



DATE: February 18, 2025

TO: Board of Directors

FROM: Heather Dyer, CEO/General Manager
Wen Huang, Assistant General Manager/Chief Operating Officer

SUBJECT: Notification of Emergency Actions in response to the Overflow Incident at the Citrus Reservoir

Staff Recommendation

Staff recommend the Board of Directors (BOD) receive notification of actions taken by CEO/General Manager as outlined below in response to the overflow incident at the Citrus Reservoir, which occurred on February 2, 2025, and direct CEO/General Manager to continue the proposed actions.

Background

Staff previously informed the Board of Directors, via BCC (blind carbon copy) email communication, of an overflow incident which occurred at the Citrus Reservoir on February 2, 2025. The overflow resulted in erosion and damage to Opal Avenue and its drainage channel and mobilized and deposited thousands of plastic rhomboids¹ in the roadway, in land adjacent to Redlands Municipal Airport, and in the Santa Ana River floodplain. Pursuant to District's Resolution No. 1186, (Resolution that establishes and designates expenditure authority to the CEO/General Manager) the CEO/General Manager directed District Staff to take necessary and immediate corrective actions in response to this emergency condition. To date, all repairs to Opal Ave and the drainage channel have been completed and the rhomboids have been collected from along Opal Ave. There remain a few patches of rhomboids on Redlands Airport lands and in the Santa Ana River floodplain between Opal Ave. and Judson Street. We expect to finish collecting rhomboids from these areas in the coming next weeks. Corrective actions performed to date are detailed below along with proposed actions for consideration by the Board of Directors.

¹ Due to the proximity of Citrus Reservoir to the Redlands Airport, as part of the implementation of the Wildlife Mitigation Plan, the water surface of the Citrus Reservoir is covered with plastic floating rhomboidal balls. The rhomboids were added to the reservoir to deter waterfowl and mitigate against bird strike for aircraft operating in and out of Redlands Airport.

Summary

Following the January pipeline maintenance shutdown, while refilling the SWP facilities, an overflow incident occurred at the Citrus Reservoir. This incident happened in the early morning hours on Sunday, February 2, 2025. The Department of Water Resources (DWR) staff were operating the system when the incident occurred. Our staff was on-call over the weekend, as is typical when the East Branch Extension (EBX) pump stations are not operational.

We believe the water overflowed for several hours before our staff was contacted, at approximately 5am on Sunday morning, by DWR and shut off the valve. The overflow of water and mobilization of rhomboids resulted in several areas of erosion along the flow pathway including the Citrus Reservoir site and the Opal Avenue right-of-way (ROW), which is a public road but only routinely used by the rock crushing business adjacent to the reservoir. Rhomboids also flowed down Opal Avenue into the Santa Ana River floodplain via land owned by Redlands Airport. After the initial response by our staff on Sunday to assess the situation, the CEO/General Manager directed District Staff to take necessary and immediate corrective actions pursuant to Paragraph c. of Resolution No. 1186. Initial activities taken by District staff using District-owned heavy equipment immediately following the incident include clearing the rhomboids and sediments from the ROW and closing off sections of damaged roadway from public access. Our staff also began coordinating with multiple agencies regarding the situation and proposed emergency work including San Bernardino County, California Department of Fish and Wildlife, the Santa Ana Regional Board, and U.S. Fish and Wildlife Service. On Wednesday February 5th, several external contractors began the emergency repairs to the roadway and culvert and collection/removal of rhomboids from the Opal Ave ROW. Starting February 6th, collection of rhomboids from the Santa Ana River floodplain began using hired contractors, California Conservation Corps, District staff, and volunteers from many partner agencies and organizations in the watershed.

Following a phone call with the DWR Director of Operations and Maintenance on Wednesday February 5th, we directed our staff to meet the following day to begin a joint investigation into the root cause and contributing factors to the incident.

- The priority of the emergency work was given to ROW restoration, including repairs to roadway erosion, storm channel re-stabilization and cleaning, and clear and removal of rhomboids, sediment, and debris. Additionally, certain surface erosion within the Citrus Reservoir Site was also addressed. This work started on February 5 and was substantially completed on February 6 with Opal Avenue resuming normal operation at the end of day on February 6.

