1.0 INTRODUCTION

The white-tailed deer (Odocoileus virginianus) is the most abundant and most widely distributed large herbivore in Minnesota. It is found throughout the Twin Cities Metropolitan Area where it is revered as both an amenity and a nuisance. The mix of wetlands, woodlands and brushlands found throughout the City of Burnsville, creates habitat attractive to the white-tailed deer. With the ever increasing human population, more and more of this suitable habitat is being lost to and/or fragmented by business and housing development.

As a result, the resident deer herd is being compressed into smaller areas putting increased pressure on the remaining available habitat. This in turn causes habitat changes due to over browsing and conflicts with nearby residents. Residents notice an increase in damage to ornamental plantings and car/deer collisions. Due to the lack of natural predators such as wolf and mountain lion, it is up to the human population to take the role of predator. However, in urban/suburban environments regular hunting seasons are limited as a management tool due to current firearms discharge ordinances. As a result, the deer population will continue to rise unless some specific population management techniques are applied.

The City of Burnsville prepared a Draft Natural Resources Master Plan in 1998 which identified the need for a citywide deer management program, especially for areas where woodland restoration or regeneration is a high priority objective of the Natural Resource Master Plan. This, along with concerns regarding the biological integrity of the city's natural areas, increasing complaints about nuisance deer, increased car/deer crashes and concern over the long-term health of the deer herd, initiated the preparation of this deer management program.

2.0 BACKGROUND AND PROBLEM IDENTIFICATION

Increases in Burnsville's deer populations combined with development of remaining lands have led to more and more contact between deer and residents. Residents welcome many of these encounters, however, as the number of encounters increases, more of them are becoming unwelcome.

The City of Burnsville has discussed the concept of a deer management program on several occasions in the past ten or more years. Representatives from Hennepin Parks, the USFWS (MVNWR), and the DNR have discussed management options with city staff for various locations within the City. To date, Burnsville has not prepared or actively participated in any deer management plan or program sponsored by others. Although, Burnsville has allowed Hennepin Parks and the MVNWR to extend their management programs into the portions of their respective parklands within Burnsville.

There has been growing concern from the agencies mentioned, as well as from residents, regarding the current deer population within the city. There are a number of concerns that would be addressed by this program, including:

- The biological integrity of the city's public natural areas;
- Landscape Depredation;
- Public safety; and
- Maintaining a long-term healthy deer population.

A comprehensive management program must address all of these issues.

2.1 Impacts to Habitat

Extensive browsing and grazing by overabundant deer populations can cause changes to the structure and content of their preferred habitat areas, as well as the habitat of other woodland wildlife species. Essentially, deer concentrate feeding on their favorite plants first. When deer populations are low, these plants can survive and reproduce normally. However, when deer numbers are high in an area, the pressure/stress on these favorites is also high, which typically results in lower productivity and survival of the favorite plant species. Deer then move to other less palatable plants to feed within the same habitat or move to other areas in search of alternatives. The result of this feeding selection process over long periods of time is an overall change in the habitat structure and composition.

There is a wealth of documentation on the effects that high deer densities have on the regeneration of forests, only a few of which have been cited (Waller and Alverson 1997, Augustine and Jordan 1998, Augustine and Frelich 1998, Conover 2001, Tilghman 1989, Hough 1965). Conover summarizes four separate studies by others that demonstrated how the reduction of high deer density resulted in increased plant production, regeneration and/or plant diversity. Others have concluded through related studies that selective browsing by deer can lead to long-term changes in forest canopy composition (Tilghman 1989) as well as understory composition (Augustine and Frelich 1998). For example, with high deer densities, those forest species that are less tolerant to heavy browsing/grazing, such as pin cherry and oak, will be less common in the future composition of the forest. On the other hand, the more tolerant or the less preferred species, such as maple or common buckthorn will become dominant.

Research suggests that local deer abundance and landscape changes have altered plant-

deer relationships enough that grazing can lead to local extirpation of sensitive forbs (Augustine and Frelich 1998). For example, in their study, at low deer densities (13-26 deer per square mile) short-term deer grazing had little effect on a species of trillium (a woodland wildflower), however, at densities greater than 65 deer per square mile trillium was prevented from recovery.

As a result in the change in plant composition and the change in structure of the understory habitat, deer grazing/browsing can have much broader impacts than on the plant community alone. One researcher found (DeCalista 1994) that songbird species richness (number of species) was reduced in the intermediate canopy of woodlands that had deer densities greater than 20 deer per square mile. The deer density threshold for the various songbird species studied was in the range of 20 to 38 deer per square mile. Other research (Warren 1991) has also documented changes in wildlife use as a result in high deer densities. Studies were cited that documented changes in abundance of red-backed voles (decreased) and white-footed mice (increased) due to vegetation changes resulting from deer grazing. Other studies cited reported cases where bird species composition changed with high deer density with species like black and white warblers being absent from habitat they were once known to occur in.

Thus, an over population of deer can alter the forest community (Augustine and Frelich 1998) and the associated mammal and bird communities in a deciduous forest ecosystem (Warren 1991). This alteration of the vegetation and wildlife community may occur so gradually that many people will deny that white-tailed deer had any part in the process (Hough 1965) or may not recognize that a change has occurred.

The effects of high deer densities on woodland plant communities is dependent on the species that make up that community currently and prior to the high densities, as well as the current density of deer in the area. In 2001, city staff and the S.T.O.P. group will be partnering to install exclosure devices in Terrace Oaks Park to document the current and past plant composition and the effects of deer density on those plants. It should be recognized at the outset that given high deer densities have occurred for a number of years in this area, that some native wildflower species may not come back with immediate deer density reduction (exclosure) and others may not come back at all. The longer the densities stay high, the more uncertain it will be regarding the return of the most sensitive species.

2.2 Plant and Landscape Damage

Another consequence of habitat changes due to over browsing is deer moving into areas of non-traditional habitat such as residential areas in search of alternative food sources. Deer depredation of landscaping, especially ornamentals, is the most commonly received complaint with respect to deer. Although deer are not the only wildlife species contributing to such damage, they can be a significant factor. Preventive techniques such as fencing and repellants have been shown to be effective in reducing damage under some conditions. Additionally, restrictions on backyard feeding of deer also aids in minimizing landscaping depredation by deer.

The use of repellents requires serious commitment by effected residents. Constant vigilance is required to maintain the effectiveness of repellants. They must be reapplied periodically based on weather conditions and the growth rate of the vegetation. It should also be noted that repellants might not work for all vegetation types. Given the cost, repellants are the most effective for relatively small landscaped areas. However, effectiveness is related to a number of factors including deer density and the availability and condition of habitat.

Normal residential fencing heights are not an effective deterrent to deer. Other fence designs or electric fencing may be more effective but may not be compatible with uses of

adjacent properties. The City's fencing regulations were revised in recent years to allow the use of electric fencing to protect landscaping and garden areas (see Attachment C). Information regarding the City's fencing ordinance should be provided to residents in high deer density areas. Again, the effectiveness of fencing is relative to deer density and habitat availability.

Backyard feeding of deer by well-intentioned residents can result in increased depredation of landscaping on adjacent properties. Deer are attracted to the easy food sources and become conditioned to visiting feeding areas for food. When feeding stops or is intermittent, deer adapt to other food sources in the area. By restricting backyard feeding, the attraction to some areas will be reduced and impacts minimized.

It is not expected that depredation of landscaping by deer can be completely eliminated by a deer management program. However, the frequency and magnitude of such depredation should be reduced with a management program. Therefore, even with a population control program, education of residents regarding effective deterrents and feeding restrictions should be a part of any deer management program.

There has not been a formal complaint process defined by the city to date, therefore the data collected on each complaint recorded for the past three years may not be consistent. Records consist primarily of the homeowner name and address, with a few having just a neighborhood location. The location of each complaint received through the year 2000 is shown on Figure 1. The majority of these complaints consisted of damage reported to landscaping vegetation and /or high numbers of deer observed in the area. Currently, backyard or resident feeding of deer is not prohibited within the city and likely has an effect on where complaints are being reported. The areas with the greatest number of complaints are in the East Central and Southwest Management Units.

As this Deer Management Program was being developed, the number of phone calls to the City regarding deer depredation and the need for a deer management program significantly increased, as residents became aware of the issue. It should be noted that Figure 1, has not been updated to reflect these additional complaints.

2.3 Public Safety

Table 1 and Figure 1 show the number and location of car/deer crashes within the City in the past six years and three years, respectively. The number of car/deer crashes is expected to correlate with deer population density as well as other factors such as the time of year, weather conditions, and habitat condition. Car/Deer crashes are a citywide concern and will increase as deer populations increase and traffic volumes increase. Without an effective deer management program in place, the only significant means of urban deer mortality is via car/deer crashes. The areas of greatest concern are on the high-speed and high-volume corridors such as I-35W, I-35E, TH 13 and CR42 because crashes with deer on these roadways have the greatest potential for significant damage and personal injury. However, significant damage can also occur on slower city streets. As shown in Figure 1, a much larger proportion of the car/deer crashes reported in the city occur on city streets.

Some residents are concerned deer may present a risk to personal safety if surprised or startled by a homeowner in their backyard or along a trail. In some areas where deer are being fed, deer may appear tame or may not flee at the sight or presence of people. Although, even as deer adapt to urban environments, they have not been reported to cause personal injury in such situations. However, with emphasis on eliminating backyard feeding, future risks to personal injury can be minimized.

Table 1: Reported Car-Deer Crashes in the City of Burnsville (1995 through 2000)

CAR-DEER CRASH DATA				
Year	Burnsville Police Department Records	State DPS[a] Records	Overlap of Records	Total crashes
1995	46	16	0	62
1996	44	11	0	55
1997	31	7	0	38
1998	39	10	-3	46
1999	48	13	-1	60
2000	26[b]	9[c]	-1	34
Totals	**234**	**66**	**-5**	**295**

[a] DPS= Minnesota Department of Public Safety; DPS data includes reported crashes w/damage >$1000
[b] City 2000 data tracked w/new computer system and therefore may not be complete or an accurate comparison to previous years
[c] DPS 2000 data covers through 12-13-00 instead of 12-31-00.

Figure 1: Deer Crash and Complaint Locations (1998 – 2000) (893 KB)

2.4 Public Health Issues

Another public safety concern identified by residents is Lyme Disease. Lyme disease is caused by bacteria, which can be carried by deer ticks. The deer tick is carried by a variety of warm-blooded animals including the white-tailed deer, mice, birds, woodchucks, dogs and other animals. It is believed that the adult deer tick will feed on a larger host such as a deer or a dog before dropping off and laying eggs on the ground. The nymph stage is thought to feed on smaller animals such as rodents and birds. The nymph stage is very small, about the size of a pinhead. The bacteria can be transferred to humans when bitten by an infected deer tick.

The Minnesota Department of Health has tracked the number of reported cases of Lyme Disease in Minnesota since 1982. The number of reported cases has increased in recent years, however, it is unknown whether that is due to increased incidence or just increased reporting. Most reported cases in the Metro Area have been from Anoka and Washington counties. It has also been noted by the Department of Health that even though the Metro Area has a higher rate of reported cases than other parts of the state, the majority of Metro cases reported exposure from areas outside the Metro Area (Department of Health 2000). The Department of Health identified one reported case of Lyme disease in Dakota County in 2000.

Although Lyme Disease needs to be taken seriously as a health issue, there has been no direct links made between deer population densities and the potential risk for Lyme Disease. Therefore, the need for deer population control should not be based solely on this issue.

3.0 HABITAT REQUIREMENTS

The white-tailed deer requires suitable food, water, shelter and space to ensure its survival. Deer are herbivores and are very adaptable to changing foraging conditions. Depending upon the availability, deer will eat acorns, twigs, herbaceous plants, ornamental shrubs and flowers, corn and alfalfa as well as many other available items. Water requirements are met through direct drinking and through consumption of succulent vegetation. Cover is needed to provide shelter from the elements and concealment from predators. A mixture of upland woods, brushlands, wetlands, grassy openings and agricultural land creates ideal deer habitat.

When deer populations increase, they can change the habitat they live in. As deer graze and browse in their preferred habitat areas, their preferred forage plant species can become stressed to the point of lower production in future years. As a result, deer move to other plant species to supplement their diets. As the deer populations increase, fewer native species are available and deer seek out other alternatives such as ornamental shrubs and garden plantings.

3.1 Burnsville Deer Management Units

Based on a number of factors, the City of Burnsville has been divided into six deer management units for this report. These units are shown in Figure 2. The key factors in determining deer management unit boundaries were natural or artificial barriers/deterrents to deer movements, preferred habitat locations, and density of deer observations with regard to the former two factors. These management units are for discussion purposes and can be adjusted as needed for deer management purposes.

3.2 Preferred Habitat

Preferred habitat, for the purposes of this report, is defined as predominantly wooded areas with scattered brush and wetlands that serve as primary winter cover and have been observed holding large concentrations of deer. Areas identified as preferred habitat for this report are shown in Figures 2 and 3. Deer will be found in areas outside of those identified as preferred habitat when populations are high and during seasonal migrations, however the preferred habitat areas act as their primary cover. Deer will move from these areas regularly throughout the winter to feed, especially when residents provide corn and birdseed. Does will also disperse from these areas in spring and summer to find fresh forage and have their young. Bucks become especially active in the fall and may move between the concentration areas for mating.

