CONTRA COSTA COUNTY

AGENDA

Integrated Pest Management Advisory Committee

Thursday, July 17, 2025 **10:00 AM** **2380 Bisso Lane, Concord**
https://zoom.us/j/97982014544
Call in: (669) 900-6833
Meeting ID: 97982014544

DECISION-MAKING SUBCOMMITTEE

Susanna Thompson (Committee Chair)
Carlos Agurto (Subcommittee Chair)

Items may be taken out of order at the discretion of the Subcommittee Chair

1. Convene and Introductions

2. Public comment on items not on this agenda (speakers will be limited to three minutes unless otherwise indicated by the Chair)

3. REVIEW proposed draft revisions of the ground squirrel decision document and ADVISE staff on next steps. **25-2836**

Attachments: Item 3 Att

4. RECEIVE update regarding the Public Works follow up report to the Transportation, Water, and Infrastructure Committee (TWIC) at their June 23, 2025 meeting. **25-2837**

Attachments: Item 4 Att

5. REVIEW commensal rodent and gopher management decision documents and DETERMINE whether there is interest in revising the documents and ADVISE staff on the preferred process for making revisions. **25-2838**

Attachments: Item 5 Att1
Item 5 Att2
Item 5 Att3

6. PLAN August 21, 2025 meeting. **25-2839**

Adjourn

The Committee will provide reasonable accommodations for persons with disabilities planning to attend the Committee meetings. Contact the staff person listed below at least 72 hours before the meeting. Any disclosable public records related to an open session item on a regular meeting agenda and distributed by the County to a majority of members of the Committee less than 96 hours prior to that meeting are available for public inspection at 4585 Pacheco Blvd. Martinez, CA 94553, during normal business hours. Staff reports related to items on the agenda are also accessible online at www.contracosta.ca.gov. If the Zoom connection malfunctions for any reason, the meeting may be paused while a fix is attempted. If the connection is not reestablished, the committee will continue the meeting in person without remote access. Public comment may be submitted via electronic mail on agenda items at least one full work day prior to the published meeting time.

For additional information, contact Wade.Finlinson@cchealth.org or 925.655.3214

1025 ESCOBAR STREET
MARTINEZ, CA 94553

CONTRA COSTA COUNTY

Staff Report

File #: 25-2836 **Agenda Date:** 7/17/2025 **Agenda #:** 3.

Advisory Board: Integrated Pest Management Advisory Committee-Decision-Making Subcommittee
Subject: 3. REVIEW proposed draft revisions of the ground squirrel decision document and ADVISE staff on next steps.
Presenter: Wade Finlinson
Contact: 925.655.3214

Information:
The bylaws of the Integrated Pest Management Advisory Committee (IPMAC) list several purposes of the Committee. Those include:

- Making policy recommendations upon assessment of current pest issues and evaluation of possible IPM solutions.
- Providing a forum for communication and information exchange among members in an effort to identify, encourage, and stimulate the use of best or promising pest management practices.
- Promoting transparency in pest management decision-making by County Departments.

Referral History and Update:
The IPM Decision-Making Subcommittee is currently the only standing subcommittee of IPMAC. In pursuit of the above purposes, the Subcommittee creates and revises documentation to transparently depict rationale for pest management decisions within County operations. These documents often include recommendations for operational refinement.

The last revision of the ground squirrel decision document was completed in 2019. Since then, regulatory restrictions on rodenticides has limited access to one of the two control tactics deemed “high efficacy” by the University of California Statewide Integrated Pest Management Program (UCIPM). The IPM Coordinator created a second draft of a new decision document after receiving input during the meetings of this Subcommittee held on April 17, 2025 and May 15, 2025.

Recommendation(s)/Next Step(s):
Staff recommends reviewing the attached second draft of this version of the decision document and advising the IPM Coordinator on additional modifications to pursue prior to the next meeting (scheduled for August 21, 2025 at 10:00 AM).

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Contra Costa County
DECISION DOCUMENTATION for GROUND SQUIRREL MANAGEMENT

Date: 7/17/2025 DRAFT

Department: Public Works (Airports, Maintenance Division, Facilities Services), Agriculture

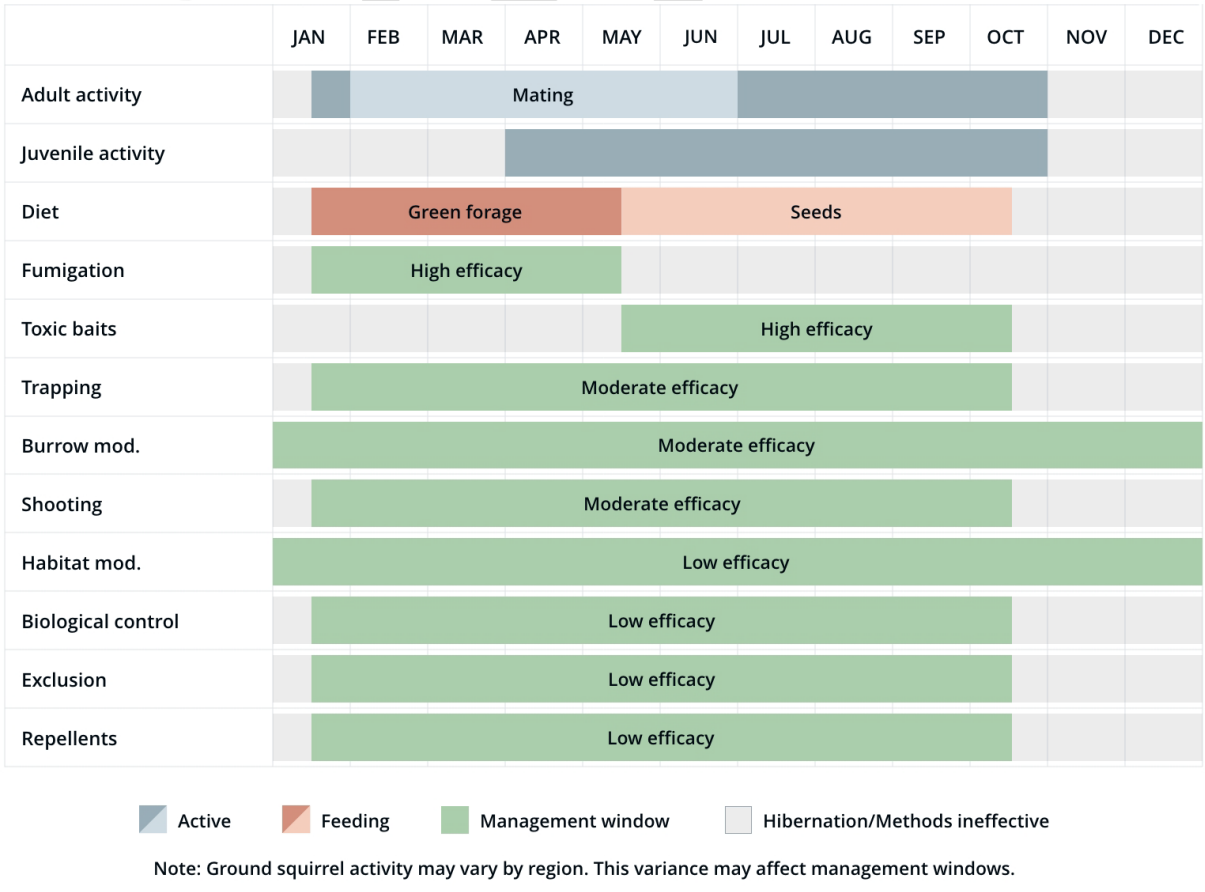
Location: Countywide

Introduction: Prior to 2025, the Agriculture Department provided internal contractual services to control ground squirrel issues on critical infrastructure managed by the Public Works Department primarily through the application of first-generation anticoagulant baits. Other treatments were considered and occasionally deployed by each operational division within Public Works, but the baiting program was the only consistent tactic used on a regular basis.

On January 1, 2025, Assembly Bill #2552 (AB 2552)[i]—also known as the Poison-Free Wildlife Act—took effect. That legislation prohibits the use of first-generation and second-generation anticoagulant rodenticides in California. There are some exceptions for public health, vector control, water supply facilities, and other situations. However, it appears that none of the exceptions apply to properties maintained by the County according to the current legislation and its interpretation.

