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THE FOUNDATION FOR INTERDISCIPLINARY RESEARCH AND EDUCATION PROMOTING  
ANIMAL WELFARE

**ANALYSIS OF RESULTS FOR MARICOPA COUNTY  
MADDIE'S FUND COMMUNITY PROGRAM**

**FY2004-05  
Summary Report**

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## ANALYSIS OF RESULTS FOR MARICOPA COUNTY COMMUNITY PROGRAM

### Introduction

Results for the third completed year (Fiscal Year 2004-05) of Maddie's Projects in Maricopa County, AZ, indicate that the region is making progress in some key program areas (Figure 1). Compared to baseline year, the overall animal death rate per 1,000 people in the community dropped 19%. The death rate of animals that are either healthy or with treatable conditions per 1,000 people similarly dropped 26%. The spay/neuter rate per 1,000 people increased by 31%. However, some measures did not show improvement. Animal adoptions per 1,000 people were down 17%. The live animal release rate, a measure of the portion of shelter animals that are adopted or redeemed, was down 3%.

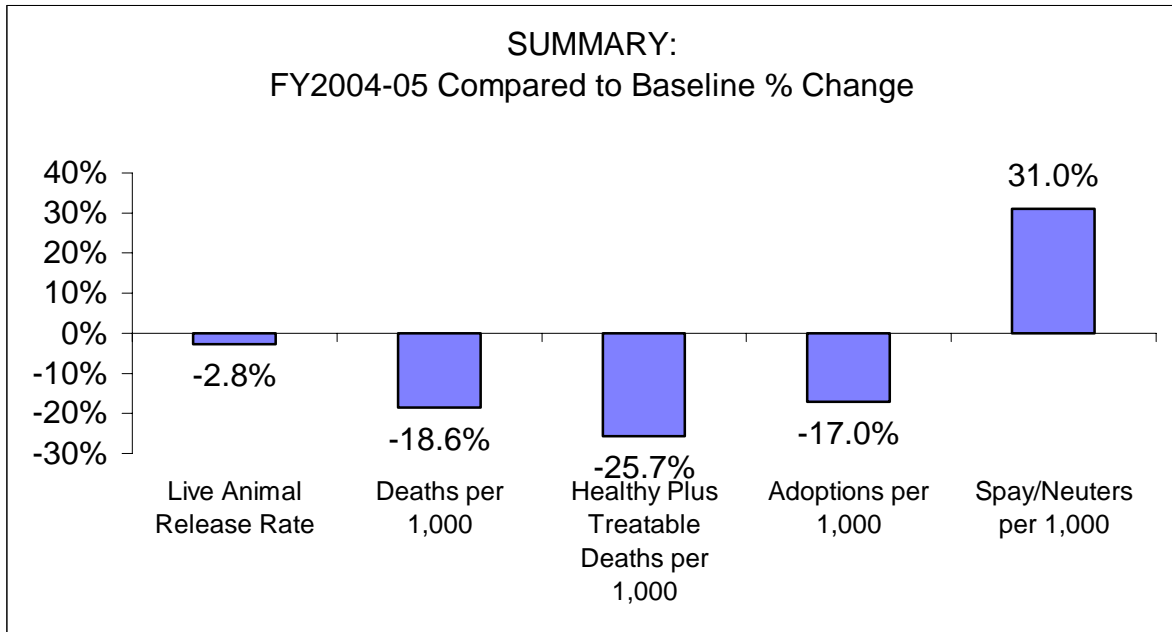
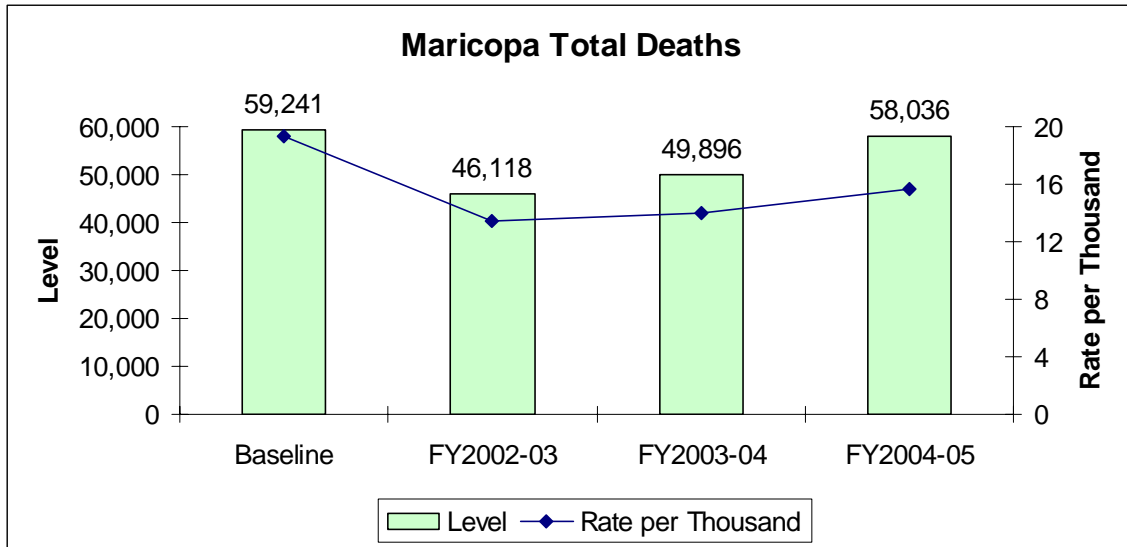


Figure 1

### Total Death Rate

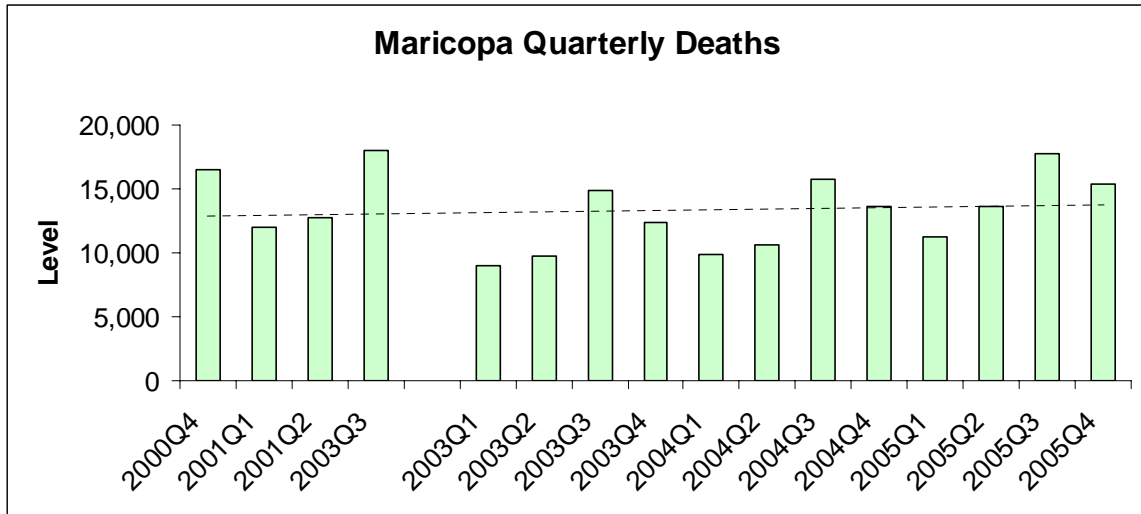
The death rate of animals in Maricopa shelters dropped 2% from 59,241 animals to 58,036 animals (see Figure 2). The human population (and therefore the estimated companion animal population) of this region of Arizona has been growing particularly rapidly. When the size of the human population is taken into account, animal deaths dropped 19% to 15.7 deaths per 1,000 people. However, the total change from the baseline period to the latest program year does not give the full picture of the trend in

deaths. Between the baseline period and the first program year, deaths dropped 22% and deaths per thousand people dropped 30%. In the second and third program years, deaths increased from the prior year. This increase occurred even after taking into account population growth, though the increase is less sharp after this adjustment.



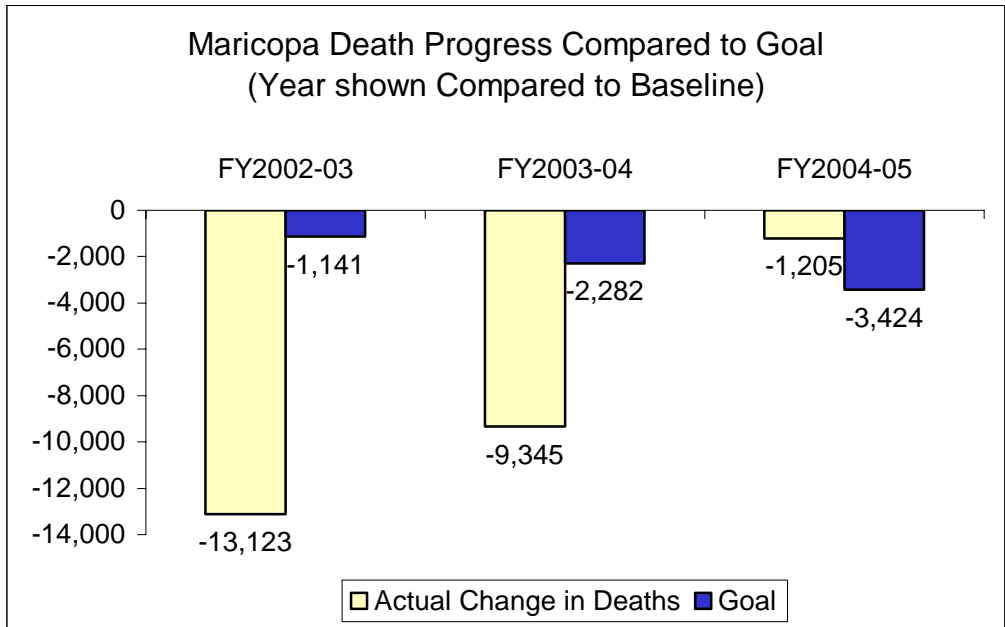
**Figure 2**

As indicated in Figure 3, the quarterly death rate mirrors the trend seen in the annual growth rate. There is a clear seasonal pattern that generally peaks in the third quarter and has a trough in the first quarter. Since the Maricopa program started in November, the first quarter in all data for this program is defined as November through January, with the second quarter being February through April, the third quarter being May to July, and the fourth quarter being August to October. Aside from the seasonal pattern, the 2004-05 Fiscal Year had a death rate higher than the prior year in every single quarter. There is no evidence that the trend of increasing death rates seen between the first program year and the third program year is changing.



