

# **Euthanasia in North Carolina Companion Animal Shelters: Interviews with Decreased-Rate Facilities and Comparative Analysis**

By

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A paper submitted to the faculty of  
The University of North Carolina at Chapel Hill  
in partial fulfillment of the requirements for the degree  
Master of Public Administration

**MARCH 2011**

This paper represents work done by a UNC-Chapel Hill Master of Public Administration student. It is not a formal report of the School of Government, nor is it the work of School of Government faculty.

## **Executive Summary**

Data collected through North Carolina's Spay and Neuter Reimbursement Program indicates statewide euthanasia rates hover in the 70% range, and this translates into consumption of a tremendous amount of public and private resources. Even so, statewide rates have steadily decreased since data collection began in 2002. This study identified North Carolina companion animal facilities that decreased their euthanasia rates between 2004 and 2008, and then interviewed staff members at these facilities to learn what intentional and unintentional factors they believe contributed to this decrease. In addition, a comparative analysis was conducted to assess differences between decreased-rate facilities and non-decreased-rate facilities. Interviewees' most commonly mentioned factors include the formation of relationships with rescue groups, loyalty and consistency of core staff members, maintenance of an active Internet presence, and the use of other forms of advertising, such as local television spots, radio ads, and newspaper features. Interviewee insight led to the formation of a few recommendations, including recommendations that facility leadership carefully develop guidelines before initiating relationships with rescue workers, provide staff with education around compassion fatigue, and discuss the potential for collaborative toolkit development.

## **Background and Research Question**

Companion animal euthanasia is a difficult issue to research and discuss because it intersects with many important emotional and societal values. It is, however, a significant financial burden on the public. According to one report, “[...] authors have estimated that between one tenth and one fourth of the companion animal population is destroyed each year, making euthanasia the leading cause of death in companion animals. The same authors have estimated that the cost of this form of animal control in monetary terms alone annually exceeds 500 million dollars” (Lepper, Kass, and Hart, 2002).

In North Carolina, it is difficult to determine exactly how many animals are euthanized each year. The state collects data from facilities that elect to participate in a spay and neuter reimbursement program and based on that data alone, it appears almost 1.6 million dogs and cats were euthanized between 2002 and 2008 (Williams, 2009). On average, these facilities euthanize approximately 70% of the animals they admit (Williams, 2009). It is important to remember that this number represents only some of the shelter facilities, animal hospitals, and veterinarians engaged in euthanasia in the ordinary course of business. The practice of euthanasia obviously consumes a tremendous amount of public and private resources and destroys many animals.

As of now, publicly available research on euthanasia rates in North Carolina is limited to a study of localized euthanasia-reduction strategies (Reed and Pierce, 2007). North Carolina’s public health website, the current location of the data collected through the spay and neuter reimbursement program, indicates an overall decrease in statewide euthanasia rates each year (from a 78% average in 2002 to a 70% average in 2008). Looking at these figures, it is apparent there has been a systematic, though not uniform, decrease in euthanasia rates across the agencies submitting data.<sup>1</sup> *This study identified North Carolina companion animal facilities that decreased their euthanasia rates between 2004 and 2008, and then interviewed staff members at these facilities to learn what intentional and unintentional factors they believe contributed to this decrease. The objective was to produce an inventory of self-identified promising strategies by overall frequency and by individual facility.*<sup>2</sup> In addition, a comparative analysis was conducted to assess differences between reduced-rate facilities and non-reduced-rate facilities. Preliminary research in this field should assist other facilities in the state working to reduce euthanasia rates.

## **Methodology**

I approached this research question in four steps. First, I conducted an analysis of publicly available data to calculate euthanasia rates for reporting facilities. Second, I used the data to identify facilities with higher and lower euthanasia rates. Third, I used the data to identify a group of facilities that have been successful in reducing euthanasia rates and then I conducted interviews to gather qualitative data about factors that may have had an impact on the facility’s success. Finally, I used the data to evaluate several characteristics (such as poverty rate and operating expenses) to see if trends emerged among the facilities that were more and less successful in reducing rates.

### *Calculating Euthanasia Rates*

Using North Carolina’s statewide public health website, I collected figures on the number of cats and dogs admitted and euthanized at each reporting facility from 2004 to 2008.<sup>3</sup> I then divided the number of cats and dogs euthanized by the number of cats and dogs admitted to obtain a euthanasia rate for each facility for each year.<sup>4</sup>

### *Identifying Facilities with Higher/Lower Rates*

I conducted a +/- analysis for each shelter using the 2004 and 2008 euthanasia rates.<sup>5</sup> This allowed me to do a uniform comparison across shelters to see which facilities had higher or lower euthanasia rates than they did in 2004. Based on this analysis, I was able to identify facilities to use in the next two stages of my research.

### *Conducting Interviews with “Successful” Shelters*

Based on the analysis described above, I identified three criteria for determining which facilities I would rank as “successful.”

- Significant percentage decrease in euthanasia rates. I define this as at least 5% for both species (cats and dogs), and one species must be 10% or more.
- Data for at least three years of the five-year study period are available.
- A line graph of the facility’s euthanasia rates shows a steady decrease over time.<sup>6</sup> This suggests lowered rates are not the result of abnormal events.

I highlighted each facility that met the “percentage” criteria and “years of data gathered” criteria. I then did line graphs for each of those facilities and selected the ones I believe met the “steady decrease” criteria.<sup>7</sup> I contacted a staff member at each of these facilities, and arranged either a phone or in-person interview at seven of the ten. I was unable to secure interviews with individuals at the other three facilities.<sup>8</sup>

Interviewees at the chosen facilities were asked two main questions:

“Your facility has documented a decrease in cat and dog euthanasia rates from x percent in year to x percent in year. What *intentional* strategies/practices do you believe contributed to this decrease in euthanasia rates?”

“What *unintentional* factors or events do you believe contributed to this decrease in euthanasia rates?”

### *Statistical Analysis of Key Differences*

For the final step of my research, I created a facility-level database using the 10 facilities selected for the interview part of my research (Group A) and 20 facilities randomly selected from the rest of the facility population (Group B).<sup>9</sup> I collected information on the following variables: “Facility Rate of Change in Euthanasia Rate”<sup>10</sup>, “Total Operating Expenses,” “Yearly Facility Cost per Animal,” “County Percentage Change in Poverty Rate 1990-2000,” “County Percentage Change in Population 1990-2000,” “County Poverty Rate 2000,” and “Urban/Rural County Classification”.<sup>11,12</sup> I performed a binary logistic regression and an ordinary least squares regression on this dataset.<sup>13</sup>

### **Limitations**

The primary limitations have to do with the data collection system in place during the 2004-2008 time period. Because data reporting is voluntary, there were many gaps in the data I was able to collect (years when facilities did not submit information). Additionally, my dataset is in no way a comprehensive set of data from all North Carolina shelter facilities. There are undoubtedly many facilities in the state that have never submitted information to the reimbursement program. Finally, it is difficult to know with certainty how accurate the reported information is. While I do not doubt the good intentions of facility staff, I know many facilities are strained by daily operations (and a lack of staff and money) and unable to make data collection a top priority. Thus, the figures I used in my initial calculations may not be entirely accurate.<sup>14</sup>

Another limitation relates to the nature of the interview data. The inventory drawn from the interview data presented below represents only those things specifically mentioned by interviewees; if a facility’s name is not connected to a strategy/practice/factor it does not mean the facility is not doing the strategy in question, only that *the interviewee(s) did not mention it*. These interviews represent the thoughts of 1-3 people at the facility, and it is difficult for 1-3 people to think of every item meriting inclusion.

Finally, as was addressed by one interviewee, the categories on the state reporting forms sometimes lead to misleading information being reported. The example cited is the use of a singular “adopted out” category to capture all animals not euthanized or reclaimed. The interviewee stated more animals were being transferred out of the facility (selected by rescue groups) than adopted out, but facility staff members were unable to reflect this on the form.

## Findings

### *Interview Findings*

Below is a chart of promising strategies listed by common themes and facility code.<sup>15</sup> A complete listing of individual facility inventories may be found in Appendix E.<sup>16</sup> Three of the seven facilities are nonprofits under contract with the county where they are located. The other four are county-owned facilities. The facilities interviewed reported 2008 total operating expenses ranging from \$110,000 to \$1,260,324.<sup>17</sup> Four facilities interviewed reported 2008 operating expenses under \$500,000.

| Category   | Strategy/Practice/Factor  | Description  |
|--|---|--|
| Operational and Environmental                    | New Facility/Expansion  | Improved capacity to house animals. More inviting to public. (CC, JC, WC, UAC)   |
|  | Improved Business Operating Procedures                          | Creation of standard operating procedures. Changed euthanasia methods. Offered adopters additional services (microchipping). (CC, BC, WC)                    |
|  | Change in Facility Leadership                                   | Increased emphasis on adoption. (CC, JC, APS)  |
|  | Loyalty and Consistency of Core Staff Members (Employee Buy-In) | Facility staff and field officers. (JC, WC, APS, GC, UAC)  |
|  | Formation of a Separate 501c3 (Nonprofit) Organization          | Gives increased ability to fundraise. (JC, APS, UAC)   |
|  | Shift in County Resource Allocation                             | Increased emphasis on adoption. (JC, WC, APS)  |
|  | Changing Community Attitudes                                    | Increased emphasis on adoption and animal ownership from citizens and/or elected officials. (JC, GC, UAC)  |
| Outside Partnerships                             | Initiation of/Increase in Involvement with Rescue Groups        | Reduced fees/free to rescues. Rescue Appreciation Events. (JC, BC, WC, APS, GC, UAC)   |
|  | Initiation of Involvement with Transport Groups                 | Pilots ‘n Paws (JC, WC, APS, GC)   |
|  | Initiation of/Increase in Involvement with Non-Rescue Groups    | Petsmart. Citizenry (serving on Animal Control Task Force). Inmates. State Veterinary Department. (CC, JC, BC, GC)   |
|  | Participation in Adoption Events                                | Petsmart (JC, APS, UAC)  |
| Staff Advertising Efforts                        | Initiation of/Increase in Internet Presence                     | Petfinder. Facebook. Facility Website. E-mail. (JC, WC, APS, GC, UAC)  |
|  | Initiation of/Increase in Other Forms of Advertising            | TV. Radio. Newspaper (Adopt-a-Pet feature). Free billboards. (CC, JC, BC, GC, UAC)   |
| Efforts to Curb Animal Birth Rates <sup>18</sup> | Spay and Neuter Policies  | Refundable adoption fee with spay/neuter. Low-cost spay neuter services. Mobile spay/neuter. Animals free to rescues w/ spay/neuter agreement. (JC, APS, GC) |

**Key: CC= Cumberland County, JC= Johnston County, BC= Bladen County, WC= Warren County, APS= Animal Protection Society of the Northern Piedmont, GC=Gaston County, UAC= United Animal Coalition**

The most frequently mentioned strategy/practice/factor was “Initiation of/Increase in Involvement with Rescue Groups”. Six of seven interviewees indicated facility involvement with rescue groups, both locally and out-of-state, decreased the number of animals staff needed to euthanize. Five of seven interviewees cited “Initiation of/Increase in Internet Presence,” “Initiation of/Increase in Other Forms of Advertising,” and “Loyalty and Consistency of Core Staff Members.” The most frequently mentioned website was Petfinder and local television spots, radio ads, and newspaper features (particularly “Pet of the Week” items) topped the list of other forms of advertising.

