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CHAPTER 8.0: ADDITIONAL RECOMMENDATIONS (INCLUDING UNIQUE ECOLOGICAL STREAM SEGMENTS AND RESERVOIR SITES, LEGISLATIVE ISSUES, AND REGIONAL POLICY ISSUES)

8.1 SUMMARY OF TWDB RULES

8.1.1 Policy Recommendation Rules

Texas Water Development Board (TWDB) rules for SB 1 regional water planning [31 TAC Chapter 357.7(a) (9)] provide that the regional water planning groups (RWPG) may include in their regional water plans:

...regulatory, administrative, or legislative recommendations the regional water planning group believes are needed and desirable to: facilitate the orderly development, management, and conservation of water resources and preparation for and response to drought conditions in order that sufficient water will be available at a reasonable cost to ensure public health, safety, and welfare; further economic development; and protect the agricultural and natural resources of the state and regional water planning area. The regional water planning group may develop information as to the potential impact once proposed changes in law are enacted.

The 77th Texas Legislature clarified that the designation of unique stream segments (USS) solely means that a state agency or political subdivision of the State may not finance the actual construction of a reservoir in a designated stream segment of unique ecological value. It does not affect the analysis to be made by RWPGs. To recommend all or parts of stream segments of unique ecological value to the Legislature, RWPG is required to develop a recommendation package that includes a physical description of the location, maps, photographs, and site characterization documented by supporting literature and data.

The approved scope-of-work for the development of the SB 1 water plan for the Lower Colorado Region included a subtask to “prepare possible legislative, regulatory, and administrative recommendations.” In this regard, the Lower Colorado Regional Water Planning Group (LCRWPG) established a Policy Committee and charged it with the responsibility for coordinating a three-step process to:

1. Identify, define, and screen policy issues
2. Evaluate issues and policy options
3. Develop recommendations for consideration by the LCRWPG

During the current planning cycle, the recommendation process has been applied to the following eleven water policy issue areas:

- Management of surface water resources
- Environmental Flows – instream flows and freshwater inflows to bays and estuaries
- Environmental – sustainable growth, including impacts of growth
- Groundwater
- Protection of agricultural and rural water supplies
- Agricultural water conservation
- Municipal and industrial conservation

- Reuse
- Public involvement
- Education; and
- Brush control

In addition, the LCRWPG has adopted policy recommendations on various issues either by resolution or motion. These recommendations are incorporated into the policy issue briefs or otherwise included below. Finally, the LCRWPG has identified a number of areas in which the regional water planning process might be improved for subsequent regional water plan updates. These recommendations are also presented.

8.1.2 Unique Ecological Stream Segment Recommendation Rules

In accordance with the Texas Administrative Code 31 §357.8, RWPGs:

...may include in adopted regional water plans recommendations for all or parts of river and stream segments of unique ecological value located within the regional water planning area by preparing a recommendation package consisting of a physical description giving the location of the stream segment, maps, and photographs of the stream segment, and a site characterization of the stream segment documented by supporting literature and data.

The following criteria are to be used when identifying a river or stream segment as being of unique ecological value:

- **Biological Function:** Segments that display significant overall habitat value including both quantity and quality considering the degree of biodiversity, age, and uniqueness observed and including terrestrial, wetland, aquatic, or estuarine habitats
- **Hydrologic Function:** Segments which are fringed by habitats that perform valuable hydrologic functions relating to water quality, flood attenuation, flow stabilization, or groundwater recharge and discharge
- **Riparian Conservation Areas:** Segments that are fringed by significant areas in public ownership including state and federal refuges, wildlife management areas, preserves, parks, mitigation areas, or other areas held by governmental organizations for conservation purposes under a governmentally approved conservation plan
- **High Water Quality/Exceptional Aquatic Life/High Aesthetic Value:** Segments and spring resources that are significant due to unique or critical habitats and exceptional aquatic life uses dependent on or associated with high water quality
- **Threatened or Endangered Species/Unique Communities:** Sites along segments where water development projects would have significant detrimental effects on state or federally listed threatened and endangered species, and sites along segments that are significant due to the presence of unique, exemplary, or unusually extensive natural communities

If a RWPG decides to recommend a stream segment for designation as ecologically unique, TAC §357.8 (a) directs that the recommendation package be forwarded to the Texas Parks and Wildlife Department (TPWD) for review. The TPWD has 30 days to complete a written evaluation of the recommendation. The adopted regional water plan shall include, if available, TPWD's written evaluation. Based on the

regional water plans, the State Water Plan shall identify ecologically unique stream segments that the TWDB recommends for protection under Texas Water Code §16.051. Ultimately, the Legislature has the authority to designate a river or stream segment of unique ecological value. As per TWC §16.051 (f), this designation solely means that a state agency or political subdivision of the state may not finance the actual construction of a reservoir in a specific river or stream segment designated by the legislature as ecologically unique.

