

AGENDA ITEM
CITY COUNCIL MEETING DATE - APRIL 26, 2016
BUSINESS ITEMS

DATE : April 19, 2016

TO : City Manager

FROM : Fire Chief

SUBJECT : **STATUS REPORT ON VEGETATION MANAGEMENT PROGRAM**

RECOMMENDATION:

Review and acceptance of Vegetation Management Program Status Report.

EXECUTIVE SUMMARY:

The goal of Vegetation Management is to control plant material to prevent the spread of wildfire by changing the characteristics of the vegetation surrounding homes and other structures. The focus of vegetation management is not to remove all vegetation within this area, but rather to create both horizontal and vertical separation between the various vegetation in the area and adjacent structures. The separation serves to slow the spread of a wildfire, thereby improving fire containment efforts. The efforts to carry out this task are not a one-time event. The City of Benicia utilizes multiple approaches in its Vegetation Management Program, including disking, spraying, and goats.

BUDGET INFORMATION:

The total cost of the Vegetation Management Contract is \$67,700, which includes all services contingency, and management/engineering support services. An additional \$6,000 is budgeted for spraying access areas, which is managed by Parks & Community Services. The goats are provided at no cost to the City, though the City provides water for the herds.

GENERAL PLAN:

Relevant General Plan Goals and Policies include:

- ❑ Goal 2.28 Improve and maintain public facilities and services
- ❑ Goal 3.15 Provide buffers throughout the community
 - Policy 3.15.1: Preserve and protect, through a variety of methods, a pattern of open space buffers and greenbelts throughout the Planning Area
- ❑ Goal 3.20.1 Protect native grasslands, oak woodlands, and riparian habitat

- Goal 4.15: Reduce fire hazards
 - Policy 4.15.1: Promote the creation and maintenance of natural and artificially constructed firebreaks between development and open space areas through the use of fire resistive landscaping, weed abatement, discing, and other methods.
 - Program 4.15D: Continue the yearly weed abatement program.

STRATEGIC PLAN:

Relevant Strategic Plan Issues and Strategies:

- Strategic Issue #1 Protecting community health and safety

BACKGROUND:

Open Space Management

The City of Benicia has a number of moderate to large open space areas, as well as additional open, city owned lots in the community which require vegetation management to reduce the potential impacts of fire. The City is responsible for the management of 1793 acres of Open Space and City Lots. The City does not currently have an individual Land Manager who is responsible for these spaces. There would certainly be value in having someone with the experience to manage this amount of land. There are a number of models out there that could be considered. Some communities have formed a special district for the management and oversight of open space lands. In Benicia, the tasks associated with managing these areas are shared amongst representatives from multiple City departments. Parks, Public Works, and the Fire Department all have some level of involvement with these properties that are spelled out in Administrative Instructions Number 15 and 16 and a 2006 City Manager's Memorandum.

Objective of Vegetation Management Program

The objective of the Vegetation Management Program is to control plant material to prevent the spread of wildfire by changing the characteristics of the vegetation surrounding homes and other structures. The efforts to carry out this task are ongoing. Overgrown vegetation can contribute to the spread of a wildfire to structures due to direct flame contact or radiant heat. To reduce this threat, it is recommended that vegetation management efforts be carried out within a 100-foot zone from all structures. These efforts should focus on the removal, reduction, and replacement of highly flammable vegetation species with those that are fire resistive. In many cases, based on the property size of most homes adjoining the open spaces, this requires work within the open space areas. Other factors, such as the slope of the area, may require a zone greater than 100-feet. The focus of vegetation management is not to remove all

vegetation within this area, but rather to create both horizontal and vertical separation between the vegetation in the area, as well as the structures. There are a number of guidelines available to identify highly flammable vegetation species, as well as those that are fire resistive. Additional information is available as to the spacing of vegetation, both vertically and horizontally, in order to reduce the likelihood of spreading a fire within the defensible space area. Generally speaking, the objective is to reduce the available fuels (vegetation) and the continuity of the fuels within the defensible space area.

Vegetation Management Efforts

In the early years, Benicia was heavily populated in the south end of town and had very little development in the Southhampton hills. As the City's population increased, developers began gradually constructing housing units north towards Lake Herman. These developments created large areas of Wildland Urban Interface (WUI), where the neighborhoods encircled open spaces. Inevitably, there were fires in these open spaces and these fires often impacted the homes in the area. Subsequently, the City of Benicia Fire Department began implementing vegetation management plans in an effort to mitigate this hazard.