**Figure 3**

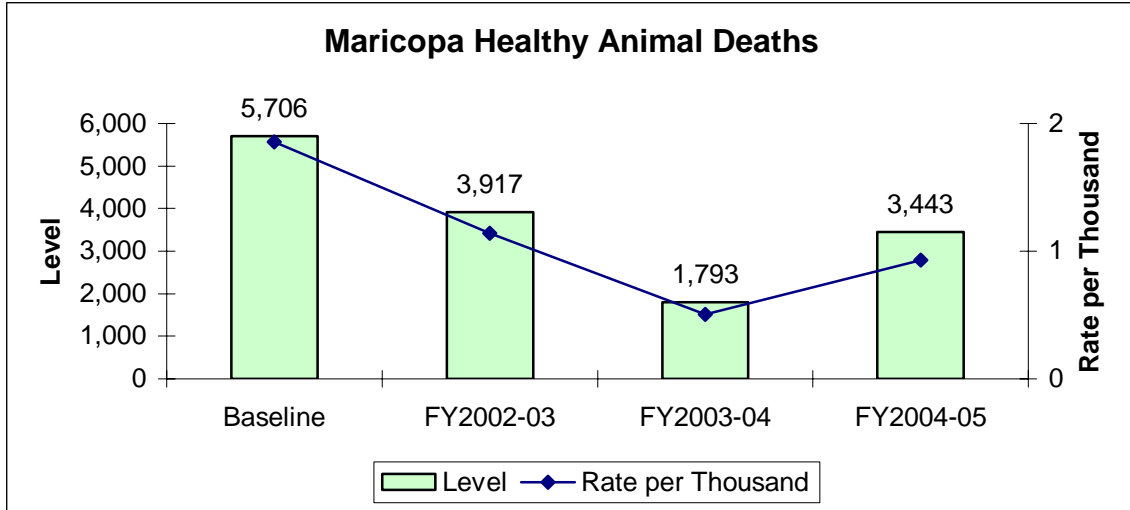
The decline in the death rate for the first two years of the program exceeded the program goal. However, due to increases in deaths in year 2 and year 3, by the third year the decline in the death rate was short of the goal (see Figure 4). In fact, by the end of third year, the change in deaths had met the first year's goal but fell short of the second year's goal as well. If by the fourth year Maricopa can get back to the death rate they had in year 2, they will meet their year four death goal. However, if the increasing trend from the prior two years continues in year 4, Maricopa will have a higher death rate in year 4 than in the baseline period.



**Figure 4**

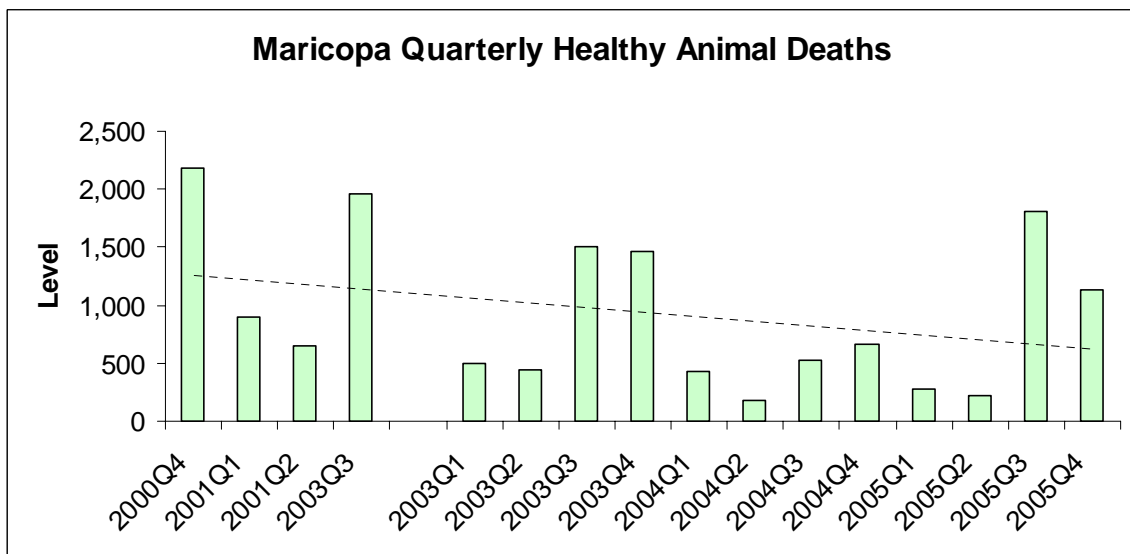
**Healthy Animal Deaths**

Healthy animal deaths declined 40% from 5,706 deaths to 3,443 deaths (see Figure 5). When population size is taken into consideration, healthy animal deaths declined 50% to 0.9 deaths per thousand people in FY2004-05. As with total deaths, there has been some loss of prior progress in healthy animal deaths. However, healthy animal deaths reached their lowest level in the second program year rather than the first program year which was the low point for total deaths. Healthy animal deaths in the third program year were below the level seen in both the baseline period and the first program year.



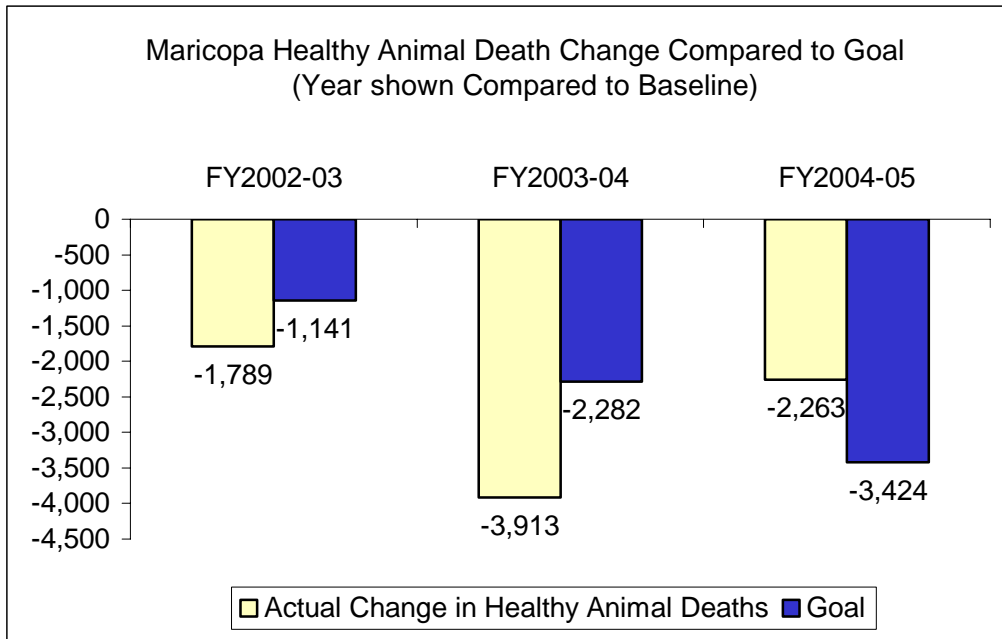
**Figure 5**

On a quarterly basis, healthy animal deaths appear to have continued their trend of declining in the first two quarters of FY2004-05 (see Figure 6). However, the last two quarters showed a reversal of that trend. The third quarter of 2005 in particular had disappointingly high deaths, with a healthy animal death rate higher than any other quarter since the baseline period. Roughly four-fifths of the increase in deaths in FY2004-05 compared to the prior year can be attributed to this quarter. The remaining increase can be attributed to the fourth quarter of 2005, the last quarter for which data is available. However, although the fourth quarter of 2005 is high relative to the same period a year earlier, it is a drop of 38% from the prior quarter. This is in contrast to a 17% increase on average comparing the third quarter to the fourth quarter in prior years (or a 4% increase on average if the baseline period is excluded).



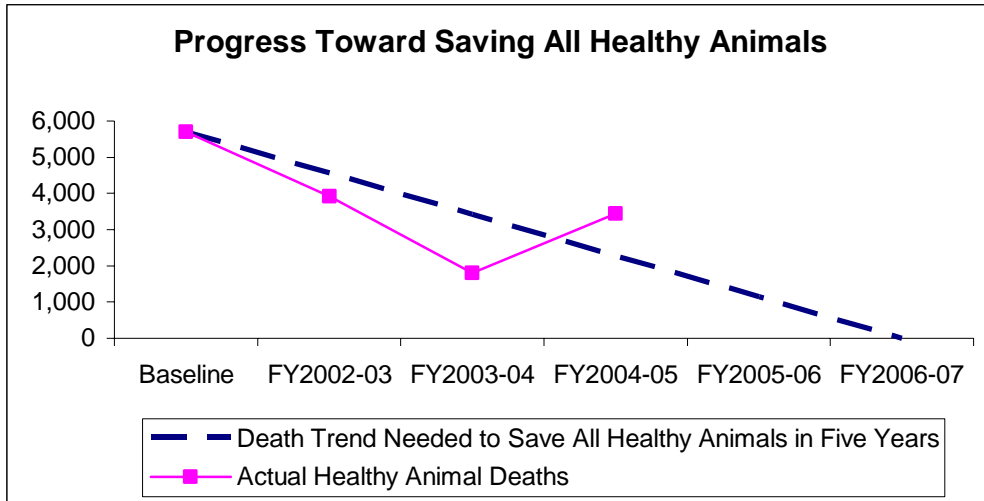
**Figure 6**

The reduction of healthy animal deaths exceeded Maddie’s Fund program goals for the first two program years while the third program year was significantly short of goal (see Figure 7). In fact, the FY2004-05 actual healthy animal death change was just short of the prior year’s goal, while the prior year’s healthy animal death level exceeded the FY2004-05 goal. Therefore, if FY2004-05 healthy animal deaths had remained at the level they were at in the prior fiscal year, they would have surpassed that year’s program goal.



