September 20, 2005

Evelyn Bonavita, Chair
South Central Texas Regional Water Planning Group
c/o San Antonio River Authority
P.O. Box 839980
San Antonio, TX 78283-9980

Re: Comments on Initially Prepared 2006 South Central Texas Regional Water Plan

Dear Ms. Bonavita and Planning Group Members:

The National Wildlife Federation, Lone Star Chapter of the Sierra Club, and Environmental Defense appreciate the opportunity to provide written comments on the Initially Prepared Regional Water Plan for South Central Texas. We consider the development of comprehensive water plans to be a high priority for ensuring a healthy and prosperous future for Texas. We recognize and appreciate the contributions that you have made towards that goal. As you know, our organizations have provided, either individually or collectively, periodic input during the process of developing the plan. These written comments will build upon those previous comments in an effort to contribute to making the regional plan a better plan for all residents of the South Central Texas Region and for all Texans.

We do recognize that the draft Plan is subject to revision prior to adoption and is subject to continued revision in the future and provide these comments with such revisions in mind. Our organizations appreciate the amount of effort that has gone into developing the draft Plan for the South Central Texas Region. Your consideration of these comments will be appreciated.

Initially, we believe a few overarching comments are appropriate. First, we acknowledge and commend the San Antonio Water System and each of you for strong leadership on water conservation. We strongly believe that the key to creating a sustainable water future for Texas lies in achieving ever increasing levels of water efficiency. As noted below in our specific comments, however, we are concerned that the recommendations for additional water management strategies, in addition to conservation, for each Water User Group (WUG) with needs send an underlying message that conservation isn't a real solution to even a portion of the predicted shortages. Our concern is heightened by noting that often those additional strategies are recommended to provide water in the exact amount of the projected need.

Second, we commend the South Central Texas Regional Water Planning Group, and its consultants, for the level of analysis of flow impacts contained in the initially prepared plan. As explained below in these comments, we believe additional work is needed to provide a better understanding of the implications of anticipated changes in flow and an adequate evaluation of the consistency of the plan with long-term protection of natural resources. However, the information included in the initially prepared plan provides much of the basic information required for a comprehensive review. Again, based on our review of other plans, we believe the South Central Texas Regional Water Planning Group is leading the way with this analysis.

We also appreciate the expressed willingness of the group to work with our organizations, and particularly the National Wildlife Federation, in producing a more complete analysis of those impacts.

Third, we commend the planning group, and particularly its consultants, for producing an accessible document. Although the plan is, of necessity, quite massive, it generally is written and organized in a straight-forward, understandable, and accessible manner.

I. BACKGROUND AND OVERVIEW

Our organizations support a comprehensive approach to water planning in which all implications of water use and development are considered. Senate Bills 1 and 2 (SB1, SB2), and the process they established, have the potential to produce a major, positive change in the way Texans approach water planning. In order to fully realize that potential, water plans must provide sufficient information to ensure that the likely impacts and costs of each potential water management strategy are described and considered. Only with that information can regional planning groups ensure compliance with the overarching requirement that "strategies shall be selected so that cost effective water management strategies which are consistent with long-term protection of the state's water resources, agricultural resources, and natural resources are adopted." 31 TAC § 357.7 (a)(9). Complying with this charge is essential in order to develop true plans that are likely to be implemented as opposed to a list of potential, but expensive and damaging, projects that likely will produce more controversy than water supply.

This document includes two types of comments. We consider the extent to which the initially prepared plan complies with the requirements established by SB1 and SB2 and by the Texas Water Development Board (TWDB) rules adopted to implement those statutes. In addition, our comments address important aspects of policy that might not be controlled by specific statutes or rules. We do recognize that the financial resources available to the planning group are limited, which may restrict the ability of the group to fully address some issues as much as you would like. These comments are provided in the spirit of an ongoing dialogue intended to make the planning process as effective as possible. We strongly support the state's water planning process and we want the regional water plans and the state plan to be comprehensive templates that can be endorsed by all Texans. Key principles that inform our comments are summarized below, followed by specific comments keyed to different aspects of the initially prepared plan.

A. Maximize Water Efficiency

We strongly believe that improved efficiency in the use of water must be pursued to the maximum extent reasonable. New provisions included in SB2 and TWDB rules since the first round of planning mandate strengthened consideration of water efficiency. Potentially damaging and expensive new supply sources simply should not be considered unless, and until, all reasonable efforts to improve efficiency have been exhausted. In fact, that approach is now mandated.

The Texas Water Code, as amended by SB1 and SB2, along with the TWDB guidelines, establishes stringent requirements for consideration and incorporation of water conservation and

drought management. As you know, Section 16.053 (h)(7)(B), which was added after completion of the first round of regional planning, prohibits TWDB from approving any regional plan that doesn't include water conservation and drought management measures at least as stringent as those required pursuant to Sections 11.1271 and 11.1272 of the Water Code. In other words, the regional plan must incorporate at least the amount of water savings that are mandated by other law.[1] In addition, the Board's guidelines require the consideration of more stringent conservation and drought management measures for all other water user groups with water needs.

Consistent with the TWDB rules, our comments treat water conservation and drought management as separate issues from reuse. We do agree that reuse projects merit consideration. However, the implications of those projects are significantly different than for water efficiency measures and must be evaluated separately. Section 31 TAC § 357.7 (a)(7)(A) of the TWDB rules sets out detailed requirements for evaluation of water management strategies consisting of "water conservation practices." Section 357.7(a)(7)(B) addresses water management strategies that consist of drought management measures. The separate evaluation of water management strategies that rely on reuse is mandated by 31 TAC § 357.7 (a)(7)(C).

B. Limit Nonessential Use during Drought

Drought management measures aimed at reducing demands during periods of unusually dry conditions are important components of good water management. As noted above, SB2 and TWDB rules mandate consideration and inclusion in regional plans of reasonable levels of drought management as water management strategies. It just makes sense to limit some nonessential uses of water during times of serious shortage instead of spending vast sums of money to develop new supply sources simply to meet those nonessential demands.

C. Plan to Ensure Environmental Flows

Although critically important, designing and selecting new water management strategies that minimize adverse impacts on environmental flows is only one aspect of planning to meet environmental flow needs. New rules applicable to this round of planning require a quantitative analysis of environmental impacts of water management strategies[2] in order to ensure a more careful consideration of those additional impacts. However, if existing water rights, when used as projected, would cause serious disruption of environmental flows resulting in harm to natural resources, merely minimizing additional harm from new strategies would not produce a water plan that is consistent with long-term protection of natural resources or that would protect the economic activities that rely on those natural resources.

[1] This is a common-sense requirement. We certainly should not be basing planning on an assumption of less water conservation than the law already requires. TWDB guidelines also recognize the water conservation requirements of Section 11.085 for interbasin transfers and require the inclusion of the "highest practicable levels of water conservation and efficiency achievable" for entities for which interbasin transfers are recommended as a water management strategy.

[2] The rules require that each potentially feasible water management strategy must be evaluated by including a quantitative reporting of "environmental factors including effects on environmental water needs, wildlife habitat, cultural resources, and effect of upstream development on bays, estuaries, and arms of the Gulf of Mexico." 31 TAC § 357.7 (a)(8)(A)(ii).

Accordingly, environmental flows should be recognized as a water demand and plans should seek to provide reasonable levels of environmental flows. Environmental flows provide critical economic and ecological services that must be maintained to ensure consistency with long-term protection of water resources and natural resources. We do acknowledge the willingness of the planning group to work with us to provide a more complete evaluation of potential impacts to environmental flows. However, we continue to believe that environmental water needs should be specifically recognized as a category of water demand to be planned for.

D. Minimize New Reservoirs

Because of the associated adverse impacts, new reservoirs should be considered only after existing sources of water, including reuse, are developed to the maximum extent reasonable. When new reservoirs are considered, adverse impacts to regional economies and natural resources around the reservoir site should be minimized. Regardless of whether the proposed reservoir is located inside or outside the boundaries of the region, reservoir development must be shown to be consistent with long-term protection of the state's water, agricultural, and natural resources. We commend the decision of the planning group not to rely on major new reservoir projects.

E. Manage Groundwater Sustainably

Wherever possible, groundwater resources should be managed on a sustainable basis. Mining groundwater supplies will, in many instances, adversely affect surface water resources and natural resources and constitute a tremendous disservice to future generations of Texans. Generally speaking, depleting groundwater sources will not be consistent with long-term protection of the state's water resources, natural resources, or agricultural resources. As acknowledged in the initially prepared plan, various proposed strategies would result in long-term drawdowns in water levels. We urge the planning group to reconsider those strategies.

F. Facilitate Short-Term Transfers

Senate Bill 1 directs consideration of voluntary and emergency transfers of water as a key mechanism for meeting water demands. Those approaches seem to have received only limited attention in the overall planning process to date. Water Code Section 16.051 (d) directs that rules governing the development of the state water plan shall give specific consideration to "principles that result in the voluntary redistribution of water resources." Similarly, Section 16.053 (e)(5)(H) directs that regional water plans must include consideration of "voluntary transfers of water within the region using, but not limited to, regional water banks, sales, leases, options, subordination agreements, and financing arrangements…." Thus, there is a clear legislative directive that the regional planning process must include consideration of mechanisms for facilitating voluntary transfers of existing water rights within the region, particularly on a short-term basis as a way to meet drought demands.

In addition, emergency transfers are intended as a way to address serious water shortages for municipal purposes. They are a way to address short-term problems without the expense and natural resource damage associated with development of new water supplies. Water Code Section 16.053 (e)(5)(I), as added by S.B. 1, specifically directs that emergency transfers of water, pursuant to Section 11.139 of the Water Code, are to be considered, including by

providing information on the portion of each non-municipal water right that could be transferred without causing undue damage to the holder of the water right. Thus, the water planning process is intended as a mechanism to facilitate voluntary transfers, particularly as a means to address drought situations, by collecting specific information on rights that might be transferred on such a basis and by encouraging a dialogue between willing sellers and willing buyers on that approach. The concept of emergency transfers is briefly discussed on pages 6-8 and 6-9, but without substantive evaluation.