The impact that deer have on their habitat, preferred or not, can be determined through browse surveys. A browse survey would consists walking of a series of transects through areas of deer habitat. Depending on the specific objective of a survey, observations would be recorded for such things as the condition of vegetation within five to six feet of the ground surface, presence or absence of natural plant regeneration, species composition, frequency of deer browse evidence, and the presence of non-native or invasive species (McAninch 1995). Browse surveys are typically completed when a deer management program is conducted purely for habitat restoration reasons.

Similar results may also be achieved through habitat exclosures, which exclude deer from feeding in contained areas, thus showing what the areas would be like with less deer pressure. Exclosures on the other hand require similar observations, as well as maintenance

of the exclosure device.

4.0 POPULATION DENSITIES

There are a number of factors that directly influence the size and carrying capacity of most wildlife populations. The size of the population at any given time is dependent on the number of individuals added through births and immigration (recruitment) and lost through deaths and emigration. If recruitment occurs faster than loss, the population will increase, with all other factors staying the same. Another factor is the average survival of each individual. Increased survival can result in increases in population size. The fertility rate also plays a role, since multiple offspring rather than single offspring will increase population size faster.

When comparing urban deer populations to those in rural areas, it can be expected that the survival of unmanaged urban deer will increase due to the elimination of natural predators (Swihart et al. 1995). Additionally, the fertility rate in urban deer populations tend to be higher because the modified urban habitat provides abundant food sources year round. Without countering the reduced death rates and higher birth rates with some sort of population control, the population will continue to grow. The rate of that growth will be specific to the population dynamics, food availability, mobility of the herd, and the management practices of surrounding areas. The effect of immigration and emigration will be dependent on the densities and habitat availability in adjacent communities.

Left unchecked and with adequate habitat, deer populations have the ability to grow dramatically. A study of the City of Minnetonka deer have shown that adult does and doe fawns pregnancy rate is 93% and 80 %, respectively. These adult does typically produced twins and sometimes triplets. The yearlings produced single fawns. Deer densities can reach a point where significant habitat changes can occur as a result of high fertility rates and limited mortality rates.

The quantity and quality of food resources as well as winter cover are limiting factors to the number of deer a given habitat parcel can support. The number of deer that a given parcel can support in good physical condition over an extended period of time is called the "Biological Carrying Capacity" (BCC). When deer populations increase to where the BCC is exceeded, habitat quality and herd physical condition declines.

When deer are living in and around urban areas, there becomes another aspect of carrying capacity. Due to deer / human encounters there becomes a function of the sensitivity of people to the presence of deer. This number of deer that can co-exist compatibly with local human populations is defined as the "Cultural Carrying Capacity" (CCC). CCC is much more difficult to measure because different individuals have different sensitivities to the deer population. It is important to note that relatively low deer densities can sometimes exceed the CCC. An airport would generally have a CCC of zero deer, for instance. Thus, each community must develop their own CCC to meet their individual goals.

Most population control methods focus on increasing the mortality rate or decreasing the fertility rate. Culling methods (removal of individuals from the population) that focus on removal of female deer accomplish both a population reduction through increased mortality as well as future decreases in fertility by removing productive females. Contraceptive methods focus only on the fertility rate by limiting the reproductive capability of individual females within the population. Therefore, culling methods can provide immediate population reduction results while contraception methods take much longer to effectively reduce population sizes (Hobbs 2000). Managing population size by limiting immigration and

forcing emigration does not appear to be a realistic management option in suburban settings.

The management of urban white-tailed deer populations requires information on deer abundance, birth/death rates and changes over time. Birth and death rates can be estimated using information collected from car/deer crashes regarding the deer's sex, age and reproductive status. If deer removal programs are implemented, this data can also be collected from the deer that have been trapped or harvested for removal.

Figure 2: Burnsville Deer Management Units and Preferred Habitat (890KB)

4.1 Aerial Surveys for Burnsville

Aerial surveys are used to estimate the current abundance and preferred habitat of urban deer. The counts represent a minimum population size given that aerial counts consistently underestimate true population size. Dense vegetation, bad weather conditions, observer fatigue and animal movement are some of the factors that can affect the accuracy of the counts. To estimate a complete census, a correction factor would need to be applied to the actual count, however, to date such a correction factor has not been established for urban/suburban environments.

Aerial surveys have been completed by the DNR and Hennepin Parks for a number of years within the City of Burnsville. Each agency conducts their surveys differently, which results in data that cannot be directly correlated.

The DNR's methodology for surveying white-tailed deer populations in the Twin Cities metropolitan area is by aerial survey between January and March. This requires that there is adequate snow cover present to provide visual contrast. The DNR conducts their aerial surveys by helicopter with a DNR/Enforcement pilot, two observers and a data recorder. The systematic flight path is flown over the study area with transects at quarter-mile intervals. A GPS receiver is used to record the location of all deer observed. The number of deer counted by this method represents the minimum number of deer in an area at a specific point in time (McAninch 1996). Data from multiple years will provide a population index, which is necessary to document trends in deer abundance over time, and is a critical component of any deer management program.

Figure 3: Digital Orthophoto Quads (1,460 KB)

Hennepin Parks, also conducts aerial surveys during the winter when there is snow cover using a helicopter. Unlike the DNR, Hennepin Parks does not fly transects. Hennepin Parks concentrates their flights over preferred habitat areas and circles each area where deer are observed until all deer in the area are confirmed and counted. This method may result in double counting of some deer in areas where the concentrations are high (20 plus) due to animal and aircraft movement. However, it is not expected that this adds a significant amount to the total count and may compensate for the deer that are missed do to heavy cover. Similar to the DNR, the total number of deer counted in a survey is considered by Hennepin Parks as the minimum number of deer in the study area.

The results of the aerial surveys completed by each agency will not be the same in any given year for a number of reasons. These differences may be due to different date and time of survey, animal movement from adjacent cities, animals concealed by heavy cover, weather conditions, and count methodology. A general comparison of the surveys conducted by Hennepin Parks and the DNR finds that Hennepin Parks' counts are typically higher overall than the DNR. This may be due in large part to the different survey methodologies used.

The City has received survey data from the DNR for the years 1998, 1999, and 2001, and from Hennepin Parks for the years 2000 and 2001. Table 2 summarizes the number of deer counted by each agency for the years counts were recently completed. The count locations and numbers for the year 2001 are illustrated in Figure 4.

Table 2: Aerial Deer Counts Conducted by MnDNR and Hennepin Parks

Burnsville Management Unit	**Numbers of Deer Observed**							
	2001		**2000**		**1999**		**1998**	
	DNR (1-16-01)	**Parks** (1-8-01)	**DNR**	**Parks** (1-21-00)	**DNR** (1-19-99)	**Parks**	**DNR** (2-11-98)	**Parks**
Northwest	68	51	NA	78	49	NA	19	NA
West Central	17	31	NA	38	9	NA	34	NA
Southwest	89	96	NA	88	81	NA	95	NA
Northeast	38	60	NA	64	55	NA	36	NA
East Central	37	78	NA	31	76	NA	55	NA
Southeast	3	0	NA	0	11	NA	0	NA
.	.	.	.	.	.	.	.	.
Total/year DNR	**252**	.	**NA**	.	**281**	.	**239**	.
Total/year Parks	.	**316**	.	**299**	.	**NA**	.	**NA**

Source: DNR and Hennepin Parks

Figure 4: 2001 Aerial Deer Counts

4.2 Determining Population Density Objectives

Population data for large areas, such as the City of Burnsville, can be misleading because deer tend to concentrate in good habitat and where disturbance is minimal. For example, in the urban portion of Bloomington, the average spring deer density is less than one deer per square mile, while in the Minnesota River Valley portion of Bloomington, densities are up to 80 deer per square mile (DNR 1996). In contrast, in high quality habitat where hunting is allowed, such as Carlos Avery Wildlife Management Area, population densities seldom exceed 25 deer per square mile (DNR 1996).

The first step in determining population objectives within the City of Burnsville is to determine the amount of preferred habitat available. This may not include all areas that deer are found in currently, such as residential yards. The preferred habitat should be those areas that provide adequate food, water, shelter and space to sustain a healthy population. Although residential lots may provide some food base, these areas do not supply all components of the habitat requirement and should not be included in the calculations. Similarly, not all open-space and parkland should be considered preferred deer habitat. Only those areas which have adequate cover and frequent winter deer concentration observations have been included in the preferred habitat areas. Figures 2 and 3 illustrate the areas within each management unit that have been identified as preferred deer habitat. The size of each unit and the preferred habitat within each unit are listed in Table 3.

Table 3: Deer Habitat and Density in Burnsville

Habitat Unit	Unit Size (in square miles)	Preferred Habitat (in square miles)	Current Deer Abundance (2001 DNR counts)	Current Deer Abundance (2001 Parks counts)	Current Deer per Square Mile of Preferred Habitat
Northwest Unit	2.8	0.75	68	51	68 to 90
West Central Unit	4.0	0.22	17	31	77 to 140
Southwest Unit	4.5	1.67	89	96	53 to 57
Northeast Unit	5.6	2.09	38	60	18 to 29
East Central Unit	6.3	0.81	37	78	46 to 96
Southeast Unit	3.9	0.29	3	0	0 to 10
Totals for Burnsville	**27.1 sq. mi.**	**5.8 sq. mi.**	**252**	**316**	

With the preferred habitat areas identified and the aerial counts completed, a current deer density can be calculated for each unit and for the City as a whole. The density can then be compared to the number and location of car/deer crashes that have occurred within the City as well as the number and location of deer nuisance complaints that have been received by the City.

The primary task of the City is to review the data provided on deer abundance, preferred habitat, crash data and complaints to determine what the Cultural Carrying Capacity is of the city or for each habitat unit. This will drive the content of a Deer Management Program.

It is important to note that the number of deer per square mile may need to be initially less on land that is currently over-browsed as opposed to habitat in good condition. Therefore one may want to set the target population goals lower initially, and allow for habitat recuperation before establishing an ideal population level. An urban deer population of 15 to 25 deer per square mile of habitat has been a common goal for suburban communities, according to the DNR.

Each Management Unit deer density goal is dependent on several factors including current and historic deer densities in each area, the cultural carrying capacity, the number of complaints, the number of car/deer crashes, and the size and condition of the existing habitat. It is up to the City to define a management goal for each unit that fits the City's goals. Different goals may be set for each unit.

The City's Natural Resource Management Program identifies a density goal of 5 deer per square mile in areas where habitat, specifically woodland herbaceous cover, is identified for protection or restoration. Large management areas such as Murphy-Hanrehan, Minnesota Valley Refuge and Carlos Avery tend to have densities at the higher end of the range (25 to 35) because of the size of the habitat available and the annual hunting or sharpshooting removal that occurs under their current programs. Smaller management units, without hunting removal options, are recommended to have density goals at the lower end of the range (5 to 15).

4.3 Population Density Goals of Other Metro Management Areas

The deer management programs of the agencies listed in Table 4 have been reviewed to compare their density goals and the methods of deer removal used.

Table 4: Population Density Goals of Other Areas

Management Area	Deer Density Goal (deer per square mile)	Removal Options Employed
MSP Airport	0	Sharpshooting
Edina	15 to 25	Trap/Dispatch and Sharpshooting
Bloomington	15 to 25	Sharpshooting
Lebanon Hill Regional Park	15 to 25	Archery hunting
MVNWR and FSSP [a]	15 to 25	Sharpshooting
Minnetonka	35	Trap/Dispatch and Sharpshooting
Murphy-Hanrehan	30 to 35	Archery and shotgun hunting

Source: DNR Urban Wildlife Office, Hennepin Parks, and MVNWR.
[a] MVNWR and FSSP stand for Minnesota Valley National Wildlife Refuge and Fort Snelling State Park

4.4 Determining Removal Goals

Using the DNR aerial deer counts for January 2001, the population projections for December 2001 can be made. The assumptions made in making such projections include:

- data collected in January 2001 represents the minimum known population;
- the ratio of males to females for all age classes in the population is 1:1;
- fertility rates for 2001 would be the same as for 2000; and
- approximately 60 deer will be killed by vehicles in the year 2001.

The result of using these assumptions is a conservative population growth projection that may be lower than what may actually occur. The projected increase in the deer population by December 2001 is approximately 20 percent or a total of approximately 300 animals. The projected increase in each management unit is listed in Table 5.

Table 5: Projected Population Increase by December 2001

Management Unit	January 2001 DNR Count	Projected December 2001 Population
Northwest	68	82
West Central	17	20
Southwest	89	107
Northeast	38	46
East Central	37	44

Southeast	3	4
TOTAL	**252**	**303**

Source: DNR Urban Wildlife Specialist and URS/BRW

Using an average density goal of 25 deer per square mile of preferred habitat, the maximum number of deer that should be found in each management unit can be calculated. By subtracting the maximum number of deer per available habitat, from the actual and projected deer population counts in Table 5, the minimum number of deer that would need to be removed to meet the density goal is determined. The removal numbers for January and December 2001 are listed in Table 6.

