

Alamo, Austin, and Lone Star chapters of  
the Sierra Club

Bexar Audubon Society

Bexar Green Party

Boerne Together

Bulverde Neighborhood Alliance

Cibolo Nature Center

Citizens Allied for Smart Expansion

Citizens for the Protection of Cibolo Creek

Comal County Conservation Alliance

Environment Texas

First Universalist Unitarian Church of  
San Antonio

Friends of Canyon Lake

Friends of Dry Comal Creek

Friends of Government Canyon

Fuerza Unida

Green Party of Austin

Green Society of UTSA

Guadalupe River Road Alliance

Guardians of Lick Creek

Headwaters at Incarnate Word

Helotes Heritage Association

Hill Country Planning Association

Kendall County Well Owners Association

Kinney County Ground Zero

Leon Springs Business Association

Medina County Environmental Action

Native Plant Society of Texas – SA

Northwest Interstate Coalition of  
Neighborhoods

Preserve Castroville

Preserve Lake Dunlop Association

San Antonio Audubon Society

San Antonio Conservation Society

San Geronimo Valley Alliance

San Marcos Greenbelt Alliance

San Marcos River Foundation

Save Barton Creek Association

Save Our Springs Alliance

Scenic Loop/Boerne Stage Alliance

Securing a Future Environment

SEED Coalition

Solar San Antonio

Sisters of the Divine Providence

Travis County Green Party

Water Aid – Texas State University

West Texas Springs Alliance

Wildlife Rescue & Rehabilitation

Wimberley Valley Watershed Association

August 29, 2019

Jeff Walker

Executive Administrator

Texas Water Development Board

1700 North Congress Avenue

Austin, TX 78701

Submitted electronically to: [rulescomments@twdb.texas.gov](mailto:rulescomments@twdb.texas.gov)

Dear Mr. Walker,

Thank you for the opportunity to submit these comments on behalf of the fifty-two member organizations of the Greater Edwards Aquifer Alliance. In that most of our service area is within the area recognized nationally as “flash flood alley”, we are delighted with this measure to adequately fund planning for and building flood control projects.

To achieve the full benefits in implementing the flood legislation passed during the 86<sup>th</sup> session of the Texas Legislature, we concur with comments submitted by the Lone Star Chapter of the Sierra Club and the National Wildlife Federation, which are included as attachments to this letter, and we offer the following recommendations.

We would like to see a mix of grant and loan funding. Over the past 15 years of working with small communities within our service area we have learned that many of these communities do not have the capacity to secure bond funding to repay even a no-interest loan for infrastructure improvements. Growth within our region is having a profound influence on small communities and predicates adequate planning for flooding, especially since this growth brings with it much higher percentages of impervious cover. Given the limits imposed by the State in assessing impact fees to equitably share the cost of new drainage infrastructure, grant funding must be available to these communities to ensure that growth is supported by planning on a watershed basis for flood mitigation infrastructure.

Comprehensive planning for flood control projects within the entire watershed and contiguous impacted watersheds is long overdue. As observed in the Interim Report of the House Natural Resources Committee, “Most flood planning is not occurring on a regional or watershed scale. At the watershed scale, the San Antonio River Authority is an example of watershed-scale planning. They’ve developed a sophisticated program to develop modeling, mapping, and mitigation efforts for flooding in that basin. ... Stakeholders showed a strong preference for watershed-scale planning for the future of flood planning in Texas, and provided input as to what this process might look like. They indicated it would be important to identify and prioritize projects, much like is done in the State Water Plan, assess upstream and downstream impacts, and develop consistent policies and guidelines to require communities following some and evaluate future changes that could occur in the watershed, such as development.”

A provision for public input incorporated into the process for prioritizing funding can contribute substantially to the success and usefulness of flood control projects as local residents are usually most familiar with the impacts of stormwater on their communities and are thus often able to provide valuable expertise.

Further, applications for funding should require that:

- (1) the eligible political subdivision has acted cooperatively with other political subdivisions to address flood control needs in the area in which the eligible political subdivisions are located;
- (2) all eligible political subdivisions substantially affected by the proposed flood project have participated in the process of developing the proposed flood project;
- (3) the eligible political subdivisions, separately or in cooperation, have held public meetings to accept comment on proposed flood projects from interested parties;
- (4) the technical requirements for the proposed flood project have been completed and compared against any other potential flood projects in the same area; and
- (5) an applicant for financial assistance for a flood project "must have entered into a Memorandum of Understanding (MOU), similar to a contract, with all other political subdivisions in the watershed."

Additionally, as proponents of water conservation and green infrastructure techniques, we support provisions to require applications for funding to include an analysis of whether the proposed flood project could use floodwater capture techniques for water supply purposes, including floodwater harvesting, detention or retention basins, aquifer storage and recovery, or other methods of capturing storm flow or unappropriated flood flow. We believe this approach will make the most of our water resources, with the caveat that that in-stream flows needed to maintain the health of riparian and estuarine ecosystems (especially those to the bays and estuaries) should be seriously reflected in these calculations.

