Puente Hills
Habitat Preservation Authority
Endowment Provided by the Puente Hills Landfill

MEMORANDUM

Date: October 27, 2016

To: Board Members

From: Andrea Gullo, Executive Director

Subject: Agenda Item No. 5) Discussion regarding management action items for the balance of natural resource protection and recreation on the Authority's Preserve, including Hellman Park.

Recommendation:
Discussion.

Contents

SUMMARY

The annual visitation to the Puente Hills Preserve (Preserve), which is 3,870 acres managed and/or owned by the Authority, has increased substantially since the first user survey was conducted in 2005. Current annual visitation can be estimated as roughly 950,000 people[1] which is approximately a 1,040% increase from 2005. This increase in use can impact the natural resources, especially at Hellman Park where the increase was the most dramatic (2,618% from 2005 to 2016). Illegal trails and widening of trails contributes to habitat loss/fragmentation decreasing the quality and functionality of the habitat. According to the Authority's trail evaluation in 2016, there are 6.7 miles of illegal trails in the Hellman Park and Turnbull Canyon areas.[2] Trail widths in Hellman Park and Turnbull Canyon areas have expanded from one to 11 feet. Hellman Park connects the two areas of the Puente Hills Preserve with the highest biological sensitivity rankings, Sycamore Canyon and Turnbull Canyon, where rare and sensitive species reside, including the coastal California gnatcatcher and the coastal cactus wren which are species that are sensitive to habitat fragmentation. The coastal California gnatcatcher is a federally protected species, and approximately 10 percent of the Los Angeles County population of the coastal cactus wren is located in Sycamore Canyon and Hellman Park.[3]

Enforcement activities by the Authority contracted Rangers have tried to address the ongoing and most consuming challenge of closing the Preserve at sunset. Nightly trailhead gate closures take about 22% of the rangers' time, and also 77% of all ranger contacts with visitors pertain to enforcing Preserve hours at closing time. With the

[1] Extrapolated from a 3-day visitor count survey in 2016. Puente Hills Habitat Preservation Authority, Supplemental 2016 Recreation Use Assessment
[2] Draft 2016 trails evaluation underway, conducted by Authority consultant, Placeworks.
[3] Cooper Ecological Monitoring, 2009.

continual added pressure due to increased visitor activity during the day, it becomes more important to provide relief to wildlife during crepuscular (dawn/dusk) and nocturnal times.

In accordance with the Authority's Resource Management Plan (RMP), detailed in the following report are recommendations for Preserve-wide management including:

- installation of automated gates;
- change of Preserve hours;
- control of specific trail use;
- restroom installation;
- conduct a coastal California gnatcatcher survey;
- continue ranger trail patrol;
- continue to block off illegal trails;
- possible temporary closure of Hellman Park; and
- other future management considerations such as permit system and habitat restoration.

BACKGROUND

In response to complaints from residents adjacent to Hellman Park about high visitor use starting around the year 2010, the Authority conducted a mostly volunteer-manned user survey of Hellman Park and Turnbull Canyon in 2012, commissioned a carrying capacity report, held various clean-up days, enacted a graffiti reward program, and altered ranger patrol and management activities. The Authority also obtained and used grant funds for the following: the installation of a perimeter fence at Hellman Park; the evaluation of trails; repaired the Mariposa Trail; and conducted a Preserve-wide user survey. Additionally, the Authority continued to monitor the flora and fauna.

Results from the most recent visitor survey conducted in March/April 2016 indicate that the City of Whittier's parking permit system enacted in 2013, which regularly adds additional streets into the system and now applies to approximately 500 homes, has not slowed visitation at Hellman Park since 2012. In fact, the daily visitation rate recorded at Hellman Park during this latest survey was nearly three times of what it was in 2012. Moreover, visitation has increased significantly at Preserve trailheads since the Authority first conducted a survey in 2005 and is often accompanied by depreciative behaviors described later in this report.[4,5]

The Authority's mission is as follows:

> *The Puente Hills Habitat Preservation Authority is dedicated to the acquisition, restoration, and management of open space in the Puente Hills for preservation of the land in perpetuity, with the primary purpose to protect the biological diversity.*

[4] The survey was conducted in 2005, and finalized in 2006. Martino, Longcore, and Wolch, 2006. Park Visitor User Survey for the Puente Hills Landfill Native Habitat Preservation Authority.

[5] Puente Hills Habitat Preservation Authority, Supplemental 2016 Recreation Use Assessment.

Additionally, the agency will endeavor to provide opportunities for outdoor education and low-impact recreation.

The Authority's mission gives priority to the protection of biological diversity, and this is supported by the agency's Value Statement which in part states, "Stewardship: We work toward preservation of biodiversity for the perpetual benefit of nature and people…" The intent of the Authority is, in part, to continually monitor and manage the trails in order to balance recreation with the health of the ecosystem.[6]

GENERAL PRESERVE DESCRIPTION

Overview
The Puente Hills Preserve is an integral part of the Puente-Chino Hills Wildlife Corridor, an unbroken zone of natural habitat extending nearly 31 miles from the Cleveland National Forest in Orange County to the west end of the Puente Hills above Whittier Narrows. Biologically, this area preserves a microcosm of the California Floristic Province, an identified biodiversity hot spot in North America and a genetic reserve for the continent. The Puente Hills support coastal sage scrub, chaparral, native grassland, walnut woodland, and oak woodland, and sustain important habitat for a number of native animal species, including the coastal California gnatcatcher, cactus wren, mule deer, and mountain lion. The first two species are target species of regional habitat planning efforts in Southern California. The plant communities found in the Preserve are becoming increasingly rare on a global scale, as are many of the wildlife. The Preserve is home to four amphibian species, nine reptile species, 124 bird species and 30 mammal species. It is a fully functioning ecosystem.[7]

Located in a metropolitan region of nearly 20 million people the Preserve provides a range of recreation opportunities and activities, including hiking, jogging, mountain biking, horseback riding, nature appreciation, and outdoor education.

Ownership and Funding
The Preserve consists of 3,870 acres of which the Authority owns 1,882 acres, the City owns 1,756.5 acres, the Sanitation Districts own 225 acres, and six acres are managed through an agreement with Los Angeles County.

Hellman, Sycamore, Turnbull, and Arroyo Pescadero were purchased with County Proposition A funds. Proposition A provides, "Reasonable public access to lands acquired in fee with funds made available pursuant to this order shall be provided except where that access may interfere with resource protection. For purposes of this order, reasonable public access shall include parking and public restrooms."

The Authority manages City-owned open space in the hills of Whittier, including Hellman Park open space, pursuant to the Property Acquisition and Maintenance Agreement with the City dated August 14, 1997. The Authority manages the Hellman Park Trailhead in accordance with the Management Agreement with the City of Whittier

[6] RMP, 2007. Page 24
[7] RMP, 2007.

dated June 9, 2015. The Authority manages the Sanitation Districts land in accordance with an agreement dated November 27, 1996. The Authority manages the Hacienda Hills Trailhead in accordance with the Management Agreement between the County of Los Angeles, Los Angeles County Flood Control District and the Authority dated February 22, 2005.

In addition, a 200-acre conservation easement is located on Turnbull Canyon. It was recorded in 2003, and is held in favor of the State of California for 180 acres of coastal sage scrub and 20 acres of oak/sycamore riparian habitat other habitat types important to the coastal California gnatcatcher (collectively known as "conservation values"). It is the Authority's responsibility in part to prevent trespass activities that degrade or harm the conservation values.

The Authority contracts annually with the Mountains Recreation and Conservation Authority (MRCA) for ranger services. The Authority adheres to the MRCA Ordinance for enforcement on lands it owns and/or manages. This ordinance is available on the Authority's website.

Biological Values
Hellman Park and adjacent areas of the Preserve are rich in biodiversity and support a variety of habitats and species, including sensitive, rare and federally listed species. The coastal California gnatcatcher, a federally threatened species, has been documented in the Preserve including in the Hellman Park area, which indicates that this area may serve as a dispersal or movement corridor connecting established gnatcatcher populations to the east and west. It is estimated that 10% of Los Angeles County's coastal cactus wren, a sensitive species, resides in the Hellman Park and Sycamore Canyon areas.[8] Attached are maps illustrating main biological values of the entire Preserve and a detailed written description of the biological values of the Hellman and Turnbull Canyon areas (Exhibit A), which are the two most heavily visited locations of the Preserve.

The Arroyo Pescadero area of the Preserve has the highest bobcat activity of the entire Preserve.[9] The Arroyo Pescadero Trailhead is located adjacent to the Preserve's designated Core Habitat described in the Resource Management Plan (RMP). The Core Habitat is undisturbed habitat for wildlife, which contributes to sustaining the overall ecological health of the Habitat Authority's jurisdiction. It is also adjacent to the wildlife underpass at Colima, and connects to the Preserve's largest coastal California gnatcatcher population.

Furthermore, the Preserve is home to a wide range of diurnal, crepuscular and nocturnal animals. Crepuscular animals are most active at dawn and dusk. During this small window of time, crepuscular animals must feed, find mates, seek shelter, etc. and many species are only active during the crepuscular and/or nocturnal hours. Exhibit B provides a more detailed discussion of the importance of dawn and dusk times in the Preserve.

[8] Cooper Ecological Monitoring 2009.
[9] Haas, C., and Crooks, K. 1999.

A more thorough description of the biological values of the entire Preserve can be found in the RMP.

Since its inception, the Authority has restored 200 acres and is in the process of restoring 66 acres for a total of 266, and the vast majority of these restoration areas are coastal sage scrub.

Trails and Trailheads
The Preserve has 22 miles of officially designated trails, of which approximately two miles are located in the Hellman Park area, and another approximately 2 miles are located north of Turnbull Canyon Road; all of which connect to a broader regional trail system.

The Preserve has five official trailheads, plus the access point at Turnbull Canyon. Three of these are located in the City of Whittier (City), two are located in unincorporated Los Angeles County and one is located in the City of La Habra Heights.

Parking in the various trailhead parking lots and street parking immediately outside of the parking lots can accommodate approximately 286 vehicles throughout the Preserve with extra unknown street parking for Hellman and Turnbull, with the following approximate vehicle parking spaces per each access points: 27 spaces at Hellman Park, 24 spaces at Turnbull Canyon, 25 spaces at Arroyo Pescadero, 13 spaces at Sycamore Canyon (with street parking for at least 10+ vehicles), 5 spaces at Hacienda Heights (with street parking for at least 100+ vehicles , and school lot parking for approximately 25 vehicles), and 17 spaces at Powder Canyon (with street parking for 40+ vehicles). Current average daily use of the Preserve is estimated at approximately 2,600 visitors.[10]

The Authority has been and continues to be very committed to providing recreational access. In fact, the Preserve has more trail miles per acre than many other surrounding areas. The Authority's 22 miles of trails are located within 3,870 acres of open space which is 176 acres per mile of trail. Consider these other nearby parks for comparison: Santa Monica Mountains National Recreation Area - 700 miles of trails located within 150,000 acres, 214 acres per trail mile; Chino Hills State Park - 60 miles of trails located within 12,589 acres, 209 acres per mile of trail; Topanga State Park - 36 miles of trails located within 11,000 acres, 305 acres per mile of trail; Lake Perris State Recreation Area - 9 miles of trails located within 8,800 acres, 977 acres per mile of trail; Given the size of the Preserve, it has more miles of trails in less space than many other park areas. However, there are at least two areas in Orange County that are more comparable in size and trail density, but they are more isolated and not connected to a much larger expansive open space connection as the Preserve. They are Laguna Coast Wilderness Park – 39.45 miles of trails located within 7,000 acres, 177 acres per mile of trails, and Aliso and Wood Canyons Wilderness Park in Orange County - 29.6 miles of trails located within 4,500 acres, which is 152 acres per mile of trail.

[10] Puente Hills Habitat Preservation Authority, Supplemental 2016 Recreation Use Assessment.

Resource Management Plan (RMP)
In 2007, the Authority adopted a RMP in accordance with the California Environmental Quality Act that provides guidelines including goals and objectives for management of the Preserve.

