reinforce rather than diminish the negative response. Thus, proper use of flooding requires close monitoring of behavior, and flooding can potentiate problems if used improperly. In addition, flooding should only be used in carefully controlled situations, since inescapable exposure to a very strong stimulus may traumatize an animal. (For more information, see *Landsberg G, Hunthausen W, Ackerman L.* Handbook of Behavior Problems of the Dog and Cat. *Second ed. New York: Elsevier Saunders, 2003.)*
  - ✓ Given the haphazard manner in which this flooding procedure is conducted, it is unlikely that the goal of the procedure (to habituate the group of co-housed cats to each other) is successfully being met. However, even if it is being met, cats are unlikely to generalize this socialization to other cats they may encounter after release into a new feral colony. Therefore, the benefit of the forced socialization through flooding is unlikely to be worthwhile in the larger scheme of feral cat colony dynamics. This is especially true when the health risks, cat stress, and staff time involved in this system are considered. The feral cat housing areas are impossible to completely disinfect, and infection and death of these unvaccinated cats due to panleukopenia are not uncommon.

- Grossly inadequate cage size exacerbates severe stress levels for almost all KCAC shelter cats. As described in other sections of this report, published research indicates that at least 1 m^2 (10.8 ft^2) of floor area per cage for singly housed cats is required in order to prevent excessive stress levels. For group-housed cats, at least 18 ft^2 (1.67m^2) per cat is recommended in order to avoid excessive stress levels. Space allowances for singly housed cats housed at the KCACC shelter range from 2.4 ft^2 to 5.4 ft^2. The upper limit of these ranges is just half of the recommended space allowance. Space allowances for group-housed cats at the KCACC shelter are even worse – they range from 1.2 ft^2 to 2.5 ft^2 per cat. The upper limit of this range is less than $1/7^{th}$ of the recommended space per cat in group housing. The lower

limit is only 1/15th the amount of space that should be provided per cat in group housing.

- ✓ Many cages in the shelter are not large enough to accommodate even a small litter box – cats in these cages were provided with 10" diameter round dog food bowls instead of litter boxes. These bowls do not allow for normal elimination behaviors (digging in litter), and are almost certainly too small for moderate to large sized cats to comfortably use (see figures in Cat Housing section).

- Other factors that contribute to severe stress experienced by cats at the KCACC shelter include:
  - ✓ Inadequate environmental enrichment (e.g. shelves, toys, social interaction with people [especially for cats in non-adoption areas], toys)
  - ✓ High levels of noise (other than dog barking)
  - ✓ Frequent escapes of cats housed in dog kennel room

  Further details about these factors are given below.

- Factors leading to cat stress are exacerbated by the haphazard or absent process for moving cats through the shelter, as described in the population management section above. This frequently results in prolonged stays for cats held in stray or owner surrendered areas well past legally required holding periods, without benefiting the cats' chance for adoption. Increased length of shelter stay has also been linked to increased risk of shelter-acquired disease (*Edinboro CH, Janowitz LK, Guptil-Yoran L, et al. A clinical trial of intranasal and subcutaneous vaccines to prevent upper respiratory infection in cats at an animal shelter. Feline Practice 1999;27:7-13*.)

  - ✓ At the time of the visit, current practice was to place owner surrendered cats in a bank of very small cages in the dog ward for 24-48 hours before they would be evaluated and possibly made available for adoption. The holding period was intended to be only 24-48 hours, but in reality many cats waited in this stressful area for days or even weeks, reportedly either because there was no physical space in adoption areas for them to be moved into, or simply because there was no system in place to ensure that it was recognized that cats needed to be moved. Cats in the stray holding areas also reportedly may spend several weeks or more waiting for available space in adoption. Many of these animals became sick before ever having a chance to be adopted.

  - ✓ A review of shelter statistics revealed that there is a trend towards increased average length of stay for cats without concurrent improvements to make shelter housing more appropriate for long-term housing. Staff reports that the longest shelter stays tend to occur for cats in isolation. This suggests that many shelter cats are enduring prolonged illness while housed in cages that are clearly inadequate for long-term housing.

- Inadequate enrichment:
  - ✓ Staff report that provision of toys to cats in adoption areas is inconsistent. No toys were observed in any cat cages at the time of our visit.

- ✓ Other than cat condos in the adoption hallway, no cat cages include any shelves. Multiple studies have demonstrated that cats prefer resting on shelves over resting on the floor (see Cat Housing section.)
- ✓ The cat socialization area utilized by volunteers does not contain a litter box. Given the fact that many cat housing units at the KCACC do not contain an adequately sized litter box, and/or have a litter box that is placed directly next to food dishes, it is likely that many cats may appreciate opportunities to use a litter box when outside of their cages.

- In addition to dog barking, cats at the KCACC shelter are frequently subjected to loud noises, such as shop-vacs for cleaning cat condos, and radios played by staff in cat housing areas.