We strongly recommend allocation of funding that may be used for all nonstructural flood measures, including buyouts of land and property in the floodplain where advisable and purchase of greenspace and conservation easements to maintain natural drainage and reduce flooding potential. Proposals for nonstructural mitigation strategies (green infrastructure) must be accorded the same consideration and opportunities for funding as structural flood control when prioritizing TWDB funded projects. In some instances, purchase of land and/or easements may be the most cost effective strategy for flood control. In appropriating funding, we urge you to recognize the role of privately held land in providing ecological services, such as mitigating flooding, and consider the purchase of conservation easements as a valid option. We believe that private landowners should be compensated for providing these services.

Realizing, however, that many jurisdictions, especially those that do not employ full time planning and engineering staff, are likely not familiar with benefits of employing non-structural methods for flood control, we would like to see opportunities to provide expertise from TWDB, land trusts, and others available, perhaps as part of a watershed planning process, to advise on possible use of green infrastructure in planning flood mitigation strategies.

In conclusion, we want to emphasize that establishing a new flood mitigation funding mechanism is only one part of what needs to be a truly comprehensive and effective approach to addressing flooding issues in Texas. That approach must include adequate funding to the Texas Water Development Board to enhance our scientific understanding of flooding and for the agency to carry out its other flood responsibilities, an enhanced flood planning process on a watershed basis, reasonable but effective regulation of development in floodplains, prohibitions on development in areas where appropriate, enhancing the authority of county government to require adequate drainage infrastructure - including the authority to assess impact fees, and

much greater attention to how nature-based solutions may provide cost-effective and successful ways of managing or preventing floods.

Thank you for the opportunity to submit these comments.

Sincerely,

Annalisa Peace  
Executive Director

**RESPONSES TO ISSUES FOR STAKEHOLDER CONSIDERATION AND REQUEST FOR FEEDBACK – IMPLEMENTATION OF FLOOD LEGISLATION FROM THE 86<sup>TH</sup> TEXAS LEGISLATIVE SESSION – Submitted to the Texas Water Development Board (TWDB) on August 29, 2019 on behalf of the National Wildlife Federation and the Lone Star Chapter of the Sierra Club**

**SB 7: State Flood Funding Issues for Consideration**

**Issue 1: Form of Financial Assistance**

***How should the TWDB determine the amount of grants versus loans?***

TWDB should not establish a pre-determined percentage or amount of money allocated to grants or loans. Rather, the agency should strive for a balance of grants and loans that best fits the needs and circumstances of the political subdivisions applying for financial assistance for flood projects. Some small and even larger communities, especially those with a high percentage of low-income residents, will need grants to do flood mitigation projects because they are not in a financial position to repay even low-interest loans. Grants may be especially important for projects such as purchase of green space to preserve natural drainage and for buyouts of structures in the floodplain since these activities do not produce the revenue to pay back loans. If the Legislature had intended that TWDB maximize the use of loans for flood projects, then it would not have specifically authorized the agency to use appropriated funds for grants nor would it have authorized TWDB to fund projects such as nonstructural ones for which grants may be necessary in order to make the project happen.

***How should the TWDB evaluate an entity's ability to repay a loan in determining qualifications for grant funding?***

TWDB should consider several criteria in making this evaluation, including but not limited to:

- The bond rating of the political subdivision seeking assistance
- The size of the property tax base of the political subdivision
- The median household income of the residents of the political subdivision
- The ability of the proposed flood project to generate revenue – directly or indirectly – that might facilitate repayment of a loan

***Should local match be required?***

TWDB should not automatically require a local match. The Legislature did not mandate a local match in order for a political subdivision to receive financial assistance for a project. A political subdivision certainly may offer a local match, and TWDB may consider accepting that offer.

## **Issue 2: Prioritization System**

### ***What types of projects do you consider having the most impact mitigating loss of life and property?***

The answer to this question depends upon the specific circumstances and will vary from place to place and time to time. However, natural or nature-based solutions – such as preservation of green space or improved watershed management in flood prone areas or upstream of those areas – often have significant benefits in this regard by reducing the number of people who otherwise would be put in harm’s way if they located in those flood prone areas or in downstream areas where flood volume and velocity is increased by upstream development. Moreover, buyouts of property in areas subject to recurrent flooding, removal of structures as a result of the buyouts, and restoration of those areas to a natural state reduces the number of people and properties subject to flooding in already-developed areas and may result in retention of water that would otherwise flood people and property downstream.

### ***Should there be funding set aside for particular types of activities or projects?***

We believe creating artificial percentages or dollar amounts for different types of activities or projects for flood control and mitigation would be unwise given the complexity of flood issues throughout the state and the amount of funds allocated by the Legislature for flood projects contrasted to the projected need identified by the State Flood Assessment.