Key elements in the RMP that pertain to the high visitation and associated behaviors that the Preserve is currently addressing are as follows:

Goal BIO-3: Maintain all populations of native plants and wildlife with special emphasis on management of locally uncommon, sensitive, federally-threatened or endangered species and other sensitive resources.

Objectives

BIO-3.1	Protect and maintain coastal sage scrub breeding habitat for the federally-threatened coastal California gnatcatcher and other scrub species.
BIO-3.3	Protect and maintain populations of sensitive, threatened, or endangered plant species.
BIO-3.5	Protect and maintain nesting and foraging habitat for Indicator Species, defined as locally uncommon or declining species in Los Angeles County.
BIO-3.6	Protect and maintain all native vegetation communities paying special attention to sensitive vegetation types such as walnut woodland, oak woodland, coastal sage scrub, riparian communities, and native grassland.

Goal BIO-4: Enhance and restore degraded habitats in the Preserve.

Objectives

BIO-4.2	Abandon all unauthorized trails and roads within the Preserve to improve the quality of habitat for wildlife.

Goal USE-1: Provide a trail system that protects natural resources of the Preserve.

Objectives

USE-1.1	Consistent with the Habitat Authority's purpose, abandon roads and trails if impacts on native habitat or other resources are discovered.
USE-1.6	Use best management practices in the design, construction, and maintenance of trails, including temporarily closing trails when needed.
USE-1.8	Implement a trail system that is considerate of adjacent landowner interests as much as possible and consistent with protecting natural, visual, and cultural resources.

Goal USE-2: Enforce protection of the varied resources and promote an enjoyable and safe environment for visitors.

Goal USE-4: Accommodate parking, access points, and trail amenities that maintain the natural character of the land, enhance resource protection and contribute to the enjoyment of open space.

Objectives

USE-4.1	Rely primarily on public rights of way to provide parking capacity to serve trail users arriving by motorized vehicles.
USE-4.2	Seek to provide reasonable access points to eliminate excessive parking and avoid or minimize traffic to the surrounding community.

Goal MAINT-1 Maintain facilities on the Preserve to ensure that biological resource values are maintained and that management activities are supported.

Objectives

MAINT-1.1	Maintain facilities and infrastructure, such as gates, fences, and roads.
MAINT-1.2	Maintain trailhead facilities and other structures that contribute to the integrity and value of the Preserve.

DISCUSSION

The visitation to the Preserve has increased significantly over the past eleven years, increasing from under 100,000 annual visitors in 2005 to an almost expected 950,000 annual visitors in 2016. This increase is undoubtedly adding pressure to the biological and financial resources of the Preserve and Authority.

The management action items for consideration in this staff report are consistent with adhering to the RMP as the guiding document. The challenge of balancing preservation with recreation was the impetus to hire a consultant two years ago (2014) to produce a Visitor Management Report (2015). The management action items in this staff report are also consistent with the Visitor Management Report which was organized in a manner that addresses ecological issues, recreational quality, depreciative behavior and other management issues.[11] It identifies management options for Authority staff to respond to issues based on standards and can be updated as new information becomes available. Authority staff has been gathering information over the past year to help with the recommendations for appropriate management actions. Before addressing management actions, a brief discussion highlighting changes in visitation and conditions of the Preserve including quality of biological resources, quality of recreation, and depreciative behaviors is below:

Visitation Increase

Figure 1 and Table 1 both display recreation use as recorded from the Authority's three-day visitor survey conducted this year on March 29, April 1 and April 2[12] at all six main access points. Hellman Park was the most-visited trailhead on each day. Approximately

[11] Whitaker and Shelby, 2015.

[12] Puente Hills Habitat Preservation Authority, Supplemental 2016 Recreation Use Assessment.

42% of the total recreation use for all of the trailheads was recorded at Hellman Park. Turnbull Canyon and Hacienda Hills were the next-most-frequently visited trailheads.

Figure 1

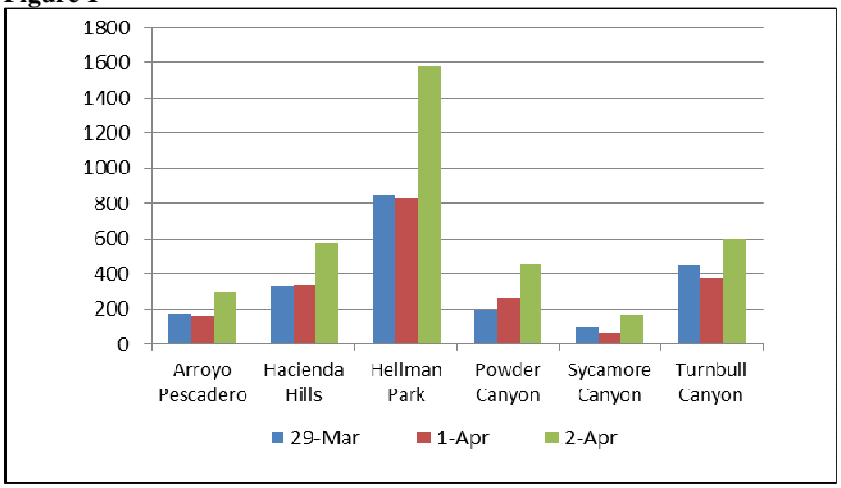


Table 1

Number of Visitors	March 29 Tuesday	April 1 Friday	April 2 Saturday	Total
Hellman Park	848	830	1,584	**3,262 (42%)**
Turnbull Canyon	451	374	600	**1,425 (18%)**
Hacienda Hills	327	337	575	**1239 (16%)**
Powder Canyon	195	260	457	**912 (12%)**
Arroyo Pescadero	173	163	299	**635 (8%)**
Sycamore Canyon	96	67	167	**330 (4%)**
Total	2,090	2,031	3,682	7,803

Table 2 illustrates that according to user surveys conducted by the Authority in 2005 and 2016, during this eleven-year time period the average number of daily visitors increased 2,618% at Hellman Park, 1,800% at Powder Canyon, 651% at Hacienda Hills, and 550% at Turnbull Canyon. Sycamore Canyon Trailhead was eliminated as a survey point from the 2005 survey due to the lack of visitation. Average daily use at Sycamore for 2016 was 110. Average daily use of the Preserve is approximately 2,600.

Table 2

Average No. Visitors Per Day	2005	2012	2016	% Increase (2005-2016)
Turnbull Canyon	73	282	475	**550**
Hacienda Hills	55		413	**651**
Arroyo Pescadero	44		211	**380**
Hellman Park	40	366	1087	**2,618**
Powder Canyon	16		304	**1,800**

Interestingly, the Authority's 2016 user survey, found that an average of 18.7% of all trailhead visitors stated that it was their first time visiting the Preserve, indicating that trail use will continue to increase in the future.

Table 3 indicates the different types of recreational behaviors at each trailhead. Hikers are the most common type of visitor at 97%.

Table 3

2016 Survey Number of Visitors[1]	No. of Hikers/ runners/walkers (%)	No. of Bikers (%)	No. of Equestrians (%)	Total No. of People (%)	Total No. of Dogs[2] (% compared to people)	Sub-Set: Dogs Off-Leash - Taken from the Total No. of Dogs (%)
Hellman Park	3,211 (98%)	51 (2%)	0	**3,262 (42%)**	159 (5%)	9 (6.7%)
Turnbull Canyon	1,325 (93%)	100 (7%)	0	**1,425 (18%)**	78 (6%)	4 (5.1%)
Hacienda Hills	1,206 (97%)	33 (3%)	0	**1,239 (16%)**	87 (7%)	4 (4.6%)
Powder Canyon	843 (93%)	64 (7%)	5 (0.5%)	**912 (12%)**	82 (9%)	8 (9.8%)
Arroyo Pescadero	635 (100%)	0	0	**635 (8%)**	57 (9%)	2 (3.5%)
Sycamore Canyon	330 (100%)	0	0	**330 (4%)**	1 (0.3%)	0 (0.0%)
Total	7,550 (97%)	248 (3%)	5 (0.06%)	**7,803**	464(6%)	27 (5.8%)

1. Count over a three-day period on March 29 (Tues.), April 1 (Fri.), and April 2 (Sat.).
2. These numbers reflect the number of dogs, not dog walkers.

As previously stated, the estimated annual visitation for the entire Preserve in 2016 is approximately 950,000. For perspective, in comparison to other natural areas, Yosemite

National Park's annual visitation in the year 2014 was 4,029,416 people.[13] This park's visitation was four times that of the Preserve, however the park's acreage is 748,036 acres, 193 times the size of the Preserve. Also, Joshua Tree National Park's annual visitation in the year 2015 was 2,025,756 people.[14] This park's visitation was approximately two times that of the Preserve, however the park's acreage is 792,510 acres, 205 times the size of the Preserve.

The Puente Hills Preserve is a regional resource. The 2016 user survey revealed that 43% of its users are from the immediate surrounding communities of Whittier/ unincorporated Whittier, La Habra Heights/La Habra, Hacienda Heights, and Rowland Heights. The other 57% are from zip codes outside of these adjacent areas.

In exploring the reason why the Preserve has become an attractive regional recreational location, one explanation could be that many of the surrounding communities are "Park Poor".[15] As a rough guideline, the National Recreation and Park Association recommend a ratio of 10 acres per thousand urban residents of "close to home" park space and a ratio of 15.2 acres per thousand for "Regional Space". Also, according to California legislation[16], it defines an area Park Poor as having 3 acres or less per one thousand residents.

Quality of Biological Resources

Wildlife disturbance after dark

The Preserve is home to a wide range of diurnal, crepuscular and nocturnal animals. Crepuscular animals are most active at dawn and dusk. During this small window of time (currently approximately 1.5 hours before sunrise and after sunset), crepuscular animals must feed, find mates, seek shelter, etc. and many species are only active during the crepuscular and/or nocturnal hours. With little time for crepuscular animals to accomplish their daily activities, human interface during this time may interrupt these activities with potential negative effects on wildlife. As stated in Exhibit B, with more people on the trails now and user-created trails bisecting habitat, pressures on wildlife from recreational activities can cause many diurnal animals to shift their activity times to being more crepuscular or even nocturnal.[17] Therefore periods of relief for wildlife, such as during the crepuscular and nocturnal hours, become increasingly important. Examples of crepuscular animals are cottontail rabbits, mule deer, mice, hummingbirds and songbirds. Examples of nocturnal animals are foxes, owls, bats, mule deer, skunks, raccoons, bobcat and mountain lions. Examples of diurnal species are squirrels, hawks and butterflies.

[13] https://www.nps.gov/yose/learn/nature/park-statistics.htm
[14] https://www.nps.gov/jotr/learn/management/statistics.htm
[15] http://www.parkinfo.org/lwcf/lwcf.html
[16] Statewide Park Development and Community Revitalization Act of 2008 (Chapter 3.3 (commencing with Section 5640) of Division 5 of the Public Resources Code).

[17] George and Crooks, 2006.

Last year, an Authority analysis was conducted of wildlife camera data (unpublished) for bobcat, coyote, gray fox, mule deer, raccoon, and striped skunk from 12/30/2012 to 6/30/2013. As illustrated in Table 4, the data indicated that these species may be shifting their activity times in Turnbull Canyon and Hellman Park into the nighttime compared to the Core Habitat where they are active in both the daytime and nighttime. As a caveat, various factors besides volume of trail use, factors such as lack of food source, and mates, could have contributed to the results of this limited time study.

Table 4

Wildlife Detections	No. Daytime Detections	No. Nighttime Detections	Percent of Detections in Daytime	Percent of Detections in Nighttime
Hellman Park	0	78	0.0%	100.0%
Turnbull Canyon	8	143	5.3%	94.7%
Core Habitat	139	197	41.4%	58.6%

Several other studies have been conducted on or near the Puente Hills Preserve investigating the effects of recreation on wildlife. A 2002 report by Haas and Turschak stated that coyote and mule deer shifted their activity times to more nocturnal hours after the Colima tunnel near the Arroyo Pescadero Trailhead was opened for trail use; a pattern which continued during a follow-up study conducted by Lucas (2010) but now also included a nocturnal shift in bobcat activity. This may have negative effects like decreased feeding efficiency, increased predation, and increased energy demands.