This document aims to capture the decision-making process and promote a roadmap for the implementation of integrated efforts to protect infrastructure and keep our communities safe.

The problem species has been identified as the following:	**California Ground Squirrel** (*Otospermophilus beecheyi*) Burrowing by ground squirrels can be very destructive, and they can cause severe erosion and loss of structural integrity. Ground squirrels are a problem in levees, in flood control facilities and canals, in earthen dams, on roads, on railroad berms, around foundations and retaining walls, and in landscaping where they chew on irrigation lines. In addition, California ground squirrels are known to be carriers of many transmissible diseases, including bubonic plague and tularemia.
What mandates or standards relating to ground squirrel management apply?	**All operational divisions in the County** Contra Costa County Administrative Bulletin #542 "The County will provide pest management in and on County maintained properties and facilities using integrated pest management (IPM). The purpose of this policy is to promote the combined use of physical, cultural, biological, and chemical control methods to effectively manage pests with minimal risk to humans and the environment." **Airports Division** (Airport infield surfaces, runway safety areas, taxiway safety areas, grazing areas, habitat management lands, etc. at Buchanan Field & Byron Airports): Section 9.2.b of the Federal Aviation Administration (FAA) *Wildlife Hazard Management at Airports*[ii] describes habitat modification and exclusion practices. The FAA has requirements for the safety areas of Part 139[iii] airports like Buchanan Field to be smooth, free of ruts and other obstructions, and able to support aircraft that leave the paved surfaces. Caltrans also has similar requirements for general aviation airports such as Byron Airport. Additionally, ground squirrels are an attractant for other species such as coyotes or hawks that could potentially cause catastrophic consequences for airplanes. **Public Works Maintenance Division** (dams, levees, creeks, basins, roads, bridges, flood control structures, retaining walls): Inspectors from U.S. Army Corps of Engineers (USACE) and state agencies have discretion to determine whether damage caused by burrowing animals is problematic. Generally, the Division aims to maintain a squirrel-free area on and within 100 feet of dams and levees. **Public Works Facilities Services Division** (County buildings, communication towers, and landscapes/open space adjacent to facilities, within special district service areas, and in County-owned parks): No known formal standards apply, but burrow systems that undermine building foundations, paved areas, and other structures are not tolerated. Similarly, burrowing activity that creates trip hazards or other safety concerns in parks and other publicly accessible landscapes are prioritized for treatment controls.

What is the process for how sites are monitored for ground squirrel activity?	**Airports Division**: Airport Operations staff at both sites monitor ground squirrel activity. Abatement procedures are used whenever those activities enter safety areas and sometimes before when the timing is right for our control methods. Any population in the safety areas is the threshold, we cannot have any. Airport Safety Officers determine whether abatement is needed as part of their wildlife hazard management duties. **Public Works Maintenance Division**: Activity is monitored during levee inspections conducted in coordination with the U.S. Army Corps of Engineers (USACE). Monitoring for ground squirrel activity is critical component of evaluating levee integrity. These inspections are typically led by the USACE inspection team alongside local representatives such as Flood Control Crew Supervisor—who oversees site readiness and facilitates issue tracking. State inspectors annually monitor the structural integrity of each dam and they convey site-specific concerns. Other reports of rodent activity come from citizen calls, as well as Public Works and Agriculture Department staff. **Public Works Facilities Services Division**: Facility occupants typically alert the Division to ground squirrel concerns at County-owned buildings. The contracted structural pest control operator similarly reports any activity observed during routine service visits. For parks and special district landscapes, community members occasionally report applicable concerns. Special district service areas retain a contracted trapper for gophers and moles, but that does not include ground squirrels. **Department of Agriculture/Weights & Measures:** The vertebrate pest management program provides assistance and advice on a cooperative basis to the Public Works Department, other public agencies, and growers for the control of ground squirrels. In some cases, Agriculture personnel assist Public Works in monitoring squirrel activity.
Control Methods	**This is not an attempt to consider all control methods available. The following sections identify the types of controls that are most likely to be incorporated into County operations. It is not an exhaustive list. For more information on controls see http://www.groundsquirrelbmp.com/** **The County continues to investigate and review new control methods as they become available.**
Timing and Efficacy of Management Methods	**The following chart[iv] depicts the yearly activities of the California ground squirrel and times when baiting, trapping, fumigation, and other management practices are generally most effective.**  Note: Ground squirrel activity may vary by region. This variance may affect management windows.

Which cultural controls were considered?	**Habitat modification:** Proactive Vegetation Management: This can involve the strategic planting of trees and shrubs and allowing herbaceous vegetation to grow more densely in order to make it more difficult to detect predators. Deep Ripping: Using tractor-mounted ripping bars where burrow entrances are present in order to reduce the likelihood of ground squirrel reinvasion. **EFFICACY:** Low **CONCLUSIONS**: **Airports Division:** Trees and shrubs are not appropriate for airport operations. Some areas surrounding the Byron Airport may be suitable for proactive planting, but are not being considered at this time. Deep ripping is not feasible at either location. **Maintenance Division:** Dams and levees typically are not suitable for woody vegetation. Recent projects have restored riparian plantings as part of broader flood risk reduction efforts along creeks, but those activities are not feasible with maintenance operations. Tree planting on certain roadsides may be considered in the future, but those situations are more likely when tied to capital improvements. Deep ripping is not presently being evaluated. **Facilities Services Division:** Many facilities would benefit from expanded tree planting. However, the locations where ground squirrel populations occur do not typically coincide with the most appropriate planting sites. The Division is not evaluating deep ripping. **Agriculture Department:** These services are not offered through existing programs within the Department. **Statement on efforts to prevent impacts on non-target species:**
Which physical controls were considered?	**Burrow modification**: Cement and grout: Injection of concrete, grout, or similar materials into burrow entrances. The Burrow Blocker: A patented system that injects a sand and water slurry into burrows. **Shooting**: The use of small caliber rifles to dispatch ground squirrels causing damage to critical infrastructure. **Trapping:** Various types of live traps and kill traps are available. Ground squirrels caught with live traps cannot be relocated and must be humanely euthanized. **Exclusion**: Includes a variety of materials installed in a manner that limits access to particular areas. **EFFICACY:** Moderate (with the exception of exclusion, which is considered low efficacy. Also, research is limited regarding the efficacy of the Burrow Blocker and similar strategies involving cementing/grouting burrow entrances.) **CONCLUSIONS**: **Airports Division:** Certain areas of Division properties have incorporated fencing that has slowed access to runways and taxiways. These renovations are expensive and it is unlikely that they will be implemented at the scale needed at both airports. Trapping and burrow modification efforts are currently being explored. **Maintenance Division:** The Division previously injected grout into the entrances of ground squirrel burrows at some sites. The practice has not been used for several years, but the Division is analyzing the continuation of burrow modification practices and incorporating trapping. Burrow entrances next to paved roads will likely be filled with asphalt or other suitable materials while the Division adapts to recent rodenticide restrictions. **Facilities Services Division:** Trapping services are currently carried out by a contracted service provider at certain sites. The Division is open to exploring the expansion of trapping and the implementation of limited pilot projects to evaluate burrow modification measures. Exclusion practices are also being explored at some locations. **Agriculture Department:** These services are not offered through existing programs within the Department. In 2012, the Department conducted an in-house trial of live trapping and found it to be expensive and time-consuming. Pending staffing changes may add capacity to revisit trapping trials that could inform the feasibility of Public Works potentially incorporating these practices into their operations at some locations in the future. **Statement on efforts to prevent impacts on non-target species:** Among physical controls, trapping and shooting represent the lowest risk of impacts to non-target species. Nonlead ammunition is required. Guidance from the Public Works Environmental Services Division is recommended when considering burrow modification tactics.
Which biological controls were considered?	**Biological controls available:** Raptor perches and barn owl boxes are often deployed to target burrowing pest species. Since ground squirrels are diurnal, raptors active during the day are more likely than barn owls to prey on them. Barn owls are crepuscular and nocturnal, so they may hunt ground squirrels that are active at dusk and dawn. Installations like these are usually ineffective at controlling targeted pests if not deployed alongside other integrated methods. Interested members of the public typically have a favorable view of these measures. **EFFICACY:** Low