- Frequent escapes of cats, especially those housed in dog kennel room, are both a dramatic manifestation and a cause of extreme stress in cats housed in this area. In 2007, 60 cats were reported lost or missing from their cages, which is equivalent to more than 1 cat escaped or lost per week. Due to a shortage of traps, it is not always possible to recover these cats in a timely manner. Staff members reported that on one occasion, they pulled the bank of Cat Owner cages away from the wall to look for a cat that had just recently escaped, and found 4 cats hiding behind the bank of cages. It was unknown how long the other 3 cats had been there. The fate of cats that escape and are never found is obviously unknown. The welfare of cats that are lost within the shelter for any length of time cannot be considered even marginally acceptable by any measure. Cats hiding behind banks of cages do not have access to food, water, or any appreciable room to move. They are most certainly terrified. .

Recommendations:

- Train all staff in recognition of stress in cats, and ensure that all staff and management take all possible steps to mitigate stress in shelter cats. Suggested resources for training include:
  - ✓ Kitty Comforts. *Animal Sheltering Magazine*, January-February 2005;25-28.
  - ✓ BC SPCA's CatSense Program. Information available at www.spca.bc.ca/specialprograms/EmotionalLifeCats.asp.
  - ✓ American Association of Feline Practitioners, Feline Behavior Guidelines. Information available at: www.aafponline.org/resources/guidelines/Feline_Behavior_Guidelines.pdf
  - ✓ Sacramento Veterinary Behavior Services, Animal Shelter Behavioral Consultations. Information available at www.sacvetbehavior.com/Services.html#ASBC

- Immediately provide all shelter cats with a hiding place. See Facility section (cat housing) for additional information on hiding places. Cardboard boxes or paper bags can be used to provide hiding places for little to no cost. Ensure that all new cat

cages include at least one shelf. A towel hanging over the front of a shelf can also provide a hiding place. Other options to consider include:
- ✓ Cat EShack (made by C specialties, www.cspecialties.com/index1.html)
- ✓ Hide-Perch-n-Go Box (BC SPCA, www.spca.bc.ca/hideperchgo/HidePerchGo.asp)
- ✓ Feral Cat Den (Animal Care Equipment & Services, ACES, www.animal-care.com/product_list.cfm?sub2a=53&prod=1)

- Discontinue the practice of housing dogs and cats in the same room at any time. Discontinue the practice of allowing shelter dogs to approach or access cats housed in the shelter. Minimize exposure to dogs for cats in all areas of the shelter by keeping doors between dog and cat areas closed at all times. See facility section (cat housing) for additional information.

- See Part A, section II, part 4: Isolation and Separation (subsection iv, feral cats) for recommendations regarding management of feral cats. Discontinue the system of group housing multiple feral cats in small carriers.

- Replace nearly all current cat cages with cages that are at least as large as those in the cat adoption room or condo hallway. Consider the UC Davis Shelter Medicine program's recommended minimum space allowance for individually housed shelter cats of at 10.8 ft^2 (1m^2.) This recommendation is based on a published study which demonstrated that at least 1 square meter of floor area per cage for singly housed cats is required in order to prevent excessive stress levels. If it is difficult to meet strict space requirements, consider the following criteria for ensuring that cats have sufficient space for short to medium-term housing:
  - ✓ Enough space to stretch to full body length
  - ✓ Separation of feeding, resting, and elimination areas by at least 3 feet
  - ✓ Sufficient space to accommodate an adequately sized litter box and a hiding box
  - ✓ Sufficient floor space for locomotion & play
  - ✓ Ensure that all cat cages includes shelves. Ideally provide all cats with novel and varied toys; at minimum, provide these for cats < 1 year of age.
  - ✓ Keep the average length of shelter stays as short as possible for cats. See Part A. Section II; Part 3, Length of shelter stay, for extensive recommendations on this.

- Continue the volunteer cat socialization program, and expand it to ensure that all cats receive regular positive interactions with humans (outside of cleaning and feeding activities).

- Equip the volunteer cat socialization area with a litter box, and ensure that the litter box is replaced or thoroughly disinfected between after each use.

- Consider quieter alternatives to the shop-vac for daily cleaning of cat condos. A small hand broom and dustpan (one assigned to each cage) should suffice. The condos must be taken elsewhere for thorough cleaning and disinfection between occupants.

- Use radios in animal housing areas for purposes of enrichment for animals only. When radios are used, play only classical music. This recommendation is based on published evidence that classical music promoted relaxation and quiet behavior in dogs, while heavy metal music promoted barking (*Wells DL.* A review of environmental enrichment for kenneled dogs. *Appl. Anim. Behav. Sci. 2004;85:307-317*.) While there is no published data regarding the effects of music on captive cats, it is reasonable to extrapolate these findings in dogs to cats.

- Institute daily checks for lost cats. Whenever cats are lost, ensure that staff immediately takes all necessary steps to recover these animals and secure their safety and well-being. Ensure that enough traps are available at all times so that live traps can be set as soon as possible to recover lost cats.