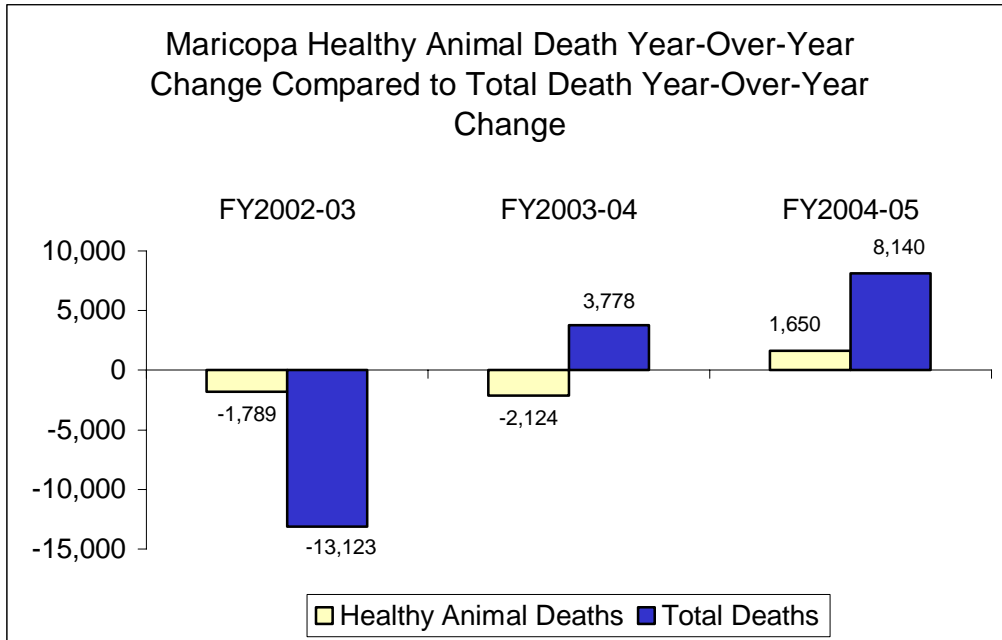
**Figure 7**

In FY2003-04, the Maricopa County community program had been most of the way towards completing its five-year goal of eliminating all healthy animal deaths (see Figure 8). However, the backsliding in deaths in FY2004-05 resulted in the program being less than half way towards this goal after three years of funding. Drawing a straight line between the baseline level and the current healthy animal death level and extrapolating this rate of progress into the future implies that more than five years would be required to eliminate healthy animal deaths; however, this relies on a number of assumptions. It is quite possible for progress in later years to be faster than this. For example, if the reversal in death reductions seen in Year 3 is treated as an anomaly, and the trend from prior years is extrapolated, then healthy animal deaths would be eliminated within five years.



**Figure 8**

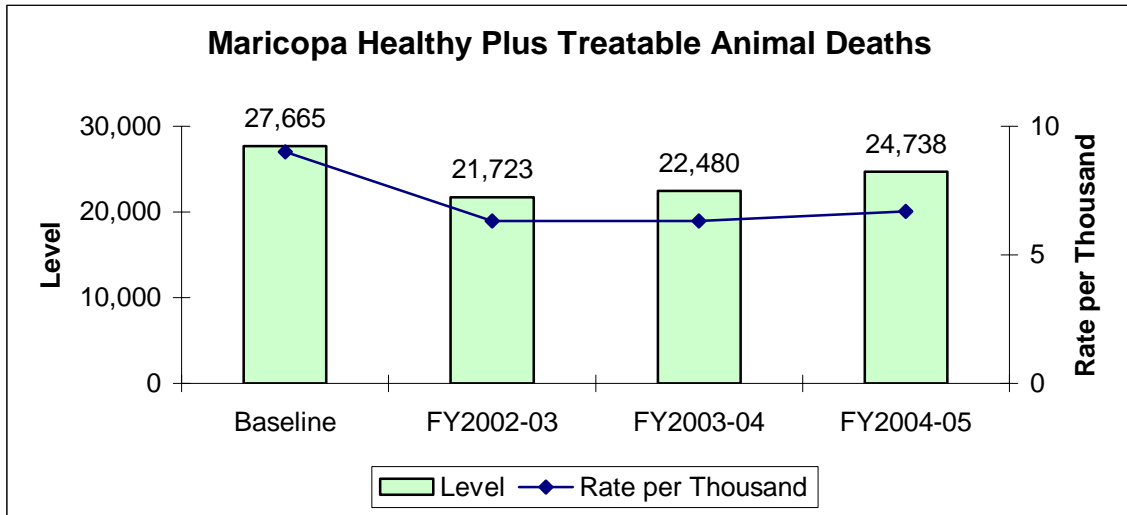
The year-over-year change in both healthy animal deaths and total deaths were consistent in direction in the first and third program years, while in the second program year they moved in opposite directions (see Figure 9). In the first and third years, though the direction of change was the same, the change in healthy animal deaths was only a small fraction of the total death change. In the baseline period, the level of healthy animal deaths were about a tenth of total animal deaths. By the third year, healthy deaths were only about 6% of total deaths due to a larger decline in healthy deaths than total deaths over the full period. Since healthy animal deaths were the primary target of the Maricopa community program, the pattern in relative change of healthy animal deaths and total deaths are somewhat unusual. These trends may be driven in part by demographic change, since Maricopa County has one of the highest growth rates for any major metropolitan area in the nation. While an attempt has been made to account for this by looking at animals per 1,000 people, even this may not give the full picture. When populations change rapidly, the nature of the community may make large shifts along with the number of people. This will occur if the typical new immigrant to the community differs demographically from the typical existing resident. If, for example, the new residents in the community have a higher portion of dogs and cats in their homes than long-term residents, shelter intake and shelter deaths may go up more rapidly than the growth in population.



**Figure 9**

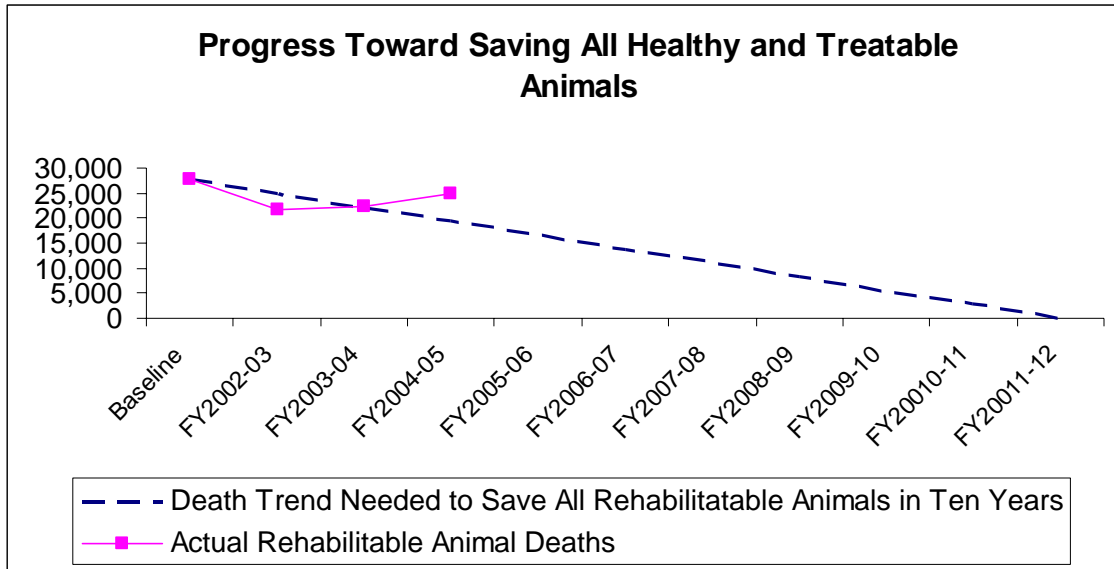
### **Healthy and Treatable Animals**

Healthy and treatable animal deaths declined 11% from 27,665 to 24,738 in FY2004-05 (see Figure 10). After accounting for the size of the human population, the deaths of healthy and treatable animals per 1,000 people decline 26% between the baseline period and FY2004-05. The trend in deaths for healthy plus treatable animals mirrors the trend for total deaths, with all of the decline occurring in the first program year while deaths increased year-over-year in the second and third program years.