Enforcing the Preserve hours of use for recreation is very important to maintaining a sustainable balance between biological health and recreation. The Authority contracts with the MRCA for, on average, 94 ranger patrol hours a week, split among four ranger schedules. They are charged with patrolling for daylight and nighttime hours, which can average between 10 to 16 hour work days, 7 days a week. With Preserve hours open from sunrise to sunset, when there are times of long day length , there aren't enough ranger contract hours for a ranger to always be on shift. Currently, the rangers close all Preserve gates, an activity that takes two to three hours daily. Due to staff levels, it is their goal to close gates within an hour after sunset. Figure 2 below illustrates that by far the majority of ranger interactions with visitors pertain to being in the Preserve after hours. In fiscal year 2005-2006, ranger contacts with visitors for after hours use totaled 248. In fiscal year 2015-16, there were 3,834 ranger contacts for "in park after hours", 77% of the overall annual ranger contacts for that year. Granted Authority staff has asked rangers to focus on this management issue, and rangers are consistently at trailheads every day closing gates, so it is not surprising that this is the most recorded rules violation that rangers encounter. However, the fact remains that there are many people on the trails after hours either because they are not aware of closing hours or are willfully choosing to violate Preserve opening and closing hours. Overall, it is notable to point out that as illustrated in Figure 2, these 2015-16 fiscal year contact numbers increased significantly from the previous years despite ranger hours being cut five hours a week due to budget restrictions. Ranger hours have since been restored.

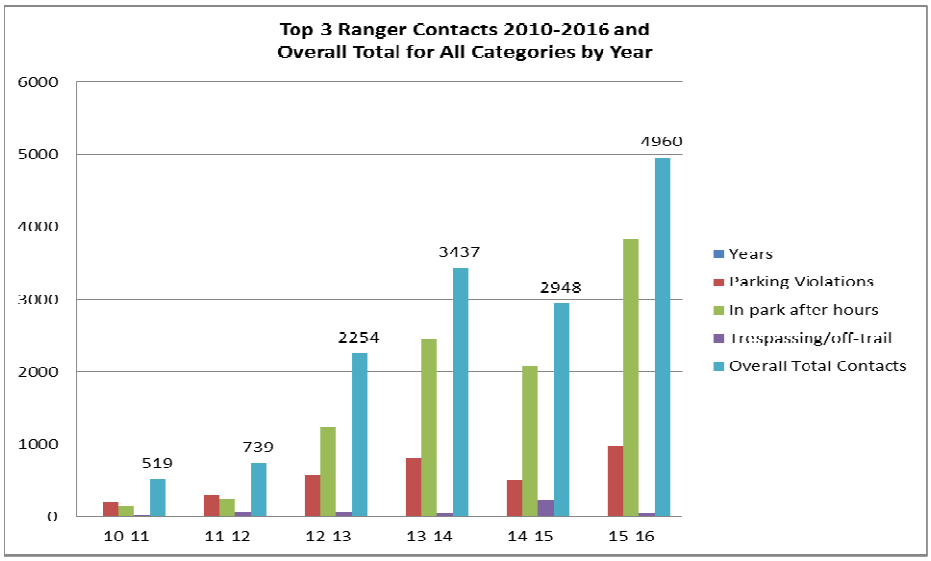


Figure 2

Trail Erosion (*continued* Quality of Biological Resources)

Despite repeated efforts to repair the Hellman Park Trail over several years, it was closed in 2013 due to severe erosion largely due to off-trail cutting by visitors. The illegal trails caused erosion eliminated habitat from these areas. The Sycamore Switchback Trail and the Peppergrass Trail are experiencing similar erosion issues, and staff is currently investigating the situations.

User Created Trails and Trail Widening (continued *Quality of Biological Resources*)

Extensive concentrated trail use has the potential to overburden adjacent parkland and threaten the health of its natural resources. In 2016, Authority consultant, Placeworks, evaluated the conditions of all of the Preserve trails. Due to limited staff time, the Authority extracted data only from a cluster of trails in the Hellman Park and Turnbull Canyon areas, however, it should be noted that staff, ranger and volunteer observations have noticed trail cutting in the Hacienda Hills and many new illegal trails in the Powder Canyon. Table 5 below illustrates that since 2002 when the trails were first evaluated[18], the trails in general have widened especially in the Hellman Park area, resulting in elimination of habitat. Table 5 also illustrates that in this same general area, three miles of new user created trails have been discovered since 2002, which results in habitat fragmentation and a decrease in the functionality of the ecosystem.

[18] RMP, 2007.

Table 5

AVERAGE WIDTH COMPARISON SUMMARY				
ALL MEASUREMENTS IN FEET				Feet
TRAIL	**SECTION**	**2002**	**2015/2016**	**INCREASE OF**
Peppergrass	bottom to Mariposa	12.0	19.7	**7.7**
	bottom of Mariposa to top of Mariposa	9.0	20.4	**11.4**
	above mariposa intersection	16.0	17.0	**1.0**
Turnbull	entrance to Sumac Trail	min 12; max 18	14	
	Sumac to Schab Trail	11.3	16	**4.7**
Sumac		16	14.7	
Rattlesnake Ridge				
	helipad to Peppergrass	16	15.7	
	Peppergrass to Sumac	16	16.6	
User Created Trails COMPARISON SUMMARY				
ALL MEASUREMENTS IN MILES				Miles
All Trails above		2002	2016	**INCREASE OF**
		3.73	6.73	**3.0**

Hellman and Turnbull Trails

To address illegal trails rangers have repeatedly installed chain link fencing and signs discouraging illegal trail use over the years, and have also covered illegal trails with brush, or raked and seeded them. Illegal trail use continues, however. The latest efforts by rangers involve installing rope and tee posts blocking off illegal routes, which early indications show may be more effective than fences.

Quality of Recreation

Very briefly discussed below, the dramatic increase in visitation has negatively impacted the Preserve's recreational quality as a result of user conflicts, parking and traffic congestion, and the feeling of being crowded. Widened and user created trails as described above also impact recreational quality but their impacts are more relevant to biological quality.

Potential user conflicts

Volunteers, staff and visitors have experienced high speed downhill bicyclists on many trails which could lead and have led to user conflicts on the trails. In January 2016, the Authority fixed the Mariposa Trail which was very narrow and used by bicycle riders. The repairs were designed to slow cyclists down. There are no reports of accidents that the Authority has received, however, cyclists still travel at high speeds, despite a 15 mile per hour (mph) speed limit sign that was posted at the top of the trail January 2016. A recreation-based website designed to share trail experiences with other enthusiasts, called Strava, reported that 117 (30%) riders out of 383 travelled at speeds 16 mph and above on the Mariposa Trail this year. Also according to this website, at the lower Turnbull Canyon Trail in 2016 377 (81%) riders out of 464 travelled at speeds 16 mph or greater. On the upper Turnbull Canyon Trail 1,164 (93%) riders out of 1,256 travelled at speeds 16 mph or greater. Upon greater investigation, other trails may be experiencing the same high speeds.

Neighborhoods parking and traffic

By far the City of Whittier has experienced the greatest impact on street parking and congestion of any community surrounding the Preserve. The City created preferred parking districts in 2013 to address the neighborhood complaints about the lack of available street parking for residents from trailhead use at Hellman and Turnbull. See the attached Exhibit C illustrating Preferred Parking Districts 1 and 2, which extend ¼ to ½ mile away from the trailheads. The parking districts have not been a one-size fits all solution, and they do not solve for all of the depreciative behaviors exhibited by some park visitors such as loud talking, littering, urination in front yards, foul language, fighting, using residents' hoses for drinking water. Traffic circulation remains a problem. However, the preferred parking districts have been helpful in freeing up street parking for residents. The parking district program continues to regularly expand as use at the trailheads continues to increase. Over the past two years, it appears as if people may be becoming more accustomed to the permit system assuming enforcement has been consistent. Preferential parking violation citations from October 2014 through October 2015 were 2,748 and decreased October 2015 through October 2016 to 1,995. We don't know if the violators were trailheads users, but if a downward trend continues, it could indicate its effectiveness of allowing residents to find available parking on the streets.

Additionally, a standard suggested in the Visitor Management Report is if a trailhead is less than 90% occupied it is considered below capacity. On Sunday, October 16, 2016 between the hours of 7:30 a.m. and 9:30 a.m. all trailhead parking lots were at 94% - 100% capacity. Only two lots, Powder Canyon and Sycamore had one to three open parking spaces, however, street parking at both was very crowded. Also, in three of the lots many cars were parked outside of the designated spaces, some illegally.

Trail Crowding

Use throughout the entire Preserve has increased significantly, and the mean ranking for feeling crowded by visitors was measured at 2.96 on a 9-point scale with a "1" being the lowest rating of perceived crowing and "9" as the highest.[19] A rating of 3 points or above has traditionally been associated with a negative evaluation indicating some level of crowding.[20] Overall, on the Saturday surveyed when the Preserve experiences highest use levels, the mean crowding rated at 3.59 Preserve-wide.

Hellman and Turnbull- It is possible that while Hellman has the most visitors, those visiting that trailhead expect to see more people or like the "social" aspect of that trailhead and, therefore, do not rank that trailhead as higher on the crowding scale. The lure for that trail may be exercise, not to experience nature. Turnbull Canyon had the highest average perception of crowding (3.69), with the majority (61.6%) rating it above 3 points. Hellman and Turnbull did not exceed the crowding standards suggested in the Report Regarding Visitor Management, however, they are clearly exceeding facility capacity levels based on available parking spaces (described earlier).

Hacienda Hills and Powder- According to the Report on Visitor Management, weekend

[19] Puente Hills Habitat Preservation Authority, Supplemental 2016 Recreation Use Assessment.
[20] Whitaker and Shelby, 2015.

standards are suggested not to exceed 80% of the people reporting a feeling of being crowded at a 3 or higher. The Hacienda Hills Trailhead is the only trailhead that exceeded the standards with 87% of the people surveyed ranking it a 3 or above on a Saturday. The Powder Canyon Trailhead was a close second at 78%, but this did not exceed the suggested standard threshold.

Depreciative Behavior

Depreciative behaviors such as graffiti, vandalism, litter, dog waste, dumping, and crime are managed for in the Preserve. Due to limited ranger resources, Authority Trail Watch volunteers are very instrumental in helping to clean up graffiti, litter and dog waste, as well as helpful in bringing other illegal behavior to our ranger and staff's attention.

In particular, litter and dog waste has been an ongoing challenge. To this end, the rangers have recently contracted with a maintenance vendor to assist with trailhead clean-up efforts. Regardless, the presence of dogs and their waste has other far reaching impacts, mainly biological. Since 2005, dog use in the Preserve has increased over 300% in Turnbull and 1,300% in Hellman Park. It has been well documented that dogs in natural areas impact the environment. For a more thorough discussion regarding this, please see the attached Exhibit D, Dogs In Natural Areas.

Based on the above ongoing and escalating issues on the Preserve, the following management actions are recommended for consideration and discussion:

MANAGEMENT ACTIONS

1. Installation of automated gates at three trailheads and hire security company to open/close Preserve gates at other two trailheads.

Regarding closing trailheads, as explained earlier, the rangers spend a large proportion of their time enforcing Preserve hours. Closing Hellman Park takes on average 30-45 minutes, and for nights when one ranger is on duty, the other trailheads are not serviced in a timely manner because Hellman is often the first park to be closed. Once a ranger is finished closing one trailhead, he/she needs to make it to the next trailhead, and should the ranger stop to address other observed violations, enforcement at the other trailheads is delayed. Also, if there is an emergency such as a lost or an injured hiker which is occasionally the case, this will also delay their ability to close the Preserve at the posted time. On average it takes one ranger two to three hours to close gates at night depending on the season (there is less traffic in the summer months due to closing hours being after the peak traffic hours). Rangers' schedules do not always allow for two rangers to close the Preserve each night, and when it does, morning hour coverage is not met or is light.