### *Data Analysis Findings*

After conducting the staff interviews, I ran an ordinary least squares regression and a binary squares regression using data from the 10 facilities chosen for interviews plus 20 randomly selected facilities not chosen for interviews. These 30 facilities represent 34% of the applicable population (the 88 facilities that submitted at least three years of data).

The ordinary least squares regression model did not prove strong enough to provide any clear, conclusive results.

In the binary logistic regression, Group A (coded as 0) is the group of facilities that reduced their euthanasia rates and Group B (coded as 1) is the group of facilities that did not reduce their euthanasia rates. This “0,1” coding is the dependent variable, and the independent variables are used to assess differences between 0 and 1. The analysis found four statistically significant variables worthy of discussion: “Total Operating Expenses,” “County Percentage Change in Poverty 1990-2000,” “County Percentage Change in Population 1990-2000,” and “Urban/Rural County Classification”.<sup>19,20</sup> Due to space constraints, the body of the paper focuses on findings around the “Total Operating Expenses” variable.

The models found in Appendix G demonstrate every one unit (dollar) increase in total facility operating expenses causes a county’s facility to have 1.003 greater odds of being in Group A versus Group B. This odds ratio is only slightly above 1, the value where there is no association between the independent variable (operating expenses) and the dependent variable (membership in Group A versus Group B).

When the unit of analysis was increased to tens of thousands of dollars in a separate model (the third output chart under Appendix G), results indicate a one unit (ten thousand dollar) increase in total operating expenses causes a county facility’s odds of being in Group A versus Group B to increase slightly to 1.015. This suggests increased operating expenses do play a role in upping a facility’s odds of being in Group A versus Group B, but it is not a strong relationship. This may be due to mediating forces, such as increases in county population growth and admitted animals occurring simultaneously with increases in operating expenses. This would likely depress the effect increased funding may otherwise have on decreasing euthanasia rates.

To analyze the data from another angle, I averaged “Total Operating Expenses” for Group A and Group B for the 2004-2006 time period and the 2008 time period.<sup>21</sup> For 2004-2006, Group A reported an average of \$423,340.84 in total operating expenses and Group B reported an average of \$246,925.61. For 2008, Group A reported an average of \$564,850.41 in total operating expenses and Group B reported an average of \$256,338.11.<sup>22</sup> This indicates there was a significantly larger increase in total operating expenses across Group A relative to Group B.

### **Recommendations**

To state there is a silver bullet approach to curbing euthanasia rates would be to do a disservice to the complex reality of animal overpopulation and its many mediating forces. With that being said, these

recommendations are intended to provide a starting point for conversations and consideration. Interested parties are encouraged to read the full interviews provided in Appendix E.

### **1) Adopt Guidelines for Working with Rescue Groups**

Rescue groups create expanded capacity for an area's adoptable animal population, and provide assistance to shelter facility staff in other ways (such as posting animal information on the Internet). Interviewees noted facility staff should create specific guidelines regarding screening, veterinary care, costs to rescues, and so on before initiating relationships with animal rescue workers. Additionally, I recommend adopting a plan for showing appreciation to rescue workers. As people accustomed to working with volunteers know, showing appreciation is an effective tool for encouraging motivation and retention.<sup>23</sup>

### **2) Provide Staff Education Around Issues of Compassion Fatigue**

Five of seven interviewees noted the effect loyalty and consistency of core staff members has had on decreasing their facilities' euthanasia rates. In order to retain these employees and keep their morale high, leadership should pay special attention to employee concerns that are specific to the animal control community, such as compassion fatigue.<sup>24</sup> In their book, *Compassion Fatigue in the Animal-Care Community*, Figley and Roop state, "[...] stress and compassion fatigue are found in workers throughout shelters and are not limited only to those performing euthanasia" (43). This can impact employees' emotional states and work performance, leading to problems such as "decrease in [work] quantity/quality", "detachment", "staff conflicts" and "frequent job changes" (23). If leadership identifies signs of compassion fatigue or other manifestations of job-related stress, they should take immediate action to provide their staff members with education and encourage workplace conversations on the topic.

### **3) Discuss the Potential for Collaborative Toolkit Development**

Professionals in this field have rich experience that could be broadly valuable if shared. I recommend those who have developed successful strategies discuss potential collaboration with professionals at other facilities to create a toolkit for field-wide dissemination. Such a toolkit could, for example, include resources about developing a Petfinder website or otherwise increasing a shelter's marketing presence, working with local media for "pet of the week" programs, or developing productive collaborations with rescue groups.

### **4) Modify Statewide Reporting Forms**

The process for administering the statewide spay and neuter program is undergoing changes<sup>25</sup>, and one change I recommend is the creation of a category designating "Animals Transferred Out" on state reporting forms, rather than having these animals reported under the "Animals Adopted" category. This would provide better data for future state level analysis, and would also improve the quality of the information stored at the individual facility level.

### **Conclusion**

This research represents an initial attempt to analyze a new, but growing, body of information about North Carolina companion animal facilities. It is my hope information provided by interviewees will prove useful to staff working in other shelter facilities and comparative data will be valuable to both state and local officials.

## End Notes

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<sup>1</sup> Analysis of euthanasia rates of Group A (euthanasia rate-reducing facilities) versus Group B (non-euthanasia rate-reducing facilities) confirms a systematic decrease that is not uniform across the shelter population submitting data. In 2004, Group A's average euthanasia rate was 82.4, and Group B's average euthanasia rate was 73.6. In 2008, Group A's average euthanasia rate was 57.4, and Group B's average euthanasia rate was 77.3. These figures also indicate facilities in Group A (facilities that reduced their euthanasia rates) began the 2004 time period with euthanasia rates relatively equal to their peers in Group B (facilities that did not reduce their euthanasia rates).

<sup>2</sup> A complete listing of individual facility inventories may be found in Appendix E.

<sup>3</sup> Because data submission is voluntary, information for each facility is not available for each year.

<sup>4</sup> A chart with all euthanasia rate calculations may be found in Appendix A.

<sup>5</sup> A chart with +/- calculations may be found in Appendix B.

<sup>6</sup> Line graphs for all facilities selected for interviews may be found in Appendix C.

<sup>7</sup> The facilities I selected are as follows: Buncombe/Asheville Humane Society, Animal Protection Society of the Northern Piedmont, Cumberland County Animal Services Office, Gaston County Animal Control, United Animal Coalition, Halifax County Environmental Health/Animal Control, Johnston County Animal Control, Lincoln County Animal Control, and Warren County Animal Control. I also included one exception, Bladen County Animal Control; the facility did not meet the "steady decrease" criteria for cats (86% in 2004 to 61% in 2005 to 76% in 2006) but had an exceptional decrease for dogs (69% in 2005 to 18% in 2008).

<sup>8</sup> I was unable to secure interviews with staff representatives at Buncombe/Asheville Humane Society, Halifax County Environmental Health/Animal Control, and Lincoln County Animal Control.

<sup>9</sup> I assigned each of the 104 facilities that submitted data during the 2004-2008 time period a number in alphabetical order (by county, not facility name), and then used random.org to select 20 facilities. If the facility was already represented in Group A or had less than 3 years of data available for the 2004-2008 time period, I "threw out" that number and randomly selected another. Out of 104 total facilities, 78 were not represented in Group A and had 3 or more years of data available for the 2004-2008 time period. This is the group Group B was selected from.

<sup>10</sup> The rate of change from year 1 to year 2 was calculated by subtracting year 1's rate from year 2's rate and then dividing by year 1's rate.

<sup>11</sup> I obtained data on yearly facility operating expenses and yearly facility cost per animal from the annual Spay and Neuter Reports on the state's public health website. I obtained data on county percentage change in poverty rate 1990-2000, county percentage change in population 1990-2000, county poverty rate 2000, and urban/rural county classification from the North Carolina Rural Center's website. Unfortunately, my data collection phase occurred shortly before the results of the 2010 Census were revealed. Thus, data for these variables do not align chronologically with the 2004-2008 data collected from shelter facilities.

<sup>12</sup> The database with sources for all the information used to run the binary logistic regression and the ordinary least squares regression may be found in Appendix F.

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<sup>13</sup> The output from these regressions may be found in Appendix G.

<sup>14</sup> For more information on shelter data collection issues, see Wenstrup & Dowidchuk (1999).

<sup>15</sup> Included in this chart are two events occurring before 2004: the formation of a separate 501(c)(3) and a move to a new facility. Interviewees singled these factors out as impacting the 2004-2008 time period, and I believe their occurrence before that time period to be irrelevant.

<sup>16</sup> Also included in Appendix E are strategies and factors mentioned by interviewees as being influential from 2008 till the present. I included these in designated sections due to the additional value I believe they may create for readers.

<sup>17</sup> United Animal Coalition did not submit operating expense information for 2008, so their figure is from the 2007 report.

<sup>18</sup> Facility efforts to curb animal birth rates through spay and neuter programs were not specifically asked about, and may not have been considered includable by some interviewees for an interview dealing with the 2004-2008 timeframe. Still, it emerged as a theme and warranted inclusion, with the recognition that frequency of involvement may be undercounted.

<sup>19</sup> Regression output information may be found in Appendix G.

<sup>20</sup> Interpretation information for the “County Percentage Change in Poverty 1990-2000” variable, “County Percentage Change in Population 1990-2000” variable, and the “Urban/Rural County Classification” variable may be found in Appendix H.

<sup>21</sup> The 2004-2006 range had to be used because not all facilities included total operating expense information for every year.

<sup>22</sup> Figures for United Animal Coalition were removed because they represented an outlier, skewing the averages. The facility reported yearly operating expenses of \$105,026.67 in 2005 and \$1,260,324.00 in 2007. This increase was significantly larger than any reported by another facility in the dataset.

<sup>23</sup> According to a 2004 study by the Urban Institute, “Charities interested in increasing retention of volunteers should invest in recognizing volunteers [...]” ([www.urban.org/publications/411005.html](http://www.urban.org/publications/411005.html)). There are many books on volunteer development available. One well-regarded text is *Volunteers: How to Get Them, How to Keep Them* by Helen Little.

<sup>24</sup> Wikipedia defines compassion fatigue as the following: “Compassion fatigue (also known as a secondary traumatic stress disorder) is a condition characterized by a gradual lessening of compassion over time. It is common among trauma victims and individuals that work directly with trauma victims. [...] Sufferers can exhibit several symptoms including hopelessness, a decrease in experiences of pleasure, constant stress and anxiety, and a pervasive negative attitude. This can have detrimental effects on individuals, both professionally and personally, including a decrease in productivity, the inability to focus, and the development of new feelings of incompetency and self-doubt.”