### ***Should the program address needs for repair and rehabilitation of existing infrastructure that manages floodwaters?***

Certainly, repair and rehabilitation of existing infrastructure should be eligible for financial assistance, especially in emergency situations. However, repair and replacement of existing infrastructure may not be appropriate in every instance. In many situations, alternative flood management measures may be more cost-effective and successful than repairing and replacing existing structures. Wherever and whenever financial assistance is sought for repair or replacement of existing infrastructure, the applicant should be required to demonstrate via data and analysis that such repair or replacement will be the most effective way to mitigate loss of life or property due to flooding and that it is part of a regional approach that does not aggravate downstream flooding. A number of projects in the past simply moved water from one area to an area downstream and increased flooding there. Repairing those projects would not achieve the regional benefits the Legislature seems to be seeking via SB 7.

### ***Which criteria should the TWDB use in its point system?***

We believe the following criteria identified by TWDB should be used in the point system (these criteria are not in rank order and likely need to have different weights attached to each):

- Severity of existing potential flood risk hazard to life and property – **However**, TWDB should not limit its consideration of “severity” only to those areas identified by existing

Flood Insurance Rate Maps – especially given questions about the accuracy of those Maps and viability of those Maps as conditions change

- Flood risk reduction to life from project – including subcriteria such as the expected reduction in flood fatalities, the population entirely removed from the flood zone, and reduction in the number of critical facilities (such as hospitals) at risk
- Benefit-to-cost ratio of a project – a simple threshold: must be greater than 1.0
- Diverse urban/non-urban benefits (points for a broad watershed project)
- Greater benefits of a “regional” projects
- Areas subject to repeated historic flood events
- Recommended by existing multijurisdictional flood planning group
- SSMeets high percentage of overall flood hazard risk mitigation needs of the jurisdiction of the applicant
- Provides benefits to neighboring watersheds
- Annual median household income or some other socioeconomic index (such as the Social Vulnerability Index developed by the Centers for Disease Control and Prevention) of the benefitting ***area of the project (in order to assure equity in the allocation of funding, giving just consideration to low income vulnerable populations)***
- Emergency need for project
- Readiness to proceed with actual construction of the project ***OR readiness to proceed with actual implementation of the project in the case of nature-based or natural flood projects*** (it is important not to incorporate bias toward structural projects into the prioritization process, so care must be given to make sure that nonstructural projects, especially nature-based or natural flood measures are given at least equal weight in the application review and decision process)
- Financial, managerial, and technical capacity of applicant to successfully implement and maintain the flood project. This factor might be problematic for smaller political subdivisions with limited resources, but that could be ameliorated through regional flood control projects where a larger entity such as a river authority serves as the applicant or is contracted by a smaller entity to provide certain services.
- Additional benefits to natural resources or other multiple benefits of the project, ***including – where appropriate – water quality benefits and recreational benefits***
- Regulation of development in floodplain by applicant exceeds NFIP minimum standards

With regard to certain other possible criteria identified by TWDB for use in its point system:

- Loss or damage to property as a result of flooding is, of course, a major issue, especially in terms of the impact on people’s homes and disruption of their livelihood as a result of flooding of commercial, industrial, and institutional facilities. However, trying to measure “flood reduction to property from a project” in economic terms such as the value of property poses a number of problems. A key problem is a possible bias toward protecting high-end residential properties and away from protecting some of the most vulnerable populations in low-income neighborhoods. Protecting people is much more important than protecting property, and the economic value of their property should not give one group precedent over another.

- We do not believe that distribution of funds in terms of geography, between river basins, across population centers, or with regard to structural versus nonstructural mitigation should be specific criteria in the point system. The other criteria noted and recommended above should lead to a diversity of projects from a diversity of areas. Having said that, if TWDB finds that initial awards of financial assistance for flood projects is too concentrated on a geographic basis, then this topic could be revisited at that time. Presumably as the regional flood plans are developed and approved, there will be adequate information and attention to projects from multiple areas of the state.
- Local contribution or other funding (including non-state matching funds) should not be criteria in the point system. While this factor should be noted and may be a qualitative consideration in final decisions by the Board on the awarding of financial assistance, including such criteria in the point system would bias the process against communities least able to make a local contribution and/or without the resources to access non-state matching funds, again raising equity concerns about state funding for flood projects.

In enacting the flood legislation this past spring, some legislative leaders expressed a strong belief that wherever possible, flood planners and managers should evaluate the possibility that flood projects also have a water supply benefit. That is reflected in the language in SB 7 in the provision that requires an applicant for financial assistance from the flood infrastructure fund for a flood project to prepare and submit an analysis that “the proposed flood project could use floodwater capture techniques for water supply purposes, including floodwater harvesting, detention or retention basins, or other methods of capturing storm flow or unappropriated flood flow.” The legislative interest in this topic probably means that water supply benefit should be at least a “bonus” criterion in the point system for ranking projects.