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	CONCLUSIONS: **Airports Division:** Due to safety concerns and federal regulations, raptor perches and owl boxes are not being considered at airports. **Maintenance Division:** Community groups and adjacent property owners have installed these types of structures on or near Flood Control properties in the past, but many have fallen into disrepair. The Division may consider this further in the future but is focused on other controls at present. **Facilities Services Division:** Some parks managed by Facilities Services have owl boxes, but it isn't clear if they are being maintained. The addition of new boxes and perches is feasible, but partnerships to take care of them need to be tidied. **Agriculture Department:** These services are not offered through existing programs within the Department. Pending staffing changes may add capacity to research where proactive efforts to incorporate these types of measures. **Statement on efforts to prevent impacts on non-target species:** Negative impacts on non-targets are not anticipated with efforts described in this section.
Which chemical controls were considered? (an accompanying section referencing the Pesticide Risk Footprint Tool is under construction)	*Toxic Baits:* **Zinc Phosphide:** A non-anticoagulant rodenticide that converts to phosphine gas when consumed by the target animal. Zinc phosphide is a restricted use material and is a hazard to the applicator. There are also endangered species concerns and restrictions to consider prior to use. **Diphacinone or Chlorophacinone-treated grain bait:** First generation anticoagulant rodenticides that are no longer accessible to most County-managed properties unless existing exemptions are further researched or applicable legislation is amended. **Strychnine-treated grain bait:** Most formulations are restricted use materials and must be used by certified applicators below ground. It is also deemed a highly hazardous pesticide (HHP) by the World Health Organization (WHO) due to acute health hazards. *Burrow fumigation methods:* **Gas cartridge**: The cartridge (made from sodium nitrate, charcoal, and cardboard) releases carbon monoxide gas into the burrow system. This method is only effective when the soil moisture is high in either winter or spring. Gas cartridges are more effective when used prior to breeding or emergence of young. The timing, though, conflicts with other programs for which staff are needed such as the noxious weed program, the pesticide use enforcement program and the pest exclusion program. There are endangered species restrictions and concerns to consider prior to use. **Aluminum phosphide**: Aluminum phosphide reacts with moisture in the soil and in the atmosphere to produce phosphine gas. This fumigant is only effective when soil moisture is high and so has the same timing issues as above. Aluminum phosphide is a restricted use material and is a hazard to the applicator. There are also endangered species concerns and restrictions to consider prior to use. **CO and CO_2**: These fumigants require a CO or CO_2 generating device, which must be moved from burrow to burrow and site to site during treatment. These are most effective when soil moisture is high, and they have the same timing issues as gas cartridges and aluminum phosphide. **EFFICACY:** High **CONCLUSIONS:** **Airports Division:** The Division is working with the Agriculture Department to study the potential of using alternative baits in high risk areas at each airport. They are also evaluating cost and other considerations related to potential burrow fumigation controls. **Maintenance Division:** Some initial efforts using CO were completed in a levee system a few years ago. The Division is reviewing the possibility of expanding those efforts in additional areas, but cost is a barrier. They also recently retained the services of Ag. personnel to deploy gas cartridges. Evaluation of additional chemical controls is ongoing. **Facilities Services Division:** The current contract for structural pest management services includes ground squirrel control on an on-call basis. The business under contract provides some chemical controls and owns a large carbon monoxide injection system known as a CO-Jack. This contract has been used by Facilities Services and other divisions within Public Works and is available as long as the approved dollar amount for total contract is not exceeded. **Agriculture Department:** The Department will continue to support Public Works' efforts to review chemical alternatives to anticoagulant rodenticides. In limited circumstances, Ag personnel may be able to assist with using gas cartridges on certain properties, but these staff members are usually engaged in important regulatory work during the season when the devices are most effective. **Statement on efforts to prevent impacts on non-target species:** Prior to recent legislative restrictions, the primary method of ground squirrel control to protect infrastructure at airports, dams, roadsides, and other County-owned sites was through the use of diphacinone or chlorophacinone-treated grain bait. Like most chemical and non-chemical pest management tactics, those applications represented a certain level of risk. Many reputable subject matter experts are concerned that these restrictions—which were intended to protect wildlife—were more targeted to the control of ground squirrels with limited off-target impacts. Burrow fumigation and other non-chemical tactics could threaten other species living in burrows. Since these considerations are often site-specific and subject to other key variables, the Public Works Environmental Services Division, the PRESCRIBE[v] database, and other applicable resources should be consulted.

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Recommendations from the IPM Advisory Committee
	• Each applicable operational division within Public Works is encouraged to allocate resources to promote a year-round ground squirrel monitoring and treatment program at threatened sites. Control methods deemed "High Efficacy" and "Moderate Efficacy" by the University of California Statewide IPM Program should be prioritized. Such efforts may include:
	  • Coordinating an RFP (Request for Proposals) process to procure on-call services that are currently unavailable from County staff and existing contracts. Services may include burrow modification, shooting, and other tactics.
	  • Collaboration with UC partners in facilitating research that furthers understanding of the impacts and efficacy of under-studied management strategies.
	  • Assessing the feasibility of utilizing the IPM Coordinator[vi] to set up a trapping pilot program at one or two priority sites. The purpose of this program will be to:
	  1. provide immediate support at critical locations while each operational division concurrently ramps up integrated strategies to address the anticipated increase in problematic ground squirrel populations.
	  2. Inform the potential development of operational staff or contractors performing long-term trapping operations where feasible.
	• The Board of Supervisors is encouraged to direct County lobbyists to follow and potentially shape legislative developments that expand exemptions for first generation anticoagulant rodenticides at airports, dams constructed for the purpose of flood risk reduction, roads, and other elements of critical infrastructure. Efforts relating to this may also include the following:
	  • Engage the California State Association of Counties (CSAC) and comparable local government entities to identify opportunities to closely study the potential impacts of AB 2552 and shape an effective plan of action.
	  • Support the efforts of County staff working with their equivalents in other local government agencies to further meaningful dialog about legislative refinements within the respective realm of each discipline or industry.

[i] Available at https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202320240AB2552

[ii] https://www.faa.gov/airports/airport_safety/wildlife/resources/media/2005_FAA_Manual_complete.pdf

[iii] FAA certification program for certain types of airports. More information available at the following link: https://www.faa.gov/airports/airport_safety/part139_cert

[iv] Chart is from the University of California Statewide IPM Program's Pest Note for Ground Squirrels available at: https://ipm.ucanr.edu/legacy_assets/PDF/PESTNOTES/pngroundsquirrel.pdf Quinn NM, Dimson MJ, Baldwin RA. 2025. UC IPM Pest Notes: Ground Squirrel. UC ANR Publication 7438. Oakland, CA

[v] PRESCRIBE stands for Pesticide Regulation's Endangered Species Custom Realtime Internet Bulletin Engine and is available at: https://calpip.cdpr.ca.gov/county.cfm

[vi] Labor costs associated with the IPM Coordinator are already covered by various Public Works funding streams; only fees associated with start-up costs, and ongoing materials and supplies would be needed if there is an appetite to move forward.

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File #: 25-2837 **Agenda Date:** 7/17/2025 **Agenda #:** 4.

Advisory Board: Integrated Pest Management Advisory Committee-Decision-Making Subcommittee
Subject: 4. RECEIVE update regarding the Public Works follow up report to the Transportation, Water, and Infrastructure Committee (TWIC) at their June 23, 2025 meeting.
Presenter: Wade Finlinson
Contact: 925.655.3214

Information:
The bylaws of the Integrated Pest Management Advisory Committee (IPMAC) list several purposes of the Committee. Those include:

- Making policy recommendations upon assessment of current pest issues and evaluation of possible IPM solutions.
- Providing a forum for communication and information exchange among members in an effort to identify, encourage, and stimulate the use of best or promising pest management practices.
- Promoting transparency in pest management decision-making by County Departments.

Referral History and Update:
In 2024, the IPM Decision-Making Subcommittee reviewed decision documents regarding vegetation management on roadsides and Flood Control properties. In July 2024, the full IPM Advisory Committee approved an addendum to those documents that was developed by this Subcommittee. Committee members presented the addendum and its recommendations to the Transportation, Water and Infrastructure Committee (TWIC) of the Board of Supervisors on December 9, 2024.