<sup>25</sup> From the North Carolina Spay & Neuter Program website, “On July 1, 2010, the N.C. General Assembly passed legislation to transfer the statewide Spay Neuter (SN) Program from Veterinary Public



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Health (VPH) to the N.C. Department of Agriculture & Consumer Services (NCDA&CS), effective October 1, 2010. The reorganization includes some changes to the Spay Neuter (SN) Program, including:

1. The fee for an animal lover's vanity license plate increased from \$10 to \$20. This helps fund the SN program. [...] The plates are not listed as "I Care."
2. Rabies tag sales no longer fund the SN program.
3. Low-income persons are still eligible to apply for reimbursement of direct costs for spays and neuters of cats and dogs; however, the program is limited to those whose family income level is below 300 percent of the federal poverty level.
4. The General Assembly is authorized to appropriate funds for the SN program.
5. The annual euthanasia report is now required to be submitted by March 1st of each year instead of August 1st.
6. NCDA&CS may create a study committee to evaluate the animal overpopulation issue in NC."

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Appendix A: All Euthanasia Rate Calculations, 2004-2008

| Facility   | Euth. Rate 2004 (Cats) | Euth. Rate 2004 (Dogs) | Euth. Rate 2005 (Cats) | Euth. Rate 2005 (Dogs) |
|--|------------------------|------------------------|------------------------|------------------------|
| Burlington Animal Shelter                            | 90%                    | 71%                    | 86%                    | 70%                    |
| Alexander County Animal Control                      | 85%                    | 55%                    | 88%                    | 80%                    |
| Twin Oaks Veterinary Hospital                        | 37%                    | 46%                    |                        |                        |
| Anson County Animal Control                          |                        |                        | 100%                   | 98%                    |
| Ashe County Animal Control                           |                        |                        | 94%                    | 77%                    |
| Avery County Humane Society Shelter                  |                        |                        |                        |                        |
| Beaufort County Animal Control                       | 96%                    | 85%                    | 97%                    | 84%                    |
| Bertie County Animal Control                         | 57%                    |                        | 75%                    | 48%                    |
| Bladen County Animal Control                         | 86%                    | 70%                    | 61%                    | 69%                    |
| Brunswick County Animal Services                     | 90%                    | 61%                    | 92%                    | 60%                    |
| Buncombe/Asheville Humane Society                    | 84%                    | 59%                    | 82%                    | 55%                    |
| Burke County Animal Shelter                          | 93%                    | 76%                    | 96%                    | 75%                    |
| City of Morganton Animal Control (same as Burke Co.) |                        |                        |                        |                        |
| Cabarrus County Animal Control                       |                        |                        | 93%                    | 69%                    |
| Caldwell County Animal Control                       | 92%                    | 80%                    | 90%                    | 83%                    |
| Camden County Animal Control                         |                        |                        |                        |                        |
| Carteret County Humane Society Animal Shelter        |                        |                        | 81%                    | 41%                    |
| Animal Protection Society of the Northern Piedmont   |                        |                        | 89%                    | 78%                    |
| Catawba County Animal Control and Shelter            | 89%                    | 68%                    | 90%                    | 68%                    |
| Chatham County Animal Control                        | 59%                    | 47%                    | 51%                    | 40%                    |
| Chowan County Animal Shelter                         | 89%                    | 66%                    | 88%                    | 64%                    |
| Tri-County Shelter                                   |                        |                        |                        |                        |
| Valley River Humane Society *3 County*               |                        |                        |                        |                        |
| Cleveland County Animal Control                      | 98%                    | 90%                    | 98%                    | 89%                    |
| Columbus County Animal Control                       | 96%                    | 83%                    | 94%                    | 72%                    |
| City of Havelock Police Department                   |                        |                        | 67%                    | 18%                    |
| Craven County Animal Rabies Control                  | 91%                    | 76%                    | 94%                    | 76%                    |
| Town of Riverbend                                    |                        |                        |                        |                        |
| Cumberland County Animal Control                     | 95%                    | 78%                    | 89%                    | 75%                    |
| Animal Lovers Assistance League                      |                        |                        |                        | 57%                    |
| Currituck County Humane Society & Animal Shelter     |                        |                        |                        |                        |
| The Outer Banks SPCA Animal Shelter                  | 88%                    | 35%                    | 85%                    | 32%                    |
| Town of Kill Devil Hills Animal Control              | 86%                    | 25%                    | 94%                    | 25%                    |
| Davidson County Animal Control                       | 94%                    | 81%                    | 95%                    | 79%                    |
| Davie County Animal Control                          | 96%                    | 73%                    | 89%                    | 65%                    |
| Duplin County Animal Control                         |                        |                        | 80%                    | 63%                    |
| The Animal Protection Society of Durham              |                        |                        | 79%                    | 67%                    |
| Edgecombe/ City of Tarboro Animal Control            | 100%                   | 80%                    | 97%                    | 76%                    |
| Edgecombe County Animal Control                      | 85%                    | 75%                    | 89%                    | 68%                    |
| Forsyth County Animal Shelter                        |                        |                        |                        |                        |
| Franklin County Animal Control                       | 89%                    | 67%                    | 71%                    | 46%                    |
| Gaston County Animal Control                         | 94%                    | 83%                    | 92%                    | 82%                    |
| Gates County Animal Control                          | 88%                    | 77%                    | 90%                    | 79%                    |
| Granville County Animal Control                      | 93%                    | 80%                    |                        |                        |
| Greene County Animal Control                         | 80%                    | 77%                    | 91%                    | 79%                    |
| United Animal Coalition                              | 73%                    | 49%                    | 64%                    | 53%                    |
| Halifax County Environmental Health/ Animal Control  |                        |                        | 96%                    | 87%                    |
| Harnett County Animal Shelter                        | 85%                    | 68%                    | 77%                    | 67%                    |
| Haywood County Animal Control                        | 83%                    | 59%                    | 95%                    | 55%                    |

|  |      |      |      |      |
|--|------|------|------|------|
| Henderson County Animal Control            | 87%  | 67%  | 84%  | 66%  |
| Hertford County Animal Control             |      |      |      |      |
| Hoke County Animal Shelter                 | 99%  | 70%  | 84%  | 52%  |
| Iredell County Animal Control              | 97%  | 81%  | 95%  | 81%  |
| Jackson County Humane Society              |      |      | 53%  | 38%  |
| Johnston County Animal Control             | 102% | 74%  |      |      |
| Johnston County SPCA                       | 32%  | 24%  | 30%  | 21%  |
| Lenoir County SPCA Animal Shelter          | 71%  | 58%  |      |      |
| Lincoln County Animal Control              | 94%  | 80%  | 97%  | 81%  |
| Madison County Animal Control              |      |      | 21%  | 50%  |
| Madison County Friends of Animals          |      |      |      |      |
| Martin County Animal Control               |      |      |      |      |
| McDowell County Animal Control             | 96%  | 82%  | 97%  | 84%  |
| Charlotte-Mecklenburg Animal Control       | 84%  | 61%  | 83%  | 59%  |
| Mitchell County Animal Shelter             | 66%  | 50%  | 66%  | 50%  |
| Montgomery County Animal Control           | 99%  | 91%  | 99%  | 91%  |
| Animal Center of Moore County              | 75%  | 56%  | 69%  | 64%  |
| City of Rocky Mount Animal Control         |      |      | 61%  | 50%  |
| Nash County Animal Control                 | 96%  | 88%  | 97%  | 86%  |
| New Hanover County Animal Control Services |      |      | 75%  | 46%  |
| Northampton County Animal Control          | 22%  | 35%  | 82%  | 76%  |
| Onslow County Animal Control               |      |      |      |      |
| Orange County Animal Control               | 57%  | 42%  | 49%  | 37%  |
| Pasquotank County Animal Control           |      |      |      |      |
| The SPCA of NE North Carolina              | 24%  | 71%  | 76%  | 27%  |
| Pender County Animal Control               | 93%  | 59%  | 77%  | 64%  |
| Perquimans County Animal Control           | 88%  | 72%  | 87%  | 78%  |
| Person County Animal Control               | 96%  | 87%  | 96%  | 86%  |
| Pitt County Animal Control                 | 80%  | 58%  | 69%  | 54%  |
| Randolph County Animal Control             | 96%  | 87%  | 96%  | 87%  |
| Richmond County Animal Control             | 71%  | 60%  | 78%  | 69%  |
| Robeson County Animal Control              | 64%  | 71%  | 84%  | 72%  |
| Rockingham County/ Reidsville Vet Hospital | 96%  | 90%  | 97%  | 90%  |
| Eden Veterinary Hospital                   | 100% | 100% |      |      |
| City of Stoneville Animal Control          | 100% | 100% | 100% | 100% |
| Rowan County Animal Control                | 81%  | 71%  | 75%  | 61%  |
| Rutherford County Animal Control           | 83%  | 68%  | 92%  | 58%  |
| Sampson County Animal Control              | 98%  | 91%  | 98%  | 93%  |
| Scotland County Humane Society             | 70%  | 65%  | 68%  | 51%  |
| Stanly County Animal Control               |      |      | 98%  | 74%  |
| Stokes County Animal Control               | 96%  | 83%  | 97%  | 85%  |
| Surry County Animal Control                |      |      | 99%  | 89%  |
| Transylvania County Animal Control         | 90%  | 75%  | 71%  | 51%  |
| Tyrrell County Animal Control              |      |      |      |      |
| Union County Animal Control/Shelter        | 90%  | 75%  | 91%  | 74%  |
| Vance County Animal Control                |      |      | 95%  | 94%  |
| Wake County Animal Control & Shelter       | 69%  | 42%  | 81%  | 49%  |
| Wake County SPCA Animal Shelter            |      |      |      |      |
| Warren County Animal Shelter               |      |      | 100% | 95%  |
| Watauga County Animal Control              | 62%  | 20%  | 42%  | 11%  |
| Wayne County Animal Control                | 96%  | 86%  | 95%  | 84%  |
| Wilkes County Animal Control               | 88%  | 80%  | 91%  | 76%  |
| Wilson County Animal Control               |      |      | 92%  | 86%  |
| Yadkin County Animal Control               |      |      |      |      |
| Yancey County Animal Shelter               | 67%  | 41%  | 62%  | 32%  |