Section VI: Nutrition and Feeding

NUTRITION AND FEEDING

Overview:

Sufficient wholesome food and clean water is a necessity for humane animal care. Insufficient nutritional intake, whether because food or water is not available or because the circumstances are such that animals do not or can not eat (e.g. due to stress, feces or dirt in food or water dishes, competition for food, spoiled food, or simply an unpalatable diet) will compromise animals' ability to respond to vaccines and ward off disease, as well as being a direct cause of compromised welfare.

The KCACC buys brand name pet foods and accepts donated pet foods from charity programs such as PetCo. The shelter purchases Royal Canin® Feline dry and puppy food. It also buys canned kitten and puppy food from Nutro Max®. Other special diets such as senior, light and large breed variety of dry dog food are also bought from Science Diet®. Other prescription diets from Science Diet® and Purina e.g. d/d, a/d, i/d, EN etc. were also found at the shelter. Donated food included various commercial brands such as Natural Choice, MaxCat, Fancy Feast etc.

General Observations:

There is no one designated place for food storage. Food can be found in various areas of the shelter. Opened bags of food are poured into designated garbage cans which are found in the laundry/cleaning room. Extra food and various prescription diets can also be found in cabinets within this room. Most of the unopened food is kept in a hallway behind the adoption kennel runs. None of the food is dated nor is there a system of using oldest food first. More food was found stacked in other hallways and rooms. Bags of dog food - some of which were lying in pools of water - were found behind the quarantine dog runs.

Observations of dog feeding:

Dogs are reportedly fed once a day. One staff member is assigned to feed all dogs at the end of the day, often as late as 6pm. A cart stacked with bowls and two wheeled bins,

one with adult dry the other with puppy dry food, are moved along the runs starting with adoption dogs. The staff member fills bowls 1/3-1/2 full. Each run gets one bowl/dog. Occasionally staff will put several scoops of food into the door panel bin. The bowls are placed in various areas within the run. Once this is done the kennel staff moves on to the next run. Staff reportedly do look for signs of aggression around food and may occasionally need to remove a dog and feed it outside the run.

Several instances of food aggression resulting in dogs going without food were observed by consult team members on more than one day. Some of these situations were subtle and manifested themselves as a submissive dog staying toward the back of the run while all the food got eaten by the other dogs. Overt fights were also witnessed.

Observations of cat feeding:

- Cats are reportedly mostly fed twice a day. The kennel staff wheels a cart that has a bin of adult and kitten dry food, some canned food and stacks of disposable paper bowls. Adult cats housed singly in cages get one bowl of dry food that is "more or less" filled. Two adult cats housed in condos receive two bowls of food. Kittens receive dry kitten food. All cats also receive one small scoop of L-lysine sprinkled on the food. Some cats receive canned food. This is at the kennel staff's discretion. For example: one cat on medication that wasn't eating well received adult canned food as did two other sick cats. However, other cats in the isolation ward were seen with dry food only. Although canned food is reportedly given when it is noticed that a cat isn't eating well, there is no protocol for systematic observation or monitoring of food or water intake. Mother cats with kittens also received canned food as well as dry. Several food bowls appeared untouched in the morning.

Strengths identified;

- Efforts were made to feed sick animals with canned and/or more palatable foods.
- Puppies and kittens are fed age appropriate foods.
- The KCACC policy manual outlines the amount of standard food to feed the shelter's animals.
- Special diets/prescription foods are available and are reportedly fed to animals with certain conditions; e.g. d/d to dogs with skin problems, EN to animals with GI problems.

Problems identified:

- According to the policy manual the animals are fed the standard food on a daily basis e.g. adult dogs get Science Diet® adult whereas puppies, adult cats and kittens get Royal Canin®. The other foods are reportedly to be fed as needed for specific problems according to the kennel staff. However, a sign was posted near the feeding bins in the laundry room that alerted staff to "feed dogs Science Diet only…..the dogs are suffering from chronic diarrhea due to constantly switching formulas. We are wasting parvo tests constantly having to verify it is only GI upset and not disease causing loose stool". This makes it unclear whether a consistent diet was always fed, or only when problems are observed.

- Most cats receive only dry food unless they are ill or very young. There is increasing concern that cats tend to lose a significant amount of weight when placed in shelters. This is most likely due to the tremendous stress they face when first encountering this new environment. Ensuring that cats eat is therefore a priority especially in highly stressful situations.
- It was reported that staff will identify particularly aggressive or bully dogs and will tie them outside the cage during feeding. However, at least one major fight was observed by the consult team and multiple interactions were witnessed that did not lead to overt fights but still resulted in some dogs being unable to eat. Insufficient staff was available to ensure that dogs could be monitored and moved as needed to make sure all dogs got fed.
- There is no system to monitor that each animal in the shelter is getting enough nutrition i.e. is actually eating its food.
- Food is stored in many areas of the shelter. There is no system of food procurement that ensures older food is used first. Also some dry food found in the back hallways behind the dog runs was seen sitting in pools of water.

