September 30, 2005

Rio Grande Regional Water Planning Group
c/o Mr. Kenneth N. Jones
Executive Director, LRGVDC
311 N. 15th Street
McAllen, Texas 78501-4705

Re: Comments on Initially Prepared 2006 Rio Grande Regional Water Plan

Dear Mr. Jarvis 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 Rio Grande Regional Water Plan. 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 Rio Grande 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 Rio Grande Region. Your consideration of these comments will be appreciated.

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 reasonable 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. 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. Consistent with TWDB's rules for water planning, we consider water conservation measures that improve efficiency to be separate and distinct from reuse projects. 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.

The Texas Water Code, as amended by SB1 and SB2, along with the TWDB guidelines, establish 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. 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).

Given Region M's decision not to incorporate advanced municipal water conservation measures in the plan, there is substantial need for improved treatment of water efficiency in the plan.

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, Senate Bill 2 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

[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.

money to develop new supply sources simply to meet those nonessential demands during rare drought periods.

C. Plan to Ensure 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. Accordingly, environmental flows should be recognized as a water demand and plans should seek to provide reasonable levels of 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. The recent silting in and closure of the mouth of the Rio Grande, largely attributed to overuse and drought, is a prime example of this. We acknowledge the ongoing discussions between the National Wildlife Federation and the planning group regarding a cooperative effort to address these issues (discussed further in our Chapter 7 comments below).

In addition, we believe that environmental flows should be recognized as a water demand and plans should seek to provide reasonable levels of environmental flows. As an example, we would note that the initially prepared plan for the Lower Colorado Region (Region K) does include such recognition of environmental flows as a water demand.

D. Minimize New Reservoirs

Because of the associated adverse impacts, new reservoirs should be considered only after existing sources of water, including water efficiency and reuse, are utilized to the maximum extent reasonable. When new reservoirs are considered, adverse impacts to regional economies and natural resources around the reservoir site must 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 continue to be disappointed to see the Brownsville Weir included as a recommended water management strategy. As stated on page 4.53 of the IPP, the firm yield of this project is 20,643 ac-ft/yr. As noted in our comments below, the City of Brownsville alone could save over 30,000 ac-ft/yr through adoption of reasonable municipal conservation measures.

[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).

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 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. We see Region M's decision to allow for up to 100 feet of water level decline in the regions aquifers over the next 50 years as conflicting with this planning directive.

II. PAGE-SPECIFIC COMMENTS

E.S. EXECUTIVE SUMMARY

[1] An executive summary is an important component of a document as large and multifaceted as the IPP. This may well be the only portion of the water plan that many members of the public would be able to read. For this reason, we strongly encourage the planning group to make a draft of the executive summary available for comment as soon as it is available.

CHAP. 1, INTRODUCTION – GENERAL OVERVIEW OF REGIONAL WATER PLANNING & SENATE BILL ONE

[2]**Section 1.3, Page 1-29, Paragraph 4.** The plan states that there are no major springs that are "extensively relied upon for water supply purposes." TWDB rules (§ 357.7 (a)(1)(D)) require a description of the region's major springs that are important for "water supply or natural resource protection" purposes. The identification of springs important for natural resource protection is a new requirement applicable for this round of planning. This is an important issue that must be addressed in the regional plan.

[3]**Section 1.3, Page 1-29, Paragraph 2.** There appears to be an incomplete sentence or extra words at end of paragraph.

[4]**Section 1.6, Page 1-39**. Increased pumping of groundwater and removal of water from storage may impact the small springs across the region mentioned on Page 1-29 that livestock and wildlife may depend on. This potential threat needs to be discussed in this section.

[5]**Section 1.6.1, Page 1-39.** The plan fails to discuss the potential impact increased use and development of Rio Grande water may have on the environmental flows that support the region's wildlife, many of the region's protected areas, and the health of the tourism-related economy. The Board's rules call for consideration of businesses dependent on environmental flows. See 31 TAC § 357.7 (a)(1)(G).

CHAP. 2, CURRENT AND PROJECTED POULATION & WATER DEMAND FOR THE RIO GRANDE REGION

We urge the planning group to acknowledge environmental flows as a category of water demand. There is precedent for such action: the initially prepared plan for the Lower Colorado River Basin (Region K) does include such recognition of environmental flows as a water demand. While we recognize limitations on the availability of information needed to quantify this water

demand, the category could be acknowledged qualitatively during this round of planning with additional effort devoted to quantitative analysis in the future.

[6]**(Page 2-7). Section 2.3.1 Projections of Municipal Water Demand**
The discussion of the derivation of the municipal demand projections is confusing. Based on our understanding, it actually appears to reflect the approach used during the last round of planning rather than the approach used for this round. Specifically, the last sentence of the second-last paragraph includes the following language: "and by taking into account dry-year water usage and water savings resulting from conservation programs supported by cities or utilities." We understand year 2000 water use to have been chosen to reflect dry year usage so we are unclear about the additional reference to "dry-year water usage." We also understand the TWDB-derived calculations to include existing conservation programs only to the extent that such programs affected calculated water use for 2000; they do not embody any savings from additional programs. We urge that this language be clarified.