However, in many circumstances, floodwater capture for water supply purposes is not doable. Therefore, we suggest that in order for an applicant to receive points for a project having a water supply benefit, the applicant’s required analysis must conclusively demonstrate that such floodwater capture by the project is physically feasible, financially viable, and environmentally sound. Moreover, nature-based flood management solutions that, for example, provide natural recharge of aquifers (a form of floodwater capture) should receive equitable consideration as having a water supply benefit – in other words, nonstructural as well as structural projects should be eligible for consideration as having a water supply benefit.

Finally, with regard to criteria to be used by TWDB in a point system, an additional criterion that TWDB might consider in evaluating flood projects that are primarily structural in character is whether the project incorporates or works in tandem with natural or nature-based flood management and mitigation solutions for a more effective and comprehensive approach to a flooding issue.

### **Issue 3: What Projects Get Prioritized**

Each of the priority systems which TWDB has experience with – the prioritization system for the State Water Implementation Fund for Texas (SWIFT) Program and the one used for the Clean

Water and Drinking Water State Revolving Fund (SRF) programs – have pros and cons. Based on our knowledge of how the two programs have been implemented, we recommend that TWDB use a prioritization system for flood financial assistance similar to that used the SRF programs. Issuing a call for information on all potential applicants interested in seeking funding for the following year, gathering that information, and then ranking the potential projects in a published Intended Use Plan appears to have a number of benefits, to wit:

- The broad call for potential projects casts a wide net that will give prospective applicants the opportunity to submit information well ahead of the funding cycle
- TWDB will have the benefit of getting information on potential projects that will allow the agency to evaluate and rank those projects in a comprehensive manner
- The public will benefit from having a published Intended Use Plan that will provide an overall picture of projects and ranking and that will allow for public review and comment on how the flood funding program is being implemented.

#### **Issue 4: Property Buyouts**

##### ***Should state financial assistance be available for political subdivisions to purchase private property to prevent future flood losses?***

Yes. “Buyouts” are important for a variety of reasons, but especially in situations where property floods over and over again. Buying and removing those properties has potential positive financial impacts by eliminating some recurring flood insurance claim payments as well as the cost of emergency response to property owners who continue to be flooded. Plus, such buyouts allow the land to be returned to its natural state, which may enhance water retention and possible groundwater recharge as well as potentially providing for recreational use of the land and/or potential wildlife habitat. A useful publication that demonstrates how important strategic property buyouts may be to reduction of flood risks and how they may be done most effectively is The Nature Conservancy’s *Strategic Property Buyouts to Enhance Flood Resilience: Creating a Model for Flood Risk Reduction, Community Protection and Environmental Gains* (<https://www.nature.org/content/dam/tnc/nature/en/documents/harveybuyoutsummary.pdf>). The publication stemmed from a study by TNC and Texas A&M University, in the aftermath of Hurricane Harvey, “to examine whether a more proactive buyout approach could be designed to produce environmental benefits while remaining a cost-effective option for reducing flood risk.” Although the study focused on Harris County, the findings are relevant for other areas as well.

##### ***How could state funds be used to complement federal buyout programs?***

State funds should be made available to applicants where there might be a local match requirement for a federal buyout program. However, state financial assistance for buyouts should not be limited to such situations. If there is an opportunity for a local buyout project that increases the size of an area in which a federal buyout was planned or in progress and thus enhances the effectiveness and benefits of the buyout, then that should be a positive factor in evaluation of an application for that local project. The TNC publication noted above discusses the benefits of clustering property buyouts for greater effect and benefits.



***What benefits should be considered when determining rank in project prioritization?***

Actually, many of the criteria recommended above for a TWDB point system are directly relevant to buyout projects, including but not limited to flood risk reduction to life from project, areas subject to repeated historical flood events, and additional benefits to natural resources or other multiple benefits (including potentially water quality, groundwater recharge, wildlife habitat, and perhaps recreational opportunities. As mentioned above, buyout projects reduce potential flood insurance payments and the need for emergency response activities where people have been moved out of harm's way. Clustering of buyouts where possible and appropriate further enhances potential project benefits. Those benefits include but are not limited to more effective mitigation of flooding and the potential of the property to be re-purposed for recreational use (which may ameliorate impacts on adjacent property values and the tax base of the community). Having a proactive, strategic, and comprehensive local or regional buyout plan also will increase the effectiveness of buyouts.

***What requirements for future land use should be placed upon properties that are bought out?***

Ideally, properties that are bought out should be managed as preferred open space and a plan for future management of the property should be required of an applicant for state funds for buyouts. Instruments such as conservation easements may be appropriate requirements for properties bought with state funds, to ensure that certain commitments are made by the applicant or organizations working on their behalf in managing any properties bought. Where appropriate and possible, activities such as riparian restoration, replacement of non-native vegetation with native plants or grasses to enhance water retention and/or aquifer recharge, and similar management efforts should be included in plans for future use of buyout properties. Recreational opportunities such as hiking trails may be appropriate for some buyout properties but hard structures and facilities such as playgrounds should be avoided or disallowed, although buyouts in proximity to such recreational facilities and amenities have merit.