Recommendations:

- Ensure that the policy directive from the KCACC manual to feed a single consistent standard brand of food is followed. Feeding a single brand will help prevent diarrhea caused by switching from one brand to another. Other brands than the main one may be used for animals requiring special diets.
- Implement a system to monitor food intake. Provide a standard amount of food daily according to a consistent chart based on manufacturer recommendations (the high end of the daily recommended amount should be fed for most animals; weight loss programs for shelter animals should be monitored by medical personnel). For singly housed animals, make a note on the animal's cage card if an animal is not eating (as evidenced by the same standard amount being present the following day or when the food bowl is collected). Co-housed animals will have to be directly visually monitored to ensure that all are eating.
- Weight gain as well as loss can compromise animal health and chances for adoption. Assess body condition and, ideally, re-weigh all animals in the shelter long term (> 2 weeks) on a biweekly basis. If possible, weigh animals on a scale. At minimum perform a hands-on assessment of body condition score. *Visual observation is not sufficient, particular for medium to long haired animals.* More information on body condition scoring is included in the information sheet "performing a physical exam on a shelter animal" located at http://www.sheltermedicine.com/documents/performing_physical_exam.pdf. An added benefit of biweekly body condition monitoring is that it ensures these animals will be noticed on a regular basis and provides a simultaneous opportunity to assess other measures of mental and physical wellness.
- If possible, offer canned food at least once a day to all cats to encourage cats to eat, especially during the very stressful initial sheltering period. At minimum, provide a choice of wet and dry food to all sick cats, kittens and pregnant or nursing queens with wet food daily. Offer both wet and dry food and a variety of foods to animals that do not eat.

- In the long term, increasing facility size such that dogs can be housed singly (or at least fed singly, e.g. on either side of a double-sided run with the connecting door temporarily closed) or with compatible cage-mates will likely be required to resolve the food aggression issues described above. Even friendly, otherwise compatible dogs may fight when food is offered in a small space.
- As long as multiple dogs must be housed per run, assign two staff members to feed the dogs: one to dispense the food, another to observe the dogs' behavior. If any dog is seen cowering or unable to access food then this staff member can provide additional assistance.
    - Dogs may not eat even when removed from a cage after being "bullied" by a more dominant dog, especially if food is offered in the crowded, noisy aisle-way in full view of the dominant dog or other dogs. If a dog is observed not to eat under these circumstances, it should be moved to a quiet space until it does eat. Single housing (whenever available, including at the Crossroads shelter if necessary), foster care, or transfer to rescue or another shelter should be prioritized for dogs that will not eat when housed with others. Likewise single housing should be prioritized when possible for dogs that consistently guard food.
- Medically examine any animal that does not eat for 24 hours.
- Devise a system of storing food that prevents bags from being "forgotten" and possibly then fed after their expiration date. Make sure all food is kept in dry areas and off the floor.

Additional information:
Nutritional recommendations for shelter animals:
http://www.sheltermedicine.com/portal/is_nutritional.shtml

Section VII: Euthanasia Procedures

The process for euthanasia and adoption decision making are covered in Part A; Programmatic Issues; Section II, Part v; Euthanasia practices and definitions. This section reviews the actual procedures used for euthanasia. The following euthanasia procedures were not observed during our visit and are not covered in this report:

- Ordering of controlled substances
- Data entry into the computer system
- Measurement of controlled substances for comparison to log book entries.

Overview and observations.
The shelter has a designated euthanasia room. This room has a sink, counter and cabinets for storing drugs and other supplies. There is also a height adjustable metal exam table. A bank of 16 small metal cages is located along one wall facing the exam table. There are two doors, one opens to a cat housing ward, the other to the outdoor loading area. There is a supply of new syringes, needles and a sharps container on the counter next to the sink. Restraint equipment available in the room includes towels and nets for cats and

muzzles and a lock pole for dogs. The room is of adequate size, has sufficient lighting and was kept in neat condition. Although the door leading into the shelter from the euthanasia room was kept closed during the process, it was unlocked and opened accidentally from outside. The door to outside was left open with a closed screen door.

Two staff members are reportedly assigned to euthanasia duty on a rotating basis. The two staff members are designated as either the "primary officer"or the "handler". There are currently 3 staff members designated as "primary officers" indicating that they have attended an approved course and become certified euthanasia technicians. The shelter veterinarian designates one euthanasia kit and a log book to each primary officer. The locked kit contains a bottle of sodium pentobarbital Fatal Plus® which is located in a locked cabinet in the euthanasia room. Primary officers have keys to the cabinet and their individual kit box. Telazol® is also available and is kept in the clinic refrigerator. This drug is used for dogs who are difficult to handle and is given IM. Cats do not receive any sedation prior to euthanasia. The following doses and syringes of Fatal Plus® are used:

Dogs – 8-10cc for a big dog, less as size decreases (approximately 1-2cc/10lbs of guessed body weight.
Cats – 2cc/kitten; 4cc/adult cat

Pre-euthanasia process:
The written euthanasia protocol(s) – Document #SH2-007 A page 7 - state: "The designated shelter officer will retrieve pre-euthanasia report and review to ensure appropriate sign-off by shelter sergeant for animals designated for euthanasia". The primary officer was observed to retrieve the pre-euthanasia report and check that a supervisor has signed-off on all animals on the list. The correct animal is confirmed by verifying the kennel card and kennel tag number matches that on the paper work. The officer also ensured that the animal's description and any other identifying marks match the appropriate papers. It was reported that any discrepancies are brought to the attention of a supervisor before proceeding to euthanasia. Each animal that was brought for euthanasia is first scanned with an Avid microchip scanner. The result of this scan is cross-checked and recorded on the kennel card. The dose of Fatal Plus® was drawn up into a new syringe based on body weight estimate. New needles were used for each animal and disposed of properly.