The first and main element of the vegetation management program was disking, where outside contractors were hired to use heavy machinery to disrupt the vegetation around the perimeter of each open space. The second element to be implemented was the utilization of herds of goats to eat vegetation in the open spaces. The City's current Local Hazard Mitigation Plan (LHMP) includes the following strategy:

Expand vegetation management programs in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat to more effectively manage the fuel load through roadside collection and chipping, mechanical fuel reduction equipment, selected harvesting, use of goats or other organic methods of fuel reduction, and selected use of controlled burning.

Vegetation fires originating in the open space risk transitioning onto residential property, including fences, decks, patios, roofs, and homes. In a worst case scenario, members of the public may be injured or killed as a result of being trapped inside of a home which catches fire. No realistic vegetation management program will completely alleviate all risks. Where there is dry vegetation and people, there will be fires. By strategically reducing areas of vegetation, these inevitable fires will slow in their rate of travel and intensity. This will give firefighting crews a better chance at keeping the fires in the open spaces and out of residential structures.

Purpose of the City's Open Space

According to the City of Benicia's *Parks, Trails, and Open Space Master Plan*, open space areas serve a number of purposes:

1. To protect and enhance important natural resources (i.e. wetlands, riparian areas, wildlife habitats and special geological areas)
2. To provide protective buffers against natural hazards (i.e. wildfires, floods and slope erosion)
3. To maintain and improve public access (i.e. trail development and signage)
4. To preserve the natural landscape character

The 100-foot wide buffer between development and open space areas, as well as the access points serve purposes 2 and 3. The manner in which the buffer is maintained serves to protect and enhance natural resources, and to preserve, to the extent feasible, the natural landscape character.

General Plan Consistency

Certain programs and policies in the General Plan can seem at odds with each other. It is in these cases that a test of reasonableness must be applied.

In this instance, General Plan Policy 4.15.1 states:

Promote the creation and maintenance of natural and artificially constructed firebreaks between development and open space areas through the use of fire resistive landscaping, weed abatement, discing and other methods.

While General Plan Goal 3.20.1 states:

Protect native grasslands, oak woodlands, and riparian habitat.

The Vegetation Management Program clears a 100-foot buffer of open space directly adjacent to homes in order to create a firebreak between development and open space, consistent with policy 4.15.1. The firebreak is approximately 334 acres of the 2,200 acres of open space within the City¹. Since the amount of open space being used as a firebreak is such a small percentage of the overall open space, and since the remaining open space is being left undisturbed, these grasslands and habitats are being protected to a reasonable extent, while allowing the City to protect the safety of the community.

¹ The 2,200 acres of open space excludes Sky Valley, City Parks or the State Recreation Area.

Challenges associated with managing the City's Open Space Lands

Coyotes

Concerns have been raised regarding vegetation management efforts causing an increase in coyotes, however, the vegetation management is not something new. The proliferation of coyotes is an issue throughout the Bay Area and beyond. As noted in the Humane Society's "Coyote Management and Coexistence Plan" (posted on the Police Department page of the City's website):

Due to their intelligence and adaptability, in addition to extensive urbanization and the subsequent decline of larger predators, coyotes have successfully expanded their range across North America. Coyotes are now found in all states in the U.S. except Hawaii and have become well established in nearly every ecosystem. They live in deserts, swamps, tundra and grasslands, brush, dense forests, cities and suburbs. People can live among coyotes yet never see them. Often it's only an evening chorus or group howling and yipping that alerts us to the presence of this wild canid in our neighborhoods. It is important to keep in mind that coyotes have been interacting with and adapting to people for at least the last 100 years.

Ecological Importance

Coyotes are curious, smart and adaptable creatures and our urban areas provide the perfect balance of food, shelter and water for them. What you may not know is that even in fragmented and urbanized landscapes, coyotes can play an integral role in their environment by providing ecosystem services and helping to maintain species diversity. Coyotes in urban areas not only provide free rodent control by feeding on mice and rats, but also help to regulate the population size of other species that may cause conflicts with people in urban areas (such as voles, wild turkeys, white-tailed deer and Canada geese).