Table 6: Minimum Deer Removal Required per Unit

Management Unit	Preferred Habitat (square miles)	Deer Density Goal	Maximum deer per unit based on goal and habitat	Removal needed to meet density goal as of January 2001	Projected removal needed to meet density goal by December 2001
Northwest	0.75	25	19	49	63
West Central	0.22	25	6	11	14
Southwest	1.67	25	42	47	65
Northeast	2.09	25	52	0	0
East Central	0.81	25	20	17	24
Southeast	0.29	25	7	0	0
TOTAL	**5.83**		**146**	**124**	**166**

Source: DNR Urban Wildlife Specialist and URS/BRW

5.0 MANAGEMENT OPTIONS

A citywide Deer Management Program should start with the identification of a goal and objectives as well as a summary of the problems. Then the management strategies or options can be tailored to fit the specific needs of the city and its residents.

5.1 Goals and Objectives

The following goal, objectives and problems have been revised from the DNR's long range plan for the management of white-tailed deer in the metro region (DNR 1996) to fit the expected needs of Burnsville.

Goal
Manage white-tailed deer populations within the city at socially acceptable levels that provide recreational and educational opportunities as well as provide opportunity for maintaining healthy (natural regeneration) woodland habitat.

Objectives

- Maintain breeding populations within biologically and/or socially desired limits within each deer management unit;
- Where feasible utilize public hunting to maintain populations within acceptable limits;
- Reduce the number of car/deer crashes to acceptable levels;
- Reduce the number of deer depredation complaints;
- Develop a framework for an operational management program to be implemented by the city in cooperation with the DNR, Hennepin Parks, and USFWS; and
- Educate residents as to the value of deer and deer habitat as a resource, as well as to ways to minimize nuisance deer problems through plantings and fencing.

Problems

- Unplanned feeding often causes deer concentrations which develop into depredation or public safety problems;
- Depredation of garden crops and landscaping plants is increasing as deer habitat decreases and deer populations increase;
- Woodland plant communities can change as a result of high deer populations,
- Increased car/deer crashes raise public safety concerns; and
- Data collection needs to be refined to more effectively manage the population.

5.2 Management Strategies

There are a variety of strategy options that can be used for controlling deer populations. Not all options can be implemented in every area due to certain physical and sociological parameters. For example, the option of re-introduction of timber wolves or mountain lions is not a feasible option in Burnsville due to a lack of appropriate habitat for these predators. However, there are several options available that can help manage the local deer herd. It may be best to use a combination of several options depending on the situation, or to prioritize options, so that if the first option does not achieve the density goal, another option can be implemented to

supplement the initial results.

The following management tools have been considered thoroughly to come up with the best management strategies possible:

Monitoring Options

1. Continue to conduct yearly winter aerial counts to maintain a status of the population, measure program progress and calibrate models.
2. Require uniform reporting of complaints from residents regarding deer. This would include creating a form with spaces for all information to be recorded, as well as identifying a single point person or coordinator to track/record the complaints. See Attachment A for proposed Deer Monitoring Report Form.
3. Require uniform reporting of car/deer crashes that occur within the city limits. This would include identifying a consistent process for data collection and tracking with the City, County and State data, as well as a monitoring coordinator.
4. Under any removal and/or reporting program, require documentation of sex and age of individuals removed. Also determine pregnancy status of females when feasible.
5. Collect browse data in preferred habitat areas to assess habitat condition. This option is only necessary if habitat restoration is a specific objective of the program. Surveys would be needed annually, conducted in spring prior to new growth, for a period not less than three years.
6. Create exclosure areas with fencing to keep deer from feeding in specific areas. This option is to be used around habitat restoration areas identified in the City Natural Resource Management Plan or to demonstrate habitat changes to be expected with reduce deer populations.

Ordinance Options

1. Pass ordinance to restrict deer feeding by residents.
2. Modify existing firearms discharge ordinance (Attachment D) to allow expanded opportunity for archery hunting within the city and to allow for the city to collect harvest data through implementation of a city archery hunting permit.

Education Options

1. Inform residents, especially in problem areas, regarding the impact of deer feeding on deer and on adjacent parcels. This can be achieved through news articles, use of local cable program, and neighborhood workshops.
2. Educate residents about the available methods to protect their property from deer damage including repellents, fencing and unpalatable plants. This can be achieved through news articles, cable programming and neighborhood workshops.
3. Inform residents of deer management needs and goals (density trends, crash rates, complaints, habitat impacts).
4. Inform residents of designated areas, times, special provisions and restrictions if special hunts are used in the overall program. Specific participant orientation and proficiency tests would also be part of a hunting removal option.
5. Install signage along city roadway segments where car/deer crashes are concentrated, which warn motorists of potential for deer crossings, and recommend sign locations to the state and county for roads in their jurisdiction.

Population Control Options

1. Regulated hunting – This option, when possible within existing regulations can be an effective deer population management tool. It is probably the most efficient and least expensive management technique. Due to local ordinances and safety concerns, this would need to be done on a very regulated basis. In Burnsville the hunting method would be limited to archery only, for public safety reasons.
2. Allow nature to take its course – This option takes no action to reduce local deer numbers. This option depends on car collisions, poaching, emigration and natural mortality to control population size.
3. Trap and transfer – This option is generally labor intensive and expensive due to efforts needed to trap and then relocate/release deer in a new area. It may seem like the humane thing to do but research has shown otherwise. Many captured deer are released in sites that appear to be ideal only to die a short time later due to stress related issues. Also, most areas have their own deer problems and release sites would be difficult to delineate.
4. Birth Control – The intent of fertility control agents is to reduce the reproductive output so that it is equal to or less than the mortality rate. In urban deer populations the mortality rates are generally very low, requiring that 70 to 90 percent of the does be treated to effectively reduce population growth (Rudolph et al. 2000). Additionally, a significant amount of population data is necessary to effectively manage long-term population growth using contraceptives (Rudolph et al. 2000, Hobbs et al. 2000).
5. Trap and dispatch – Trapping and then killing deer has been used in the cities of North Oaks, Edina and Minnetonka and appears to be an effective method of population control in fully developed areas. However, it may not be as efficient as sharpshooting, as trapping is more labor intensive and can be more expensive. The trap and dispatch option can be most effective in areas where other options cannot feasibly be employed or where individual deer are identified as the problem.
6. Sharpshooting – Sharpshooting has been used in Bloomington since 1991. It is an effective method of population control in areas where hunting is not feasible. Safety is a primary consideration. This method can be implemented through private contractor or through volunteers trained under the program. It has been successfully implemented both ways in neighboring areas including Bloomington and the MVNWR (volunteers) as well as Minnetonka and Eden Prairie (contractors).
7. Introduce Natural Predators – This option is intended to restore natural deer predators to an area to cause a reduction in the population due to predator mortality.
8. Increase Size of Habitat – This option is intended to add additional deer habitat to an area to decrease the overall deer density. Without corresponding population controls however, this method would be effective only short-term and that effectiveness would be dependent on the amount of additional habitat added.
9. Provide Supplemental Feeding – This option is intended to deter deer from sensitive feeding areas to other less sensitive areas through provision of designated feeding stations.
10. Install deer-proof fencing around city natural areas – This option also is intended to deter deer from sensitive areas, however, this option uses fencing to keep deer out of large natural areas.

Any single option or combination of options for population control, must include monitoring options. Deer populations in areas adjacent to Burnsville are also high and

growing, and deer do not observe artificial boundaries. Therefore, monitoring is required to determine when management goals and population stability are achieved.

5.3 Current Management Actions in Neighboring Areas

There are a number of areas adjacent to Burnsville that are currently managing deer populations within their jurisdiction using some of the options described above. It should be noted that these adjacent management programs could have both positive and negative impacts on Burnsville's deer populations. To some degree, management in the adjacent areas will reduce the number of deer that may potentially migrate into the city. However, during the actual removal programs that occur in other areas, deer may use areas in Burnsville as a refuge, thereby making the removal efforts of adjacent areas potentially less effective. The following is a brief description of a few of the adjacent programs.

Murphy-Hanrehan Regional Park Reserve

Hennepin Parks has been conducting special archery hunts within Murphy-Hanrehan Park since the early 1980's. They have also sponsored shotgun hunts, but only on a periodic basis, and are used only when additional deer removals are necessary to maintain density goals. The density goal for the park as a whole is 30 to 35 deer for the winter population. Shotgun hunts have occurred in 1993, 1994, 1996 and 2000. Both the archery and shotgun hunts are administered and coordinated by park staff and are conducted within the regulatory framework of the DNR.

A portion of Murphy-Hanrehan Park is located in Burnsville's Southwest Management Unit. Since about 1990, the park hunts have included the 116-acre portion of Murphy-Hanrehan Park that lies within the Burnsville City limits. However, the adjoining 160-acre CamRam Park has not been included in any of the hunts conducted to date.

Even with the population management occurring in Murphy-Hanrehan Park, the deer population in the residential area of Burnsville east of the park continues to grow at a steady rate. Hennepin Parks has counted deer in this residential area for the past eight years. These counts are shown in Table 7.

Table 7: Deer Counts in Southwest Unit excluding M-H and CamRam Parks

Year of Count	Deer Observed	Year of Count [a]	Deer Observed
1992	15	1996	75
1993	13	1997	39
1994	33	1999	76
1995	54	2000	60

[a] No snow in 1998 precluded aerial surveys in that year.

Minnesota Valley National Wildlife Refuge and Fort Snelling State Park

A portion of the Minnesota Valley National Wildlife Refuge (MVNWR) lies within the city limits of Burnsville, within the city's Northeast Management Unit. Fort Snelling State

Park (FSSP) lies to the northeast of the city's northeastern boundary. The US Fish and Wildlife Service (USFWS) in cooperation with the DNR, have conducted deer removal with both archery hunting and sharpshooting methods within the MVNWR and FSSP in the past. Their current removal program has been limited to sharpshooting. Within the Black Dog Lake Unit of the Refuge, up to four removal sites have been used. The current deer population density in the MVNWR and FSSP is 23 to 28 deer per square mile. Their goal has been to maintain the deer population in the range of 15 to 25 deer per square mile. In 2001, 17 deer were removed from the Black Dog Lake unit of the MVNWR, 26 deer removed in 2000, 10 in 1999, and 23 in 1998.

Lebanon Hills Regional Park

Lebanon Hills Regional Park (LHRP) is a 2,000 acre park located in the cities of Eagan and Apple Valley, approximately 1.5 to 2.0 miles due east of Burnsville's Terrace Oaks Park. Dakota County, in cooperation with the DNR, has conducted deer removal via archery hunting within the park as part of their deer management program. Since 1995, the Metro Bowhunters Resource Base (MBRB) has participated in the removal program and administered the logistics of training and identifying competent and responsible bowhunters for the hunts. MBRB is an organization that provides a framework for a number of bowhunting groups in the metro area to demonstrate their proficiency and ethics commitment (See Attachment E). The park has effectively used this method of deer control since 1995. The goal of the park is to maintain a population of 15 to 25 deer per square mile.

Deer Management Plans in Other Communities/Areas

Population reduction methods for deer management have been used by numerous cities and agencies within the metropolitan area. Plans have been implemented in these various areas as each city recognized the problems associated with high deer densities. All of these programs have been successful in lowering population sizes, even though some may not have yet achieved their management goals. Table 8 shows a summary of many of the different cities that currently have an active Deer Management Program approved by the DNR.

Table 8: Deer Management Plans in Other Areas

Community	Area Managed	Started	Methods used
Blaine	Airport	1997	Archery with MBRB
Bloomington	City (in cooperation with USFWS)	1991 1994	Trap and Dispatch Supplement w/ Sharpshooting
Cottage Grove	Bailey Nursery		Regular hunting season
Dakota County Parks	Lebanon Hills, Spring Lake, and Miesville Ravine	1995	Archery with MBRB

Deephaven	City	2000	Trap and Dispatch
Eden Prairie	City	1993	Sharpshooting
Edina	City	1994	Trap and Dispatch; Sharpshooting
Fridley	Springbrook Nature Center	1993	Trap and Dispatch; Sharpshooting
Gem Lake	City		Regular hunting season
Hennepin Parks	Several regional parks	1980's	Archery with MBRB and regular season
Maple Grove	City		Regular hunting season
Maplewood	Pigs Eye Island		Archery with MBRB
Mendota Heights	City	1995	Archery with MBRB
Mn Valley NWR	Refuge	1990's	Sharpshooting
Minnetonka	City	1994	Trap and Dispatch; Sharpshooting
North Oaks	City	1984	Trap and Dispatch; Sharpshooting
St. Louis Park	Westwood Nature Center	1994	Trap and Dispatch
St. Paul	Hyland Bluffs	1995	Trap and Dispatch
Wayzata	City	1995	Trap and Dispatch; Sharpshooting

Source: DNR Urban Wildlife Specialist

5.4 Considerations for Building a Management Plan

A good management program must utilize a comprehensive approach to managing deer including the education of the public regarding deer ecology, deterrents to

minimize conflicts with deer, monitoring of the deer population for changes and trends, regulating the feeding of deer within the city limits, and methods to control the size of the deer herd.

