

Request for Proposals & Qualifications

Highway 17 Wildlife Passage Structures and Bay Area Ridge Trail Crossing: Conceptual Design and Feasibility Study Midpeninsula Regional Open Space District St. Joseph's Hill, Sierra Azul, El Sereno and Bear Creek Redwoods Open Space Preserves Santa Clara County, California

Proposals due ~~Thursday~~ Tuesday January 5, 2016 by 3:00 PM



INVITATION

The Midpeninsula Regional Open Space District (Midpen) is pleased to announce the opportunity for a qualified engineering or architectural consulting team to conduct a conceptual design and feasibility study for new wildlife crossing structures or retrofit of existing structures through the span of Highway 17 in Santa Clara County, California (See Figure 1). The target species for this wildlife crossing are mountain lion (*Puma concolor*) and mule deer (*Odocoileus hemionus*). To be included in this effort is the conceptual design of a multi-use (pedestrian, equestrian, cyclist, and dog accessible) Bay Area Ridge Trail crossing to improve public access in the South Bay Foothills (See Figure 2).

Midpen has been working with local experts to scientifically understand wildlife movements through possible corridors within the larger, Lexington Reservoir study area which includes El Sereno, Sierra Azul, St. Joseph's Hill and Bear Creek Redwoods Open Space Preserves. The California Department of Transportation (Caltrans, District 4) maintains this span of Highway 17 and the associated culverts which have been the focal point of the wildlife connectivity study and are partners in the development of this project. Midpen has budgeted approximately \$100,000 for this conceptual design and feasibility study.

The selected consultant or consulting team will require engineering, wildlife, and regulatory expertise and should be able to develop creative design solutions that meet project goals and protect natural resources. Note: this project is separate from the Laurel Curve wildlife crossing project on Highway 17 in Santa Cruz County, though participants are important project partners.

ABOUT MIDPEN

The Midpeninsula Regional Open Space District, located on the San Francisco Peninsula, owns and manages approximately 63,000 acres of land in 26 open space preserves ranging in size from 55 to more than 15,000 acres. Midpen's purpose is to acquire, permanently protect, and

Figure 138. Santa Cruz Mountains - Diablo Range Linkage Design



FIGURE 1.

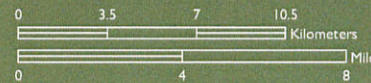
Data Sources: CalTrans, CalFish Passage Assessment Database



In Partnership with the San Francisco Upland Habitat Goals Project



1:300,000



Map Produced by SC Wildlands

20

South Bay Foothills:

Wildlife Passage and Bay Area Ridge Trail Improvements

FIGURE 2.



Provide safe corridors for mountain lions across Hwy. 17. Establish Bay Area Ridge Trail crossing.



Goals Accomplished by This Action

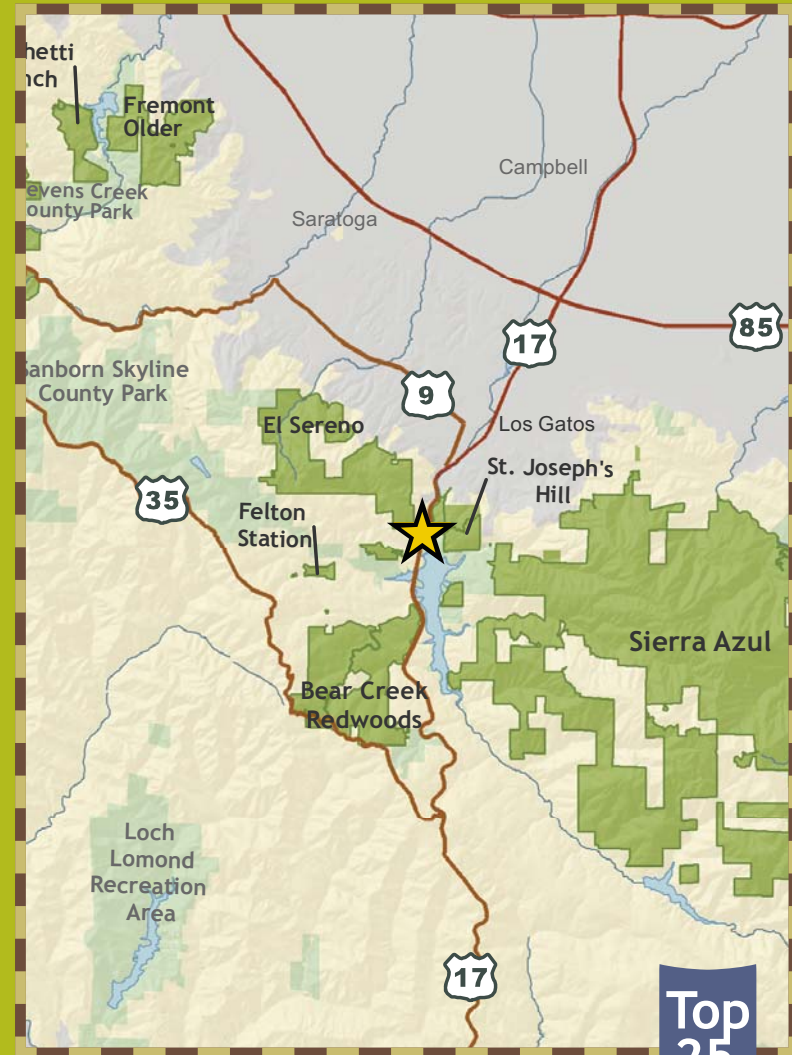
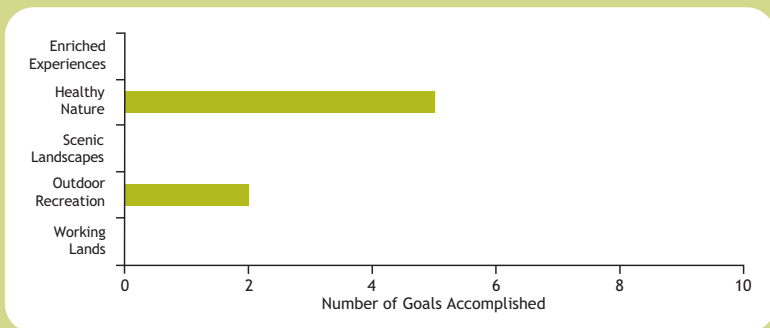
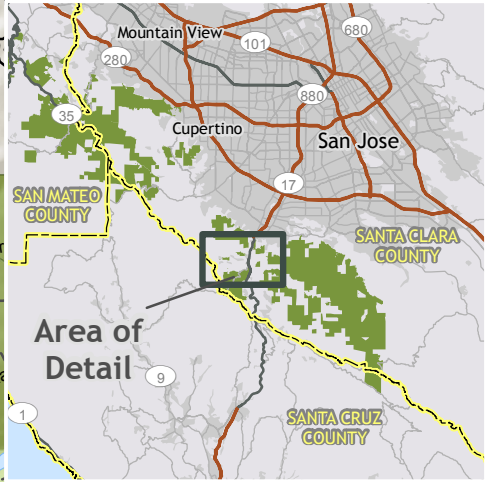
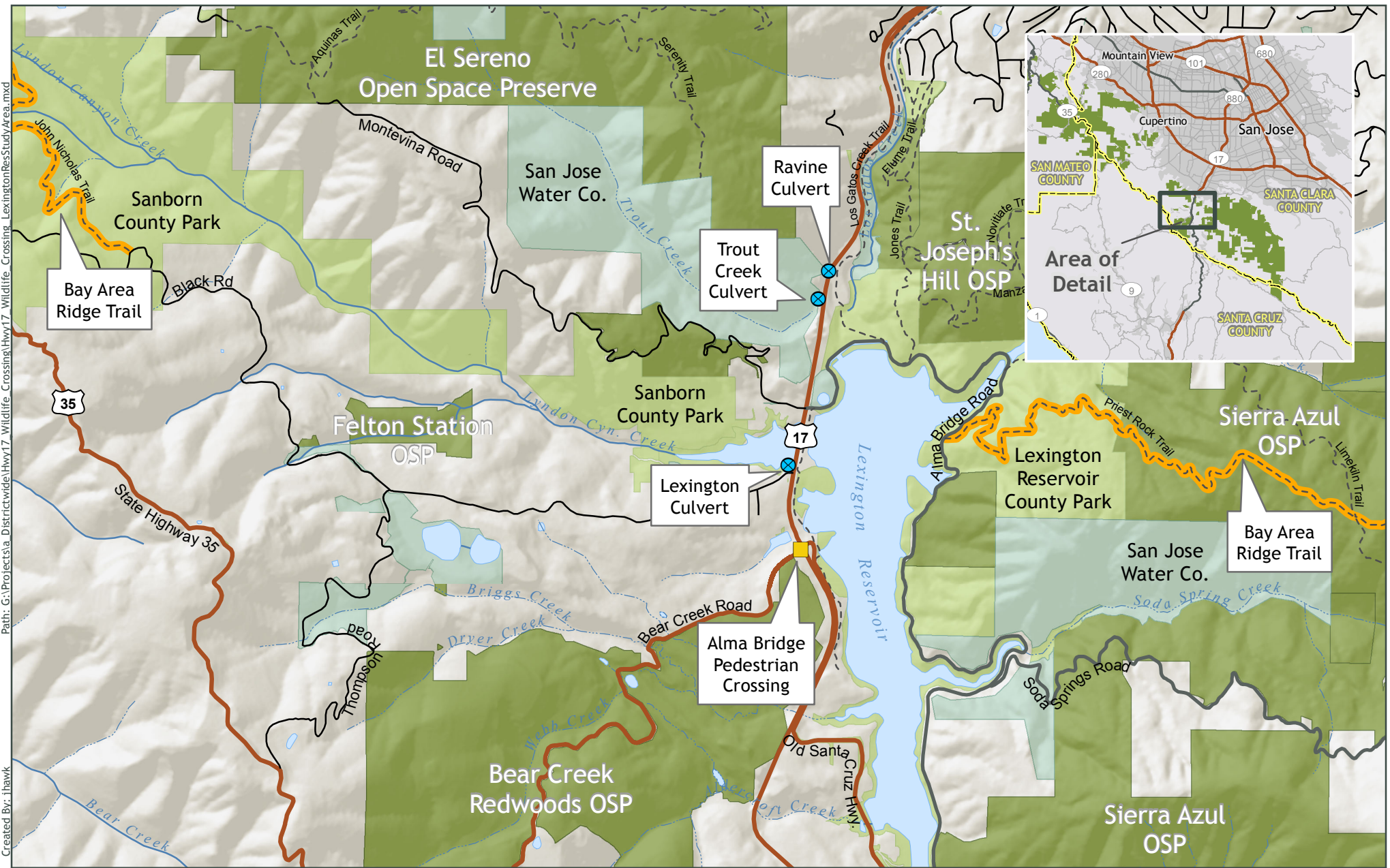


