



# STAFF REPORT

Meeting Date: November 7, 2012

Agenda Item #VIA

- Agency:** City of Belmont, Parks and Recreation Commission
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- Agenda Title:** DISCUSSION OF BELMONT'S OPEN SPACE INCLUDING CURRENT CONDITION, MANAGEMENT, AND FUTURE PLANNING
- Agenda Action:** Discussion & Direction
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## **Recommendation**

The purpose of this presentation is to discuss Belmont's open space including its resources, management, and future. It is a broad presentation and issues identified for further analysis can be brought back to the Commission in more detail or discussed at an Ad Hoc Committee level.

## **Background**

Belmont is fortunate to have over 335 acres of open space mainly in the western hills including Hidden Canyon, Waterdog Lake, John Brooks, and the newly acquired open space in the San Juan Canyon. As stated in the Parks and Open Space Master Plan:

"These areas contribute greatly to the character of Belmont and possess many inherent values: scenic beauty, visual relief from the urbanized area, preservation of natural ecosystems, watershed management, and providing space for passive recreation and outdoor education."

The numbers for surrounding cities indicate that at 335 acres, Belmont has a surprising amount of open space for a small city.

City	Open Space Acres
Belmont	335
San Carlos	74
Menlo Park	15
Foster City	60
San Mateo	262
Redwood City	52

The open space areas consist of steeply sloping hillsides and canyons that are surrounded by residential development on the ridges above. Small portions have been disturbed by grading and drainage improvements association with the adjacent development. Vegetation is predominantly native and includes grassland, oak woodland, riparian woodland, and chaparral. The higher elevations offer great vistas of the bay area including Sugarloaf Mountain, San Francisco, and the east and south bays.

Belmont maintains about 10 miles of trails in these open space areas. The trail network was developed

over time by reclaiming old roads and the creation of new trails by a group of dedicated local volunteers. The trails vary widely in condition with the main challenges including erosion and vegetation overgrowth on trails.

Planning efforts related to the open space areas were completed in 1990 as part of the Western Hills Area Plan, 1992 as part of the Parks and Open Space Master Plan, and in 1994 in the Report of the Belmont Ad Hoc Open Space Preservation Task Force.

### **Analysis**

This report focuses on the condition, management, and opportunities for Belmont owned open space. The main topic areas for discussion include:

- Trail Access, Use, Maintenance, Safety, and Planning
- Interface with Neighborhoods
- Fire Management
- Environmental Benefit of Belmont's Open Spaces
- Summary

## **TRAIL ACCESS, USE, MAINTENANCE, PLANNING, AND SAFETY**

### **TRAIL ACCESS**

In the Waterdog Lake Open Space, there are three main trailheads for access along with numerous informal entry points. The main trailheads are located in the Carlmont Canyon and at the east and west entry points of Lake Road (Attachment A). Informal access points are frequent and can be found off Hallmark Drive, Ralston Middle School, and Hastings Drive. Parking is available on the street near the Lake Road trailheads while a parking lot for six cars was established at the Carlmont Canyon trailhead. Parking does not appear to be a problem at the trailheads and the Department has not received complaints about the availability of parking. One possible exception that the Department is monitoring is reported overflow parking in the neighborhood around the Carlmont Canyon trailhead.

The San Juan Canyon area is accessed by two main entrances along with a variety of informal trails leading into the canyon. The main access points are off Bishop Road and at the end of the San Juan Canyon Boulevard (Attachment B). Neither of these sites has parking established for trail users nor are they clearly marked. It appears most folks who hike or bike them are local or others who make an effort to find the trail access. Numerous informal trails have been created to access the canyon including along Marsten and Naughton Avenues. The Department is trying to manage rouge trail building in the San Juan Canyon area including people cutting trails, removing vegetation, building bike jumps and other features without approval. The Department has sent crews out to remove sections of these trails, however it is still a problem and one that will likely continue until an official trail system is built in the San Juan Canyon.

### **TRAIL USE**

Belmont's open space trails are used by hikers, joggers, mountain bikers, dog walkers, and for general

recreation. For the most part, these users groups have been able to co-exist and use the open space trails in a harmonious manner. However there have been complaints about the increasing number of mountain bikers using the trail system, off leash dogs, and dog waste bags left on the trail. Anecdotal evidence suggests that mountain bike use in the open space areas is increasing just by talking with users and loosely evaluating the number of cars parked in the trailhead areas. An increasing number of mountain bike riders could possibly lead to conflict with other users of the trails such as hikers or runners. The Department received a complaint earlier this year about the potential for a mountain bike and hiker collision. Staff checked with the Belmont Police Department who indicated that there have been no reported incidences of mountain bike accidents involving hikers, runners, or dog walkers. The Department has also received complaints about off leash dogs and dog waste bags left in the open space. It appears many dog owners use Waterdog Lake as a destination and let their dogs swim in the lake. Dog owners may think that the name of the lake connotes dog swimming however Waterdog Lake actually refers to the amphibious newts that were likely once abundant around the lake.