II. PAGE-SPECIFIC COMMENTS

For ease of tracking, we have attempted to identify our individual, page-specific comments by preceding each with a number enclosed in brackets.

E.S. EXECUTIVE SUMMARY

[1] Figure ES-2, on page ES-5, and the accompanying discussion about demands for steam-electric power generation seem to incorporate an unduly high demand projection. These demands match those projected in "Texas Water Development Board: Power Generation Water Use in Texas for the Years 2000 through 2060 Final Report, prepared for the Texas Water Development Board by Representatives of Investor-Owned Utility Companies of Texas, January 2003." From a review of that document, we understand it to include an assumption of a continuing increase in per-capita electrical power usage through 2060 at a rate of .5% per year. It does assume that new power plant capacity will be more efficient in its use of water. However, we do not believe that it is appropriate to assume that efficiency advances in use of electricity overall will not at least slow the rate of growth in per capita use of electricity. As a result, the projected 2060 demand of 109,776 acre-feet of water for steam-electric power production seems excessive.

[2] (Page ES-8, fn. 1). General information about levels of springflows anticipated in conjunction with the assumed Edwards Aquifer pumping levels should be provided. It should be noted that according to BIO-WEST (Sept 2003), 340,000 acft/yr per year of pumping results in zero discharge from Comal Springs 6.2% of the time, and Comal Spring discharge below the 60 cubic feet per second (cfs) level 14.0% percent of the time. According to that document, a pumping level of 225,000 acft/yr per year is predicted to maintain some flow in Comal Springs through a recurrence of critical drought conditions and to produce a discharge below 60 cfs 3.7% of the time.

[3] (Page ES-12). Social and Economic Impacts of Not Meeting Projected Water Needs. Although we understand that this information is provided by the Texas Water Development Board (TWDB), we find the presentation somewhat misleading. These are extreme, worst-case calculations. They represent the impacts projected if no efforts are made to mitigate water shortages. That simply is not a realistic portrayal of reality. If water shortages do develop, available water will be shifted from non-essential uses to the most important uses. In order to present a more balanced message, we urge the planning group to include language acknowledging the potential to mitigate the predicted impacts, even in the absence of water management strategies to augment supplies.

[4] (Page ES-13). The initially prepared plan includes strategies that would be expected to provide over 800,000 acre-feet/year. However, the projected 2060 drought need is about 417,000 acre-feet. As explained further below, we believe the plan should recommend specific projects for meeting only the projected need. At minimum, even if the planning group chooses to recommend projects greatly in excess of projected needs, the group should make clear on each page on which the full list appears that the intent is not to suggest that all of the projects actually should be implemented. The casual reader could be led to believe that the planning group is recommending development of all of the projects included in Figure ES-8.

We do not believe that inclusion of projects significantly in excess of projected need comports with the requirements of SB1 and the TWDB rules governing the planning process. This issue is not unique to the South Central Texas Regional Planning Group. Some other regions developed a list of recommended projects but also included a list of alternative projects that might be added if the recommended projects prove to be unworkable. At least that way, it is clear what specific projects the group is recommending as the preferred approach. One of the key charges of regional water planning, as set out in the TWDB rules, is to "provide specific recommendations of water management strategies based upon identification, analysis, and comparison of all water management strategies the regional water planning group determines to be feasible so that the cost effective water management strategies which are environmentally sensitive are considered and adopted …." 31 TAC § 357.5 (e)(4). Simply including the various strategies identified does not accomplish the key task of making specific recommendations to meet established needs using the most cost effective and least environmentally damaging strategies.

[5] (Page ES-16). Expanded use of aquifer storage and recharge is a strategy that is proven and that we believe should be included as a recommended water management strategy.

[6] (Page ES-17). Here, the planning group provides its rationale for including water management strategies greatly in excess of needs. Three reasons are listed: identifying strategies to replace any that may fail to develop; serving as additional supplies if any of the strategies are not able to produce the projected amounts; or providing adequate supplies in the event of a drought worse than the drought of record. The very reason that plans are updated every 5 years is to allow for adjustments on an incremental basis. If recommended projects aren't moving forward when a future plan is adopted, recommendation of different strategies may be appropriate at that time. Similarly, if project yields have changed at that point, appropriate adjustments in recommendations should be made. It is important that each region's planning be based upon common planning assumptions to avoid undermining the value of the planning process. If all regions plan consistently, then no one region should end up using state money or permits to develop or implement a plan that calls for laying claim to an undue portion of the state's limited water resources. Water is a limited resource in the state. It must be shared equitably. Using common assumptions for planning across all planning regions is one way to help achieve that equity.

[7] Nor does a possible future drought worse than the drought of record justify planning for such a large excess supply. In fact, SB1 is quite specific in directing the use of the "drought of record" as the appropriate target for planning. See Tex. Water Code Ann. § 16.053 (e)(4). In addition, the

planning group has not chosen to include drought management as a water management strategy. As a result, savings from drought management measures would be fully available in the event of an occurrence of a drought worse than the drought of record.

[8] (Pages ES-10 and ES-15). The projected drought needs line on Figure ES-8, particularly for 2060, does not appear to match the 2060 needs shown in Figure ES-4.

[9] (Page ES-18). One of the claimed environmental benefits is that the regional plan makes greatest use of existing surface water rights thereby minimizing the development of new supply sources "and associated environmental impacts." The environmental benefits of that approach are not ensured. That statement would be accurate with respect to new reservoir construction, but that issue is addressed in a separate statement of benefits. Depending on the regulatory controls imposed upon the use of existing rights, increased use of rights that were issued without environmental flow protections actually may have significant adverse effects. In some situations those adverse effects could be greater than those from relying on new rights that would be issued with environmental flow protections. Of course, that would not be true if the existing rights were likely to be fully used anyway. Moreover, choosing the less damaging of two options does not really result in a net environmental benefit, but rather only a lessened level of detriment.

[10] (Page ES-19). Because it is not clear that the regional plan actually recommends implementation of seawater desalination as a water management strategy to meet projected water needs, it seems inappropriate to claim it as an environmental benefit. Because the draft plan includes strategies providing supplies that are about double the projected needs, it is not possible to determine which strategies actually are being recommended.

[11] (Page ES-19). Environmental concerns about freshwater inflows relate to changes in overall flow patterns, including the timing, duration, and frequency of various flow levels, not just to changes in absolute flow quantities.

[12] (Page ES-19). We appreciate the acknowledgement of the potential for groundwater development adversely to affect springs. By extension, we would urge acknowledgement of the potential loss of surface flows associated with such springs and with seeps.

[13] (Page ES-19). Large demands for electrical power and the associated adverse environmental impacts should be acknowledged as additional environmental "concerns" for seawater desalination, if the strategy remains in the plan.

[14] (Page ES-19). "Environmental Concerns" suggests a much more qualified nature than "Environmental Benefits." A more even-handed approach would be to label the two lists as "Beneficial Environmental Impacts" and "Negative Environmental Impacts."

Description of the South Central Texas Region

[15] (Page 1-10). Section 1.2.4.2 Fish and Wildlife Resources. Some discussion of the fish and wildlife resources associated with the region's bay and estuary systems should be included. Those resources are important both ecologically and economically.

[16] (Page 1-18). Section 1.4 Economy – Major Sectors and Industries. Information is lacking about "businesses dependent on natural water resources." That information is expressly required pursuant to Section 357.7 (a)(1)(G) of TWDB rules. Obvious examples of such businesses include commercial fisheries associated with the San Antonio Bay system, businesses dependent on recreational fishing, and river-based recreational businesses located on the Comal and Guadalupe Rivers. This information is required to respond to a new requirement added to the rules since the first round of planning.

[17] (Page 1-18). Agricultural Production. Information is lacking about the estimated number of jobs supported by agricultural production and livestock production. The other categories include such estimates.

[18] (Page 1-22). Section 1.4.6 Trades and Services. It is not clear where the water demands for this sector are represented in subsequent discussions. Clarification of that issue would be helpful.

[19] (Page 1-25). Water Uses. Environmental uses of water are not acknowledged in this section. A discussion of that issue should be included.

[20] (Page 1-32). The last sentence of the first full paragraph refers to "hundreds" of wells in the Edwards. We understand there to be thousands of such wells.

[21] (Page 1-32). In the last sentence of the last full paragraph, the discussion of springflow impacts refers to environmental impacts and water rights impacts as being "unacceptable to both environmental and downstream water rights concerns." That language suggests a very subjective aspect for these issues. Although perhaps not intended, it also suggests that these "concerns" are limited only to small groups and may be less important than other issues. In reality, these are legally protected interests. It would seem preferable simply to substitute language similar to the following: "unacceptable because of adverse impacts to environmental needs and downstream water rights."

[22] (Page 1-33). The first sentence of the second full paragraph on that page states that the severe drought of the 1950s lowered water levels to record lows and caused Comal Springs to go dry for several months. Unquestionably, the drought was a major factor in those impacts. However, it was the combination of increased pumping and low recharge that caused the extreme impacts. Including that information is important so that readers get an accurate impression of that historical event.

[23] (Page 1-34). The carry-over paragraph from page 1-33 contains the only mention of water quality issues related to the Edwards Aquifer. That mention is limited to discussion of the bad water line. Discussion of additional water quality issues is merited.

[24] (Page 1-44). Section 1.7.3 Major Springs. The discussion of the listed springs would be more useful if general information were added about the relative frequency with which the various springs flowed. In addition, some general discussion should be added about the

ecological resources supported by each of the springs. The rules governing the planning process have been revised since the first round of planning to acknowledge the need to address the role of springs in natural resource protection. See 31 TAC § 357.7 (a)(1)(D).

