

## Affirmation and Restructuring of the Shared Vision for the Guadalupe River System and San Antonio Bay

On February 22, 2016, the Guadalupe Blanco River Authority (GBRA) and The Aransas Project (TAP) reached consensus on a shared vision for the future of the Guadalupe River System and San Antonio Bay through a whitepaper agreement. This document reaffirms the vision by restructuring that initial whitepaper agreement to outline both habitat-related and water-related studies needed to reach our mutually agreed-upon goals.

This agreement grows from past conflicts between development of water supplies to meet the needs of a growing population and economy and finding a balance for the environment and lower Guadalupe Basin ecosystem, the San Antonio Bay fishery, the only wild flock of whooping cranes in the world and other rare and endangered species. It is a conflict that can be resolved if all parties work together to find such solutions. This affirmation and restructuring is a joint resolution by GBRA and TAP of good faith intent to work together to solve these difficult and critical issues.

We believe that by working together we can find ways to meet the long-term water use needs within the basin and protect the natural ecosystem of the Guadalupe River system and San Antonio Bay. We envision a future where economic development and ecologic protection are both achieved within the watershed and San Antonio Bay, a vision that includes people and industry, whooping cranes and recreational fishing.

We have identified two major topic areas for research and collaboration. One is related to habitat, endangered species, and land stewardship. The second is related to the future of water supply and water development within the watershed. Of the two, water availability and supply is more difficult and will require more time and financing than habitat analysis and evaluation, although neither is easy or inexpensive to address. For that reason, we have divided this agreement into two parts – habitat and water.

In approaching these problems, we believe three issues are worthy of special mention. First, by working together and with stakeholders, that the chances of successful resolution are increased significantly. Second, market-based solutions offer a great opportunity for innovation. Third, creativity demands that all issues and solutions are considered from the outset.

Under this agreement, we are asking for help and input from others. There are groups and individuals potentially affected by this agreement and many possess important expertise. We will have two primary levels of stakeholder involvement, one at a more general advisory level and at least two at the more specific project level. We hope that through these stakeholder involvement processes, we can enhance the quality of the work and ensure that our ideas are well considered, that the work is well vetted, and that solutions developed will be successful.

Several issues in the original GBRA-TAP agreement can be generally identified as habitat-related rather than water-related. Part 1 of this agreement sets out the combined study areas that comprise the habitat-related portion of this affirmation and restructuring. Part 2 of this agreement focuses on the water supply issues on the Guadalupe River system emphasizing understanding and evaluating ideas and concepts for solving long-term issues that must be addressed to achieve this vision.

### Part 1: Habitat Investigations

Conservation and enhancement of habitat is a key goal. Our primary focus of habitat investigation under this agreement is to evaluate and then provide for adequate future territories and expansion areas for whooping cranes as the wild flock expands toward the goal of 1000 birds. A second focal point is understanding and planning to realize the potential of the Guadalupe Delta as habitat as well as a channel for freshwater delivery to the upper portion of San Antonio Bay. This includes better understanding of improvement in estuarine as well as terrestrial habitat for cranes and other wildlife and fisheries. Third, the potential for improvement of habitat

throughout the watershed, both for water supply and fish and wildlife purposes, will be investigated. In all studies, extensive effort will be expended developing market mechanisms as well as traditional means for bringing revenue to landowners in exchange for habitat improvement. Fourth, several species of mussel are under consideration for listing as endangered species. The habitat needs and requirements of these unique species must be studied and addressed.

Each of these three areas will be researched in detail. The U.S. Fish and Wildlife Service and the International Crane Foundation (ICF) both have conducted extensive work on existing and projected future whooping crane habitat taking future sea level rise into consideration. The ICF information is available and the U.S. Fish and Wildlife Service (USFWS) will release its analysis soon. Here, there is the potential in working with various landowners to utilize market-based contractual systems to expedite habitat conservation. The ICF and USFWS information along with additional studies on expansion and market opportunities will be integrated with stakeholders and landowners to understand potential future habitat needs and the opportunities and problems that lie ahead.