| Facility   | Euth. Rate 2006 (Cats) | Euth. Rate 2006 (Dogs) | Euth. Rate 2007      | Euth. Rate 2008      |
|--|------------------------|------------------------|----------------------|----------------------|
| Burlington Animal Shelter                            | 88%                    | 70%                    | 59% (cat) 48% (dog)  | 59% (dog)            |
| Alexander County Animal Control                      | 99%                    | 89%                    | 89% (cat) 53% (dog)  | 78% (cat) 66% (dog)  |
| Twin Oaks Veterinary Hospital                        |                        |                        | 19% (cat) 26% (dog)  | 34% (cat) 18% (dog)  |
| Anson County Animal Control                          | 100%                   | 98%                    | 100% (cat) 99% (dog) | 100% (cat) 98% (dog) |
| Ashe County Animal Control                           | 68%                    | 65%                    | 93% (cat) 77% (dog)  |                      |
| Avery County Humane Society Shelter                  | 50%                    | 26%                    | 71% (cat) 40% (dog)  | 63% (cat) 29% (dog)  |
| Beaufort County Animal Control                       |                        |                        |                      | 86% (cat) 69% (dog)  |
| Bertie County Animal Control                         | 95%                    | 81%                    |                      |                      |
| Bladen County Animal Control                         |                        |                        | 70% (cat) 43% (dog)  | 76% (cat) 18% (dog)  |
| Brunswick County Animal Services                     | 93%                    | 64%                    | 91% (cat) 57% (dog)  | 94% (cat) 65% (dog)  |
| Buncombe/Asheville Humane Society                    | 77%                    | 49%                    |                      | 77% (cat) 46% (dog)  |
| Burke County Animal Shelter                          | 93%                    | 76%                    | 90% (cat) 61% (dog)  | 96% (cat) 66% (dog)  |
| City of Morganton Animal Control (same as Burke Co.) |                        |                        |                      | 96% (cat) 66% (dog)  |
| Cabarrus County Animal Control                       | 89%                    | 63%                    |                      |                      |
| Caldwell County Animal Control                       | 93%                    | 80%                    | 95% (cat) 83% (dog)  | 92% (cat) 83% (dog)  |
| Camden County Animal Control                         | 81%                    | 34%                    |                      |                      |
| Carteret County Humane Society Animal Shelter        | 87%                    | 43%                    | 86% (cat) 41% (dog)  | 85% (cat) 39% (dog)  |
| Animal Protection Society of the Northern Piedmont   | 77%                    | 67%                    | 69% (cat) 59% (dog)  | 66% (cat) 40% (dog)  |
| Catawba County Animal Control and Shelter            | 88%                    | 68%                    | 88% (cat) 61% (dog)  | 89% (cat) 64% (dog)  |
| Chatham County Animal Control                        | 69%                    | 46%                    | 73% (cat) 59% (dog)  |                      |
| Chowan County Animal Shelter                         | 83%                    | 58%                    | 93% (cat) 53% (dog)  |                      |
| Tri-County Shelter                                   |                        |                        |                      | 90% (cat) 64% (dog)  |
| Valley River Humane Society *3 County*               |                        |                        |                      | 40% (cat) 9% (dog)   |
| Cleveland County Animal Control                      | 96%                    | 88%                    | 99% (cat) 89% (dog)  | 98% (cat) 90% (dog)  |
| Columbus County Animal Control                       | 94%                    | 52%                    | 90% (cat) 60% (dog)  | 95% (cat) 51% (dog)  |
| City of Havelock Police Department                   | 88%                    | 47%                    |                      | 71% (cat) 24% (dog)  |
| Craven County Animal Rabies Control                  | 93%                    | 72%                    | 93% (cat) 72% (dog)  | 93% (cat) 73% (dog)  |
| Town of Riverbend                                    |                        |                        | 66% (cat) 8% (dog)   |                      |
| Cumberland County Animal Control                     | 91%                    | 75%                    | 88% (cat) 72% (dog)  | 83% (cat) 67% (dog)  |
| Animal Lovers Assistance League                      |                        |                        | 52% (cat) 38% (dog)  |                      |
| Currituck County Humane Society & Animal Shelter     | 63%                    | 15%                    |                      | 53% (cat) 43% (dog)  |
| The Outer Banks SPCA Animal Shelter                  | 90%                    | 44%                    | 89% (cat) 29% (dog)  |                      |
| Town of Kill Devil Hills Animal Control              |                        |                        | 0% (cat) 0% (dog)    | 96% (cat) 34% (dog)  |
| Davidson County Animal Control                       | 96%                    | 83%                    | 94% (cat) 78% (dog)  | 93% (cat) 78% (dog)  |
| Davie County Animal Control                          |                        |                        |                      |                      |
| Duplin County Animal Control                         | 82%                    | 55%                    | 93% (cat) 62% (dog)  | 93% (cat) 74% (dog)  |
| The Animal Protection Society of Durham              | 78%                    | 68%                    | 79% (cat) 67% (dog)  | 81% (cat) 68% (dog)  |
| Edgecombe/ City of Tarboro Animal Control            | 95%                    | 64%                    | 99% (cat) 85% (dog)  | 94% (cat) 69% (dog)  |
| Edgecombe County Animal Control                      | 86%                    | 73%                    | 88% (cat) 76% (dog)  | 98% (cat) 86% (dog)  |
| Forsyth County Animal Shelter                        | 87%                    | 70%                    | 88% (cat) 67% (dog)  | 87% (cat) 67% (dog)  |
| Franklin County Animal Control                       |                        |                        | 77% (cat) 41% (dog)  | 80% (cat) 46% (dog)  |
| Gaston County Animal Control                         | 88%                    | 72%                    | 80% (cat) 69% (dog)  | 78% (cat) 55% (dog)  |
| Gates County Animal Control                          |                        |                        | 91% (cat) 75% (dog)  | 94% (cat) 72% (dog)  |
| Granville County Animal Control                      | 94%                    | 76%                    | 95% (cat) 81% (dog)  | 94% (cat) 80% (dog)  |
| Greene County Animal Control                         | 82%                    | 68%                    | 84% (cat) 61% (dog)  | 93% (cat) 59% (dog)  |
| United Animal Coalition                              | 59%                    | 55%                    | 49% (cat) 43% (dog)  |                      |
| Halifax County Environmental Health/ Animal Control  | 93%                    | 61%                    | 91% (cat) 52% (dog)  | 85% (cat) 48% (dog)  |
| Harnett County Animal Shelter                        | 84%                    | 63%                    | 66% (cat) 48% (dog)  |                      |
| Haywood County Animal Control                        |                        |                        | 48% (dog)            |                      |

|  |      |  |                          |                      |
|--|------|--|--------------------------|----------------------|
| Henderson County Animal Control            |      |  | 67% (cat) 45% (dog)      | 76% (cat) 52% (dog)  |
| Hertford County Animal Control             |      |  | 80% 80% (cat) 51% (dog)  |                      |
| Hoke County Animal Shelter                 | 83%  |  | 59% 71% (cat) 65% (dog)  | 90% (cat) 68% (dog)  |
| Iredell County Animal Control              | 76%  |  | 71% 91% (cat) 70% (dog)  | 88% (cat) 73% (dog)  |
| Jackson County Humane Society              | 1%   |  | 1% 54% (cat) 37% (dog)   | 0% (cat) 0% (dog)    |
| Johnston County Animal Control             | 100% |  | 74% 93% (cat) 63% (dog)  | 42% (cat) 29% (dog)  |
| Johnston County SPCA                       | 31%  |  | 18% 42% (cat) 23% (dog)  |                      |
| Lenoir County SPCA Animal Shelter          |      |  | 72% (cat) 45% (dog)      | 71% (cat) 40% (dog)  |
| Lincoln County Animal Control              | 89%  |  | 72% 81% (cat) 67% (dog)  |                      |
| Madison County Animal Control              |      |  | 28%                      |                      |
| Madison County Friends of Animals          |      |  | 42% (dog)                |                      |
| Martin County Animal Control               | 100% |  | 95%                      |                      |
| McDowell County Animal Control             |      |  | 96% (cat) 88% (dog)      |                      |
| Charlotte-Mecklenburg Animal Control       | 82%  |  | 55% 80% (cat) 54% (dog)  | 82% (cat) 52% (dog)  |
| Mitchell County Animal Shelter             |      |  | 65% (cat) 34% (dog)      | 72% (cat) 36% (dog)  |
| Montgomery County Animal Control           |      |  | 99% (cat) 34% (dog)      | 100% (cat) 93% (dog) |
| Animal Center of Moore County              | 74%  |  | 50% 73% (cat) 54% (dog)  | 79% (cat) 51% (dog)  |
| City of Rocky Mount Animal Control         | 81%  |  | 52% 90% (cat) 57% (dog)  | 85% (cat) 47% (dog)  |
| Nash County Animal Control                 | 94%  |  | 78% 95% (cat) 81% (dog)  |                      |
| New Hanover County Animal Control Services | 69%  |  | 45% 70% (cat) 40% (dog)  |                      |
| Northampton County Animal Control          | 99%  |  | 97% 100% (cat) 98% (dog) | 100% (cat) 99% (dog) |
| Onslow County Animal Control               |      |  | 97% (cat) 43% (dog)      | 88% (cat) 49% (dog)  |
| Orange County Animal Control               | 46%  |  | 39% 47% (cat) 38% (dog)  | 59% (cat) 38% (dog)  |
| Pasquotank County Animal Control           |      |  | 81% (cat) 36% (dog)      |                      |
| The SPCA of NE North Carolina              |      |  | 81% (cat) 36% (dog)      | 73% (cat) 27% (dog)  |
| Pender County Animal Control               | 69%  |  | 56%                      |                      |
| Perquimans County Animal Control           | 61%  |  | 83% 89% (cat) 66% (dog)  | 97% (cat) 70% (dog)  |
| Person County Animal Control               | 96%  |  | 76% 93% (cat) 86% (dog)  | 91% (cat) 86% (dog)  |
| Pitt County Animal Control                 | 74%  |  | 54% 73% (cat) 56% (dog)  | 76% (cat) 55% (dog)  |
| Randolph County Animal Control             | 95%  |  | 82% 95% (cat) 80% (dog)  | 96% (cat) 81% (dog)  |
| Richmond County Animal Control             | 89%  |  | 82% 79% (cat) 84% (dog)  | 80% (cat) 82% (dog)  |
| Robeson County Animal Control              | 82%  |  | 74% 83% (cat) 84% (dog)  | 85% (cat) 70% (dog)  |
| Rockingham County/ Reidsville Vet Hospital |      |  |                          |                      |
| Eden Veterinary Hospital                   |      |  |                          |                      |
| City of Stoneville Animal Control          |      |  |                          |                      |
| Rowan County Animal Control                | 81%  |  | 67% 83% (cat) 67% (dog)  | 85% (cat) 67% (dog)  |
| Rutherford County Animal Control           | 91%  |  | 55% 87% (cat) 52% (dog)  |                      |
| Sampson County Animal Control              | 98%  |  | 89%                      |                      |
| Scotland County Humane Society             | 71%  |  | 58% 80% (cat) 60% (dog)  | 73% (cat) 67% (dog)  |
| Stanly County Animal Control               |      |  |                          | 92% (cat) 66% (dog)  |
| Stokes County Animal Control               | 95%  |  | 82% 93% (cat) 79% (dog)  | 75% (cat) 83% (dog)  |
| Surry County Animal Control                | 97%  |  | 86% 96% (cat) 84% (dog)  | 91% (cat) 81% (dog)  |
| Transylvania County Animal Control         |      |  | 86% (cat) 72% (dog)      | 89% (cat) 71% (dog)  |
| Tyrrell County Animal Control              | 79%  |  | 95%                      |                      |
| Union County Animal Control/Shelter        |      |  | 70% 90% (cat) 66% (dog)  | 92% (cat) 69% (dog)  |
| Vance County Animal Control                |      |  | 92% (cat) 78% (dog)      |                      |
| Wake County Animal Control & Shelter       | 82%  |  | 56%                      | 78% (cat) 42% (dog)  |
| Wake County SPCA Animal Shelter            |      |  | 64% (cat) 36% (dog)      |                      |
| Warren County Animal Shelter               | 94%  |  | 85% 94% (cat) 55% (dog)  | 76% (cat) 42% (dog)  |
| Watauga County Animal Control              | 47%  |  | 15% 46% (cat) 11% (dog)  | 48% (cat) 8% (dog)   |
| Wayne County Animal Control                | 96%  |  | 84% 95% (cat) 78% (dog)  |                      |
| Wilkes County Animal Control               | 88%  |  | 74% 89% (cat) 72% (dog)  | 93% (cat) 76% (dog)  |
| Wilson County Animal Control               |      |  | 80% (cat) 61% (dog)      |                      |
| Yadkin County Animal Control               | 99%  |  | 86% 98% (cat) 86% (dog)  | 99% (cat) 79% (dog)  |
| Yancey County Animal Shelter               | 61%  |  | 42% 54% (cat) 33% (dog)  | 69% (cat) 35% (dog)  |