**Issue 5: Memorandum of Understanding w/All Other Political Subdivisions in the Watershed**

We support the approach outlined by TWDB to implement the statutory requirement that an applicant for financial assistance for a flood project "must have entered into a Memorandum of Understanding (MOU), similar to a contract, with all other political subdivisions in the watershed." We understand from the TWDB *Implementation* document that "An MOU is not required for non-structural mitigation projects that do not divert, redirect, impede, or otherwise modified the flow of water."

We believe that it would be appropriate that the applicant demonstrate to TWDB that the MOU developed was made available for public review and comment within the jurisdiction of the political subdivision applying for funds prior to the MOU being approved by the political subdivision and submitted to TWDB (we realize that it is unrealistic for every party to the MOU to implement such a requirement).

## **Issue 6: Flood Control Planning**

As TWDB notes, SB 7 allows for funding of “flood control planning...” and enumerates the activities that are considered eligible planning activities.

***How can these activities be funded so that they are not duplicative of regional flood planning to be implemented via SB 8?***

Assuming that regional flood plans will follow to a great extent the model of regional water (supply) planning, we do not see a great deal of duplication between the type of planning activities enumerated in SB 7 and the type of planning envisioned in SB 8, except in the general “planning for flood protection” activity noted in SB 7. The other activities spelled out in SB 7 – “preparing applications for and obtaining regulatory approvals at the local, state, or federal level; activities associated with administrative or legal proceedings by regulatory agencies; and preparing engineering plans and specifications to provide structural or nonstructural flood mitigation and drainage” – would seem to be activities at a more micro, project specific basis than the more macro SB 8 flood planning activities. Some evaluations of potential projects done in SB 8 planning might be preliminary components of SB 7-enumerated planning activities, but that would seem to be a fairly minor overlap. Where that does occur, surely the scope of work for the SB 7 planning activities could be tailored so that the same work is not funded twice.

***Should these activities be funded through the TWDB’s existing Flood Protection Planning grant program, provided that they coordinate with and do not duplicate regional flood planning activities?*** Yes.

## **Issue 7: What Have We Not Thought About?**

***What other issues do you see that the TWDB faces for this program?***

As we see it, there are several issues that TWDB faces in seeking to implement flood funding, including especially the following five challenges:

- High expectations for funding flood projects contrasted to what is a significant yet relatively modest amount of funding appropriated for those projects (\$793 million is a serious commitment of money for projects, but given the estimates for non-local flood project funding identified in the *State Flood Assessment* prepared by TWDB in 2018, an even greater commitment of funds will have to be made over the next 10 years to put into place needed flood projects).
- A traditional bias in flood control toward structural approaches and a lack of awareness among many local and regional political subdivision officials about the flood reduction benefits that nonstructural approaches, including “natural” or “nature-based” solutions, offer – often in much more cost-effective and ongoing manner.
- The different nature of most flood control projects as contrasted to water supply and wastewater treatment projects that generate revenues from which loans may be repaid,

complicating the ability of some political subdivisions to access even low-interest loans to fund flood projects.

- The inadequacies of current data with regard to identifying flood risks, mapping floodplains, and determining residual flood risk for those neighborhoods and communities that are not considered to be in “the floodplain.”
- Inadequate public understanding about floods and flood risks, in part related to the inadequacies of current data but also to lack of sufficient public education and information activities to raise the level of flood awareness.

***What other issues do potential program participants face?*** Ditto above, plus the learning curve of trying to understand a new funding program and trying to navigate a new process for preparing applications based on what will be an unfamiliar point system.

***How do you suggest that we address those issues?***

In order, keyed to the issues just enumerated:

- Presumably the development of the regional and state flood plans in the coming years will help to make the case to the Legislature about the needed for a greater, long-term commitment of funds for flood projects and will provide more precise dollar amounts. That would help close the gap between expectations and actual funding levels for flood projects. In addition, an emphasis on internal coordination of project applications within TWDB and close interaction with the regional flood planning groups to identify ways of complementing projects for greater impact will be helpful to stretching available dollars.
- TWDB on its own or in conjunction or coordination with other organizations such as The Nature Conservancy, land trusts, Texas Water Foundation, and/or the Texas Living Waters Project, among others, should undertake a pro-active effort to make political subdivisions and the public aware of nonstructural flood alternatives, including natural or nature-based solutions, to address flood issues in a cost-effective manner.
- TWDB via contract with a research or education institution should develop and provide information for political subdivisions about how various revenue sources such as drainage or other fees might be used to pay back low-interest loans for flood projects.
- As we understand it, TWDB as a result of funds appropriated to the agency by the Texas Legislature this session will be enhancing its technical and scientific flood work, which has already advanced considerably in the past several years, and will thus be able to provide supplemental information to political subdivisions and flood planners to those data sources available elsewhere.
- TWDB should make a special effort – again perhaps in conjunction with other organizations – to package the information it gains through its technical and scientific work in a way that makes that information accessible and understandable to the public online and via appropriate publications to help raise the education level of the public about flooding and flood issues. One benefit of that effort will be helping to build public support for continued state resources to deal with flooding.