The last sentence of the last paragraph states that the demand projections have embedded in them savings due to the 1991 State Water Efficient Plumbing Act. Although we don't view those savings as coming through affirmative adoption of conservation measures, but rather through natural replacement of less efficient fixtures, we do understand the standard methodology to include those savings. We believe it would be useful to include information about the amount of those savings in the plan. That same sentence also suggests that forecast demands take into account "anticipated improvements in municipal water use efficiency and in water savings associated with the adoption of conservation measures such as those proposed in the 1991 State Water Efficient Plumbing Act." However, we don't understand the projections to include any savings other than those anticipated through the automatic use or replacement of efficient fixtures in new construction and remodeling. The TWDB Exhibit B guidance indicates that any anticipated savings through the adoption of conservation measures would be reflected, if at all, as a water management strategy.

[7] **Section 2.3.4 Projections of Steam Electric Water Demand**
The water needs for steam-electric power generation seem to incorporate an unduly high demand projection with a projected increase of about 380% in water demand. By contrast, a projected population increase of around 209% is projected to result in about 176% increase in municipal water demand along with a projected 78% increase in manufacturing water 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.

We acknowledge that the steam electric demands result from the document: "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. As energy costs continue to rise, progress in energy efficiency measures likely will result in reduced per capita usage of electricity and in demands below the projected levels. The projected 2060 demand of 32,598 acre-feet of water for steam-electric power production seems excessive.

CHAP. 3, EVALUATION OF THE ADEQUACY OF CURRENT WATER SUPPLIES

[8]**Sections 3.1 through 3.4** These sections, dealing with surface water availability considerations, especially of the Amistad and Falcon Reservoir system, are generally well written and informative.

[9]**Page 3-1:2 and Figure 3.1** - The origin of the magnitude of surface water supply available to the Region is unclear in this section. It is not till page 3-47 (Firm yield of the Amistad and Falcon Reservoir system) that the reader sees the origin of these values. A footnote or brief mention in the text would be useful here.

[10]**Section 3.5, Page 3-51:52.** The Region M IPP calculates groundwater availability based on allowing significant drawdowns in water levels for the Carrizo-Wilcox and Gulf Coast aquifers of up to 100 feet below year 2000 levels. The text goes on to describe this drawdown as calculated on an average basis across an entire county, thus localized effects could be much higher. The plan describes these levels of drawdown as "aquifer sustainability."

The problem of labeling this approach sustainable becomes apparent even in considering the next scheduled round of regional planning. As discussed on page 3-52, the withdrawals proposed here are of such a magnitude that they just meet the regional water planning group's drawdown target of 100ft on average. Thus, as soon as the next five-year increment is added to the planning horizon, the planning group will be faced with either redefining the acceptable drawdowns (that is, increasing them) or lowering the acceptable pumping levels in that decade. Thus, the level of storage depletion that the Region M group is proposing is not sustainable in the long-term, especially as many of the communities become more reliant on groundwater withdrawals to meet their growing water demands.

[11]**Section 3.6.1 Surface Water Supply Analysis** (page 3-61, under "Step 1") Text states that approx. 391,000 ac-ft/yr of diversions are in the municipal and industrial categories and that this can be seen in Table 3-5. However, Table 3-5 only lists about 349,000 ac-ft/yr for the Rio Grande basin, which is what this discussion refers to.

[12]**Section 3.6.1 Surface Water Supply Analysis** (page 3-66, third paragraph) This text describes an exercise to determine how much irrigation water would be remain available for that purpose if all anticipated demands in the "domestic, municipal, and industrial (DMI)" categories are met with conversion of irrigation rights. In this text there is no mention of the 2:1 conversion of irrigation rights that is described later on Page 4-25. That issue should be acknowledged.

CHAP. 4, IDENTIFICATION, EVALUATION, & SELECTION OF WATER MANAGEMENT STRATEGIES BASED ON NEEDS

[13]**Section 4.5.1.2, Page 4-25**. **Water Supply Yield** (of Acquisition of Rio Grande Water Rights). Near the bottom of this page the text states that "the appendix… [shows] a projected additional supply of over 430,000 acre-feet of water for irrigation use in 2060." However, this would seem to be more accurately described as recommended water management strategies to meet projected demands.

[14]**Section 4.5.1.4, Page 4-28**. **Environmental Impact** (of Acquisition of Rio Grande Water Rights). The plan states that there are "little or no additional environmental impacts associated

with the conversion of Rio Grande irrigation water rights to DMI use." We believe this conclusion requires more consideration. Given that irrigation use is seasonally based and DMI demand would be continuous, there likely will be changes in the pattern of use of the Rio Grande water that may impact the environment. Although the conversions may well be appropriate, this potential impact needs to be addressed.

[15]**Section 4.5.2.4, Page 4-32**. **Environmental Impact** (of Non-Potable Water Reuse). The increased reuse of municipal water would decrease the volume of water re-entering the Rio Grande and Lower Laguna Madre systems. This would reduce flows available to support in-stream environmental uses and inflow needs of the Lower Laguna Madre and mouth of the Rio Grande estuaries. Although the strategy certainly may be appropriate, it should be evaluated with explicit consideration of this potential impact (see our comments below on Section 7 and proposed cooperative work to assess).