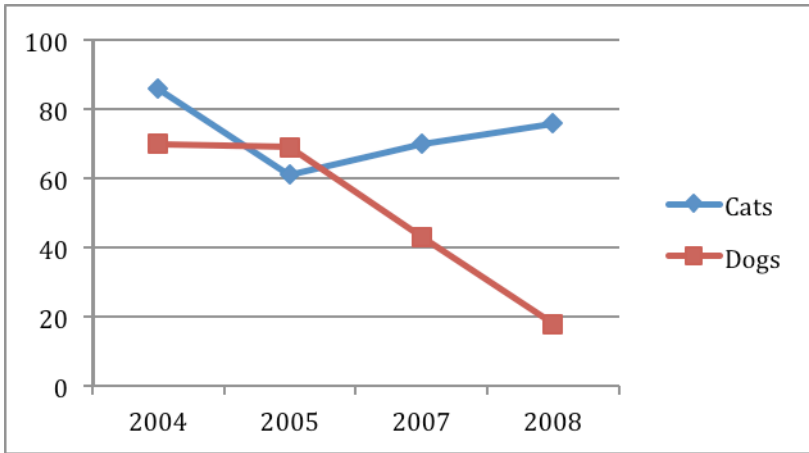
Appendix B: +/- Calculations, 2004-2008, All Facilities Chosen for Interviews

| <b>Facility</b>                                    | <b>Plus/Minus Euthanasia Rate, 2004-2008</b> |
|--|--|
| Bladen County Animal Control                       | Dogs down 52%, Cats down 10%                 |
| Buncombe/ Asheville Humane Society                 | Dogs down 13%, Cats down 7%                  |
| Animal Protection Society of the Northern Piedmont | Dogs down 38%, Cats down 23%                 |
| Cumberland County Animal Control                   | Dogs down 11%, Cats down 12%                 |
| Gaston County Animal Control                       | Dogs down 29%, Cats down 16%                 |
| United Animal Coalition                            | Dogs down 6%, Cats down 24%                  |
| Halifax County Environmental Health/Animal Control | Dogs down 39%, Cats down 11%                 |
| Johnston County Animal Control                     | Dogs down 45%, Cats down 60%                 |
| Lincoln County Animal Control                      | Dogs down 13%, Cats down 13%                 |
| Warren County Animal Shelter                       | Dogs down 53%, Cats down 24%                 |

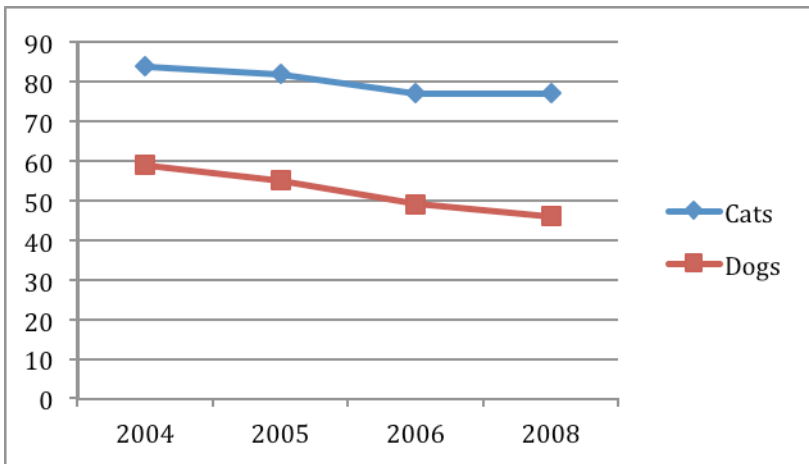


Appendix C: Line Graphs Charting 2004-2008 Euthanasia Rates, All Facilities Chosen for Interviews

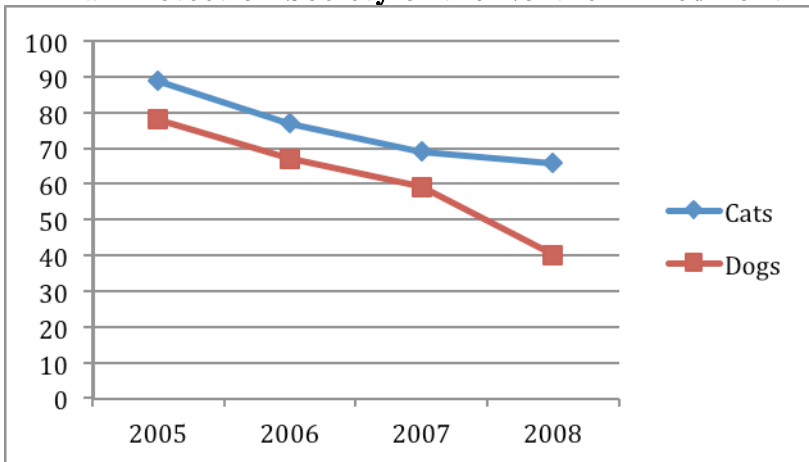
**Bladen County Animal Control (Admitted as Exception)**



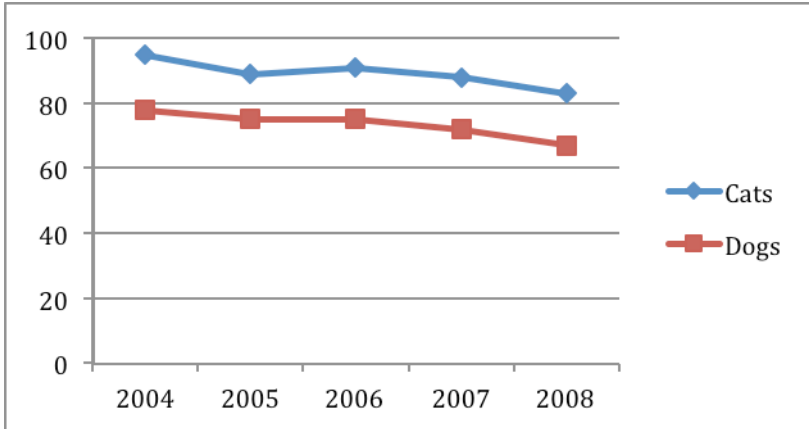
**Buncombe/Asheville Humane Society**



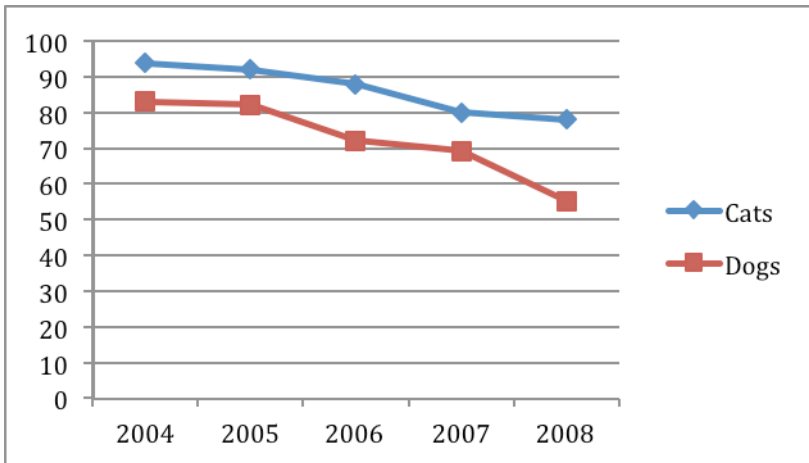
**Animal Protection Society of the Northern Piedmont**



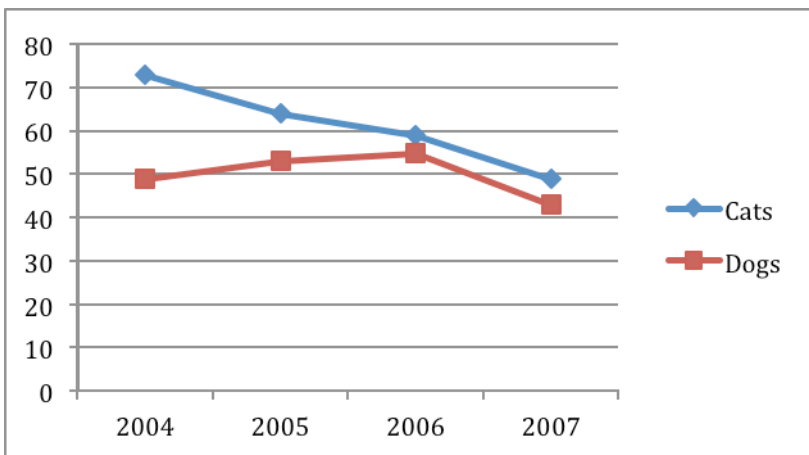
### Cumberland County Animal Services Office