FIGURE 3.



Lexington Reservoir Study Area: Existing Crossing Structures & Bay Area Ridge Trail

- MROSD Land
- Protected Land
- Private Watershed Land
- Private Property
- Culvert
- Pedestrian Bridge
- Bay Area Ridge Trail

Midpeninsula Regional Open Space District (MROSD)



September, 2015

While the District strives to use the best available digital data, this data does not represent a legal survey and is merely a graphic illustration of geographic features.

Path: G:\Protect\sa_Districtwide\Hwy17_Wildlife_Crossing_LexingtonResStudyArea.mxd Created By: jhawk

FIGURE 4.

Photos taken from Highway 17 Wildlife Crossing Plan prepared for MROSD by T. Diamond, Z. McDonald, F. Shilling



Figure A1: Concrete median in Highway 17, north view.



Figure A2: Concrete median in Highway 17, south view.



Figure A6: Site where Puma was hit at southbound Hwy 17 on 2-9-2011, northbound view.



Figure A7: Site where Puma was hit at southbound Hwy 17 on 2-9-2011, southbound view.

restore lands forming a regional open space greenbelt. The preserves are generally kept in a natural condition in order to protect their ecological integrity and habitat, and are developed with only those amenities needed for low-intensity recreation, such as signed trails for hiking, bicycling, and equestrian use, restrooms, gravel parking areas, and an occasional bench or picnic table. The preserves are open to the public year round and contain many diverse ecosystems including redwood, oak, and fir forests, chaparral-covered hillsides, riparian corridors, grasslands, and shore frontage along San Francisco Bay.

Midpen was created through the efforts of local conservationists who succeeded in placing a voter initiative on the ballot in Santa Clara County 1972 and in San Mateo County in 1976. In 1992, Midpen annexed a small portion of Santa Cruz County and so became the only tri-county park or open space district in the state. In 2009, Midpen annexed an area of the San Mateo County coast running south of Pacifica to the Santa Cruz County line. Inspired by the vision of a regional greenbelt linking Midpen preserves to other public parklands, Midpen has been, and continues to be, an active participant in the creation of the Bay Trail and the Bay Area Ridge Trail. Visit www.openspace.org for more information about Midpen.

PROJECT DESCRIPTION

LOCATION

Highway 17 in Santa Clara County becomes a winding, four-lane road from the interchange with Highway 85 in Los Gatos through the southern, Santa Cruz Mountains until the Santa Cruz County line at Patchen Pass. Highway 35 intersects Highway 17 at the 1800' summit. The two northbound and two southbound lanes along this span of Highway 17 are separated by a concrete median at a height of 4-5 feet. There are short breaks in the median at a few locations that allow access to local roads and businesses, including the Cats Restaurant and Tavern near the town of Los Gatos. Within the study area Ravine, Trout Creek and Lexington culverts pass under the highway. Alma Bridge Road, a two-lane bridge with a pedestrian walkway, passes over the highway near the study area. Land adjacent to the highway is largely open space and includes the protected lands of Santa Clara County and Midpeninsula Regional Open Space District as well as the lands of San Jose Water Company (See Figure 3). The habitat consists of grassland, riparian, redwood forest, and scrubland vegetation with some steep portions both inclining and declining from the sides of the highway (See Figure 4).

BACKGROUND

Habitat fragmentation threatens wildlife by directly restricting access to resources and creating population separation which can compromise gene flow (Penrod et al. 2013). Safe passages for wildlife have become increasingly important in connecting expanses of habitat across roadways and pockets of development. The South Bay Foothills and Santa Cruz Mountains are ideal habitat for mountain lion and mule deer, which are the main food source for mountain lions. In addition, vehicle collisions with animals have been identified as one of the main causes of wildlife mortality in the United States (Forman 2003), and are dangerous for motorists. From Caltrans' road kill data (2000-2011), wildlife connectivity researcher Tanya Diamond determined that from the town of Los Gatos to Patchen Pass, approximately 207 animals have been hit and killed on Highway 17 in the past several years including 8 mountain lions and 158 mule deer.

In September 2013, Midpen, Peninsula Open Space Trust (POST) and Tanya Diamond from Pathways for Wildlife created a core project group with partners (Caltrans, University of

California, Santa Cruz (UCSC) Puma Project, Santa Clara Valley Transportation Authority, Santa Clara County Parks, and California Department of Fish and Wildlife to identify the ideal location for a wildlife crossing structure on Highway 17 in Santa Clara County.

Pathways for Wildlife used four types of information to determine a possible location for a wildlife crossing under Highway 17 in Santa Clara County: 1) modeling from UCSC Puma Project and Penrod et al.'s (2013) Bay Area Critical Linkages; 2) road kill surveys and Caltrans animal-vehicle collision data; 3) mountain lion GPS collar tracking from UCSC Puma Project; and 4) wildlife camera monitoring at the existing Lexington, Trout Creek and Ravine culverts (See Figure 3 and page 5 of Attachment 1). In March 2015, Pathways for Wildlife recommended two locations with preliminary design considerations: Trout Creek culvert and Lexington culvert as well as the stressing the importance of long term plans for directional fencing maintenance and the management of vegetation to provide clear visibility for wildlife through the culverts (See Attachment 1 & downloadable document: Research History).