8.1.3 Unique Reservoir Site Selection Rules

In accordance with the Texas Administrative Code 31 §357.9, RWPGs:

...may recommend sites of unique value for construction of reservoirs by including descriptions of the sites, reasons for the unique designation, and expected beneficiaries of the water supply to be developed at the site.

The following criteria are to be used when identifying a site that is unique for reservoir construction:

- The site-specific reservoir development is recommended as a specific water management strategy or in an alternative long-term scenario in an adopted regional water plan
- The location, hydrologic, geologic, topographic, water availability, water quality, environmental, cultural, and current development characteristics, or other pertinent factors make the site uniquely suited for a reservoir development
 - to provide water supply for the current planning period
 - that might reasonably be needed to meet water supply needs beyond the 50-year planning period.

8.2 SUMMARY OF POLICY RECOMMENDATIONS

The following recommendations are offered by the Lower Colorado Regional Water Planning Group (LCRWPG) for consideration by the Texas Legislature, TWDB, TCEQ, other water planning regions and all stakeholders and participants in Texas' regional and state water planning efforts. Each policy includes background information, policy statement(s), and action(s) the LCRWPG recommends.

The LCRWPG utilized a three-year long intensive policy development process in the first planning cycle, and a comprehensive review in each subsequent planning cycle to produce these results. Only policies that have met with the unanimous approval of the LCRWPG's diverse voting membership are recommended by the LCRWPG. These policies have undergone a multi-level development process with extensive peer review.

It is the hope of the many contributors to this process that these recommendations will lead to public policies and processes that improve upon the already impressive methods Texas uses to accomplish water planning.

8.2.1 Management of Surface Water Resources: Inter-Basin Transfers, Model Linking, Conjunctive Use, and Electric Generation Planning

8.2.1.1 Background Information

As water marketing pressures intensify to meet demands in more arid portions of the State, the potential increases for harm to the environment and the economies in areas from which water is extracted.

Proposed inter-basin transfers (IBTs), including the LCRA-SAWS Project, and other water uses external to a basin must be managed carefully relative to impairment of existing water rights, consistency with the public welfare including the need for water, consistency with state and regional water supply planning, and environmental and water quality issues.

Multiple major water right permit applications are currently pending in the Colorado River Basin, which result in competing interests within and external to the basin. For permits related to inter-basin transfers, the inclusion of special provisions to ensure the protection of the economic and public welfare interests in the basin of origin is imperative. Business, industry, agriculture and other economically important water users developed originally as a result of water availability. Without some means of protecting these users, water transfers could leave them priced out of the market, adversely affecting the economy of the entire region in order to benefit another area of the State.

Some identified strategies for dealing with water supply shortages may impact sustainability of groundwater, when development of surface water supplies could be utilized instead. This approach could result in long-term adverse consequences for the region.

Subsequent to the completion of the first planning cycle, LCRA and SAWS entered into a long-term water supply contract, which includes a potential inter-basin transfer (IBT) of up to 150,000 ac-ft/yr of water from the Colorado River Basin. A feasibility study is underway to determine whether the long-term water needs of the Lower Colorado Regional Water Planning Area can be met by water conservation and development strategies in the Lower Colorado River Basin. This study is funded by entities in the South Central Texas Regional Water Planning Group (SCTRWPG) in exchange for the IBT of water to the South Central Region consistent with the restrictions imposed by HB 1629 (2001).

Water is also an essential component in electricity production. Most electric generation facilities conjunctively use both surface and groundwater to generate electricity. The availability of these resources should be considered when locating and developing new electric generating facilities.