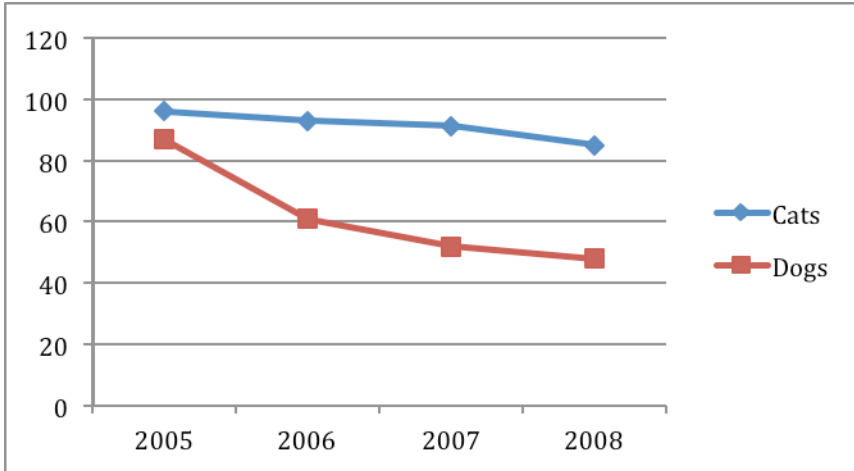
### Gaston County Animal Control



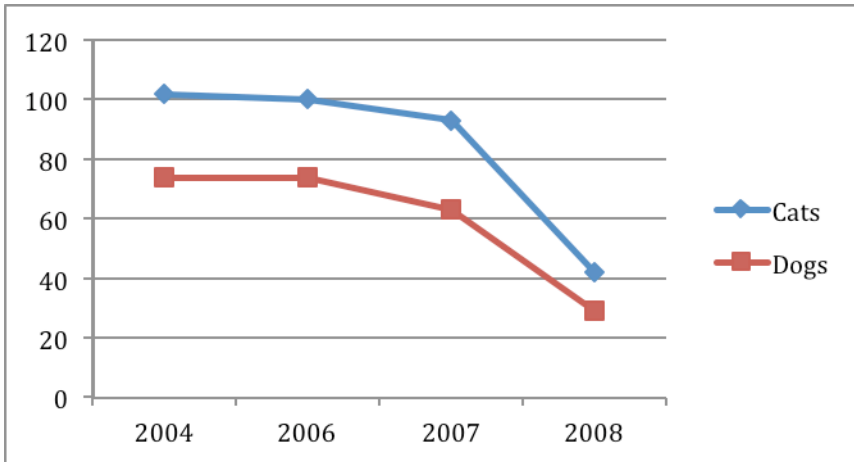
### United Animal Coalition



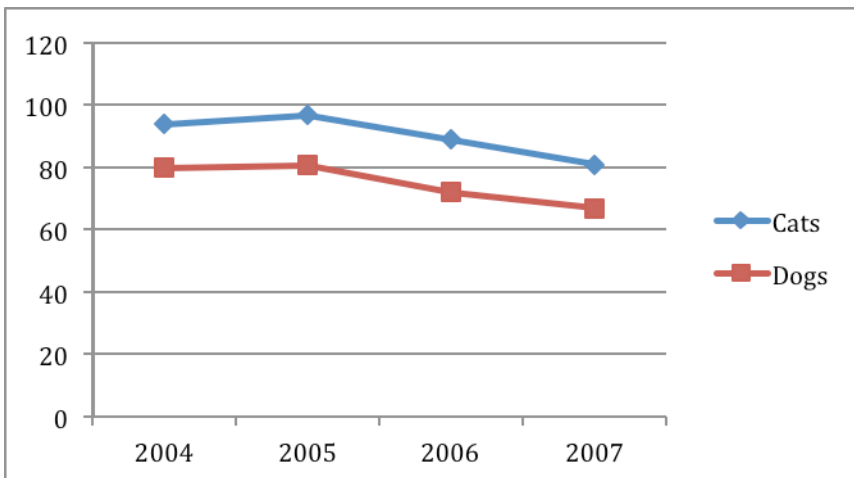
### Halifax County Environmental Health/Animal Control



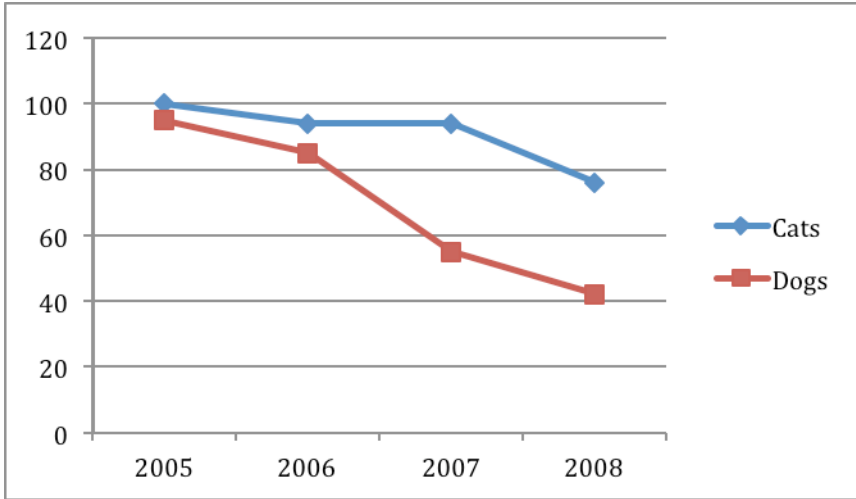
### Johnston County Animal Control



### Lincoln County Animal Control



## Warren County Animal Control



## Appendix D: Interview Script

Note: Clarifying questions were also asked of interview participants as needed to help the conversation progress.

Thank you again for agreeing to talk with me, and for your participation in this project. I anticipate the interview will last 30-45 minutes, and appreciate any information you can provide. Your name will be recorded with your answers, but will not be shared with additional parties or in report or conference materials. Before we get started do you have any additional questions?

To start, I am going to read you the finding from my analysis from the state's annual Spay and Neuter reports. Your facility has documented a decrease in cat and dog euthanasia rates from x percent in year to x percent in year. What *intentional* strategies/practices do you believe contributed to this decrease in euthanasia rates?

I'd also like to know what *unintentional* factors or events do you believe contributed to this decrease in euthanasia rates?

Thank you for taking the time to speak with me today. In the next few days, if you feel there is additional information you'd like to share with me, my phone number is 252-230-3480. When I finish compiling my report, I would be more than happy to provide you with an e-mailed copy if you'd like?

Thanks again and goodbye.

## Appendix E: Reported Practices for Each Individual Facility

### Cumberland County Animal Services Office

#### *2004-2008 Time Period*

##### Intentional Strategies/Practices

- Shelter leadership began actively building relationships with local agencies, like PetSmart, to spread information about adoption.
- The shelter implemented an advertising program, including TV (ads on a local cable channel), radio, and newspaper. Shelter leadership built relationships that produced low-cost/free advertising (there were no advertising funds available in the shelter budget).
- Shelter leadership evaluated all staff members, and made changes to ensure all staff had a proactive adoption mindset.
- Shelter leadership created Standard Operating Procedures; prior to this time period, there were no written SOPs/manuals for daily operations regarding disinfection, kennel cleaning, and so forth.

##### Unintentional Factors

- The county's Animal Control Board brought on leadership with an increased amount of experience in shelter management relative to prior leadership.
- The county built a \$4 million dollar "showcase" shelter facility south of Fayetteville, opening in mid-2005. The facility is "newer, nicer, smells good, and is inviting." The old facility had approximately 65 cages and kennels and the new facility has approximately 400 cages and kennels, so there was a significant capacity increase.

#### *2008-Present Time Period*

##### Intentional Strategies/Practices

- Facility staff have practiced increased flexibility with regards to the amount of time an animal stays before being put down. Previously, the "holding period" was a 5-day hard line. Now, if staff members believe an animal to be particularly adoptable, they will hold him/her beyond the 5-day period.
- Facility staff have increased the adoption rate by placing a particular adoptable animal's picture in the local newspaper. According to the interviewee, "Every animal put in the local publication has been adopted."
- The facility has extended its adoption hours from 17 hours a week to 47 ½ hours a week. Previously, adoption hours were "limited and unusual." Now they correspond closely with business hours.

##### Unintentional Factors

- The facility's taken on a couple of high profile animal cruelty cases. This has provided free publicity, and brought in increased donations/funding for emergency care.
- The facility's leadership now includes a veterinarian; this brings a higher standard of veterinary care that makes the shelter's animal population healthier.

## Johnston County Animal Control

### *2004-2008 Time Period*

#### Intentional Strategies/Practices

- The county's Animal Services division formed a separate nonprofit corporation. This gave people a vehicle with which to make donations; all donated monies are designated for animal care and adoptions.
- Prior to the time period in question, little resources (time, staff) were devoted to adoption. Around 2006, the facility hired its first Adoption Coordinator. One of the reasons the current Adoption Coordinator was selected was because of her former work as a nurse; she brings a lot of people savvy to the job that translates into effective marketing skills.
- Facility staff developed a marketing plan, including the use of TV, newspaper, and radio. They have an arrangement whereby they get area wide billboard marketing for free.
- Facility staff also began using online adoption sites; they are now active on 3, including Petfinder. The interviewee reports they "often get inquiries" from people interested in adoption who see the animals online. The facility also has its own Facebook page.
- The facility instituted a policy where \$50 of the \$65 adoption fee is refunded once proof of post-adoption spay/neuter is provided. If adoptees don't show proof of spay/neuter within 30 days, they face a \$160 fine. The interviewee reports a 97% compliance rate for post-adoption spay and neuter.<sup>1</sup>
- Facility staff has increased the number of Spay Neuter Assistance Program (SNAP) procedures they perform each month, from 19/month in 2004 to 160/month at present.<sup>1</sup>
- Facility staff began working with "rescue groups up and down the east coast." They are actively involved with the Pilots n Paws program; this is an initiative where pilot volunteers fly adoptable animals to rescues/shelter facilities in areas where more adoptable animals are needed (pilotsnpaws.org).
- Facility staff began conducting adoption clinics around the local community.
- Facility staff have come up with creative, inexpensive ways to increase the animals' adoptability. They purchased professional photography equipment to take high quality pictures of the adoptable animals for Internet sites. They also recruited 2 volunteers trained in animal behavioral issues to work on improving the dogs' behavior.

#### Unintentional Factors

- The interviewee cited the importance of having buy-in from all staff members. Staff members work actively to incorporate teamwork into the facility's operations; for instance, every 1-2 years all the employees paint the shelter together. One employee got permission from the leadership to paint animal-themed murals around the facility.
- The facility staff's emphasis on building relationships extends to the field officers as well. The officers carry pet foods in their vehicles and will distribute it on an as-needed basis while they are in the field.
- The facility's leader worked in county government for awhile before assuming his current position; he already had some important connections in place when he began the job.
- The facility that currently houses the animals is only 12 years old; prior to this, the animals were housed in a low-quality space near the landfill.

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<sup>1</sup> While the creation of this policy may not have immediately contributed to a decrease in euthanasia rates during the 2004-2008-time period, I included it because of its potential importance as a long-term strategy to combat animal overpopulation in the area through decreased birth rates.

- The interviewee believes an important unintentional factor is Michael Vick, because the public's anger surrounding Vick's misdeeds "created a spirit of support and an increase in rescue group activity and volunteer activity."
- In recent years, the area has seen a sharp increase in people moving to Johnston county from other areas. This newly arrived population has brought different values (relative to the traditional culture of eastern North Carolina) with regards to animal ownership.

## Bladen County Animal Control

### *2004-2008 Time Period*

#### Intentional Strategies/Practices

- The facility became involved with rescue groups, both inside and outside of North Carolina, in 2007 (though the involvement did not become significant until 2008).
- Facility staff have made it a practice to meet with rescue groups after hours or during holidays to do pick-ups of shelter animals.
- The facility instituted a designated "animal bonding area" to allow visitors to interact with potential pets.
- The local newspaper features one of the facility's animals in a weekly "Adopt a Pet" piece, both in its print and online editions.

#### Unintentional Factors

- Facility leadership stopped the use of the gas chamber to euthanize animals, switching instead to lethal injection. The interviewees believe public knowledge of the facility's use of a "more humane method of euthanasia" makes people more comfortable coming to the facility.
- Facility staff instituted separate hours for the public to visit animals and for rescue groups to visit/select animals. This allows facility staff to devote full attention to one group or the other.
- The cost of adopting animals from this facility is lower than it is at facilities in surrounding counties. Interviewees believe this brings in more people from surrounding areas.
- Facility staff began bringing inmates to the facility to assist in cleaning. Interviewees believe the inmates' additional interaction with the animals makes the animals more adoptable.
- They also began sending dogs to the local correctional facility to work one-on-one with the inmates through a program called "A New Leash on Life." Interviewees report a "complete change in the dogs' behavior over a short time."
- When staff members clean the facility, the animals go outside; this ability to move around improves the animals' behavior.
- Facility staff began using the Shelter Manager computer program; this allows them to collect and track data about the animals. They also take pictures of all of the animals and put them into the Shelter Manager program.
- The interviewee's cite increased involvement by the state's veterinary division as beneficial, stating their increased involvement has helped the facility improve its operations.