Regarding opening trailheads the MRCA contracts with a company located in the San Fernando Valley that uses one vehicle, and opens the first gate at least 1 ½ hours before sunrise. The current annual cost to open gates is $12,600, which is inexpensive compared to another cost estimate received from a local vendor at $36,500.

Proposed is designing and installing automated gates to open and close gates at Sycamore Canyon, Arroyo Pescadero and Powder Canyon at set open and close times. A rough cost estimate is $85,200. The rangers and/or a local company would need to be hired to open Hellman Park and Hacienda Hills, and close Hacienda Hills. At the time this staff report was written, we were still waiting for cost estimates from security companies to service these two trailheads. It is proposed that rangers close Hellman Park and Hacienda Hills in person due to the types of gates and the volume of visitors using the parks. It should be noted that the completion of the Hellman Park perimeter fence and gate is scheduled for November/December, resulting in the Authority's ability to enforce trail hours at this location. After closing Hellman Park, rangers would still visit each and every trailhead for security checks. Closing gates in this manner frees up the rangers to 1) have all gates close at closing time, 2) pursue violations should they see them on route between drives to each trailhead, and 3) still get trailheads closed on time even if there is an emergency.

Opening and closing gates in the manner proposed helps to secure the Preserve at posted hours also accomplishes the overall goal of protecting the biological values of the Preserve especially at night.

Automated gates/company to help with closure		**$ Amount**
	Gates design and install at three trailheads (Sycamore [$20,400], Arroyo Pescadero [2 gates, $40,800], and Powder [$24,000])	85,200
	Security company cost savings from discontinuing current contract	(12,600)
	Security company new costs (high estimate). Could be less if rangers opened/closed Hellman and Hacienda the majority of the time.	15,000 - 36,500
	total	**87,600 – 109,100**

- Due to initial costs, an alternate approach would be to implement this proposal first at Sycamore Canyon. Any management issues or gate designs could be refined before installation at other trailheads. The cost would be $20,400.

This action step is consistent with the goals of the RMP and is consistent with the Report Regarding Visitor Management (page 7), and addresses wildlife disturbance from after-dark use.

2. Change Preserve hours to specific times.

Installation of automated gates at three trailheads as described above is needed in order to implement this action step due to the prohibitive cost of hiring a company to assist rangers in opening and closing all gates estimated at $73,000 a year.

Suggested for consideration is to change the Preserve hours from sunrise to sunset to 7 a.m. to 5 p.m. October through March, and 7 a.m. to 7:00 p.m. April through September. As mentioned (See Exhibit B), wildlife need the dawn, dusk and nighttime for normal ecological functioning as a reprieve from the ever increasing volume of daytime recreational use. Also as mentioned, the biggest management challenge for the rangers is enforcing after hours use. Despite Authority staff posting educational messages in kiosks about the hours, and posting sunrise/sunset hours on our website, the majority of the people do not know when sunrise/sunset is. Many people unintentionally violate Preserve hours rules as there is a constant confusion by the public as to what defines sunrise/sunset, and many people are too busy with their daily lives to track the daily changing times. "Set times" rather than varying sunset/sunrise hours is easier to describe and easier for people to understand, and thus easier to enforce. Other park agencies in the Puente-Chino Hills area use a similar set time hours system (see Table 6 below).

Table 6

Entity	***Hours***	***Location***	***Enforceability***	***Special Nighttime Use***
LA County	October through March: 7:00 a.m. to 6:00 p.m.* April through September: 7:00 a.m. to 8:00 p.m.* *(closure times vary on dusk hours)	Schabarum Park	Gates stops cars not walk-ins.	Organized youth group camping throughout the year (average about one a month).
LA County	Sunrise to sunset	Schabarum Trail		Will consider on permit basis.
NPS/ CA State Parks	Parks are open 24 hours, although several gated parking lots are only open 8 a.m. to sunset.	SMMNRA** (~80,000 acres)	Difficult to enforce due to size and different hours of adjoining property managers.	Nighttime use is allowed. Allows for special permitted night events.
SMMC/ MRCA	Sunrise to sunset	69,000 acres managed by MRCA (includes portions of the SMMNRA**)	Difficult to enforce	Will consider on permit basis.
CA State Parks	October through March: 8:00 a.m. to 5:00 p.m. and April through September: 8:00 a.m. to 7:00 p.m.	Chino Hills State Park (14,000 acres)	Rangers are onsite at parking areas around closing hours to enforce hours and sometimes are scheduled into the evening for patrol. Difficult to enforce.	Campground overnight use allowed. Visitors are not allowed to be on trails outside the campground area after park closing hours.

These proposed set times are expected to also have a diluting effect on parking and traffic in morning and evening hours throughout surrounding neighborhoods of Hellman Park, Turnbull Canyon and Hacienda Hills trailheads. The set times are best enforced when there is a fence and gate controlling access such as at the Hacienda Hills, Arroyo

Pescadero and Sycamore trailheads. The effect at Hellman Park will be maximized after the wrought iron fence and gate is installed.

This change would be implemented after an appropriate advance education period of one to two months through a variety of avenues: trailhead signage, website posting, social media postings (Facebook, Twitter, Meetup.com), email list mailing notifications, newspaper announcements, and announcements at various groups and City Council meetings. Also, the current company that opens the gates will not be able to open them at 7 a.m. due to logistical reasons, so a new contract with a different company for the Hellman and Hacienda Hills trailheads would need to be secured after automated gates are installed at the other trailheads.

#2 **Change Preserve hours**		**$ Amount**
	* #1 costs: $87,600- $109,100	
	Signage	1,000
	Update maps	2,400
	Enforcement - concentrated efforts but no increase in cost	
	total = #1 costs plus*,	**3,400***

- An alternative incremental approach would be to address only Hellman Park first because of the extreme conditions as described in this report. If hours were changed to 9 a.m. to 5 p.m. year round, the rangers could open this trailhead as a part of their regular patrol and therefore not result in any additional gate opening cost. The cost for this approach would be approximately $500 for signage at the trailhead and on the various trails explaining that Hellman would have different hours so trail users would not get locked in. Rangers would need to change closing procedures to clear out trail users in Hellman for least one month. This is not a long-term solution as changing hours at one trailhead will most likely shift use and more impacts to the other trailheads.

This action step is consistent with the RMP and Report Regarding Visitor Management (page 7), and addresses wildlife disturbance from after-dark use.

3. Control of specific uses on trails.

Due to the increase in number of visitors who bring their dogs to the Preserve, and the resulting impacts discussed in detail in the attached exhibit, excluding dogs from Hellman, Turnbull Canyon, and Arroyo Pescadero is recommended by staff for Board consideration. Additionally, restricting dogs from Hacienda Heights or Powder Canyon during a well-publicized weekend is an additional educational technique for the community.

It is recommended to exclude bicycles from using Hellman Park including the Peppergrass Trail and the Mariposa Trail due to the safety for pedestrians from bikes at high-speeds and bike high-marking.

To avoid trail user-conflicts due to speeding bicycles, more speed limit signs could be installed throughout the Preserve. The rangers could also prioritize a more concentrated effort to control bike speeds with citations, especially at Turnbull Canyon and Hellman Park (if bikes are not eliminated from this latter location).

Control specific trail use		**$ Amount**
	Signage	1,000
	Enforcement – concentrated efforts but no increase in cost	
	total	**1,000**

This action step is consistent with the RMP and the Report Regarding Visitor Management (pages 6, 21 and 30), and addresses ecological, recreational and depreciative issues.

4. Installation of restroom at Hellman Park when funds are available.

Currently the MRCA has contracted for servicing the portable toilets at four trailheads (Sycamore Canyon, Arroyo Pescadero, Hacienda Hills and Powder Canyon) once, twice or three times a week for approximately $9,700 annually. A bathroom at Hellman would add to the protection of the resources and address neighborhood complaints.

This would be an additional cost of $2,500 to $3,500 yearly, plus the cost to lay a foundation and install an enclosure, approximately $3,000. If Preserve hours at Hellman do not change then daily servicing of the restroom would be needed.

Install portable restroom at Hellman		**$ Amount**
	Service restroom 2-3 times a week (*annual cost*). Daily service would cost $10,200	2,500 – 3,500
	Foundation and enclosure	3,000
	total	**5,500-6,500**

This action step is consistent with the RMP and Report Regarding Visitor Management (page 35).

5. Conduct Preserve-wide coastal California gnatcatcher survey.

It is time for another Preserve-wide coastal California gnatcatcher survey. The RMP recommends conducting these surveys every two years. The last Preserve-wide survey conducted by a permitted biologist was in 2010 in the amount of $20,880; however, given the lack of funds and staff resources, no additional Preserve-wide protocol surveys have been conducted. The Authority Ecologist has been regularly surveying the known

gnatcatcher nests and cactus wren territories for the past several years, except for this year due to workload restrictions. Comparing the monitoring results over time in areas of varying recreational levels will help us determine if there are natural resource impacts occurring in the Preserve related to recreational use.

Gnatcatcher survey		**$ Amount**
	Hire consultant	30,000
	total	**30,000**

This action step is consistent with the RMP and Report Regarding Visitor Management (page 6), and mainly addressing protecting the coastal California gnatcatcher and cactus wren.

6. Continue ranger trail patrol.

To increase visibility of ranger presence on the Preserve, the rangers have been hiking trails mostly near trailheads at peak use times with education and maintenance as the main emphases. Their direct connection with the visitors while on foot or even bike patrol, is one of many varied styles of patrol that the rangers have used. It makes the ranger more approachable and differs from vehicle based patrols in which the users see and hear them coming down the trail well before they arrive. Rangers have committed to altering schedules for foot patrol at least four to eight hours a week, during high peak times. There is no extra cost associated with this action, and it has been included in the MRCA 2016-17 fiscal year contract.

This action step is consistent with the goals of the RMP and is consistent with the Report Regarding Visitor Management (page 7), and addresses ecological, recreational and depreciative issues.

7. Continue to block off illegal trails.

Signs, brushing, and the installation of rope and tee posts to create visual barriers to "close" user-created trails will continue. Rangers replace materials when necessary on an ongoing basis. There is no extra cost associated with this action, and is already being implemented.

This action step is consistent with the RMP and the Report Regarding Visitor Management (page 7), and addresses trail conditions and wildlife disturbance.

8. Possible temporary closure of the Hellman Park Trailhead.

If changing the Preserve hours is not pursued, then temporary closure is recommended for Hellman Park for the majority of the upcoming nesting season during the months of March through July 2017.

A temporary closure would be consistent with the Authority's RMP measures including but not limited to:

Goal BIO-3: Maintain all populations of native plants and wildlife with special emphasis on management of locally uncommon, sensitive, federally-threatened or endangered species and other sensitive resources.

BIO-3.5 Protect and maintain nesting and foraging habitat for Indicator Species, defined as locally uncommon or declining species in Los Angeles County."

Goal USE-1: Provide a trail system that protects natural resources of the Preserve.

USE-1.6 Use best management practices in the design, construction, and maintenance of trails, including temporarily closing trails when needed.

As stated earlier, the RMP was written in a manner to allow for an adaptive management approach, one that in part is designed to be flexible enough to allow for change and refinements to the approach for Preserve management as more is learned about ecosystems and the responses of these ecosystems to environmental stressors, including human use. Conclusions based on general scientific principles can be easily made supporting this action. This justification is that the use at Hellman Park has increased 2,618% over the last eleven years, illegal trails are fragmenting the area, trail widening has decreased habitat, studies have shown that recreation can negatively affect wildlife, and it is a biologically rich and sensitive property. This action step is meant to give this area a reprieve from the human disturbance especially during the most ecologically sensitive time of year, nesting season.

This change would be implemented after an appropriate advance education period through a variety of avenues: trailhead signage, website posting, social media postings (Facebook, Twitter, Meetup.com), email list mailing notifications, newspaper announcements, and public announcements.

Temporary closure of Hellman		**$ Amount**
	No increase in costs. Will enable rangers to close other gates in more timely manner.	
	Signs	500
	total	**500**

This action step is also consistent with the Report Regarding Visitor Management (page 6), and addresses ecological issues.