[25] (Page 1-46). In the discussion of threats to natural resources, it would be useful to specifically note the importance of freshwater inflows to estuary systems as a subset of the issue of the quantity and/or quality of fresh water available to fish and wildlife. Given the revisions to the governing statutes and TWDB rules to place increased emphasis on consideration of natural resources in the planning process, more development of this issue is warranted. TWDB may not approve a regional plan unless it is able to make an affirmative finding that the regional plan is consistent with long-term protection of the state's natural resources. See Texas Water Code Section 16.053 (h)(7)(C). Section 7 of the initially prepared plan provides careful analysis of anticipated flow changes, although looking only at comparisons between two hypothetical future scenarios. However, the absence of a listing of significant natural resources here makes it difficult to assess the adequacy of the Section 7 analysis. In addition, as discussed further below, the Section 7 analysis suffers from the failure to include an assessment of the biological significance of the predicted changes in flows. That type of analysis is needed in order to evaluate long-term consistency with protection of natural resources.

[26] (Page 1-46). We were not able to locate information about significant wetland complexes that might be affected by changes in surface flows, including springs and seeps, or by changes in aquifer water levels. Those types of wetlands would have the greatest potential to be affected by water management decisions. Again, it constitutes information needed to assess the implications of the plan for consistency with long-term protection of natural resources and to provide a meaningful quantitative evaluation of potentially feasible water management strategies.

Population and Water Demand Projections

[27] (Page 2-16). 2.4 Steam-Electric Power Water Demand Projections. We understand that these projections are based on a report: "Texas Water Development Board: Power Generation Water Use in Texas for the Years 2000 through 2060 Final Report, prepared for the Texas Water Development Board by Representatives of Investor-Owned Utility Companies of Texas, January 2003." As we understand that report, it assumes a continuing .5% increase in per capita electrical usage for each year through 2060. We believe that assumption is highly questionable. As energy costs, both monetary and others, continue to rise, progress in energy efficiency measures will result in reduced per capita usage of electricity and in demands below the projected levels. About a 210 % increase in water demand is projected for this category. By contrast, a projected population increase of around 2,250,000 people, or about 110%, is expected to result in an 87% increase in municipal water demand and about a 79% increase in industrial demand. Thus, the projected increase in water demand for steam-electric power generation seems to be disproportionate to the sectors that are most likely to drive that demand.

[28] (Page 2-24). Environmental water demands are a water use category that should be included. This is a true water demand. Instream flows and bay and estuary inflows provide valuable services. Many jobs are dependent on meeting those water needs. Regardless of how environmental water demands are characterized, SB 1 directs that, in addition to other directives,

regional water plans must provide sufficient water to protect the natural resources of the region. Tex. Water Code Ann. § 16.053 (a).

Section 3. Water Supply Analyses

[29] (Page 3-3). Section 3.1.1 Groundwater Availability
The text, along with Table 3-1, indicates that the groundwater availability determinations from the 2001 regional plan were carried forward in several instances. It would be very helpful to have a brief description in the current document of the approach used in the 2001 plan in determining overall water availability for those aquifers.

[30] (Page 3-10). In light of modifications to the dam and floodgates at Medina Lake, and in light of the recent USGS study showing reduced recharge from the Lake, the assumption that firm yield during drought is zero may need to be re-evaluated. At minimum, the existence of a significant question about the amount of recharge and, by extension, the potential firm yield of the system should be acknowledged.

[31] (Page 3-14). Paragraph 8 indicates that the IPP assumes the operation of the Choke Canyon/Lake Corpus Christi system (located in the Coastal Bend Region) at "firm yield." Our understanding from the Coastal Bend IPP is that for their analysis the system was assumed to be operated on a "safe yield" basis. It would be helpful to note the two different assumptions and address the significance, if any, of the differences in terms of impact on this plan.

Section 4A. Comparison of Supply and Demand Projections to Determine Needs

[32] (Page 4A-23). Social and Economic Impacts of Not Meeting Projected Water Needs.
As noted above, although we recognize that the planning group relied on TWDB to provide this information, we believe the information in this portion of the draft paints an exaggerated picture. These are extreme, worst-case calculations. They represent the impacts projected if no efforts are made to mitigate water shortages. That simply is not a realistic portrayal of reality. If water shortages do develop, water will be devoted to the most important uses. In order to present a more balanced message, we urge the planning group to include language that acknowledges the potential to mitigate the predicted impacts, even in the absence of water management strategies to augment supplies.

Section 4B.1 Water Management Strategies

[33] (Page 4B.1-3). As noted above, we believe the regional plan should recommend a specific suite of strategies to meet the actual projected needs. We recognize the desire to identify alternative strategies. However, as drafted, there simply is no way to tell which strategies are actually recommended for meeting projected water supply needs. At minimum, if this extensive list of strategies is retained, language should be added to the list specifically noting that 800,000 ac.ft./yr is far in excess of projected demands and that implementation is being recommended only for water management strategies sufficient to meet projected demands. We believe the better approach (and the one required by TWDB rules) is to identify actual recommended strategies and to note the alternative strategies that are most likely to be recommended if the recommended strategies prove to be inadequate for any one of various reasons.

[34] (Page 4B.1-3). Figure 4B.1-2, as drafted, does not really present an accurate picture of how demands would be met because it reflects the full 800,000 acft of supply. As a result, the percentages assigned to the various groupings of strategies do not reflect the actual mix of strategies that would be needed to meet projected needs.

[35] (Page 4B.1-8). Here the initially prepared plan does note that the implementation of all recommended water management strategies is not likely to be necessary in order to meet projected needs within the planning period. In order to constitute an actual plan, the document should recommend specific strategies to meet projected needs. Alternative strategies also can be listed for future consideration, but they should be listed separately.

[36] (Page 4B.1-8). The plan lists three reasons for recommending strategies greatly in excess of needs: (1) to have strategies to replace those that fail to develop, (2) to serve as additional supplies if some strategies can't be fully implemented, and (3) to provide additional supplies in the event of a drought worse than the drought of record. The very reason that plans are updated every 5 years is to allow for adjustments on an incremental basis. If recommended projects aren't moving forward or have been down-sized when a future plan is adopted, recommendation of different strategies may be appropriate at that time.

[37] Nor does a possible future drought worse than the drought of record justify planning for such a large excess supply. In fact, SB1 is quite specific in directing the use of the "drought of record" as the appropriate target for planning. See Tex. Water Code Ann. § 16.053 (e)(4). In addition, the Planning Group chose not to consider drought management and emergency response as a way to help meet drought-of-record demands. At minimum, the plan should include language here acknowledging that drought management measures do represent a way to respond to temporary drought conditions, including conditions worse than a drought of record. Indeed, in the Policies and Recommendations Section (page 8-5) the IPP plan indicates that the SCTRWPG "intends to look to 'drought management' as a safety net to respond to a drought greater than the drought of record…." The discussion on page 4B.1-8 is inconsistent with that statement.

Section 4B.1.2 Water Management Strategy Descriptions

[38] (Page 4B.1-12) Recycled Water Programs. The last paragraph of this section purports to find that any expansion of wastewater reuse programs, whether direct or indirect, is consistent with the regional plan. That attempt is impermissibly overbroad. The plan does not include a quantitative assessment, nor could it, that is adequate to evaluate the effects of an unlimited program. Similarly, it is not possible to undertake a meaningful assessment of consistency of the plan with long-term protection of the state's natural resources without putting some limits on the amount of reuse that would be considered to be included in to the plan. Nor does such an unlimited finding appear necessary. The regional planning process provides for periodic updates of regional water plans. If reuse levels begin to increase in the future, there will be ample time to include an expanded reuse strategy in the plan when it can be meaningfully considered and assessed.

[39] (Page 4B.1-16) Simsboro Aquifer (SCTN-3c)
Because SAWS has decided not to pursue this project it should be removed from the regional plan. If not removed, the discussion should be expanded to address issues about consistency with applicable groundwater district management plans.

[40] (Page 4B.1-19 through 1-20). Edwards Recharge-Type 2 Projects
The second-to-last sentence of this section purports to find that any expansion or relocation of recharge projects is consistent with the regional plan. That attempt is impermissibly overbroad. The plan does not include a quantitative assessment, nor could it, that is adequate to evaluate the effects of an unlimited program. Similarly, it is not possible to undertake a meaningful assessment of consistency of the plan with long-term protection of the state's natural resources without putting some limits on the amount and location of recharge projects that would be considered to be included in the plan. Nor does such an unlimited finding appear necessary. The regional planning process provides for periodic updates of regional water plans. If recharge projects begin to increase in the future, there will be ample time to include an expanded strategy in the plan when it can be meaningfully considered and assessed.

[41] (Page 4B.1-20). Brackish Groundwater Desalination (Gulf Coast)
This project seems to be dependent on inclusion in the Lower Guadalupe Water Supply Plan (LGWSP). Because SAWS has decided not to pursue the LGWSP, this project also should be removed unless it is reconfigured and assessed as a separate project.

[42] (Page 4B.1-21) CRWA Lake Dunlap Project
As noted in the text, this project has not yet been adequately evaluated. Accordingly, it should not be included in the plan. If evaluations are completed and the project is proposed for inclusion in the plan, reasonable opportunities for public review and comment on the project should be provided. Without the completed evaluation, it is not possible to comment meaningful on the project.

[43] (Page 4B.1-22) CRWA Siesta Project
As noted in the text, this project has not yet been adequately evaluated. Accordingly, it should not be included in the plan. If evaluations are completed and the project is proposed for inclusion in the plan, reasonable opportunities for public review and comment on the project should be provided. Without the completed evaluation, it is not possible to comment meaningful on the project.