- Once the rules have been adopted for implementation of the flood funding program, TWDB should consider holding workshops in different parts of the state – as it has for the SWIFT program – to help local and regional political subdivisions and flood planners understand and navigate the new system for applying for funding for flood projects. The agency could partner with political subdivisions and nonprofit organizations to share the costs of the workshops.

## **SB 8: State and Regional Flood Planning Issues for Consideration**

### **Issue 1: Planning Group Membership**

***Are the minimum membership requirements of the flood planning groups adequate or should there be additional voting or non-voting membership categories added to all of the flood planning groups? If so, what are the categories of membership?***

Groups such as land trusts and conservation land managers (examples: Bayou Land Conservancy, Katy Prairie Conservancy) should be represented as voting members on the regional flood planning groups in order to make sure that flood planning adequately considers nonstructural, nature-based flood mitigation and management. Where they exist, water trusts should also be included. Recreational interests would provide an additional perspective, especially for promoting projects with multiple benefits. Both inland and coastal fisheries interests should be represented on the planning groups as well. In addition, in order that all types of communities and neighborhoods – not just high socio-economic status areas – receive equitable consideration in flood planning, diverse ethnic and cultural populations and low-income communities must have adequate representation on the planning groups.

TWDB staff indicated at one of the flood outreach workshops that the agency itself probably does not have authority from the Legislature to put representatives on the initial planning groups from interests other than from those categories designated in SB 8 – with the belief that only the initial planning groups themselves may add representatives from other interests. However, in our reading SB 8 does not limit the authority of TWDB to add such representatives.

The language in SB 8 states: “The board shall designate representatives from each flood planning region to serve as the initial flood planning group.” The statute then goes on to say that: “The initial flood planning group may then designate additional representatives to serve on the flood planning group” and that the group shall do so “if necessary to ensure adequate representation from the interests in its region” and then enumerates some of those interests.

That language does not seem to tie the hands of TWDB in naming an initial flood planning group in each region and does not prohibit the agency from including additional categories of interests on the initial group that are not specifically mentioned later in that section of SB 8. Therefore, we strongly urge TWDB to take the initiative to include representatives from the categories we recommended above on the initial planning group in each region where such

representation is appropriate and would provide for a more comprehensive, diverse, and inclusive flood planning entity.

***For major river basins that are split between flood planning groups, should those particular planning groups have an additional, non-voting member that acts as liaison with the other planning group within that same river basin?*** Yes, as is the case with regional water (supply) planning groups.

## **Issue 2: Planning Standards and Parameters**

***What is the best way to incorporate a lower limit on the scale of flood projects that should be considered by regional flood planning process?***

We believe that trying to set a statewide lower limit on the scale of flood projects that would apply to each regional flood planning group across such a diverse state as Texas (diverse in terms of urban/rural, topography, climate, etc.) is problematic. We note that the preliminary guidance principles developed by TWDB in coordination with other agencies set a minimum limit – “only flood mitigation strategies and projects with a contributing drainage area greater than or equal to 1.0 (one) square mile except in instances of flooding of critical facilities or routes of egress.” That may be all right as general guidance, but we believe that it would be advisable to allow each regional flood planning group to consider projects for smaller drainage areas where they believe that to be appropriate, based on specific circumstances, public input, and expert advice in the region.

***What time frame should the planning horizon cover and how should the process address future growth, changing conditions, and uncertainties?***

At a minimum, the flood planning horizon should be at least 30 years. There is an argument to be made that the flood planning horizon should be a 50-year period, as is the case with water (supply) planning, although as presently structured by statute the timing of flood planning and water supply planning are not concurrent but about two years apart (the state flood plan is due 2024 but the next state water supply plan is due 2022). That could be changed in the future to make the planning periods at least roughly consistent. One reason for a longer planning horizon is to be able to consider the impacts of continuing climate change. However, we recognize that a 50-year planning horizon might be problematic due to the uncertainties of future climate modeling and other factors. Whatever planning horizon is chosen, each regional and state flood plan will be revisited every five years, so there is an opportunity to incorporate new climatic, flood, and other data on a recurring basis.