[16]**Section 4.5.3.4, Page 4-36 Environmental Impact** (of Potable Water Reuse) The increased reuse of municipal water would decrease the volume of water re-entering the Rio Grande and Lower Laguna Madre systems. This would reduce flows available to support in-stream environmental uses and inflow needs of the Lower Laguna Madre and mouth of the Rio Grande estuaries. This potential impact needs to be addressed (see Section 7 comments and proposed cooperative work to assess).

Section 4.5.4 Advanced Water Conservation

[17]**Page 4-38.** At the outset of this section, the plan states that there are several conservation measures, such as "educational programs," "leak detection," and "commercial water conservation" embedded in the demand projections furnished from the TWDB to the region. That is not consistent with our understanding of the TWDB process. The demand projections from the Board only included anticipated savings from the 1991 State Water Efficient Plumbing Act to the extent included by the planning group and did not include other future measures. The following paragraph from the TWDB's methodology description explains the basis of the projections in relation to the Plumbing Act:

> "Water use reductions expected in future years due to continued adoption of water-efficient plumbing fixtures, as detailed in the 1991 State Water-Efficient Plumbing Act, will need to be included by the Planning Group and will be based on information and data provided by the TWDB. Any projected GPCD savings due to conservation programs to be undertaken by cities or utilities over and above the savings reflected from the 1991 State Water-Efficient Plumbing Act will be listed as a separate WMS by the Planning Group." (from Water Demand Projections Methodology available at http://www.twdb.state.tx.us/data/popwaterdemand/2003Projections/Methodology.asp)

Thus, the base water-demand projections prepared for each region by the TWDB are adjusted to include water savings expected to occur through automatic implementation of the state requirements related to plumbing fixtures. This level of savings is anticipated to occur without pro-active action by the planning group, cities, or other municipal WUG, just due to the natural replacement of fixtures like low-flow shower heads and water-saving toilets in new construction and renovations and through obsolescence. In this section and in several other locations

throughout the IPP (e.g., Appendix C), the plan refers to these savings as "advanced water conservation," which is not an accurate characterization.

[18]**Section 4.5.4.2, Advanced Water Conservation, Water Supply Yield.** The IPP states here that "No WUGs expressed interest in pursuing additional advanced water conservation measures." (emphasis added). Because the only water conservation measure included is compliance with the basic plumbing fixtures law, we do not understand there to be any advanced water conservation measures for any municipal WUG.

This appears to be a significant deficiency in the IPP and we encourage the planning group to reconsider this stance. Other than an unwise approach to water planning, there are statutory and planning rule implications. The Texas Water Code, 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 Section 11.1271 of the Water Code. That section applies to all municipal entities with surface water rights greater than 1,000 ac-ft or using water pursuant to such water rights through contractual arrangements.

In addition, the Board's guidelines require the consideration of more stringent conservation measures for all other water user groups with water needs. If additional measures are not included the decisions not to include them must be explained. See 31 TAC § 357.7 (a)(7)(A)(ii).

Section 4.5.4.2, Advanced Water Conservation, Water Supply Yield. In addition to the points noted above, the description here of the Board's projections of municipal water demands is quite convoluted and appears quite inconsistent with our understanding of the Board's methodology.

[19] **Page 4-39.** The second paragraph states "Estimates of the amount of future municipal water demands that could be met by additional or advanced water conservation measures were developed by the TWDB." It is unclear what this is referring to. As pointed out above, the "base" demands developed by TWDB do not include any advanced conservation measures. The statement may be intended to refer to a study funded by TWDB to analyze cost and possible water savings through various water conservation measures: Texas Water Development Board, GDS Associates, *Quantifying the Effectiveness of Various Water Conservation Techniques in Texas*, March 2002. If so, we would suggest that the reference be clarified. If this is not the intent, then we request a clear explanation of what estimates of savings are being referred to.

[20] **Page 4-39.** The text describes an alternative approach by the Region of applying "advanced conservation", namely, reducing demand by 2% per decade for municipal WUGs with projected water shortages. Again, this is very confusing. The text states that "These figures were recommended by the TWDB as mandatory plumbing conservation." Savings resulting from the effects of the plumbing fixtures law must be accounted for and must be applied to each municipal WUG, regardless of whether a shortage is projected. See 31 TAC § 357.7 (a)(2)(C). However, these savings do not constitute advanced conservation and they do not require overt action. The measures discussed in Section 4.5.4.1 of the IPP are not simple implementation of the plumbing fixtures act and would produce additional savings beyond the 2% per decade amount selected as representing plumbing fixtures act implementation.

[21] This discussion is very confusing. It basically says there is no advanced municipal water conservation and then reports quantities of savings for advanced municipal conservation. As we understand the initially prepared plan, only savings from the state plumbing fixtures act have been included and only for select WUGs. Those savings must be included for all WUGs. 31 TAC § 357.7 (a)(2)(C). In addition, the plan must include advanced water conservation (i.e., measures beyond the plumbing fixtures act) for WUGs to which Section 11.1271 applies if those WUGs have projected water needs. 31 TAC § 357.7 (a)(7)(A)(i). Beyond that, additional advanced water conservation must be considered for all municipal WUGs with projected needs and, if not recommended, reasons for not recommending additional measures must be provided. 31 TAC § 357.7 (a)(7)(A)(ii).