During the December 2024 meeting, TWIC requested that Public Works return in 6 months to provide a brief update on hiring challenges highlighted in the addendum. Public Works gave an update at the June 23, 2025 TWIC meeting. The staff report from that meeting is attached. Subcommittee members requested that this update be placed on the Subcommittee agenda for further discussion, if necessary.

Recommendation(s)/Next Step(s):
Staff recommends reviewing the attached report and offering feedback, if applicable.

File #: 25-2563 **Agenda Date:** 6/23/2025 **Agenda #:** 5.

TRANSPORTATION, WATER & INFRASTRUCTURE COMMITTEE
Meeting Date: June 23, 2025
Subject: RECEIVE update from Public Works staff on hiring status associated with integrated pest management activities.
Submitted For: Chris Lau || Assistant Director | PUBLIC WORKS
Department: PUBLIC WORKS DEPARTMENT
Referral No:
Referral Name:
Presenter: Chris Lau || Assistant Director | PUBLIC WORKS
Contact: Chris Lau | (925) 313-7002

Referral History:
The Transportation, Water and Infrastructure Committee (TWIC) directed staff at the December 9, 2024 TWIC meeting to return in six months to provide a brief update on hiring status to track progress related to integrated pest management.

Referral Update:
In the last six months, Public Works has

- Recruited for the position of Vegetation Management Technician and filled one position;
- Filled one Senior Vegetation Management Technician position; and
- Entered into a contract with Civicorps, as a pilot contract for one year, to provide vegetation management services.

Another recruitment for Vegetation Management Technician will be announced in the coming quarter.

Recommendation(s)/Next Step(s):
RECEIVE update from Public Works staff on hiring status associated with integrated pest management activities.

Fiscal Impact (if any):
None.

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CONTRA COSTA COUNTY

Staff Report

File #: 25-2838 **Agenda Date:** 7/17/2025 **Agenda #:** 5.

Advisory Board: Integrated Pest Management Advisory Committee-Decision-Making Subcommittee
Subject: 5. PLAN July 17, 2025 meeting
Presenter: Wade Finlinson
Contact: 925.655.3214

Information:
The bylaws of the Integrated Pest Management Advisory Committee (IPMAC) list several purposes of the Committee. Those include:

- Making policy recommendations upon assessment of current pest issues and evaluation of possible IPM solutions.
- Providing a forum for communication and information exchange among members in an effort to identify, encourage, and stimulate the use of best or promising pest management practices.
- Promoting transparency in pest management decision-making by County Departments.

Referral History and Update:
On March 20, 2025, IPMAC reviewed draft goals for each subcommittee. The 2025 priorities identified by the IPMAC Chair, Decision-Making Subcommittee Chair, and IPM Coordinator include the following:

(1) Revising the ground squirrel decision document.
(2) Reviewing commensal rodent and gopher documents.
(3) Review grazing documents.
(4) Considering alternate formats for the IPM Decision Tree to encourage greater adoption.

The tentative work plan discussed in the April 17th meeting identified finalizing (or continued discussion) of the ground squirrel document as well as initiating review of commensal rodent and gopher decision documents in July. Subcommittee members also requested that an item be agendized for the May 15th meeting to receive an update on the Public Works hiring challenges as directed by the Transportation, Water, and Infrastructure Committee (TWIC) of the Board of Supervisors on December 9, 2024. During the April meeting of the Decision-Making Subcommittee, there was some uncertainty regarding the timing of TWIC's direction.

The draft minutes for the December TWIC meeting are attached. The expectation is that the follow up would take place at the May or June TWIC meeting. The May TWIC meeting was cancelled and the June meeting is scheduled for June 23rd.

Recommendation(s)/Next Step(s):
Staff recommends continuing the review of the ground squirrel document, starting the review of commensal rodent and gopher documentation, and receiving an update on the TWIC directive in the July meeting.

Contra Costa County
DECISION DOCUMENTATION for COMMENSAL RODENT MANAGEMENT

Date: 5/29/2013, revised 6/2/2016

Department: Facilities Division

Location: County wide

Situation: Rat and mouse management to protect food, infrastructure and human health & safety in and around County buildings

What are the management goals for the sites?	Prevent rats and mice from entering County buildings; prevent rodent complaints in County buildings, remove rodents from buildings if they get in; and comply with Health Department regulations.	
Who has jurisdiction over the areas in question?	The County has jurisdiction over the facilities in question.	
How are the sites monitored and how frequently?	All County buildings that receive regular services under the structural pest management contract are monitored by technicians from Pestec, the County's structural IPM contractor. Some locations within the County elect to have "per-call" services, only requesting services when County staff determine it necessary. It is also the responsibility of all County staff and building occupants to continually monitor and report signs of rodent activity to the Facilities Division. Monitoring is done by visual inspection. Monitoring frequency depends on the type of building and its use and can range from twice a week to monthly. As a monitoring aid, Pestec has placed rodent bait stations around various County buildings. Detex Blox® (non-toxic feeding blocks) are placed inside the bait stations along with a T-Rex® snap trap that that is not set. Pestec technicians regularly inspect the feeding blocks for evidence of rodent gnawing. When evidence of feeding is detected, the snap traps are set. (More on trapping below under physical controls.) Buildings with kitchens or food handling facilities are monitored more frequently and with closer scrutiny.	
The problem species have been identified as the following:	**Roof rat** (*Rattus rattus*); **Norway Rat** (*Rattus norvegicus*); **house mouse** (*Mus musculus*) Rats and mice can damage structures by gnawing and can cause electrical fires by chewing off insulation around electrical wires. These rodents can chew on, nest in, and excrete wastes in sensitive electronic devices. They eat human and animal food and contaminate surfaces and food with urine and feces. They also carry a number of human diseases, and house mouse urine contains a protein that can trigger severe asthma or allergic reactions in susceptible people. These rodents are carriers of ectoparasites such as fleas and mites that can bite people, and they are implicated in the transmission of 55 different human pathogens.	
What is the tolerance level for these species?	**Tolerance level**: The tolerance level outside of buildings for rats and mice varies. There is a zero tolerance for Norway Rat burrows within 500 ft from an occupied structure on County property. There is also a zero tolerance for the sighting of a roof rat during the day on County property. Mouse population tolerances outdoors are undetermined. The tolerance level for rodents inside buildings is zero. Any feeding activity on Detex Blox outside and any sightings or evidence of rodents inside County buildings justifies treatment (education, sanitation, clutter control, pest proofing, vegetation management, trapping).	
Are these sensitive sites?	Are any of the sites part of any of the court-ordered injunctions regarding threatened and endangered species? (see: https://www.epa.gov/endangered-species/interim-use-limitations-eleven-threatened-or-endangered-species-san-francisco-bay) The County does not normally use rodenticides for the control of rats or mice, but might use a rodenticide in the event of a public health emergency.	Possibly

	The injunctions exempt "The use of the Pesticides covered under Section 3 above [applicable rodenticides are brodifacoum, bromadiolone, bromethalin, cholecaliciferol, difenacoum, difethialone, and warfarin] for: "--the purpose of public health vector control when such a program is administered by public entities; or "--use by certified applicators for control of a vector pest when such control is necessary to respond to a federally or state declared public health emergency." Are there other sensitive species to be aware of? In urban areas, pets as well as birds of prey, and sometimes wild mammalian predators feed on rodents. Pets and other urban wildlife could feed directly on rodenticides if the rodenticides were not secured inside a tamper-resistant bait station.	
	Is there known or potential habitat for any endangered or threatened species at any of the sites? See also above.	Possibly
	Are any of the sites in or near an area where people walk or children play? County buildings in general are sensitive sites because people work in the buildings. Head Start facilities are especially sensitive because of the children who spend many hours of their day in the buildings. Buildings with kitchens or food handling facilities are also especially sensitive. Extra care must be taken at Head Start sites to make sure children cannot access snap traps. Inside offices, snap traps for mice are set in concealed or out-of-the way locations and occupants are informed of their location.	Yes
	Are any of the sites near a drinking water reservoir?	N/A
	Are any of the sites near a creek or flood control channel?	N/A
Which cultural controls were considered?	**Educating custodial staff and building occupants on proper sanitation and its critical role in rodent control** • Store food properly, especially at night. Proper food storage is in the refrigerator or cooler or in glass, metal or heavy plastic with a tight-fitting lid. • Limit areas for eating and storing food. Building occupants should be strongly discouraged from keeping food in their desks. • Keep eating and cooking areas clean. • In food handling and preparation areas, regularly steam clean appliances and hard-to-reach areas that may accumulate food debris. • Limit the disposal of food waste to designated garbage receptacles. • Remove all garbage from buildings at the end of the day, and store in receptacles that will prevent rodent access. • Outside, make sure all refuse goes into the proper receptacles. Do not allow any food wastes to accumulate outside of dumpsters or other garbage cans. • Keep garbage can and dumpster lids closed. • Regularly clean waste receptacles and dumpsters. **Preventing rodent access to structures** • Educate Facilities maintenance personnel about the importance of and reasons for rodent proofing. • Make general building repairs and seal large and small holes in structures, both inside and out. Mice can squeeze through a hole that a pencil can fit in, and rats can enlarge that size hole by gnawing until they can fit through also. • Seal vents with ¼" hardware cloth. • Seal gaps where pipes and wiring enter the structure.	