Deterrent versus control

This management plan should include tools for residents to use that will help deter conflicts with deer and help minimize deer damage. Deterrents can include things such as fences, repellents, noise makers, and other gadgets that are intended to keep deer out of landscaped areas and gardens. Deterrents work best in problem areas when deer densities are low to moderate; they direct deer away from areas that will clash with human uses. However, deterrents do nothing to control the number of deer.

As the number of residents that use deterrents increases they may become less effective if the deer population stays the same size or increases. This results because if the deer cannot physically get to one garden they will move to another area until they find enough food. Many residents have reported that they used to feed the deer because they liked seeing wildlife in their backyard. However, deer consume landscaping and gardens as well. Some started deterring deer from landscaping and gardens by planting plants deer typically prefer less. As the deer started to eat those plants too, repellents were applied. In some cases fences were constructed around yards or gardens to keep deer out, forcing deer to other neighbor's yards, only shifting the problem to a new location. If this continues to a large scale entire neighborhoods could be fenced-off limiting not only the mobility of deer, but also that of other wildlife species and residents. Forcing deer out of neighborhood habitat will increase browsing/grazing pressure on public spaces with higher densities.

Reflectors for public roadways are another form of deterrent that may minimize the potential of conflicts between deer and cars. According to DNR Research at Madelia, deer reflectors have had mixed results. Their understanding of reflector effectiveness is that they are generally effective initially (1st year), but they become virtually ineffective after that, probably due to habituation by the deer and maintenance issues (very expensive and time consuming to maintain, because they have to be regularly repositioned and cleaned). As with other deterrent methods, it cannot be expected that reflectors will provide long-term results.

MnDOT has started a two-year trial period, at three rural locations, to test a new deer alert system that includes motion sensors and an amber beacon mounted on top of the traditional deer crossing caution signs. The system is designed to provide drivers a visual warning when it detects deer or other large animals approaching the roadway. If the system is proven to be effective in reducing the number of car/deer crashes, it could be tried in other locations.

Deterrents can treat some of the symptoms of high deer densities, however, they do not address all of the problems associated with too many deer (e.g. impact on natural areas). Therefore, a comprehensive plan also includes options for managing deer numbers or density.

Population Control Strategies

Each of the population control options described in Section 5.2 were thoroughly discussed as part of the review process. Following are some of the key considerations utilized in formulating the population control portion of the program.

1. Archery Hunting

The City of Burnsville lies within the DNR's deer hunting permit area 337. This permit area allows a person with a regular archery license to purchase a Deer Management Permit for one additional antlerless deer and up to three additional Intensive Harvest Permits for antlerless deer during the regular deer season, each at one-half the cost of a regular license. Permits are available from the DNR for archery hunting under the regular archery season (typically mid-September to late December). Archery hunting within the City of Burnsville is allowed under current city ordinance "by any person shooting a bow and pointed-tip arrows who is the private landowner or with the written private landowner approval on their person; provided, however, that no arrow passes beyond the boundaries of the that property; and provided further that the shooting occurs at least five hundred feet (500') from any land or building not owned by that landowner and that no one is endangered. (Ord.319, 6-20-88)". The number of participants that partake in this hunting option is essentially limited to residents, with most opportunity likely in the Northwest and Southwest Management Units.

A special archery hunting option is available through the use of a "management group" such as the Metro Bowhunters Resource Base (MBRB) and Capable Partners (CP). MBRB is open to membership from the city and the general public. The purpose of the MBRB group is to train and test potential participants for special archery hunts to ensure their competency and ethics prior to granting membership and eligibility. For urban hunting programs, the MBRB or similar group is essential in providing and managing a safe, efficient and successful removal program. The CP group also has similar safety assurances, while also providing hunting opportunities to the physically handicapped where they otherwise may not have access to such opportunities; pairing able-bodied partners with each participant provides these opportunities. See Attachments E and F for further information on these two organizations. All special hunts, using MBRB and/or CP, would occur on public lands within the city unless residents adjacent to the parks volunteer access from their property as well.

Archery hunting in limited areas over limited timeframes can take a number of years to reduce a large deer population as compared to sharpshooting. Based on the number of deer to be removed to meet the density goals and the timeframe in which the city wanted to meet those goals, archery hunting was not identified to be implemented initially, however, it was recommended to be used as a long-term management strategy. Therefore, archery hunting was recommended to begin in the fall of 2003, after two years of sharpshooting, as the strategy to maintain deer densities at goal levels.

Details of the locations (specific parks), special provisions and potential timing of each special hunt would be defined annually. Attachment G describes in more detail suggested special provisions and guidelines for archery hunting on public and private lands within the city.

2. Do Nothing to address population size

By not taking any action to control the deer population size, the city runs the risk of having a larger deer population problem in the future. The current deer population within the city is at relatively high densities which is currently resulting in impacts to the native woodland vegetation, complaints by residents and collisions with cars. By limiting the city's actions to only using education, monitoring and feeding bans to educate the public and collect information, there would be no effect on the number of deer within the city (deer density)

and some of the impacts would not be addressed.

If deer are left to control themselves, then unnatural alterations of associated plant and animal communities would likely occur (Warren 1991). If the city's goal is to ensure the natural functioning of both plant and animal communities, the city needs to set a density threshold consistent with that goal. This in turn would then require the inclusion of a method for controlling the deer population size as part of the Deer Management Plan.

Without a deer management program that addresses the population size and growth, the only factors left to affect the mortality rate other than natural death will be through poaching, car collisions or emigration to other communities. If the population size gets large enough, the natural death rate will increase due to starvation and increased disease. This was not considered a feasible plan of action, as it does not address current concerns, or the goals or objectives of the overall program.

3. Trap and Transfer

Current DNR policy does not allow this method of population reduction for several reasons. First, there are heightened concerns among state health and wildlife agencies regarding the transfer of animal diseases across state lines. The Minnesota DNR is not aware of any state agency accepting or transporting deer. Additionally, the trap and transfer method has been demonstrated to be impractical, stressful to the deer handled, and can have high post-release mortality rates with near 80 percent mortality of translocated deer in the first year. The costs for this method have been recorded in the range from $400 to nearly $3,000 per deer (DeNicola et al. 2000). The cost is dependent on a number of factors such as the number of deer to be moved and the distance to the release site. This method also requires release sites that are appropriate and willing to accept the deer to be released. Such sites are scarce due to the abundance of deer statewide and across the country. Without the DNR's support, the lack of potential release sites, the high mortality rates and the potential high costs, this option was not recommended.

4. Birth control

The treatment of deer with contraceptive drugs is only being implemented by universities, wildlife agencies and the Humane Society of the United States as part of approved research projects (DeNicola et al, 2000). After 40 years of research on fertility control, there have been no practical and effective fertility control methods identified for free ranging deer populations. Free ranging populations, such as is the case in Burnsville, pose distinct challenges to the use of contraceptive drugs since treated deer should be marked for identification purposes and the use of anti-fertility drugs must be approved by the U.S. Food and Drug Administration (FDA). Another critical need to effectively use contraceptives for population management is detailed fertility data on the population and individual females within the herd. Without details on individual fertility rates within the population, the number of individuals that require treatment annually to manage population growth cannot effectively be determined. There is also significant risk involved with using fertility control to manage a population due to the unknown long-term effects of current anti-fertility drugs and the potential loss of genetic viability of the population with only a very small portion of the population reproducing in a given year. While fertility control may not affect the survival of the individual it can potentially be

lethal to the population (Hobbs et al. 2000).

A study in New York, one of the few conducted on a free ranging deer population, estimated the minimal annual time commitment per deer for fertility control was approximately 20 hours (Rudolph et al. 2000). This can compute to a cost range of $1,000 to $2,000 per deer assuming a contractor rate of $50 to $100 per hour. The overall cost of implementing an anti-fertility method to control population growth is dependent on the number of deer that need to be treated, with larger numbers requiring significantly more effort and cost (Rudolph et al. 2000; Nielson et al. 1997).

It should also be noted that current data on anti-fertility control methods show that it does not have immediate population reduction results (DeNicola et al. 2000). The greatest efficiency in population reduction and long-term management may be with the use of culling to reduce the population to target size and then a contraception method to maintain the herd size (Hobbs et al. 2000, Nielson et al. 1997). However, it may be several years before adequate contraceptive drugs are developed and available for use in free-ranging herds that can be applied in a manner as cost-effective as culling methods.

The DNR currently does not, and cannot, promote the use of contraceptives for population control at this time because approved anti-fertility drugs are not available for use and effective applications are only experimental. Therefore, this option is not recommended at this time, however, as technology advances this option may be considered in the future.

5. Trap and dispatch

This method is generally used in areas where hunting or sharpshooting would not be viable options for removing deer due to proximity to buildings. Clover traps would typically be used with bait to lure deer to the trap. These traps would only be set during the nighttime hours and monitored in late evening and early morning, generally following the procedures used in North Oaks (Jordan et al 1995). The traps would be located away from disturbances from dogs or humans to minimize stress to the captured deer. Traps would only be used on private residential lots, per landowner request, providing they are not adjacent to anyone opposed to the trapping of deer, the trap can be screened from potential disturbances, there are documented deer problems in the area, and the removal numbers were compatible with the overall Plan removal goals. The deer removed by this method would be processed and requested to be donated to food shelves for human consumption.

This option is not being recommended at this time because it tends to be more time intensive than other options when used on a broad scale.

6. Sharpshooting

This is the selected method to initially reduce the deer population to the recommended density goals. This method would only use qualified contractors to select sites, bait and remove deer. All sites selected for baiting and removal operations would be reviewed and approved by the police department and city staff prior to implementation. This method would primarily be used on public property. Sharpshooting could be used on private property, however, it would only be used if approved by the landowner provided that the adjacent landowners are not opposed, the site provides for safe removal, there are

documented deer problems in the area, and the removal numbers were compatible with the overall Plan removal goals.

Deer harvested outside of the regular hunting season via sharpshooting become the property of the state, as these methods require a "special management permit" from the state. The bulk of these deer are accepted by local food shelves or other charitable organizations and processed for human consumption. The City would recommend that the hides be donated to the Minnesota Deer Hunter Association for their Hides for Habitat program.

7. Reintroduction of natural predators

Wolves, cougars, black bears and to some extent coyotes are the common predators of white-tailed deer in Minnesota. Restoring these predators into an urban environment is not generally regarded as a viable option for urban deer population control because of the lack of suitable habitat and the high human densities (Coffey and Johnston 1997). It may sound like an attractive ecological method that would restore the balance of the ecosystem, however it is not an option that would be accepted by many and it would not be biologically feasible to establish the habitat needed for these predators. Both ecological and social constraints would prohibit any meaningful, long-term population reductions from this method.

8. Create more deer habitat within the city to support growing population

The city of Burnsville is approximately 97 percent built-out according to city planning staff. The amount of identified preferred deer habitat is about 6 square miles or nearly 4,000 acres. This comprises about twenty percent of the city's total area. Deer in the city are already using areas outside of their preferred habitat, meaning they are sharing space with their human neighbors. In this urban setting, creating additional habitat for deer could theoretically reduce the number of human-deer conflicts by providing deer more space. However, to reduce conflicts by this method, you would need to reduce human use in areas that would be labeled deer habitat (convert development into woodland cover). Based on the current level of development, this option would be very expensive and would have little impact on the number of conflicts unless the size of new deer habitat was very large. "Very large" would be on the order of 6 to 7 square miles, which is the amount needed in order to create enough habitat to reduce the average deer density to 20 deer per square mile. This option is not realistic given the amount of habitat that would need to be created to be effective in reducing deer density. Additionally, this option would not manage future population growth.

9. Conduct citywide deer feeding program

Providing urban deer with a supplemental food supply to alleviate conflicts with humans has been tried with little success (Schlick and Gillette 2000). The intent of supplemental feeding in urban areas is to draw deer away from specific problem areas (roads or residential yards). However, if alternate food sources are widely available within the problem areas, the draw of supplemental food sources can have little effect on deer foraging movements (Schlick and Gillette 2000). If the supplemental source does draw deer, it needs to be located far enough away from the problem area to remove the conflict. However, it also needs to be located such that the feeding location does not create a new concentration of deer that will create conflicts in a new

location (DeNicola et. al. 2000). Shifting deer conflicts from one neighborhood to another would not address the problem; it would only relocate it. Shifting higher densities to public lands is also opposite to the goal of the city to protect the integrity of its natural areas.

This option does not address the issues of population size and growth and is contradictory to the feeding ban ordinance proposed, therefore it has not been recommended to be included in the program.

10. Install deer-proof fencing around city natural areas

In some city parks it has been identified that high deer density has changed the forest structure. Deer could be fenced out of these areas to allow for natural regeneration of the forest community. Deer-proof fencing is expensive, especially in large-scale applications, and requires regular monitoring and maintenance to keep deer on their intended side. For example, an estimate for installing a 10 foot woven wire fence around Terrace Oaks Park (about 4,400 lineal feet) would be roughly $9,000 for materials and an additional $ 35,000 for installation. Yearly maintenance costs would vary depending on the amount of vandalism, damage from falling trees or branches, erosion and other factors that could allow deer access.

This option does not address the issues of population size and growth (deer density) outside of the natural areas.

6.0 SUMMARY OF CONDITIONS

It is well documented that deer populations in urban areas tend to have higher biological carrying capacities than cultural carrying capacity, generally because deer have adapted well to the suburban residential landscape. However, it is also well documented that deer population growth in areas without natural predators can increase rapidly in a short period of time, resulting in long-term changes to habitat.