[22] **Section 4.5.4.2, Page 4-39, second paragraph.** As stated on this page, Region M has not recommended any actual advanced water conservation measures for municipal WUGs. This leads to some continued inordinately high water use rates at the end of the 60 year planning horizon: Brownsville - 216 gallons per capita per day (gpcd); Laredo - 188 gpcd; McAllen – 192 gpcd. For context consider that the statewide average municipal water use projected for 2050 in the 2002 State Water Plan was 159 gpcd[3]. Also, a principal recommendation of the Water Conservation Implementation Task Force convened by the Board pursuant to legislation passed in 2003 is that all municipal WUGs should strive to achieve an eventual water use rate of no more than 140 gallons per person per day.

[23] **Section 4.5.4.2, Page 4-39, Table 4.27.** This table should be labeled to indicate whether the savings listed are from the effects of the plumbing fixtures code or from some recommendation for advanced water conservation. In addition, the time period for when those savings would be realized should be indicated. Please revise the text throughout the Advanced Water Conservation section, this Table, and Appendix C to reflect this distinction.

[24] **Section 4.5.4.2** There is potential for much more water efficiency savings in Region M. We have attached a Table, labeled as M-IPP 1, illustrating the potential savings in Region M with some reasonable water efficiency measures. These calculations are based upon the recommendations of the Water Conservation Implementation Task Force. Again, among other things, the Task Force proposed that all municipal WUGs should strive to achieve an eventual water use rate of no more than 140 gallons per person per day (gpcd). The second goal to guide water conservation efforts is that, in the near-term, municipal WUGs with water use above 140 gpcd should strive to achieve a one percent reduction in per capita municipal water use per year. We have used these recommendations in our calculations on how much water could be saved in Region M. Table M-IPP 1 highlights a few of the principal results for two groups: a) the top 10 population centers, and b) a few other WUGs with significantly high water use rates (greater that 250 gpcd in year 2000).

As you can see from Table M-IPP 1, the top 10 population centers, representing abut 69 percent of the region's projected population in 2060, could save 81,855 ac-ft/yr due to water efficiency measures. Most of these savings would accrue to just three WUGs: Laredo, Brownsville, and McAllen.

[3] Texas Water Development Board, *Water for Texas – 2002*, page 33.

There are eight other municipal WUGs that, although small in population, have very high water use rates. The potential savings for this group are in the bottom half of the Table M-IPP 1. Although the projected population in 2060 of these WUGs represents less than 2 percent of the total regional population, the savings are substantial at 9,939 ac-ft/yr[4]. Because of their high initial water use rates in year 2000, none of these WUGs reaches the ultimate goal of 140 gpcd by the year 2060.

If all Region M municipal water user groups were to pursue the 1 percent reduction through water efficiency measures (except South Padre Island), with most of them reaching the 140 gpcd level by 2060, it would represent savings of almost 101,016 acre-feet per year compared to what the Region is proposing.

We know that these suggested municipal water use rates are not unreasonable for Texas. San Antonio provides a real world example of the potential of improved water efficiency. Through a concerted effort, San Antonio has reduced its municipal water use to about 132 gpcd from a use level of about 213 gpcd in a period of around 20 years. This reduction was achieved through water efficiency measures without accounting for reuse.

The South Central Texas Regional Water Planning Group (Region L), in its initially prepared plan, has established water efficiency goals as follows:

> "For municipal water user groups (WUGs) with water use of 140 gpcd and greater, reduction of per capita water use by 1 percent per year until the level of 140 gpcd is reached, after which, the rate of reduction of per capita water use is one-fourth percent (0.25) per year for the remainder of the planning period; and
>
> For municipal WUGs having year 2000 water use of less than 140 gpcd, reduction of per capita water use by one-fourth percent per year."

These excerpts are from Initially Prepared 2006 South Central Texas Regional Water Plan at p. 6-1.

[25] **Section 4.5.4.3 Cost** (for Advanced Municipal Water Conservation). This section also is very confusing. There should be no particular costs associated with implementing the plumbing fixtures act. If the listed measures, which would constitute an advanced municipal water conservation program, are included then an actual cost estimate is needed. There are resources available to help estimate costs of water conservation programs such as Texas Water Development Board, GDS Associates, *Quantifying the Effectiveness of Various Water Conservation Techniques in Texas,* March 2002.
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In order to have a complete comparison of water management strategies as required by Senate Bill 2 and TWDB rules we believe it is necessary to include information on the expected cost of water conservation measures and/or programs. Below are some examples from the 2005 Initially Prepared Plans for Regions C, L, and H of estimated costs for water conservation measures.

[4] As detailed in the Table M-Initially Prepared Plan1, the savings are based on proposed water use rate with a 1% per year reduction from year 2000 water use for these high use WUGs. However, because of the high influence of tourism on water use for South Padre Island, the revised water use rate is based on a reduction of only one-half percent per year.

Table M-IPP 2 Example Cost data for water conservation programs in Initially Prepared Plans from other regions.