The increase in visibility of coyotes does not appear to be a result of the City's vegetation management efforts, but rather a more global issue. Many communities are looking at how to best coexist with this wildlife.

Encroachment

One issue that exists with many areas of the City's Open Space is encroachments from the adjoining properties. These encroachments include the construction of fences, retaining walls, and decks, as well as the planting of a variety of vegetation. In some cases these plantings consist of general landscaping, while in others it may be fruit trees or vegetable gardens. The planting of trees in the open space often times has resulted in a burden for the City to handle removal of dead or dying trees that present a hazard. In some cases the selection of materials for planting may result in an increased fire hazard, as they may be highly flammable or not fire-resistive in nature. In other

cases the presence of these encroachments inhibits the City's effort to conduct mitigations that are intended to reduce the impact of a fire in the open space. The ability to perform perimeter disking or fuel reduction is impeded by these encroachments and the efforts to not cause conflict with the property owners.

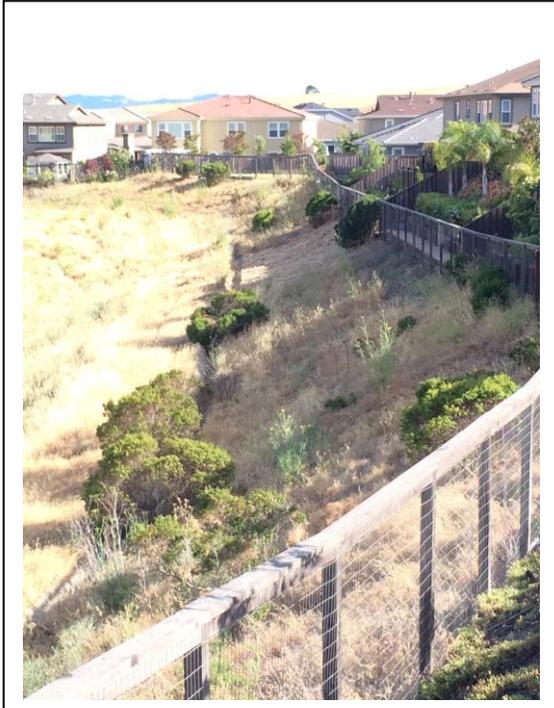
The following table outlines the benefits and challenges to the various vegetation management efforts:

	BENEFITS	CHALLENGES
GOATS	<ol style="list-style-type: none"> 1. <u>Cost:</u> <ul style="list-style-type: none"> • Extremely cost effective. • Standard fee is \$800 per acre. Goats-R-Us provides goat herds at no cost in exchange for a location to graze their herds when they are not being contracted out by other agencies or land owners. • Minor cost to the City is for a nominal amount of water (for the herd to drink) and minimal staff time spent managing the program. 2. <u>Noise:</u> <ul style="list-style-type: none"> • Goats are relatively quiet compared to heavy equipment used with mechanical disking, or the powered hand equipment used by hand crews, such as gas weed trimmers. 3. <u>Air Pollution:</u> <ul style="list-style-type: none"> • Goats do not produce any air pollution. This is not the case with other disking or chemical abatement methods. 4. <u>Terrain:</u> <ul style="list-style-type: none"> • Goats can navigate very steep and uneven ground terrain, making them useful in sites that otherwise present a risk of injury to equipment or workers. 5. <u>Effectiveness:</u> <ul style="list-style-type: none"> • Goat grazed areas may still burn, but the reduced fuel effectively slows the rate of spread and intensity of the fires. 	<ol style="list-style-type: none"> 1. <u>Schedule:</u> <ul style="list-style-type: none"> • Limited control over the goat grazing schedule. A contract, with significant cost to City, would be required to control scheduling. 2. <u>Erosion:</u> <ul style="list-style-type: none"> • Goats remaining for too long in one area can create erosion issues. Herders work with the land managers to achieve an appropriate level of vegetation removal that will reduce fire danger without causing unnecessary erosion. 3. <u>Breakouts:</u> <ul style="list-style-type: none"> • Each herd is maintained by an on-site shepherd and a Border Collie, with temporary fencing to keep the herd contained. • Occasionally, a goat(s) breaks out of their containment area and/or enters private property (backyards) and disrupts homeowners' landscaping. Goats-R-Us has been responsive in dealing with these issues and has worked directly with homeowners to contain the goats and rectify the situation.