[44] (Page 4B.1-26) Drought Management
The use of the TWDB socioeconomic impact analysis in an attempt to demonstrate that drought management is not an economically feasible strategy is seriously flawed. This analysis produces a very rough estimate of the economic impacts of doing absolutely nothing to meet any water needs. That analysis assumes no attempt to mitigate impacts by directing available supplies from nonessential uses to more critical uses. As a result, the per acre-foot dollar amounts predicted cannot reasonably be represented as reflecting the costs of not meeting a limited amount of non-essential water uses. It simply is not reasonable to assume, for example, that the economic impacts of having water unavailable temporarily to run a manufacturing line are the same as

having water temporarily unavailable to fill a fountain, keep a lawn green, or wash a car. The underlying TWDB analysis does not, and does not purport to, reflect the short-term impacts associated with drought management measures aimed at non-essential uses of water. Such a flawed analysis cannot reasonably be relied upon by the SCTRWPG in an attempt to meet the TWDB requirement to document the reason for not selecting drought management strategies for each identified need.

[45] Drought management is a required water management strategy at least for those entities required, pursuant to Section 11.1272 of the Water Code, to develop drought contingency plans. See 31 TAC § 357.7 (a)(7)(B). In addition, more stringent drought management measures must be considered. Thus, water management strategies must be included at least equal to the levels required pursuant to Section 11.1272. If the planning group chooses not to include additional drought management measures beyond those levels, it must provide a valid reason for doing so. The existing analysis does not provide a valid basis for such a choice.

[46] We urge the planning group to give further consideration to drought management as a water management strategy. The regional planning process is focused on water availability during critical drought conditions. Those conditions are extremely rare, but it is only prudent to plan for them. On the other hand, there is a serious question of whether developing new water supplies that would always be available but would be needed only during the recurrence of a critical drought is always the best approach. One alternative is to identify some water needs that are nonessential and not plan to meet those needs during a recurrence of critical drought conditions. Thus, for example, a municipal drought contingency plan might call for cutting back on lawn watering (allowing watering only at a frequency adequate to keep plants alive rather than green and thriving), car washing, or filling of swimming pools. That reduced demand then can be calculated and accounted for as a water management strategy for meeting part of the “need” for water during drought periods.

[47] The “dry-year option” is another type of drought management approach. An irrigator can enter into an agreement not to irrigate during identified drought conditions in exchange for a cash payment. The water not used for irrigation can be applied to another use, such as municipal or industrial, during that period. The money saved by not having to develop a new water supply source to meet both the irrigation need and the municipal need during critical drought years likely would be more than sufficient to compensate the irrigator for lost production.

[48] (Page 4B.1-28) Other Relevant Factors per SCTRWPG
The first bullet point seems to suggest that the effect of implementation of the plan would always be an increase in spring flows. From our understanding of Section 7.1, especially Figure 7.1-2, implementation of the plan actually would result in decreased flows at Comal Springs during a recurrence of critical drought conditions. This is an important point that should be expressly acknowledged here.

[49] (Page 4B.2-9) Section 4B.2.1.4 City of Lytle
In Table 4B.2.1-8, municipal water conservation is listed as a recommended water management strategy and projected to result in 108 acft/yr of savings by 2060. We commend the planning

group for including strong conservation measures. However, by recommending a second strategy (Edwards Transfers) in an amount exactly equal to the total 2060 projected demand, the IPP suggests that water conservation is not a reliable water conservation strategy. This pattern is repeated fairly consistently for municipal demands throughout the listings of supply plans for WUGs. See, for example, Table 4B.2.2-4 (City of Alamo Heights), Table 4B.2.2-12 (City of Castle Hills), Table 4B.2.2-26 (City of Hill Country Village), Table 4B.2.5-6 (City of Garden Ridge), Table 4B.2.11-12 (City of Schertz), Table 4B.2.16-2 (City of Castroville), Table 4B.2.16-14 (Yancey WSC), Table 4B.2.16-16 (Medina County Rural), Table 4B.2.18-2 (City of Sabinal), Table 4B.2.18-4 (City of Uvalde). That is very disappointing, especially coming from this planning group, which has established itself as the leader in the state on water conservation issues. We recognize that the timing of conservation savings is a factor. We also recognize that the plan generally includes some redundancy of supply. However, the pattern of consistently recommending other strategies to supply enough water to meet projected needs without any reliance on conservation seems to suggest water conservation somehow is less than a real water management strategy.

We urge the planning group to reconsider this approach. At minimum, if there is an alternative explanation, besides a reluctance to treat water conservation as a real water management strategy, we urge the planning group clearly to state that explanation in the plan.

[50] (Page 4B.2.2.1) Regional Water Provider for Bexar County.
Now that SAWS has decided to drop the Lower Guadalupe Water Supply Project (LGWSP), it doesn't make sense to keep it in the regional plan. The Project, as envisioned in the plan, is not viable. If some new version of the project is developed that might be viable without the participation of SAWS, that new version of the project should be considered for inclusion at that time on its own merits.

[51] (Page 4B.3-2) Section 4B.3.1 Regional Water Provider for Bexar County
Now that SAWS has decided to drop the Lower Guadalupe Water Supply Project (LGWSP), it doesn't make sense to keep it in the regional plan. The Project, as envisioned in the plan, is not viable. If some new version of the project is developed that might be viable without the participation of SAWS, that new version of the project should be considered for inclusion at that time on its own merits.

[52] (Pages 4B.3-3 through 3-15). Water Supply Plans for Wholesale Water Providers (generally)
In considering water conservation, the tables simply note that municipal water conservation is assigned by WUG and no totals are given. However, as a result, the quantities of water supply represented by municipal water conservation, and other categories of water conservation, are not reflected in these totals. Accordingly, the recommended strategies actually exceed projected needs by an amount even greater than the amounts currently reflected in these pages. The totals for water conservation supply should be added to reflect those water management strategies. An appropriate footnote could be added to note where ultimate responsibility lies for achieving the projected levels of water conservation.

[53] (Page 4B.3-6) Section 4B.3.2 San Antonio Water System (SAWS)
Because SAWS has decided not to pursue the Simsboro Aquifer project, that project should be eliminated from the plan. In addition, the proposed purchase of water from the Regional Water Provider Bexar County (RWPBC) will need to be reconfigured to account for the LGWSP not being a viable option, at least in its current configuration.

[54] (Page 4B.3-8) Section 4B.3.3 Bexar Metropolitan Water District (BMWD)
The proposed purchase of water from the Regional Water Provider Bexar County (RWPBC) will need to be reconfigured to account for the LGWSP not being a viable option, at least in its current configuration.

Section 4C Technical Evaluations of Water Management Strategies

Section 4C.1.1 Municipal Water Conservation (L-10 Mun)
[55] (Page 4C.1-1). Both the information presented and the method of presentation in this section are very good. The assumptions and goals generally are clearly stated.

[56] However, it is not clear if, or how, the calculations consider the effect of recently enacted federal energy efficiency standards for clothes washers, both residential and commercial. We request clarification on this issue. At minimum, those new requirements likely would reduce the cost of water conservation measures through clothes washer retrofit programs because of passive replacement of non-efficient machines.

Section 4C.1.2. Irrigation Water Conservation (L-10 Irr)
[57] (Page 4C.1-40). The evaluation of irrigation water conservation addresses the use of low-pressure sprinklers, low-energy precision application systems, and irrigation scheduling. Many additional types of irrigation efficiency measures are noted, but not discussed in any substantive way. Some additional explanation should be provided for the decision to assess only those three irrigation water conservation approaches. The text, at page 4C.1-44, notes that current practices appear to be close to achieving technological limits of those three approaches so that irrigation conservation potential is limited. However, other best management practices recommended by the Water Conservation Implementation Task Force would appear to offer the potential for additional savings.

(Page 4C.2-1) Section 4C.2 Edwards Transfers (L-15)
[58] Some discussion and explanation is needed about how the amounts identified as being available for transfer (72,795 acft/yr from unrestricted permits and 76,228 acft/yr from restricted permits) translate to the 45,375 acft/yr firm supply noted as being available from this strategy in the summary sheet and in the discussion on page 4B.1-11. The text on page 4C.2-2 indicates that adjustments already have been made to calculate a “drought supply equivalent” in developing the 72,795 and 76,228 figures.

[59] (Page 4C.2-8). The following implementation issue is noted: “An additional concern involves potential reductions in discharge at Comal and San Marcos Springs associated with

increased pumpage from municipal wells closer to the springs." This statement needs to be included in the Summary Sheet for this strategy in order to note it as an environmental factor.

[60] The summary sheet for this strategy seems internally inconsistent. In discussing Impacts on Agriculture and Natural Resources, it indicates that no impacts are anticipated because only quantities in excess of demand are projected for transfer. By contrast, in the discussion of Third-Party Impacts of Voluntary Transfers economic impacts are estimated for each acre-foot proposed for transfer. The calculation of impacts suggests that quantities other than excess quantities would be transferred. Similarly, the economic effects, discussed on page 4C.2-7, focus only on those lands taken out of production through the lease of 50% of the irrigation rights. Again, that suggests a transfer of quantities other than those that are excess to demands. Also, the economic impacts from transfers resulting from the installation of water-conservation equipment would be expected to be much less than for the straight leases and an estimate of those impacts also should be presented in this discussion.

(Page 4C.3-1) Section 4C.3 Recycled Water Programs

[61] The Summary Sheet discussion under the Environmental Factors heading is too cryptic in its reference to "similar environmental issues and concerns to those of the existing system." Some summary information about those issues and concerns should be provided in the plan itself.

[62] (Page 4C.3-5). The consideration of impacts to environmental flows turns largely on assumptions about "increasing water use and development of new water supplies from downstream, out-of-basin, and/or groundwater sources." It is far from clear how return flows from increased development of downstream water supplies would result in additional freshwater inflows to the Guadalupe Estuary. Indeed, with an assumed 50 percent return as effluent, the increased development of downstream supplies would decrease those inflows. That decrease could be completely or partially offset by the potential increase of return flows from imports and from non-tributary groundwater supplies, depending on how downstream diversions are operated and on the relative quantities of the water sources. However, because the relative contributions from the various source categories are not provided here, the conclusion is quite uncertain, particularly as it relates to quantities of freshwater inflows. We believe additional analysis is needed. However, if the LGWSP is removed from the plan, the analysis of potential impacts on freshwater inflows may be somewhat simplified because of the reduced downstream diversions. At any rate, revision to this discussion will be needed.