When deer occur in high numbers in suburban areas they are more likely to cause unwelcome damage to landscaping, gardens and motor vehicles. The data collected in Burnsville to date does show that the number of car/deer collisions are higher in areas near preferred habitat and/or the areas with the highest deer densities. Similar trends are apparent for the number of complaints received from residents.

There are a number of management options available for urban deer population management. However, not all options can be applied to all situations, nor are they all appropriate in all situations. Therefore, each problem area must be assessed against the available options and choices made for the most appropriate options.

Deer management is a long-term commitment. Since humans have replaced the whitetails' natural predators with the urban environment, it is left to humans to manage their population densities. This occurs to some extent, by default, via car/deer crashes. However, in the interest of public safety and habitat preservation, other means of deer removal must also be considered and implemented.

7.0 RECOMMENDATIONS

Based on the information collected regarding the various management strategies, city regulations, and safety considerations, a comprehensive Deer Management Program is being recommended for the City of Burnsville. The components recommended to be included in the Program are outlined in the following sections.

Citywide Management Strategies

Monitoring

- The city will continue to use the DNR annual aerial survey to document annual population size.
- The city has created a Deer Monitoring Report Form (Attachment A) that will be made available to residents to aid in monitoring of deer.
- Coordination of crash data will be initiated with other agencies to improve data tracking.
- In conjunction with the removal options described later in this section, age and sex information will be collected on harvested deer.
- The City will partner with the STOP group to implement a deer exclosure demonstration project in Terrace Oaks Park.

Education

- Inform residents, especially in problem areas, regarding the impact of deer feeding on deer and on adjacent parcels. This can be achieved through news articles, use of local cable program, and neighborhood workshops.
- Educate residents about the available methods to protect their property from deer damage including repellents, fencing and unpalatable plants. This can be achieved through news articles, cable programming and neighborhood workshops.
- Inform residents of deer management needs and goals (density trends, crash rates, complaints, habitat impacts).
- Inform residents of designated areas, times, special provisions and restrictions when special archery hunts are utilized. Specific participant orientation and proficiency tests will also be part of any hunting removal option.
- Install signage along city roadway segments where car/deer crashes are concentrated, which warn motorists of potential for deer crossings, and recommend sign locations to the state and county for roads in their jurisdiction.

Ordinances

- Implement a Feeding Ban Ordinance

The purpose of a feeding ban is to discourage residents from placing corn or other grains in amounts and locations that would attract deer to the area. Deer are opportunistic foragers, meaning they don't do all their eating in one place. However, they can also be very routine in their travel and eating patterns. What this means with regard to residential feeding areas is that generally deer will have a travel pattern they will use for foraging and will eat vegetation along the way, they won't just limit their feeding to feeding sites left by residents. It also explains why one neighborhood can have a high number of deer damage complaints and others may rarely see deer.

The purpose of the feeding ban is to eliminate these deer attractions, which should reduce, over time, the depredation impacts to adjacent residents. The following language was recommended and approved September 17, 2001, for a Feeding Ban Ordinance (See Attachment B for complete ordinance):

Prohibition. No person may place or permit to be placed on the ground, or within five (5) feet of the ground surface, any grain, fodder, salt licks, fruit, vegetables, nuts, hay or other edible material (including feed for birds), which may reasonably be expected to intentionally result in deer feeding, unless such items are screened or protected in a manner that prevents deer from feeding on them. Living fruit trees and other live vegetation shall not be considered as deer feeding.

- Revise the Current Firearms Discharge Ordinance

The City of Burnsville will consider amending this ordinance to facilitate revised distance requirements (200' rather than the current 500') for private landowners operating outside of a "special hunt", and to require a permit to discharge a firearm, so deer removal information can be collected by the City. This revision should occur prior to the fall 2003 archery hunting season.

Population Control Strategies

- Sharpshooting will be utilized as the initial method for controlling the deer population in the first two years of the Program (2001/2002 and 2002/2003). It will be phased in over a two-year period, starting in winter of 2001/2002 in the East Central, Northeast and Northwest Units. During the second year of sharpshooting, the West Central, Southwest and Southeast Units would be added as necessary to meet density goals. Sharpshooting will primarily occur on public lands in management units with high deer density. Initially, the deer population will be reduced to the upper end of the established population range (25 deer per square mile of deer habitat), however additional removal will be conducted down to the lower end of the range (15 deer per square mile) in special cases where a resident demonstrates a hardship due to problem deer, or in priority habitat areas as deemed necessary by the Director of Natural Resources.

- Archery hunting will be utilized to maintain the management goals after they are achieved through sharpshooting. Archery hunting would be allowed on commercial and private lands as outlined in Attachment G. This strategy would not be employed until the fall of 2003, after evaluating the effectiveness of the sharpshooting program. In the event that archery hunting alone is not able to maintain the goals identified in the Management program (goals are exceeded by 20 percent), sharpshooting will be used as a supplemental control method, as needed.

A review and evaluation of new population control strategies would be conducted annually by the PNRC along with the other parts of the program. The PNRC would recommend any changes to the population control strategies for City Council consideration following that

review.

Specific program recommendations for each management unit are described in Tables 9-14 in the following pages. The management units are illustrated in Figures 5 through 10.

Figure 5: Northwest Management Unit (73 KB)

Table 9: Northwest Management Unit Recommendations

Purpose: Manage for a population density of 15 to 25 deer per square mile of preferred habitat within the Northwest Management Unit.	
Problems/Issues	**Recommended Management Option**
Land Use: primarily commercial development. *Preferred Habitat*: is concentrated in wooded area along the river corridor. *NRMP priority* [1]: lowland forest areas in this unit identified as high priority. *Unit Population Goal*: • 12 to 19 deer *2001 Unit Statistics* [2]: • January Deer Count: 68 deer within unit. • Projected December Deer Numbers: 82 deer • Crashes: 6, with all but one occurring on TH 13 and I-35W • Complaints: 0. • Removal Needed: 63 to 70 deer	• Investigate potential removal options with landowners along the river. • The recommended management goal would be 15 to 25 deer per square mile of preferred habitat, however a lower goal may be more appropriate for the high priority floodplain forest areas identified in the NRMP. The potential for an exclosure device should be discussed with the landowners in the area of question to determine how deer populations are affecting the high priority woodland. • Inform landowners of ordinance that allows archery hunting, during the regular DNR archery season under the special provisions designated by the city, as well as inform them of availability of Deer Management and Intensive Harvest Permits. • Coordinate with private landowners to implement sharpshooting option to reduce the population density in this area to a long-term density of 15 to 25 deer per square mile, as needed to meet goal.

Notes: [1] NRMP refers to the Burnsville Natural Resource Master Plan

[2] Complaint and crash data totals are from 1998 through 2000. Deer Numbers and Removal Needed are based on 2001 DNR aerial counts, projections and the density goal range proposed for each unit.

Figure 6: West Central Management Unit (251 KB)

Table 10: West Central Management Unit Strategies

Purpose: Manage for a population density of 15 to 25 deer per square mile of preferred habitat within the West Central Management Unit.	
Problems/Issues	**Recommended Management Option**
Land Use: primarily residential, except for the commercial strips along the north and south unit boundaries. *Preferred Habitat*: is associated with the Kraemer Nature Preserve *NRMP priority* [1]: willow swamp within the nature preserve identified as high priority. *Unit Population Goal*: • 4 to 6 deer *2001 Statistics* [2]: • January Deer Count: 17 deer within unit. • Projected December Deer Numbers: 20 deer • Crashes: 21 with highest numbers along TH 13 and county road 5. • Complaints: 1. • Removal Needed: 14 to 16	• Implement sharpshooting option to reduce the winter population in this area to a long-term density of 15 to 25 deer per square mile, as needed. • Archery hunting in this unit is not likely feasible due to the sparse tree cover within Kraemer park. Modified hunting provisions for this area along with coordination with adjacent residents and businesses would be required to accommodate archery hunting in this unit.

Notes: [1] NRMP refers to the Burnsville Natural Resource Master Plan

[2] Complaint and crash data totals are from 1998 through 2000. Deer Numbers and Removal Needed are based on 2001 DNR aerial counts, projections and the density goal range proposed for each unit.

Figure 7: Southwest Management Unit (296 KB)

Table 11: Southwest Management Unit Strategies

Purpose: Manage for a population density of 15 to 25 deer per square mile of preferred habitat within the Southwest Management Unit.	
Problems/Issues	**Recommended Management Option**
Land Use: primarily residential development near the preferred habitat, with commercial development concentrated along the north and east unit boundary. *Preferred Habitat*: is associated with Murphy-Hanrehan and CamRam parks as well as the large lot residential areas	• Remove deer within this management unit to maintain a winter population density of approximately 15 to 25 deer per square mile with focus on Murphy-Hanrehan, CamRam and Judicial parks and residential areas as needed. • A lower goal may be more appropriate for the high priority

to the east. *NRMP priority* [1]: woodland within Judicial park is identified as high priority. *Unit Population Goal*: • 25 to 42 deer *2001 Statistics* [2]: • January Deer Count: 89 deer within unit. • Projected December Deer Numbers: 107 deer • Crashes: 22 with many occurring on county road 5. • Complaints: 5. • Removal Needed: 65 to 82	areas as identified in the NRMP. • Implement sharpshooting option to reduce the population density in this area to a long-term density of 15 to 25 deer per square mile, as needed to meet goal (January-March). Efforts would be concentrated initially in Cam Ram and Judicial Parks. • Allow expansion of Hennepin Parks sponsored archery removal program into Cam Ram Park from adjacent Murphy-Hanrehan park. Use opportunity to coordinate with Capable Partners and Metro Bowhunters Resource Base for participation. • Inform neighborhood of ordinance that allows archery hunting, during the regular DNR archery season under the special hunting provisions designated by the city (September-December), as well as inform them of availability of Deer Management and Intensive Harvest Permits.

Notes: [1] NRMP refers to the Burnsville Natural Resource Master Plan

[2] Complaint and crash data totals are from 1998 through 2000. Deer Numbers and Removal Needed are based on 2001 DNR aerial counts, projections and the density goal range proposed for each unit.

Figure 8: Northeast Management Unit (347 KB)

Table 12: Northeast Management Unit Strategies

Purpose: Manage for a population density of 15 to 25 deer per square mile of preferred habitat within the Northeast Management Unit, in cooperation with MVNWR.	
Problems/Issues	**Recommended Management Option**

Land Use: approximately half is wildlife refuge and the rest is half commercial and half residential. *Preferred Habitat*: is concentrated in and directly adjacent to the refuge. *NRMP priority* [1]: wetland within the refuge is identified as high priority. *Unit Population Goal*: • 32 to 52 deer *2001 Statistics* [2]: • January Deer Count: 38 deer within unit. • Projected December Deer Numbers: 46 deer • Crashes: 15 with most occurring on TH 13. • Complaints: 2. • Removal Needed: 0 to 14	• Maintain a winter population density of 15 to 25 deer per square mile. • Cooperate with Minnesota Valley National Wildlife Refuge to continue their sharpshooting removal program within the Black Dog Lake area of the MVNWR, as needed. • If necessary, implement sharpshooting removal options into areas outside of refuge to maintain goal. Work with private landowners to allow baiting and shooting on property in problem areas. • Implement archery hunting program with the Metro Bowhunters Resource Base with focus on Black Dog park (October-November). Use opportunity to also coordinate with Capable Partners for participation.

Notes: [1] NRMP refers to the Burnsville Natural Resource Master Plan

[2] Complaint and crash data totals are from 1998 through 2000. Deer Numbers and Removal Needed are based on 2001 DNR aerial counts, projections and the density goal range proposed for each unit.

Figure 9: East Central Management Unit (653 KB)

Table 13: East Central Management Unit Strategies

REMOVAL	
Purpose: Manage for a population density of 15 to 25 deer per square mile of preferred habitat within the East Central Management Unit.	
Problems/Issues	**Recommended Management Option**
Land Use: primarily residential with pockets of commercial uses in the southwest and northwest corners. *Preferred Habitat*: is scattered in and between several wooded parks and residential areas. *NRMP priority* [1]: woodland within Terrace Oaks, Forest Heights and Wolk parks is identified as high and medium	• Implement sharpshooting option to reduce the population density in this area to a long-term density of 15 to 25 deer per square mile, as needed to meet goal, with the initial focus on Terrace Oaks, Wolk and Forest Heights parks. • A lower goal may be more appropriate for the high priority forest areas in Terrace Oaks, Forest Heights and Wolk parks identified in the NRMP. An

priority. *Unit Population Goal*: • 13 to 20 deer *2001 Statistics* [2]: • January Deer Count: 37 deer within unit. • Projected December Deer Numbers: 44 deer • Crashes: 43 with most occurring on county roads 11. • Complaints: 10. • Removal Needed: 24 to 31	exclosure device will be implemented in Terrace Oaks park to demonstrate how deer populations are affecting the woodland. • Implement archery hunting program with the Metro Bowhunters Resource Base with focus on Terrace Oaks and Wolk parks. Use opportunity to also coordinate with Capable Partners for participation.