***What specific flood risk reduction goals and standards should the plans seek to achieve, and what is the acceptable level of risk that will remain even after the state goals are fully met?***

There is no universally accepted flood risk reduction standard on a national basis. Although there are various flood-related standards, such as the floodplain development standards of the

National Flood Insurance Program and the national Flood Risk Management Standard set by presidential Executive Order in 2015 (since rescinded by the current presidential administration), these have been criticized by groups such as the Association of Floodplain Managers as inadequate, and many entities have adopted stronger standards. Moreover, these standards are more relevant for local decision-making about development and rebuilding after floods, not macro flood planning goals.

We agree with the approach taken by TWDB in the *Preliminary Outline for Flood Planning Rules* (Attachment 5 to the *Issues* document). Section 391.323 Determining Flood Hazard Risk Reduction Goals states that:

“Based on the flood risk exposure analyses and flood risk assessments, flood planning groups with input from the public, will identify specific and achievable flood hazard risk reduction goals for the flood planning region including identifying the acceptable level of risk that will remain even after flood risk reduction goals are fully met.”

That approach allows each regional flood planning group, based on scientific information and other factors, to develop goals appropriate to the region. Given the varying degrees of flood hazard exposure across the state, that seems reasonable. For example, according to the *State Flood Assessment*, based on 2010 census data and other data an estimated 11 percent of the state’s population “are exposed to high or moderate risk of riverine flooding in any given year.” The comparable percentage for what was termed the “Houston-Coastal Region,” however, was 23 percent of the population. That difference in magnitude of flood risk seems to argue for different flood risk reduction goals across the regions of the state.

***What flexibility should the planning groups have in determining the scale and scope of their plans, recognizing that all groups must meet certain minimum planning standards and criteria?***

In keeping with the response to the first question under Issue 2, we recommend that each regional flood planning group have flexibility to determine the scale and scope of their plan once minimum planning standards and criteria are met. One of those minimum planning standards should be that the planning group consider the potential levels of flooding based on future scenarios, taking into consideration climate change, and not solely on historic flooding patterns or current conditions.

### **Issue 3: Planning Area Boundaries**

There is no perfect map for potential flood planning region boundaries, which makes it doubly important that there be close interaction between regional flood planning groups especially in situations where large river basins have been divided between regions. If Option A is chosen, we suggest that preliminary regions A12 and A13 be combined into one planning region. We do not see the reason for having separate flood plans for the Guadalupe and San Antonio River

Basins. If Option B is chosen, then we believe that the Lavaca/Navidad watersheds should be combined with the Lower Colorado watershed into one region instead of the Lavaca being in a region with the Guadalupe and San Antonio River Basins.

#### ***How should coastal basins be addressed?***

Please see our response at the end of these comments to the questions about “other issues” and ways to address those issues for a possible approach to dealing with coastal flooding topics and the coastal basins in the flood planning process. Addressing those issues appropriately may require some additional participants and procedures in the planning process for regions which include coastal areas.

#### **Issue 4: Benefit-Cost Analysis**

***How should the benefit-cost ratio of proposed projects be considered? What are the pros and cons of different cost-benefit calculation methods? How do you think an associated reduction in loss of life should be reflected in such a benefit-cost evaluation?***

Benefit-cost analysis of projects has been a problematic topic for the environmental community. Too often, for example, U. S. Army Corps of Engineers and other federal water projects were justified on the basis of questionable benefit-cost analyses, with negative impacts on the environment. However, we recognize that benefit-cost analyses have become standard practices in evaluating many different types of projects, regulations, and government actions. We do not presume to have the expertise to discuss the pros and cons of different calculation methods. Rather, we think that it is important that whatever benefit-cost analyses are done, decision-makers should decide on projects based on a variety of actors and not just on the results of those benefit-cost analyses.

An important perspective in that regard was provided in what is considered a seminal essay on benefit-cost analyses that was authored by Kenneth J. Arrow and ten other prominent economists in *Science* magazine in April 1996. The article is cited in *Analytical Methods and Approaches for Water Resources Planning* published by the National Academies Press in 2004). As noted in the latter publication:

Arrow et al. (1996) recommended that all benefits and costs of a project should be identified; those that can reliably be monetized should be, uncertainty in the benefits and costs should be calculated and reported, and distributional consequences (who gains and who loses) should be addressed and reported. By providing this information, not only the final users of BCA will know the best estimates of the net benefits of the project, but they also will have a good understanding of who pays for it and who benefits from it.

The bottom line of the 1996 essay, however, was that the economists asserted that while benefit-cost analysis was an important tool for decision-making, the results of such an analysis should not be the sole, determinative factor in deciding on a project or a government action. That reflects our thinking as well, and we believe that ultimately flood project success will be defined by the contribution of that project to flood hazard risk reduction and whatever additional positive benefits result from that project.