This research is ongoing and Pathways for Wildlife will be working with the selected consultant directly. In addition, biologists and engineers from Caltrans District 4 will be providing expertise and Nancy Siepel from Caltrans District 5, a Mitigation and Wildlife Connectivity Specialist, is a scientific advisor on the project.

There has been no preliminary research conducted by Midpen on the Bay Area Ridge Trail crossing for improving public access in the South Bay Foothills. See Figure 3 for the current location of the Bay Area Ridge Trail.

Works Cited

Forman R.T., Clevenger A.P., Sperl D., and J.A. Bissonette. 2003. Road Ecology Science and Solutions. Washington, D.C. Island Press.

Penrod K., P.E. Garding, C. Paulman, P. Beier, S. Weiss, N. Schaefer, R. Branciforte, and K. Gaffney. 2013. Critical Linkages: Bay Area and Beyond. Produced by Science and Collaboration for Connected Wildlands, Fair Oaks, CA in collaboration with the Bay Area Open Space Council's Conservation Lands Network.

Additional Information: Safe Passages by American Wildlands (See downloadable document: Other Projects Reference pp. 1-16)

PROJECT OBJECTIVES

An assessment of the conceptual design possibilities for the wildlife and Bay Area Ridge Trail crossings is needed for Midpen to plan implementation of these complex improvements. For the wildlife crossing component, the selected consultant will be tasked with designing a concept level plan to reduce wildlife mortality and improve permeability for wildlife on Highway 17 between Los Gatos and Lexington Hills. With a primary focus on mountain lion and deer and a secondary focus on other wildlife, recommendations should be based on Pathways for Wildlife research, literature related to wildlife crossings, engineering documents for the existing structures, and existing wildlife crossing projects (See downloadable document: Other Projects Reference pp. 17-239, Wildlife Crossing Structure Handbook). The selected consultant will also produce feasible options for combining the Bay Area Ridge Trail crossing with new construction or use of existing facilities and will provide suggestions for areas of possible further research.

Being a crucial highway, this project necessitates partnerships with Caltrans and other involved agencies not only for the permitting and construction process but also for long-term maintenance. A conceptual design and feasibility study will help Midpen to understand: what the construction possibilities are, what steps need to be taken, and how interested parties can be involved. This project is part of Midpen’s Vision Plan Top 25 portfolios and the list of projects identified for funding through the successful Measure AA General Obligation Bond ballot measure passed by voters in 2014 (Attachment C and Figure 2). The results of the study are to generate a timeline and overall context for project completion and to assist Midpen in preparing early cost estimates to complete the proposed conceptual designs.

Project Term: Winter 2016 - Summer 2016

SCHEDULE for RFP deadlines	DATE
Request for proposals released	Tuesday Nov. 10, 2015
RSVP for site tour by 3:00 pm	Tuesday Dec. 1, 2015
Mandatory pre-proposal site tour	Wednesday Dec. 2, 2015
Deadline to pose Questions, 3:00 pm	Monday Dec. 7, 2015
Final responses & addendum release	Wednesday Dec. 9, 2015
Proposals due by 3:00 pm	Tuesday Jan. 5, 2016
Notice of interview	Monday Jan. 11, 2016
Interviews	Tuesday Jan. 19, 2016
Award of Contract (at the latest)	Thursday Feb. 18, 2016
Project completion (approx.)	Wednesday Aug. 31, 2016

ANTICIPATED SCOPE OF SERVICES

1) Literature Review

- Review the existing information regarding research conducted in the study area by Pathways for Wildlife and partners including the initial report from December 2012, the most recent report from 2014 (See downloadable document: Research History) and summary with recommendations from 2015 (Attachment 1).
- Review included and outside literature for wildlife crossing structure implementation used in other projects and those that specifically address mountain lion/large predator and deer/large ungulate crossings (See downloadable document: Other Projects Reference).
- Research design inclusions for other wildlife known to already use the existing structures: small and medium mammals – bobcat, fox, skunk, coyote and those that could be using

the current and future crossing structure: birds, amphibians, reptiles and fish (See downloadable document: Other Projects Reference pp. 17-239, Wildlife Crossing Structure Handbook).

- Review documents available at Caltrans such as the as-built plans for the existing culverts and the Highway 17 Laurel Curve, Project Initiation Document (PID).

2) Hydrological/ Geotechnical Investigation

- Determine if the existing crossing structures within the project area deemed possible possibly useable for the proposed crossings are properly sized and placed to meet desired flow of water and whether they are in need of structural repair (Table 1).
- Make recommendations for a hydraulic design engineer.
- Review Caltrans Highway Design Manual – Chapters 800 to 890 for an understanding of Caltrans design requirements:
http://www.dot.ca.gov/hq/oppd/hdm/pdf/english/HDM_Complete_07Mar2014.pdf, begins page 441
- Midpen can provide streams extracted from Lidar and 1 foot contours generated from Lidar data collected at 5 foot horizontal resolution.

Table 1.

Crossing Structure	Type of Road Crossing	Floor	Water flow	Vegetation in culvert or under bridge	Material: concrete, metal, other	Width (feet [ft])	Height	Length (meters)
Ravine culvert	box culvert	concrete	perennial	none	concrete	4 ft	4 ft	
Trout Creek culvert	box culvert	concrete	perennial	none	concrete	5 ft	5 ft	105
Lexington culvert	pipe culvert	metal	intermittent	none	metal	10 ft	10 ft	60
Alma Bridge	bridge	concrete	none	none	concrete	200 ft	57 ft 2 in	

Adapted from: Highway 17 Wildlife Crossing Plan, 2012 (downloadable document, Research History pp. 1-32)

OPTIONAL Tasks for Hydrological/ Geotechnical Investigation- Please provide a cost estimate of these recommended items for a more detailed study but not guaranteed to be needed at the conceptual level or included in the final contract:

- Develop an understanding of the site hydrology (watershed maps with areas, rainfall intensities, runoff coefficients, time of concentration, etc.)
- Assess cross-drainage characteristics and consider physical standards for culverts such as: culvert material type and shape, Mannings coefficient, abrasion resistance, corrosion, design service life, height of fill/cover, etc.
- Geotechnical conditions: faults, groundwater, slope stability and existing structural material/ soil and how they influence design

OPTIONAL detail to be considered for Conceptual-level plans being taken into the next phase of the project though this level of detail may not yet be included at this stage of the

process. To aid in working with Caltrans, Caltrans engineers recommend that survey information be laid out on different layers in CADD format such as topographic and elevational data. Preliminary use of the CADD format for drawings facilitates the incorporation of information later in the design process. More detailed recommendations also include: the layout of all facilities, drainage features, roadways, etc. Consideration of utilities, right-of way/easements, traffic flow patterns, and traffic closure times. List constructability, operational, geometric and environmental constraints. CADD data should be georeferenced for use by Midpen.

3) Permitting and Preliminary Environmental Analysis

- Address the state and federally endangered species in the area and the requirements of regulatory agencies – USFWS and CDFW.
- Quantify habitat modification and develop plan for CEQA and NEPA compliance as well as US Army Corps of Engineers, Water Quality Control Board, county permits such as Santa Clara County grading and fire safe regulations.
- Develop a list of other legal and statutory approvals needed for the project.

4) Design Options

- Assess the potential to re-use existing facilities for wildlife passage as well as the multi-use, Bay Area Ridge Trail crossing (Ravine, Trout Creek and Lexington culverts and Alma Bridge from Table 1 above) rather than building new facilities.
- Create wildlife undercrossing design options that directly address wildlife mortality for mountain lions and deer on Highway 17 between Los Gatos and Lexington Hills as well as possible use by any identified special status species occurring within the area.
- Include directional fencing plans and specifications for target species. Identify if culverts may be utilized by non-target species.
- Include recommendations and conceptual designs for escape ramps to incorporate into the fencing design.
- Include or create separate conceptual design options for the Bay Area Ridge Trail crossing for recreation. Determine if the Bay Area Ridge Trail crossing could occur concurrently with identified wildlife crossings or if the recreational use requires an additional crossing.
- Conceptual-level plans should be site specific and therefore directly applicable to the details of the project area rather than a conceptual plan taken from literature, a manual or another project.