[63] Quantities of projected supply for this strategy are not shown in the Bexar County Summary Table included in Appendix D.

We believe reuse has merit as a potential water supply option but the amount of reuse, if any, appropriate in any particular location requires careful assessment and consideration of the site-specific impacts.

(Page 4C.4-6) Section 4C.4.4 Aquifer Storage and Recovery – Expansion of South Bexar County Facility

[64] This project is listed as a project under construction. Therefore, as noted, the quantity of water associated with this project is to be included in the existing supply. However, it is not clear from the discussion on page 4C.4-7 how or why the ASR project is constrained to the 6,400 acft/yr associated with the Regional Carrizo well field.

[65] The ASR project has significantly greater potential as noted in the discussion on pages 4C.4-8 through 4-9. There is also no discussion of ASR in the Regional Carrizo for Bexar County discussion (4C14-1). It seems that the quantity of water supply available from further expansion of ASR is not adequately considered in the Plan.

(Page 4C.5-1) Section 4C.5 Canyon Reservoir

[66] (Page 4C.5-3). Discussion of environmental issues regarding this strategy should not be glossed over by saying that the issues have been "sufficiently addressed through the inclusion of special conditions in the certificate." Those conditions do not eliminate impacts. The purpose of the required discussion is to acknowledge the impacts that can be expected in order to allow for informed decisions. TWDB rules require a quantitative analysis of impacts for all water management strategies, regardless of whether permits have been issued or are still needed. See 31 TAC § 357.7 (a)(8)(ii). Similarly, the summary sheet statement listing the only environmental factors as positive impacts is a bit inaccurate. There would be increased flows in a portion of the river downstream. Those increased flows may, or may not, be beneficial.

As summarized by the Science Advisory Committee to the Study Commission on Water for Environmental Flows: "The principal goal of providing environmental flows is to assure that sufficient quantities of water, reflecting seasonal and yearly fluctuations, as well as the frequency, timing, and volume of high-flow events, are made available to adequately protect the state's aquatic resources." Science Advisory Committee Report on Water for Environmental Flows (Oct. 26, 2004) at p. 1-7 (emphasis added). The complete loss of low flow events would adversely affect some species. In addition, as water is removed from storage, there is greater potential for moderately sized high-flow events to be captured. It simply is not accurate to portray the impacts of this strategy on environmental flows as uniformly positive. While the impacts may not be particularly large, they should be characterized accurately.

The discussion notes that Canyon Reservoir is expected to be full (above 909 ft-msl) more than 40% of the time. That is useful to know. However, some information about the percentage of time that the Reservoir would be expected to be below key recreational levels also should be provided. That information is important for understanding the potential impacts on businesses dependent on recreational activities in and around the Reservoir.

(Page 4C.7-1) Section 4C.7 Lower Guadalupe Water Supply Project

[67] As noted above, it seems that SAWS was a key player in this strategy. Now that SAWS has chosen not to pursue the strategy, it does not seem appropriate to include it in the plan. At minimum, the strategy may not be included as a strategy for providing water to SAWS. See 31

TAC § 357.7 (b). If another version of the project is developed in the future that would be viable without participation by SAWS, it could be considered for inclusion at that time. However, a version of a project that is not viable should not be included.

[68] On the Summary Sheet labeled as "In-basin Use," the language discussing "Interbasin Transfer Issues" should be revised to present an accurate picture. The issue is one of revision of the current status, not clarification. The text should simply note that in order for the project to be treated as "In-basin use," the current classification of the two basins as separate must be changed. The Summary Sheet labeled as "Interbasin Transfer" also needs revision. The current text, which reads "TWDB and/or Legislative clarification of the interbasin transfer status of this project is necessary," is not accurate for this scenario. No "clarification" is needed if the project is treated as an interbasin transfer. It probably should read more like: "Under the current legal classification, use of water from the project in the San Antonio River basin would be treated as an interbasin transfer and subject to additional permitting requirements." Alternatively, it could be revised to read more consistently with the language under that same heading for the Summary Sheets for the LCRA-SAWS water project. Those Summary Sheets precede page 4C.9-1.

[69] (Page 4C.7-9) Figure 4C.7-5. The result depicted on this graphic illustrates the issues inherent in choice of a baseline for comparison. The baseline, or without project, inflow results reflect inflows that would be expected if all existing water rights were fully used. That has not occurred historically. Specifically, much of the surface water for the project would come from previously unused water rights. Thus, this comparison presents an unrealistic under prediction of the actual effects of the project. Without the project, those diversions under the existing rights would not be expected to occur and the difference between the two lines would be greater. Basically, this graphic compares two different future scenarios, neither of which provides any basis for considering the ecological implications of the change in inflows. This general issue is discussed further in our comments on Chapter 7.

[70] More fundamentally, however, Figure 4C.7-5 does not depict a quantitative analysis of the impacts of the full water management strategy as required by Section 357.7 (a)(8)(A)(ii). The strategy is described on page 4C.7-1 as obtaining water from "70,000 acft/yr of presently underutilized surface water rights from the Guadalupe-Blanco River Authority (GBRA), a new surface water right appropriation, and groundwater from the Gulf Coast Aquifer." Thus, each of the water sources must be considered in the analysis. Figure 4C.7-5 does not acknowledge, as project impacts, the effect of the use of the 70,000 acft/yr of existing surface water rights. Compare, for example, the quantitative estimate of costs for this project, Table 4C.7-3, which includes a specific line-item listing for the cost of the purchase of the existing water. The goal should be to fully depict the potential impacts of the project, both in terms of environment and cost, so that a fully informed decision can be made. By contrast, the Summary Sheets for this project do acknowledge, under the Impacts on Water Resources Heading, that "greater utilization of existing water rights" would be expected to reduce freshwater inflows.

[71] (Page 4C.7-10). The discussion includes the following sentence: "Although bay volumes, inflows, and tidal exchanges with the Gulf of Mexico are so large relative to this alternative that substantial impacts to overall salinity, nutrient, and sediment levels are not likely, an assessment

of changes in freshwater inflows to bays and estuaries will be necessary for permitting." This is a generalization that unfairly trivializes the complex issues surrounding flows and their significance to bay and estuary ecology. It suggests that inflow issues are significant only in the context of "overall salinity, nutrient, and sediment levels" in the entire bay system. The concept of salinity gradients within an estuary system is a fundamental aspect of estuarine ecology and is expressly recognized in the Texas Surface Water Quality Standards. See 30 TAC § 307.4 (g)(3). The quoted statement simply ignores that concept and the value of low salinity areas near river mouths as refugia for salinity-sensitive species during dry conditions. It also suggests that the two project studies regarding freshwater inflows are pointless exercises. It does not reflect an objective consideration of the potential impacts of the project and should be deleted.

(Page 4C.9-1) Section 4C.9 LCRA-SAWS Water Project (LSWP)

[72] The initial statement in this section is confusing. It states that the Lower Colorado River Authority (LCRA) has reserved approximately 330,000 acft/yr of water rights in three lower basin counties for development of projects. We are not aware of any such reservation. The 330,000 acft/yr figure is the amount generally used in describing the combined target to be achieved through a combination of agricultural conservation, increased groundwater production, and surface water diversions for the LSWP.

[73] No quantitative analysis of impacts on environmental water needs is provided. That analysis is required pursuant to Section 357.7 (a)(8)(A)(ii) of the Board's rules. Instead of including any analysis, the discussion states that a Project Viability Analysis (PVA) for the Project "concluded that diversion of previously existing surface water from the Lower Colorado River Basin would not significantly alter the existing freshwater inflow regime of Matagorda Bay…." IPP at p. 4C.9-10. First, that statement references only diversions of "previously existing surface water," which we assume is intended to refer to existing surface water rights, and so apparently doesn't consider proposed new diversions. Second, the PVA was intended only to identify obvious fatal flaws to the project and was not intended to, nor was it adequate to, characterize the extent of potential impacts. In fact, in its conclusion section regarding Matagorda Bay, the PVA states: "The preliminary analysis indicates that increased flows to the Bay will not prevent delivery of water for the LSWP. Additional studies are necessary to further characterize the relationship between freshwater inflows and bay health and productivity." PVA at page 10-3. The PVA does not support the characterization included in the IPP about the absence of significance adverse impacts as a result of the alteration of inflows that may result from this project.

The potential for impacts to freshwater inflows is acknowledged in the Summary Sheets under the "Impacts on Water Resources" hearing and, at minimum, should be acknowledged in the discussion.

[74] Bastrop to Hays County Summary Sheet: This aspect of the project is no longer discussed in the PVA for the LCRA-SAWS Project. Our understanding is that the strategy, if pursued, would be separate from the LCRA-SAWS Project.

[75] Page 4C.9-11: The discussion appears to be somewhat internally inconsistent. In attempting to support the conclusion that freshwater inflows would not be significantly altered, the IPP

states: "Unappropriated water and existing irrigation rights that have been historically unused (about 200,000 acft/yr) are run-of-river rights that are not available except during periods of high flow when diversion rates are small compared with total streamflow." IPP at p. 4C.9-10 (emphasis added). However, in discussing project operation of the intakes for off-channel storage and for the pipeline diversion, the IPP states: "The diversion facilities for the off-channel reservoirs would allow average flows to pass to the transmission intake and [sic] while withdrawing excess flows for storage." IPP at p. 4C.9-113[3]. Average flows cannot both be unavailable to the project and be diverted for the project at the pipeline intake.