The Guadalupe Delta is a unique area with interesting physical features, including multiple bayous and channels that complicate full understanding of its current functioning, resources and potential future role from a habitat perspective given potential sea level rise. A geographic information system is needed for the delta that identifies both existing and potential habitat, water surface elevation, topography, land ownership and physical features. A better understanding of the manner in which water flows into and through the delta in both low flow and higher flow circumstances needs to be developed. A complete understanding of the operation of the salt water barrier during droughts and relationship to the delta and bay system are needed, in addition to the performance of the delta during river-flooding, drought, and storm-surge events. Relative to bay habitat, the potential creation of a low-flow sanctuary in the upper half of San Antonio Bay will be evaluated as a nursery for blue crab and other

juvenile species. Among other issues, the need for and/or availability of minimal inflows to maintain this nursery reserve area will be evaluated.

Potential habitat restoration for the watershed as a whole is both a fish and wildlife and water supply enhancement concept that will be fueled by the market system and buying and selling ecological services. The structure of this market system and quantitative information about the potential for habitat improvement to increase base flows during dry times needs to be fully researched and understood in order to evaluate the potential benefit from this conceptual approach.

Finally, there is need to understand the habitat requirements of certain species of mussels that are candidate species for listing as either endangered or threatened. The Comptroller's office has money set aside to research this issue and is considering funding research for mussels in the Guadalupe River system. This research would be integrated with the research to be funded directly through this agreement.

## **Part 2: Water Investigation**

In the long term, water supply for the watershed and freshwater inflows for the San Antonio Bay complex must be addressed in a sustainable manner. Here, several different areas will require study and evaluation. There are also a number of ongoing conflicts in need of solutions and potentially others in the not-too-distant future. There are many ways to organize and approach this research and several key topics warrant research and better understanding. The following are ways to consider and organize this research and study effort. Again, GBRA's and TAP's intent here is to further develop these concepts with the assistance of a stakeholder group.

GBRA and TAP plan to investigate options regarding the potential re-allocation of existing water supplies for environmental use, dependent on timely replacement and supplementation so that inventory is maintained for human needs and the additional supplies needed to meet future

demands are developed in a relatively cost-neutral manner. To this end, several specific water re-allocation and management strategies should be evaluated, and all holders of permits for both surface water and hydrologically-connected groundwater will be invited to participate in these discussions. These substitute supplies are typically not considered to be needed new supplies of water, but the cost will be new water cost, and the price or charge for a re-allocation generally should be based on that cost.

There are several aspects of long-term water supply that require better computer modeling and understanding. The water availability model (WAM) for the Guadalupe River System has not been updated to reflect the period of record, including the recent drought. Updates in this tool should be carefully evaluated, with a goal of understanding domestic and livestock usage along with a full understanding of the role of return flows and groundwater flow through springs and seeps in the long-term health of both the river and estuary. Also, the role of a changing climate on future rainfall and base flows should be evaluated. Similarly, the freshwater inflow modeling work completed to date for the Senate Bill 3 (SB3) freshwater inflow studies has not incorporated blue crabs, a key food source for whooping cranes, into the modeling, nor has the creation of a nursery sanctuary in the upper half of San Antonio Bay during severe drought conditions. This task envisions both water availability and bay and estuarine modeling.

GBRA and TAP also plan to evaluate the ability of market tools to assist in water allocation and availability. The State of Texas owns the surface water in all watercourses. To date, Texas has not charged for this water even though there is an innate "value" to it. To date, GBRA and TAP are unaware of any study that establishes a dollar value for water that stays in the river and flows into the bay, fueling bay and estuarine shrimp and oyster production as well as recreational and commercial fishing. If the "true cost" of this water were agreed to, then it could be used in developing alternative water supplies as well as supporting efforts to bring water to the bay. Similarly, the idea of "purchasing" water for bay and estuarine inflows

should be considered. Research work being undertaken on purchasing inflows for bay and estuarine enhancement should be fully integrated into this work.

The various water management strategies to enhance water availability will be evaluated. Here there are several issues to be considered, including the impacts of full utilization of permitted water rights, future re-use projects, off-channel reservoir construction, aquifer storage and recovery, and domestic and livestock water usage. These evaluations could easily become controversial and full stakeholder participation is essential. Fully evaluating and discussing these issues will test the ability of our groups to work together to achieve mutual goals. GBRA and TAP are committed to this effort.

### 3. Conclusory Statement

If the two organizations are successful under the process set out in this white paper, GBRA and TAP, with the assistance of vested stakeholders, will create an action plan for ensuring water supply, a healthy bay and protected endangered species, including whooping cranes and mussels. GBRA and TAP believe that hard work, creativity and openness will give the organizations the ability to solve what may seem initially to be an impossible task.


FOR THE GUADALUPE-BLANCO  
RIVER AUTHORITY

FOR THE ARANSAS  
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