Region	program label	Cost per ac-ft of water saved*
C	Municipal water conservation	$177**
L	Municipal water conservation-Rural	$396
L	Municipal water conservation-Urban	$458
L	Municipal water conservation-Suburban	$520
H	Municipal water conservation	$161

NOTES: * Region L costs are amortized at 6% over the projected length of service on the measure (e.g., toilet service life = 25 years). Unclear if Region C and H costs are so amortized.

** this figure is weighted average cost for fifteen water user groups with highest volumes of proposed savings at the 2010 time frame, equaling 70% of total Region C conservation savings.

[26] **Section 4.5.4.6, Page 4-41.** This recommendation section for municipal water conservation is equally confusing. The "advanced municipal water conservation scenario defined by TWDB" needs to be identified. We are not aware of any such scenario. The "one to two percent per decade" recommendation is less than the two percent per decade figure selected on page 4-39. An accounting for plumbing fixtures act implementation is required in calculating water demands for all municipal WUGs, not just those with projected water needs. Actual water conservation practices, beyond plumbing fixtures act implementation, must be included for WUGs with water needs and additional measures must be considered for all WUGs. The tabulations for each WUG detailed in Appendix C erroneously label the default savings from the Plumbing Fixtures Act as Advanced Water Conservation and should be corrected.

[27] **Section 4.5.4.6, Page 4-41.** Additionally, the Region M stated goal is very timid. In comparison, the Conservation Implementation Task Force recommended a reduction of **1% per year** for municipalities currently using greater than 140 gpcd. An example of an advanced water conservation measure being implemented by another RWPG, Region L (South Central Texas – including San Antonio) has incorporated this strategy - to reduce per capita consumption by 1% annually until achieving a rate of 140 gpcd and then pursuing further reductions of .25% per year.

[28] **Section 4.5.5.4, Page 4-46.** While pertinent to the discussion of a seawater desalination project, the discussion on TCEQ permits needs to be handled in Section 4.5.5.5 on Implementation Issues. This would clarify the discussion on potential environmental impacts.

[29] **Section 4.5.6.4, Page 4-50.** The plan needs to address the impact to aquifer levels from an increase in the removal of groundwater. This would also include potential impacts to the fresh groundwater reserves in the same aquifers or interconnected/adjoining aquifers.

[30] **Section 4.5.7.4, Page 4-53. Environmental Impact** (of Brownsville Weir and Reservoir)**.** The IPP lists many of the environmental impacts resulting from the project but fails to provide any quantitative analysis of those impacts, as required by TWDB rules. See 31 TAC § 357.7 (a)(8)(A)(ii). The purpose of that required quantitative analysis is to ensure informed decision-making during the planning process. Alluding to the permitting process as the place to resolve outstanding issues does not satisfy the requirements of the planning process.

[31] **Section 4.5.8.4, Page 4-57.** The plan needs to clarify what the phrase "remain steady" through 2060 means. Does this mean that there will be no drop in aquifer levels due to this

increased volume of pumping over the planning horizon? If so, this needs to be quantified and included in this discussion.

[32] **Section 4.5.8.2, Page 4-57.** The values of water available in Table 4.37 do not appear to match the values previously indicated in Table 3.9 (page 3-56). For instance, here 35,529 ac-ft/yr are shown to be available in Webb Co. while the Table 3.9 figure, based on a water level decline of 100 ft on average throughout the county, was 3,000 ac-ft/yr.

[33] **Section 4.5.8.4, Page 4-58.** This section states that there may be a water level decline in the "deeper zones" of the Gulf Coast Aquifer. It is unclear as to the meaning of this qualification of the potential impacts. It may imply that the effects are of limited geographic extent (areas of aquifer with deep extent). It may also imply that the effects are removed from the surface and thus will not affect existing wells or the baseflows of streams and small springs or seeps. A more thorough explanation is necessary. In addition there should be a portrayal of the actual decline rate over time. This statement is also potentially in conflict with "remain steady" if the implied meaning of that phrase is constancy of water levels.

The plan states in **Section 3.5.1.2** that due to lack of use, the Gulf Coast aquifer in the region is considered full. Since aquifers are dynamic systems, there is outflow from the system, in the form of springs, loss to rivers and streams, and loss to other aquifer formations. So an increase in withdrawals from the system will impact the aquifer dynamics. The plan needs to address these potential impacts.

[34] **Section 4.5.8.4, Page 4-58.** The plan does not include a discussion of how increased groundwater production would impact the small springs in the region that provide water for livestock and wildlife (as described on Page 1-29).

[35] **Section 4.5.8.4** The IPP states on page 3-39 that the Arroyo Colorado is sustained in part by groundwater seepage, but there is no discussion of the potential loss of this source here.

[36] **Drought Management Measures**. As required by 357.7 (a)(7)(B) of TWDB's rules, drought management is a water management strategy that must be evaluated. That provision, along with Section 16.053 (h)(7)(B) also requires that drought management be <u>included</u> as a water management strategy for each entity required to prepare a drought management plan pursuant to Section 11.1272 of the Water Code. Drought management does not appear in Table 4-2. Although the planning group may decide, provided it documents the basis for that decision, not to include drought management as a water management strategy beyond those measures specifically required by Section 11.1272, it must include at least the Section 11.1272 level of drought management as a water management strategy. SB2 made inclusion of drought management measures at least at the level required by Section 11.1272 a mandatory prerequisite for approval by TWDB of a regional water plan. See Tex. Water Code Ann. § 16.053 (h)(7)(B). The initially prepared plan does not comply with that requirement. For each entity required to prepare a drought contingency plan pursuant to Section 11.1272 – all three of the municipal WUGs identified with needs in the region - the water plan must include a water management strategy reflecting the drought period savings from that drought plan.