[76] (Page 4C.9-13). There does not appear to be an entry for annual costs for agricultural conservation in Table 4C.9-2. At least some of the conservation measures, such as canal improvements, likely would require ongoing maintenance.

[77] Summary Sheet: Depending on impacts to freshwater inflows, there could be third-party impacts to businesses related to commercial and recreational fishing and tourism in the Matagorda Bay system.

(Page 4C.11-1) Section 4C.11 Surface Water Rights

[78] Generally, we support the development of existing water rights as opposed to new water supply projects. However, the impacts of the use of existing rights can vary dramatically depending on the size and location of the underlying right and on whether the right has been used historically. For example, the transfer, by sale or lease, of an existing right that has historically been fully used for irrigation to another user for downstream diversion and municipal use likely would have positive environmental impacts. On the other hand, a transfer of a historically unused right to an upstream location in a river segment that is fully appropriated could have significant adverse impacts. We do not believe that such a broad array of potential transfers can properly be grouped and evaluated.

[79] While we understand the desire of the planning group to ensure that the failure to include projects in the regional plan does not create an inappropriate obstacle for minor sales or leases of water rights, we believe the proposed scope of this "project" is much too broad. There are no limits on the size of a transfer. There are no limits on locations. Even sales that would constitute an interbasin transfer could be argued as fitting with this description. As a result of the unduly broad categorization, it simply is not possible meaningfully to perform the assessments required by TWDB rules for this "water management strategy."

[80] The discussion of environmental impacts apparently seeks to avoid this problem by noting the extent of TCEQ review of water rights permit amendments. However, the scope of that review, which is currently under litigation, is not a reflection of the potential for actual adverse impacts. Nor is the scope of review required by TWDB rules coequal with the scope of TCEQ review. The purpose of review in planning is to ensure an informed decision, regardless of legal constraints on TCEQ review.

[3] The project often is characterized by project proponents as an excess flows or flood flows project. Such a project likely could be operated to avoid major impacts to the Matagorda Bay system. However, particularly because of cost impacts, it is not clear that the project would be operated solely in that way.

[81] Similar problems exist in attempting to assess the potential for third-party impacts, impacts on agricultural resources, and impacts on water quality. We urge the planning group to narrow the scope of potential sales or leases covered by this strategy so that a quantitative evaluation can be performed in compliance with TWDB requirements and so that the potential for unanticipated consequences is minimized.

(Page 4C.12-1) Section 4C.12 Local Groundwater Supplies
This section deals with a collection of different groundwater strategies involving different aquifers and vastly different project sizes.

[82] (Page 4C.12-8). Section 4C.12.3 Trinity Aquifer. Although up to 15,000 acre-feet/yr of withdrawals are noted, there is no substantive information about the potential impacts of those withdrawals on existing users, agricultural interests, springs, or on aquifer levels. Given the potential size of the withdrawals, more information is needed.

[83] (Page 4C.12-8). Section 4C.12.4 Barton Springs Edwards Aquifer. Various endangered species are associated with pumping from this Aquifer. Although the total proposed pumping is small, some information is needed about consistency with groundwater district rules and about location of pumping and potential impact on aquifer levels and springflows.

[84] (Page 4C.12-9). 4C.12.6 Environmental Issues. Most of this discussion is not linked to any particular project. Generally, it simply is not sufficient to allow informed decisions about the potential impacts of the proposed pumping.

(Page 4C.13-1) Section 4C.13 Simsboro Aquifer
[85] Because SAWS has decided not to pursue this project it should be removed from the regional plan. If not removed, the discussion should be expanded to address issues about consistency with applicable groundwater district management plans.

(Page 4C.14-1) Section 4C.14 Regional Carrizo-Wilcox Aquifer for Bexar County Supply
[86] As the planning group is very aware, this is a highly controversial strategy. That controversy should be acknowledged along with a summary of the issues raised and the region's response to those issues. We recognize that the comment process provides an opportunity to acknowledge those concerns and respond to the issues. However, given the level of participation throughout the planning process, particularly by folks from Wilson County, discussion of those issues within the project-specific portions of the document would be appropriate.

[87] (Page 4C.14-14). The analysis of overall groundwater level declines and potential impacts of these on surface water flows is very helpful. However, it is difficult to appreciate the significance of the predicted flow impacts without information about key flow levels of the affected surface streams. In particular, flow data for those streams during low flow periods should be provided so that the significance of the impacts can be considered.

[88] (Page 4C.14-15). Environmental Impacts. This section is written more as an evaluation of potential impediments to permitting and required approvals than as an evaluation of the actual environmental impacts of the project. For example, no discussion of potential impacts to springs or the environmental implications of reduced contributions to flow in surface streams is provided.

[89] (Page 4C.14-25). Additional information should be provided regarding the extent to which the project exceeds the amount of available water identified in the current Gonzales County UWCD management plan. As we understand the initially prepared plan, the project would not be pursued to the extent of exceeding availability under the Gonzales County UWCD management plan. However, the extent of the reduction in supply is not discussed. That information is needed for a reasonable understanding of the project's yield and unit cost.

[90] (Page 4C.14-27). Mitigation reserves for possible impacts to local wells are estimated at $12 million. We commend the consideration of economic mitigation for impacts to existing wells. It would be useful to have a brief summary of the methodology used to determine this estimate. Information about the assumptions used in preparing the mitigation estimate also would be useful in providing an understanding of the predicted impacts on rural areas and agricultural users if mitigation turns out not to be available.

(Page 4C.15-1) Section 4C.15 Regional Carrizo for SSLGC Project Expansion

[91] Summary Sheet. Additional information should be provided regarding the extent to which the project exceeds the amount of available water identified in the current Gonzales County UWCD management plan. As we understand the initially prepared plan, the project would not be pursued to the extent of exceeding availability under the Gonzales County UWCD management plan. However, the extent of the reduction in supply is not discussed. That information is needed for a reasonable understanding of the project's yield and unit cost.

[92] (Page 4C15-2). According to our understanding of projected demands listed in Chapter 4, the amounts to be supplied this project are Shertz, 5,621 ac-ft; Selma, 700 ac-ft; Green Valley, 500 ac-ft; Crystal Clear, 900 ac-ft; and Garden Ridge, 644 ac-ft. The sum of these projected uses is 8,365 ac-ft. However, the project is described as providing 12,800 ac-ft/yr. Where is the rest of the additional water to be used?

[93] (Page 4C15-6). The use of the USFWS National Wetlands Inventory as a starting point to identify potentially affected wetlands is appreciated. Indeed, we believe it would be a good resource for use in all project evaluations

[94] (Page 4C15-11). Mitigation reserves for possible impacts to local wells are estimated at $2,734,000. We commend the consideration of economic mitigation for impacts to existing wells. It would be useful to have a brief summary of the methodology used to determine this estimate. Information about the assumptions used in preparing the mitigation estimate also would be useful in providing an understanding of the predicted impacts on rural areas and agricultural users if mitigation turns out not to be available.

(Page 4C.16-1) Section 4C.16 Wells Ranch Project
[95] As noted in the text, this project has not yet been adequately evaluated. Accordingly, it should not be included in the plan. If evaluations are completed and the project is proposed for inclusion in the plan, reasonable opportunities for public review and comment on the project should be provided. Without the completed evaluation, it is not possible to comment meaningful on the project.

(Page 4C.17-1) Section 4C.17 Hays/Caldwell Carrizo Project
[96] (Page 4C.17-1) The quantity of water developed by this project is 15,000 ac-ft/yr, scheduled to come on-line in 2030. However, according to the Water Supply Plans in Chapter 4 of this plan, the total demands on this WMS by the listed participants in 2030 is 0 ac-ft. The projected demands do not reach 15,000 ac-ft until 2060. It is unclear why this strategy needs to be implemented in 2030.

[97] (Page 4C.17-10) Mitigation reserves for possible impacts to local wells are estimated at $3.2 million. We commend the consideration of economic mitigation for impacts to existing wells. It would be useful to have a brief summary of the methodology used to determine this estimate. Information about the assumptions used in preparing the mitigation estimate also would be useful in providing an understanding of the predicted impacts on rural areas and agricultural users if mitigation turns out not to be available.

[98] (Page 4C.17-11) Additional information should be provided regarding the extent to which the project exceeds the amount of available water identified in the current Gonzales County UWCD management plan. As we understand the initially prepared plan, the project would not be pursued to the extent of exceeding availability under the Gonzales County UWCD management plan. However, the extent of the reduction in supply is not discussed. That information is needed for a reasonable understanding of the project's yield and unit cost.

(Page 4C.18-1) Section 4C.18 Cumulative Effects of Carrizo Aquifer Development Strategies
[99] We commend the planning group for undertaking this review.

[100] The SCTRWPG uses the South Central Carrizo system model (SCCS) to evaluate the impacts of water management strategies in the Carrizo. Although the use of this model, rather the TWDB GAM, has been approved by TWDB, TWDB has expressed some concern. A discussion about the selection of the SCCS model over the GAM would be beneficial.

[101] (Page 4C.18-1). We support the decision of the planning group to model projected pumping based on projected needs.

[102] (Page 4C.18-5) We appreciate the discussion of changes in streamflow associated with this pumping. While it is understood that these results represent changes over the entire length of the stream channel, a graphic showing the location of each modeled stream segment would be helpful.

[103] Particularly for smaller streams, some information about flow magnitudes would be helpful in interpreting the potential significance of the predicted impacts. The numbers presented in Table 4C.18-1 are more meaningful when they are compared to the flow conditions of the rivers during the drought of record and other low-flow periods. For example, during 1954, a reduction of 11.7 cfs in the San Antonio River would have resulted in a 40% reduction in low-flow discharge at the Falls City gage and a reduction of 8.5 cfs in the San Marcos River would have resulted in a 13% reduction (15% in 1984) in low-flow discharge at the Luling gage. For 1984, a 4.9 cfs reduction in the Guadalupe River would have resulted in a 10% reduction in low-flow discharge at the Cuero gage. Low-flow discharge, as used in this example, is the lowest 7-day moving average during the year.

