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AGENDA ITEM MEMO

BOARD MEETING DATE: July 24, 2025

TO: Board Members

THROUGH: Bryan McMath, Executive Administrator
Ashley Harden, General Counsel
Georgia Sanchez, Chief Financial Officer
John T. Dupnik, P.G., Deputy Executive Administrator, Water Science and Conservation

FROM: Sam Marie Hermitte, Assistant Deputy Executive Administrator, Water Science and Conservation

SUBJECT: High-water marks data collection with the U.S. Geological Survey

ACTION REQUESTED

Consider authorizing the Executive Administrator to execute a contract with the U.S. Geological Survey in an amount not to exceed \$500,000 from the Texas Infrastructure Resilience Fund to conduct a high-water marks data collection and analysis campaign in the Central Texas area.

BACKGROUND

At the Governor's request, the TWDB initiated a variety of programs to increase flood preparedness throughout the state following the 2015 Memorial Day Flood, and these efforts were expanded to include flood modeling and mapping by the 86th Texas Legislature in 2019. Among the datasets useful to validating and improving flood models are the ephemeral marks, such as displaced debris or mud stains, left behind once flood waters have receded. These high-water marks provide a record of the peak height of a recent flood event and are used to map flood extents, calibrate flood models, and improve flood planning and preparedness efforts. However, high-water marks typically degrade quickly as debris and damaged structures are removed and as additional precipitation falls and washes away water lines. Additionally, precise surveying is required to yield a level of accuracy required for calibrating and improving hydraulic flood models and updating inundation maps. Thus, rapid initiation of high-water marks collection activities is critical to accurately determining the extent of a flood event.

Our Mission	Board Members
Leading the state's efforts in ensuring a secure water future for Texas	L'Oreal Stepney, P.E., Chairwoman Tonya R. Miller, Board Member Bryan McMath, Executive Administrator

KEY ISSUES

The proposed contract with the U.S. Geological Survey (USGS) will allow for collection and analysis of high-water marks data associated with the July 2025 flood event along select tributaries and the mainstem of the Guadalupe River, the Concho River in San Angelo, and the Llano River at Junction. This dataset will allow for improved characterization of the July 2025 flood event caused by rainfall in these basins. The USGS will also evaluate and incorporate, as appropriate, data collected since the July flood event on the mainstem of the Guadalupe River by the Harris County Flood Control District and Scheibe Consulting.

Additionally, USGS collection of new LiDAR data in the same areas will allow for mapping of changes to the geomorphology of these river reaches that has occurred since 2018-2019 when LiDAR data was last collected in these areas. This data will then be used to analyze flood-peak magnitudes at select locations and to conduct geographic information system (GIS) analysis to produce flood-inundation maps that reflect the areal extent and maximum depth of the July 2025 flood event.

RECOMMENDATION

The Executive Administrator concludes that the collection and analysis of high-water marks data in the Central Texas area furthers the objective of improving flood risk information in these watersheds and recommends approval of this request.