CHAP. 5, IMPACTS OF WATER MANAGEMENT STRATEGIES ON KEY PARAMETERS OF WATER QUALITY AND IMPACTS OF MOVING WATER FROM RURAL AND AGRICULTURAL AREAS

[37] **Table 5.1, Page 5-2.** The impacts listed in this table are confusing. For example, the impacts listed for "additional groundwater" are not impacts that one would ordinarily associate with increased production of groundwater. Further explanation is needed.

[38] **Section 5.2, Page 5-4.** The discussion and associated report (Socioeconomic Impacts of Unmet Water Needs in the Rio Grande Water Planning Area) do not fulfill the requirements of §357.7 (a)(8)(G), for which this chapter is titled. The requirements call for an analysis of the impacts of moving water from rural and agricultural areas, not for an analysis of the impacts of unmet water needs in the region. The required analysis should be provided.

CHAP. 6, CONSOLIDATED WATER CONSERVATION & DROUGHT MANAGEMENT RECOMMENDATIONS OF THE REGIONAL WATER PLAN

[39] **Section 6.1, Page 6-2.** This section includes a good list of conservation strategies. However, although those strategies can help to minimize the adverse effects of droughts and help stretch water supplies, they won't help prevent a drought and the text should be rephrased. More significantly, however, the measures won't accomplish anything unless they are implemented and the initially prepared plan appears to lack any recommendation for their implementation.

[40] **Section 6.4, Page 6-6.** Need to replace the links "Word perfect" and "PDF" in this section with the actual addresses. The initially prepared plan does not appear to include actual model water conservation plans. We urge the planning group to include the required model plans.

CHAP. 7, LONG TERM PROTECTION OF THE STATE'S WATER RESOURCES, AGRICULTURAL RESOURCES, AND NATURAL RESOURCES

One of the key changes that SB 2 made to the water planning process was to create a specific statutory criterion mandating that a regional water plan may not be approved by TWDB unless it is shown to be consistent with long-term protection of the state's water resources, agricultural resources, and natural resources. The initially prepared plan devotes just over two pages to the discussion of that consistency. Although we certainly acknowledge that quality of discussion is more important than quantity, both are lacking here.

[41] **Section 7.1, Page 7-1.** Paragraph 4 implies that the IPP recommended Advanced Water Conservation as a WMS. This statement is not reflected in the Decision Documents contained in Appendix C and appears to conflict with the confusing statements on page 4-39, including the statement that "No WUGs expressed interest in pursuing advanced water conservation measures." Please rephrase this statement, along with the section on municipal water conservation, to accurately and clearly reflect how the Region addressed the issue of advanced water conservation.

[42] **Section 7.1, Page 7-2, Paragraph 2.** This section discusses optimizing the supply of water available from the Rio Grande as an important aspect of protecting the State's water resources. It

fails, however, to discuss the protection of groundwater resources. As mentioned in our comments related to Chapter 3, the group's decision of adopting a decline of groundwater levels in the region of up to 100-feet over the next 50 years is in direct conflict with the long-term protection of the State's water resource. We urge the planning group to revisit this issue and select a groundwater management strategy that provides for long-term protection of the aquifers and will not be detrimental to the communities that are becoming more reliant on groundwater withdrawals to meet their growing water demands.

[43] **Section 7.3** We commend the Region for acknowledging, in this section, that the issue of environmental flow maintenance in the Rio Grande is a concern. We urge the planning group to extend that recognition to the Arroyo Colorado and all of the region's estuaries. There are several strategies proposed in Chapter 4 (e.g., conversion of irrigation rights, reuse of wastewater) that have the potential to alter flows in the Rio Grande and Arroyo Colorado. These would also affect freshwater inflows to the Rio Grande mouth and the lower portion of the Laguna Madre, both of particular importance in the planning area. We believe more complete analysis and consideration, particularly of impacts to those inflows, is necessary in order to have a truly comprehensive regional water plan and to demonstrate compliance with applicable requirements.

Among the most pertinent of those requirements are the following:

- Water Code § 16.053(h)(7)(C), a new requirement for this round of planning. It requires the Texas Water Development Board (TWDB) to affirmatively determine, as a prerequisite to approving a regional water plan, that the plan is "consistent with long-term protection of the state's … natural resources..."
- 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.
- 31 TAC § 357.7 (a)(8)(A)(ii), a new TWDB rule for this round of planning that requires RWPGs to include in their evaluation of water management strategies a *quantitative reporting* of environmental factors, including effects on environmental water needs.

In October of 2004, the National Wildlife Federation (NWF) released a report called *Bays in Peril: A Forecast for Freshwater Inflows to Texas Estuaries*. In that report, future freshwater inflows to the major estuaries were estimated based on increased use levels and the future inflows were then assessed against biologically relevant criteria[5] to forecast likely ecological impacts. We believe the methods used in the NWF analysis would provide useful information for helping to meet regulatory requirements for consideration of potential impacts to the estuaries of the Region.