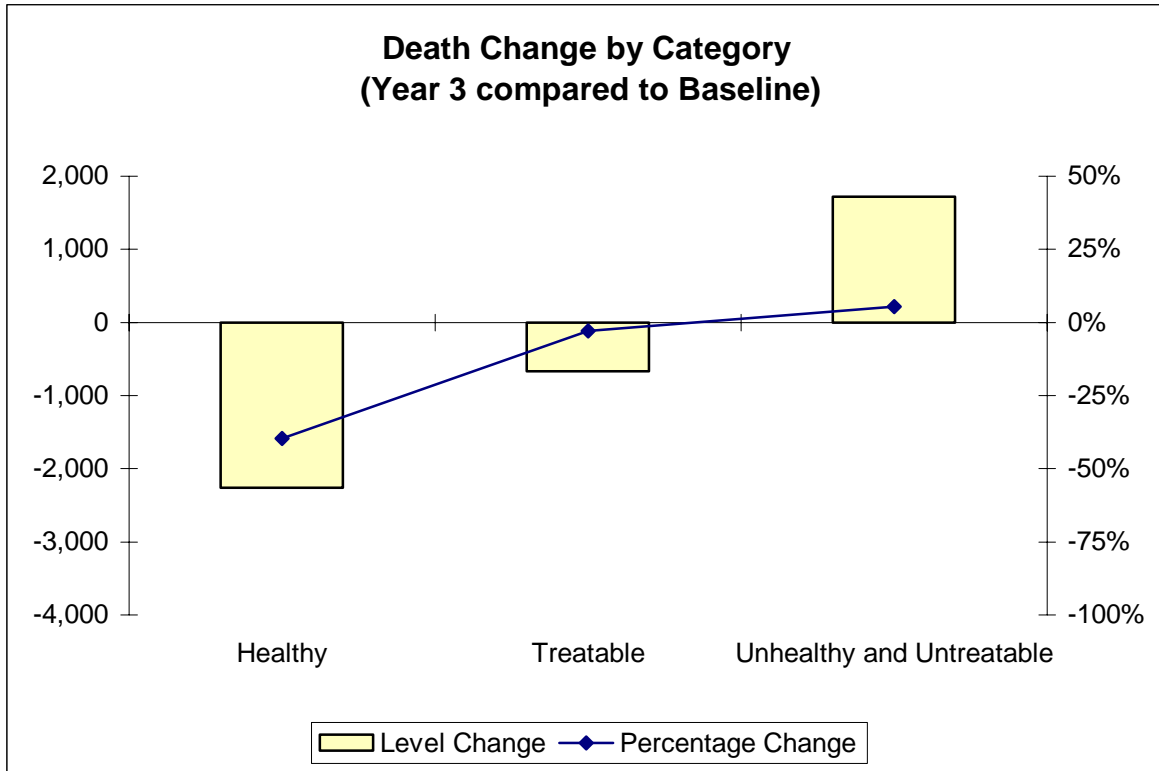
**Figure 10**

The current rate of reduction in healthy and treatable animal deaths beyond the five year program would not eliminate deaths in a ten year period (see Figure 11). In fact, it would take between 28 and 29 years to eliminate all healthy and treatable animal deaths given the current rate of change over the total program period. Treatable animals also by definition present more difficult issues than healthy animals. However, treatable animals are not the current primary focus of Maricopa County’s death reduction efforts. It is quite possible that when treatable animals become the focus, faster progress will be made on these animals, similar to the progress currently being made with healthy animals. Furthermore, as with all statistical extrapolations, actual progress could be more or less, depending on how the dynamics of the shelter and community change.



**Figure 11**

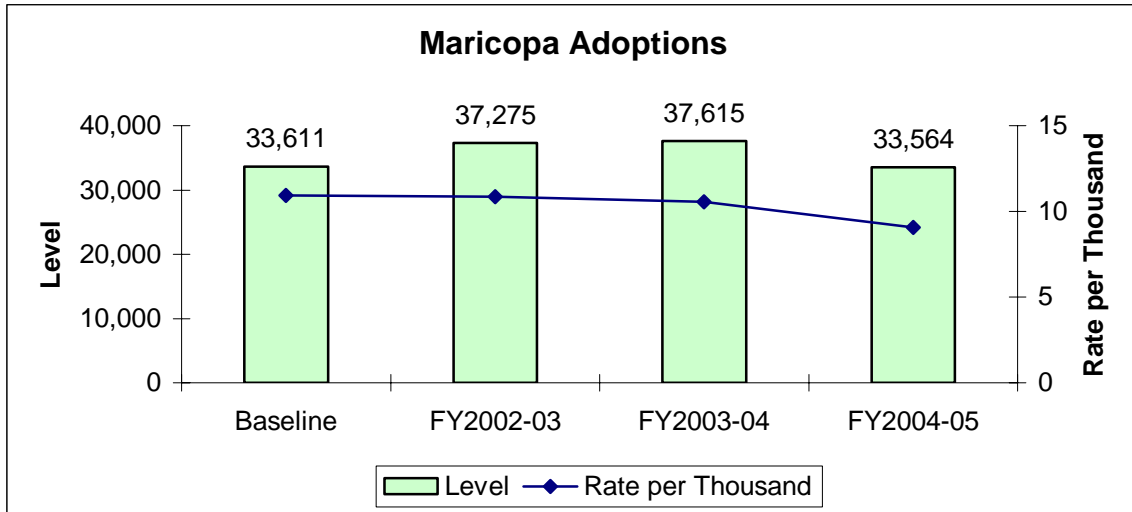
While animal deaths declined for the treatable and healthy animal categories over the program period, the death rate for unhealthy & untreatable animals increased (see Figure 12). The decline in healthy plus treatable animal deaths is due mostly to the decline in healthy animal deaths. The level of treatable animal deaths declined by about 30% as much as healthy animals declined over the program period. The increase in the level of unhealthy & untreatable animal deaths was almost as large as the decline in healthy animal deaths. However, in percentage terms, the change in treatable and unhealthy & untreatable animal deaths were small (-3.0% and +5.5% respectively). Furthermore, the growth in unhealthy & untreatable deaths was smaller than population growth, and deaths per 1,000 people declined for all categories of animals.



**Figure 12**

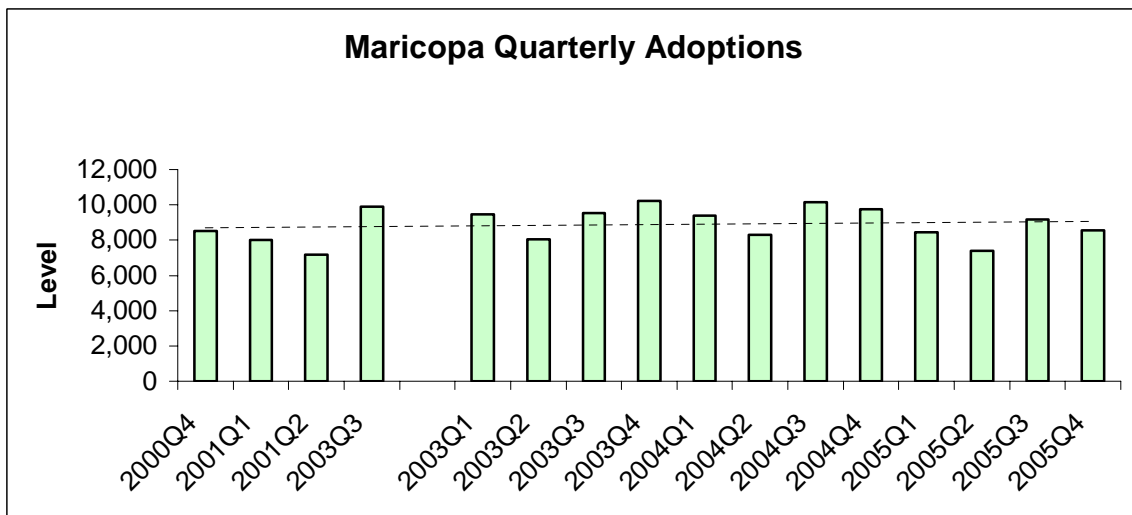
### **Adoptions**

Adoptions decreased 0.1% from 33,611 to 33,564 between the baseline period and the third program year (see Figure 13). After adjusting for the size of the human population, adoptions decreased 17% from 10.9 animals adopted per 1,000 people to 9.1 animals adopted per 1,000 people. In the first two program years, adoptions were above the baseline level, though the adoption change was almost flat in FY2003-04 from FY2002-03. In FY2004-05, there was a big drop in adoptions from the prior year, which also led to adoptions being approximately the same as the baseline level. When population growth is taken into account, adoptions were roughly flat between the baseline period and the first program year, down slightly in the second program year, and down strongly in the third program year. In no year did adoptions per 1,000 people increase.



**Figure 13**

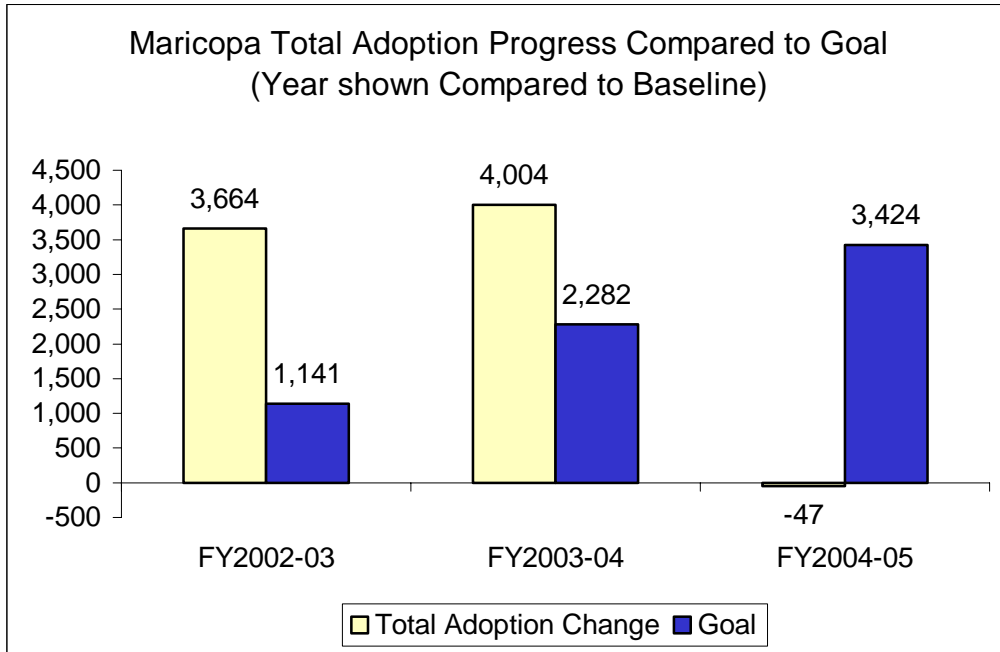
On a quarterly basis, after accounting for seasonal patterns, adoptions appear to be continuing to decline (see Figure 14). Adoptions peaked in the fourth quarter of 2003. The four quarters in FY2004-05 all show adoptions that were lower than the same period a year earlier.