Future management action considerations (a-e):

a) Eliminate illegal trails and fix eroded/widened trails in part with habitat restoration, b) Install permanent bathrooms at Hellman Park, c) install improved parking and perimeter fencing and decorative gate at Turnbull, d) hire additional education staff, volunteer coordinating staff, project staff and increase ranger hours, and e) Park reservation (permit) system (Exhibit E).

FISCAL IMPACTS
See attached the attached chart (Exhibit F).

REFERENCES
California State Parks Community Fact Finder, http://www.parkinfo.org/lwcf/lwcf.html.

Cooper Ecological Monitoring, Inc. on behalf of The Nature Conservancy*, 2009. Coastal Cactus Wren Summary, Western Puente Hills*.

Garbat, Gullo, Longacre, 2012. Trail Visitor User Survey, 2012. Prepared by the Puente Hills Habitat Preservation Authority.

George, S.L. and K.R. Crooks. 2006. Recreation and large mammal activity in an urban nature reserve. Biological Conservation 133:107-117.

Haas, C., and Crooks, K. 1999. Carnivore Abundance and Distribution Throughout the Puente/Chino Hills. Prepared for The Mountains Recreation and Conservation Authority and California Department of Transportation. Final Report.

Haas, C. and G. Turschak. 2002. Responses of large and medium-bodied mammals to recreation activities: the Colima Road underpass. Final Report. 23 pages.

Lucas, S. 2010. Changes in Large and Medium-bodied Mammal Activity Following Eight Years of Recreation and Other Activities: The Colima Road Underpass and Vicinity. Final Report. 29 pages.

Manning, Robert E., 2007. Parks and Carrying Capacity, Island Press, Washington.

Martino, D., T. Longcore, and J. Wolch, 2006. Park Visitor User Survey for the Puente Hills Landfill Native Habitat Preservation Authority. University of Southern California, Center for Sustainable Cities, Los Angeles, California.

Report Regarding Visitor Management, 2015. Prepared by the Puente Hills Habitat Preservation Authority and Doug Whittaker and Bo Shelby of Confluence Research and Consulting. May 2015.

Resource Management Plan, 2007. Prepared by the Puente Hills Habitat Preservation Authority and LSA and Associates. Adopted July 26, 2007.

Sime, Carolyn A, 1999. Domestic Dogs in Wildlife Habitats; Effects of Recreation on Rocky Mountain Wildlife (Chapter 8). Montana Fish, Wildlife and Parks, Kalispell.

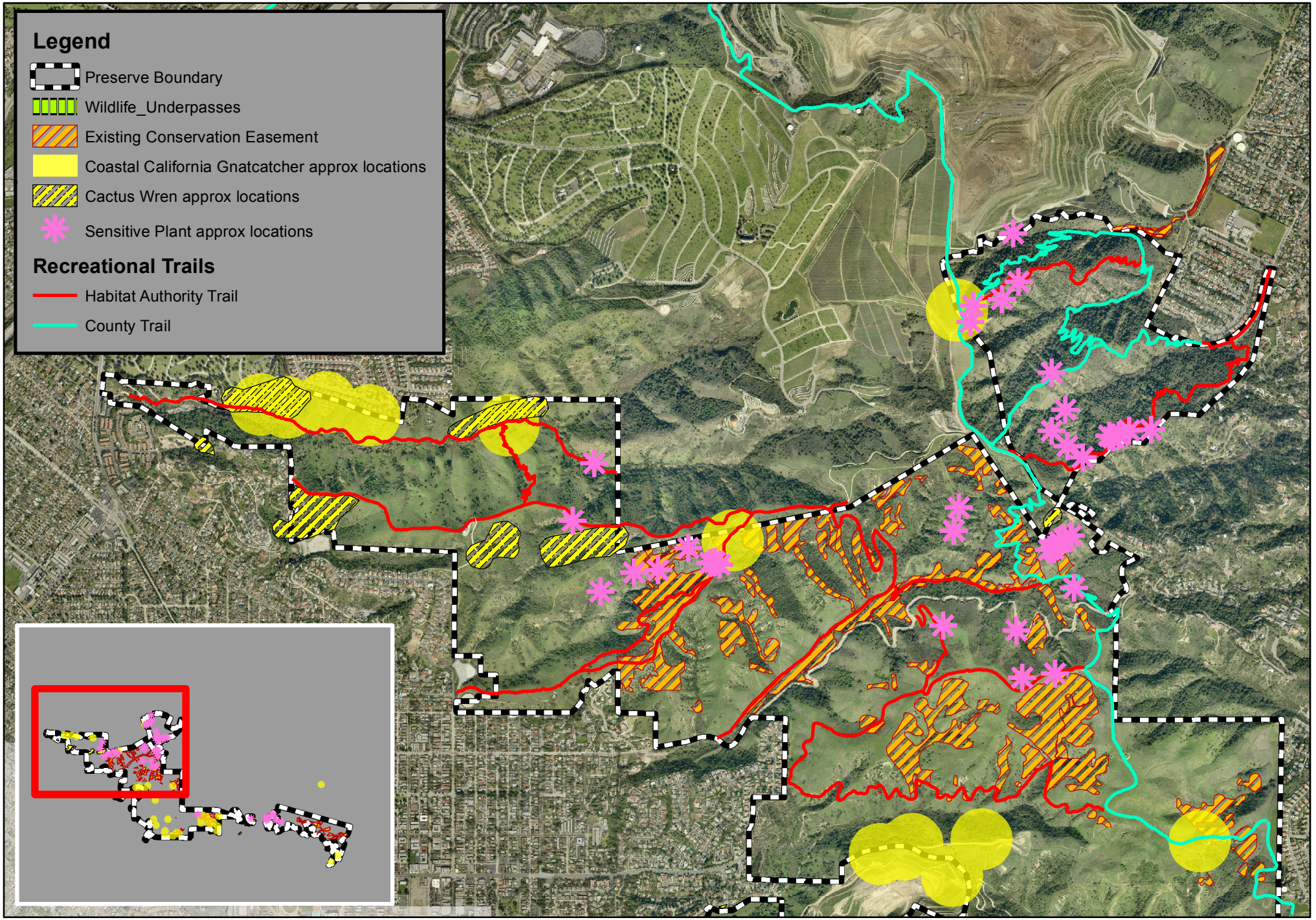
Supplemental 2016 Recreation Use Assessment, 2016. Prepared by Puente Hills Habitat Preservation Authority.

EXHIBITS (ATTACHED)
Exhibit A Sensitive Biological Values
Exhibit B Importance of Dawn/Dusk and Nighttime for Wildlife
Exhibit C City of Whittier Preferential Parking Districts
Exhibit D Dogs In Natural Areas
Exhibit E Permit System
Exhibit F Fiscal Impacts

Puente Hills
Habitat Preservation Authority
Endowment Provided by the Puente Hills Landfill

Exhibit A-1 - Sensitive Biological Values

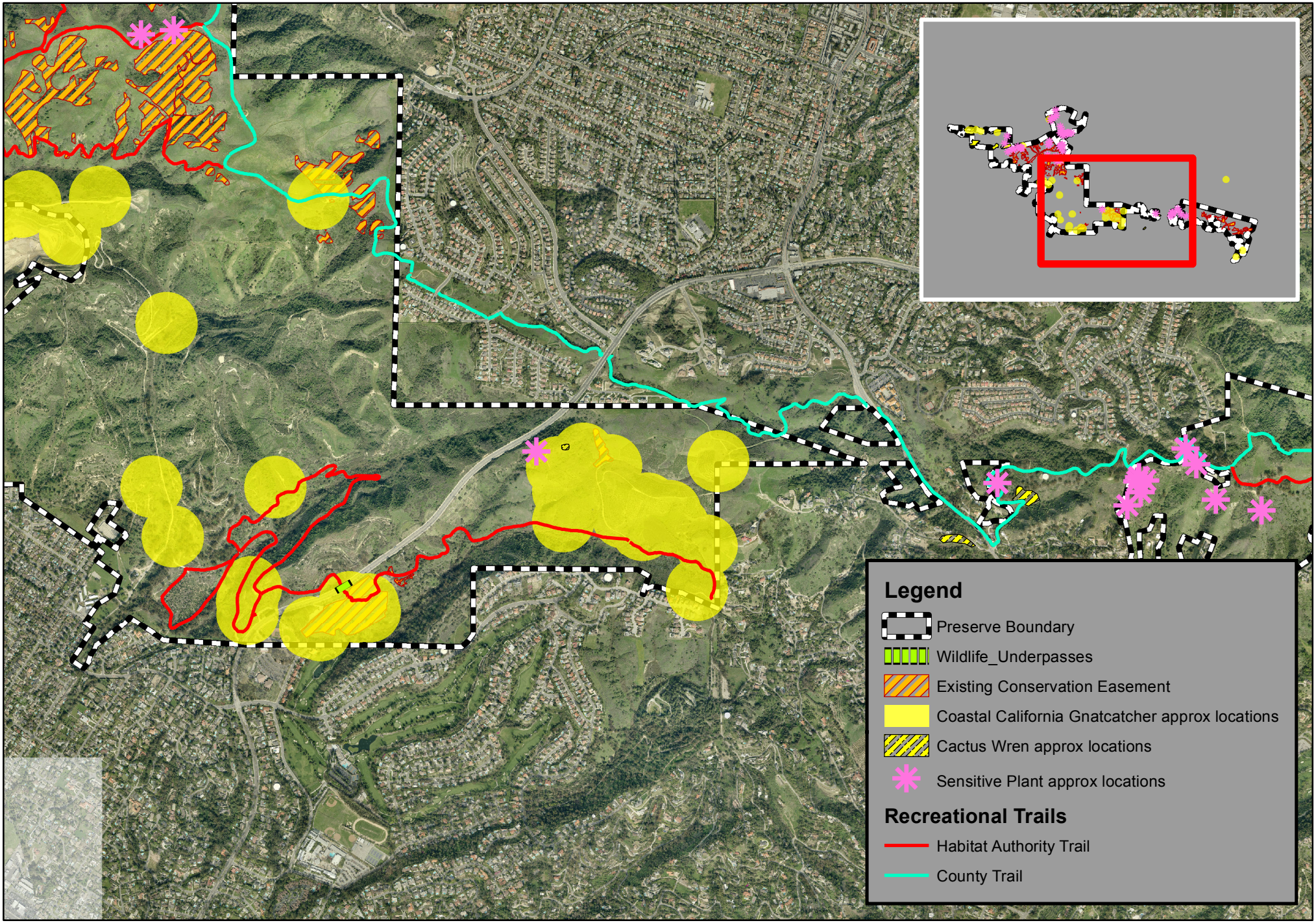
Dated: Oct.19, 2016



Puente Hills
Habitat Preservation Authority
Endowment Provided by the Puente Hills Landfill