Euthanasia process:
Euthanasia was observed on the second day of the consult. One staff member called in sick on the day of the consult so a supervisor stepped in to help. A total of 5 animals were euthanised during the observation period: a feral kitten, an easily handled cat at the end of a bite quarantine, and three easily handled dogs. The adult cat was euthanised in its cage in the quarantine area. The feral kitten was brought into the euthanasia room, given an intraperitoneal (IP) injection and placed in the holding cages described above. The dogs were brought in individually and euthanised in the euthanasia room just after the kitten had been placed in the holding kennel.

The feral kitten was wrapped in a towel while in its shelter cage, carried in the towel to the euthanasia room and restrained with the same towel. The primary officer took time to palpate an appropriate abdominal location for injection. Euthanasia solution was administered IP and then the kitten was placed with several towels into one of the small cages located in the euthanasia room. Since it was covered in towels, the kitten did not appear to have good visual access to the dogs who were subsequently brought in and euthanized in the area in front of the cage bank.

The adult cat was given an IP injection of Fatal Plus while in its original cage in the quarantine area. No other cages directly faced this cat's cage. Other cats were present in adjacent cages and shelter foot traffic and activity continued as usual. A towel was hung over the cage and the cat was left unattended until the team returned to confirm death and remove the body about 15-20 minutes later after they had finished euthanasia of all the dogs on the list.

None of the dogs received chemical sedation as a pre-medication on the day of observation; all were handled humanely with muzzles, gentle restraint and soothing words. Each dog was brought individually from the kennels into the euthanasia room, euthanised, and then removed from the room before another dog was brought in. All dogs were given Fatal Plus via intravenous (IV) injection in the cephalic vein.

Death was confirmed in all cases by the primary officer using a stethoscope, checking blink reflexes, capillary refill time and breathing. Bodies were then placed into a bin for cremation pick up.

The primary officer was observed to enter all relevant information into the euthanasia log at the end of the day's euthanasia process. The information for each animal had been written on the individual animal's kennel card at the time of euthanasia so that it could be entered is also written on the individual animal's kennel card so that it can entered into the log book and computer later. Kennel cards were placed in a loose pile on a desk. Staff reported that most commonly the computer entry is done at the end of the day. Staff reported that it would be much more convenient to have a computer terminal in the euthanasia room in order to expedite the data entering process.

Strengths identified

- Observed staff were skillful and gentle in animal handling
- The method of euthanasia (intravenous injection for dogs and intraperitoneal injection for cats), euthanasia solution and dosing schedule is considered appropriate
- Chemical sedation is available for dogs (Telazol®)
- Necessary supplies for restraint were readily available
- A quiet room with lock-able doors was designated for the purpose
- Animals were carefully checked to ensure descriptions and paperwork were all correct and in accordance with one another
- Drug use was accurately logged in the cases observed

Problems identified:

- Cats that are not aggressive or feral are euthanized in their original housing cages. Staff reported this was common in all feline housing areas of the shelter. A towel is placed over the cage after the injection is given, while the phases of the euthanasia process progress. It was reported that this towel signals to staff that a cat is in the process of being euthanized and should not be disturbed. No other process is in place to reduce exposure to activity, light or noise during the phases of euthanasia. It seems likely this signal could be overlooked or misinterpreted by staff and other visitors to the shelter who may not be aware of this signal. Cats are left unmonitored, in the general population, during this time period. Many problems could occur that would significantly disrupt a peaceful death when animals are left unattended and with no clear signage while the phases of euthanasia progress after giving an IP injection. Possible problems include: animal injury, human injury, and animal or human stress.
- The Kent shelter is a bustling building filled with constant dog barking. While it is likely that removing cats from their cages and moving them to the quieter euthanasia room is somewhat stressful, leaving cats in cages, unmonitored during euthanasia creates potential for numerous animal welfare issues. Animals are reportedly left unattended in their cages during the euthanasia process because insufficient staff time has been allocated to the process.
- The doors were not locked and there was no signage on the doors leading to the euthanasia room to signal that euthanasia was in process and prevent accidental disruptions or interruptions.
- The door to the euthanasia room was left open to the outside so that passers-by could see in and noises or commotion from outside could be heard and seen by animals during euthanasia.
- There was a bank of very small stainless steel cages in the euthanasia room directly facing the euthanasia area. Staff and administrators reported the cages are rarely used and only for aggressive/feral cats, after injections have been given, for holding while the animal progresses through the phases of euthanasia. At the time of the visit, these cages were used for holding cats after euthanasia injections had been given. If used incorrectly, these cages could allow animals to view other animals being euthanised
- The current method of data recording requires hand-writing data in several locations (log book and kennel cards), saving that paperwork, and transporting all the paperwork to a computer terminal at a later time when this information can be properly documented in the shelter's digital records. This system of data-entry is inefficient and likely to be error prone.
- An Avid microchip scanners was used that does not accurately read all microchip frequencies. There has been at least one reported case of a shelter dog implanted with a 134.2 kHz microchip being wrongly euthanized because the shelter was not using a universal scanner (see Nolen RS. Pet's death rekindles electronic ID debate. *Journal of the American Veterinary Medical Association* 2004; 225.) The use of universal scanners is becoming increasingly important as the implantation of 134.2 kHz (ISO standard) microchips become increasingly common. Several