It appears additional signage or information would be beneficial to reduce the potential for conflict among the user groups and the Department is looking to place bulletin boards similar to the other parks sites at the trailheads to provide more information and suggestions to users. Possible changes to the trailhead signage could include:

- One regulatory sign with all the rules
- Warning signs about rattlesnakes, mountain lions, and poison oak
- Bulletin board including right of way information and trail etiquette, trail conditions, reported animal sightings, and pull out trail maps

## TRAIL MAINTENANCE

The estimated 10 miles of trails in Belmont (Attachment C) are mostly narrow trails with the exception of Lake Road Trail which is the old dirt road from Belmont to Half Moon Bay. The trails are generally in good condition with many occupying old roads that were built along the contours of the land. The issues for trail maintenance have been severe erosion on parts of the trail system and keeping the trail corridors clear of vegetation. The Department is concerned about severely eroded sections of the Elevator Trail and is considering closing or realigning these segments to stop the erosion and restore the area. In addition, vegetation regularly grows over the trail corridor and is mainly kept clear by volunteers working on evenings and weekends cutting back vegetation.

Trail maintenance has not been a priority for the Parks and Recreation Department due to other pressing needs. The City actually spends very little money or time on the open space and that is mainly due to needs in the developed parks and athletic fields but also to the years of volunteer trail work mainly from the mountain bike community which built, maintained, and improved miles of trails in Belmont at no cost to the taxpayers including 18 work days in 2012 with more planned for 2013. The main trail corridors, including Lake Road and the John Brookes Trail, were being cleared by the Fire Safe Crews provided at low cost by San Mateo County however the future of these crews is uncertain due to budget cuts.

The Department also hopes to dedicate additional resources to maintain the open space. The

Department has pursued grants for improvements to the open space without success thus far. However, the Department is committed to keep trying to find resources to maintain the areas and is considering installing donation boxes, called “iron rangers” at the trailheads to accept donations for the open space and pursuing additional grant opportunities.

## TRAIL SAFETY

Open Space does naturally hold potential risk for users and in Belmont, the risks include exposure to poison oak, a fairly robust rattlesnake population, probable mountain lion use, and human related risks include mountain bike mishaps and overexertion. Poison oak is a common plant throughout California. Its leaves and stems produce oil that causes a reaction in many people that can be quite serious. The Department is planning on adding a warning sign about the possibility of encountering poison oak in Belmont’s open space. Rattlesnakes are quite common in Belmont’s open space and the Department has received pictures from hikers and others indicating their presence. Warning signs were installed in 2010 informing people of the potential threat to themselves and their pets. Mountain lions have also been spotted in the area. A study conducted by an NDNU student in 2010 did not reveal photographic evidence of mountain lions in the area but it is likely they use the area to hunt deer. In 2008, the Department posted signs warning of mountain lions and indicating what to do if one is encountered. There have been no reported cases of rattlesnake bites or mountain lion attacks in Belmont’s open space. There have been two deaths in the past few years in Belmont’s open space. The first was a mountain bike crash into a tree and the second was a heart attack. Medical response is an issue in the open space because it takes time for the public safety personnel to locate people in need of help. The Department is exploring ways with the help of public safety staff to improve response times.

## TRAIL PLANNING AND IMPROVEMENT

The Department has been working in partnership with volunteer groups to realign the Lake Loop Trail around Waterdog Lake. The project includes realigning the trail from its current alignment directly around the lake to a higher alignment above the lake. The purpose of the realignment is to restore natural resources and provide improved recreational opportunities. The existing trail around the lake floods in places, requires hikers to navigate stream crossings and low branches, is not bike friendly, and is difficult to follow. The project will provide a trail that remedies these challenges and also expands the number of users that will be able to hike around the lake. The trail will be at least 15 feet above the waterline, will allow year round use, and will avoid the water quality impacts that are currently occurring from visitors walking in streams and wet soils. The trail will be wide enough for strollers and is planned to maintain a steady grade. The project was approved by both the Parks and Recreation Commission and City Council. The project is about 60% complete. The Parks and Recreation Department is providing the materials and marketing efforts while volunteers are managing the volunteers and leading the construction. The volunteers mostly cut the tread by using hand tools requiring extensive physical effort. The project includes four bike/pedestrian bridges that remain to be built. The Department will be contracting the construction of one bridge over the dam spillway. The Department would like to recognize the hard work of the volunteers who have put in an estimated 3,000 hours into the project and trail maintenance resulting in an estimated \$64,000 benefit to the City.