5) Cost estimates

- Rough Order of Magnitude (ROM) estimate of costs for the proposed conceptual design options and the alternatives such as the estimation for the determined best option and then what the ROM cost estimates would be for alternative design options
- Suggest possible funding opportunities

6) Project Risk Management planning

- List risks and propose appropriate responses.
- Assess operational and maintenance issues.

7) Final report

- Recommend the best option or combination of options to meet project objectives
- Provide a scope of work for construction of the proposed wildlife passage structures and recreational access
- Provide a conceptual project timeline for project implementation and completion (such as through the use of Gantt chart)
- Outline alternatives and the pros and cons of these conceptual designs when compared to the determined, best conceptual design for meeting project objectives
- Include any rejected alternatives and justification for rejection

8) Address any questions or comments, work with agency partners

- Interact with researchers and Caltrans employees in addition to Midpen staff
- Be available for questions and final report modifications based on input from Midpen, Pathways for Wildlife, Nancy Siepel, POST, and Caltrans engineers and biologists

For selected consultant, Midpen will provide any requested GIS information that is currently present in Midpen databases for example: vegetation, geology, LIDAR and any of the attachments and documents listed so far.

The selected consultant will provide findings prepared in formats PDF, geo-referenced CADD files and GIS files (GIS files preferred within Midpen) that can be readily shared and used and organized in a way that is consistent with the long-term needs of the project.

Attendance at a pre-proposal site tour is required and will take place at 10:00 AM on December 2, 2015 for 2 hours until 12:00 PM. The Lexington study area can be difficult to access and an escorted site visit will be provided to prospective consultant firms. The visit will be led by Pathways for Wildlife, the researchers who regularly access these areas for placement of wildlife cameras and road kill surveys. **RSVP is mandatory and must be received by 3:00 pm on December 1, 2015. RSVP to lhernandez@openspace.org.** Once your RSVP is received, a confirmation of attendance will be sent as well as directions, an agenda, and meeting time and location.

PROPOSAL CONTENTS

Please keep proposals to no more than ten (10) double-sided pages (the 10 double-sided pages or 20 single-sided pages can be formatted in whatever way potential proposers prefer but should be readable), not including qualifications and professional resumes and they must contain the following information:

1) A description of how the firm intends to conduct the anticipated scope of services, including a detailed list of the necessary tasks to complete the project:

- Identify the necessary aspects of analysis for this feasibility study
- Identify processes for evaluation and preparation of conceptual level design options
- Identify tasks for report, cost estimate, permitting and risk analysis preparation
- Recommend further hydrological and geotechnical investigations

2) Personnel and qualifications

- Professional resume detailing the education, work-related experience, professional memberships or awards that uniquely qualify each person identified to successfully complete the project.
- A list of each person involved and their role(s) in completing the project. Identify the personnel who will perform each task by phase and the number of hours estimated to complete each task. Please identify any sub-consultants and their tasks, if any.
- An organization chart for the study team showing the names and roles of the key personnel assigned. Please indicate primary contact for the study.
- A statement from key personnel of their time commitment to complete the project.
- Qualifications: Engineering licenses and inclusion of a landscape architect preferred.

3) Previous experience

- Please provide a detailed list of wildlife crossing or other related road improvement projects and projects involving wildlife and recreation opportunities that your team has studied and designed. Please provide a name and telephone number of a client contact for each job cited.
- Include descriptive information such as the character of the project, the scope of involvement, location of the project, and completion of the project. Project teams are encouraged to include illustrations or photographs of work designed and/or developed by team members.
- Provide a description of the firm's method of, and experience in, controlling project costs and schedules.
- Provide examples of interagency coordination and management of a project with multiple agencies at the table, especially transportation, resource management and/or recreation agencies.
- Caltrans design experience

4) Provide a statement of the firm's acceptance of the Midpen's insurance and indemnifications requirements or any reservations the firm has with the requirements.

- Please see attached Midpeninsula Regional Open Space District Standard Agreement for Professional Services including Insurance Requirements (See Attachment 2).

5) Project fee

- Provide a detailed estimated fee proposal that is divided by tasks. Should include all anticipated reimbursable expenses as separate line items, the rates of the people performing the work (please identify tasks to be performed by sub-consultants), and a standard hourly rate schedule.
- Provide a description of the key assumptions used to calculate the project fee.
- If appropriate, identify cost saving strategies as well.

SELECTION PROCEDURE

Midpen will select a consultant based on the responsiveness of the proposer to the RFP and information contained in the proposal. Ranking criteria for selection will include the firm's experience and demonstrated success with similar projects, **particularly working with wildlife corridors, wildlife crossing designs for focus species, Caltrans, and modifications to pre-existing highway structures.** Important selection criteria also includes: the quality of the firm's

work, the proposed methods and approach to the project, the qualifications of the specific personnel who will work on the project, the amount of time key personnel will be involved in their respective portions of the project, and the ability of the firm to provide appropriate insurance in adequate amounts. The proposed fee and overall cost effectiveness of the proposal will be evaluated after an initial ranking of the qualifications of each firm submitting a proposal.

Midpen may contact firms to clarify items contained in their proposal. Following review of the proposals submitted, selected consultants will be notified for the **opportunity to interview with Midpen by Monday January 11, 2015. Interviews will take place the following week on Tuesday January 19, 2015.** The selection of the consultant will not be based solely on the lowest bid received; Midpen intends to select the best overall proposal package to achieve the project goals. Midpen will make a recommendation to the Board of Directors for approval of the consultant contract.

REQUESTS FOR ADDITIONAL INFORMATION AND QUESTIONS

Specific questions related to the RFP must be addressed in writing to Midpen except at the pre-proposal site tour where questions and answers will be recorded. Questions and answers will then be distributed to prospective proposers who attended the mandatory site tour. Additional and updated information will be provided to the teams via email. Please submit all requests to: Christina Yunker, cyunker@openspace.org.

The deadline for prospective proposers to submit questions is **Monday, December 7, 2015 by 3:00 pm.**

GENERAL STIPULATIONS

Midpen is not responsible for any expenses which proposers may incur in preparing and submitting the proposal. Midpen will not be liable for any costs incurred by the proposers that are related to the RFP process; this includes production of the proposal, interviews/presentations, travel and accommodations. Midpen reserves the right to request or negotiate modifications to the proposals that are deemed appropriate. All proposals received from proposers in response to this Request for Proposal will become property of Midpen and will not be returned to the proposers. In the event of contract award, all documentation produced as part of the contract will become the exclusive property of Midpen. Midpen reserves the right to reject any and all proposals and to waive minor irregularities. Midpen also reserves the right to seek new proposals or re-advertise if responses have not been satisfactory or for any other reason.

PUBLIC RECORDS AND PROPRIETARY INFORMATION, INDEMNIFICATION

Midpen recognizes that proposers will occasionally believe that all or portions of their proposals are confidential or proprietary. This can present problems in participating in a public agency RFP process. All proposals, strategies, supporting information, rate schedules and other information and documents are presumptively public records under the California Public Records Act (Gov't Code section 6250 et seq.), subject to prompt disclosure upon request by any member of the public.

Midpen is not soliciting, does not wish to receive, and will not treat any information received under this proposal as proprietary or confidential information, unless specifically called for or expressly accepted by Midpen General Counsel in writing, and will be accepted and

considered only when, in the sole discretion of Midpen it is necessary to serve the public purpose of the project. If the inclusion of confidential or proprietary information is determined to be necessary to the proposal, proposers must identify each and every specific item and each and every page, and segregate the information into a separate envelope or electronic file labeled conspicuously as confidential, with a cover page describing the information and applicable law exempting the same from disclosure. Any material marked or claimed as confidential or proprietary may be returned to the proposer by Midpen or destroyed and may not be considered in the review of proposals if the claim does not appear justified or would inhibit the public purposes of the project proposed.