organizations, including the American Veterinary Medical Association (AVMA), American Animal Hospital Association (AAHA), World Small Animal Veterinary Medical Association (WSAVA), and American Society for the Prevention of Cruelty to Animals (ASPCA), support the use of ISO standard microchips and universal scanners in the U.S.

Recommendations:

- Allocate enough staff time to perform euthanasia without leaving animals unattended during the phases of euthanasia.
- Provide signage and locks for the doors to prevent accidental admission of personnel during euthanasia.
- Doors to the euthanasia room should be kept closed and locked while animals are being euthanised.
- Immediately remove the bank of cages from the euthanasia room. Do not use these cages for any other purpose as they are too small to house any animal.
- Provide several adequately sized holding cages or shelves in the room on which sufficiently sized cardboard or plastic carriers can be placed. Cats brought into this room for euthanasia could be placed into these cages or carriers and covered with a towel after euthanasia solution has been administered for monitoring until death has been confirmed.
- If there are instances when euthanasia in the kennel areas is appropriate, post clear signage on all entryways indicating that the animal is being euthanized and stating that respectful quiet is needed with no admittance by the public.
- Place a computer terminal in the euthanasia room.
- Use only "universal" microchip scanners in all areas of the shelter. These scanners are capable of reading both encrypted and unencrypted 125-kilohertz (kHz) and 134-kHz (ISO chip) microchips.

APPENDIX A: Rolling Live Release Rate adjusts for in-shelter population

A rolling live release rate adjusts for a growing or expanded in-shelter population, to get a clearer picture of what percentage of animals are leaving the shelter through live release.

A rate is evaluated over a defined period of time. In order to calculate a rolling live release rate, the number of animals in the shelter must be used as the start point for each time period. For example, to calculate an annual rolling live release the denominator would include the number of animals on hand on January 1st in addition to the annual intake. The numerator would be the total number of animals who left the shelter system alive through either return to owner, adoption, transfer, or rescue. Live release is best evaluated by species because the challenges and population dynamics may vary widely.

Rolling Live Release =

$$\frac{\text{Animals Released Alive during the time period}}{\text{(Animals on hand at start time + Total live intake during the time period)}}$$

When a rolling live release rate is not used it would be mathematically possible to release more than 100% of the animals who came in to the shelter during the time period. When the shelter is crowded or population is increasing, the live release rate as a percent of intake only will tend to improve, not because a higher percentage of animals are leaving the system but because the denominator actually reflects fewer than the total number of available animals waiting for release.

An example with simple numbers is shown below. *(Note the change in the denominator in rolling live release calculations.)*
If 2 animals are in the shelter, 8 come in, and 2 are adopted:
Live release would be calculated as 2/8 = 25% live release
Holding was 75% (6 cats)

Rolling live release would include the two animals in the shelter waiting for release.
Rolling live release would be calculated as 2/(8+2) = 20% rolling live release

The next month, 8 cats would be waiting for release. (2 original +6 from holding)
If another 8 come in and 2 are adopted:
Live release would still be calculated as 2/8 =25% live release
Rolling live release would now be 2/(6+8) = 13% rolling live release

Rolling live release for the entire two month time period would be 4/(16+2) = 22% rolling live release

As long as in shelter population numbers are relatively small compared to intake numbers this shift in calculation will not cause large changes in the live release rate reported. As

total shelter population (in-shelter and in-foster) rises the difference between the two rates becomes more substantial.

APPENDIX B: Staffing requirements based on average daily population

Average daily population defines many needs and requirements for animal care. This number can be calculated by averaging the daily population in monthly increments. Monthly increments are used in order to evaluate seasonal variations. For this report, daily population was estimated by spot-checking the daily population of animals in the shelter at intervals (every second Tuesday of each month). The term "inventory" is used in this report to describe daily population, as this is the term used to obtain the Chameleon report calculating this number.

Average daily population is an important component of calculating the housing and staffing needs for animal care. Average daily inventory data was not available to the UC Davis team at the time of our visit. Calculations were estimated by monthly spot checks. The National Animal Care Association has estimated staffing requirements for basic animal care (feeding and cleaning) at 10 min per animal. (Please see Table below.)