Once the Lake Loop Trail is realigned, the Department is planning on long term maintenance and improvement to existing trails in the Waterdog Lake area with no new trails proposed. The focus of trail

planning efforts will shift to the San Juan Canyon. In late 2009, Belmont acquired 35 acres (87 parcels) of land in the San Juan Canyon for Open Space preservation purposes (Attachment D). This is a 10% increase in the open space managed by the Parks and Recreation Department. The property was identified for protection in the Parks and Open Space Master Plan and will likely lead to future trail connections and recreational opportunities while portions of the property are proposed for subdivision and sale to recover the land costs. The purchase has implications for the Parks and Recreation Department including:

- Planning for an additional 35 acres including trail connections and a potential park site
- Identifying funding sources for capital projects in the new areas
- Maintaining the additional open space

These planning efforts will be included with the update of the Parks, Recreation, and Open Space Master Plan.

## INTERFACE WITH NEIGHBORHOODS

In Belmont, the open space is bounded by housing. In many cases, houses are directly adjacent to open space with backyards leading to trails. The interface has led to some management issues including:

- Tree cutting- Neighbors want to maintain or improve their view so they cut trees and brush on open space land
- Stair building- Neighbors want to access the open space directly from their backyard so they build stairs from their backyard over City property directly onto trails
- Pool draining- Neighbors drain their swimming pools onto the open space resulting in the release of the chemicals in the pool water into the environment
- Storm water drainage- Neighbors drain the runoff from their property onto the open space resulting in erosion and drainage problems in the open space

The Department is considering a few of measures to manage the boundary issues including:

- Sending a letter out to the residents who live adjacent to the open space calling attention to the issues raised above
- Delineating the boundary of the open space with markers placed at regular intervals so it is clear where Belmont's open space begins
- Looking at increased enforcement or patrols and perhaps the eventual creation of a ranger position

## FIRE MANAGEMENT

Following the devastating Oakland Hills Fire in 1991, the California Legislature passed a law which directed the State Agency CAL Fire to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones referred to as Fire Hazard Severity Zones require the application of various mitigation strategies to reduce the risk associated with wildland fires. There are two geographic areas within Belmont that have been designated as Wildland-Urban Interface (WUI)

areas: the Waterdog Lake Open Space Area and the San Juan Canyon. Currently, the San Juan Canyon area is designated a High Fire Hazard Severity Zone and the Waterdog Lake Open Space is designated as a Very High Fire Severity Zone- the highest fire danger zone rating the state allows.

Property owners in the very high fire hazard severity zones are required to comply with the vegetation management and defensible space requirements set forth in the law. The requirements include the use certain building materials and practices that are resistant to fire and the establishment of a defensible space between heavy vegetation and structures. A defensible space perimeter around buildings and structures provides firefighters a working environment to protect buildings increasing the probability of the building surviving a wildfire.

Creation of defensible space through vegetation management usually means reducing the amount of fuel around the building or structure, providing separation between fuels, and or reshaping retained fuels by trimming. Defensible space can be created removing dead vegetation, separating fuels, and pruning lower limbs. Fuel reduction means arranging the tree, shrub, and other fuels sources in a way that makes it difficult for fire to transfer from one fuel source to another. It does not mean cutting down all trees and shrubs, or creating a bare ring on earth across the property. A homeowner's clearing responsibility is limited to 100 feet away from his or her building or to the property line, whichever is less, and limited to their land. The Belmont Fire Department is responsible for enforcement of defensible space. In the past few years there have been two reported incidences of fires set in the open space. Both incidences were responded to immediately by the Fire Department and controlled.

The Fire Department actively works with homeowners to ensure defensible space is created around buildings that abut the open space. In addition, the Department has steps to clear the main trail corridors, including Lake Road and the John Brookes Trail, through the use of Fire Safe Crews provided at low cost by San Mateo County however the future of these crews is uncertain due to budget cuts. The Department also hopes to obtain grant funding for the removal of invasive species such as the Scotch Broom that would act as ladder fuels moving the fire from the ground into the crown of the trees.

There is also concern about managing open space after a fire. Commonly, hillsides become eroded and are prone to sliding because winter rains will strip the soil from burned out hillsides. The eroded sediment then fills the waterways and would likely result in flooding along Belmont Creek and further reduction in water storage capacity in Waterdog Lake.

