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## CALIFORNIA INNOVATION WITH HIGHWAY NOISE AND BIRD ISSUES

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### **Abstract**

The California Department of Transportation (Caltrans) and environmental-resource agencies such as the U.S. Fish and Wildlife Service have been concerned for many years with highway construction and operation noise impacts to birds, especially to species listed under the Federal Endangered Species Act (FESA). Mitigation implemented to date in California is conservatively estimated in the tens of millions of dollars, without clear evidence of need or benefit. This issue frequently occurs with high-profile species such as the marbled murrelet (*Brachyramphus maroratus*) in Northern California, as well as the least Bell's vireo (*Vireo bellii pusillus*) and California gnatcatcher (*Polioptila californica*) in the southern part of the state. Other transportation agencies in the United States, such as the Oregon State Department of Transportation, have also been working to resolve the issue in their state. Our approach involves an integrated partnership with the Federal Highway Administration, federal and state resource agencies, and the scientific community that is based upon recent successful experience by Caltrans in fisheries hydroacoustics.

The 60 dB (A-weighted) Leq (1 hr) criterion is usually applied as a threshold to assess impacts without scientific justification. For many projects, mitigation (e.g., seasonal work restriction) for noise impacts to birds has been required, resulting in delays to project delivery for Caltrans and other transportation agencies in California. Other types of mitigation have included attenuation at the source, noise barriers to intercept the path, and out-of-kind compensation such as invasive exotic-vegetation removal. To ensure compliance with both the letter and spirit of applicable statutes, more information and scientifically justifiable noise thresholds are needed, particularly for FESA-listed species. These data and thresholds will facilitate coordination with our funding partners and resource agencies, provide guidance to Caltrans' staff, and better inform the public and other stakeholders.

We intend to identify existing data gaps and the research necessary to bridge them. The process is beginning with a literature synthesis by bioacoustic experts Drs. Arthur Popper and Robert Dooling of the University of Maryland, who are part of the interagency expert panel. Next, we will develop interim noise thresholds, as well as FESA consultation and compliance protocols. This will also involve the interagency working and management groups—the other two of the three integrated panels. A key role of the management panel will be to make final decisions in case of dispute. Based on our efforts, we will develop a strategic research plan to provide data needed to address key uncertainties related to bioacoustic impacts on birds, including refined effect thresholds, metrics for effect criteria, and protocols for monitoring noise sources.

We expect that our integrated partnership will develop cost-effective, scientifically credible noise thresholds, and evaluation protocols in a timely manner applicable throughout the United States and possibly elsewhere. These thresholds and protocols will provide mechanisms to avoid, minimize, and compensate for adverse effects to birds, as well as to facilitate efficient and economic implementation of highway-related activities.