**Figure 14**

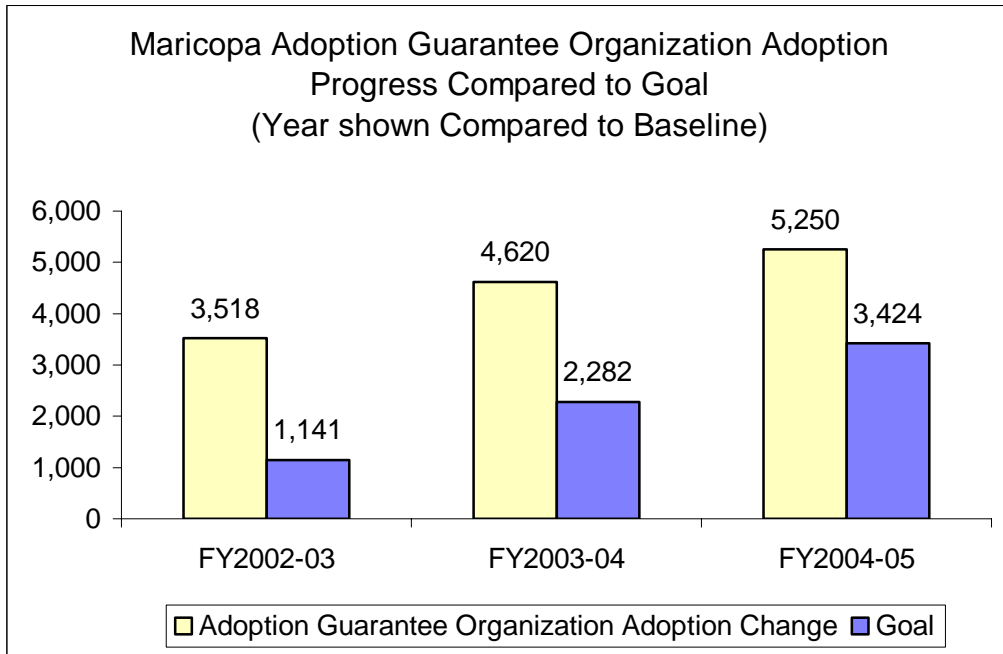
In the first program year, the actual total adoption change compared to the baseline period was about triple the adoption goal (see Figure 15). In FY2003-04 adoptions were also far in excess of the goal. However, by FY2004-05, total adoptions did not increase from the prior year and were significantly short of the annual goal. Adoptions in FY2004-05 declined from the prior year by more than the amount they were supposed to increase over the full three year period. Adoptions will have to increase quite

substantially in future program years for them to reach their original goals. If adoptions exceeded their FY2003-04 level by about 500 animals, they would reach their year 4 goals. This may be difficult to achieve since the trend has been in the opposite direction. It is possible that the rapid growth of the community will help to boost adoptions, however if so this would likely be offset by an increase in intake for similar reasons.



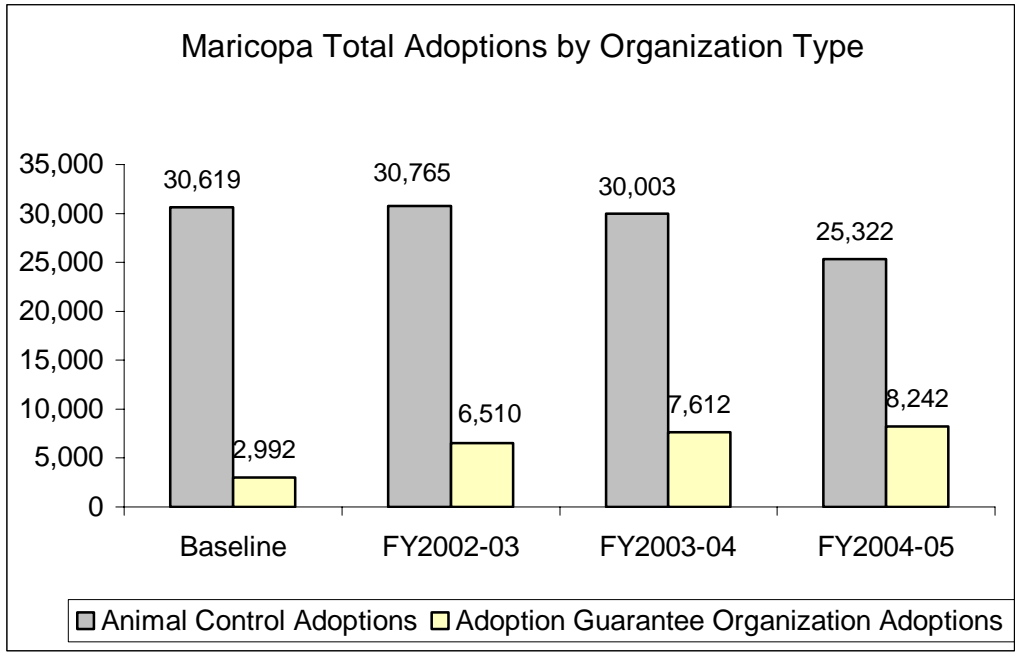
**Figure 15**

The lack of year-over-year adoption progress in FY2004-05 was due to lower animal control adoptions. When adoption guarantee organization adoptions alone are considered, adoption progress continued in every year, including FY2004-05, relative to the prior year. In each year so far, adoption guarantee organization adoptions exceeded their program goal (see Figure 16). In fact, adoption guarantee organization adoptions were close to three times as high in FY2004-05 as they were in the baseline period.



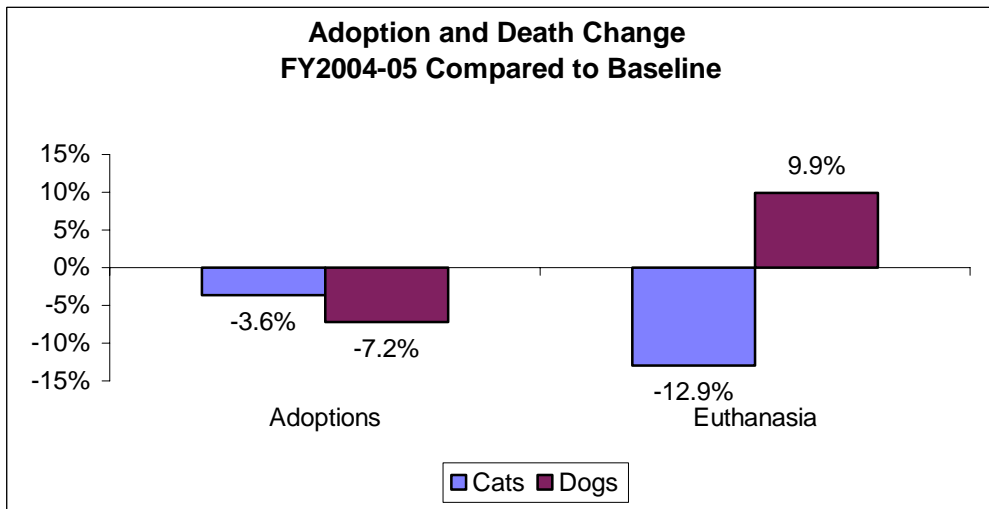
**Figure 16**

In the first program year, a very strong increase in adoption guarantee organization adoptions was enhanced by a slight increase in animal control adoptions. However, in FY2003-04, a decline in animal control organization adoptions countered most of the moderate year-over-year progress made by adoption guarantee organizations in raising adoptions. In FY2004-05, a large drop in animal control adoptions countered all of the gains in adoption guarantee adoptions over the full three year period (see Figure 17). Since the adoption guarantee organization gains are similar in magnitude to the animal control declines, it may be tempting to think that adoption guarantee organization gains were merely substitution of adoption sources. However, the timing of the change in adoptions from these two sources suggests otherwise. Most of the adoption guarantee organization gains came in the first year of the program. However, virtually all of drop in animal control adoption came two full years later.



**Figure 17**

Adoptions decreased for both dogs and cats, with dog adoptions dropping faster than cat adoptions (see Figure 18). Cat death rates declined, while dog death rates increased. This is somewhat unusual, and may be due to adoption progress already made in Maricopa before the funded period for dogs, or possibly a strong feral cat spay/neuter program. In most Maddie’s Fund programs, dog deaths show greater progress than cat deaths.



**Figure 18**

## Spay/Neuter Procedures

Spay/neuter procedures declined from the baseline period during FY2002-03, they increased slightly in FY2003-04 and then sharply in FY2004-05 (see Figure 19). During FY2004-05, spay/neuter procedures were up 58% compared to the baseline period. They were up 31% after adjusting for population growth.