- It is estimated that up to approximately 700,000 rhomboids were mobilized by the overflow, with the bulk deposited along the flow pathway in the fields near the north end of Opal Avenue (Redlands Municipal Airport) and the Santa Ana River floodplain, down to the Mountain View Avenue crossing. Given the sensitive nature of the areas where the rhomboids were rested, in addition to obtaining necessary permits from resource agencies and gaining access from respective property owners, a pre-action biological survey was conducted along with continuous biological monitoring while collection and removal efforts are taking place. With the combination of forces consisting of District staff, contractors, volunteers, and other agencies' staff, collection and removal of rhomboids from the Santa Ana River floodplain started on February 6. As of February 12, 2025, substantial progress has been made; it is estimated that approximately 75-85% of the rhomboids have been collected. Due to the forecast of significant rain events for the area between February 13 and 15, work performed from February 10 through 12 was focused on clearing remaining rhomboids from the Santa Ana River and Redlands Airport and bagging and staging them on the elevated grounds away from incised channels to be collected following the storm events to minimize being washed further downstream.
- Joint Investigation with DWR: District staff participated in a meeting with DWR field and management staff on February 6, 2025, to collaboratively discuss and identify factors to the breakdown of infrastructure that caused the incident to occur and the processes that delayed the response and corrective action. Possible causes and associated corrective measures were identified for DWR and the District, respectively, generally including improvements to the system alarm notifications and acknowledgement by the operator on duty, troubleshooting, reprogramming, testing of the inlet valves to the reservoir to ensure proper function/shutoff, update to the communication protocol between DWR and District on-call and management staff, and evaluation of District staff possibly manning the Citrus PS during reservoir filling (*i.e.* 24-hour staff). District staff will continue to work with DWR to ensure all corrective measures are implemented accordingly.

As ROW restoration work was just completed late last week and collection and removal of rhomboids is still underway, detailed expenditures for the emergency work are not yet available. However, based on the efforts to date, it is estimated that approximately \$350,000 was expended for the emergency work between February 3 and February 12, 2025. As a reminder, the State Water Project is a beneficiary pays system, therefore, the District and the San Geronio Pass Water Agency are responsible for all costs associated with the East Branch Extension facilities. Thus, if DWR was to lead this response effort, the District would still bear the cost of repairs and cleanup but there would also be the cost of DWR overhead, often an additional amount of 30-40%. For this reason, staff believes that this course of action was the best option as we could respond much

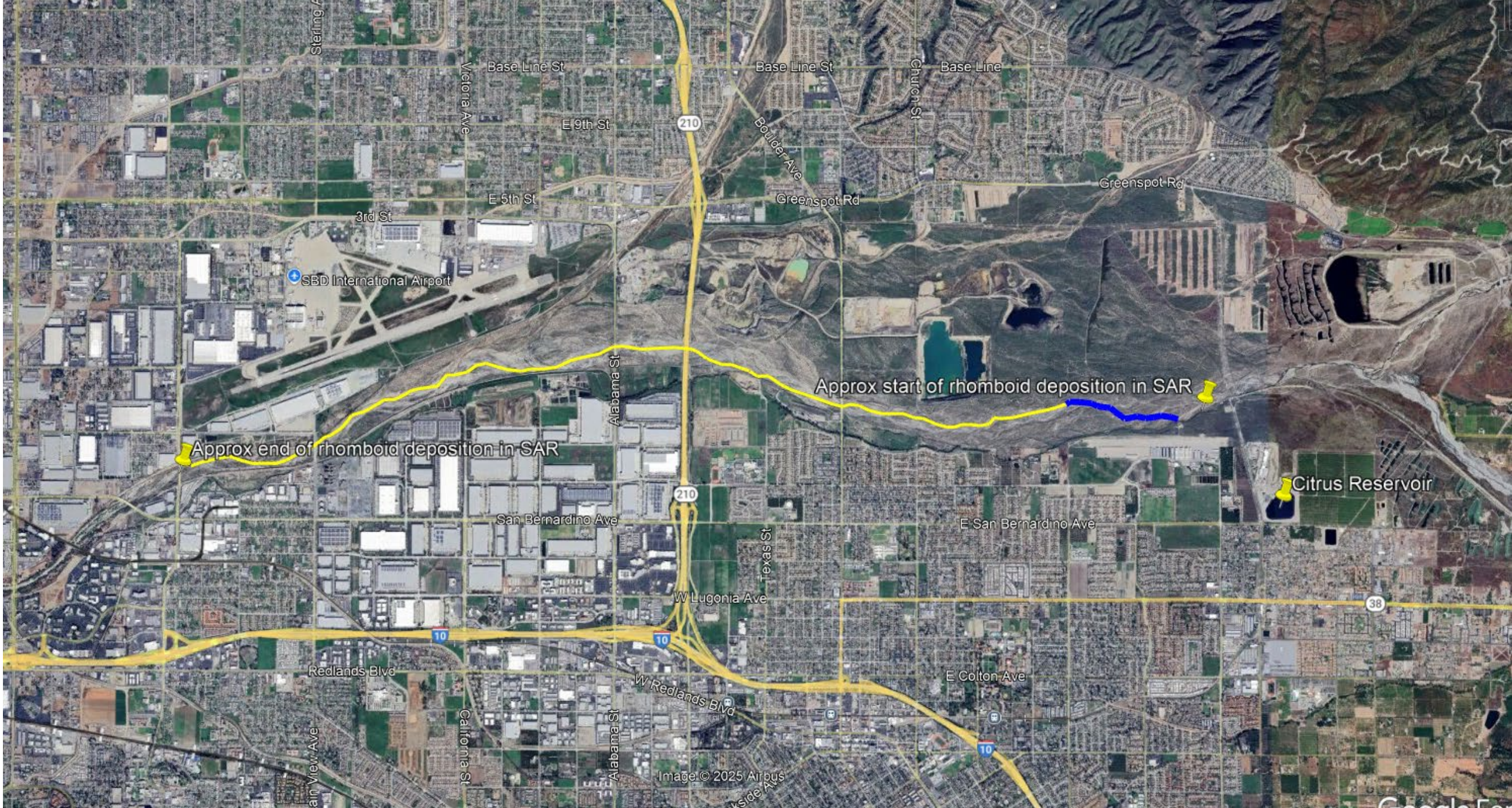
more timely to make repairs and limit further damage and it was less costly than if DWR provided the response and billed us.