### *2008-Present Time Period*

#### Intentional Strategies/Practices



- In 2008, the facility adopted an ordinance increasing the mandatory holding period from 5 days (instead of the state-required 3 days). Interviewees report routinely holding animals longer than is mandated, sometimes up to 3-4 weeks.
- The county opened a new shelter facility in 2008. The new facility has 60 pens, compared to 10 pens in the old facility.
- Rescue groups began putting information about the facility's animals online, on Petfinder and other similar sites, in 2008. Interviewees state they receive frequent calls, both in-state and out-of-state, from people who want to adopt facility animals they see online.
- One of the interviewees stated a staff member will select highly adoptable animals, and move them to a separate area where they receive one-on-one treat training and often held beyond the shelter's 5 day minimum holding period.
- In late 2008-early2009 facility leadership instituted a policy allowing rescue groups to take animals at no cost (aside from a charge for administering a rabies vaccine).

## Warren County Animal Control

### *2004-2008 Time Period*

#### Intentional Strategies/Practices

- The county opened a new shelter facility in 2006. Prior to the opening of the new facility, the county's animal services were housed in a 30X12 cinderblock facility near the landfill. The new facility has much greater capacity to house animals, a visiting room for potential adopters to meet animals, and structured adoption hours. The interviewee also states rates of illness "absolutely" dropped in animals after the move.
- Before the opening of the new facility, animal services resources went "almost exclusively" to law enforcement. The facility also represents a shift in allocation of resources to sheltering.
- During the time period in question, the interviewee states, "3 dogs were being transferred for every dog being adopted out." Still, these transfers were captured as adoptions on the state reporting forms. The interviewee believes this speaks to a need to more clearly define "adoption" on the state reporting forms.
- The facility staff offered "sidebar" options, like microchipping, to adopters during this time; this may have increased the appeal of adoption from the facility.
- Facility staff put a formal program into place for working with rescue groups when the new building opened. They also instituted a policy offering reduced fees to adoption groups.
- Facility staff developed a presence on the Internet, including the use of Petfinder, during this time.
- Facility staff began naming the animals. The interviewee states the thought behind this is, "People want to adopt 'Fluffy' not 'Number 42.'"

#### Unintentional Factors

- In 2004, Warren County adopted an animal control ordinance specifically addressing cats as nuisances. Prior to this time, field officers had no motive to pick cats up; thus, the shelter's primary cat population was cats brought specifically for euthanasia. The euthanasia rates dropped as more healthy cats began coming in.
- The placement of the new facility near other county facilities makes it more known and accessible to the public.
- Staff at the facility are loyal; there was no permanent staff turnover during the period in question. The interviewee states, "There is strong staff buy-in and staff members serve as good representatives to the public."

## Animal Protection Society of the Northern Piedmont

### *2004-2008 Time Period*

#### Intentional Strategies/Practices

- Facility staff first began posting adoptable animals to Internet sites like Petfinder in 2005-2006. The interviewee states their primary adoption pool is not the local population; rather, it is people who travel from Greensboro, Charlotte, and Virginia because they see the animals online.
- In the summertime, when facility staff are busiest, they recruit volunteers and board members to take pictures of the animals and put them online.
- The interviewee states a board member donated a high quality camera for the shelter to pictures of the animals during this time.
- Facility staff began working with rescue groups “in a limited way” during this time period; the interviewee states the level of involvement did not become significant until 2008.
- The facility participates in the Pilots n Paws program.
- The facility has a flexible policy regarding provision of veterinary services for newly adopted animals. Adopters can pay the full adoption fee, and this covers a spay/neuter procedure and rabies shot. Or, adopters can opt to pay half the adoption fee and use their own veterinarian for the procedures.
- A board member takes adoptable animals to Petsmart once a month for adoption events.
- The facility staff started a mobile spay/neuter program in 2005. The interviewee states staff members perform about 20 procedures each trip.<sup>1</sup>

#### Unintentional Factors

- The interviewee states the facility has seen a shift in the thinking of the leadership to be more “adoption-minded” in recent years.
- The interviewee says current facility staff “promote an adoption lifestyle” and “model devotion to saving lives.”

### *1995-2004 Time Period*

- Approximately 15 years ago, county animal services secured an arrangement with county commissioners allowing the Animal Protection Society to take over county animal shelter operations. Before APS took over, animal service facilities consisted of a one-room cinderblock box where animals were crudely euthanized.
- Animal Protection Society of the Northern Piedmont is a nonprofit, but they receive animals through county animal service operations, so they also receive some county funding.

### *2008-Present Time Period*

- Since early 2008, facility staff have been heavily involved with rescue groups. The interviewee states the facility has a policy of not charging rescue groups to take animals, and several rescue groups have deemed the facility to be “rescue friendly.”
- Facility staff held APS’s first annual dog walk fundraiser in 2010.

## Gaston County Animal Control

### *2004-2008 Time Period*

#### Intentional Strategies/Practices

- In fall 2006, the facility's staff began increasing partnerships with rescue groups. Staff allow rescues to adopt/claim animals at no cost to the organization with the agreement the animals be spayed/neutered.
- During the time period in question, the facility began participating in transports "throughout the northeast" to get animals to areas that want them.
- Prior to 2006, the facility staff would do a health and temperament screening when animals arrived, and animals that met the criteria would be placed in the adoption program. If the animal did not meet the criteria, then he/she would only be available to be reclaimed (not adopted). In 2006, facility staff began allowing rescue groups to claim animals facility staff had deemed not suitable for adoption.
- In 2007, the county's IT department created a website, operated by Animal Services, with real time pictures and descriptions of adoptable animals. According to the interviewee, maintenance "requires additional effort on the staff's part, but it is well worth it." Prior to 2006, the facility had an Internet presence with basic facility information, but not information specifically focused on individual animals.
- In 2006, facility staff began 24 hours a day e-mail correspondence with the public. This better enables staff to put holds on animals who have found adopters.
- During the time period in question, facility staff maintained close working relationships with both the Humane Society and Animal League of Gaston County. Volunteers from both of these agencies have posted information on the shelter's behalf on Petfinder and similar websites. Volunteers also helped with an Internet portal with multiple listings redirecting back to the facility's website.
- During this time, facility staff worked with the local newspaper to feature a pet of the week. The interviewee states lots of the animals featured had actually been adopted prior to their pictures appearing in the paper, but the inquiries garnered from the feature served as a valuable springboard to get people to come look at other animals.
- The facility instituted a policy all animals adopted out must leave spayed or neutered.<sup>1</sup>
- Facility staff began working with the Humane Alliance in Asheville to do monthly transports for spay/neuter procedures there.

#### Unintentional Factors

- Around 1999-2000, Gaston County experienced a spike in positive rabies cases. A strict adoption policy was implemented stating all animals considered adoptable needed to have a rabies certificate. Because few strays field officers brought in had this certification, there was an increase in the number of animals needing to be euthanized. Thus, the higher euthanasia numbers at the beginning of the time period in question reflect inflation due to the strict adoption protocol. Since this time, the number of positive rabies cases has dropped and the vaccination requirement was removed with the support of the Health Director.
- The state level hearings surrounding euthanasia methods and other animal services issues around 2006-2007 "spurred a consciousness" in Gaston County rescue groups. This, and the steep increase in social media, helped spur conversations and create a "mushrooming of awareness." The interviewee notes the facility/animal services want to be on the "positive side" of the "changing paradigm of placement being preferable to euthanasia."

- The county has citizens serving as board members on the Animal Control Task Force board. These people, serving as intermediaries between the citizenry and government officials, have been important advocates for community issues, have vetted new administration policies, and have been important in raising awareness for facility operating needs.
- With increased awareness and social media presence, the interviewee notes an increase in elected officials' minds regarding the importance of recognizing facility funding issues and meeting community demands adequately.
- The interviewee notes kennel and office staff remained fairly stable during the time in question, and considers this a positive force in improved numbers. However, the interviewee says the additional demands on staff are challenging and it has proved difficult to secure long-term volunteer commitment.
- Facility staff have turned to inmate labor in recent years to help with facility cleaning and maintenance.

#### *2008-Present Time Period*

- Since the time period in question, facility staff have developed a designation of "gold standard" for the animals they consider to be healthiest/most adoptable. These animals are featured in a special section of the website.
- In 2010 the county's board of commissioners adopted a differential licensing system. A license for intact animals is 3.5 times more than for spayed/neutered animals.
- The facility has begun offering qualified low-income people (people currently receiving assistance) free spay and neuter services; they are able to do this thanks to private donations.

#### United Animal Coalition

#### *2004-2008 Time Period*

#### Intentional Strategies/Practices

- Facility staff increased their involvement with rescue groups during the time period in question. Staff implemented a system where placement fees for rescues depend upon what the facility has done with the animals (medically, behaviorally) and what the rescue will need to do with the animals.
- Staff host a semi-annual rescue appreciation event where they build on current relationships with existing rescues and get to know new rescues.
- Because United Animal Coalition (UAC) is a nonprofit organization contracted by the county, staff have the ability to fundraise. The interviewee states this allows staff to raise additional funds to treat sick animals, beyond funds allocated by the county.
- The interviewee states one of the biggest contributors to the facility's high adoption rate and low euthanasia rate is treatment of illness. Staff members are "very proactive" in finding the most up-to-date cleaning equipment and solutions.
- The facility also put new illness-reducing procedures into place during the time period in question. For example the interviewee states all animals are immediately evaluated upon entering the shelter, and go to designated "sick" or "well" rooms. There is no mixing of the two animal populations.
- Staff members regularly took animals to adoption events in the community.
- The facility has had an Internet presence for years, including the operation of a facility website and involvement with Petfinder. Staff members do TV spots 3 times a month. This media presence has grown significantly during the post-2008 period.

- The organization regularly expands its facilities. In 2003-2004, UAC built a new surgery building for the animals. In 2007, they added tent lines to create additional holding space for newly arrived animals.
- To create additional capacity, staff members turned some of the offices into adoption rooms. Staff members doubled up offices for 3 years, at which time they received a donated modular trailer to use as an office building. The interviewee notes this shows staff members have a clear dedication to the animals.

#### Unintentional Factors

- In recent years, the facility has seen an increase in animal surrenders from people who can't take care of their pets anymore or have to give them up due to rental restrictions. That may have an impact on increased adoptability of the facility's animal population (the animals were once owned).
- The interviewee notes an increased awareness within the community of animal treatment, and states that the public is beginning to "take animal ownership more seriously."
- The interviewee states animal services field officers (animal control) have been more diligent about pursuing complaints in recent years. This prevents complaint situations from escalating to the point of abuse or neglect, where further intervention/removal is necessary.

#### *2008-Present Time Period*

- Facility staff recently began working with Waggin' Wheels to transfer animals from their facility to facilities out of state.
- In the last few years, the facility has greatly increased its social media presence. There is a staff person dedicated to maintaining the facility's social media presence on sites like Facebook and Twitter. Staff also created a radio station dedicated to the facility, accessible on the facility's website.
- The organization had continued to expand. In 2008, UAC added an additional cat building. In 2009 it put in a new building for animal trauma cases.
- Staff recently put a triage policy into place so that when an injured animal comes in (most frequently following being struck by a car), he/she is able to get basic humane care. This allows staff to stabilize the animal even though he/she is not technically UAC property. This way, the animal is stable if an owner comes to claim him/her; if no owner steps forward, then the staff are in a better position to provide further care.