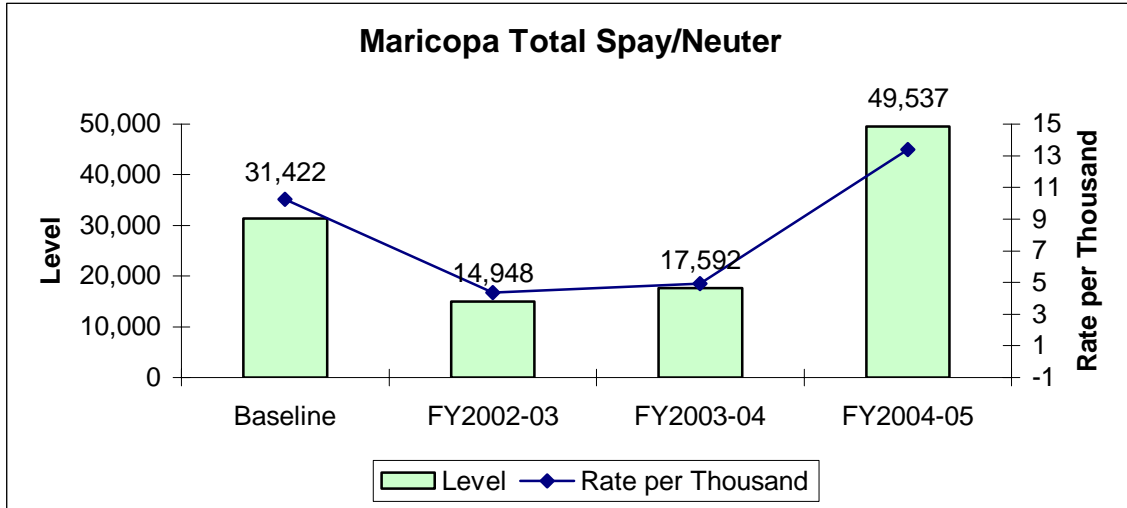


Figure 19

The quarterly pattern for spay/neuter procedures is shown in Figure 20. The increase in spay/neuter procedures is concentrated in the final three quarters of the third program year.

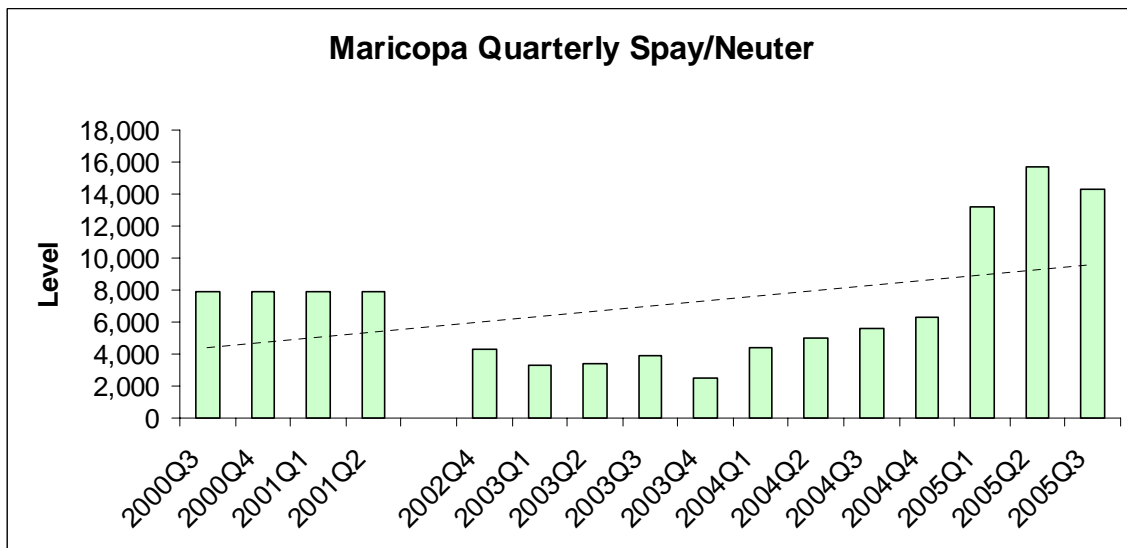
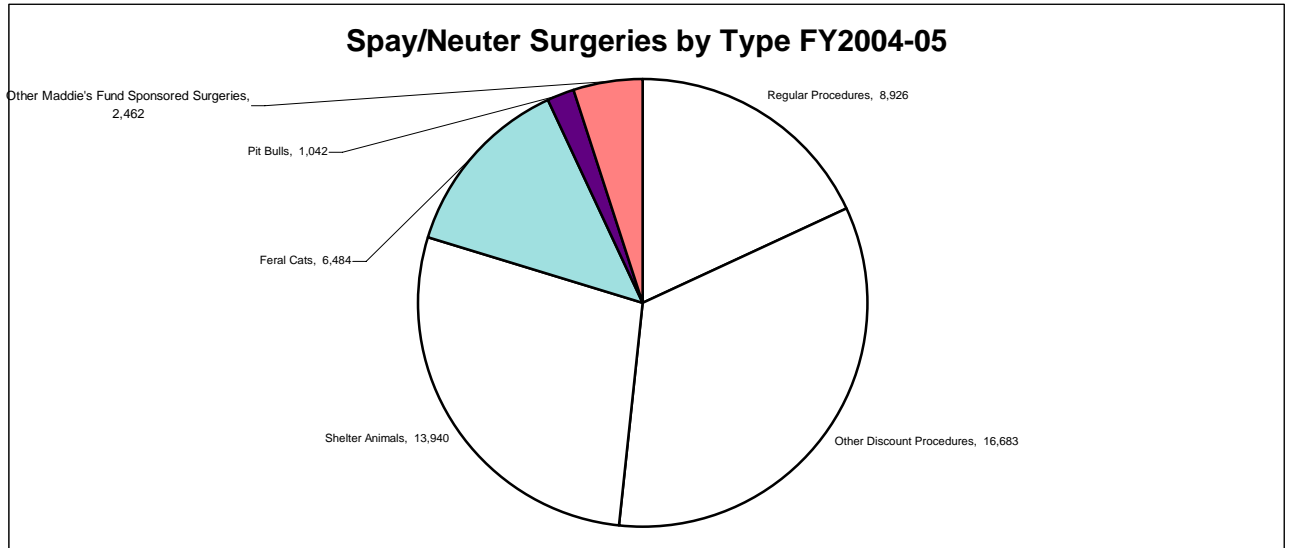


Figure 20

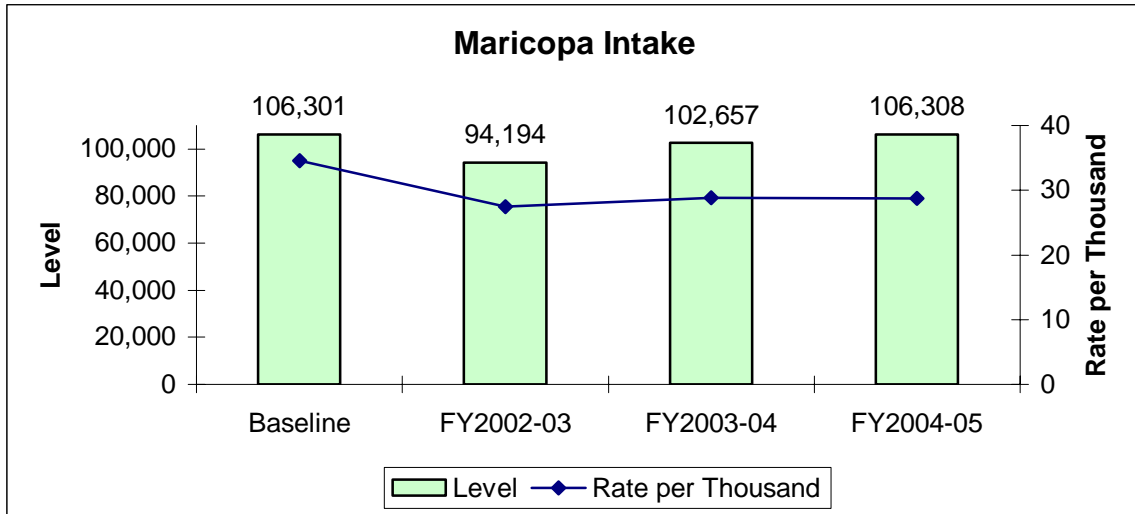
Spay/neuter procedures broken down by type are shown for the latest fiscal year in Figure 21. Combined, surgeries on pit bulls, feral cats, and other Maddie’s Fund sponsored surgeries made up 20% of total surgeries for the year. Most of the remaining surgeries either came from other discount programs or surgeries performed on shelter animals.



**Figure 21**

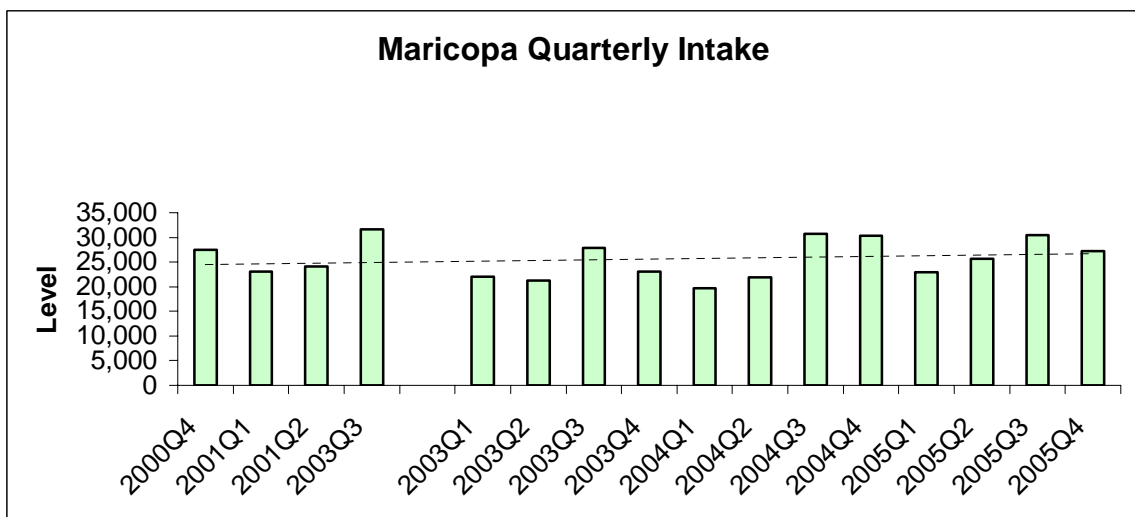
**Total Intake**

Total shelter intake declined 11.4% during the first program year in Maricopa County. However, intake increased in both FY2003-04 and FY2004-05. By FY2004-05, intake was almost exactly at the same level as where it started in the baseline year (see Figure 22). After accounting for the size of the human population, intake per 1,000 people declined 17% over the total program period from 34.6 animals per 1,000 people to 28.8 animals per thousand people. Most of the growth in intake between FY2002-03 and FY2004-05 can be attributed to population growth. Intake per 1,000 people increased slightly in FY2003-04 year-over-year but then was flat in FY2004-05. While the raw intake level increased 13% over this two-year period, intake per 1,000 people increased 5% between FY2002-03 and FY2004-05.