(Page 4C.19-1) Section 4C.19 Cumulative Effects of Gulf Coast Aquifer Development Strategies

[104] We commend the planning group for undertaking this review.

[105] (Page 4C.19-8) It is impossible to know when the next drought of record will occur. As a result multiple portrayals are needed to assess the potential effects of pumping during such a drought period, unless the effects of the drought will be the same regardless of when it is assumed to occur. For this project, it does not seem plausible to assume that the effects would be the same regardless of when drought conditions occurred. Pumping is predicted to result in increasing groundwater declines over time. When assessing the transient effects of water level declines associated with temporary drought conditions, the assumed period when those maximum pumping levels occur is critical in predicting the extent of the water level declines.

[106] (Page 4C.19-45) The analysis of overall groundwater level declines and potential impacts of these on surface water flows is very helpful. However, it is difficult to appreciate the significance of the predicted flow impacts without information about key flow levels of the affected surface streams. In particular, flow data for those streams during low flow periods should be provided so that the significance of the impacts can be considered.

(Page 4C.20-1) Section 4C.20 Edwards Aquifer Recharge

[107] (Page 4C.20-5) Table 4C.20-1 provides useful information about potential impacts. However, the potential significance of the indicated changes in estuary inflow could be better appreciated if information where provided in the table about the magnitude of the overall inflows being affected. We do acknowledge that some limited information about percentage reductions is provided on page 4C.20-7. Is information about drought inflow impacts to the Nueces Estuary available? We also would appreciate seeing information about the amount of reduction during the year with lowest projected inflow.

[108] (Page 4C.20-5) At the top of this page it is noted "…in which case impacts were not mitigated by releases, but were assumed to be mitigated by remuneration and/or development of additional water supply for the Corpus Christi service area." Some information about the calculation of the assumed mitigation costs, as presented in Table 4C.20-9, would be helpful. In particular, some explanation is needed regarding if, or how, impacts to freshwater inflows are included in the mitigation calculation.

[109] (Page 4C.20-7). It would be beneficial to have some explanation of how increased recharge was calculated in order to better understand how adjustments were made to account for the loss of naturally occurring (or baseline) Edwards recharge that otherwise would have been expected downstream of the recharge dam.

[110] (Page 4C.20-9). Table 4C.20-4 is difficult to interpret. Additional explanation of the footnote is needed. In addition, it would be helpful to have more explanation of how the Sustained Pumpage Increase and Increase in Springflow columns relate to average versus drought conditions.

[111] (Page 4C.20-14). The Environmental Issues section should address the issue impacts on estuary inflows.

[112] (Page 4C.20-16). The last sentence on the page, which carries over to the next page notes,"[E]ffects on downstream aquatic communities will be mediated through the extent to which perennial aquatic habitats (pools and flowing reaches) persist in the stream reaches immediately below the recharge zone." Without information about the prevalence of pools or the likelihood of the persistence of pools or flowing reaches, this statement is not particularly meaningful.

(Page 4C.21-1) Section 4C.21.1 Brackish Groundwater Desalination-Wilcox Aquifer

[113] (Page 4C.21-4). A diagram of the geologic cross section associated with this project would be helpful to show the thickness of the aquifer and its relationship to other freshwater and brackish aquifers in the area. The discussion assumes that pumpage from the Wilcox will not have any effect on other aquifers. The text states the area is not overlain by the Carrizo Aquifer. However, Figure 4C.21.1-3 appears to show the area of predicted drawdowns extended into the area overlain by the Carrizo Aquifer. That would seem to suggest that supplies in the Carrizo could be affected. At any rate, some discussion of that issue would be appropriate.

[114] (Page 4C.21-10) The disposal of concentrate is a central issue to desalination projects. Some discussion of issues regarding the depth, location, and other characteristics of the proposed disposal is needed in this discussion.

(Page 4C.21-14 Section 4C.21.2 Brackish Groundwater Desalination-Gulf Coast

[115] (Page 4C.21-14). Now that SAWS has decided to drop the Lower Guadalupe Water Supply Project (LGWSP), it seems unlikely that this project has independent viability. Accordingly, it should not be retained in the plan. If some new version of the project is developed that might be viable without the participation of SAWS, that new version of the project should be considered for inclusion at that time on its own merits.

[116] (Page 4C.21-16): The discussion of impacts of desalination concentrate is overly simplified. The greatest potential for adverse impacts would be expected during dry conditions. Accordingly, the discussion should address that situation rather than just noting impacts during average conditions. In addition, the potential for impacts may well depend on the location of the

proposed outfall because salinity conditions in the Bay are not uniform. In addition, the potential for imbalances in ion concentrations in the concentrate discharge versus the receiving water should be acknowledged and considered regarding potential adverse impacts.

(Page 4C.22-1) Section 4C.22 Seawater Desalination
[117] Seawater desalinization certainly is worthy of consideration as a potential water supply strategy for the state of Texas. However, there are many environmental and energy implications that need to be carefully considered. The sensitivity of this option to issues of the cost and availability of large quantities of electrical power, although acknowledged, is not discussed in any detail. That is a very significant issue for a large-scale desalination plant, particularly given recent trends in fossil fuel prices. In addition, the complications of constructing a concentrate disposal pipeline are not adequately discussed. The issue is acknowledged at page 4C.22-9, but without any elaboration on potential environmental impacts, especially in regard to routing the concentrate pipeline through Matagorda Island State Park and Wildlife Management Area.

[118] (Page 4C.22-9) The discussion includes the following sentence: “Bay volumes, inflows, and tidal exchanges with the Gulf of Mexico are so large relative to this alternative that substantial impacts to overall salinity gradients, or to the delivery of nutrients and sediment are not realistic.” Without careful consideration of circulation patterns in the bay, this statement seems to be an over-generalization, particularly during periods of low inflows.

(Page 4C.23-1) Section 4C.23 Inter-Regional Seawater Desalination
[119] Seawater desalinization certainly is worthy of consideration as a potential water supply strategy for the state of Texas. However, there are many environmental and energy implications that need to be carefully considered. The sensitivity of this option to issues of the cost and availability of large quantities of electrical power, although acknowledged, is not discussed in any detail. That is a very significant issue for a large-scale desalination plant, particularly given recent trends in fossil fuel prices. In addition, the complications of constructing a concentrate disposal pipeline are not adequately discussed.

[120] The absence of any discussion regarding potential impacts on instream flows in the Nueces River downstream of Choke Canyon Reservoir and on freshwater inflows to the Nueces Estuary is a serious shortcoming. Without that information, the required quantitative evaluation of impacts on environmental flows is lacking.

(Page 4C.24-1) Section 4C.24 CRWA Dunlap
[121] This project has not yet been adequately evaluated. Accordingly, it should not be included in the plan. If evaluations are completed and the project is proposed for inclusion in the plan, reasonable opportunities for public review and comment on the project should be provided. Without the completed evaluation, it is not possible to comment meaningful on the project.

(Page 4C.25-1) Section 4C.25 CRWA Siesta
[122] This project has not yet been adequately evaluated. Accordingly, it should not be included in the plan. If evaluations are completed and the project is proposed for inclusion in the plan,

reasonable opportunities for public review and comment on the project should be provided. Without the completed evaluation, it is not possible to comment meaningful on the project.

(Page 4C.27-1) Section 4C.27 Lockhart Reservoir
[123] The inclusion of the Lockhart Reservoir in the Plan, even as a future option, is troubling particularly because it appears to be more of an economic development project than a water supply project. Page 4B.1-26 notes, "The reservoir is considered by local public officials to be an important economic development project to create growth opportunities for the area."

[124] (Page 4C.27-3) Table 4C.27-1 probably should be titled "Monthly Naturalized Streamflow Statistics" rather than Daily Naturalized Streamflows

[125] (Page 4C.27-7) This discussion notes that "flows at the Saltwater Barrier are relatively unaffected by the project, with an expected reduction in the mean annual flow of about 2 percent." Again, a simple evaluation of average conditions can fail to identify significant impacts. Different statistics present different results. For example, at page 4C.27-3, the discussion states that "[m]onthly median streamflows at the Saltwater Barrier would be reduced about 1 percent." The potential effects may not be great, but it would be better at least to include some information about potential drought period impacts. Particularly given the potential for cumulative impacts from a variety of water development projects, careful consideration is appropriate.

(Page 4C. 28-1) Section 4C.28 Brush Management
[126] Land stewardship is a broader term that includes brush management as one of its components. Land stewardship is a concept that has been strongly championed by the Texas Wildlife Association. We encourage the group to examine that broader concept as a strategy worthy of consideration.

Water savings from "brush management" could be greatly enhanced if the strategy also involved proper riparian habitat management. Improving range conditions by clearing brush and planting grasses 'capture' some of the water that now runs off because of sparse vegetative cover. This 'captured' water is more likely to recharge the water table and increase the amount of water that is released to baseflow. The full benefits of this 'captured' water are lost, however, if the baseflow discharges to a scoured river channel. Properly managed riparian zones can greatly increase the storage potential of water saved from brush management. This increased storage potential results in increased baseflows and higher water tables that supply needs during times of drought. Increased baseflows also decrease the need for water from other sources to meet drought demands.

[127] (Page 4C.28-24) It is unclear in the discussion about Engineering and Cost of Brush Control if the uniform annual cost incorporates the on-going management practices necessary for successful brush management.

(Page 4C.29-1) Section 4C.29 Weather Modification

[128] (Page 4C.29-15) In the discussion of Baseline + Weather Modification Conditions, it is noted in the last paragraph of page 15 that a 6.5% increase in precipitation was assumed for all days (April-September) when daily precipitation was between 0 and 3 inches. This does not appear to be a valid assumption. Assuming a 6.5% increase for all days when daily precipitation was between 0 and 3 inches assumes that every seeding attempt was successful and every possible precipitation event was available for seeding. It is not clear from the discussion if the SE/PREC ratio discussed previously was incorporated into this calculation.