In a letter to Region M in January of this year, NWF explained that the Lower Laguna Madre and Rio Grande were not included in NWF's original analyses due to incomplete status of a water availability model (WAM) for the Rio Grande and other technical issues. Since the release of the NWF report, the Rio Grande WAM has been completed.

[5] Criteria based on states series of freshwater inflows studies such as Pulich Jr., W., J. Tolan, W. Y. Lee, and W. Alvis, 2002. *Freshwater Inflow Recommendation for the Nueces Estuary*. Texas Parks and Wildlife Department.

NWF has proposed to work cooperatively with the Region and its consultants to devise a representation of future inflows that reflects anticipated levels of water use and reuse and wastewater discharge with implementation of the regional water plan[6]. We support that effort and acknowledge that discussions are under way to accomplish that result. Our understanding is that, instead of the standard analysis used in *Bays in Peril* which assumed 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. Flow changes at both the mouth of the Rio Grande and inflow points for the Lower Laguna Madre would be assessed. Our belief is that the inclusion of such an analysis in the regional plan would substantially 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.

An outline of NWF's proposed approach for accomplishing the joint evaluation is attached to this comment letter.

[44] **Section 7.3, Page 7-3.** This section includes a discussion of the potential for including environmental flows in the Rio Grande as a separate WUG in the next round of planning. We strongly endorse this concept and encourage the planning group to examine this strategy carefully. Recognizing environmental flows as an actual need to be planned for would allow for a more meaningful approach to actually ensuring reasonable estuary flows in the future.

[45] **Section 7.3** This section needs to address the potential impact that increased groundwater pumping and removal of water from storage may have on the small springs across the region, mentioned on Page 1-29, that support livestock and wildlife.

CHAP. 8, UNIQUE STREAM SEGMENTS/RESERVIOR SITES/LEGISLATIVE RECOMMENDATIONS

[46] **Section 8.1, Page 8-1.** It is disappointing to see that the Planning Group has again declined to recommend any streams for designation as unique stream segments. The explanation for not recommending such designations should be expanded. The initially prepared plan merely states: "a designation could cause that segment to be more susceptible to such issues as environmental flows and water quality issues upstream of the designation." Is the planning group saying that protection of environmental flows and water quality in those segments would be a bad thing? Further clarification would be helpful. Despite the lack of recommendations, we appreciate the inclusion of information in the plan about the segments considered for possible recommendation.

[47] **Section 8.1, Page 8-1.** Please correct the reference in the first paragraph from the "North East Texas" region to the Rio Grande Region.

[48] **Appendix C.** Unnumbered table titled "Water Supply and Demand Analysis." In each of the various entries for individual WUGs (e.g., Brownsville, Weslaco, etc.) there is a line labeled

[6] The original analysis used a standard TCEQ water availability model (WAM) run for the Texas rivers to forecast inflows to estuaries if all the existing water permits were fully used and if reuse of wastewater were increased to 50%.

"Advanced Water Conservation" in the water demand calculation portion of the sheet. The savings are actually just the accounting for automatic savings of the Plumbing Fixtures Act as part of the TWDB demand projections (as discussed above) and should be identified as such.

[50] **Appendix C** Unnumbered table titled "Water Supply and Demand Analysis." In the entry for the City of Brownsville, the water supply yield of the Brownsville Weir and Reservoir is erroneously given as 40,000 ac-ft/yr. As stated on page 4.53 of the IPP, the yield is 20,643 ac-ft/yr.

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
National Wildlife Federation

Mary Kelly
Environmental Defense

Ken Kramer
Sierra Club, Lone Star Chapter

cc: Robert Flores, Region M Liaison, TWDB
Kevin Ward, TWDB
Cindy Loeffler, TPWD
Bill Norris, NRS Consulting Engineers

ATTACHMENT I
SUMMARY OF PROPOSAL BY NATIONAL WILDLIFE FEDERATION FOR PROCESS FOR JOINT EVALUATION OF FRESHWATER INFLOW IMPACTS

NWF proposes a three-step process as outlined below.

Step 1 –Predict Freshwater Inflows for Baseline(s) and with Regional Plan Using WAMs

Using the Rio Grande WAM and the lower portion of the Nueces-Rio Grande coastal basin WAM, we would jointly predict monthly inflows to the Lower Laguna Madre and mouth of the Rio Grande estuaries for 'baseline' conditions and for future conditions with the regional water plan in place. Proposed baselines for comparative purposes are: a) the WAMs "natural" inflows, representing conditions prior to significant alteration and b) "present use" conditions. The proposed future condition scenario would portray conditions with the regional water plan fully implemented in all regards.

Step 2 – Perform Ecologically-Based Freshwater Inflow Assessments

For the freshwater inflows calculated for each scenario above, we would perform tabulations for the two ecologically-based assessments as used in the *Bays in Peril* report. For that original effort, the two ecologically-based assessments relied, in part, upon the freshwater inflow recommendations of the Texas Parks & Wildlife Department (TPWD) and the TWDB[1] for each estuary. The first assessment focuses upon spring / early summer freshwater inflow pulses. The second assessment is focused on six-month periods of continuous low flows falling within the months of March through October (which represent a time of significant biological activity in the estuaries).