Formula for Determining Kennel Staffing Needs

Indicator	Value	Formula	Value	Indicator
Incoming Animals per Year	**A**	÷ by 365 days =	**AA**	Incoming Animals per Day
Incoming Animals per Day	**AA**	x **B** Day Average Hold Period =	**BB**	Animals in Shelter per Day
Animals in Shelter Per Day	**BB**	x 10 Minutes per Animal =	**CC**	Number of Minutes Needed
Minutes Needed	**CC**	÷ 60 minutes =	**DD**	Number of Hours Needed
Number of Hours Needed	**DD**	÷ 3 hours =	**EE**	Staff Needed per Day

Staffing requirements for basic animal care at KCACC can be calculated by multiplying the daily average inventory each month by 10 minutes per animal (Monthly Daily Average Inventory * 10 min./animal). The staffing level for dogs is likely to be relatively consistent since daily average canine intake has been relatively steady throughout the year. Feline intake, however, has historically doubled in the warmer months. This is a trend that is expected because most cats tend to breed seasonally. Staffing should be planned accordingly unless some control is to be put on intake and the resulting daily inventory. If 10 minutes per animal does not seem to be an accurate time estimate for cleaning and feeding at KCACC, then an average staff member should be timed while following safe, adequate cleaning and feeding protocols and the time should be adjusted to fit. Additional time should be allocated for caring for sick animals. KCAS Staff report that at times sick animals have represented well over half the feline population.

If January 10th is used as an example, using the NACA time estimates:
83 dogs were housed in the Kent shelter on January 10th*
83 dogs * 10 min/ dog = 830 minutes
830 minutes / (60 minutes/hour) = 13.8 care hours for just cleaning and feeding dogs in the Kent shelter according to NACA guidelines
If staff are to finish the tasks in a three hour period 13.8 staff hours / 3 hours = 4.6 staff members need to be assigned to clean and feed dogs each day

161 cats were housed in the Kent shelter on January 10th*
161 * 10 minutes / cat = 1,610 minutes
1,610 minutes / (60 min. / hour) = 26.8 care hours for just cleaning and feeding of cats
If staff are to finish the tasks in a three hour period 26.8 staff hours / 3 hours = 8.9 staff members need to be assigned to clean and feed cats each day

**These population numbers are only used here as examples. It was reported to UC Davis team members and confirmed through spot checked inventory reports that the in-shelter population was low at the time of our visit. Two weeks after the visit the canine population was reported to be 120 dogs in the Kent Shelter.*

If the shelter does not need to be open to the public it may be that more than three hours can be allowed for cleaning and feeding, allowing fewer staff members to accomplish this over a longer time span. Recognize, however, that length of time that passes equates to animals who are waiting for food, water, care and attention until limited staff has time to get to them. The absolute number of hours required will remain the same.

Staffing for Animal Flow-Through
Animal flow-through describes the time and processes designed to ensure a safe and optimally efficient passage through the shelter system. Common flow-through points for most shelters include intake, release to owner, behavioral evaluation, initiation/completion of treatment with associated moves in and out of isolation, release to and return from foster care, move from holding to adoption, spay / neuter pre- or post-adoption, adoption, transfer to rescue, and euthanasia. Flow-through points are junctions where an animal needs something from us or decisions need to made for what to do next. Each flow-through point requires an investment of staff time in addition to that required for basic care and feeding.

Insufficient time to carry out procedures for any of these essential flow through points will have a detrimental effect on animal health by increasing time animals spend waiting in the shelter which, in turn, contributes to further crowding, risk of exposure to infectious disease, stress for animals and animal caretakers, and reduced welfare. It seems likely these delays also contribute to a decreased live release rate; specific examples were observed during the time of the site visit where this appeared to be the case. For example, lack of time to accomplish spay/neuter led to a reduced number of cats available for transfer to off-site adoption facilities, in spite of presence of a

volunteer willing to transport any available cats. This resulted in offsite adoption kennels sitting empty while severe crowding persisted at the Kent shelter.

Similar estimated staffing requirement calculations can be made for animal flow through procedures for each point described above (and any additional flow through points identified by shelter staff) by using the daily averages from the prior year.

For example:
If on average, in 2007 canine intake was relatively consistent throughout the year at about 14 dogs per day. If performing a quick intake exam, administering intake treatments and vaccines, finding appropriate housing and documenting animal information in the computer is a 10 minutes process:

10 minutes * 14 dogs / day = 140 minutes or 2.3 hours of staff time per day must be available to provide essential intake procedures for dogs.

In addition, depending on the time of year, between 11 and 25 cats per day are admitted to the shelter system.
In August: 10 minutes * 25 cats = 250 minutes or 4.2hours for feline intake
In January: 10 minutes * 11 cats = 110 minutes or just less than 2 hours of feline intake

Estimated total hours for cat and dog intake ranges from 4.3 hours per day to 6.5 hours per day. To ensure efficiency and safety for humans and animals, it is recommended that admitting procedures be carried out by a team of two.