## ENVIRONMENTAL BENEFITS OF BELMONT'S OPEN SPACE

### NATURAL RESOURCES

In San Mateo County there is a series of connected wild lands that run from the coastal mountain ranges to San Francisco Bay and Waterdog Lake and the San Juan Canyon open spaces are part of this corridor. The open spaces consist of a large canyon and riparian zone that provides habitat for and acts as a wildlife corridor for many wild animals. Wildlife corridors are important because they connect otherwise isolated areas of habitat, giving animals access to adequately sized ranges. The importance of corridors has been recognized in conservation planning and in environmental legislation. The Ninth U.S. Circuit Court of Appeals has defined corridors as "avenues along which wide-ranging animals can travel, plants can propagate, genetic interchange can occur, populations can move in response to

environmental changes and natural disasters, and threatened species can be replenished from other areas” (Walker and Craighead 1997).

Waterdog Lake Open Space is made up of a large canyon with a riparian corridor running through the canyon bottom. Half way down the canyon, a dam was built to create Waterdog Lake which is fed by Belmont Creek. The lake is approximately ¼ acre and is surrounded on the west side by a flat area and willow forest along with a cattail marsh on the north shore. The rest of the area is largely steep canyon with hiking trails along each side of the canyon. Vegetative cover includes open grassland with rocky outcroppings, California scrub, oak forests, willow forests, and marshland.

In 2010, staff worked with the NDNU Science Department to understand the wildlife and natural resources, including a study that focused on identifying wildlife species that utilize the open space. A camera trap was employed that captured photographs of an array of wildlife, which confirmed that a number of wildlife species use the open space including deer, dusky footed wood rats, coyotes, and raccoons. The study discovered new information about the range of coyotes; in particular it was a surprise to see coyotes in the lowland location near Waterdog Lake. Although no photos were captured, the open space also has habitat that may be suitable for mountain lions. The ranges of males are usually a minimum of 15 square miles with females’ ranges being somewhat smaller. Within their range, they commonly move seasonally to follow migrating deer herds. A wildlife management challenge is the overabundance of deer. Without the large predators, deer can overgraze vegetation, eat garden plants, and result in car accidents.

In addition to wildlife, managing invasive species and sudden oak death are also issues for the open space areas. Invasive species are plants, animals or microorganisms not native to an ecosystem, whose introduction threatens biodiversity among many other things. In Belmont’s open space there are non-native plants that are threatening the native ecosystem including Scotch Broom, Pampas Grass, and Yellow Star Thistle. These plants crowd out native vegetation with invasive plant monocultures. In addition these plants often act as ladder fuels in a fire situation making the potential for catastrophic fire much more likely. In 2009, the Department presented the invasive species issue to the Commission and also completed a project to remove the brush from an area along Lake Road. The Department hopes to identify a long term strategy for effective invasive species control in the open space areas. It is anticipated that the strategy would be outlined in an updated Parks, Recreation, and Open Space Master Plan.

Sudden Oak Death is also an established natural resource challenge for Belmont. Sudden Oak Death is a forest disease caused by the plant pathogen *Phytophthora ramorum*, a water mold that produces plentiful spores in moist, humid conditions. While most host plants do not die from the disease, they do play a key role in the spread of the spores by acting as breeding grounds, which may then be spread through wind-driven rain, water, plant material, or human activity. Trunk hosts such as oaks are considered terminal hosts - the pathogen does not readily spread from intact bark cankers - and they become infected only when exposed to spores produced on the leaves of neighboring plants. When the pathogen infects susceptible trees, the trees are killed. Sudden Oak Death was confirmed in Belmont in 2007 and there have been at least five trees that have died from the disease. It is likely that the disease will spread and change the forest composition in the future. There are preventative treatments for Sudden Oak Death, however the cost of the product and the staff time to spray all the oaks in the forest are prohibitive.

## OTHER ENVIRONMENTAL BENEFITS

### STORMWATER MANAGEMENT

Belmont's open space plays a major role in controlling storm water runoff and preventing flooding. Five square miles of watershed drain through the City of Belmont and Belmont Creek is the largest drainage, carrying about 62 percent of the flow through the city. Its headwaters are in the hills above Hallmark Drive and it runs roughly parallel to Ralston Avenue through Water Dog Lake and Twin Pines Park. The creek exits the City just above Old County Road at Harbor Boulevard and then forms the boundary between the Harbor Industrial Area and the City of San Carlos. It reenters Belmont in the Island Park neighborhood as Belmont and O'Neill Sloughs before discharging to San Francisco Bay. Over time development has greatly increased the amount of storm water entering the creek. Without the open space to soak up large amounts of rain water the creek would quickly become overwhelmed and flooding potential would greatly increase.

