

COON CREEK WATERSHED DISTRICT

MEETING DATE: October 26, 2026
AGENDA NUMBER: 10
ITEM: Water Quality Model

AGENDA: Discussion

ACTION REQUESTED

None

PURPOSE

Provide update on the results of the Districtwide water quality modeling effort.

BACKGROUND/CONTEXT

The background and methodology of the Districtwide water quality model was presented at the 9/28/2026 Board meeting and is summarized below.

In 2025, funds were budgeted to pursue development of a water quality model to simulate sediment and nutrient loading across the District and evaluate progress towards achieving the required pollutant total maximum daily loads (TMDLs) established in 2016.

Modeling is a powerful tool to simulate continuous data with expanded spatial coverage compared to discrete field-collected data.

Previously, water quality modeling efforts were conducted in a piecemeal manner as part of rotating subwatershed assessments. District staff recognized challenges with this approach including lack of agreement between disjointed models and inefficient workflows. It was determined that a comprehensive, Districtwide effort would result in more useful data products, cost-savings, and better integration of monitoring data.

In early 2025, Stantec was tasked to first evaluate available water quality model methodologies and to provide a recommended approach to best meet stated objectives. Six options were compared with a final recommendation of the Soil and Water Assessment Tool (SWAT). A strength of SWAT is that it models landscape and watershed processes to simulate pollutant transport in both surface and groundwater and can predict impacts of changing land cover and management practices across a range of land uses.

Development of a Districtwide SWAT model was initiated in June 2025 with completion of a calibrated, validated model by December. The model was tested against and fitted to field-collected data at 11 long term stream monitoring sites. The validated model was then used to generate a variety of data products including updated flow and pollutant loading summary figures for all impaired streams and major tributaries as well as a variety of geospatial products such as pollutant loading heatmaps. A summary report of methods, results, and major findings was finalized in September 2026. This report includes a 10-year evaluation of progress towards achieving required pollutant load reductions since approval of the CCWD TMDL study by US EPA in 2016. Overall, this work showed significant progress has been made toward pollutant load reductions and provided updated reduction benchmarks, while also laying the foundation for better targeted projects which will enable the District to achieve its TMDL goals in the most cost-effective manner.