Notes: [1] NRMP refers to the Burnsville Natural Resource Master Plan

[2] Complaint and crash data totals are from 1998 through 2000. Deer Numbers and Removal Needed are based on 2001 DNR aerial counts, projections and the density goal range proposed for each unit.

Figure 10: Southeast Management Unit (403 KB)

Table 14: Southeast Management Unit Strategies

Purpose: Manage for a population density of 15 to 25 deer per square mile of preferred habitat within the Southeast Management Unit.	
Problems/Issues	**Recommended Management Option**
Land Use: primarily residential. *Preferred Habitat*: concentrated in Alimagnet, Crystal Lake West and Twin Lakes parks. *NRMP priority* [1]: a portion of Crystal Lake habitat identified as high priority Oak Forest. *Unit Population Goal*: • 5 to 7 deer *2001 Statistics* [2]: • January Deer Count: 3 deer within unit. • Projected December Deer Numbers: 4 deer • Crashes: 10 with most occurring on county roads 11 and 42. • Complaints: 1.	• Maintain a goal of 15 to 25 deer per square mile of preferred habitat through sharpshooting, as necessary. • Continue to monitor deer numbers through aerial counts, complaint tracking and crash data records. • Investigate potential removal options if density increases to more than 15 to 25 deer per square mile of preferred habitat and/or numerous complaints are received from landowners or from state Department of Public Safety. Consider archery hunts, as necessary, in Alimagnet and Crystal West Parks in the future if local populations increase.

• Removal Needed: 0	

Notes: [1] NRMP refers to the Burnsville Natural Resource Master Plan
[2] Complaint and crash data totals are from 1998 through 2000. Deer Numbers and Removal Needed are based on 2001 DNR aerial counts, projections and the density goal range proposed for each unit.

8.0 IMPLEMENTATION

The sequence in which the program will be implemented is expected to generally proceed as follows:

Sept. – November 2001	Identify contractor and specific locations for sharpshooting.
Nov. – December 2001	Conduct sharpshooting
January 2002	Conduct aerial deer counts and adjust removal numbers as needed
Jan. – August 2002	Monitor complaints, crashes and review sharpshooting results.
Sept. – November 2002	Identify specific locations for sharpshooting
Nov. – December 2002	Conduct sharpshooting
January 2003	Conduct aerial deer counts and adjust removal numbers as needed.
Jan. – August 2003	Monitor complaints, crashes and review sharpshooting results. Review and update archery hunting provisions and locations, if necessary.
Sept. – December 2003	Initiate archery hunting as outlined by special provisions to maintain deer density. Identify contractor and specific locations for sharpshooting, if necessary.

It is anticipated that deer population control of some kind will be an on-going commitment in the community. Annual reviews and updates would continue on in a similar cycle to that outlined.

Further, it is anticipated that it could take a number of years to achieve the density goals identified in the program. This is due to the fact that the deer counts being used are assumed to be the minimum number of deer in the city. If the population is larger than the counts being used, then the targeted removal will be smaller than what is needed to reach the density goal. As a result, it could take more than the first year or two to achieve the desired goal. Additionally, deer movements will likely change as a result of annual hunting pressure, which may result in deer moving into or out of the city, or moving to new locations within the city. Through the annual reviews, the program will be adjusted to respond to the changes and movements of the deer population.

The Parks and Natural Resource Commission (PNRC) will provide annual reviews of the Program. Specifically, the PNRC will review the proposed details of the sharpshooting program, special hunt provisions and the aerial count data for the following fall/winter season. Any population goal changes proposed by the PNRC will

be submitted to City Council for approval. The Council will also approve the special archery hunts each year via resolution.

9.0 ESTIMATED COSTS

The following table provides an estimate of costs for the implementation of the various options recommended in the previous section. The citywide recommendations are identified first and a subtotal provided. Specific unit recommendation costs follow in subsequent sections.

Two costs are provided for each item, one based on the implementation cost for the remainder of 2001 to get the program organized and initiated, and the second is for the first full year of implementation (2002). Each year the annual budget should be adjusted based on the estimated deer density and removal needs, and the goals of the overall program.

Table 15: Estimated Cost to Implement Recommendations

Recommendation	Unit Cost	2001 Costs June - December	2002 Costs January - December
Education			
Exclosure Monitoring	$ 50 / hour	$ 0	$ 2000
Newsletter articles, Cable Programs, Annual Workshop	$ 500 / year $ 25 / hour	$ 0	$ 500 $2000
Subtotal		**$ 0**	**$ 4,500**
Monitoring			
Aerial Counts	$ 200 / hour	$ 0 *	$ 1,250
Monitoring Coordination	$ 25 / hour $115 / hour	$ 0 $ 3000	$ 4,000 $0

Statistics and Figures update	$ 4,000 / year	$ 0	$ 4,000
Subtotal		**$3,000**	**$ 9,250**
Ordinance			
Feeding Ban	$ 115 / hour	$ 1,500	$ 0
Subtotal		***$1,500***	***$ 0***
Population Control			
Sharpshooting	$ 200 / hour	$ 5,000	$ 30,000
Coordination, Permits and Orientation	$ 115 / hour $ 25 / hour	$ 1,000 $ 0	$ 1,200 $ 6,000
Subtotal		***$6,000***	***$ 37,200***
TOTAL		***$ 10,500***	***$ 50,950***

a Aerial counts completed in January 2001

Assumptions

For the purposes of this estimate, it was assumed that a portion of the work would be completed by outside consultants rather than city staff to give the maximum cost range. Other assumptions used to prepare these preliminary costs are described below.

- Population Control cost estimate for 2001 is based on removal to the 25 deer per square mile goal for the East Central Unit, whereas for 2002 it is based on removal of up to 150 deer from all six units to meet the 25 deer per square mile density goal.
- An annual evening workshop would be organized for residents of the city to provide information on fencing, repellents, plants, and potential vendors of these items. Expert speakers on these topics would be invited to present information, as well as local vendors.
- Consultant would work with city staff and attorney to draft proposed feeding ban ordinance.
- The statistics and figures for data collected in subsequent years of monitoring would be updated annually to illustrate current data on car/deer crashes, complaints, and aerial counts. A consultant would work with the city to compile the crash data from various sources, and create updated graphics for the crash and complaint sites and aerial counts, as well as update the projection and removal tables.
- Archery coordination will consist of consultant working on behalf of the City to develop guidelines and

restrictions for hunting times and locations by the Metro Bowhunters Resource Base and Capable Partners groups.

- Monitoring of the exclosure fence, the enclosed area, and an adjacent unrestricted area would be completed a minimum of three times per year. Any repairs would be made as necessary. Exclosures were installed September 2001 in Terrace Oaks Park in partnership with STOP group.

On-going Costs

It is expected that after the first 2 years of implementation that the annual cost of the Deer Management Program will decrease as the total number of deer to be removed annually should decrease. A revised annual cost projection will be made after March of 2003, once the effect of sharpshooting is evaluated.

10.0 ATTACHMENTS

Attachment A: Deer Monitoring Report Form

Attachment B: Approved Burnsville Feeding Ban Ordinance

Attachment C: Burnsville Electric Fencing Regulations

Attachment D: Burnsville Firearms Discharge Ordinance

Attachment E: Metro Bowhunters Resources Base Information

Attachment F: Capable Partners Information

Attachment G: Special Provisions for Archery Hunting

11.0 REFERENCES

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ATTACHMENT A

DEER MONITORING REPORT FORM INSTRUCTIONS

The purpose for this Deer Monitoring Report Form is to provide an opportunity for Burnsville residents to document and share their observations of deer activity in their neighborhoods. This documentation will be used to supplement other monitoring data collected by the City. Residents may submit a single report of any type or may choose to submit frequent observation reports that document local herd movements. All information submitted will be processed by the City as part of the overall monitoring effort.

This Form can be used for multiple report types, which are described below. The types of reports anticipated include general observations, depredation reports, and crash/carcass location reports. The information that should be included with each type of report are described below.

GENERAL OBSERVATION: A General Observation report is dedicated to deer observations within the City of Burnsville. Information that will be helpful for this report are the time of day, number of deer, sex and age of the deer (if known), and activity of the deer. Was the activity or anything else unusual? This report form can be used to document weekly, monthly or seasonal movements of deer through an individual property, neighborhood, etc.

DEPREDATION REPORT: Depredation reports are to record property damage that has resulted from deer feeding or frequent activity. The most important information to include in this type of report includes: the number of deer that have been observed causing the damage; movement patterns of deer causing damage; frequency that deer are active in the area of impact; time of day damage occurs; and type of damage that is incurred. Landowners can submit multiple reports documenting seasonal, or more frequent damage. Pictures can be submitted along with report as documentation.

CRASH/CARCASS LOCATION REPORT: The location of a deer/car crash, the location of a deer carcass along the roadside, or the location of a near miss due to deer crossing a road can be reported using this form. The information that is important to include are time of day the incident or observation occurred, and age and sex of deer, if known. If the incident was reported to the Burnsville Police Department, please include a police report number. The primary use for this report type is to document crash incidents that may not otherwise be reported through city, county or state records.

OTHER: If a resident wishes to submit a report on deer activity that does not fit into one of the categories listed above, they may provide a description of their comments or concerns in the spaces provided after checking this box.

WHERE TO SUBMIT FORMS:

Completed forms can be submitted to the City via regular mail or fax. Comments can also be submitted via phone or E-mail. Please submit forms to: Mr. Terry Schultz, Director of Natural Resources, City of Burnsville, 13713 Frontier Court, Burnsville, MN 55337; PH: 952-895-4505; FX: 952-895-4531; E-Mail: terry.schultz@ci.burnsville.mn.us

ATTACHMENT B Approved Feeding Ban Ordinance

ATTACHMENT C Burnsville Electric Fencing Regulations

(C) Construction: Fences shall be constructed in a workmanlike manner and of substantial material reasonably suited for its intended purpose.

(D) Maintenance: Every fence shall be maintained on both sides in a condition of good repair and shall not be allowed to become or remain in a condition of disrepair or danger, or constitute a nuisance, public or private. Any such fence which is, or has become dangerous to the City health or welfare, is a public nuisance, and the City may commence proper proceedings for the abatement thereof.

(E) Electric Fences: Electric fences shall not be permitted except for agricultural purposes and for the control of deer in residential gardens, provided that garden fencing shall comply with the following standards:

1. The fence shall be electrified using only a UL listed fence controller, or an equivalent approved by the City's Electrical Inspector.

2. The fence may consist of multiple strands of electrified wire, but at least one (1) strand shall be installed at a height between thirty (30) and thirty-six (36) inches above the ground and marked with warning signs that are no less than eight (8) square inches in size and that are attached to the wire no less than ten feet (10') apart.

3. The fence shall not be located in the front yard as defined in Section 10-4-2 of this Title.

4. The fence shall be located only around the perimeter of each garden or freestanding flower bed to be protected, up to the property line, and shall in no instance be used as perimeter fencing for the property.

5. The fence, including the wires, shall not exceed the height limitations of Sections 10-7-19 (G) (1) and (2) of this Chapter.

(F) Barbed Wire Fences: Barbed wire fences shall only be permitted on farms or for special security requirements by conditional use permit.

(G) Residential Fencing and Screening:

1. Except as provided herein, fences outside the buildable area of a lot may not exceed six feet (6') in height.

2. Except as provided herein, fences within the buildable area of a lot or in the case of the rear lot line at least ten feet (10') from the rear lot line, may not exceed eight feet (8') in height.

3. Fences extending across front yards shall not exceed three and one-half feet (3½') in height and shall be at least seventy-five percent (75%) open space for passage of air and light.

(H) Swimming Pool Protection:

1. A permit shall be required for swimming pools constructed below ground level considered to be of permanent construction with a capacity of five thousand (5,000) gallons and/or three feet (3') or more of depth. Each application for a permit to construct or erect a swimming pool shall be accompanied by plans of sufficient detail to show:

ATTACHMENT D Burnsville Firearms Discharge Ordinance

CHAPTER 4

FIREARMS

SECTION:

6-4-1: Definitions
6-4-2: Intent
6-4-3: Permitted Use Of Firearms
6-4-4: Prohibited Use Of Firearms

6-4-1: DEFINITIONS:

CARRYING: The handling or physical transportation of a firearm concealed or otherwise.

DISMANTLED FIREARM: Any weapon included in the definition of "firearm" herein which is dismantled in such manner as to make shooting impossible, or any weapon with vital parts missing so to render it inoperable.

ENCASED FIREARM: Any weapon included in the definition of "firearm" herein placed in a case and unloaded in both chambers and magazines so as to make the shooting of said "encased firearm" impossible, except a pistol or revolver when contained in a holster.

EXPRESS INVITATION: Actual written notice signed by the "landowner" with said "landowner's" name, address and telephone clearly imprinted on same, and carried on the person of at least one specifically named individual on said notice in any group or party shooting on said lands, said notice to also include an effective date and a date of expiration.

FIREARM: Shotguns, rifles, air rifles, B.B. guns, handguns, bow and pointed-tip arrows.

