COUNTY OF SAN MATEO
Parks Department

DATE: November 20, 2015
COMMISSION MEETING DATE: December 3, 2015

TO: Parks and Recreation Commission

FROM: Hannah Ormshaw, Senior GIS Intern, Natural Resource Management

SUBJECT: Fuel Reduction Prioritization in County Parks

RECOMMENDATION

Using GIS for analysis of raster data layers pertaining to landscape characteristics that pose varying degrees of fire risk, a comprehensive map was created to indicate areas where fire risk is greatest and should be given high priority for fuel management to mitigate this risk.

This map indicates the following prioritization for fuel reduction in parks within each park district:

Park District I
1) San Bruno Mountain State and County Park
2) Junipero Serra County Park

Park District II
1) Wunderlich County Park
2) Huddart County Park

Park District III
1) Memorial County Park – Loma Mar

Park District IV
1) Quarry County Park
2) San Pedro Valley County Park – Northwest Side of Park

Recommended fuel reduction work in these parks would consist primarily of establishing fuel breaks between parkland and adjacent high risk residential areas. Following this immediate priority installation of shaded fuel breaks, dense forest and woodland habitat immediately adjacent to fuel breaks should be considered to further reduce risk and

slow fire progress if a fire were to occur within a county park. Forest stands with considerable ladder fuels will be considered as the highest priority.

A three-phase approach to fuel reduction work is recommended:

1) Establish fuel breaks around park borders, removing all necessary vegetation to limit the opportunity for fire spread to adjacent areas.
2) Monitor fuel breaks for invasive species. As necessary treat and/or remove these species to prevent the risk of both flashy fuels and spread of invasive plants into newly cleared fuel breaks and park properties.
3) Contract CDC crews for periodic fuel break maintenance, shaded fuel break installation, and to continue efforts to reduce fuel loads in recreation facilities such as campgrounds and picnic areas.

Implementation of these phases of fuel reduction work is dependent on available funds.

BACKGROUND

Fuel reduction is a particularly important aspect of natural resource management within the parks. California ecosystems developed with periodic fires and the twentieth century fire suppression paradigms have changed the frequency and intensity of fires in this landscape. Historic fire suppression has increased accumulation of vegetation that provides fuels for fires. As a result, there has been a corresponding increase in catastrophic fires (fires outside the normal range for intensity and severity) on the landscape. This issue is further complicated by climate change and increased likelihood and frequency of drought and hot, dry conditions. By conducting this analysis, the Parks Department's seeks to address fuel reduction priorities through an analytical process founded in best available science. Variables used for the analysis include:

1) Vegetation / Fuel Type
2) Proximity to Developed Areas and Development Density
3) Slope
4) Aspect (Refers to the predominant compass direction that a slope is facing as that affects the amount of sunlight a slope would receive sot that south facing would get more sunlight and north facing would be more shaded).
5) Fuel Rank (the vegetation type combined with fire spread characteristics)
6) Fire Threat (the probability of a fire occurring, and the capacity of that fire to be severe)
7) Fire History (the record of any wildfire or controlled burn)
8) Fire Return Interval (the historical average interval between fire occurrences in a given vegetation community)

Having this analysis will provide a foundation on which to make appropriate budgetary requests that adequately address the risk associated with fire within county parks.

DISCUSSION

As seen in the map, the largest concentrations of dark orange and red areas (those cells carrying values indicating the highest risk for fire) are found in areas of contiguous wildland area, with high coverage of eucalyptus and coniferous dominated forests. Within park boundaries, all of the parks have at least partial coverage where there is high to very high risk of fire (orange to red colored cells.

San Mateo County Parks: Fuel Management Prioritization