	• Weather strip doors and windows, and use door sweeps, metal kick plates, or raised metal door sills to prevent rodent entry. Openings around doors should be less than ¼". • Repair broken sewer pipes. • Install threaded caps on drains, and make sure that the traps in little used drains are kept filled with water. • Make sure air conditioning units are well-sealed, especially those on the roof. • Trim tree and large shrub branches 3 to 6 feet from buildings to prevent rodents from using the branches to access upper levels of structures. **Limiting availability of shelter/harborage for rodents** • Trim bushes and ground covers at least 2 feet from the structure to decrease cover for rodent runways, to prevent hidden access to buildings, and to make inspections easier. • Remove ivy and other vines from outside walls. • Eliminate dense plantings, especially next to structures. In landscaping, break up dense plantings with pathways, stretches of lawn, or very low ground cover to decrease cover for rodent runways. • Eliminate plantings of Algerian ivy (*Hedera canariensis*) and date palms because rats can live in and feed on these plants. If it isn't possible to immediately eliminate these plantings, work toward that goal. In the meantime, shear ivy very close to the ground. • Remove rock and wood piles and construction debris. • Reduce clutter and debris that can provide hiding places for rodents. Items such as paper, cloth, carpeting, and insulation are ideal nesting materials for rodents and should be stored in rodent-proof containers if mice or rats are making use of them. • Seal holes in structures that allow rodents access to shelter or harborage in the buildings. • Keep weedy grasses trimmed low and/or eliminate them to reduce harborage and food from seeds. **CONCLUSIONS: All of these tactics are very important in reducing the number of rodents in and around structures. All of these tactics are used where appropriate in the County.**
Which physical controls were considered?	Trapping requires more time, effort, and skill than other control methods, but has several advantages: you can see your success, rodents do not die in walls or other inaccessible places and cause odor and fly problems, and no rodenticides are necessary. **Live Trapping** **Multiple catch live traps** for mice can be useful in certain situations and can save labor in setting individual traps. They do not need to be baited and can be used at any time of the year. It is important to use a sufficient number of traps to resolve the problem in a timely manner. The mice must be humanely euthanized and should not be released alive outside the building because they will return to cause more problems. **Glue boards** can successfully catch mice but are not as effective for rats. Rats may pull themselves free of the glue, and if the board is not anchored, the rat may drag it away with only a tail or a foot caught. Glue boards are generally considered inhumane because rodents caught in the glue usually die slowly and with much struggle. For rats, snap traps are much easier to use and more effective than live traps. Rats are much larger than mice and present more problems for humane euthanization **Kill trapping** **Snap traps** are effective for both rats and mice and can be used both indoors and out at any time of the year. In general, they should be baited with something that is attractive to the target animal. Indoors, traps must be placed where they will not attract attention and where children and adults will not accidentally encounter them. Trap placement is crucial for success and in general, it is important to use more, rather than fewer traps. Traps set inside a building should be inspected within one week to remove any rodents that were caught. Outdoors, when feeding is detected on a Detex Blox inside a rodent bait station, the T-Rex® trap inside the station is baited and set. Currently, Pestec feels that T-Rex traps are the best choice for use inside a bait station. The station must be large enough to accommodate the trap. Pestec uses Protecta Sidewinder® Bait Stations, but other brands that will easily accommodate the trap with its jaws open will work. The bait stations are inspected within a week to remove trapped rodents. At this point, the bait is refreshed and the traps are reset. When no more rodents are being trapped, the traps are deactivated and the technician

	goes back to monitoring the station for feeding activity. **Electronic traps** are also available for rats and mice. These electrocute the rodent and need batteries to operate. They are also 7 to 8 times more expensive than a T-Rex trap. Pestec is testing the various brands for use in the County. **CONCLUSIONS: Trapping is very effective and is the only method of direct control used in the County, barring a public health emergency. Pestec has experimented with 2 brands of multiple catch traps (Victor® Tin Cat and Kness® Ketch-All) for mice along with various set ups for the traps. They have not found them as effective as snap traps, but continue to test multiple catch traps.**
Which biological controls were considered?	**Biological controls available:** There are a number of animals that prey on rats and mice, including cats and owls Predators can prune rat and mouse populations, but they cannot provide the degree of control necessary in the specific locations. Cats and dogs are often found living in close association with an infestation of rats or mice. **CONCLUSIONS**: **There are no biological controls that can effectively manage the County's rat and mouse populations in specific areas; however, natural predators can aid the County's efforts considerably. Owls living on the roof of the County Administration Building at 651 Pine in Martinez have left a huge number of rodent bones on the roof.**
Which chemical controls were considered?	The County does not use rodenticides to control rats and mice in and around buildings. Repellents will be considered for rat and mouse control when trapping and exclusion are insufficient. Repellents may include DeTour, an EPA exempt pesticide, or other repellents that are tested and found to be more efficacious and still within Pestec's IPM certification guidelines. **CONCLUSIONS:** **In the event of a public health emergency, the County would use all available means to control rats and/or mice, including rodenticides, if necessary.** **A first generation anticoagulant, such as warfarin, would be chosen. Warfarin is readily accepted by both rats and mice, it effectively kills these rodents, and it has a wide margin of safety because it requires multiple daily sequential feedings for toxicosis, and it has a readily available and easily administered antidote (Vitamin K). First generation anticoagulants also pose less of a secondary poisoning risk.** **If rodenticides must be used, they will be used according to the Greenshield IPM Certification Standards as follows:** i.) used only after reasonable measures are taken to correct conducive conditions including preventing access to water, food or garbage; removing clutter; sealing cracks or holes in foundations, sidewalks; removing tall weeds; and trimming shrubs to expose ground and discourage rat burrowing; and ii.) in bait-block form and placed in a locked, distinctively marked, tamper-resistant container designed specifically for holding baits and constructed of metal or heavy duty plastic and securely attached to the ground, fences, floors, walls or weighted bases, etc. such that the container cannot be easily moved/removed; and iii.) baits are secured (e.g., on a rod) in the baffle-protected feeding chamber of the bait container and not in the station's runway; and iv.) in loose pellet formulation or loose meal formulation (i.e., not within packets) placed deep into burrows (i.e., at least two feet into the burrow from the burrow's main entrance) to reduce potential for rejection or access by non-target animals. Neither bait blocks nor baits still enclosed within packets are to be used for direct burrow baiting.
Which application methods are available for this rodenticide?	Applications around buildings must be made in tamper-resistant bait stations situated along walls or other external parts of buildings (e.g., doorways, ramps and loading docks) where rats or mice might seek to gain entrance. Indoors, rodenticides must be used in tamper-resistant bait stations. **CONCLUSIONS: Rodenticide would first be deployed in tamper-resistant bait stations that would be anchored to the substrate.** **Tamper-resistant bait stations are of durable fabrication and meet the following criteria:** **1. resistant to weather** **2. strong enough to prohibit entry by large non-target species**

	3. equipped with a locking lid and/or secured rebaiting hatches **4. equipped with entrances that readily allow target animals access to baits while denying access to larger non-target species** **5. capable of being anchored easily and securely to resist efforts to move the container or to displace its contents** **6. equipped with an internal structure for securely containing baits** **7. made in such a way as not to be an attractive nuisance** **8. capable of displaying proper precautionary statements in a prominent location.** **In an emergency, if control of burrowing rats is not achieved with mechanical means or repellents, then burrow baiting to the Green Shield IPM Certification specifications (see above) will be employed.**
What factors were considered in choosing the pesticide application method?	Safety to the applicator, the environment, and nontarget species; endangered species considerations, the effectiveness of the method, and the cost to the Division.
What weather concerns must be checked prior to application?	Since the rodenticide would be protected inside a bait station, weather would not be a concern.