8.2.1.2 Policy Statements

8.2.1.2.1 Inter-Basin Transfers

It is essential that current water supplies for agricultural, industrial, municipal, and environmental uses be protected and preserved even in the midst of developing new supplies for growing industries and populations in urban areas. Inter-basin transfers (IBTs) should follow principles established by LCRWPG in the first planning cycle, and revised in each subsequent planning cycle, for transporting water outside of the region:

The LCRWPG has adopted a resolution (*Appendix 8A*) supporting the following nine-point policy that identifies the conceptual elements and guidelines for transporting water outside of the Lower Colorado River Basin:

1. A cooperative regional water solution shall benefit each region.
2. Lower Colorado Regional Water Planning Area's (LCRWPA) water shortages shall be substantially reduced if there is an exchange for an equitable contribution from LCRWPA to meet the municipal water shortages in the South Central Texas Region (or similar transfers to other regions of the State).
3. Proposed actions for inter-regional water transfers shall have minimal detrimental water quality, environmental, social, economic, and cultural impacts.
4. Regional water plans with exports of significant water resources shall provide for the improvement of lake recreation and tourism in the Colorado River Basin over what would occur without water exports.
5. Each region shall determine its own water management strategies to meet internal water shortages when those strategies involve internal water supplies and/or water demand management.
6. Cooperative regional solutions shall include consideration of alternatives to resolve conflicts over groundwater availability.
7. Any water export from the Colorado River would not be guaranteed on a permanent basis.
8. Any water export from the Colorado River shall make maximum use of flood or excess inflows below Austin, but only after in-basin demands are met in the lower basin. Provisions and supporting technical reviews included in a draft permit to support this principle shall be reviewed by the Regional Water Planning Group to assure consistency with the planning process.
9. Any water export from the Colorado River shall comply with the LCRA's inter-basin water transfer policy.

These nine elements are fundamental considerations for any out-of-basin transfers. This policy specifically addresses potential transfers to the SCTRWPG, but would be similarly applied to any request made for a transfer to any other region of the State.

8.2.1.2.2 Linking Groundwater and Surface Water Models (Also See Groundwater)

Future groundwater and surface water modeling development by the state's water permitting and planning agencies should include the ability to link such models to better integrate the effects of changes in the uses or availability of either groundwater or surface water on each other in varying conditions such as flood or drought. Such linking of models may be more appropriate for specific areas where groundwater and surface water closely relate and interact, such as concentrations of base-flow springs or stream-based recharge. Develop the methodology to utilize available empirical data from public and private sectors to calibrate both groundwater and surface water models.

8.2.1.2.3 Conjunctive Use of Groundwater and Surface Water (Also See Groundwater)

Surface water resources should be managed to minimize the need for pumping of groundwater, if such pumping results in degradation of the aquifer capacity or quality. Aquifers should be managed for sustainability when surface water is available. Strategies which increase surface water availability to

offset shortages in a region should receive higher priority than strategies which reduce the long-term sustainability of groundwater. The use of multiple sources of water that are available to meet local and/or regional needs is supported by LCRWPG.

LCRWPG further supports conjunctive use within LCRWPG to promote long-term sustainability and to meet the identified needs of the regional water plan. Conjunctive use of water is defined as the use of multiple sources of water that are available to meet local and/or regional needs.

8.2.1.2.4 Use of Water for Electrical Generation

Surface and groundwater should be managed to optimize use of water for electrical generation while balancing other water needs in the region. New generation facilities should provide reasonable assurance that surface and groundwater are available, can be developed, or can be obtained during the facility planning and permitting process.

8.2.1.3 Actions Needed

Texas Legislature – The LCRWPG encourages the Legislature to:

1. Maintain and strengthen water policies designed to protect basins of origin in the event of inter-basin transfers. These policies should consider the nine points presented above.
2. Support State funding for linking groundwater and surface water models by the TWDB during the development of the next generation of Groundwater Availability Models/Water Availability Models (GAMs/WAMs) with a priority for specific areas where groundwater and surface water closely relate and interact, such as concentrations of base-flow springs or stream-based recharge. Encourage the validation and calibration of models with data and technical reviews available from the public and private sectors.
3. Strengthen water policies to encourage and prioritize strategies which increase surface water availability to offset shortages in a region in lieu of strategies which could negatively impact the sustainability of groundwater.
4. Continue to recognize the relationship between water supply and electric generation and establish measures to ensure that future electric generation facilities; 1) utilize the most efficient technologies and practices to conserve water supplies; and 2) can develop or obtain sufficient amounts of water for use in operation of new electric generating facilities.