Following the rain events on February 14, Staff will re-assess the condition and intends to resume the collection and removal of the remaining rhomboids from the floodplain and fields adjacent to the Redlands Municipal Airport on February 18, 2025. It is estimated there will be an additional cost of \$150,000 to complete the work with an estimated time of up to 2 weeks. Staff will provide an update from the posting of the agenda to the current status of the incident at today's Board of Directors' meeting.

Attachments

Resolution No. 1186

Map of Incident Response Area



Approx end of rhomboid deposition in SAR

Approx start of rhomboid deposition in SAR

Citrus Reservoir

Discussion Item 3.4 (pg. 43)

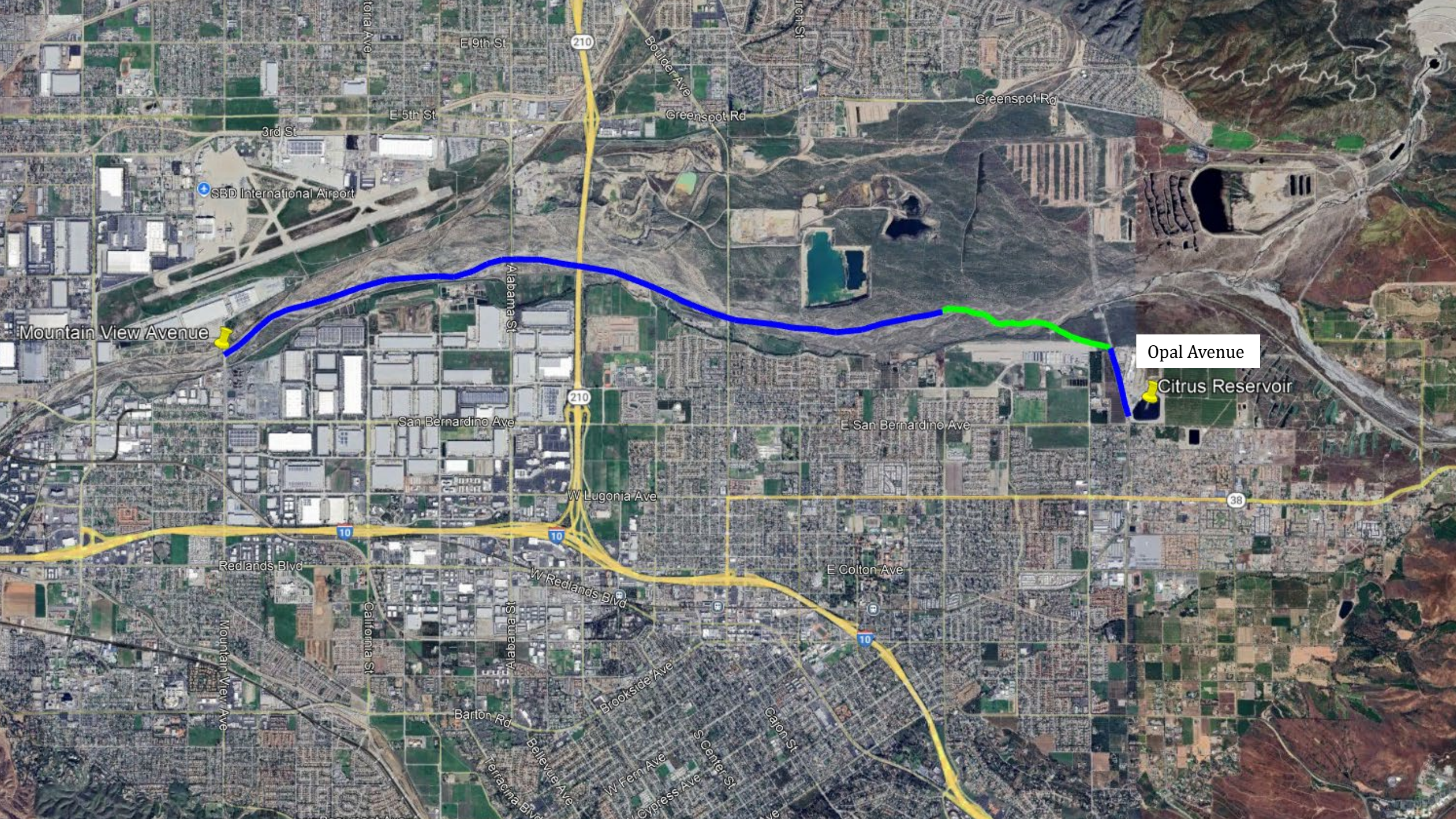
Heather Dyer, MS, MBA - Chief Executive Officer/General Manager