Exhibit A-2 - Sensitive Biological Values

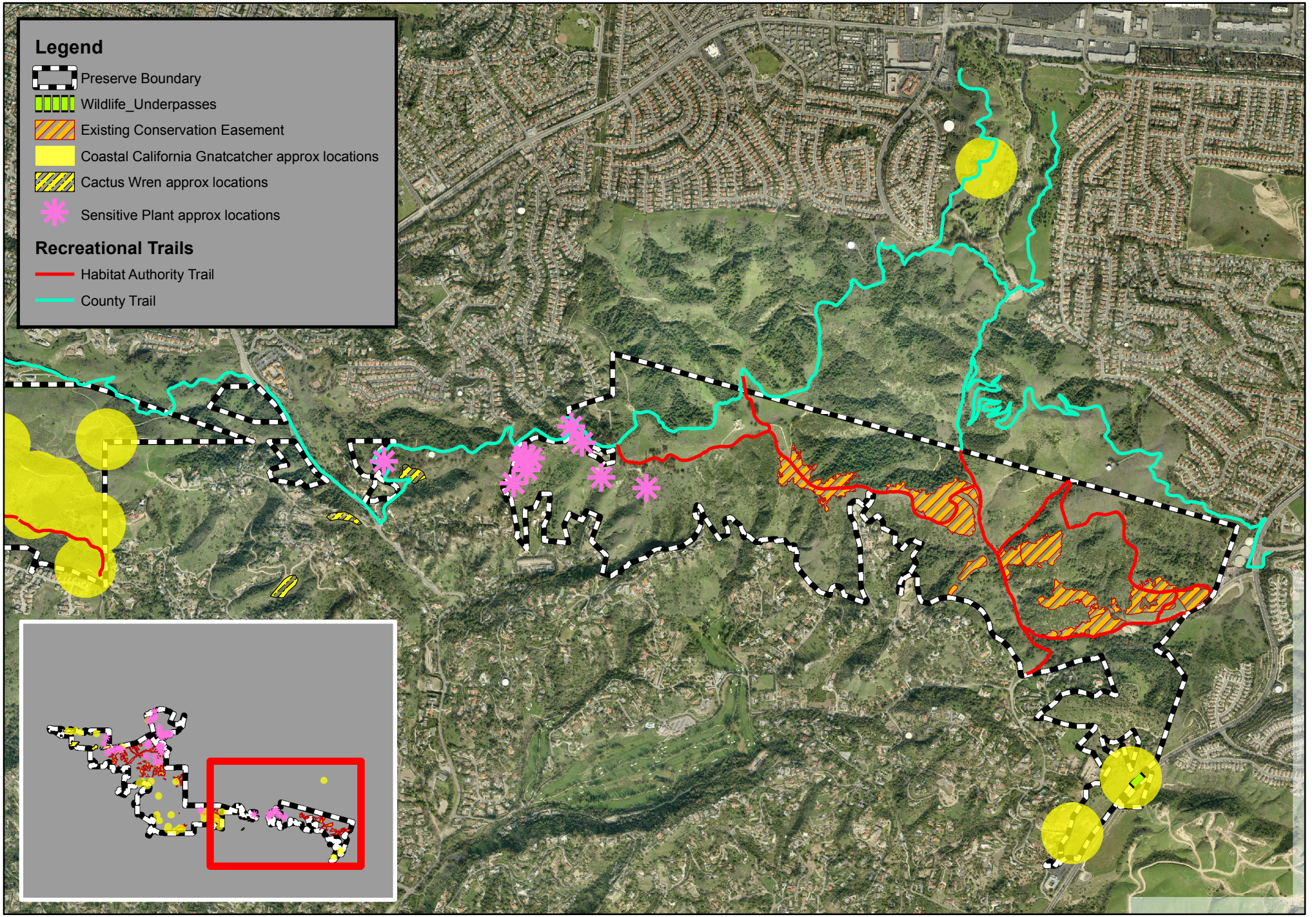
Dated: Oct.19, 2016



Puente Hills
Habitat Preservation Authority
Endowment Provided by the Puente Hills Landfill

Exhibit A-3 - Sensitive Biological Values

Dated: Oct.19, 2016



Biological Descriptions of Hellman Park and Adjoining Areas

Hellman Park

The Hellman Park area generally supports very steep slopes with substantial patches of intact native habitat, including sensitive coastal sage scrub and chaparral, as well as areas of grassland and small amounts of important riparian habitat. The Resource Management Plan (RMP) for the Preserve noted that this was one of the few areas where high-quality habitat (signs of good plant diversity, few exotic weeds, no signs of recent disturbance, and good overall habitat/community structure and sustainability) is well represented. Hellman Park also represents a large area of intact habitat connecting the two areas on the Preserve with the highest sensitivity rankings, Sycamore Canyon and Turnbull Canyon, which included the observed number of sensitive (or rare) species and indicator species (which help to identify the habitat condition). The northern part of Hellman shares one of highest sensitivity ranks with Sycamore Canyon. The coastal sage scrub habitat in Hellman Park includes some of the largest and most contiguous areas of cactus scrub, which also supports the highest number of coastal cactus wren territories in the entire Preserve (10 of the total 23 in the Preserve). The coastal cactus wren is considered a sensitive species because it is extremely sedentary and has very specific habitat needs, making it highly susceptible to local extinction; its already small range has been shrinking regionally due to habitat loss and wildfires. Based on a recent census of all coastal cactus wren in the region, it estimated that 10 percent of coastal cactus wren populations left in Los Angeles County may be in the Hellman Park and Sycamore Canyon areas. The importance of the cactus scrub habitat at Hellman Park is also demonstrated by the number of desert woodrats (another sensitive species); during a focused survey, 14 of the 44 individuals found in the Preserve were in Hellman Park, which is nearly three times the number found at any other site. The coastal California gnatcatcher, a federally threatened species, has also been documented here, which indicates that this area may serve as a dispersal or movement corridor connecting established gnatcatcher populations to the east and west.

Turnbull Canyon

The Turnbull Canyon is a large area with both steep and gently rolling ridgelines and drainages converging into a creek at the bottom. This area supports a diversity of habitat types representative of the Puente Hills: large intact patches of coastal sage scrub (a sensitive habitat type), chaparral, grassland, oak woodland and riparian habitat. This is one of the few areas where high-quality habitat (signs of good plant diversity, few exotic weeds, no signs of recent disturbance, and good overall habitat/community structure and sustainability) is well represented. Turnbull Canyon also has one of the few watercourses in the Preserve that is nearly perennial, which supports a substantial and highly intact amount of riparian habitat, also uncommon in the Preserve. Riparian habitats are known to support a high diversity of wildlife species. This may be one of the reasons that the RMP also noted that Turnbull had one of the highest sensitivity rankings (shared with Sycamore Canyon), which included the observed number of sensitive (or

rare) species and indicator species (which help to identify the habitat condition). This area supports a substantial population of one of the few rare plants in the Preserve, the intermediate Mariposa lily. Another sensitive species, the coastal cactus wren, is also present in several territories in Turnbull Canyon within larger patches of cactus scrub habitat. Several individuals of coastal California gnatcatcher, a federally threatened species, have also been documented here, which indicates that this area may be important as a dispersal or movement corridor connecting established gnatcatcher populations to the east and west. Turnbull Canyon may also be important habitat for larger mammals as part of their home ranges and for movement, as indicated by the large number of mountain lion sightings that have been recorded in this area.

Importance of dawn/dusk and nighttime for wildlife in the Puente Hills Preserve (rev 4/22/2015)

Animals have natural biological rhythms and adaptations influencing whether they are active during the day (diurnal), around dawn/dusk (crepuscular) or at night (nocturnal). However, the external environment can be a driving force in altering that natural pattern.

The Puente Hills Preserve is home to a wide range of crepuscular and nocturnal animals including, but not limited to, the following animals:

- Crepuscular: cottontail rabbits, mule deer, mice, rattlesnakes, hummingbirds, songbirds, mosquitoes, moths, some beetles
- Nocturnal: foxes, owls, bats, mule deer, skunks, raccoons, bobcat, coyote, mountain lions, rattlesnakes

Benefits of being crepuscular

There are numerous benefits of being crepuscular. The temperatures around dusk and dawn can be the most comfortable time of day especially when daytime and nighttime temperatures can be more extreme. In low light conditions, animals can blend in better to their surroundings allowing them to hide while they forage. Being crepuscular also allows many animals to avoid predators by being active when predatory animals, such as mountain lions and bobcats, are typically not. But also many species, such as mule deer, have eyes adapted to see in those light conditions. During this small window of time (currently approximately 1.5 hours before sunrise and after sunset), crepuscular animals must feed, find mates, seek shelter, etc. and many species are only active during the crepuscular and/or nocturnal hours.

General recreational impacts

Some diurnal animals of the Puente Hills Preserve, such as the California ground squirrel (*Spermophilus beecheyi*) and the Western Scrub-Jay (*Aphelocoma californica*), may become habituated to recreationists during the day because of the regular activity going on around them. However, there are more people on the trails than before (use at Hellman increased 798% between 2005 [Martino et al. 2006] and 2012 [Garbat et al. 2013]), and when recreation levels in the Preserve were much lower, there was presumably less recreation use between sunset and sunrise. Rangers are now spending increasing amounts of time trying to get recreationists out of the Preserve at sunset. This increased level of recreational activity may cause crepuscular and nocturnal wildlife to become alarmed by human use and modify their behaviors, potentially having deleterious effects on their survival (e.g. increased heart rate, decreased foraging) and/or breeding (e.g. nest abandonment). With increased human use, especially after sunset and before sunrise, concerns are that these effects on wildlife may become amplified. The type of activity recreationists are engaging in may also matter since hikers may be more likely to approach wildlife and travel slower than bikers so they have an increased time of disturbance in one area. Papouchis et al. (2001) found that hikers caused the most severe responses in desert bighorn

sheep where sheep fled in 61% of the encounters with hikers as compared to 6% of encounters with bikers. Wildlife may have energetic losses when they are intentionally or unintentionally harassed and flee from their normal activities or preferred habitat expending more energy on fleeing/flight in addition to the potential loss of foraging time. Additionally, noise may disturb wildlife and it is typically quieter in the Preserve during the crepuscular and nocturnal hours. In some studies, noise caused by visitors resulted in increased levels of disturbance to birds (Bowles 1995; Burger & Gochfeld 1998). In general, the presence of dogs were found to cause birds to flush (Burger 1986; Pomerantz et al. 1988;) and unleashed dogs were found to pose a direct threat to birds because they can chase and kill them (Burger 1986), and they may be especially disruptive off-leash due to their resemblance to coyotes and foxes (Sime 1999), thus eliciting a predator avoidance response by wildlife.

Crepuscular/nocturnal use impacts

With such little time for crepuscular animals to accomplish their daily activities, recreation during this time may interrupt these activities with potential negative effects on wildlife. With more people on the trails now and user-created trails bisecting habitat, pressures on wildlife from recreational activities can cause many diurnal animals to shift their activity times to being more crepuscular or even nocturnal (George and Crooks 2006). Therefore periods of relief for wildlife, such as during the crepuscular and nocturnal hours, become increasingly important. The biggest effect is the cumulative effect of nighttime disturbance on wildlife that has already been displaced or disturbed by human activity during the daytime (see general recreational impacts above). Additionally, if people are in the Preserve at twilight/night, and using lights, those lights can impair wildlife's vision which can disrupt foraging and young rearing, to name a few (Green and Higginbottom 2001).

Studies on/near the Preserve

Most recently Whittier College senior, Bo Gould, has been analyzing USGS wildlife camera data (unpublished) for bobcat, coyote, gray fox, mule deer, raccoon, and striped skunk from 12/30/2012 to 6/30/2013 and analyzed what percent of the wildlife detections occurred in the daytime versus the nighttime. These data indicate that these species may be shifting their activity times at Turnbull Canyon and Hellman Park into the nighttime compared to the core habitat where they are active in both the daytime and nighttime. The cameras at Hellman Park, Turnbull Canyon and the core habitat were active for 147 days, 170 days and 181 days, respectively which can account for some of the higher number of detections at Turnbull Canyon and the core habitat.

Wildlife Detections	No. Daytime Detections	No. Nighttime Detections	Percent of Detections in Daytime	Percent of Detections in Nighttime
Hellman Park	0	78	0.0%	100.0%
Turnbull Canyon	8	143	5.3%	94.7%
Core Habitat	139	197	41.4%	58.6%

Several other studies have been conducted on or near the Puente Hills Preserve investigating the effects of recreation on wildlife. A 2002 report by Haas and Turschak stated that coyote and mule deer shifted their activity times to more nocturnal hours after opening the Colima tunnel within the Puente Hills Preserve to human recreation; a pattern which continued during a follow-up study conducted by Lucas (2010) but now also included a nocturnal shift in bobcat activity. This may have negative effects like decreased feeding efficiency, increased predation, and increased energy demands.

In a study conducted on the Nature Reserve of Orange County (within 40 miles of the Puente Hills Preserve), George and Crooks (2006) found that in areas with high human activity, bobcats and coyotes were less active in the daytime and exhibited a lower range of activities. Bobcats were found less frequently along trails with high recreation use (hikers and bikers) and were more nocturnal, versus diurnal, in areas with high recreational use (again hikers and bikers) and when dogs were present. Although coyote activity was also lower in sites with higher recreation use and coyotes were also temporally displaced by dogs, they were not as sensitive to human disturbance as bobcats. In short, the study by George and Crooks illustrates that recreation use can alter wildlife behavior. These are important findings since our Preserve has both hikers and bikers, allows dogs in more areas than not, and bobcats and coyotes are present on the Preserve and as top predators are good indicators of ecosystem health.