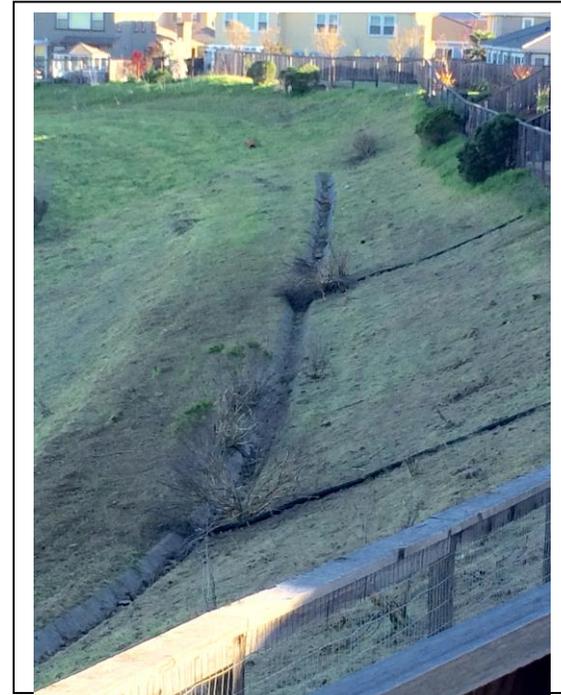
	BENEFITS	CHALLENGES
	<ul style="list-style-type: none"> Provides firefighters an increased opportunity to defend structures and property. 	<p>4. <u>Reliability:</u></p> <ul style="list-style-type: none"> Goats-R-Us is seasonal and non-paid, and may cancel the agreement and we would be without the service. <p>5. <u>Coyotes:</u></p> <ul style="list-style-type: none"> Citizens have raised concerns that the grazing of goats has caused an increase in coyote sightings in town. In addition, the concern is that the grazing has changed the eco-system, resulting in the coyotes traveling into the residential areas. This has not been substantiated. Cities across California, including San Francisco, have reported an increase in coyote population and sightings, and many are attributing this to a drought caused reduction of water, causing coyotes to venture further into populated areas seeking water and food.
DISKING	<p>1. <u>Speed:</u></p> <ul style="list-style-type: none"> Each year the City hires a contractor to perform perimeter disking in each of the City's fifty-five open spaces, and weed abatement in twenty-two City owned lots. Per the contract language, the contractor shall complete the project no later than June 30, 2016. <p>2. <u>Predictability:</u></p> <ul style="list-style-type: none"> The City has control over disking locations and timing, and to some extent cost. 	<p>1. <u>Cost:</u></p> <ul style="list-style-type: none"> \$67,700.00 for 2015 contract. 2014 contract was \$74,090. In 2011, Public Works evaluated the feasibility of the City performing the disking work, which was not found to be a cost effective alternative at that time. <p>2. <u>Erosion:</u></p> <ul style="list-style-type: none"> The majority of our open spaces are located on moderate to steep slopes

	BENEFITS	CHALLENGES
	<p>3. <u>Effectiveness:</u></p> <ul style="list-style-type: none"> • Fire breaks provided by the disking contractor are effective at slowing the rate of spread and intensity of fires as they approach residential properties, allowing firefighters an increased opportunity to defend the structures and property. 	<p>where the use of heavy machinery can create erosion issues. The City has been using this technique for many years without experiencing any significant landslides or other soil erosion related problems, but it is not without risk.</p> <p>3. <u>Air and Noise Pollution:</u></p> <ul style="list-style-type: none"> • Diesel exhaust and noise produced by large excavator. <p>4. <u>Steep Grade:</u></p> <ul style="list-style-type: none"> • Contractor is unable to navigate some steep terrain which allows vegetation between the fire break and the property lines. The ability to use goats in these areas assists in the further reduction of fuels, thereby limiting the potential for the spread of fire.