Contra Costa County
DECISION DOCUMENTATION for GOPHER MANAGEMENT in LANDSCAPES

Date: 5/12/16

Department: Public Works Grounds Division and Special Districts

Location: Countywide

Situation: Gophers in parks, frontage landscaping, and County landscaping

What is the management goal for the sites?	Gopher management in the County does not seek to eradicate the animals. The management goals are to prevent gopher damage to landscaping and to building foundations or other infrastructure such as irrigation pipes and tubing, and prevent tripping hazards where children, adults, and pets play. Historically, there was such a large population of gophers in the area above Reliez Valley Rd. in the Hidden Pond Landscaping Zone that gophers were being controlled to minimize destabilization of the slope to prevent landslides.
Who has jurisdiction over the areas in question?	The County has jurisdiction over the sites; however, in Special District frontage or other landscaping, the County does not control the allocation of funds for landscape maintenance, including pest management. Note that Special District landscaping zones formed before 1996 do not have a built-in CPI escalator, which makes it difficult to increase the funding available for landscape maintenance. The 3 zones currently monitored for gophers are Livorna Park, Hidden Pond Landscaping Zone, and Driftwood Landscaping Zone. Hidden Pond was formed in 1990, and Driftwood was formed in 1993.
How often are the sites monitored?	This varies from site to site. In the course of their other work, Grounds Division staff survey for evidence of gophers. The Division also responds to complaints about gophers from County staff. The vertebrate pest management contractor for Special Districts regularly surveys for gophers in Livorna Park, Hidden Pond Landscaping Zone, and Driftwood Landscaping Zone and responds to complaints relayed through Special Districts staff.
The problem species has been identified as the following:	Pocket gopher, *Thomomys* sp. From the UC IPM Pest Notes on pocket gophers (http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7433.html): "Pocket gophers are herbivorous and feed on a wide variety of vegetation but generally prefer herbaceous plants, shrubs, and trees. Gophers use their sense of smell to locate food. Most commonly they feed on roots and fleshy portions of plants they encounter while digging. However, they sometimes feed aboveground, venturing only a body length or so from their tunnel opening. Burrow openings used in this manner are called 'feed holes.' You can identify them by the absence of a dirt mound and by a circular band of clipped vegetation around the hole. Gophers also will pull entire plants into their tunnel from below. In snow-covered regions, gophers can feed on bark several feet up a tree by burrowing through the snow. "…A single gopher moving down a garden row can inflict considerable damage in a very short time. Gophers also gnaw and damage plastic water lines and lawn sprinkler systems. Their tunnels can divert and carry off irrigation water, which leads to soil erosion. Mounds on lawns interfere with mowing equipment and ruin the aesthetics of well-kept turfgrass." Gophers sometimes girdle trees and shrubs and can kill trees with trunks several inches in diameter. Gophers also mix, aerate, and loosen soil, all of which can promote plant growth.
What is the tolerance level for this species?	One gopher burrowing in ornamental landscaping or a lawn will trigger management actions. Gophers in adjacent fields or in areas that are more wild are not managed except where gophers become numerous enough to destabilize the hillsides. Currently this applies to Hidden Pond Landscaping Zone only.

Are these sensitive sites?		
	Are any areas part of the court-ordered injunctions? (see: https://www.epa.gov/endangered-species/interim-use-limitations-eleven-threatened-or-endangered-species-san-francisco-bay)	No for the 2 sites where rodenticide was used in the past: Hidden Pond and Driftwood.
	Are any of the sites known or potential habitats for any endangered or threatened species?	No
	Are any of the sites on or near an area where people walk or children play? Care must be taken when using gopher traps, so that neither pets nor children are likely to encounter them.	Yes
	Are any of the sites near a drinking water reservoir?	Not applicable
	Are any of the sites near a creek or flood control channel?	Not applicable
	Are any of the sites near crops?	No
	Are any of the sites near desirable trees or landscaping?	Yes
	Are any of the sites on soil that is highly permeable, sandy, or gravelly?	Not applicable
	At any of the sites, is the ground water near the surface?	Not applicable
	Are there any well heads near the sites?	Not applicable
What factors are taken into account when determining the management technique(s) for gophers?	The proximity to foot traffic—currently traps are not used where children or other passersby might find and try to remove or tamper with the trap. Other considerations are the following: safety to the gopher manager, the environment, and non target species; endangered species considerations; the effectiveness of the method; and the cost to the Department or the Special District.	
What factors contribute the cost of gopher management?	1. The number of gophers at the site. 2. The number of gopher mounds at the site—each must be tamped down to determine which tunnels are active. 3. The size of the site—if a large site must be surveyed on foot, it will take longer. 4. The distance of the site from the corporation yard. 5. The skill and experience of the pest manager—someone with little experience and skill will take longer to find and trap gophers or kill them with CO_2. 6. The frequency of re-invasion—sites near open fields, vacant lots, construction sites, and wildlands will experience repeated gopher invasions.	
Are special permits required to trap or otherwise kill gophers?	No special permits are required. Gophers are considered nongame animals by the California Department of Fish and Wildlife, which means that if a property owner finds gophers that are injuring garden or landscape plants or other property, the property owner can control the gophers at any time in any manner that is legal.	
Which cultural controls were considered?	**Flooding:** This method is not particularly effective and would use large amounts of precious water. Most gophers survive flooding in their burrows. Some may be forced to the surface, but the pest manager would have to use something like a shovel to kill those exiting burrows. **Planting buffers or repellent plants:** A 50 ft. buffer planted in a grain, such as wheat, is mentioned in the literature, but this is not practical for the County. There is no evidence for the efficacy of planting so-called gopher repellent plants such as castor bean.	

	Conclusion: There are no practical or effective cultural controls for gophers in County landscaping.
Which physical controls were considered?	**Trapping**: Trapping is a very effective management method. There is skill and art to trapping, especially in finding the proper burrow in which to place traps; therefore, the more experienced the trapper, the more successful they are. Each management situation is unique and must be assessed at the time of inspection to determine a plan of action. There are a number of styles of gopher traps. The Grounds Division uses the Victor Black Box Trap. The Special District contractor uses the Gophinator trap, and the GopherHawk trap. • The gopher manager surveys the area to determine which gopher mounds look the freshest and flags those mounds. The remaining mounds are flattened. • The following day, the manager returns to determine which mounds are actually the newest. Brand new mounds, or mounds that had been flattened and were then pushed up again, indicate the gopher is working in those areas. Otherwise the flagged mounds are still the most recent. • Working near the newest mounds, the manager uses a probe (a long pole) to find the main gopher tunnel. • A small area above the main tunnel is excavated so the traps can be inserted. Two traps are set, one in each direction back to back, so that a gopher travelling along the tunnel in either direction will encounter the business end of the trap. • The hole is covered with a board. Recommendations vary on whether or not to cover the hole, and some sources indicate that it doesn't matter, but in the County, the hole should be covered to help prevent the public from investigating the trap. The spot is marked with a small flag. In an April 2013 paper in *Crop Protection*, Baldwin, et al. found that the Gophinator trap was more effective than the Macabee trap [another similar body gripping trap], probably because it was able to capture larger gophers. They also found that covering traps in late spring to early summer increased catches, but not during autumn. They recommended that if efficacy is paramount, traps should be covered from late spring to early summer, but if time is a constraining factor, traps can be left uncovered. • Sometimes gophers are trapped immediately while the manager is still working at the site. If not, the manager returns within 24 hours to check the traps. **Explosive Devices**: The Rodenator injects a combination of 3% propane and 97% oxygen into a burrow and ignites these gases. The resulting explosion collapses the tunnel and creates a shockwave that kills gophers in the burrow. Around 2013, the Grounds Division conducted a trial of the Rodenator outside the Public Works Administration building on Glacier Drive in Martinez. Gophers were burrowing close to the building, and it was feared that they might undermine the foundation. The device worked well and no gophers have been seen in that area since. There are, however, some problems with this device. All the windows on the treatment side of the building had to be protected with sheets of plywood, and the explosions rattled the windows and the occupants of the building. The reports from the explosions, which sound like gunshots, precipitated calls to the police, even though the surrounding neighbors had been notified. The Division has not pursued this strategy because of this last issue. There is also a fire risk with this method. **Exclusion with wire mesh:** Three-foot high ½" wire mesh buried 2 feet below ground and encircling a plant can exclude gophers temporarily. These wire cages are only effective in protecting a small area and are very expensive to make and install. **Conclusion: Trapping is the most effective and practical physical control for gophers in County landscaping. All gopher problems are currently managed with trapping.**
Which biological controls were considered?	Great blue herons, coyotes, domestic dogs and cats, foxes, and bobcats capture gophers at their burrow entrances; badgers, long-tailed weasels, skunks, rattlesnakes, and gopher snakes corner gophers in their burrows. Owls and hawks capture gophers above ground. Predators can prune a population, but none of these predators can control gophers to the extent that is necessary in County landscaping. Owl boxes could attract more owls to certain areas of the County. More owls could mean somewhat fewer gophers in open fields. **Conclusion: Biological controls alone for gophers have not been shown to reliably reduce populations to the level that will prevent damage to plants and infrastructure.**