If the documents have been properly marked and expressly accepted as confidential and proprietary in writing by Midpen General Counsel, Midpen will make its best effort to advise the proposer of any Public Records Act request, should any be received, seeking documents claimed to be confidential or proprietary, to give the proposer an opportunity to take legal steps to protect such property from disclosure to third-party requester. Midpen expressly disclaims any duty and will not defend the confidentiality or proprietary nature of any information submitted. By submitting any confidential or proprietary information to Midpen, the proposer agrees to hold harmless and indemnify and defend Midpen and its officers, employees, and agents for any and all costs, including attorneys fees, incurred by Midpen or awarded to a Public Records Act requester relating to a request for release of proposer's data should the proposer ask the information to be handled as proprietary or confidential.

PROPOSAL DEADLINE

Each respondent is required to submit three (3) written copies and one (1) electronic copy (either by email, Dropbox, or on a USB key) of the proposal to Midpen, by **3:00 pm on Tuesday January 5, 2016**. Midpen at its sole discretion may grant an extension to all candidates if circumstances require additional time. Responding teams should assume that Midpen may initiate discussions simultaneously with all respondents. Proposals will be received at the following address:

Christina Yunker, Natural Resources Department, Resource Management Specialist 1
Midpeninsula Regional Open Space District
330 Distel Circle
Los Altos, CA 94022-1404
(650) 691-1200
cyunker@openspace.org

LIST OF SUPPLEMENTAL MATERIALS

Attachments

- A. Lexington Study Area: Highway 17 Fact Sheet, Pathways for Wildlife 2015
- B. Midpen's Standard Agreement for Professional Services including Insurance requirements
- C. Midpen's Vision Plan Conservation Atlas pp. 16-17, habitat connectivity

Downloadable documents available on Midpen's website:

<http://www.openspace.org/about-us/district-administration/bids>

- 1. Other Projects Reference

Pages. 1-16: Safe Passages

Pages. 17-239: Handbook of Wildlife Crossing Structures

2. Research History

Pages 1-32: Highway 17 Wildlife Crossing Plan, Pathways for Wildlife 2012

Pages 33-47: Highway 17 Wildlife Connectivity Plan, Pathways for Wildlife 2014

Suggested reference

Caltrans Highway Design Manual – Chapters 800 to 890

Begins page 441

http://www.dot.ca.gov/hq/oppd/hdm/pdf/english/HDM_Complete_07Mar2014.pdf,



Mountain lion hit on Highway 17

Hwy 17 Wildlife Connectivity

Project Fact Sheet:

Lexington Study Area



Wildlife Populations & the Effects of Habitat Fragmentation

The Santa Cruz Mountains are becoming increasingly isolated by habitat fragmentation due to roads and housing developments, which is making it more difficult for wildlife to travel in and out of the mountain range.

To maintain healthy wildlife populations, animals need to be able to:

1. Find resources such as food and water.
2. Find mates to maintain genetically viable populations.
3. Juveniles need to disperse out of their parental home range and establish their own territory.

A Need for Safe Passage for Wildlife & Automobiles on Highway 17

Animal vehicle collisions are one of the leading causes for wildlife mortality in the United States (Road Ecology 2003). **A total of 207 animals** have been hit on Highway 17 in the past 7 years from the town of Los Gatos to the Summit (Caltrans roadkill data 2000-2011, Pathways for Wildlife). Roadkill within the Study Area includes bobcat (8), coyote (5), mule deer (147), gray fox (4), mountain lion (8), opossum (4), raccoon (23), red fox (1), and skunk (7).

One reason for a high rate of roadkill incidents is that **Highway 17 currently lacks the appropriately designed structures (culverts and bridges) for animals to cross underneath or over the highway.**

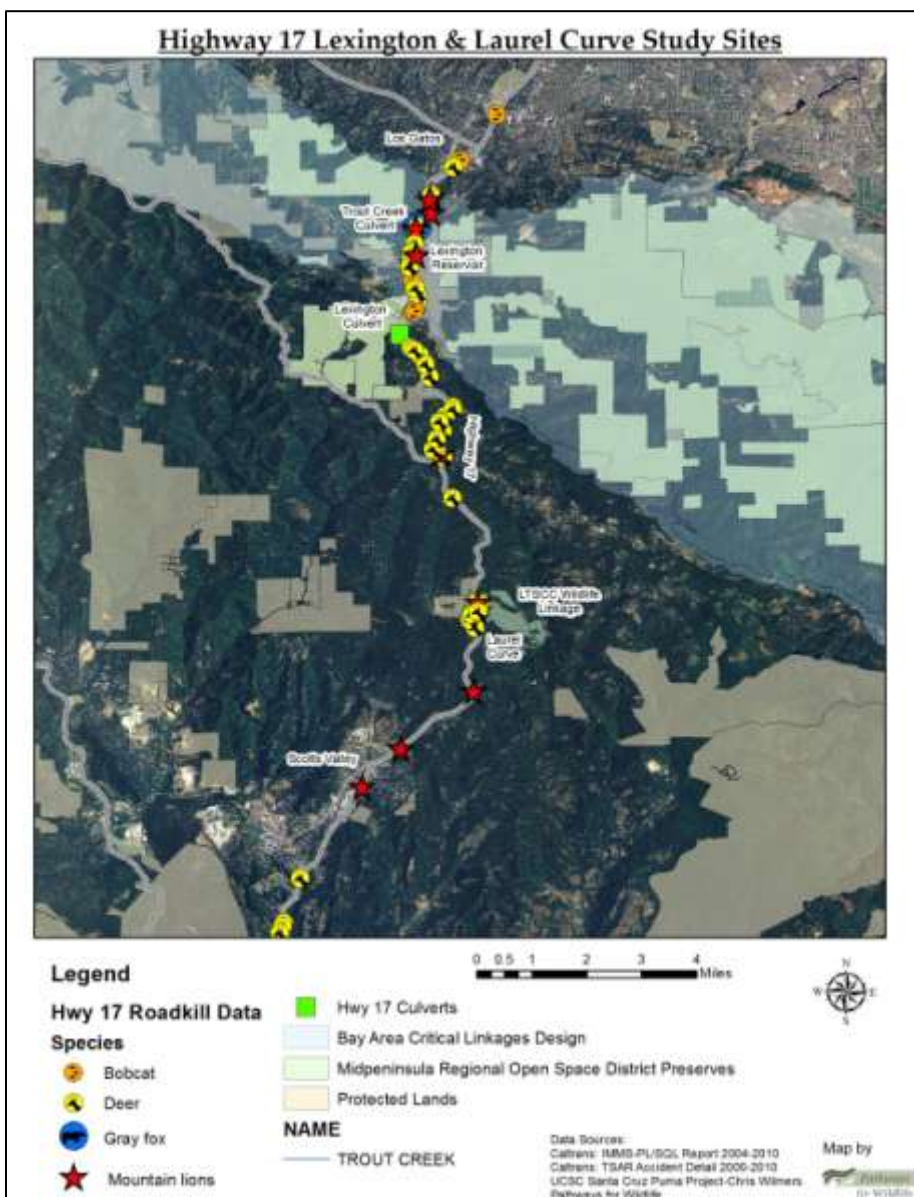
Project Objectives & Partners

In September 2013, Midpeninsula Regional Open Space District (MidPen), Peninsula Open Space Trust (POST) and Pathways for Wildlife joined as project partners to work with collaborators: Nancy Siepel at Caltrans District 5, the UC Santa Cruz Puma Project, Ann Calnan at Santa Clara Valley Transportation Authority, Santa Clara County Parks, and the Department of Fish and Wildlife to identify the best location for a wildlife crossing structure on Highway 17 in Santa Clara County for animals to use to safely cross the Highway.