Daily average intake numbers can also be used to estimate time needed for other essential flow through procedures.

Move to adoption checks used as an example:
If 14 dogs per day consistently arrive at the shelter, then approximately 10 dogs per day will also need some sort of pre-outcome processing such as behavior evaluation or health check.
(14 admitted * 0.64 (percent admitted as strays) = 9 stray dogs less the approximately 45% canine average for reclaim = 5 remaining at the end of the holding period
5 surrendered dogs + 5 stray dogs out of holding = 10 dogs for flow through procedures each day.)

Outcome processing needs can be calculated using daily averages for adoptions, returns to owner, transfers and euthanasia. Average daily adoptions impact not only adoption processing but also spay neuter needs.

If specialized staff are required for certain flow-through points, ensure sufficient hours specific to these categories. For example, only selected trained or certified staff may be permitted to perform behavioral evaluations, assess whether animals under treatment are sufficiently recovered to move back into the general population, perform euthanasia or

other specialized procedures. Spay/neuter services are one critical component of moving animals successfully through the shelter to adoption, and will be described separately.

Appendix C: Spay / neuter capacity requirements

Spay/ Neuter capacity describes the ability to accomplish a number of surgeries given the staffing, facility, and time allotted. Requirements for this capacity for KCAS are based on animal flow-through numbers with an estimate of how many animals would require surgery prior to release.

As an example, average daily adoptions can be used to roughly estimate the need for spay/neuter surgery. To get the most accurate picture, an estimate of what percentage of both dogs and cats arrive at the shelter intact versus previously altered is required. For this example, we will assume that all adopted pets need surgery prior to adoption, which is most likely an overestimate. We will also assume the number of adoptions needed to meet the currently defined goals of 20% euthanasia for 2008 and 15% for 2009 if there is no change in intake. Ideally the goal of euthanasia reduction will be realized in part by reducing shelter intake through preventive programs; if this is accomplished, fewer adoptions – and therefore fewer spay/neuter surgeries for adopted pets - would be required to achieve an 80-85% live release rate. However, the most powerful and accessible preventive program is likely associated with spay/neuter outreach to the community to decrease the birth and subsequent surrender of unwanted litters. So, although the number of adoption-associated surgeries may be overestimated in the following example, an increase in overall spay/neuter capacity even greater than that represented by these numbers may be required to meet community goals.

Spay / Neuter Surgery Number Requirements

In order to calculate spay/neuter surgery staffing needs, it is necessary to multiply the veterinary and technician time required per surgery by the expected number of animals requiring this procedure on a per-surgery-day basis. Time calculations should include the veterinary and technician time required to accomplish every aspect of the procedure, including identification of surgical candidates, pre-surgical exams, preparation and recovery, the surgery itself, paperwork/documentation associated with surgery and logging of controlled substances, communication/release to new adopters, and any follow up care required after release. The expected number of required procedures for a shelter that performs surgery post-adoption can be calculated by estimating the number of expected adoptions by the fraction of animals that are intact at the time they are selected for adoption. Any additional procedures – such as spay/neuter prior to rescue, reclaim by owners, or release to feral cat colonies – will also have to be included in the estimate. The following calculations provide an estimate of expected adoption numbers only.

Dog adoptions were relatively consistent throughout the seasons of the year. Cat adoptions rose somewhat steadily during 2007. Normally at least some seasonal variation is seen in both intake and adoptions for cats because of kitten season but we do not have a full year of data from 2006 to compare trends.

Daily surgery numbers and types required can be estimated by the monthly adoption number expectations (based on the previous year) for cats, kittens puppies and dogs divided by the number of surgery days in the month.

As an example:
In June of 2007, 125 adult cats and 135 kittens were adopted from KCACC. That number fell well below the expectation of 80% live release. Since expectations for live release are 80% of intake, this example will assume 80% of incoming cats and kittens would require spay / neuter. That is clearly an overestimate because some animals arrive previously altered. It is unknown what fraction. If the fraction of animals who arrive unaltered is estimated, those numbers could easily be subtracted from these overestimates.

In June 2007, 319 adult cats presented to the shelter. 80% would be 255 cats. 301 kittens presented to the shelter. 80% would be 241 kittens. Using this overestimate, 496 cats would require surgery in June.

If surgery is done four days a week and there are 4 weeks in the month (16 surgery days), then 31 feline surgeries must be performed each surgery day.

496 feline surgeries / (16 surgery days) = 31 feline surgeries required each surgery day

Canine surgery needs could be similarly estimated and should be added to the total numbers. On average, approximately 132 canine adoptions would be required to meet expectations based on 2007 intake leading to an overestimated need for surgery for 8-9 dogs per surgery day.

132 canine surgeries / (16 surgery days) = 8 canine surgeries required each surgery day

Timing for all aspects of the spay / neuter process should be timed or estimated and added to the surgery time in order to estimate overall staffing and facilities needs.