Which chemical controls were considered? For more information on pesticides listed here visit the National Pesticide Information Center (NPIC). This a joint project of Oregon State University and the US EPA. http://npic.orst.edu/ You can communicate with an actual person at **1.800.858.7378** or **npic@ace.orst.edu** They are open from 8:00AM to 12:00PM Pacific Time, Mon-Fri	**The risk to predatory animals must be considered before any rodenticides are used for gopher management.** **Fumigants** Extension and university literature recommend against using fumigants for gophers because the animals can quickly backfill a tunnel when they perceive a threat, which prevents the gas from reaching them. Injecting gas far enough into their extensive burrow system is difficult, and since their tunnels are close to the surface, gas can leak out and never reach a concentration high enough to kill. CO_2 Injection • The Grounds Division has purchased a device called the Eliminator which injects carbon dioxide into the burrow system. So far the gopher manager has had good luck with this device. Perhaps this is more effective since the CO_2 initially sinks to the floor of the burrow. • This device can be used where foot traffic prohibits the use of traps. • The same preliminary procedures are employed for this device as for trapping (see above). • Before deploying the device in the burrow, any openings should be closed and remaining mounds should be flattened to help keep the gas inside the burrow. • When the trigger on the device is pulled, there should be no hissing sounds. • The area should be monitored the day after the treatment to determine the degree of success. *A note on "signal words," below: these designations from the USEPA pertain to the acute toxicity of a pesticide.* Aluminum Phosphide Signal Word: DANGER • Fumigation with aluminum phosphide is effective for gophers, although it is a restricted use material that requires a permit from the County Department of Agriculture. Aluminum Phosphide is not used in the County for gophers. **Baiting** Diphacinone (005%) Multiple Dose Bait Blocks (Eaton's Answer®) Signal Word: CAUTION. Baiting is no longer used for gophers in Contra Costa County. **Conclusion: CO_2 injection has worked well for the Grounds Division, but lack of staff has curtailed its use. For large areas with many ground squirrels, it could be used again.** **Baiting is not being used.**
Recommendations from the IPM Advisory Committee	**On-going monitoring should be used to adjust control activities to a level appropriate to the population of gophers. Trapping and CO_2 injection are the preferred control methods when sufficient funding is available.** **Consider expanding trapping into areas where children or other passersby have access after investigating techniques used in school IPM programs or other programs where trapping is conducted in sensitive sites.**
References	Baldwin, R.A., D.B. Marcum, S.B. Orloff, S.J. Vasquez, C.A. Wilen, and R.. Engeman (2013). The influence of trap type and cover status on capture rates of pocket gophers in California, *Crop Protection*, 46: 7-12.

Contra Costa County
DECISION DOCUMENTATION for RAT MANAGEMENT AT LIVORNA PARK

Date: 8/4/2016

Department: Special Districts

Location: Livorna Park in Alamo and potentially other sites in the future

Situation: Rat management to protect human health & safety, ornamental plantings, and structures in Livorna Park

What are the management goals for the sites?	Livorna Park is the only park managed by County Special Districts where rats have been a problem over the past few years. They were damaging young hibiscus bushes at the edge of the park in the bed above the retaining wall by chewing on the bark. Currently rats are not an issue at Livorna or in any other Special District landscaping or park locations. However, it is possible that in the future Livorna Park or another area may have rat problems. The management goals would still be the following: • Prevent rats from killing or damaging plants by gnawing on the bark. • Protect public health. • Protect park structures from damage.	
Who has jurisdiction over the areas in question?	The County has jurisdiction over the facilities in question; however, the County does not control the source and amount of funding for pest management.	
How are the sites monitored and how frequently?	Various. Livorna Park is monitored weekly by landscape maintenance personnel from the County Grounds Division. The site is also monitored monthly by the vertebrate pest management contractor for Special Districts. Monitoring is done by visual inspection, looking for evidence of chewing on shrubs, evidence of runs, droppings.	
The problem species have been identified as the following:	**Roof rat** (*Rattus rattus*) Roof rats are omnivorous, but tend to more vegetarian preferences. Typical food is fresh fruit, plant material, nuts and seeds, vegetables and tree bark. Rats can damage or kill shrubs and young trees by gnawing on the bark or girdling the plant. Rats damage structures by gnawing and can cause electrical fires by chewing off insulation around electrical wires. They contaminate surfaces and food with urine and feces. These rodents are carriers of ectoparasites such as fleas and mites that can bite people, and they are implicated in the transmission of 55 different human pathogens.	
What is the tolerance level for these species?	**Tolerance level**: Any evidence of roof rats, such as gnawing on bark, evidence of runs, droppings, or gnawing on structures or wires, triggers a more thorough investigation. Treatment actions would begin if rats were seriously damaging shrubs or if there were evidence of on-going damage to infrastructure. Treatment ceases when new damage is no longer evident.	
Are these sensitive sites?	Is the site part of any of the court-ordered injunctions regarding threatened and endangered species? (see: https://www.epa.gov/endangered-species/interim-use-limitations-eleven-threatened-or-endangered-species-san-francisco-bay) Are there other sensitive species to be aware of? In urban areas, pets as well as birds of prey, and sometimes wild mammalian predators feed on rodents. Pets and other urban wildlife could feed directly on rodenticides if the bait were not secured inside a tamper-resistant bait station.	Livorna Park is not part of any injunction, but if problems arose at other sites, this question would be revisited.
	Is there known or potential habitat for any endangered or threatened species at any of the sites?	No for Livorna Park, but for other sites, this question would be revisited.
	Are any of the sites in or near an area where people walk or children play?	Yes
	Are any of the sites near a drinking water reservoir?	N/A