Determining the Location of a Wildlife Crossing Structure

Four Types of Data used to Inform where to Install an Undercrossing:

1. **Modeling from the UCSC Puma Project & Bay Area Critical Linkages:** both models found Trout Creek to be an important location for wildlife to move from the Santa Cruz Mountains into the Sierra Azul and Diablo Ranges.
2. **Caltrans Roadkill Data & Roadkill Surveys.**
3. **UCSC Puma Project: Radio Collar Data.**
4. **Camera monitoring Data at 3 existing culverts:** Lexington Culvert, Trout Creek Culvert, and the Ravine Culvert.



The majority of the collared mountain lions from the UCSC Puma Project that were able to successfully cross over Highway 17, **crossed in the Lexington Study Area**. Two different mountain lions, called 11F and 26M, crossed Highway 17, with a total of 6 different successful crossings at the Lexington Study Area. However, 3 mountain lions have been hit by cars where these mountain lions had successfully crossed.

This data indicates locations in which mountain lions will most likely continue to try and cross the highway (Wilwers pers. com 2013).

The majority of animals that have been hit on Highway 17 in Santa Clara County have been hit between the Cats Restaurant and Bear Creek

overcrossing. This location is considered a **road kill hot spot**, where multiple species of animals are consistently hit on the highway, making it a dangerous location for both wildlife and drivers.

Highway 17 Culvert Data: collected from November 2013- March 2015

A. Trout Creek

1. At Trout Creek, **70 detections of deer approaching the culvert have been recorded. However, the deer all looked into the culvert and then walked away.**
2. Trout Creek culvert **does not have the visibility to the other side** that animals need to use it (Safe Passages 2010).

Animal	Cross through Culvert: Yes	Cross through Culvert: No	Total by Species
Bobcat	0	2	2
Deer	0	70	70
Gray fox	0	51	51
Opossum	0	2	2
Raccoon	14	163	177
Skunk	2	8	10
Total	16	296	312

Chart 1: Trout Creek Culvert Northbound Data Results



B. Lexington Culvert: Only medium size animals have been recorded using this culvert. The culvert **lacks the appropriate cover in terms of vegetation** on either side for deer and mountain lions to use it.

Animal	Cross through Culvert: Yes	Cross through Culvert: No	Total by Species
Bobcat	43	9	52
Deer	0	5	5
Coyote	0	2	2
Gray fox	133	54	187
Raccoon	83	25	108
Red fox	28	8	36
Skunk	291	49	340
Total	578	152	730

Chart 2: Lexington Culvert Northbound Data Results



C. Ravine Culvert: 7 deer, 1 bobcat, and 1 gray fox were recorded walking along the top of the culvert and did not approach the culvert. These animals were walking alongside the highway.

Wildlife Crossing Structure: installation of a 10'h by 20'w box culvert at Trout Creek

Summary and Recommendations

1) Trout Creek Culvert: The data collected from this project **has identified the ravine in which Trout Creek runs underneath Highway 17, as the best location in which to install a wildlife crossing structure.** The installation of a 10'h by 20'w box culvert with directional fencing to guide animals to the crossing structure would greatly enhance the ability for wildlife to safely cross under Highway 17 and provide an ideal solution for preventing animal-vehicle collisions at this location. This win-win

solution would also help maintain healthy animal populations by increasing the ability for genetic flow to occur between populations.

2) Lexington Culvert: Level out the floor of the culvert by adding in fill such as soil & gravel to provide better footing. Plant vegetation rows at the ends of the culvert to provide more cover for animals to travel along to the culvert.

For more information about the project, please contact: Tanya Diamond at
tanya@pathwaysforwildlife.com.



Hwy 17 Wildlife Connectivity Study Culvert Data



Gray fox at Lexington Culvert



Bobcat at Lexington Culvert



Trout Creek Culvert: Deer approaches culvert & then leaves.



Deer investigating Trout Creek Culvert



Two Gray fox at Trout Creek Culvert

Troubling Pa Prints



Mountain lion cubs. Genetic diversity is becoming a problem among puma populations near urban centers.

<p>POST A FIELD NOTE (HTTP://SANTACRUZ.HILLTROMPER.COM /MODAL FORMS /NOJS/LOGIN) </p>	<p>UPLOAD A PHOTO (HTTP://SANTACRUZ.HILLTROMPER.COM /MODAL FORMS /NOJS/LOGIN) </p>	<p>EMBED A VIDEO (HTTP://SANTACRUZ.HILLTROMPER.COM /MODAL FORMS /NOJS/LOGIN) </p>
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Read on if you're interested in mountain lions, pumas, California, genetic diversity, Land Trust of Santa Cruz County, Santa Cruz Puma Project, wildlife underpass

Jan. 9, 2014—Researchers are finding signs of inbreeding in Southern California mountain lions whose natural territory has been encroached upon by urban growth, highlighting a problem that local environmentalists are seeking to head off with a new wildlife underpass.

Read about a [planned mountain lion crossing beneath Highway 17](#).

A wildlife expert with the Santa Monica National Recreation Area reports that preliminary DNA tests of three mountain lion kittens born last month in the Santa Monica Mountains show they are the offspring of an adult male [mountain lion](#) and his daughter. The pair produced two other kittens in 2012. According to the [Lompoc Record](#) (http://www.lompocrecord.com/news/state-and-regional/inbreeding-found-in-s-california-mountain-lions/article_7e1e1c5d-7a5f-56eb-a6f5-9d14f449de4c.html), a dozen mountain lions call the area home, but urban development has hemmed it in and Highway 101 has bisected it. Young males unable to leave the territory—such as the one that managed to cross eight lanes of traffic in October only to fall short of crossing a 10-foot wall and be killed by a car—are likely to be killed by older males. When they are able to, male pumas establish territories as large as 200 square miles, according to Chris Wilmers, director of the [Santa Cruz Puma Project](#) (<http://santacruzpumas.org/>).

Seth Riley of the Santa Monica Mountains National Recreation Area says "their movements are totally circumscribed by the freeway." The recreation area, along with state parks, the Santa Monica Mountains Conservancy and CalTrans want to build a

wildlife underpass in the Agoura Hills. The price tag is estimated at \$10 million.

In Santa Cruz County, a wildlife corridor beneath Highway 17 is inching toward reality. The [Land Trust of Santa Cruz County](#) expects soon to close a deal on a 10-acre parcel of land near Laurel Curve in hopes of building a wildlife underpass there.

Though genetic diversity among the Santa Cruz Mountains puma population is not yet an emergency, it's weighing heavy on the minds of experts, who hope for more wildlife underpasses allowing Santa Cruz Mountains males to reach mountains on the other side of the Santa Clara Valley. At a Land Trust-sponsored talk in December, Wilmers said of the local mountain lion population's genetic diversity, "Ours is already low, so it's important to connect to the Hamilton and Gabilan ranges."

Read about a [mountain lion kitten studied by UCSC researchers](#).

Read about a [PechaKucha presentation on mountain lions](#).

Log in (http://santacruz.hilltromper.com/modal_forms/nojs/login?destination=node/1131%23comment-form)

or [register](#) to post comments



Midpeninsula Regional
Open Space District

**AGREEMENT FOR PROFESSIONAL SERVICES
BETWEEN THE MIDPENINSULA REGIONAL OPEN SPACE DISTRICT
AND [REDACTED]**

THIS AGREEMENT is by and between [REDACTED] (“Consultant”) and the Midpeninsula Regional Open Space District, a public body of the State of California (“District”). Consultant and District agree:

1. **Services.** Consultant shall provide the Services set forth in Exhibit A, attached hereto and incorporated herein.
2. **Compensation.** Notwithstanding the expenditure by Consultant of time and materials in excess of said Maximum compensation amount, Consultant agrees to perform all of the Scope of Services herein required of Consultant for \$ [REDACTED], including all materials and other reimbursable amounts (“Maximum Compensation”). Consultant shall submit invoices on a monthly basis. All bills submitted by Consultant shall contain sufficient information to determine whether the amount deemed due and payable is accurate. Bills shall include a brief description of services performed, the date services were performed, the number of hours spent and by whom, a brief description of any costs incurred and the Consultant’s signature.
3. **Term.** This Agreement commences on full execution hereof and terminates on [REDACTED] unless otherwise extended or terminated pursuant to the provisions hereof. Consultant agrees to diligently prosecute the services to be provided under this Agreement to completion and in accordance with any schedules specified herein. In the performance of this Agreement, time is of the essence. Time extensions for delays beyond the Consultant’s control, other than delays caused by the District, shall be requested in writing to the District’s Contract Administrator prior to the expiration of the specified completion date.
4. **Assignment and Subcontracting.** A substantial inducement to District for entering into this Agreement is the professional reputation and competence of Consultant. Neither this Agreement nor any interest herein may be assigned or subcontracted by Consultant without the prior written approval of District. It is expressly understood and agreed by both parties that Consultant is an independent contractor and not an employee of the District.
5. **Insurance.** Consultant, at its own cost and expense, shall carry, maintain for the duration of the Agreement, and provide proof thereof, acceptable to the District, the insurance coverages specified in Exhibit B, "District Insurance Requirements," attached hereto and incorporated herein by reference. Consultant shall demonstrate proof of required insurance coverage prior to the commencement of services required under this Agreement, by delivery of Certificates of Insurance to District.
6. **Indemnification.** Consultant shall indemnify, defend, and hold District, its directors, officers, employees, agents, and volunteers harmless from and against any and all liability, claims, suits, actions, damages, and causes of action arising out of, pertaining or relating to the negligence, recklessness or willful misconduct of Consultant, its employees, subcontractors, or agents, or on account of the performance or character of the Services, except for any such claim arising out of the sole negligence or willful misconduct of the District, its officers, employees, agents, or volunteers. It is understood that the duty of Consultant to indemnify and hold harmless includes the duty to defend as set forth in section 2778 of the California Civil Code. Notwithstanding the foregoing, for any design professional services, the duty to defend and indemnify District shall be limited to that allowed pursuant to California Civil Code section 2782.8. Acceptance of insurance certificates and endorsements required under this Agreement does not relieve Consultant from liability under this indemnification and hold harmless clause. This indemnification and hold harmless clause shall apply whether or not such insurance policies shall have been determined to be applicable to any of such damages or claims for damages.

7. **Termination and Abandonment.** This Agreement may be cancelled at any time by District for its convenience upon written notice to Consultant. In the event of such termination, Consultant shall be entitled to pro-rated compensation for authorized Services performed prior to the effective date of termination provided however that District may condition payment of such compensation upon Consultant's delivery to District of any or all materials described herein. In the event the Consultant ceases performing services under this Agreement or otherwise abandons the project prior to completing all of the Services described in this Agreement, Consultant shall, without delay, deliver to District all materials and records prepared or obtained in the performance of this Agreement. Consultant shall be paid for the reasonable value of the authorized Services performed up to the time of Consultant's cessation or abandonment, less a deduction for any damages or additional expenses which District incurs as a result of such cessation or abandonment.

8. **Ownership of Materials.** All documents, materials, and records of a finished nature, including but not limited to final plans, specifications, video or audio tapes, photographs, computer data, software, reports, maps, electronic files and films, and any final revisions, prepared or obtained in the performance of this Agreement, shall be delivered to and become the property of District. All documents and materials of a preliminary nature, including but not limited to notes, sketches, preliminary plans, computations and other data, and any other material referenced in this Section, prepared or obtained in the performance of this Agreement, shall be made available, upon request, to District at no additional charge and without restriction or limitation on their use. Upon District's request, Consultant shall execute appropriate documents to assign to the District the copyright or trademark to work created pursuant to this Agreement. Consultant shall return all District property in Consultant's control or possession immediately upon termination.

9. **Compliance with Laws.** In the performance of this Agreement, Consultant shall abide by and conform to any and all applicable laws of the United States and the State of California, and all ordinances, regulations, and policies of the District. Consultant warrants that all work done under this Agreement will be in compliance with all applicable safety rules, laws, statutes, and practices, including but not limited to Cal/OSHA regulations. If a license or registration of any kind is required of Consultant, its employees, agents, or subcontractors by law, Consultant warrants that such license has been obtained, is valid and in good standing, and Consultant shall keep it in effect at all times during the term of this Agreement, and that any applicable bond shall be posted in accordance with all applicable laws and regulations.

10. **Conflict of Interest.** Consultant warrants and covenants that Consultant presently has no interest in, nor shall any interest be hereinafter acquired in, any matter which will render the services required under the provisions of this Agreement a violation of any applicable state, local, or federal law. In the event that any conflict of interest should nevertheless hereinafter arise, Consultant shall promptly notify District of the existence of such conflict of interest so that the District may determine whether to terminate this Agreement. Consultant further warrants its compliance with the Political Reform Act (Government Code § 81000 et seq.) respecting this Agreement.

11. **Whole Agreement and Amendments.** This Agreement constitutes the entire understanding and Agreement of the parties and integrates all of the terms and conditions mentioned herein or incidental hereto and supersedes all negotiations or any previous written or oral Agreements between the parties with respect to all or any part of the subject matter hereof. The parties intend not to create rights in, or to grant remedies to, any third party as a beneficiary of this Agreement or of any duty, covenant, obligation, or undertaking established herein. This Agreement may be amended only by a written document, executed by both Consultant and District's General Manager, and approved as to form by the District's General Counsel. Such document shall expressly state that it is intended by the parties to amend certain terms and conditions of this Agreement. The waiver by either party of a breach by the other of any provision of this Agreement shall not constitute a continuing waiver or a waiver of any subsequent breach of either the same or a different provision

of this Agreement. Multiple copies of this Agreement may be executed but the parties agree that the Agreement on file in the office of District's District Clerk is the version of the Agreement that shall take precedence should any differences exist among counterparts of the document. This Agreement and all matters relating to it shall be governed by the laws of the State of California.

12. Capacity of Parties. Each signatory and party hereto warrants and represents to the other party that it has all legal authority and capacity and direction from its principal to enter into this Agreement and that all necessary actions have been taken so as to enable it to enter into this Agreement.

13. Severability. Should any part of this Agreement be declared by a final decision by a court or tribunal of competent jurisdiction to be unconstitutional, invalid, or beyond the authority of either party to enter into or carry out, such decision shall not affect the validity of the remainder of this Agreement, which shall continue in full force and effect, provided that the remainder of this Agreement, absent the unexcised portion, can be reasonably interpreted to give effect to the intentions of the parties.

14. Notice. Any notice required or desired to be given under this Agreement shall be in writing and shall be personally served or, in lieu of personal service, may be given by (i) depositing such notice in the United States mail, registered or certified, return receipt requested, postage prepaid, addressed to a party at its address set forth in Exhibit A; (ii) transmitting such notice by means of Federal Express or similar overnight commercial courier ("Courier"), postage paid and addressed to the other at its street address set forth below; (iii) transmitting the same by facsimile, in which case notice shall be deemed delivered upon confirmation of receipt by the sending facsimile machine's acknowledgment of such with date and time printout; or (iv) by personal delivery. Any notice given by Courier shall be deemed given on the date shown on the receipt for acceptance or rejection of the notice. Either party may, by written notice, change the address to which notices addressed to it shall thereafter be sent.

15. Miscellaneous.

- a. Except to the extent that it provides a part of the definition of the term used herein, the captions used in this Agreement are for convenience only and shall not be considered in the construction of interpretation of any provision hereof, nor taken as a correct or complete segregation of the several units of materials and labor.
- b. Capitalized terms refer to the definition provide with its first usage in the Agreement.
- c. When the context of this Agreement requires, the neuter gender includes the masculine, the feminine, a partnership or corporation, trust or joint venture, and the singular includes the plural.
- d. The terms "shall", "will", "must" and "agree" are mandatory. The term "may" is permissive.
- e. The waiver by either party of a breach by the other of any provision of this Agreement shall not constitute a continuing waiver or a waiver of any subsequent breach of either the same or a different provision of this Agreement.
- f. When a party is required to do something by this Agreement, it shall do so at its sole cost and expense without right to reimbursement from the other party unless specific provision is made otherwise.
- g. Where any party is obligated not to perform any act, such party is also obligated to restrain any others within its control from performing such act, including its agents, invitees, contractors, subcontractors and employees.