Texas Commission on Environmental Quality (TCEQ) – The LCRWPG encourages TCEQ to:

1. Include provisions in water right permits related to inter-basin transfers that protect the basin of origin. Obtain concurrence that draft permits are consistent with the regional water planning process.
2. Provide the Regional Water Planning Groups with technical review summaries including WAM runs for pending permits affecting the region to ensure consistency with the regional planning process.

Lower Colorado River Authority – Diligently complete the LCRA-SAWS Study and Implementation Plans in such a way as to demonstrate the degree to which each of the points in the LCRWPG's nine-point guidelines for transporting water out of the basin are met.

8.2.2 Environmental Flows – Instream Flows and Freshwater Inflows to Bays and Estuaries**8.2.2.1 Background Information**

Texas' myriad of fish and wildlife resources and outdoor recreational opportunities deserve preservation and, in some cases, restoration. Fortunately, a large percentage of surface water rights in Texas are currently underutilized, thereby resulting in sufficient natural flows to provide for critical environmental needs during drought conditions. However, increasing utilization of existing water rights coupled with new water rights potentially threaten the availability of these critical environmental flows.

Total authorizations for consumptive use are approximately 22 million acre-feet of water per year and the vast majority of those authorizations were issued prior to 1985 without conditions to protect environmental flows. The total amount of surface water available on a reliable basis during drought conditions is estimated at 13.3 million acre-feet per year (Vol. 2, *2007 State Water Plan*, p. 138). As of 2003, surface water use was estimated at slightly more than 6 million acre-feet per year (Vol. 2, *2007 State Water Plan*, p. 138).

8.2.2.2 Policy Statement

The LCRWPG supports the protection of instream flows and bay and estuary inflows at levels sufficient to protect native species throughout extended periods of drought at population levels that would enable the species to fully recover upon the return of normal weather conditions. During normal weather conditions, target flows sufficient to ensure a healthy habitat for fish and wildlife should be assured. This requires addressing the specific water quality, flow rates and timing that are required to sustain a healthy and productive riparian and estuarine ecosystem as well as the physical form of the river such as deep pools, riffles, bluffs, terraces, and its vegetation, springs, and tributaries.

The LCRWPG recommends that the Legislature accomplish environmental flow protection through the surface water permitting process by:

1. In areas where permitting additional quantities of water could threaten the adequacy of environmental flows, permits for additional quantities of water should include environmental flow conditions and mitigation plans consistent with the environmental flow standards that are adopted by TCEQ. Prior to adoption of environmental flow standards, new permits for additional quantities of water should include environmental flow conditions and mitigation plans that assure the maintenance of ecological productivity on a long-term basis, to the extent reasonably practicable after considering the factors identified in Texas Water Code 11.147. In addition, the state should aggressively seek the conversion of existing water rights to environmental uses through programs such as the voluntary sale or lease of under-utilized water rights back to the state as a means of regaining adequate flow conditions. These water rights should then be set aside to provide for environmental flow protection.
2. Where unpermitted surface water is available, the state should set aside quantities sufficient to assure needed environmental flows and include provisions in all new permits that would further protect these flows, consistent with the environmental flow standards adopted by TCEQ.

It is critical that the issue of environmental flow protection be addressed in a responsible, comprehensive way as expediently as possible. Where sufficient scientific data are unavailable to make adequately informed judgments, interim data should be extrapolated from similar watersheds and appropriate studies

undertaken to gain adequate site-specific data. Lack of data should not lead to the over-appropriation of rivers and streams.

8.2.2.3 Actions Needed

Texas Legislature – Monitor the Environmental Flows Allocation Process set up by the 80th Texas Legislature through Senate Bill 3. Monitor and provide adequate funding for environmental flows.

Colorado and Lavaca Basin and Bays Stakeholder Group – Consider the above recommendations when developing final recommendations to TCEQ.

TCEQ – Consider the above recommendations during the SB3 environmental flows rulemaking process.

8.2.2.4 Timing and/or Conflicts

The SB3 process has been set in motion for the Lavaca and Colorado basin and bays and the resulting TCEQ rulemaking should begin sometime in 2011.

8.2.3 Environmental – Sustainable Growth, Including Impacts of Growth

8.2.3.1 Background Information

Sacrifices and trade-offs are often seen as necessary to meet a greater common good, and this seems particularly true of water planning. With finite water resources available, such sacrifices are inevitable. Water planning in this state has always assumed that certain demands can and should be met.