#### **Issue 5: Neighboring Area Impacts**

***Should there be an allowance to recommend a flood mitigation project that could result in negative impacts to a neighboring area so long as a flood planning group also incorporates a related but separate project to mitigate that negative impact?***

Emphatically, no! Flood control efforts need to shift conclusively from an approach that moves a flooding problem from one community to another, regardless of whether attempts to try to mitigate the impact of doing so are made. We believe that the emphasis the Legislature placed on regional approaches and cooperation in flood management in the new legislation signals the intent of lawmakers that flood policy in Texas needs to steer away from the traditional and misguided approach of moving flood problems from area to area. The City of San Marcos is an example of a community whose new development regulations (adopted April 2018) reflect the shift away from the traditional approach to flood control.

#### **Issue 6: Flood Planning Guidance Principles**

***Have [the preliminary guidance] principles been crafted to adequately reflect the public interest of the entire state? Are there any that are missing?***

In general, we believe that the preliminary guidance principles drafted by TWDB staff in coordination with other agencies are a well-thought-out and comprehensive package that should lead to a well-crafted state flood plan. We particularly like the fact that the preliminary guidance principles:

- recognize the need to base flood planning on not only current but also future anticipated conditions and not be limited to consideration of historic flood events, especially important as our climate changes and other factors affect flood risk and exposure
- require consideration of various types of flooding risks, not just riverine flooding or coastal flooding
- emphasize the need to “consider the potential upstream and downstream impacts, including environmental, of potential flood strategies (and associated projects) on neighboring areas” (however, we strongly urge that the guidance principles ***not*** allow regional flood plans to include projects that might have anticipated negative impacts to a neighboring area, even if they allegedly would be “adequately mitigated through associated strategies”)



- require that “strategies and projects...provide for a balanced consideration of structural and nonstructural flood risk mitigation measures, including projects that use nature-based features, that lead to long-term mitigation of flood risk”
- emphasize the need for transparency and accountability in the flood planning process
- require flood plans to “consider land-use and floodplain management policies and approaches that support short-and long-term flood hazard risk reduction goals”
- require flood plans to “when possible, encourage flood mitigation design approaches that work with rather than against, natural patterns and conditions of floodplains”  
(however, we urge that the qualifier “where possible” be dropped so that this guidance principle becomes the default for flood planning”)
- require that flood plans “not cause long-term impairment to the designated water quality” in area streams

In addition to the preliminary guidance principles developed by TWDB in coordination with other agencies, we suggest the following two additional principles, which we believe are compatible and appropriate based on statute and sound flood planning:

- shall include as a factor in recommending strategies and projects equitable protection of low-income and socially vulnerable populations in the region; and
- shall evaluate the contribution of strategies and projects to other benefits such as water quality protection, fish and wildlife habitat protection, ecosystem restoration, and/or recreational opportunities, where possible and appropriate.

Please note that while some of the preliminary guidance principles proposed by TWDB and other agencies might be general enough to encompass the concepts in the two principles we recommend above, we feel that it would be important to clearly enunciate those concepts in separate guidance principles. Also, we believe that the environment should be considered in flood planning not only in terms of how various flood strategies and projects might impact on the environment (and require mitigation to offset any negative impacts) but also to be pro-active in considering flood strategies and projects that would have positive benefits for the environment and related values.

***What other issues do you see that TWDB and/or the flood planning groups face for this program, and how do you suggest that we address those issues?***

We believe that some of the issues identified above as affecting the implementation of the flood funding legislation and the suggested ways of addressing those issues are relevant to the planning program as well. In addition to those issues, an important issue that will face those regional flood planning groups that include coastal areas is how to address coastal flooding and the fact that Texas river basins overlap in eight designated coastal basins.

One possible approach to addressing that issue would be to create a type of “coastal overlay” for the relevant regional flood planning groups that would be structured as follows:

- Select two or three appropriate combinations of most or all of the eight designated coastal basins (for example, the Neches-Trinity, Trinity-San Jacinto, and San Jacinto-Brazos as perhaps one combination)
- Establish a stakeholder committee with representatives of appropriate interests in each combined coastal basin area, supported in part by TWDB but in cooperation with relevant coastal political subdivisions
- Task each stakeholder committee with developing a set of recommendations regarding coastal flooding to be submitted to the respective regional flood planning groups in a timely manner to be considered as components of each group's regional flood plan
- Direct each affected regional flood planning group to consider the coastal flooding recommendations from the relevant stakeholder committees (the planning groups would not be required to adopt the recommendations, however; that would be at their discretion)

If there is interest in fleshing out this approach, we would be available to meet with TWDB and relevant agencies to discuss how this idea might be implemented. There may be other ways of providing a coastal overlay for the relevant regional flood planning groups, but the critical thing is to have some way of thinking and planning across watershed boundaries in coastal areas.

Thank you to the Texas Water Development Board leadership and staff for their efforts to solicit stakeholder input to assist them in implementing the new state flood funding and planning laws. We appreciate the opportunity to submit these comments and stand ready to assist the agency and others in effective implementation of the new legislation.