

**REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

**EXECUTIVE OFFICER SUMMARY REPORT
JUNE 10, 2026**

ITEM 6

SUBJECT

Caltrans Mapping Ecosystems

STAFF RECOMMENDATION

Informational item only. No staff recommendations.

KEY ISSUES

This item will provide the San Diego Water Board with an opportunity to gain insight into Caltrans District 11's (District 11) implementation of advanced geospatial technologies, including orthomosaic aerial imagery and Simultaneous Localization and Mapping (SLAM) Light Detection and Ranging (LiDAR). These innovations are designed to improve District 11's capacity for assessing sensitive resources, informing permitting decisions, and ensuring effective long-term monitoring and regulatory compliance. District 11 serves both San Diego and Imperial counties.

PRACTICAL VISION

This information item is consistent with the goals of the Assess and Monitor chapter of the San Diego Water Board Practical Vision (Practical Vision).¹ Aerial imagery and SLAM LiDAR are available technologies that advance environmental monitoring practices. These monitoring practices produce information that supports protection and restoration of San Diego Region waters by showcasing tools that improve our understanding of sensitive resources. This informational item provides an opportunity for the San Diego Water Board and public to learn about the monitoring and compliance strategies at other state agencies and highlights innovative methods that advance monitoring practices supportive of more effective environmental permit compliance.

DISCUSSION

Orthomosaic aerial imagery is created by stitching together hundreds to thousands of overlapping drone images into a single, georeferenced, distortion-corrected map. Key capabilities include survey-grade spatial accuracy, high-resolution imagery, true-scale mapping suitable for delineation and measurement, and repeatable data collection for temporal comparison. SLAM LiDAR uses mobile sensors to generate high-density 3D point clouds while simultaneously tracking position in complex environments. Key capabilities include detailed terrain and vegetation structure mapping, ground surface elevation capture through vegetation,

¹ San Diego Water Board [Practical Vision: Healthy Waters, People, and Communities](#).

accurate elevation modeling in areas where traditional GPS is limited, and rapid data collection in challenging field conditions.

To date, District 11 has used these tools to map vegetation and hydrologic function at the San Elijo Lagoon restoration site and to conduct vegetation mapping and identify hydrologic indicators and disturbance boundaries at an emergency channel clearing site. District 11 plans to use orthomosaic aerial imagery and SLAM LiDAR to generate time-series for tracking vegetation establishment and survival, hydrologic function, and site stability for mitigation monitoring and compliance. Potential futures uses for these technologies include completing higher-quality wetland delineations, improving long-term biological monitoring, and improving project planning and development of avoidance and minimization measures.

PUBLIC NOTICE

The agenda notice for today's meeting was posted on the San Diego Water Board's website and sent to subscribers to the email list for Board meetings. This satisfies the *Bagley--Keene* Open Meeting Act requirements to publish the meeting notice and agenda.

SUPPORTING DOCUMENTS

None