The State of Texas has yet to take a comprehensive look at whether meeting predicted water demands would simply and inevitably generate even higher demands in the future. Will these current planning efforts embrace water supply strategies that cannot be sustained? How many sacrifices should be made to support unsustainable growth in a particular region or to provide for unsustainable growth in another region? If aquifers are mined and the viability of the region's ecosystems are reduced to minimal survival levels, how can assurance be given that the next step will not be destruction of those ecosystems in order to simply support a little more growth?

Business, industry, agriculture, and other economically important water users developed originally as a result of water availability and its likely sustainability. Without some means of protecting these users, water transfers could leave them priced out of the market, adversely affecting the economy of the entire region in order to benefit another area of the State.

8.2.3.2 Policy Statement

The LCRWPG recognizes the complexities and the seemingly insurmountable political obstacles that prevent the adoption of growth management plans. Therefore, it is the LCRWPG's recommendation that the issue of sustainable growth be addressed primarily through educational efforts. The LCRWPG strongly supports the proposed state-wide Water IQ public education campaign and encourages that this campaign be saturated with information regarding the finite nature of water resources and the inescapable

trade-offs that inevitably must occur when water use in a given geographic area or economic sector increases. Care must be taken in such a program to highlight the need for a balance to be sought among competing water uses that would ensure the maintenance of:

- Healthy riparian, riverine, estuarine, and hardwood bottomland ecosystems
- Historic cultural resources
- Regional economic opportunities
- Agricultural development
- Preservation of rural communities

8.2.3.3 Actions Needed

Texas Legislature – The LCRWPG encourages the Legislature to fully fund the Water IQ public education program directing its administering staff to include educational efforts regarding sustainability as presented in the above policy statement.

8.2.3.4 Timing and/or Conflicts

This is for immediate action by the Texas Legislature.

8.2.4 Groundwater

8.2.4.1 Background Information

Groundwater resources vary greatly across the state and regions, both in quantity and quality. The difficulties and problems inherent in managing these diverse resources have been delegated by the State of Texas to locally organized Groundwater Conservation Districts (GCDs). These local governmental entities are responsible for management, conservation, preservation, protection, and enhancement of groundwater resources in their individual jurisdictions. GCDs vary from small, one or two person offices in single county districts to larger agencies covering multiple counties and employing a staff of twenty or more.

GCDs have been an integral part of the regional planning process and have provided valuable input on local aquifer characteristics, usage, and availability. This input has resulted in a clearer picture of the importance of groundwater in the State's future.

Groundwater is a major source of water in large portions of Texas. Planning efforts must ensure that this water supply will remain a long-term, viable option for consumption by local residents, agriculture, commercial, and other users. Parts of Texas where demand for water exceeds, or is expected to exceed, its local supply, are increasingly looking to strategies that include importing water from less populated areas.

While local growth may result in site-specific water quantity or quality concerns, such growth is generally not of any major consequence. Private business ventures have begun buying and leasing groundwater resources in areas of plenty as well as in areas where availability may be questionable. Such ventures have sought to market the resource in urban and suburban areas where demand is high. Such proposals have been very controversial and have underscored the need for more inclusive and coordinated planning

efforts on the State, regional, and local levels in order to avoid long-term adverse consequences at either end of the supply line.

In HB 1763 (2005) the Legislature set forth a vehicle for accomplishing aquifer-wide management of the resource through Groundwater Management Area (GMA) adoption of Desired Future Conditions (DFCs) for each aquifer and portion of an aquifer underlying the GMA. These DFCs are to be provided to the TWDB by September 1, 2010 and every five years thereafter. The TWDB then is to use the DFCs to provide the GCDs within the GMA with the managed available groundwater (MAG) for each aquifer or portion of an aquifer underlying the GMA. This process is currently underway and in most cases will be completed too late for the availability numbers to be utilized in the current round of regional planning. Region K has reviewed a variety of groundwater policy issues. Some have been incorporated into other sections of this policy document. Seven issues and corresponding policy statements are discussed below.

8.2.4.2 Policy Statements

8.2.4.2.1 The Rule of Capture

Texas groundwater law is based on the Rule of Capture. The Rule of Capture allows the owner of the overlying property to pump or capture any amount he can put to beneficial use. GCDs may modify the Rule of Capture by means of rule-making authority described in Texas Water Code Chapter 36. Region K policy is to continue its support of GCDs and their ability to modify the Rule of Capture when and where appropriate.

Region K supports the continued use of the Rule of Capture in areas where no GCD has been established.