LANDOWNER: Any person, group, firm or corporation owning, leasing or legally controlling any lands within the corporate limits of the Village. (Ord. 102, 8-3-70; amd. Ord. 242, 8-16-82)

6-4-2: INTENT: It is the intent of this Chapter to regulate the carrying and shooting of firearms in order to safeguard the residents of this community. It is not the intent of this Chapter to regulate ownership of firearms by law-abiding citizens.

6-4-3: PERMITTED USE OF FIREARMS: The shooting and carrying of firearms which are not encased or dismantled is permitted under the following circumstances unless prohibited by State or Federal law:

(A) By law enforcement officers in the line of duty or military personnel in the line of duty.

(B) By any person to resist or prevent an offense which that person reasonably believes exposes himself or another to great bodily harm or death.

(C) By any person to prevent the commission of a felony in his home.

(D) By a certified Firearms Safety Training Instructor in connection with a Department of Natural Resources approved Firearms Safety Program.

(E) By any person in connection with a Department of Natural Resources approved Firearms Safety Program.

(F) By any person on a rifle, trap, archery or target range established in accordance with the Burnsville Zoning Ordinance.

(G) By any property owner or his guest engaged in target shooting with inanimate objects as targets within the basement or cellar of an enclosed structure owned by the property owner; provided that no shooting shall be allowed under this subsection unless suitable measures have been taken to assure the health and safety of those in and about the structure. (Ord. 242, 8-16-82)

(H) By any person shooting a bow and pointed-tip arrows who is the private landowner or with written private landowner approval on their person; provided, however, no arrow passes beyond the boundaries of that property; and, provided further that the shooting occurs at least five hundred feet (500') from any land or building not owned by that landowner and that no one is endangered. (Ord. 319, 6-20-88)

(I) For the destruction of diseased, injured or dangerous birds, animals or reptiles by persons authorized to do so in writing by the Chief of Police in compliance with published State regulations.

(J) By any person participating in a special hunting season, which season may not conflict with State law or regulations, established by the City Council for the purpose of wildlife management. The season shall be established by the City Council when, based upon competent professional advice such as a conservation officer, a season is needed to reduce an animal population.

(K) The possession, transportation or carrying of handguns as specifically allowed by State law.

6–4–4: PROHIBITED USE OF FIREARMS: Except as specifically allowed in this Chapter:

(A) The carrying of a firearm in a motor vehicle, place or area open to the public or any private place or area unless the private place or area is owned by the person carrying the firearm or with the owner's permission which is not encased or dismantled is prohibited.

(B) The shooting of a firearm is prohibited. (Ord. 242, 8-16-82)

ATTACHMENT E Metro Bow hunters Resource Base Information

METRO BOWHUNTERS RESOURCE BASE

Urban deer management is a growing problem around the United States due to the infringement of humans on traditional deer habitat areas, as well as to the burgeoning population growth of deer herds. In most urban areas firearms are not able to be used for deer management due to safety concerns due to their long downrange capabilities, homeowner's objections to the noise and other factors. In these cases, bowhunting is a viable alternative to wildlife managers.

In 1995 AMO, through our "Save Our Heritage" fund gave a grant of $22,700 to a group in Minnesota called the Metro Bowhunters Resource Base (MBRB). In 1998 they now have 450 bowhunters qualified to participate, when asked, in urban deer management. One of the objectives of MBRB was to demonstrate that archery is an effective and efficient deer management tool. Solid evidence from the MBRB program supports that hypothesis. Here are some examples from our test program in Minnesota. This report is from Mark Graham of MBRB. Some of you may remember that our old friend, Jay McAninch (Minnesota DNR) was involved with the project prior to moving to Washington, D.C. to head-up our Congressional Sportsmen's Foundation office.

Twin Cities Army Ammunition (TCAAP)

TCAAP traditionally utilized sharpshooting to manage deer on their facility. They agreed to "test" bowhunting with the MBRB in the fall of 1996. Their objective was to remove 62 animals and the plan was to use firearms sharpshooting to reach that goal after the archery hunt. An "acceptable" target for the archery hunt was set at 20 animals. During 16 days of bowhunting in October and November 1996, 56 bowhunters killed a total of 69 deer. Sharpshooting plans were cancelled (saving TCAAP $10,000) and MBRB is in their third year of "bow only" deer management.

Lebanon Hills Regional Park

The Dakota County Minnesota park had an estimated deer density in 1994 of 49 to 59 deer per square mile, substantially above the desired level of 15 to 25. A management plan was developed by the County in cooperation with the Minnesota DNR which called for removing 100 animals over a three year period. Even under the constraints of hunting weekday mornings only, three days per week, the MBRB was able to remove 108 deer in three years, 93 of which were antlerless.

Minneapolis Waterworks

The Minneapolis water filtration plant is in a commercial and residential area abutting the Mississippi River. The facility was being totally fenced in the winter of 1998 and there were an estimated 31 deer on the grounds. The approval of two city councils was required and a coordinated effort by the Waterworks, Minnesota DNR and the MBRB was successful in gaining that approval over the objections of several animal rights organizations. In a one day period 16 archers removed a total of 22 deer with 26 shots (which compares favorably with firearms sharpshooting). Crews from the Twin Cities four television stations were on hand and interviewed both protesters and Minnesota DNR/Waterworks spokespersons. MBRB members performed exceptionally well even when subjected to verbal abuse by protesters.

More About The MBRB

The Metro Bowhunters Resource Base was a cooperative effort between the Minnesota DNR (Jay McAninch) and the state archery organizations, including Minnesota Bowhunters, Inc., Minnesota Deer Hunters Association, Minnesota State Archery Association, Minnesota Bowhunters Chapter of Safari Club International, and Capable Partners, Inc.

Requirements for each hunt opportunity will vary. Some require that participants pass a shooting proficiency test. Others may be limited to antlerless deer only, or require that an antlerless deer be taken before harvesting a buck. Still others may restrict hunting times (weekdays only, for example) or methods (treestands only-shots within 18 yards).

In all cases, to be included in the Metro Bowhunters Resource Base, bowhunters must:

1) Pass an accredited bowhunter education class (IBEP-10 hour course) and,

2) sign an ethics pledge promising to obey and respect all state game laws as well as any and all special requirements further imposed on the individual hunt.

Bowhunters having met these requirements complete a detailed application/questionnaire that among other things indicates the geographic areas and types of hunts they are willing to participate in. An annual $10 fee is charged to help defray administrative costs of the program. The MBRB is a non-profit organization and should it have excess funds they would be used for program promotion or public education.

The primary purpose of MBRB is to provide a service to local municipalities in a way that demonstrates bowhunting's effectiveness and a positive image of bowhunters. The Minnesota Bowhunters Resource Base provides bowhunters for programs ranging from strictly recreational hunts to highly controlled and restrictive archery sharpshooting projects.

For more information contact:
Mark Graham
The Metro Bowhunters Resource Base
P.O. Box 27391
Minneapolis, MN 55426

NEW AMO MEMBERS SINCE LAST ISSUE October 13, 1998

REGULAR MEMBERS

AMERICAN WHITETAIL
Ferdinand, IN

B & J ARCHERY
Jacksonville, TX

BALLISTIC ARCHERY INC.
Rosemont, NJ

BIGHORN BOWHUNTING COMPANY
Loveland, CO

CARBON IMPACT
Traverse City, MI

CAROLINA ARCHERY PRODUCTS
Pittsboro, NC

FOSTER MANUFACTURING
Batavia, OH

K.D.L. OUTDOOR PRODUCTS, INC.
Wisconsin Rapids, WI

TRENDSETTERS, INC.
Delavan, WI

SUPPORTING

LEUPOLD & STEVENS, INC.
Beaverton, OR

REP GROUP

LONG & MAYER SPORTS MARKETING
Allentown, PA

DEALER

Al's GUNS & ARCHERY SUPPLIES
Norwich, OH

BIG BUCK SPORT SHOP
Wexford, PA

BROOKLYN TRADING POST
Brooklyn, CT

CARROLL'S ARCHERY
Alexandria, IN

EDER, INC. (Edersbow.com)
Cross Plains, WI

HYSELL ARCHERY CENTER
Sturtevant, WI

JACK'S GUN SALES
Pineville, WV

KING'S SPORT & TACKLE
Guerneville, CA

LAKEWAY ARCHERY
Grenada, MS

METRO BOWHUNTERS RESOURCE BASE
APPLICATION INSTRUCTIONS

1. Complete MBRB Application form. Incomplete or illegible applications will be cause for rejection of application. Applications must be signed three times for each section - general information, ethic's pledge and release agreement.
2. Mail Application along with a Photocopy of your Bowhunter Education (BHE) card and $10.00 check or money order to:

Metro Bowhunters Resource Base
PO Box 270090
Minneapolis, MN 55427-6090

Note: Those hunters who have sent in copies of their Bowhunter Ed cards in past years do not need to send another copy of their Bowhunter Ed cards again.

Additional Information:

- Completion of a Bowhunter Education class is required for application. For upcoming Bowhunter Ed courses, call the Minnesota DNR at 651/296-5015 for a tape recorded message available 24 hours a day, 7 days a week. To talk to a staff person Monday-Friday, 8:00-4:30. Outstate, call 1-800-766-6000 or metro call 651-296-0890. ***(Note: To insure getting into a class in time, sign up early!)***
- If you recently attended the BHE course, the temporary BHE certificate you receive from the class instructor may be sent in lieu of the BHE card.
- The MBRB is a non-profit organization. The $10 annual fee is solely used to cover the MBRB's operating expenses. Paying the fee does not guarantee that you will be selected to participate in a hunt.
- Application deadline is **August 15, 2001**
- After the MBRB has received and processed your application, you will receive notification that MBRB has received your 2001 application including your MBRB ID number. Your canceled check is your receipt.

Other Information for 2001

- **Application Deadline: August 15, 2001.**
- **MBRB ID number** - All past members and applicants of the MBRB have been assigned a MBRB ID number. New applicants will be assigned a MBRB ID number when their application is entered into the MBRB database. The confirmation letters sent out to acknowledge the receipt of a hunter's application will show what MBRB ID number has been assigned to the hunter. **This number must be used by applicants when they call the MBRB Info Line to request hunts.** Use of this MBRB ID Number will simplify the data entry process and help to minimize errors.
- **Proficiency Test** - The MBRB proficiency test for 2001 will be the same as for 2000. In order to qualify to hunt in MBRB hunts, hunters will be required to place 5 of 7 arrows in an 8" circle from 20 yards. The distance for the test has changed from the 15 yards used in previous years. Archers can take the test more than once, but only once on any given day.

  Also, MBRB members can choose to qualify for "sharpshooter" status when they take the proficiency test by placing 6 of 7 arrows in a 4" circle from the same distance of 20 yards. The purpose of this second "sharpshooter" designation is to allow the MBRB to have a pool of highly qualified archers who will be eligible to participate in any special deer removal efforts undertaken by the MBRB. Typically these are highly sensitive and visible locations, from which local communities wish to have deer removed, but do not want to sanction a general hunt. These operations happen very infrequently and normally have severe hunter restrictions (e.g. - hunters cannot keep any portion of the deer they shoot, etc.)
- **Web page** - In our ongoing efforts to improve communications, the MBRB is working on improvements to the Web page we started in 2000. The address for our existing web page is **http:// mbrb.homestead.com/home.html** It is used to post information about the organization and current hunting opportunities. Any changes to the web page address will be announced on the MBRB Information Line as soon as it becomes available.

YOU'VE SENT IN YOUR APPLICATION – NOW WHAT?

Starting in late July, MBRB members should check on what hunts they wish to be considered for so that they can call the MBRB Information Line, and leave a message with their MBRB ID Number and what hunts they wish to be considered for. Information on the hunts can be gathered via the MBRB Information Line or the MBRB's Web page.

MBRB Information Line - Call the MBRB information line at ***(952)-897-9780)***. The recorded message will include any current available hunt opportunities with the anticipated drawing dates and dates of the mandatory orientation meetings for each available hunt. (Note: orientation meeting dates are set by the city, county, etc., not the MBRB.) At the end of the message please leave your name, MBRB ID number and each hunt you would like to be considered for after the "beep" on the information line. It is important to speak slow and clearly to insure getting your request added to your record on the MBRB database. (Note: Because of the high volume of calls into the MBRB information line, we ask that members do not request a call back from the MBRB unless

absolutely necessary.) Members are encouraged to check the information line and or Web site often to get updates on upcoming hunts and to follow the instructions on the line in order to be considered for 2001 MBRB hunts.

Hunt Drawings - After the deadline for applying for a specific hunt is past, a random drawing is held to select the appropriate number of hunters and alternates. There is no carryover "preference" granted to hunters who were not selected to hunt in previous years. The MBRB does keep track of hunters who have been selected for hunts in a given year and makes every attempt to provide every MBRB member with at least one hunt opportunity each year. Hunters selected for specific hunts will be notified via the mail with a letter that provides further information and instructions on the hunt, whether they have any outstanding MBRB requirements to be met, and where and when the orientation meeting will be held. (Note: MBRB requirements include: $10 fee, bowhunter education certification, signed ethics and release agreement and a proficiency test.) In order to participate in a specific hunt, all MBRB requirements must be met by the date of the orientation meeting.