[129] (Page 4C.29-16) It is not clear from the discussion of Recharge Enhancements that the increased precipitation values for the Nueces and the Blanco during the drought of record were adjusted to reflect only those precipitation events that could have been seeded/enhanced. There would certainly have been fewer opportunities for successful cloud seeding during the drought. It is not appropriate to calculate increased precipitation due to modification by simply adjusting annual precipitation data. In addition, there is a considerable margin of error associated with assigning precipitation gage data to large areas. This needs to be incorporated into the discussion and assumptions.

[130] (Page 4C.29-20) Weather modification may result in increased recharge to the Edwards, but the amounts of increased available water for pumpage due to these increases must be carefully evaluated. As the Edwards is a very porous aquifer, the recharged water may not remain in the aquifer long enough to allow for increases in pumpage. In addition, pumpage demands may not coincide with the increased yields reportedly available from enhanced recharge.

[131] (Page 4C.29-20) The discussion on environmental effects assumes that increases in rainfall in seeded areas do not result in decreases in rainfall elsewhere. Some documentation and discussion of this assumption would be appropriate.

(Page 4C.30-1) Section 4C.30 Rainwater Harvesting

[132] Rainwater harvesting as a water supply option is becoming increasingly popular throughout the Texas, especially in areas where reliable groundwater sources are not available. We commend the RWPG for evaluating Rainwater Harvesting as a strategy.

Due to its popularity in the area, there is much local experience regarding this strategy. One of the members of the planning group is a regionally recognized expert on the topic. In February of this year, the Sierra Club made a Rainwater Harvesting presentation to the RWPG that included new information available in TWDB's revised Texas Manual on Rainwater Harvesting. We urge the planning group to consider updating this discussion, which appears, with the exception of cost estimates, not to have been updated since 2001.

(Page 5-1). Section 5. Impacts of Water Management Strategies on Key Parameters of Water Quality and Moving Water from Rural and Agricultural Areas

[133] As part of our active participation in the regional water planning process, Myron Hess raised the issue at a planning group meeting of including an assessment of impacts to salinity

gradients in estuaries. Maintenance of acceptable salinity gradients is addressed by Section 307.4 (g)(3) of the Texas Surface Water Quality Standards. Mr. Hess had understood from that meeting that the consultant had agreed to include such an assessment as part of the review of impacts on water quality. Unfortunately, no information or discussion of that issue appears in the plan.

At least for those strategies which are recognized as having the potential for water quality impacts, some discussion is needed about the water bodies and areas expected to experience those impacts. Also, significant water quality impacts may be hidden in the "baseline" assumptions. The discussion here indicates that "baseline" is the same as that assumed in Section 7, which means that full use of existing water rights is assumed as the "baseline" condition. In reality, that is much different than the actual current condition that is being experienced. For example, conditions in Canyon Lake likely would be much different under "baseline" conditions than they are today because of changed water levels in the reservoir. Similarly, flows in some portions of the Guadalupe River would be significantly different than they are currently if full use of water rights were assumed. Those changed flows would be expected to result in different water quality conditions. Section 357.7 (a)(12) of the Board's rules specifically calls for "comparing conditions with the recommended water management strategies to current conditions using best available data." Further examination and analysis is needed to provide the required consideration of water quality impacts.

In addition, the discussion of the LGWSP suggests that impacts on water quality resulting from changed flows downstream of the proposed diversion point may not have been considered. Such reduced flows likely would have the potential to affect dissolved oxygen levels downstream of the diversion. That potential should be considered.

(Page 5-7) Discussion Related to Rural and Agricultural Areas

[134] The areas around San Antonio Bay and Matagorda Bay are rural areas. Many businesses in those areas rely on natural resources supported by environmental flows. Examples include commercial fisherman, seafood wholesalers, fishing and birding guides, restaurants, hotels, and retailers. Those businesses could be harmed if reduced inflows adversely affect the natural resources that directly or indirectly support their operations. Those potential impacts should be acknowledged.

[135] (Page 5-7 through 5-8) Costs are discussed for increased pumping costs that would be associated with drops in water levels. Lowered levels also might result in significant expenses associated with the need to deepen existing wells.

(Page 7-1) Section 7 Consistency with Long-Term Protection of the State's Water, Agricultural, and Natural Resources

[136] TWDB may not approve a regional plan unless it is able to make an affirmative finding that the regional plan is consistent with long-term protection of the state's water resources, agricultural resources, and natural resources. See Texas Water Code Section 16.053 (h)(7)(C). We believe the initially prepared plan contains a good start towards analyzing the issue of consistency with long-term protection of natural resources. As we have previously noted, we do

think that some improvements are needed in that analysis and we acknowledge the commitment of the planning group and its consultants to work with the National Wildlife Federation in incorporating additional analyses into the plan. We believe those additional analyses also would help demonstrate compliance with 31 TAC §§ 357.5(l) and 357.7(a)(1)(L), TWDB rules that direct planning groups to "consider environmental water needs including instream flows and bay and estuary inflows" and to identify threats to natural resources due to water quantity problems. In addition, this information also will assist in ensuring compliance with 31 TAC § 357.7 (a)(8)(A)(ii) by providing addition information for the required quantitative reporting of environmental factors, including effects on environmental water needs.

We have two primary concerns with the existing analyses in the initially prepared plan. Those analyses do provide information about flow changes, but only by looking at changes from some future condition. First, we believe it is essential to evaluate changes from current conditions or some other identifiable baseline. If is difficult to appreciate the significance of a change from one potential future condition to some other potential future condition because none of us have experienced either. Second, we believe the future conditions should be assessed against some established biological criteria.

An additional complication that arises with respect to the analysis of overall impacts is the inclusion in the plan of projects supplying far more water than the region is projected to need. This complicates the potential to present an accurate view of likely impacts. The inclusion of some additional projects, which involve the movement of water supplies into the area from other areas of the state, may serve to increase return flows that would partially offset the impacts of downstream diversion projects. However, if only some of the projects actually are needed, including all of them in the analysis may paint an unduly rosy picture. Conversely, including other projects that are not likely to be built may result in an over-prediction of adverse impacts in another area.

In October of 2004, the National Wildlife Federation released a report called Bays in Peril: A Forecast for Freshwater Inflows to Texas Estuaries. It is, as the title suggests, a forecast of future conditions. The report used a standard TCEQ water availability model (WAM) run for the Guadalupe and San Antonio Rivers to forecast inflows to the estuary if all the existing water permits were fully used and if reuse of wastewater were increased to 50%. The report then evaluated the predicted inflows against each of two ecologically significant criteria: a drought criterion and a freshwater pulse (or higher flows) productivity criterion based on the results of the state’s freshwater inflows studies.

NWF has proposed to work cooperatively with the Region and its consultants to devise an alternative representation of future inflows that reflects anticipated levels of water use and reuse and wastewater discharge with the regional water plan implemented. We understand that the planning group has agreed to participate in that effort. The expectation is that, instead of the standard analysis used in Bays in Peril that assumes full use of existing permits and 50% reuse of wastewater, NWF and representatives of the planning group would jointly produce an analysis that looks at the water usage levels, including potential wastewater reuse or other new projects, the planning group considers most likely for 2060 conditions. Our belief is that the inclusion of

such an analysis in the regional plan would provide critical information for helping to satisfy new requirements in this round of planning for "… quantitative assessments of environmental factors" as they relate to consideration of impacts to freshwater inflows and would provide information needed for a meaningful assessment of consistency of the regional plan with long-term protection of the state's natural resources.

(Page 8-1) Section 8 Policies and Recommendations
8.2 Rural Water
[137] We support the call for adequately equipping groundwater districts with the information and capacity to respond to groundwater export proposals and for ensuring that adequate technical information is available to analyze such proposals.

8.3 Groundwater
Groundwater Sustainability
[138] We strongly support the goal of groundwater sustainability. However, we believe a clear definition of "sustainability" is necessary because it appears to mean different things to different people. In our terminology, groundwater sustainability means that in the long-term (well beyond the current planning horizon) withdrawals must be balanced with recharge while also maintaining adequate natural discharges such as seeps and springs.

8.6 Innovative Strategies
Drought Contingency Plan
[139] The SCTRWPG policy regarding drought management states, "it does not select drought management as a water management strategy because by definition, drought management is only implemented during times of crisis." We do agree that times of serious drought are times of crisis. However, the SB1 process is driven by planning to meet water needs during just such times of crisis. If measures are in-place to reduce water demands during drought periods, why should those measures be ignored in the process of planning to meet the water demands?

8.7 Environmental
[140] We acknowledge and commend the planning group for its strong overall recognition of the importance of protecting environmental flows and natural resources.

Protection of Edwards Aquifer Springflow and Downstream Water Rights
[141] This discussion suggests that any decrease in pumping amounts from the Edwards Aquifer during drought periods would require the development of additional water management strategies over those in the current version of the plan. However, as acknowledged elsewhere in the initially prepared plan, the recommended water management strategies included in the plan would provide in excess of 800,000 acre-feet/year of new supplies. By contrast, projected 2060 demands are about 417,000 acre-feet/year.

Ecologically Unique Stream Segments and Unique Reservoir Sites
[142] We are disappointed that the planning group has again chosen not to recommend any river or stream segments for designation as ecologically unique.

Thank you for your consideration of these comments and please feel free to contact us if you have any questions. We look forward to a continuing positive dialogue with the planning group during this and future planning cycles.

Sincerely,

Myron Hess	Mary Kelly	Ken Kramer
National Wildlife Federation	Environmental Defense	Sierra Club

cc: Carolyn Brittin, TWDB
Bill Mullican, TWDB
Cindy Loeffler, TPWD
Sam Vaugh, HDR Consulting