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Memo

To:	Brazos G Regional Water Planning Group		
From:	David D. Dunn, PE	Project:	2011 Brazos G Regional Water Plan
CC:	Trey Buzbee, BRA Matt Nelson, TWDB		
Date:	September 14, 2009	Job No:	100493

RE: Consistency with Protection of the State's Resources and Assessment of the Plan's Effects

This memorandum summarizes the approach used for the 2006 Plan and offers a recommendation for the 2011 Plan.

Consistency with Protection of the State's Resources

State water planning rules require that regional water plans be consistent with the long-term protection of the State's water, agricultural and natural resources. As water management strategies are developed, the impacts on the state's resources are evaluated by both quantitative (acres of habitat inundated by a reservoir, for example) and qualitative means. In addition, minimum instream flow requirements are included in all hydrologic analyses of new surface water supplies. Groundwater supplies are identified using estimates of Managed Available Groundwater, which are based on Desired Future Conditions. Estimates of surface water and groundwater supplies are therefore developed consistent with long-term protection of the state's resources. Section 7 of the 2006 Brazos G Regional Water Plan addresses these issues and elaborates more fully on how the 2006 Plan is consistent with protection of the state's resources.

Assessment of the Plan's Effects on Streamflow

The 2006 Plan also demonstrates the effects of the plan on surface water resources, by comparing streamflows before and after implementation of the recommended water management strategies at eight specific locations in the Brazos River Basin. These locations are identified in Figure 1. During the development of the 2006 Plan, the Brazos G Regional Water Planning Group selected the locations at which to make these streamflow comparisons, and selected the methods by which these comparisons were made. This memorandum summarizes these methodologies.

The cumulative effects of the plan are quantified by comparing conditions prior to implementation of the plan ("base condition") to conditions with the plan in place ("implementation"). The base condition selected by the planning group for the 2006 Plan was streamflow computed by the Brazos G WAM model that was used to determine the availability of surface water supplies. This model assumes that all existing water rights are fully utilized, all major reservoir capacities are reduced to year 2060 sedimentation conditions, wastewater effluent discharges include an aggressive level of reuse, and all Brazos River Authority contractual commitments are placed at their actual diversion

locations. The implementation condition includes the baseline conditions with the addition of any recommended strategies that could measurably affect streamflow.

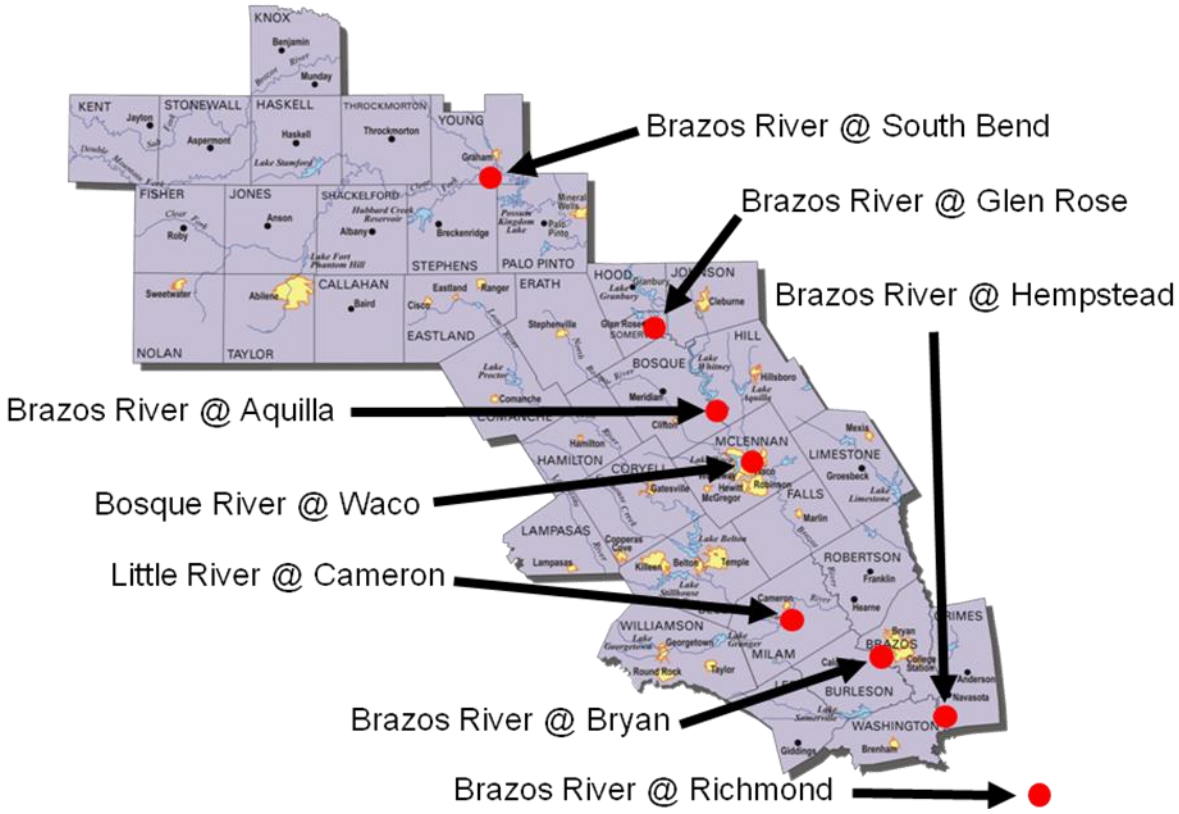

Figure 1. Locations for Assessment of the Cumulative Effects of the Plan.