Appendix F: Data Gathered for Regression Analyses

| <b>Independent Variable</b>         | <b>Data Source</b>  | <b>Notes</b>  |
|-------------------------------------|---|---|
| Total Operating Expenses            | 2004-2008 Spay Neuter Reports<br><a href="http://www.epi.state.nc.us/epi/vet/">http://www.epi.state.nc.us/epi/vet/</a>  |   |
| Cost Per Animal                     | 2004-2008 Spay Neuter Reports<br><a href="http://www.epi.state.nc.us/epi/vet/">http://www.epi.state.nc.us/epi/vet/</a>  | Self-reported expenses per animal (reported by each facility each year).  |
| % Change in Poverty Rate, 1990-2000 | North Carolina Rural Center's "Rural Data Bank"<br><a href="http://www.ncruralcenter.org/rural-data-bank.html">http://www.ncruralcenter.org/rural-data-bank.html</a>  | One number, linked to the county the shelter facility operates in.  |
| % Change in Population, 1990-2000   | North Carolina Rural Center's "Rural Data Bank"<br><a href="http://www.ncruralcenter.org/rural-data-bank.html">http://www.ncruralcenter.org/rural-data-bank.html</a>  | One number, linked to the county the shelter facility operates in.  |
| County Poverty Rate 2000            | North Carolina Rural Center's "Rural Data Bank"<br><a href="http://www.ncruralcenter.org/rural-data-bank.html">http://www.ncruralcenter.org/rural-data-bank.html</a>  |   |
| Urban/Rural County Classification   | North Carolina Rural Center's "Rural County Map"<br><a href="http://www.ncruralcenter.org/rural-county-ma.html">http://www.ncruralcenter.org/rural-county-ma.html</a> | The Rural Center designates each North Carolina county as either urban or rural. According to the site, "[rural] counties had a population density of no more than 250 people per square mile at the time of the 2000 U.S. Census. This definition of rural has been incorporated in legislation adopted by the N.C. General Assembly." |

Appendix G: Regression Information

Ordinary Least Squares Regression

(Dependent Variable: Rate of Change in Euthanasia Rates from Year-to-Year Within a Specific Facility)

**Note: This model did not prove strong enough to provide any clear, conclusive results.**

Coefficients<sup>a</sup>

| Model |                             | Unstandardized Coefficients |            | Standardized | t      | Sig. | Collinearity Statistics |       |
|-------|-----------------------------|-----------------------------|------------|--------------|--------|------|-------------------------|-------|
|       |                             | B                           | Std. Error | Beta         |        |      | Tolerance               | VIF   |
|       |                             |                             |            |              |        |      |                         |       |
| 1     | (Constant)                  | 5.334                       | 17.267     |              | .309   | .758 |                         |       |
|       | % Change Poverty, 1990-2000 | .230                        | .201       | .163         | 1.149  | .254 | .567                    | 1.763 |
|       | % Change Pop, 1990-2000     | -.606                       | .303       | -.283        | -1.997 | .049 | .571                    | 1.753 |
|       | County Poverty Rate 2000    | .103                        | .745       | .019         | .139   | .890 | .617                    | 1.620 |
|       | Urban/Rural (0,1)           | .941                        | 11.865     | .015         | .079   | .937 | .306                    | 3.263 |
|       | Cost Per Animal             | .045                        | .037       | .140         | 1.214  | .228 | .857                    | 1.167 |
|       | tochr                       | -.017                       | .014       | -.216        | -1.221 | .226 | .368                    | 2.721 |

a. Dependent Variable: Rate of Change in Euth. Rate\_R

Binary Logistic Regression

(Dependent Variable: “Break Point” Between Group A (Euthanasia Rate-Reducing Facilities) and Group B (Non-Euthanasia Rate-Reducing Facilities))

Notes: All facilities in Group A were labeled as “0” and all facilities in Group B were labeled as “1.” The independent variables were used to assess the differences between 0 and 1. The “Total Operating Expenses” variable is represented as “toer” in the chart below.

|                     |                       | Variables in the Equation |       |        |    |      |        |
|---------------------|-----------------------|---------------------------|-------|--------|----|------|--------|
|                     |                       | B                         | S.E.  | Wald   | df | Sig. | Exp(B) |
| Step 1 <sup>a</sup> | toer                  | .003                      | .001  | 4.068  | 1  | .044 | 1.003  |
|                     | CostPerAnimal         | -.003                     | .004  | .338   | 1  | .561 | .997   |
|                     | ChangePoverty19902000 | -.089                     | .024  | 13.851 | 1  | .000 | .915   |
|                     | ChangePop19902000     | .100                      | .031  | 10.551 | 1  | .001 | 1.105  |
|                     | CountyPovertyRate2000 | .149                      | .072  | 4.271  | 1  | .039 | 1.161  |
|                     | UrbanRural01          | -4.498                    | 1.335 | 11.351 | 1  | .001 | .011   |
|                     | Constant              | -.637                     | 1.495 | .181   | 1  | .670 | .529   |

a. Variable(s) entered on step 1: toer, CostPerAnimal, ChangePoverty19902000, ChangePop19902000, CountyPovertyRate2000, UrbanRural01.

Binary Logistic Regression with “Total Operating Expenses” variable units represented as \$10,000

Note: The Total Operating Expenses” variable is represented as “TOE” in the chart below.

| Odds Ratio Estimates |                |                            |       |
|----------------------|----------------|----------------------------|-------|
| Effect               | Point Estimate | 95% Wald Confidence Limits |       |
| TOE                  | 1.015          | 0.994                      | 1.036 |
| Change_Poverty       | 0.923          | 0.887                      | 0.961 |
| Change_Pop           | 1.079          | 1.022                      | 1.139 |
| UR                   | 0.029          | 0.004                      | 0.224 |



## Appendix H: Binary Logistic Regression Interpretation

Note: An interpretation is not provided for the “County Poverty Rate 2000” variable though it proved significant in the first model presented on the previous page. Both poverty variables included in that model proved significant, but in contradictory ways. Thus, the decision was made to exclude one when running the second model above in order to provide better clarity of interpretation. The second model confirmed the significance of the variables presented below.

### County Percentage Change in Poverty 1990-2000

Every 1 unit (percentage point) increase in poverty causes a county’s facility to have 0.915 the odds of being in Group A versus Group B. With an odds ratio less than 1, then there are greater odds of an association between the independent variable (county percentage change in poverty) and Group B. In other words, as a county’s percentage of people living in poverty grows relative to other counties, it’s odds of being in Group B increase.

### County Percentage Change in Population 1990-2000

Every 1 unit (percentage point) increase in population causes a county’s facility to have 1.105 greater odds of being in Group A versus Group B. In other words, as a county’s population grows relative to other counties, so does it’s odds of being in Group A (euthanasia rate-reducing facilities) versus Group B.

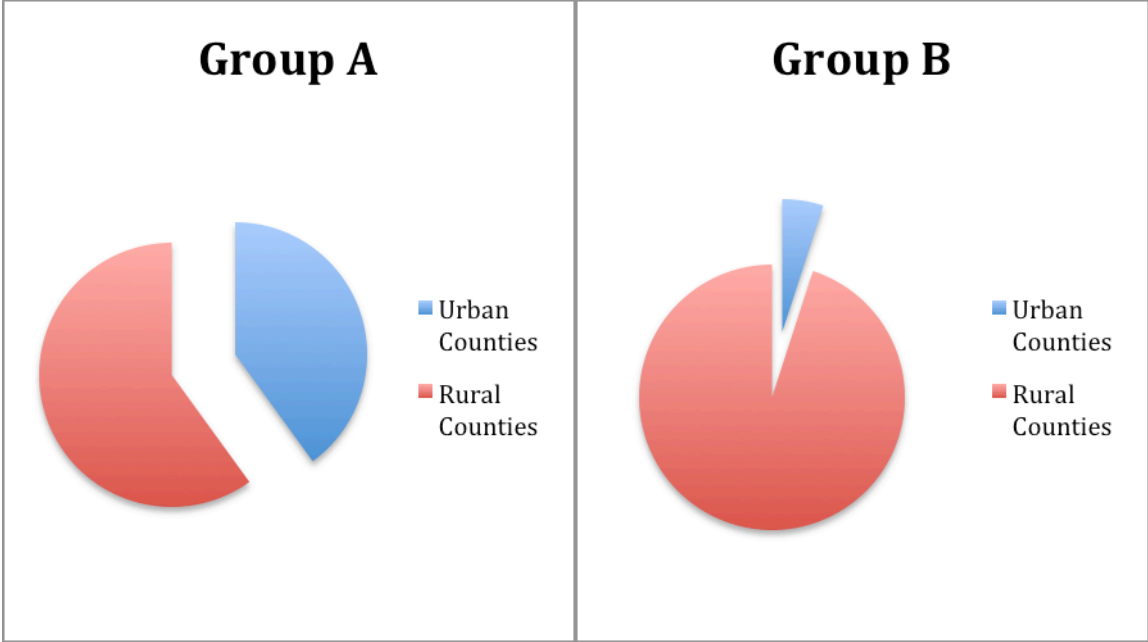
### Urban/Rural County Classification

Because both membership in Group A versus Group B and membership in an urban versus a rural county are represented as 0/1 variables (Group A=0, Group B=1 and urban=0, rural=1), it is easier to interpret the relationship when looking at a cross tabulation.

| Table of Urban/Rural by Break |         |       |       |        |
|-------------------------------|---------|-------|-------|--------|
| Urban/Rural                   | Break   |       |       |        |
| Frequency                     | Percent |       |       |        |
| Row Pct                       | Col Pct | A     | B     | Total  |
| Urban                         |         | 20    | 5     | 25     |
|                               |         | 13.33 | 3.33  | 16.67  |
|                               |         | 80.00 | 20.00 |        |
|                               |         | 40.00 | 5.00  |        |
| Rural                         |         | 30    | 95    | 125    |
|                               |         | 20.00 | 63.33 | 83.33  |
|                               |         | 24.00 | 76.00 |        |
|                               |         | 60.00 | 95.00 |        |
| Total                         |         | 50    | 100   | 150    |
|                               |         | 33.33 | 66.67 | 100.00 |

There are 5 urban facilities and 25 rural facilities represented in the data set (with each facility having 5 lines of information). Group A is comprised of 4 facilities in urban counties and 6 facilities in rural counties. In North Carolina, 14 counties are designated as “urban” and 86 counties are designated as

“rural” (designations provided by the N.C. Rural Center). Because North Carolina is primarily a rural state, urban counties representing 40% of Group A indicates an overrepresentation of those counties relative to the state’s total urban/rural composition. Pie graphs are another way to consider this relationship.



## Appendix I: Acknowledgements

I would like to thank my committee: Aimee Wall, Jeff Welty, and Carl Stenberg. Their support and guidance was invaluable to me throughout the capstone process. I would also like to thank all of the interviewees who graciously volunteered to speak with me and show me their facilities. Without them, this project would not exist. Additionally, I would like to thank Maureen Berner and The Odum Institute for patiently walking me through my statistics work. Finally, I would like to thank Lee Hunter, from the Veterinary Division of the Department of Agriculture and Consumer Services, for his important insight during the initial phases of my project.