In addition to Belmont Creek, Waterdog Lake acts a flood control agent moderating peak flow in Belmont Creek by capturing and metering its release through two discharge valves in the standpipe near the spillway. Based on a flooding study, the dam was raised in 1968 to provide needed storage volume. The lake also captures sediments suspended in stormwater and its quiescent waters allow sediment to settle. The resulting siltation has greatly reduced the lake's capacity. There is an unfunded Public Works project to test the sediments, update the hydrologic study to verify the amount of siltation, complete the required environmental studies and permits, dredge the lake, and dispose of the material.

### SUMMARY

- Belmont is lucky to have large undeveloped and relatively undisturbed open spaces. It greatly enhances the quality of life in Belmont and accomplishes many other functions including storm water management, improved air quality, natural beauty, and recreation.
- The user groups have managed to get along so far and should be encouraged to continue the dialogue to reduce conflict in the open space areas.
- Maintenance issues are generally an unmet need and volunteers have stepped up to fill the lack of trail maintenance and the construction of the realigned Lake Loop Trail.
- The issues Belmont faces are not uncommon among open space agencies, what is uncommon is that Belmont has so much open space to manage.
- In the long term Belmont will need to invest more into the management, planning, and improvement of the open space areas.

### Alternatives

Not Applicable

### Attachments

- A. Locations of Trailheads for Waterdog Lake Open Space
- B. Trail Entrances for the San Juan Canyon Open Space
- C. Waterdog Lake Trail Map with Trailheads Highlighted
- D. San Yuan Canyon Lands Acquired by Belmont



**Fiscal Impact**

- No Impact/Not Applicable
- Funding Source Confirmed: "Insert Acct #, underline if field filled in"

**Source:**

- Council
- Staff
- Citizen Initiated
- Other\*

**Purpose:**

- Statutory/Contractual Requirement
- Council Vision/Priority
- Discretionary Action
- Plan Implementation\*