8.2.4.2.2 Groundwater Ownership in Place Not a Vested Property Right

There are current attempts by various groups seeking to achieve legal recognition of groundwater ownership in place as a vested right of the surface property owner. It is Region K's position that the success of such attempts could greatly hamper GCDs reasonable attempts to regulate the resource for sustainability.

8.2.4.2.3 Groundwater Management by GCDs

Region K supports local management of groundwater by GCDs as well as aquifer-wide cooperation between GCDs within GMAs. GCDs, be they partial, single, or multi-county, have been managing and regulating groundwater since the early 1950's and should be maintained as the State's preferred method of groundwater management and regulation.

For areas absent a GCD, Region K supports the creation of a GCD, partial, single, or multi-county, whichever is determined locally to be reasonable, practical, effective, and achievable. New GCDs should continue to be delineated, established, and confirmed by local confirmation elections.

Region K notes that GCDs are local governments that are confirmed by local elections, and it is Region Ks policy that any attempts or proposals of dissolution, annexation, consolidation, or other reorganization of GCDs must be referred to the local election process for validation or rejection.

8.2.4.2.4 DFCs and MAGs

Region K supports GMA-wide cooperation in management of groundwater resources, while also recommending certain improvements to the process provided by HB 1763 of the 79th Legislature. Region K recommends that GCDs be required to manage the resource as necessary for meeting the DFCs set forth in their management plans and ratified through the GMA MAG process rather than using the MAG as an absolute cap on groundwater permitting. Current statutory language appears to require GCDs to only issue permits up to the MAG amount. It is Region K's position that the MAG should be used only as a guide to inform such management by the GCD, while aquifer monitoring and the actual condition of the aquifer should be utilized as the true measure of the effectiveness of a GCD's management policies in meeting DFCs.

Region K supports the use of GMA-wide average DFCs in conjunction with GMA-established pumping patterns as a means of expediting the establishment of MAG numbers. However Region K also understands that an aquifer can vary within a GMA and may require different DFCs to effectively manage the aquifer.

8.2.4.2.5 Sustainability

Region K supports a sustainable approach to groundwater management in areas where such an approach is reasonably achievable. Sustainability is defined as balancing groundwater withdrawals with natural recharge and replenishment to maintain long-term stability in regional or local groundwater supplies. It is Region K policy to look to GCDs within a given GMA to cooperate in determining the degree to which sustainability can be achieved.

8.2.4.2.6 Water Marketing (e.g. Water Rights Leases, Sales, Transfers)

Region K policy is to establish coordination between water marketing proposals with local GCDs and RWPGs and to require that state agencies and private interests comply with all local GCD rules, state-certified groundwater management plans, and state and regional water plans.

8.2.4.2.7 Improving Groundwater Availability Data

Region K policy is to encourage new funding sources for GCDs specific to data collection and storage methods that emphasize ease of public accessibility. Region K policy is to support the funding needs of the TWDB for the maintenance and expansion of state-wide groundwater databases.

8.2.4.3 Actions Needed

Texas Legislature – The LCRWPG encourages the Texas Legislature to:

1. Sufficiently fund TWDB programs specifically related to groundwater conservation, protection, enhancement, groundwater availability modeling (including development/ review/ updating/ recalibration), and database management and accessibility; and
2. Make changes to Chapter 36 of the Water Code as necessary to provide that GCDs have the option to either manage and monitor the groundwater resources under their jurisdiction as necessary to achieve GMA-approved desired future conditions, or use the TWDB-provided managed available groundwater amounts to restrict permitting.

Texas Water Development Board – The LCRWPG encourages TWDB to:

1. Seek adequate funding for groundwater related programs and GAM needs; and
2. Continue assisting GCDs in their management planning, groundwater quantity and quality research, water conservation programs, and inter-agency cooperative database management efforts (such as the Texas Water Information Network).

Groundwater Conservation Districts – The LCRWPG encourages GCDs to:

1. Work cooperatively with GMA and regional planning efforts; and
2. Continue to expand or develop groundwater research and database efforts in order to be the primary resource for groundwater data in their jurisdiction.

8.2.4.4 Timing and/or Conflicts

The 82nd Session of the Texas Legislature will occur in 2011 and will be setting the budget for the following biennium which will have direct impacts on funding programs needed by the TWDB, GCDs, and RWPGs.