Wen Huang, PE, MS - Assistant General Manager/Chief Operating Officer

Notification of Emergency Actions in response to the Overflow Incident at the Citrus Reservoir

Background

- Initial refilling Citrus Reservoir at 59 cfs following the January pipeline maintenance shutdown
- Occurred around 1 a.m., Sunday, February 2, 2025
- DWR staff notified SBV Ops staff around 5 a.m.
- Valves were shut off manually by SBV Ops staff within ~1 hour.
- Approx. 25 AF of water overflowed and mobilized estimated 700k-800k rhomboids from the reservoir



Mountain View Avenue

SBD International Airport

Alabama St

210

210

10

10

38

Opal Avenue

Citrus Reservoir

Initial Responses

- Assess situation and clear rhomboids on Opal Avenue
- Closing off sections of damaged roadway from public access on Opal Avenue
- Assessment of the extent of deposition of rhomboids in Santa Ana River floodplain and Redlands Airport property
- Contacting Contractor to mobilize for emergency repairs
- Coordinating with resources agencies and impacted property owners for permits and access





Emergency Actions

- Right-of-way restoration: repairs to roadway erosion, storm channel re-stabilization and clearing, and clear and removal of rhomboids, sediments, and debris
- Removal of Rhomboids: ~6 miles Santa Ana River floodplain and Redlands Airport property
- Initiation of Joint Investigation with DWR: Identify factors to the breakdown of infrastructure that caused the incident to occur





Thank you to Agencies & Volunteers Participating in Rhomboid Pickup!

- Inland Empire Resource Conservation District (IERCD)
- Santa Ana Watershed Association (SAWA)
- Santa Ana Watershed Project Authority (SAWPA)
- Riverside County Regional Park and Open Space District
- South California Mountains Foundation
- California Dept. of Fish and Wildlife
- Bear Valley Mutual Water Company
- City of San Bernardino
- California Conservation Corps
- Urban Conservation Corps (UCC)
- Bureau of Land Management (BLM)
- Cal State-SB Fellows + other students
- City of Riverside
- Caltrans



Estimated Cost for Emergency Actions

- To-date: Est. \$350k, including roadway and drainage restoration, all labor and material cost associated with rhomboids removal and collection
- Proposed Action: Staff is proposing to continue the efforts pending favorable weather and river conditions for consideration by the Board:
 - Estimated up to \$150k for work completed in last few days and remaining rhomboid removal costs
- Cost to be shared between SBV (76%) and SGPWA (24%)

Director Comments and Discussion



**T. Milford
Harrison**
President



Gil J. Botello
Vice President



Susan Longville
Treasurer



Paul Kielhold
Director



Jose Velasquez
Director

Staff Recommendation:

Staff recommends the Board of Directors (BOD) review actions taken by CEO/General Manager in response to the overflow incident at the Citrus Reservoir and direct CEO/General Manager to continue the proposed actions.