Conclusion

With the continual added pressure due to increased human activity during the day, it becomes more important to provide relief to wildlife during crepuscular and nocturnal times. In addition, other challenges to the Preserve are limited Ranger resources to control human activities and close all trailheads at sunset as well as porous access points when the Preserve is closed.

Bibliography

Bowles A. E. 1995. Response of wildlife to noise. Pages 109-156. in R.L. Knight and D.N. Cole, editors. Wildlife and recreationists: coexistence through management and research. Washington, D.C., Island Press.

Burger, J. 1986. The effect of human activity on shorebirds in two coastal bays in northeastern United States. Biological Conservation 13:123-130.

Burger, J., and M. Gochfeld. 1998. Effects of ecotourists on bird behaviour at Loxahatchee National Wildlife Refuge, Florida. Environmental Conservation
25:13-21.

Garbat, A., A. Gullo, and L. Longacre. 2013. Trail visitor user survey. A Pilot Study of Visitation at Hellman Park and Turnbull Canyon.

George, S.L. and K.R. Crooks. 2006. Recreation and large mammal activity in an urban nature reserve. Biological Conservation 133:107-117.

Green, R. and K. Higginbottom. 2001. The negative effects of wildlife tourism on wildlife. Wildlife Tourism Research Report Series: No.5.

Haas, C. and G. Turschak. 2002. Responses of large and medium-bodied mammals to recreation activities: the Colima Road underpass. Final Report. 23 pages.

Lucas, S. 2010. Changes in Large and Medium-bodied Mammal Activity Following Eight Years of Recreation and Other Activities: The Colima Road Underpass and Vicinity. Final Report. 29 pages.

Martino, D., T. Longcore, and J. Wolch. 2006. Park Visitor User Survey for the Puente Hills Landfill Native Habitat Preservation Authority. 68 pages.

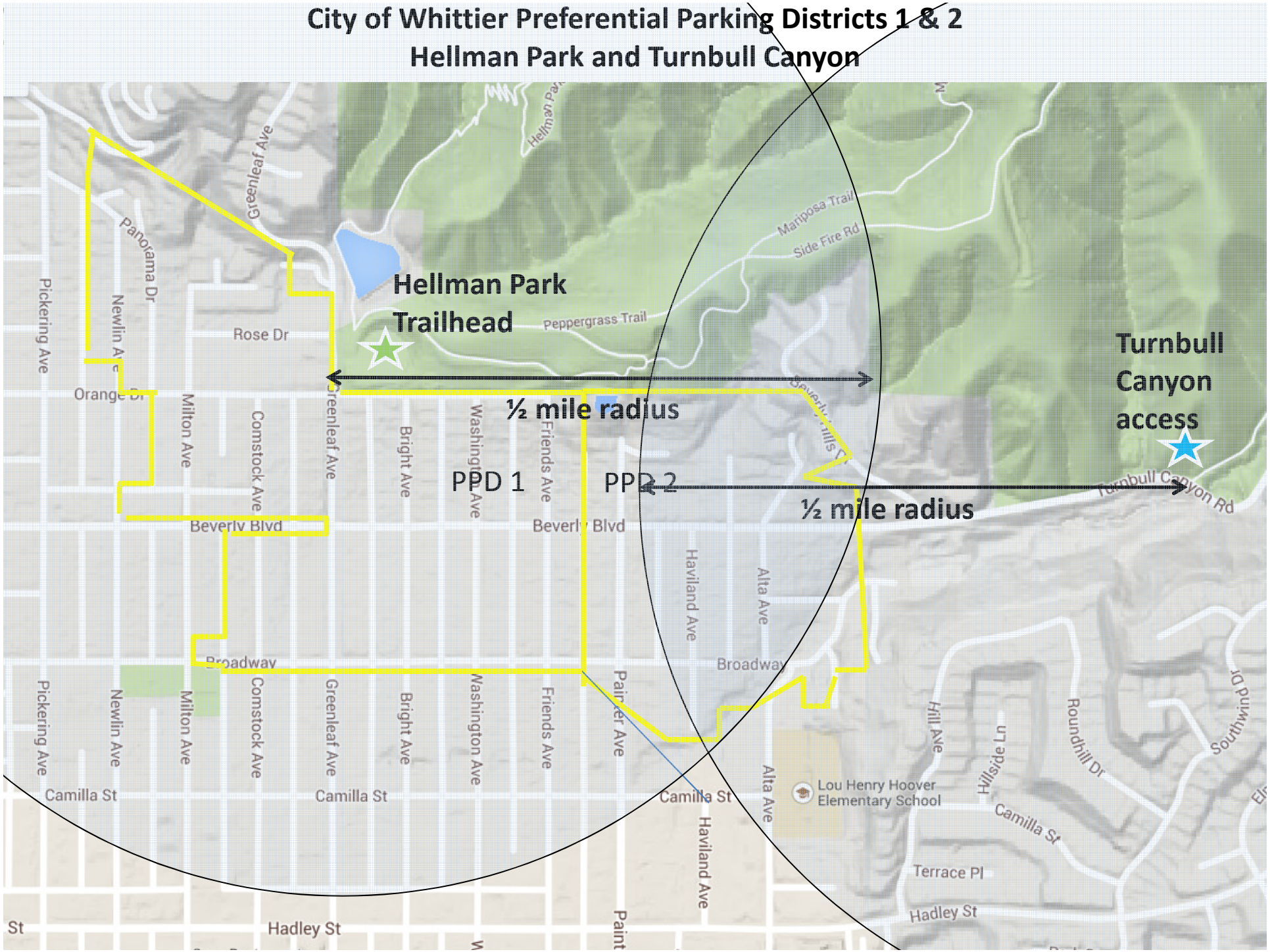
Papouchis, C.M., F.J. Singer and W. B. Sloan. 2001. Responses of Desert Bighorn Sheep to increased human recreation. Journal of Wildlife Management 65(3):573-582.

Pomerantz, G. A., D. J. Decker, G. R. Goff, and K. G. Purdy. 1988. Assessing impact of recreation on wildlife: a classification scheme. Wildlife Society Bulletin 16:58-62.

Sime, C. A. 1999. Domestic Dogs in Wildlife Habitats. Pages 8.1-8.17 *in* G. Joslin and H. Youmans, coordinators. Effects of recreation on Rocky Mountain wildlife: A Review for Montana. Committee on Effects of Recreation on Wildlife, Montana Chapter of The Wildlife Society. 307pp.

Exhibit C

City of Whittier Preferential Parking Districts 1 & 2
Hellman Park and Turnbull Canyon



Dogs in Natural Areas

Currently the Puente Hills Preserve (Preserve) allows dogs on all trails except Sycamore Canyon, Dark Canyon, Sycamore Switchback, and Arroyo San Miguel trails. Despite human efforts to domesticate dogs over the many thousands of years and humans' intense voice-command training, dogs still maintain basic instincts to hunt and/or chase. With particular stimuli, those instincts can be triggered in various settings. Even if the chase instinct is not triggered, and/or dogs stay on leash and on trails, the presence of dogs alone may be an agent of disturbance or stress to wildlife. Additionally, the waste material left behind by dogs can be a deterrent to wildlife.

There are a number of factors for land managers to consider when determining whether to allow or prohibit dogs from natural lands; factors such as the protection status of the land and potential impacts of dogs (direct and indirect). For example, wildlife view dogs as predators (Lenth, et al., 2008) and their presence may stress wildlife, thereby reducing breeding success.

Dogs can have impacts to wildlife, other dogs and humans in a Preserve setting.

- Dogs introduce/transmit diseases and/or contact dermatitis
    - Whether on- or off-leash, dogs are a potential vector for canine distemper, rabies, parvovirus, plague, and muscle cysts (Sime, 1999). We, as Preserve managers, cannot guarantee that dogs in the Preserve are vaccinated and are not carriers of diseases that can be transmitted to wildlife and other dogs especially since many of these are transmitted via feces.
    - People are exposed to poison oak when their dog comes in contact with the plant. This can happen whether the dog is on- or off-leash.

- Dogs displace wildlife from habitats and can cause death
    - When off-leash, dogs increase zone of human disturbance and can alter the normal behavior of wildlife (Lenth, et al., 2008).
    - Can cause wildlife stress by chasing them and causing wildlife to expend energy normally used on important life-sustaining functions.
    - Reduce nesting success since they can chase wildlife that could have spent time and energy on a nest or foraging to feed young.
    - Dog feces left behind leaves a scent that is odorous to wildlife and a form of scent marking. The same is true for dog urine. Since wildlife view dogs as predators these forms of scent marking can affect the behavior of other species.
    - Directly prey on wildlife.
    - Examples:
        - In Southern California, high levels of recreational visitation correlate with altered temporal patterns of wildlife activity (George and Crooks, 2006).
        - When dogs scent mark they indirectly interact with wildlife displacing or attracting carnivores (attract foxes, displace bobcats) (Lenth, et al., 2008).

- Dogs can decrease the visitor experience
    - Dog feces can decrease the human experience due to the sight and smell.
    - Fewer wildlife may be observed along the trails (30% of visitors visited our Preserve to see/hear wildlife [Martino, et al., 2006])
    - Not all visitors welcome encounters with dogs and inevitably some negative encounters either between humans and dogs or between dogs will occur.

Human behavior, dog safety and human safety in the Puente Hills Preserve

- The number of dogs brought to the Preserve has increased substantially from 2005 to 2016. (See Table below)
- Trails are frequently littered with dog waste in bags and unbagged as observed by rangers, volunteers and staff.
- Many dogs have reportedly died from heat exhaustion. Rangers have been called on several occasions to rescue over heated dogs on the trails on hot days.
- Dogs have been bitten by rattlesnakes as reported to rangers.
- Opportunities are created for conflicts with others users or animals.
- Puente Hills Preserve User Surveys Information:

    The following table shows the number of average number of dogs on the Preserve at select trailheads from the 2005 User Survey (Martino, et al., 2006), the 2012 User Survey (Garbat et al., 2013) and lastly the 2016 Recreational Use Assessment and Supplemental report (MIG, 2016 and Puente Hills Habitat Preservation Authority, 2016, respectively). The number of dogs on the Preserve has increased over 1,000 percent from 2005 to 2016 at Hellman Park and if the 53 dogs per day is extrapolated over a month, that's 1,590 dogs per month at that trailhead alone.

Average No. Dogs Per Day	**2005**[1]	**2012**	**2016**	**% Increase (2005-2016)**
Turnbull Canyon	6.25	10.6	26	**316**
Hellman Park	3.75	23.8	53.0	**1,313**

[1] Since some people bring more than one dog and this wasn't accounted for, this number may be higher

- Restricting dogs from trails may:
    - Increase available habitat for wildlife
    - Increase nesting success
    - Improve wildlife viewing for public
    - Result in cleaner trails leading to a more enjoyable experience for visitors

  - Ensure the safety of dogs from tick bites, rattlesnake bites, predation from coyotes, or death from heat exhaustion
  - Reduce conflicts with other trail users and/or dogs
  - Examples: Boulder County Parks and Open Space found that trails dogs or mountain bikes often have higher levels of recreational use and those types of activities on the same trails can be problematic because they aren't always compatible. (BCPOS, 2004)

- Preserves that don't allow dogs (not a comprehensive list):
  - Santa Rosa Plateau
  - Aliso and Wood Canyons Wilderness Park
  - Laguna Coast Wilderness
  - Whiting Ranch Wilderness Park
  - Thomas F. Riley Wilderness Park
  - Ronald W. Caspers Wilderness Park
  - Irvine Ranch Open Space
  - Sepulveda Basin Wildlife Reserve (City of Los Angeles Department of Recreation and Parks)
  - Many California State Parks including Chino Hills State Park trails (They are allowed at campsite, Rolling M Ranch, and along entrance road), and Topanga State Park trails.
  - Bear Creek Redwoods Preserve, Los Gatos, CA
  - El Corte De Madera Creek Preserve, Redwood City, CA
  - Picchetti Ranch Preserve, Cupertino, CA
  - Most National Parks
  - Times Beach Nature Preserve – downtown Buffalo, NY
  - Plainsboro Preserve, New Jersey
  - Six Mile Cypress Slough, Florida
  - Connemara Conservancy – (Dogs were prohibited from the Meadow several years ago in order to revitalize area, and now are allowed back through a permit system in limited numbers)
  -

References

- Boulder County Parks and Open Space. 2004. Recreation conflict at six Boulder County Parks and Open Space Properties: a baseline study. September 10.
- Garbat A., A. Gullo, and L. Longacre. 2013. Trail Visitor User Survey: A Pilot Study of Visitation at Hellman Park and Turnbull Canyon. Puente Hills Habitat Preservation Authority, Whittier, CA.
- George, Shalene and K. Crooks. 2006. Recreation and large mammal activity in an urban nature preserve. Biological Conservation 133: 107-117.
- Lenth, B., M. Brennan, and R. Knight. 2008. The Effects of Dogs on Wildlife Communities. Natural Areas Journal, 28(3):218-227.