The GMA MAG process will have run its initial course, and the process would therefore be ripe for making the Region K- suggested legislative change to Chapter 36 of the Water Code to require GCDs to monitor and manage for achieving DFCs as a logical next step in that process while using the MAGs as beginning points rather than as groundwater development caps.

8.2.5 Protection of Agricultural and Rural Water Supplies

8.2.5.1 Background Information

The potential for harm to rural economies and rural culture grows along with the growing development of water marketing and the planned transfers of water from rural areas to urban population centers. As former Texas Agriculture Commissioner Susan Combs once said, “We can’t afford to dewater or leave behind rural Texas.”

Those who would oversimplify solutions to the State’s water woes would have the citizenry believe that water marketing is the solution. Water marketing facilitates the movement of water based on the ability to pay. Unfettered water marketing would result in those segments of our culture and our economy least able to pay being left behind.

In the case of agriculture, irrigators are often third party users of water rights that are subject to being bought and sold by an entity beyond their control. If availability of water to these users is not protected by some means, the resource will go to a higher bidder and agriculture may cease to exist in these areas.

Rural communities find themselves in similar situations where both groundwater aquifers over which they lie and surface waters that flow in nearby streams are threatened by water transfers to entities with the financial and political backing sufficient to make them happen.

Without some means of protecting rural and agricultural water uses, water transfers could leave these users priced out of the market. There has already been a move by some regions to leave future needs for agriculture partially unmet and to recommend water transfers from rural Texas with no plan for mitigating

adverse consequences. Since agriculture and rural Texas cannot afford water at the prices that cities and industry will pay, some vehicle must be established to provide parity in water markets for these users.

8.2.5.2 Policy Statement

It is essential that current water supplies for agriculture and rural communities be protected and preserved to some reasonable extent even in the midst of developing new supplies for growing industries and populations in urban areas. Care must be taken that water transfers of either surface or groundwater be undertaken only after sufficient study and care have been utilized in protecting and preserving any local rural supplies that could be adversely affected. Care must be taken to sustain present and future income, employment, and population growth potential for all water donor areas. The LCRWPG is concerned that unfettered market-driven water transfers could have dire, long-term consequences for unprotected donor areas.

8.2.5.3 Actions Needed

Texas Legislature – The LCRWPG encourages the Legislature to:

1. Strengthen GCDs' abilities to protect and preserve groundwater supplies for both present and future uses local to their districts.
2. Develop water policy that enables agriculture and rural Texas to achieve parity with other water users in the water market and water planning arenas.
3. Maintain and strengthen water policies designed to protect basins of origin in the event of inter-basin transfers.
4. Require that the TCEQ provide pertinent technical reviews and draft surface water permits to impacted regional water planning groups for confirmation of consistency with regional water plans.

Texas Commission on Environmental Quality – The LCRWPG encourages the TCEQ to provide pertinent technical reviews and draft surface water permits to impacted regional water planning groups for confirmation of consistency with regional water plans.

8.2.5.4 Timing and/or Conflicts

These recommendations should be implemented during the 82nd Legislative session.

8.2.6 Agricultural Water Conservation

8.2.6.1 Background Information

With finite water resources available to a growing Texas populace, it is necessary that all possible means of stretching those finite resources be explored and implemented. Agriculture, being the single largest water user group, represents the area where conservation may offer the most hope for freeing up substantial water supplies.

The economy of irrigated agriculture seldom is such that it would allow producers to invest in major water conservation measures. The Natural Resources Conservation Service (NRCS) of the United States

Department of Agriculture administers a number of conservation programs that could be utilized and further optimized to enhance the likelihood of irrigators implementing water conserving practices.

The NRCS Environmental Quality Incentives Program (EQIP) is the NRCS' most likely platform for encouraging water conservation. Water quantity is a national priority of EQIP. The Texas State Conservationist, Dr. Larry Butler and the Texas State Technical Committee have also recognized the high priority that water conservation deserves in the allocation of Texas' share of EQIP funding. However, EQIP funding is continually subject to Congressional appropriations that determine the program's viability on an annual basis. In addition, the cost sharing incentives are generally limited to 50 percent of total project costs, still falling short of what would be required to assure widespread implementation of some of the more costly, more effective water conservation practices.

The LCRA-SAWS Water Project (LSWP) offers a responsible template for attaining agricultural water conservation while using conserved water to meet growing metropolitan demands. The plan calls for major agricultural water conservation practices to be funded by metropolitan users in exchange for metropolitan users reaping the benefit of a portion of the conserved water.