**Figure 22**

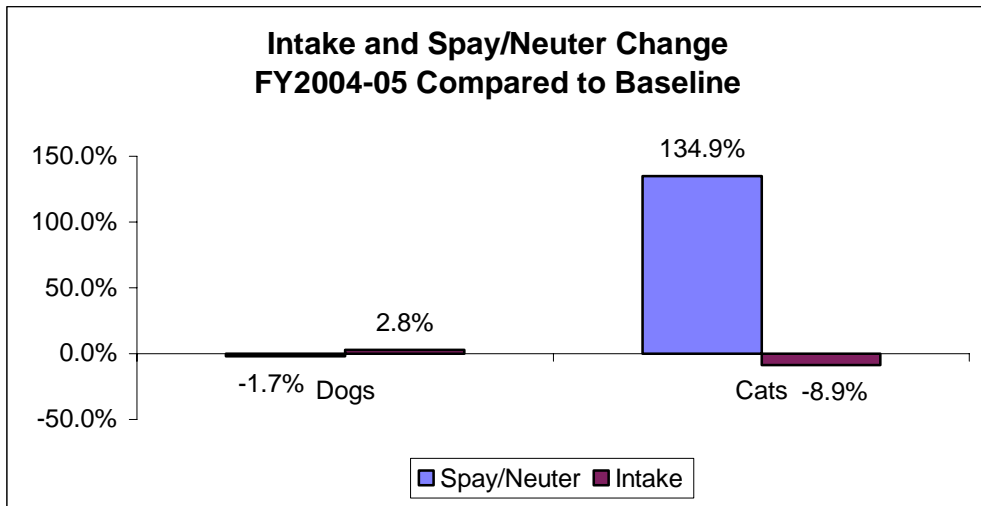
Quarterly data indicates that intake has been more or less flat in recent years (see Figure 23). Intake was lower in the third and fourth quarter of FY2004-05 (the most recent quarters for which data is available) than in the third and fourth quarter of FY2003-04. However, intake was higher in the first quarter and second quarter of FY2005-04 than in the same quarters a year earlier. Intake peaked in the third quarter of 2004. Since the two most recent quarters show a decline compared to the prior year, this may be evidence that declines in intake will continue. However all of these differences are relatively small, with the quarterly patterns being more prominent than any longer-term trend.



**Figure 23**

Intake declined for cats but increased for dogs. This was consistent with the spay/neuter rate, which showed a large increase for cats, but was down slightly for dogs (Figure 24). It is likely that the lower intake and greater reduction in deaths for cats were due to an aggressive cat spay/neuter program, along with an adoption increase. If the change in intake and adoptions can be translated directly into deaths, most of the decline in deaths can be attributed to more spay/neuter procedures. The combined decline in intake and the increase in adoptions for cats is roughly equal to the decline in deaths, with about 70% of the combined total coming from the intake change.

If we assume that intake without any improvement in spay/neuter rates, cat intake would have increased at the same rate as the population, then about 90% of the improvement in euthanasia over what it would have otherwise been is due to the increase in spay/neuter rates. The change in dog deaths is more difficult to interpret since the change in adoptions combined with intake does not correspond very well with the change in the number of deaths.

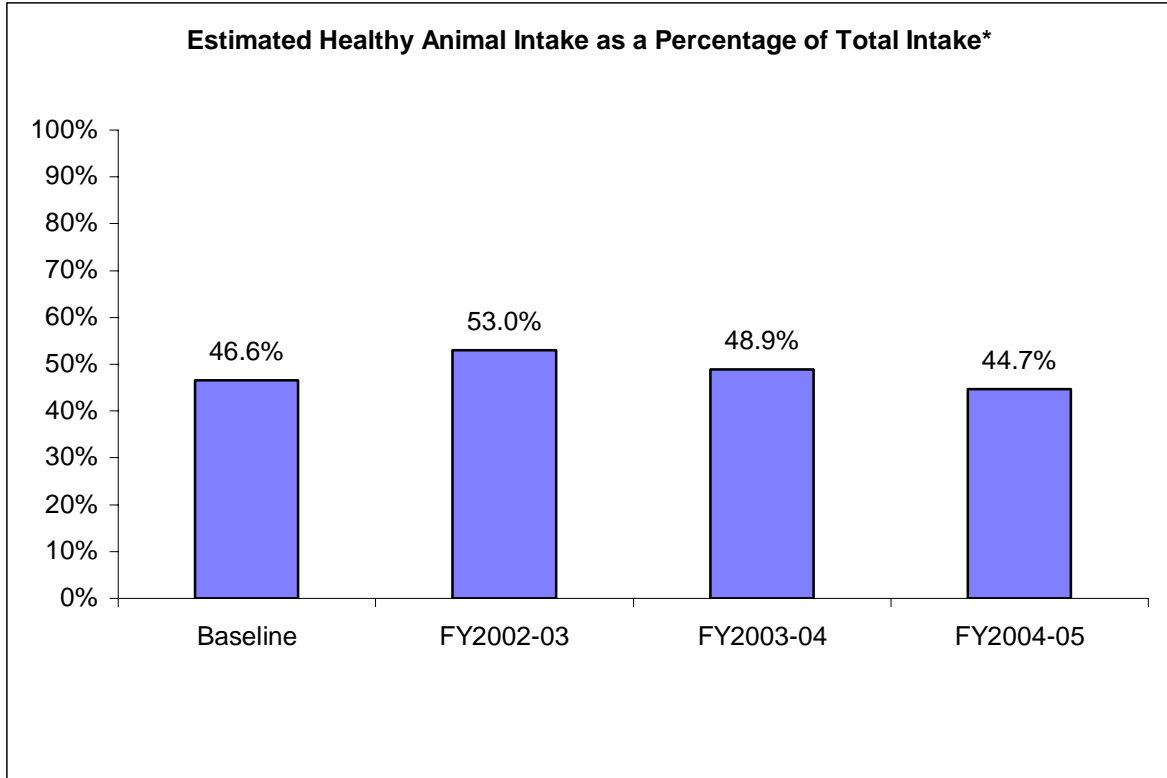


**Figure 24**

Estimated healthy animal intake as a portion of total intake increased in the first program year then declined somewhat over the next two years (see Figure 25). This suggests that the categories used for animals were fairly consistent over time. The fact that estimated healthy animal intake hovered around 50% also is interesting for another reason. The portion of deaths attributed to healthy animals on its surface appears to be unusually low. However, the estimated healthy animal intake figures suggest that this is probably not due to the way animals were categorized (i.e. a low number of animals being categorized as healthy). In fact, it is estimated that possibly half of the animals coming through the doors would be categorized as healthy. High adoption and redemption rates, even in the baseline period appear to be driving the low portion of healthy animal deaths.

It is important to note that animal categories are not recorded at the time of intake, so the categorization of animals is estimated based on outcomes. More specifically, healthy animal intake is estimated as healthy animal deaths plus redemptions plus adoptions. However, animals at the shelter can change in their health status over time and

adopted/redeemed animals may not always be healthy. To the extent that these two situations occur, the estimate of healthy animal intake may be inaccurate. For example, if due to shelter improvements fewer animals deteriorate in their health condition at the time of euthanasia, this will cause healthy animal intake to appear to increase even if the condition of the animals at the time of intake has not changed.



**Figure 25**

## Sources of Change

The decrease in death over the total program period cannot be easily explained (see Figure 26). Adoptions declined slightly, which should increase deaths. The change in intake and redemptions were very small, and offset each other. Given these component changes, a decline of 1,255 deaths remains unexplained. This reduction in deaths may be attributable to a reduction in outcomes relative to intake, which is a statistical discrepancy. This type of statistical discrepancy is not uncommon and could be caused by a number of factors such as changes in animal inventory over time, transfers into or out of the region, and data errors.