IN WITNESS WHEREOF, Consultant and District execute this Agreement.

**MIDPENINSULA REGIONAL OPEN
SPACE DISTRICT**

330 Distel Circle
Los Altos, CA 94022-1404

CONSULTANT

Name _____
Address _____

By: _____
Name
Title

By: _____
Name
Title

Date: _____

Date: _____

Attest: _____
Jennifer Woodworth
District Clerk

Federal Employer ID Number: _____

License Number: _____

Expiration Date: _____

Approved as to form:

Sheryl Schaffner
General Counsel

Attachments:
Exhibit A Scope of Services
Exhibit B District Insurance Provisions

EXHIBIT A
Scope of Services and Compensation

EXHIBIT B INSURANCE REQUIREMENTS

Before beginning any of the services or work called for by any term of this Agreement, Consultant, at its own cost and expense, shall carry, maintain for the duration of the Agreement, and provide proof thereof that is acceptable to the District, the insurance specified herein.

Insurance Requirements.

- Statutory Worker's Compensation Insurance and Employer's Liability Insurance coverage: \$1,000,000
- Commercial General Liability Insurance: \$1,000,000 (Minimum), \$2,000,000 Aggregate
- Business Automobile Liability Insurance-with coverage evidencing "any auto" and with limits of at least \$1,000,000 per occurrence.
- Errors and Omissions Insurance (or Professional Liability): \$1,000,000

Workers' Compensation. Statutory Workers' Compensation Insurance and Employer's Liability Insurance for any and all persons employed directly or indirectly by Consultant shall be provided as required by the California Labor Code.

Commercial General and Automobile Liability. Consultant, at Consultant's own cost and expense, shall maintain Commercial General and Business Automobile Liability insurance for the period covered by this Agreement in an amount not less than the amount set forth in this Exhibit B, combined single limit coverage for risks associated with the work contemplated by this Agreement. If a Commercial General Liability Insurance or an Automobile Liability form or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to the work to be performed under this Agreement or the general aggregate limit shall be at least twice the required occurrence limit. Such coverage shall include but shall not be limited to, protection against claims arising from bodily and personal injury, including death resulting there from, and damage to property resulting from activities contemplated under this Agreement, including the use of hired, owned and non-owned automobiles. Coverage shall be at least as broad as the latest edition of the Insurance Services Office Commercial General Liability occurrence form CG 0001 and Insurance Services Office Automobile Liability form CA 0001 (ed. 12/90) Code 1 (any auto). No endorsement shall be attached limiting the coverage.

- a. A policy endorsement must be delivered to District demonstrating that District, its officers, employees, agents, and volunteers are to be covered as insured as respects each of the following: liability arising out of activities performed by or on behalf of Consultant, including the insured's general supervision of Consultant; products and completed operations of Consultant; premises owned, occupied or used by Consultant; or automobiles owned, leased, hired, or borrowed by Consultant. The coverage shall contain no special limitations on the scope of protection afforded to District, its officers, employees, agents, or volunteers.
- b. The insurance shall cover on an occurrence or an accident basis, and not on a claims made basis.
- c. An endorsement must state that coverage is primary insurance and that no other insurance affected by the District will be called upon to contribute to a loss under the coverage.
- d. Any failure of Consultant to comply with reporting provisions of the policy shall not affect coverage provided to District and its officers, employees, agents, and volunteers.
- e. Insurance is to be placed with California-admitted insurers.

Professional Liability. Where Consultant is a licensed professional, Consultant, at Consultant's own cost and expense, shall maintain for the period covered by this Agreement professional liability insurance for licensed professionals performing work pursuant to this Agreement in an amount set forth in this Exhibit B covering the licensed professionals' errors and omissions, as follows:

- a. The policy must contain a cross liability or severability of interest clause.
- b. The following provisions shall apply if the professional liability coverages are written on a claims made form:
 - 1) The retroactive date of the policy must be shown and must be before the date of the Agreement. Insurance must be maintained and evidence of insurance must be provided for at least five years after completion of the Agreement or the work.
If coverage is canceled or not renewed and it is not replaced with another claim made policy form with a retroactive date that precedes the date of this Agreement, Consultant must provide extended reporting coverage for a minimum of five years after completion of the Agreement or the work. The District shall have the right to exercise at the Consultant's cost, any extended reporting provisions of the policy should the Consultant cancel or not renew the coverage.
A copy of the claim reporting requirements must be submitted to the District prior to the commencement of any work under this Agreement.

Deductibles and Self-Insured Retentions. Consultant shall disclose the self-insured retentions and deductibles before beginning any of the services or work called for by any term of this Agreement. Any self-insured retention or deductible is subject to approval of District. During the period covered by this Agreement, upon express written authorization of District Legal Counsel, Consultant may increase such deductibles or self-insured retentions with respect to District, its officers, employees, agents, and volunteers. The District Legal Counsel may condition approval of an increase in deductible or self-insured retention levels upon a requirement that Consultant procure a bond guaranteeing payment of losses and related investigations, claim administration, and defense expenses that is satisfactory in all respects to each of them.

Notice of Reduction in Coverage. In the event that any coverage required under the Agreement is reduced, limited, or materially affected in any other manner, Consultant shall provide written notice to District at Consultant's earliest possible opportunity and in no case later than five days after Consultant is notified of the change in coverage.

Remedies. In addition to any other remedies District may have if Consultant fails to provide or maintain any insurance policies or policy endorsements to the extent and within the time herein required, District may, at its sole option:

Obtain such insurance and deduct and retain the amount of the premiums for such insurance from any sums due under the Agreement;

Order Consultant to stop work under this Agreement or withhold any payment which becomes due to Consultant hereunder, or both stop work and withhold any payment, until Consultant demonstrates compliance with the requirements hereof;

Terminate this Agreement.

Exercise of any of the above remedies, however, is an alternative to other remedies District may have and is not the exclusive remedy for Consultant's failure to maintain insurance or secure appropriate endorsements.

Habitat Connectivity



Photo above: Bobcat by Yamil Saenz;
Photo below: Purisima Creek Redwoods
Open Space Preserve by Randy Weber

This map illustrates areas important for maintaining habitat connectivity within the Vision Plan Area. It was developed by integrating habitat patches within the Santa Cruz Mountains identified by the Land Trust of Santa Cruz County (Mackenzie et al. 2011), with the landscape linkage mapped as part of the Bay Area Critical Linkages project (BAOSC 2013).










The western portion of the Vision Plan Area contains some of the largest patches of intact habitat within the Santa Cruz Mountains. In addition, the series of ‘stepping stone’ patches located in the southeastern portion of the Vision Plan Area are part of the critical habitat linkage that connects the Santa Cruz Mountains to the Diablo and Gabilan ranges (see inset map).

Large, interconnected patches of intact habitat can:

- support species with large home ranges such as mountain lions, for which individual habitat patches are insufficient to support persisting populations;
- facilitate species movement in response to changes in habitat suitability, to disperse to establish a new territory, and as part of seasonal or other migration;
- facilitate recolonization of habitat patches after a disturbance (e.g. fire);
- promote exchange of genetic material to facilitate population viability; and
- enable species range shifts in response to climate change.

Midpen resource management policies include numerous implementation measures designed to achieve the goal of protecting ecosystem integrity by maximizing habitat connectivity (MROSD 2011). Importantly, the Vision Plan Area features open space preserves on either side of Highway 17, which is a barrier to movement of large mammals. Midpen is actively working with its partners to promote connectivity through the region by improving opportunities for wildlife to safely cross this movement barrier.

Habitat Patches & Linkages

-  >50 sq mi Habitat Patch
-  >10 sq mi Habitat Patch
-  >2 sq mi Habitat Patch
-  <2 sq mi Habitat Patch
-  Terrestrial Linkages
-  Aquatic Linkages
-  Midpen Boundary
-  Midpen Sphere of Influence
-  Midpen Open Space Preserves