	Are any of the sites near a creek or flood control channel?	N/A
Which cultural controls were considered?	**Limiting availability of shelter/harborage for rodents** • Trim bushes and ground covers at least 2 feet away from any structure to decrease cover for rodent runways, to prevent hidden access to buildings, and to make inspections easier. • Prune shrubs and hedges up from the ground at least 12 inches so the ground beneath is open and visible. Remove weeds under shrubs. • Thin bushes until daylight can be seen through them. Keep all plantings airy to eliminate harborage. • Keep tree branches pruned at least 6 feet away from any structures. • Do not plant vines. • Do not plant dense ground covers or hedges. • Do not plant ivy and date palms because rats can live in and feed on these plants. • Remove rock and wood piles and construction debris. • Seal holes in structures that allow rodents access to shelter or harborage in the buildings. • Keep weedy grasses trimmed low and/or eliminate them to reduce harborage and food from seeds. **Limiting availability of food for rodents** • Use garbage cans that rats cannot access. • Remove garbage daily, ideally before nightfall, since rodents will be feeding at night. **CONCLUSIONS: All of these tactics are very important in reducing the number of rodents in and around structures. All of these tactics are used where appropriate in the County.**	
Which physical controls were considered?	Trapping requires more time, effort, and skill than other control methods, but has several advantages: you can see your success, no rodenticides are necessary, and there is no risk of secondary poisoning. **Live Trapping**: Rats caught in live traps would have to be humanely euthanized and would require a contractor with that capability. Glue boards are useful in certain situations, but glue boards are generally considered inhumane since rodents caught in the glue usually die slowly and with much struggle. Outdoors, glue boards would quickly be rendered ineffective by dirt and debris. **Kill trapping**: Snap traps are effective for roof rats and can be used both indoors and out at any time of the year. In general, they should be baited with something that is attractive to the roof rats. Traps must be placed where they will not attract attention and where children and adults will not accidentally encounter them. Trap placement is crucial for success and in general, it is important to use more, rather than fewer traps. Outdoors, snap traps can be used inside of rodent bait stations. This makes the trap inaccessible and hides catches from public view. Pestec IPM Provider, the current County structural IPM contractor uses Protecta Sidewinder® Bait Stations, but other brands that will easily accommodate the trap with its jaws open will work. Pestec places an unset snap trap (T-Rex®) and a non-toxic feeding block (Detex Blox®) inside the bait station. The purpose of the feeding block is to entice rats inside and to accustom them to entering the bait station safely. When monitoring shows that rats are feeding on the Detex Blox, the snap trap inside the station is baited and set. Pestec considers T-Rex traps to be the best choice for using inside a bait station. The bait stations should be inspected within a week to remove trapped rodents. At this point, the bait is refreshed and the traps are reset. When no more rodents are being trapped, the traps are deactivated and the technician returns to monitoring the station for feeding activity. Electronic traps are also available for rats and mice. These electrocute the rodent and need batteries to operate. They are also 7 to 8 times more expensive than a T-Rex trap, and must be monitored for battery replacement. **CONCLUSIONS: Trapping is very effective and is the only method of direct control used around County buildings, barring a public health emergency. In Livorna Park, both trapping and rodenticides have been used in the past; however, trapping was not successful, and no rats were caught. Nevertheless, trapping should always be considered first.**	
Which biological controls were considered?	**Biological controls available:** There are a number of animals that prey on rats and mice, including cats and owls. Predators can prune rat populations, but they cannot provide the degree of control necessary in a specific location. Cats and dogs are often found living in close association with an infestation of rats. **CONCLUSIONS**: **There are no biological controls that alone could reliably reduce the rat population below the damage threshold.** **The County, however, has erected an owl box in Livorna Park because natural predators can aid the County's efforts considerably. The County is not currently using rodenticide in the park but could not control whether residents around the park use rodenticides. Any owls nesting in the box at Livorna**	

	Park could be at risk for poisoning. To reduce the risk, the County will place posters in the park explaining the purpose of the owl box, and the Eagle Scout who took on this project will prepare information about owl boxes and alternative rodent management that will be reviewed by the IPM Coordinator and then disseminated to the neighbors in hopes of curtailing the use of rodenticides. Supervisor Andersen's office will give a presentation at the Alamo Municipal Advisory Council's next meeting to explain the project and urge people to consider managing rodents around their homes with methods other than rodenticides. An article about the project will also be in the Supervisor's next newsletter.
Which chemical controls were considered?	**Since an owl box has been installed at Livorna Park, this biological control project must be considered before any rodenticides are used in the Park.** *Note on "signal words": these designations from the USEPA pertain to the acute toxicity of a pesticide.* Diphacinone (005%) Multiple Dose Bait Blocks (Eaton's Bait Blocks®) Signal Word: CAUTION. **If rodenticides must be used, they will be used according to the Greenshield IPM Certification Standards as follows:** i) used only after reasonable measures are taken to correct conducive conditions including preventing access to water, food or garbage; removing clutter; sealing cracks or holes in foundations, sidewalks; removing tall weeds; and trimming shrubs to expose the ground and discourage rat burrowing; and ii) in bait-block form and placed in a locked, distinctively marked, tamper-resistant container designed specifically for holding baits and constructed of metal or heavy duty plastic and securely attached to the ground, fences, floors, walls or weighted bases, etc. such that the container cannot be easily moved/removed; and iii) baits are secured (e.g., on a rod) in the baffle-protected feeding chamber of the bait container and not in the station's runway In addition, the bait stations must be labeled with the active ingredient in the bait and the name and address (or phone number) of the contractor. Diphacinone is a first generation anticoagulant that prevents blood from clotting and causes death by internal bleeding. First generation anticoagulants require multiple feedings over several days to a week to kill. This is different from second generation anticoagulants that are far more toxic and can kill within days of a single feeding if enough bait is ingested. Second generation anticoagulants pose a greater risk to animals that eat poisoned rodents. If the rodent continues to feed on the single-dose anticoagulant after it eats a toxic dose at the first meal, it may build up more than a lethal dose in its body before the clotting factors run out and the animal dies. Residues of second generation anticoagulants may remain in liver tissue for many weeks, so a predator that eats many poisoned rodents may build up a toxic dose over time. However, even the first generation anticoagulants may be poisonous to animals that eat poisoned rodents. The first generation materials break down much more rapidly in animal tissues and have a much reduced potential for secondary kill when compared to second generation materials. **CONCLUSIONS:** **The County is not currently using rodenticides for rat pest control in any Special District locations. Rodenticide would only be used if damage were serious and trapping could not be used or was not effective. In the event of a public health emergency, the County would use all available means to control rats and/or mice, including rodenticides if necessary.** **A first generation anticoagulant, such as diphacinone or warfarin, would be chosen. These rodenticides are readily accepted by rats, effectively kill these rodents, and have a wide margin of safety because they require multiple daily sequential feedings for toxicosis, and have a readily available and easily administered antidote (Vitamin K). First generation anticoagulants also pose less of a secondary poisoning risk.** **Treatment actions would begin only if rats were seriously damaging shrubs or if there were evidence of damage to infrastructure. Treatment ceases when new damage is no longer evident.**
Which application methods are available for this rodenticide?	Rodenticide applications must be made in tamper-resistant bait stations anchored to the substrate and situated along walls, other external parts of buildings, or along rodent runs.
What factors were considered in choosing the pesticide application method?	Safety to the applicator, the environment, and nontarget species; endangered species considerations, the effectiveness of the method, and the cost to the Special District.

What weather concerns must be checked prior to application?	Since the rodenticide would be protected inside a bait station, weather would not be a concern.
Recommendations from the IPM Advisory Committee	We recommend that the County investigate owl monitoring techniques and apply the most cost effective method in Livorna Park to track the success of the owl box. In an effort to build awareness and community buy-in, we recommend that information pertaining to pests in Livorna Park and their most appropriate treatment mechanisms be disseminated to surrounding residents. This is not necessarily the job of the contractor performing treatment. Appropriate outreach techniques and personnel should be investigated.

File #: 25-2839 **Agenda Date:** 7/17/2025 **Agenda #:** 6.

Advisory Board: Integrated Pest Management Advisory Committee-Decision-Making Subcommittee
Subject: 6. PLAN August 21, 2025 meeting
Presenter: Wade Finlinson
Contact: 925.655.3214

Information:
The bylaws of the Integrated Pest Management Advisory Committee (IPMAC) list several purposes of the Committee. Those include:

- Making policy recommendations upon assessment of current pest issues and evaluation of possible IPM solutions.
- Providing a forum for communication and information exchange among members in an effort to identify, encourage, and stimulate the use of best or promising pest management practices.
- Promoting transparency in pest management decision-making by County Departments.

Referral History and Update:
On March 20, 2025, IPMAC reviewed draft goals for each subcommittee. The 2025 priorities identified by the IPMAC Chair, Decision-Making Subcommittee Chair, and IPM Coordinator include the following:

(1) Revising the ground squirrel decision document.
(2) Reviewing commensal rodent and gopher documents.
(3) Review grazing documents.
(4) Considering alternate formats for the IPM Decision Tree to encourage greater adoption.

The tentative work plan discussed in the April meeting projected that the August meeting would focus on finalizing the ground squirrel document continued discussion of commensal rodent and gopher decision documents, and initiating review of grazing documents and the IPM Decision Tree.

Recommendation(s)/Next Step(s):
Staff recommends finalizing the ground squirrel document, continuing the review of commensal rodent and gopher management documents, and starting the review of grazing documents and the IPM Decision Tree.