For the 2006 Plan, the planning group also compared the streamflow at baseline conditions and at implementation conditions with an estimate of current streamflow. The Texas Commission on Environmental Quality maintains a version of the Brazos River Basin WAM that approximates "current" conditions of use by individual water rights, current levels of wastewater effluent discharge, and year 2010 reservoir sedimentation conditions. This version is identified as "Run 8". Comparisons of streamflow at the locations selected by the planning group between the baseline, plan implementation, and Run 8 conditions are presented in Section 7 of the 2006 Plan using relatively simple graphical and statistical comparisons, as shown in Figure 2.

Assessment of the Plan's Effects on Groundwater

No strategies are anticipated to be included in the Plan that will cause groundwater withdrawals to exceed the Managed Available Groundwater. Consequently, all impacts of groundwater withdrawals included in the Plan will be equal to or smaller than those anticipated by the Desired Future Conditions adopted by Groundwater Management Areas

or by the groundwater availability analyses that were performed in support of the planning group selecting other estimates of groundwater availability.

Recommendation

HDR Engineering, Inc. recommends that the Brazos G Regional Water Planning Group confirm that the methods of analysis used for the 2006 Plan should be employed for the 2011 Plan.

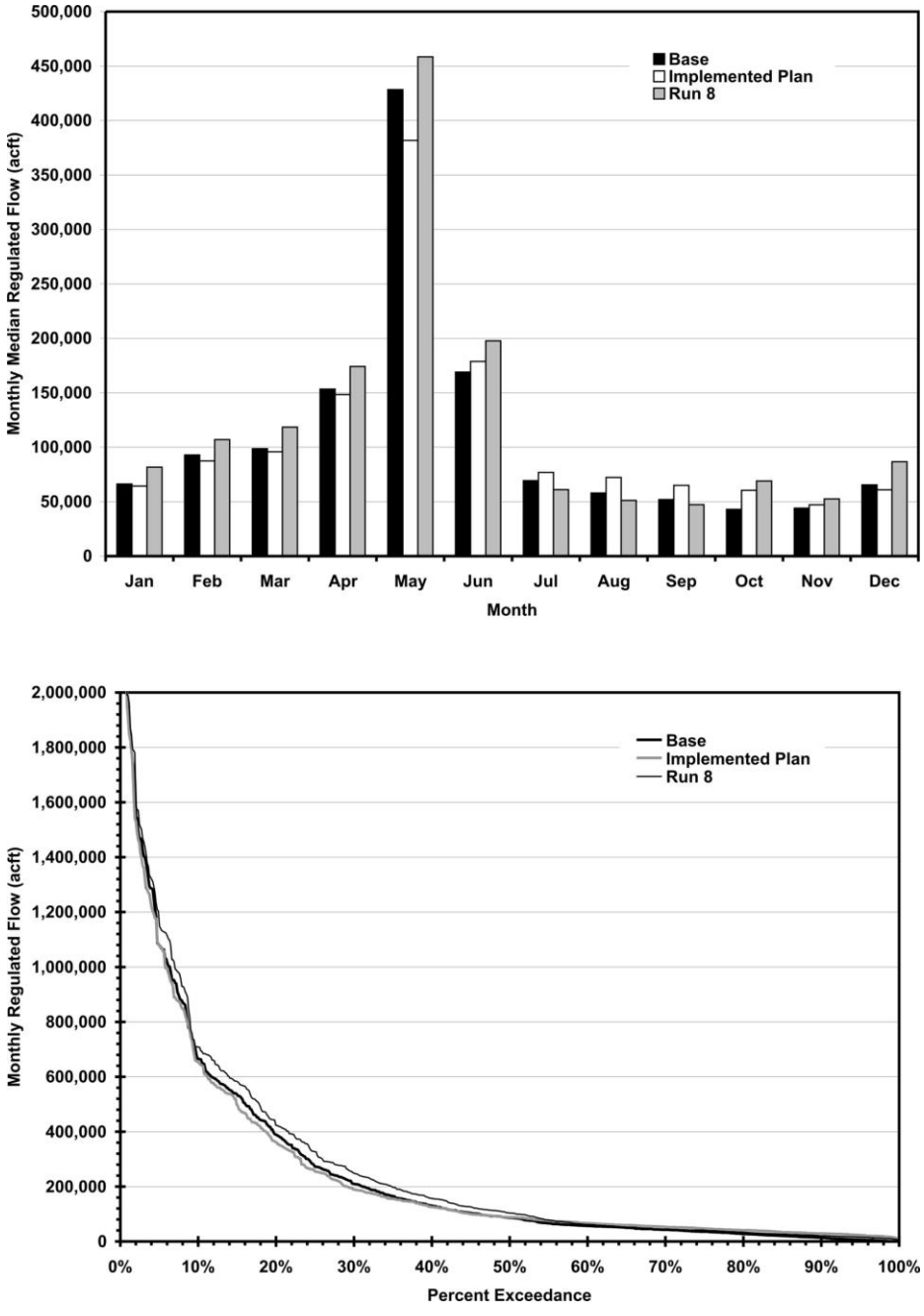

Figure 2. Example Graphical Comparisons of Streamflow (Brazos River near Bryan).