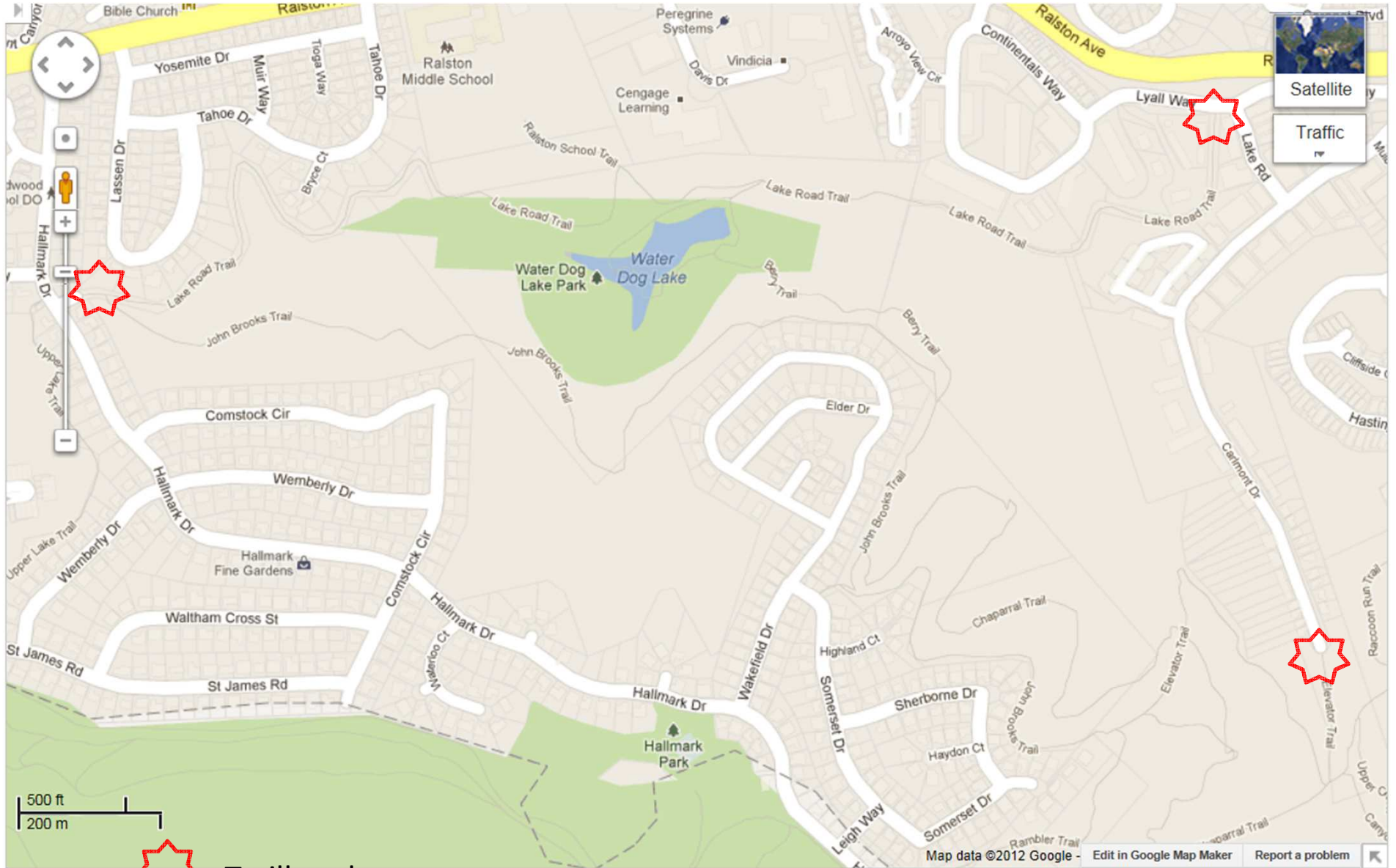
**Public Outreach:**

- Posting of Agenda
- Other\*\*

\*Parks and Open Space Master Plan

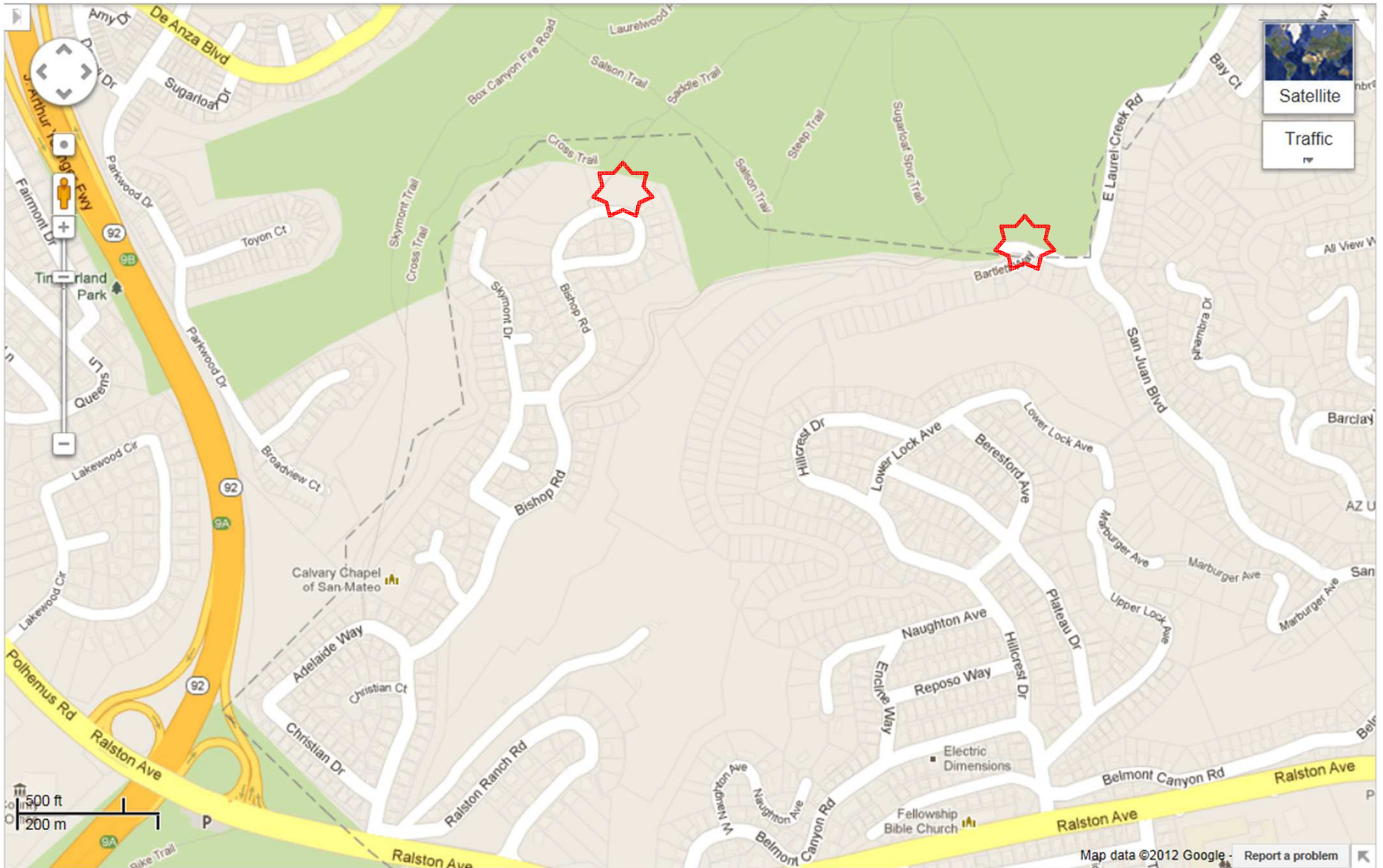
\*\* Email to interested individuals