- Martino, D., T. Longcore, and J. Wolch. 2006. Park Visitor User Survey for the Puente Hills Landfill Native Habitat Preservation Authority. University of Southern California, Center for Sustainable Cities, Los Angeles, California.
- Sime, Carolyn A, 1999. Domestic Dogs in Wildlife Habitats; Effects of Recreation on Rocky Mountain Wildlife (Chapter 8). Montana Fish, Wildlife and Parks, Kalispell.

Consider establishing capacity and developing a reservation (permit) system.

Developing a permit system is recommended for consideration at some point. The catalyst for the system is overuse at Hellman Park and high use at Turnbull and Hacienda Hills, which are the three most visited trailheads in the Preserve. In particular, the use at Hellman and Turnbull has increased significantly over the past eleven years, despite a parking permit system being in place for the City of Whittier. Implementation of a permit system at one, two or three trailheads will put added pressure and increase use at other trailheads which are close to or at capacity already. As explained earlier, the types of use at Hellman and Turnbull causes habitat fragmentation, widening trails, decreased habitat, studies have shown that intense recreation can negatively affect wildlife, and they are biologically rich and sensitive properties. There are also many new illegal trails in Powder Canyon as well. Putting a cap on visitation levels and increasing awareness we could logically reduce impacts associated with urban stressors to the environment. A permit system would be consistent with the following RMP measures including but not limited to:

Goal BIO-3: Maintain all populations of native plants and wildlife with special emphasis on management of locally uncommon, sensitive, federally-threatened or endangered species and other sensitive resources.

Goal USE-1: Provide a trail system that protects natural resources of the Preserve.

Objective USE-1.8 Implement a trail system that is considerate of adjacent landowner interests as much as possible and consistent with protecting natural, visual, and cultural resources.

Goal USE-2: Enforce protection of the varied resources and promote an enjoyable and safe environment for visitors.

Goal USE-4: Accommodate parking, access points, and trail amenities that maintain the natural character of the land, enhance resource protection and contribute to the enjoyment of open space.

Objective USE-4.2 Seek to provide reasonable access points to eliminate excessive parking and avoid or minimize traffic to the surrounding community.

The RMP allows for an adaptive management approach, one that in part is designed to be flexible enough to allow for change and refinements to the approach for Preserve management as more is learned about ecosystems and the responses of these ecosystems to environmental stressors, including human use. Under this model, management moves forward in a scientifically based way that involves monitoring, conducting targeted studies, and applying management activities as experimental treatments.[1] Conclusions based on general scientific principles can be easily made supporting this action.

[1] RMP, 2007. Page 4

Developing capacity levels for the Preserve, which would be different for each trailhead, should be based on not only parking and traffic but recreational quality (including the feeling of being crowded) and protection of natural resources. Currently, there is a greater urgency for establishing these limits at Hellman Park due to the volume of use and other reasons discussed earlier in this report. This trailhead was not designed for the current level of use, and the natural resources are being impacted.

Capacity could be managed by adopting a permit system at no charge to the public. To implement it the City of Whittier as the owner of the Hellman Park and Arroyo Pescadero properties and the Authority would need to take action approving capacity limits. So if public access is going to be set at a level, it makes sense to tie that user level as necessary to protect the resources.

Examples of setting capacity and implementing a reservation system is typically managed by the size of the parking lot and by hardscape improvements (e.g.: hardening the trails, or installing railings and fences) to the trail system. We would be pioneering something that is not typically done in urban park settings. A somewhat comparable example can be found on state property on the Youghiogheny River in Pennsylvania. They have a reservation system for boating. Thirty people are permitted per hour for private boaters. They can make a reservation for a specific hour of use. This very rough general model could make sense for our Preserve, although our reservations would be based splitting the day in half for two reservation periods. For example, people could pick whether they want a permit from opening until 1 pm, or 1 pm to closing. Another example of a park that implements a day use hiking pass is at Mount San Jacinto State Park and United States (US) Forest. These passes are enforced on the honor system with the chance of a back country ranger citation as a misdemeanor. The State Park Superintendent of this area stated that enforcement has not been a problem, and the passes are extremely instrumental with search and rescue efforts. Furthermore, US Forest day use Adventure passes are required at improved trailheads of the Angeles, Cleveland, Los Padres and San Bernardino National Forests. Additionally, another example of a permit system for day and overnight use is at Eldorado National Forest located west of Lake Tahoe.

If implemented at the Preserve, compliance is expected to be low initially and would take many months to gain a majority percentage of compliance. Unless resources are available to have a "permit taker" at the trailheads, this system may not reach full compliance. Regardless, the numbers of trail users would most likely decline, and in other places where this has been implemented, the community self- regulated and the capacity limits were eventually lifted.[2]

Prior to a significant change in management like this, discussing this topic at public meetings such as at the Authority Board and Advisory Committees is recommended. If an action was taken to implement, public announcements and education about the new system would be needed for at least a month ahead of time, through a variety of avenues: trailhead signage, website posting, social media postings (Facebook, Twitter, Meetup.com), email list mailing notifications, newspaper announcements, and public announcements at various groups and City Council meetings.

[2] Whittaker, Shelby, 2015

Costs for implementing the permit system involve technological development, staff time for public education and ranger time for enforcement.

Permit system		**$ Amount**
	Website design	15,000
	Mobile app creation	15,000
	Law enforcement (8 extra hours daily per month = $15,816) For Hellman, 2 months at least.	31,632
	Law enforcement other trailheads (2-4 extra hours daily per month = $4,000 to $8,000) For other 5 trailheads, 2 months at least	40,000 -80,000
	Signage	1,000
	Unknown and ongoing technology and enforcement costs expected	
	total	**102,632 - 142,632**

The following steps are recommended to happen to implement capacity and a reservation system:

1. Evaluate ongoing biological data
2. Make a finding that setting capacity is necessary with a permit system (Board/Council resolution)
3. Set capacity level at trailheads
4. Conduct a cost analysis, identify funding
5. Offer stakeholder and public input
6. Develop web and mobile based system
7. Educate the public about the change and provide advance notice

Timeline: -an additional set of Authority public meetings
-City Council meeting
-three months website and app development, and concurrent public education

Due to initial enforcement costs, an alternate approach would be to implement this first at Hellman Park for two to six months as a pilot program and monitor effects on other trailheads. This would enable the program could be refined before expanding it to the entire Preserve.

A permit system would contribute to the health of the ecosystem and safety of the Preserve visitors. This action step is consistent with the intent of the RMP and Report Regarding Visitor Management (pages 21 and 26), and addresses wildlife disturbance, trail conditions, parking/traffic congestion, and trail crowding. Also, this action step is exempt from the California Environmental Quality Act.

Permit System – Draft Design

This model would be all electronic, very user friendly, and all free. People could register on their cell phones, computer, over the phone or walk-ins to the office.

People could call one month or one week in advance and have a permit hard mailed if necessary. The majority of passes would be obtainable 24 hours in advance. Others without computers or cell phones could come into the office. Staff could manually add the people into the system.

We would need to set a capacity for each day and trailhead. Half of the permits would be available for opening until 1pm. and half would be available for 1pm until closing.

To accommodate special circumstances of visitors, 30 permits (or some other designated number) could be able to be reserved one month out, 30 permits (or some other designated number) could be reserved one week in advance, and rest (the vast majority) could be reserved 24 hours in advance. Once the cap was met no other permits for that day would be issued.

During the process of getting the permit online, they would fill out their name (required) on the permit, check a box that they understand the Preserve rules and have read them (required), and check a box that they are required to carry identification (ID) with them for verification (required). They would get an email (email address required) confirmation of their permit.

One person could fill out the form for up to 5 permits but they need to submit all other participants' names (required), and emails (not required but recommended) so they each could be emailed the permit and rules. The one person filling out the group pass (which would have all 5 persons' names listed on it) would be responsible for making sure all will have ID with them, or they are all subject to getting a ticket with a fine. A person can only be issued one permit for each day at the most, and it would not be transferable to any other person. (Permits could also limit the number of dogs at particular trailheads.)

Permits would have DAY, TIME (1st or 2nd half of day), NAME(s), instructions for them to have ID when on a trail, trailhead location and address, hours their permit is valid for, a reminder that violations to Preserve rules subject to $1,000 ticket, and agency name.

People could print them out or show their permit to the rangers on their phone via email if asked. Rangers would enforce at the trailhead for anyone coming in or out. Enforceable at random times, at the end of the day, and weekend mornings – at a minimum. People would need to carry identification with them.

A counter would be on the website to show how many permits for each day are left available. Staff could manually add to the list if we want to issue extras on special days, or block off days/times to disable permits. Staff would also have the ability to email those that reserved tickets letting them know about an unplanned Preserve closure (fire hazard day, rain day, etc). Rangers and staff would be able to see this list on line via computer and phone for verification purposes if needed.

Fiscal Impacts		
Management Action No.	**Steps**	**Estimated $ Amount**
#1 Automated gates/company to help with closure		
	Gates design and install at three trailheads (Sycamore [$20,400], Arroyo Pescadero [2 gates, $40,800], and Powder [$24,000])	85,200
	Security company cost savings from discontinuing current contract	(12,600)
	Security company new costs (high estimate). Could be less if rangers opened/closed Hellman and Hacienda the majority of the time.	15,000 - 36,500
	total	**87,600 – 109,100**
#2 Change Preserve hours		
	See above #1 costs	
	Signage	1,000
	Update maps	2,400
	Enforcement - concentrated efforts but no increase in cost	
	total = #1 costs plus,	**3,400**
#3 Control specific trail use		
	Signage	1,000
	Enforcement – concentrated efforts but no increase in cost	
	total	**1,000**
#4 Install portable restroom at Hellman		
	Service restroom 2-3 times a week (annual cost). Daily service would cost $10,200	2,500 – 3,500
	Foundation and enclosure	3,000
	total	**5,500-6,500**
#5 Gnatcatcher survey		
	Hire consultant	30,000
	total	**30,000**
#6 Continue ranger patrol		
	No increase in costs	
#7 Continue to block off illegal trails		
	No increase in costs	

Management Action No.		**Estimated $ Amount**
#8 Temp. closure of Hellman		
	No increase in costs. Will enable rangers to close other gates in more timely manner.	
	Signs	500
	total	**500**
Future Items		
a)Eliminate illegal trails and fix eroded/widened trails, habitat restoration		10,000- 300,000
b)Install permanent bathrooms at Hellman Park		150,000
c)Install improved parking and perimeter fencing and decorative gate at Turnbull		2,000,000
d)obtain more education staff, volunteer coordinating staff, project staff and more ranger hours (up to 100 weekly)	Annual cost	315,000
e)Permit system		
	Website design	15,000
	Mobile app creation	15,000
	Law enforcement (8 extra hours daily per month = $15,816) For Hellman, 2 months at least.	31,632
	Law enforcement other trailheads (2-4 extra hours daily per month = $4,000 to $8,000) For other 5 trailheads, 2 months at least	40,000 -80,000
	Signage	1,000
	Ongoing technology and enforcement costs expected	
	total	102,632 - 142,632