NEW FOR 2001 – **"WALK-ON" POLICY** – Starting in 2001, **NO "Walk-ons" will be allowed into MBRB hunts**. In the past, the MBRB has allowed members who were not selected as Hunters or Alternates to show up at hunt orientations and fill any open slots remaining. This has resulted in questions on why some hunters get to hunt in multiple hunts, while others do not get to hunt in any hunts. Beginning this year, only those hunters and alternates selected for a hunt will be allowed to participate in a given hunt, regardless if there are any "unfilled" hunting slots. The Alternate List will be expanded for all hunts and hunters selected as Alternates will be given a priority number. The lower the number, the greater the likelihood that an alternate will get into the hunt as a Hunter. Because there is no guarantee that any Alternates will be needed, any Alternate who shows up at the orientation meeting and gets to participate in a hunt will NOT have his participation counted against him (or her) in other hunt drawings they have entered. This new policy will help simplify the MBRB's administration demands.

Proficiency Test - If you are notified by the MBRB that your name was drawn for a particular hunt, you will need to take a proficiency test at one of the archery shops listed below. A $5 fee for targets and use of the range may be charged by these archery shops. You must hit an 8" target with at least 5 out of 7 arrows at 20 yards with the bow you will use to hunt. (You may also qualify for "Sharpshooter" designation by placing 6 of 7 arrows in a 4" circle from 20 yards.) Upon successfully passing your proficiency test, your name will be logged at the archery shop and they will give you a Shooting Proficiency Certificate. (Note: You may have to wait for regular customers to be served before someone may be able to handle your request for a shooting test so please be patient.) You will need to present the proficiency test certificate at the orientation meeting. (Do not send this back to MBRB but bring it to the orientation meeting.) MBRB members participating in hunts must pass the proficiency test each year.

Test can be taken at the following locations: (NOTE: These are the locations offering MBRB proficiency tests during 2000. While the list is expected to remain the same or expand for 2001, please call ahead to confirm.)

Archery Experts	11350 Aquila Dr., Ste. 915, Champlin	612-421-2808
Bwana Archery	3015 Country Dr., St. Paul	651-482-9866
Cabin Fever	1550 Arboretum Blvd., Victoria	612-443-2022
Capra's Sporting Goods	8565 Hwy. 65 NE, Blaine	612-780-4557
Compound Dr	3600 Labore Rd., White Bear Lake	651-429-1139
Gander Mountain	9801 Lyndale Ave. S., Bloomington	612-884-8842
John's Outdoor & Taxidermy	120 West 3rd St., Hastings	651-437-7421
Schaffer Performance Archery	1403 E. Cliff Rd., Burnsville	612-894-4139
Tom's Archery	County Rd. 19, Excelsior	612-474-3116

METRO BOWHUNTERS RESOURCE BASE

PO BOX 270090, Minneapolis, MN 55427-6090
Information Line: (952) 897-9789

2001 APPLICATION

(Please print clearly)

General Information:

Last Name _____ First Name _____ Middle Initial _____

Address _____ City and State _____ Zip _____

Daytime phone: (____) _____ Evening phone: (____) _____

My Bowhunter Education ID number is: _____

Sex: Male _____ Female _____ Date of Birth: _____/_____/_____

I have been bowhunting for _____ years. I have taken _____ deer while bowhunting during the ***past five years***.

I understand that there are special requirements for the MANAGEMENT hunts administrated by the MBRB. I am willing to:

a. pass a shooting proficiency test (5 of 7 arrows in an 8" target at 20 yds. – mandatory to pass annually).
b. Hunt if I was required to tag an antlerless deer before I was able to tag a buck.
c. Hunt if I was required to use a portable tree stand.

PLEASE NOTE: Most hunts are likely to have additional special requirements.

Under which of the following conditions, which are occasionally required by a city, county, or landowner, would you be willing to hunt?
CHECK ALL THAT APPLY

___ hunt if I was restricted to killing antlerless deer only
___ team hunting to maximize harvest (including allowing others to use my stand)
___ use non screw-in tree steps
___ purchase additional city or state permits
___ required to donate deer to the DNR or to charity
___ hunt weekdays only
___ hunt weekends only
___ hunt mornings only
___ hunt evenings only

If the opportunity arose, I would like to:
CHECK ALL THAT APPLY

___ help coordinate the operation of a special hunt
___ serve as a hunting team leader
___ assist at check stations to register deer and/or check hunters in

Signed: _____ Date: _____

Bowhunter's Ethics Pledge:

I, the undersigned, do hereby pledge and promise that I will:

- Abide by and obey all state game and trespass laws as well as any additional rules and regulations placed on any special management hunt in which I participate.
- Cooperate with everyone involved with the hunt and act in accordance with the spirit of the hunt's rules and regulations.
- Respect the property rights of those who own the land I hunt on as well as those who own adjacent lands.

I understand the right to participate in hunts under this program is a privilege, not a right. I understand that my failure to live up the responsibilities of this pledge will be grounds for my removal from the Metro Bowhunters Resource Base.

Signed: _____ Date: _____

Release Agreement:

By my signature, I hereby release the Metro Bowhunters Resource Base and other sponsoring agencies or organizations for all liability or claim I may have out of my participation in any special management hunts. I certify I have the ability and desire to join these activities at my own risk and decision.

Signed: _____ Date: _____

Send this completed application, a copy of your Bowhunter Education card and $10.00 fee (no cash please) to:
Metro Bowhunters Resource Base, PO Box 270090, Minneapolis, MN 55427-6090.
Applications must be postmarked by August 15, 2001.

ATTACHMENT F **Capable Partners Information**

ATTACHMENT G Special Provisions for Archery Hunting

Archery Hunting Locations

The list of areas proposed to be open for special management archery hunts would include a number of developed and undeveloped city parks. The areas proposed for archery hunting can be divided into three different categories; each requiring slightly different provisions for implementation based on use and ownership. These categories are described below and the associated provisions are described in the next section.

I. Public Parks with Wide Spread Recreational Use:
(Alimagnet, Terrace Oaks, Crystal West)

Parks with wide spread recreational uses are defined as those that have amenities for specific recreational activities that could conflict with "special hunt" activities. These uses are typically a combination of active (ballfields, play areas) and passive (designated trails) uses. Some areas of these parks may need to be temporarily closed to other recreational users during special hunts. This will require extra efforts to inform park users of the timing of the archery hunts that will occur within these parks and when the parks will be closed to general activities.

Terrace Oaks is a good example of this type of park. It is a 230-acre park, which provides parkwide recreational opportunities for city residents as well as offers habitat to a variety of wildlife species. Activities within the park include mountain bike trails, pedestrian trails, picnic areas, parking facilities, and cross-country ski trails. Other parks that would be included in this category include Alimagnet and Crystal West Parks.

II. Public Parks – Natural Areas
(Black Dog, Cam Ram, Judicial, Wolk)

Natural Area parks are those that have large areas in which the park has not been developed with trails or play areas. The areas with minimal human use would be the areas designated for the "special hunts".

Judicial, Black Dog, Wolk, and Cam Ram Parks are 17, 38, 53, and 150 acres in size, respectively. Judicial Park is a small neighborhood park that provides a natural wooded area. This park has no developed or formal trail system. The south end of Wolk Park is developed for ballfields, picnic area and play area, however the northern two-thirds provides an undeveloped wooded area. The size and/or cover within Loop, Forest Heights and Kramer are not believed to be sufficient for effective hunts to include these locations at this time. However, if adjacent landowner permission were provided, future hunts could potentially be conducted in these parks.

Similarly, Black Dog and Cam Ram Parks have portions that are developed with ballfields and play areas, with the balance as undeveloped natural area.

III. Private Lands

Private lands are defined as those parcels not owned by the city or other government body. These parcels include both residential and commercial properties. Some areas of private

property within the city have the potential to provide adequate hunting opportunities. These are generally located in the Southwest, Northwest and Northeast Management Units.

Under the City's current Firearm Discharge Ordinance (Attachment D), archery hunting can occur within the city on parcels large enough to allow the discharge of a bow (must be 500 feet from boundary of area where hunter has permission to be). There are a handful of parcels in the Northeast (commercial property), Northwest (commercial property) and the Southwest (residential property) management units that are large enough to allow hunting on individual parcels, and with permission on adjacent parcels. It an effort to expand the number of parcels that could lawfully be hunted by archers, staff explored the idea of reducing the boundary distance requirements to 200 feet. After initial review by the police department, they are comfortable with this change, given some additional safety requirements are fulfilled.An amendment to the current firearm ordinance is being proposed oas part of the approved Deer Management Program.

It should be clearly noted that any landowner that does not want archery hunting to occur on their property retains the right to make that decision. On the other hand, landowners that do not hunt but would like to have deer removed in their area could be encouraged to coordinate with the city or others to make their land available to archers.

Hunting Provisions

The form of hunting included under this management strategy is via archery only. The provisions recommended for the hunt locations described above are based on safety, efficiency, ethics and professionalism. Given the sensitivity to hunting in suburban areas, staff has recommended a number of special provisions to closely regulate activities of the hunters. The City proposes to use the Metro Bowhunters Resource Base (MBRB), or other similar non-profit organizations, to assist in the implementation of "special hunts" on public land. These groups would assist with the coordination of hunt participants and the documentation of hunt results. Provisions would be made for one or more of the hunt locations to accommodate participants from the non-profit group of Capable Partners. See Attachments E and F for additional information on these organizations.

There are a number of provisions that are recommended regardless of the location at which the hunting takes place. Additionally, specific recommendations have also been made for hunts to be conducted on public parks, versus private lands.

<u>General Provisions</u>

- Hunting to be conducted within DNR standard archery hunting season (mid Sept. through December 31) and in compliance with regulations for DNR Permit Area 337;
- A City permit will be required to discharge a firearm (bow/arrow)in the City of Burnsville (this will require a change to the firearm discharge ordinance);
- Harvested deer must be reported to the city documenting age, gender and reproductive condition of each deer harvested;
- A hunter survey will be provided to each participant to be completed after each season. Surveys will need to be completed in order for participants to remain eligible for future permits within the city;
- Additional deer can be taken as allowed with DNR Deer Management (one additional antlerless deer) and Intensive Harvest (up to three additional antlerless deer) permits, allowing a maximum of 5 deer to be taken by each hunter;
- Shots must be made at least 200 feet from property lines on property for which permission has been granted;
- Retrieval of deer that cross onto property other than that which permission was granted, must be completed in conjunction with a police or conservation officer;

- All hunt participants must attend a hunter orientation class provided by the City or the approved hunting organization(s) identified;
- All shots must be taken within 25 yards of the hunter;
- All entrails must be properly disposed of.

Additional Provisions for Public Parks

- All participants must attend proficiency training and pass the proficiency test provided by the MBRB or other approved organization;
- Participants will be selected through the approved hunting organizations application and selection process for metro hunts.
- The city will post the huntable areas of the parks with signs facing in so that hunters can easily identify hunt boundaries;
- The city will notify park users via signs at all designated entry points into the park the times for which the park will be closed for these hunts;
- The city will also notify adjacent landowners via a letter regarding the times for which the park will be closed and the details of the hunts that are planned in that park;
- In public parks with wide spread recreational use (Category I), hunts would be limited to weekday mornings to minimize conflicts with other uses. Three or four hunting periods would occur, with each being three to four days long, with a minimum of two weeks in between hunting periods;
- In public parks with large natural areas (Category II), hunts may occur over weekends. Three or four hunting periods would occur, with each being three to four days long, with a minimum of two weeks in between hunting periods;
- Deer must be field dressed after removal from public property. All entrails must be properly disposed of;

- The city will designate a hunter check-in/check-out station location/process and coordinator for each special hunt on public land;

- First deer taken must be antlerless (antlerless is defined by the state as those deer without an antler greater than three inches long) for hunts conducted on public land;

- Hunting shall be from portable tree stands only, except for certified disabled people;
- Harvested deer must be concealed in vehicle/trailer during transportation from the hunt location;
- Hunt locations will be reviewed annually by city staff, the police department and the PNRC; additional site may be added as needed to meet management goals;

- The maximum number of hunters within Terrace Oaks Park at any one time would be no more than 15;
- The maximum number of hunters within Wolk Park at any one time would be limited to no more than 3 hunters;
- The number of hunters per site for parks that may be included in future special hunts would be determined by the size and terrain of each individual location.

Private Lands

- written permission from landowners must be provided in order to obtain a permit;
- hunter must be aware of property boundaries and 200 foot buffer zone within which shots cannot be made;
- Hunting can occur as agreed to by landowner(s) within the September 15 to December 31 archery season in accordance with state regulations and city

provisions.

These provisions will be reviewed annually by the PNRC and modified as needed to improve the effectiveness, safety and efficiency of the program. An internal work group consisting of Burnsville police and Natural Resource staff would assist with this review.

Use of Harvested Deer

Deer harvested under "special archery hunt" or during the regular hunting season become the property of the licensed hunter. These deer can be processed in any manor the licensed hunter chooses. However, the MBRB group does promote that hunters donate their hides to the Hides for Habitat program and that some of the deer harvested with Deer Management or Intensive Harvest permits be donated to the food shelves as well. Participation is voluntary.

Uses for other parts of the harvested deer would have to be agreed to by the DNR and/or the licensed hunter, depending on whether the deer was taken under the regular season or special DNR permit outside the season. The city will work with other groups if other uses for specific deer parts are identified.