The Lower Laguna Madre already has in place a set of freshwater inflow criteria which allow us to perform the same type of analysis as in the Bays in Peril report for the state's other estuaries. The Rio Grande however, does not have such criteria. In this case we will have to consult with Texas Parks and Wildlife Department to develop some 'place holder' criteria for use in our analysis.

Step 3 – Present the Results in Final Regional Water Plan

Finally, a summary of the two ecologically-based assessments for the each of the scenarios would be developed for inclusion in the final regional water plan. This would include appropriate graphics and / or tables to summarize the key findings. The preferred approach, if those analyses showed troubling results, would be to consider different combinations of water management strategies in an attempt to meet water needs while avoiding large-scale impacts to inflows. However, given the current timing constraints, the regional water planning group may not be able to consider such alternatives during this round of planning. In that event, we would hope subsequent action would be taken to modify the plan to minimize such impacts. If the analyses do not predict problems then the information would be used to demonstrate a careful consideration of impacts and of consistency with long-term protection of natural resources.

[1] e.g., TPWD & TWDB, "Freshwater Inflow Recommendation for the Nueces Estuary of Texas" Sept. 2002.

Table M-IPP-1 – Calculation of additional savings through municipal water efficiency measures for Water User Groups with net water use >140 gpcd at the 2060 time frame with

Water User Group (WUG) name	Year 2000 use rate (gpcd)	Region M IPP proposed water use and water efficiency data, Year 2060						environmental community proposed savings, Year 2060		
		Popula-tion[a]	Portion of region (%)	IPP total demand of WUG (ac-ft/yr)	use rate (gpcd) [includes plumbing code]	addtnl. water effi-ciency sav. (ac-ft/yr)	net water use rate with efficiency measures (gpcd)	use rate[b] (gpcd)	revised total demand (ac-ft/yr)	addtl. savings (ac-ft/yr)
top 10 population centers										
LAREDO	200	650,317	17.0%	136,948	188	0	188	140	101,983	34,965
BROWNSVILLE	229	357,828	9.4%	86,577	216	0	216	140	56,115	30,462
NORTH ALAMO WSC	96	350,473	9.2%	33,369	85	0	85	85	33,369	-
MCALLEN	205	275,322	7.2%	59,213	192	0	192	140	43,176	16,037
HIDALGO CO.-OTHER	115	253,592	6.6%	29,542	104	0	104	104	29,542	-
EDINBURG	119	179,517	4.7%	21,717	108	0	108	108	21,717	-
MISSION	149	171,790	4.5%	26,363	137	0	137	137	26,363	-
PHARR	132	150,291	3.9%	20,202	120	0	120	120	20,202	-
SAN JUAN	85	129,327	3.4%	10,720	74	0	74	74	10,720	-
HARLINGEN	156	116,389	3.0%	18,643	143	0	143	140	18,252	391
subtotals		**2,634,846**	**68.9%**	**443,294**				0	**361,439**	**81,855**

Table M-IPP-1, cont'd – Calculation of additional savings through municipal water efficiency measures for Water User Groups with net water use >140 gpcd at the 2060 time frame with

Water User Group (WUG) name	Year 2000 use rate (gpcd)	Region M IPP proposed water use and water efficiency data, Year 2060						environmental community proposed savings, Year 2060		
		Popula-tion[a]	Portion of region (%)	IPP total demand of WUG (ac-ft/yr)	use rate (gpcd) [includes plumbing code]	addtnl. water effi-ciency sav. (ac-ft/yr)	net water use rate with efficiency measures (gpcd)	use rate[b,c] (gpcd)	revised total demand (ac-ft/yr)	addtl. savings (ac-ft/yr)
additional high water use centers (basic gpcd>250)										
S. PADRE ISLAND[c]	704	7,392	0.2%	5,722	691	0	691	521	4,315	1,407
VALLEY MUD #2	618	1,246	0.0%	843	604	0	604	338	472	371
WILLACY CO.-OTHER	501	384	0.0%	209	486	0	486	274	118	91
LA GRULLA_STARR	474	1,211	0.0%	624	460	0	460	259	352	272
PORT ISABEL	451	7,520	0.2%	3,681	437	0	437	247	2,079	1,602
HIDALGO CO. MUD #1	293	18,487	0.5%	5,860	283	0	283	160	3,320	2,540
LAGUNA MADRE WD	271	26,416	0.7%	7,812	264	0	264	148	4,389	3,423
PALM VALLEY	268	1,959	0.1%	555	253	0	253	147	322	233
subtotals		**64,615**	**1.7%**	**25,306**				0	**15,367**	**9,939**

notes: :a) first set is top ten WUGs in Region M, based on 2060 population, second set is other WUGs with smaller population but IPP-proposed water use greater than 250 gpcd in 2060. b) proposed water use rate is based on 1% per year reduction from year 2000 water use, but no less than 140 gpcd unless the WUG was already at that level in year 2000. c) because of the high influence of tourism on water use for South Padre Island, the revised water use rate is based on a reduction of only one-half percent per year.