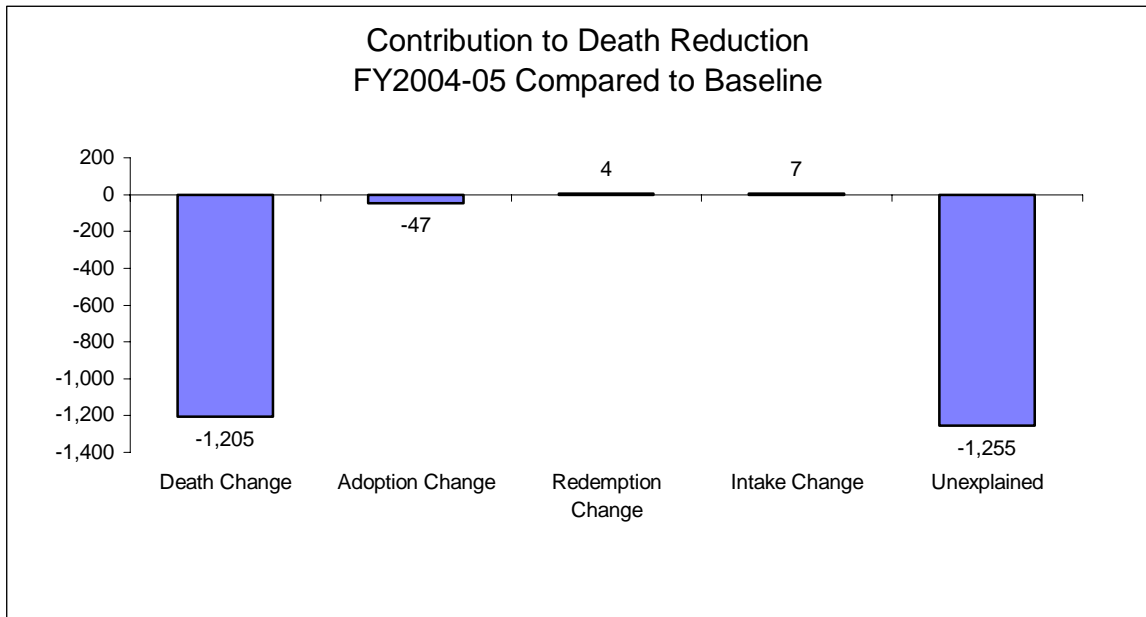
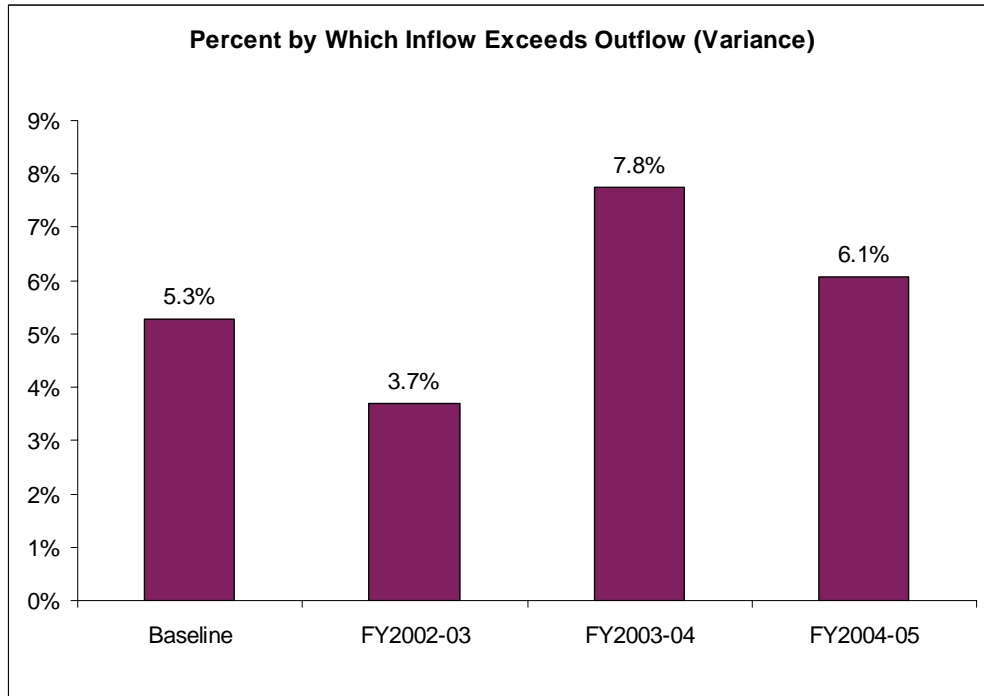


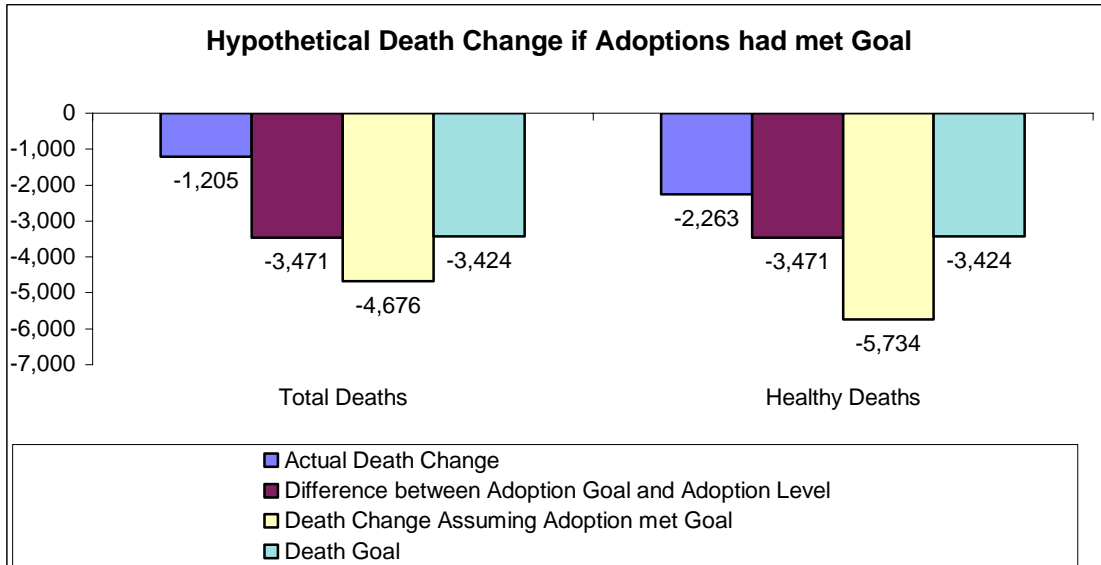
Figure 26

The statistical discrepancy can be seen in Figure 27. Every year there are slightly more animals designated as going into shelters than coming out. This is not necessarily an error. For example, rising levels of fostered animals could cause an increase of animal “inventory”. The difference is large enough to explain the decline in deaths seen over the total period.



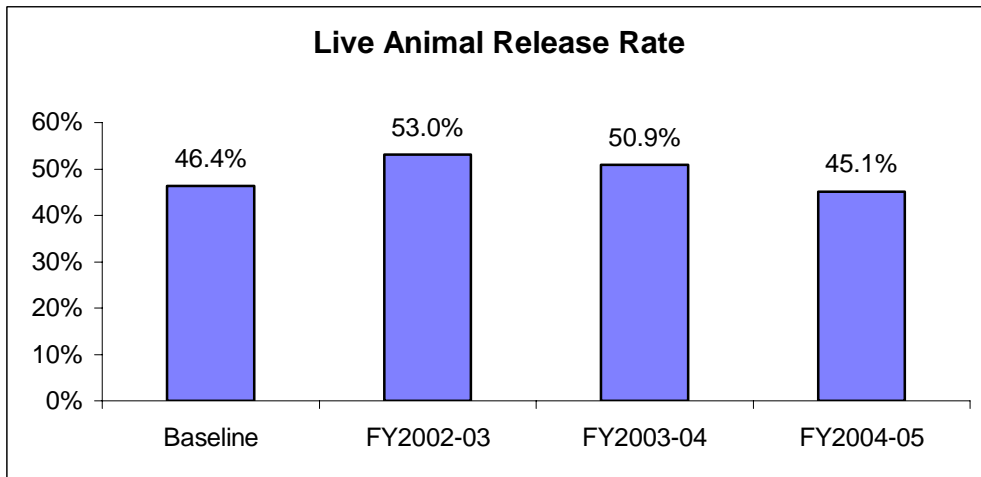
**Figure 27**

Maricopa fell short of its healthy animal death and total death goals. If adoptions had been at or even close to the program goal, both death goals would have easily been surpassed (see Figure 28). Hypothetically assuming the adoption goal had been met and all other things had remained equal, total deaths would have dropped by more than the program goal. Based purely on the arithmetic, healthy deaths would have dropped more than the program goal, however since this would have led to healthy deaths being less than zero, it would be more accurate to say that all healthy animal deaths could have been eliminated.



**Figure 28**

The live animal release rate indicates the portion of shelter animals that end up with positive outcomes (normally adopted or redeemed) as opposed to negative outcomes (i.e. killed at the shelter). In the baseline period, 46% of animals were adopted or redeemed (see Figure 29). In FY2002-03 the live animal release rate increased from the baseline period. However, by FY2004-05, the live animal release rate had returned to slightly less than its baseline level.



**Figure 29**

## Conclusions

The results indicate that Maricopa County fell short of its goal for healthy animal deaths and total deaths. The program also fell short of its adoption goals. Fortunately, there has been a modest reduction in deaths, despite reduced adoptions and no significant change in intake. Population growth may be an important factor preventing improvements in intake, despite rising spay/neuter levels.

Unfortunately, for the last two years, deaths have increased rather than going down. This trend must be reversed. For future death targets to be met, it is key for Maricopa County to not only reverse the current trend of reduced adoptions each year, but also to move in the opposite direction and make incremental improvements in the adoption rate compared to where the program was two years ago.

Overall, if adoptions get back on track relative to goals and the current intake trends continue for the full program period, Maricopa County would be on its way to eliminating all healthy animal deaths within the intended five-year period. However, this of course depends on making very large gains in adoptions.

It is also important to note that Maricopa County is one of the most rapidly growing major metropolitan areas in the nation. Therefore, it can be very important to take population growth into account when analyzing program results and setting goals. This would imply that reductions in deaths and intake are more impressive than the raw data implies while changes in adoptions or spay/neuter rates are less impressive than the level appears on its surface. Using the rate per 1,000 people or ratios such as the live animal release rate are ways to account for population growth. Furthermore, a rapidly changing population is also likely to imply a change in the nature of the population. This could imply changes in animal ownership/guardianship rates. In addition it could also imply changes in median pet keeper attitudes towards issues such as spay/neuter, pet adoption, and pet relinquishment.