The following pictures demonstrate the effectiveness of the goats in reducing vegetation:



Before (left) and After (right) pictures of open space near Stephens Court



City's Vegetation Management Policies

The management of vegetation and weeds is regulated by Benicia Municipal Code, Chapter 8.08. Additional guidance in accomplishing compliance with BMC 8.08 is provided by the Fire Department's Standard G-701, *Maintenance Standard for Vegetation Management*. The language contained within this document is consistent with other communities. The Standard calls for:

1. Disking and mowing of parcels in order to maintain growth of weeds to less than 4 inches.
2. Alternative methods for reducing the hazard on larger open parcels without having to mow these parcels. These alternatives call for the creation of 30 foot breaks around combustible structures and the perimeter of these larger parcels.
3. The reduction of weed/grass growth between disk lines and combustible structures. It should be noted that currently the City Open Space parcels do not routinely comply with this guidance.

Alternatives to existing practices

1. **Chemical:** Spraying an herbicide to control vegetation is an effective method, but is not likely something we would consider for the overall vegetation management. Its use on a limited basis may be considered for a specific application, such as the emergency vehicle access areas where we are trying to prevent continual regrowth. The use of such materials should be in compliance with the City's policies and procedures.
2. **Hand Clearing:** The use of manual labor to remove brush with an assortment of tools including the Pulaski, hand axe, grubbing hoe, chain saw, handsaw and others to modify the vegetation arrangement. This is the most common method used by property owners to meet fire code requirements, but would require large crews and would take a significant amount of time each season.
3. **Prescribed Fire:** The confined application of fire to a preselected area of land in order to minimize the amount of fuel in the area. Prescribed fires are carried out only under specific weather and fuel conditions, and are used to mimic nature's own process of regeneration. This practice can be very effective but is not without risk. Additionally, it requires a great deal of personnel and staff time. Finally, it often creates a great deal of anxiety in the community.

- 4. Let Nature Take Its Course:** A final option is to do no vegetation management. As stated earlier, regardless of what the City does, as long as we have open spaces and humans, open space fires will occur. If there are no efforts taken to manage the vegetation, these fires, especially in our steep open spaces surrounded by homes, will burn with great speed and intensity. Often the fires will have transitioned from the vegetation into the homes before firefighters arrive on scene and they will be dealing with one or more structure fires burning. Once the fires are extinguished, the City may be exposed to litigation from citizens who believe it is the City's responsibility to make attempts to mitigate the hazards.

Wildland Urban Interface Ordinance

The City could create a Wildland Urban Interface Ordinance that would support the management of fuels within the community. It would not only be applicable to City spaces, but to those that are privately owned as well. This ordinance would provide specific guidance as the management of fuels, to include determination of hazard zones, creation of defensible space requirements, and the regulation of highly combustible vegetation species. This ordinance would also clearly identify enforcement and penalties, as well as procedures for abatement and recovery of costs of abatement.

Recommendation

The City of Benicia was initially a small waterfront community established in the relatively flat area south of what is now Interstate 780. As population increased, developers began expanding north into the relatively steep hills of Southamptton towards Lake Herman. These developers did an excellent job of incorporating the natural landscape with neighborhoods that completely encircled various sized areas of open space. Unfortunately, this created a very large ratio of homes with their back property lines exposed to the threat of fire from City owned open spaces. Therefore, the City has an obligation to make an effort to minimize this exposure.

Based on weighing the pros and cons of the different vegetation management options, it is the recommendation of the Fire Department that we continue the practice of utilizing an outside contractor to perform perimeter disking of all City owned open spaces. This will require a continued general fund budget expenditure of approximately \$75,000 per year, with a plan to increase with inflation. It is also recommended that we continue our agreement with Goats-R-Us. If this agreement becomes unavailable, we will need to reconsider this practice and evaluate the option of hiring another goat herd contractor.

The following recommendation should be considered for inclusion as a strategy

in the City's current update of the LHMP. Over the next 2-5 years the City should do an analysis of the vegetation within its open spaces, as well as a risk analysis for those properties that adjoin the open spaces in order to develop a more site specific approach to addressing the issues within the open spaces. This will require the use of outside consultants and additional staff time in order to complete the analysis. It is likely that this analysis will result in a variety of methods being recommended for use throughout the City to address the needs with respect to vegetation management and reducing the risk of fires in the open spaces spreading to the adjoining structures. The analysis should also take into consideration the necessary City Staff time that should be dedicated in the future to managing the City's Open Spaces.

Attachments:

- Administrative Instructions 15 & 16
- City Manager Memorandum 2006