# Attachment A- Locations of Trailheads for Waterdog Lake Open Space

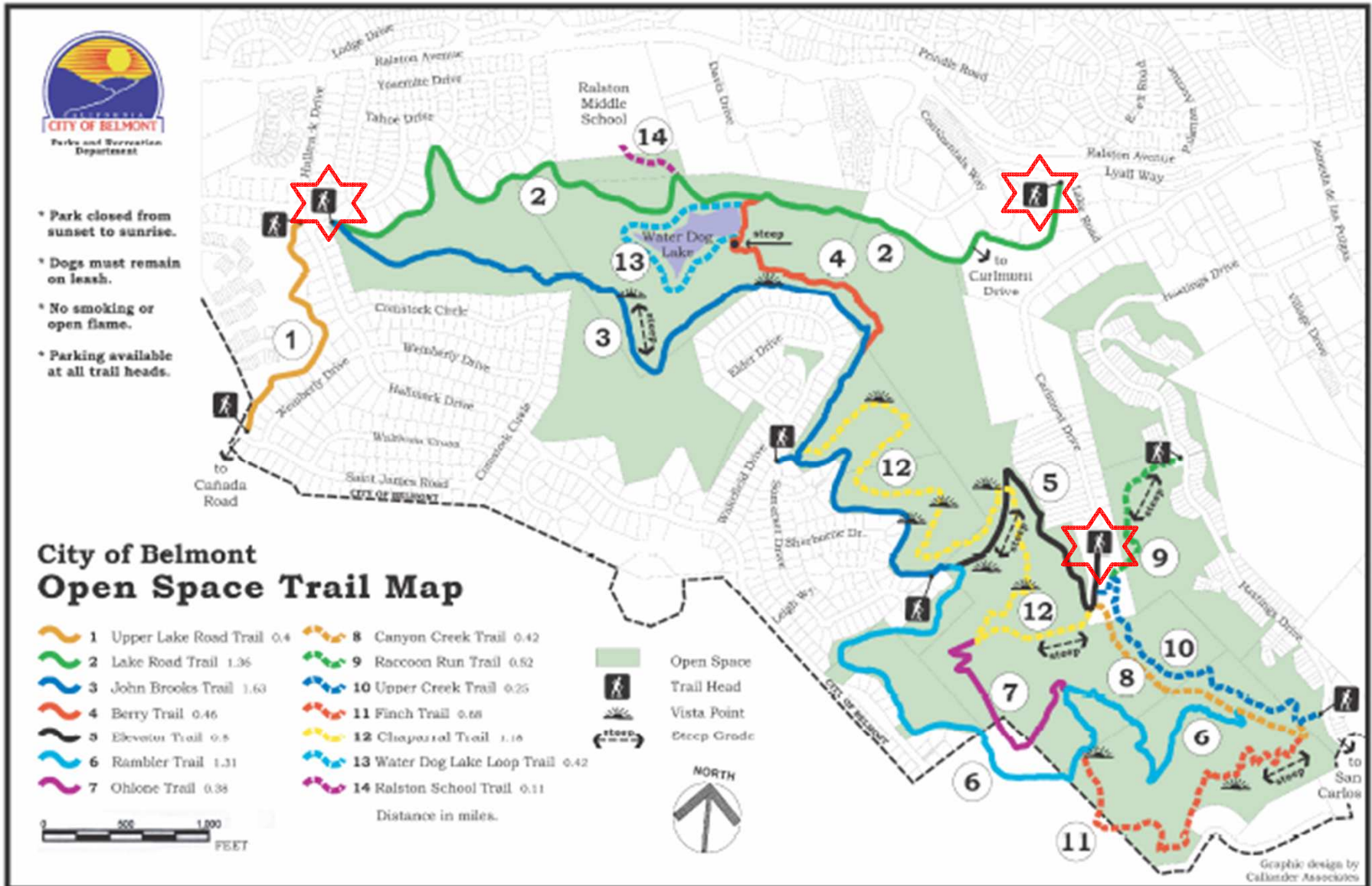


 Trailhead

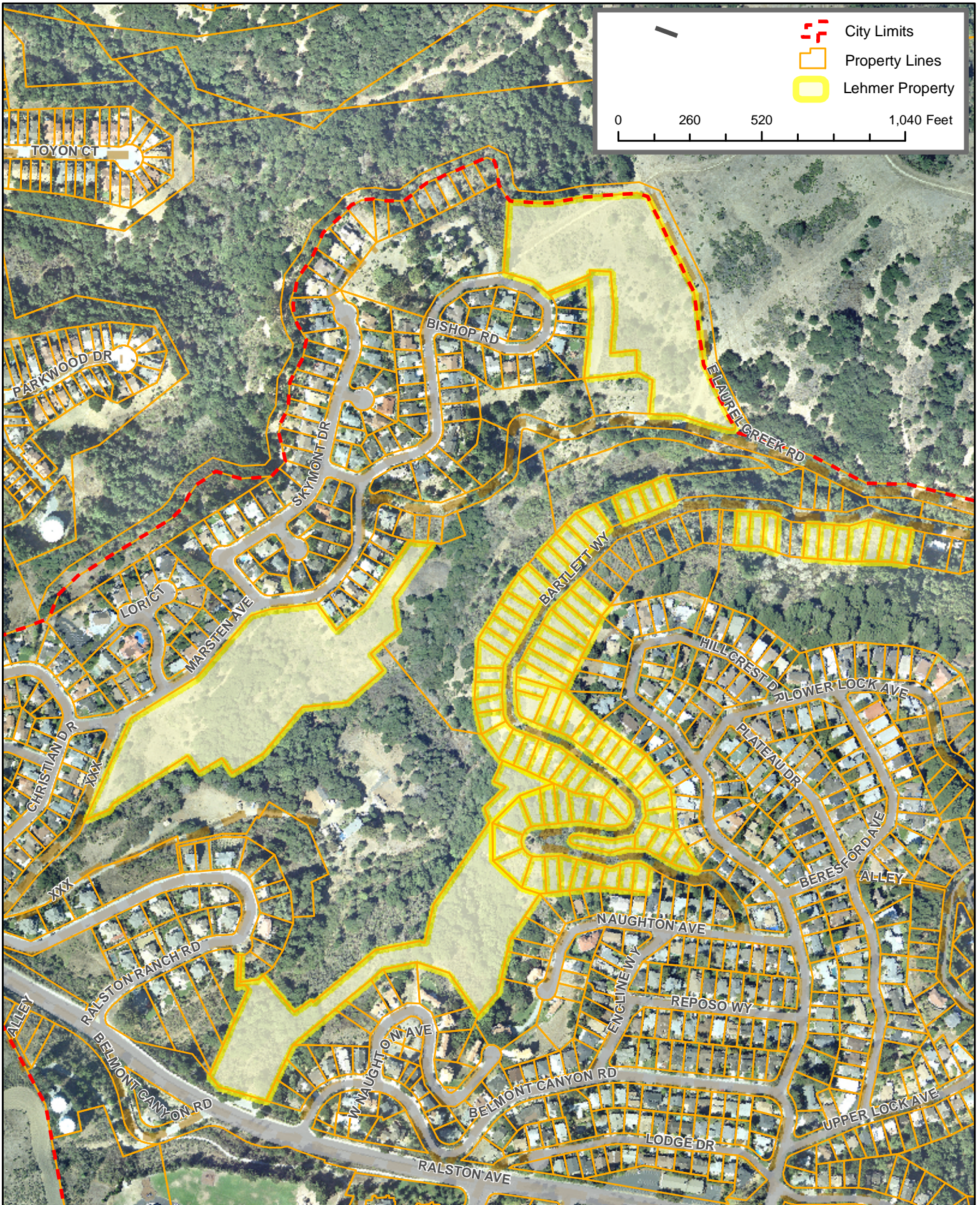
# Attachment B- Trail Entrances for the San Juan Canyon Open Space



 Trail Entrances



Attachment C- Waterdog Lake Trail Map with Trailheads Highlighted



Attachment D- San Juan Canyon Lands Acquired by Belmont