8.2.6.2 Policy Statement

The LCRWPG encourages agricultural water conservation as a method of stretching existing supplies by reducing agricultural demands in order to increase water availability to meet new and existing water demands. The LCRWPG further recognizes the need for public and private partnerships with irrigators to fund existing, proven water conservation technology and to develop new, innovative water conservation technology.

8.2.6.3 Actions Needed

United States Congress – The LCRWPG encourages that Congress sufficiently fund NRCS programs aimed at implementing known water conservation technology and at developing promising, new technology for water conservation.

Texas Water Development Board – The LCRWPG encourages TWDB to aid the NRCS State Conservationist in targeting water conservation program funding to projects that offer the most water conservation benefit for the state. The TWDB should also offer expert testimony to the Agriculture Committees of both the Senate and the House regarding the need and effectiveness of water conservation accomplished through EQIP in order to highlight the ongoing need for adequate EQIP funding.

Regional Planning Groups – The LCRWPG encourages all planning groups to adopt water plans that capitalize on the potential for partnering between water user groups to accomplish much needed water conservation in ways that share both the burdens and the benefits between water user groups.

8.2.6.4 Timing and/or Conflicts

Creative funding and implementation of water conservation is an ongoing responsibility for all water users groups and their constituents.

8.2.7 Municipal/ Industrial Conservation

8.2.7.1 Consistent GPCD Methodology

8.2.7.1.1 Background Information

In its December 2008 report to the 81st Texas Legislature, the TWCAC cautioned:

“The tendency of the media or individuals to use gallons per capita per day as a way to compare conservation efforts of communities is also problematic when the metric is not uniformly defined. Therefore, the Council has determined that it should be a priority to develop standard methodologies for water use metrics and water conservation metrics and definitions.”

While GPCD can be a good measure for internal year-to-year comparisons within one water system, there is no standard accepted methodology for calculating GPCD by Texas water providers. The TWCAC has a working group to make recommendations for standardizing GPCD reporting, including reporting in more detailed categories such as residential GPCD, agricultural and industrial water use, as well as recommendations for calculating population.

8.2.7.1.2 Policy Statement

The LCRWPG supports the development of a consistent methodology for calculating gallons per capita per day (GPCD), by the Texas Water Conservation Advisory Council (TWCAC).

8.2.7.1.3 Actions Needed

Texas Legislature and TWDB – The LCRWPG encourages the continued support for efforts by the TWCAC to develop consistent methodology for calculating GPCD or any other measurement that can successfully track water use and water savings over time.

8.2.7.2 Consistent Water Savings Metrics

8.2.7.2.1 Background Information

The 2004 TWDB Report 362, Water Conservation Best Management Practices Guide evaluated and recommended water use efficiency measures and provided guidance on how to determine water savings. Measures ranged from toilet and washing machine incentives to water loss reduction programs. Additional conservation strategies such as irrigation standard requirements, mandatory watering schedules, soil depth requirements, irrigation efficiency upgrades and other strategies have not been studied extensively to evaluate effective water savings.

8.2.7.2.2 Policy Statement

The LCRWPG supports the development of consistent metrics to assess the amount of water saved per conservation measure or technique in order to track the success of conservation strategies.

8.2.7.2.3 Actions Needed

Texas Legislature and TWDB – The LCRWPG encourages the funding of research efforts to determine water savings and incorporate the information into an update of the 2004 Best Management Practices guide. This information should be aimed at providing water suppliers with useful information for developing and implementing conservation goals and successful management strategies.

8.2.7.3 Additional Financial Assistance to Reduce Water Loss

8.2.7.3.1 Background Information

The 78th Texas Legislature passed House Bill 3338, which required public utilities to perform and file with the TWDB a water audit computing the utility's most recent annual system water loss every 5 years. Approximately half of retail utilities in Texas, representing over 80% of the population, reported water loss data to the TWDB in 1986. These reporting utilities reported total water loss of 212,221 to 464,219 acre-feet per year, or 5.6 to 12.3% of all water used by these utilities. Based on the 2004 statewide average municipal use of 150 gallons per capita per day, equivalent water volumes could supply between 1.3 and 2.7 million Texans. When extrapolated to all retail public utilities in Texas, the statewide value of total water loss is estimated to be between \$152 million and \$513 million per year. (Source: TWDB. 2007. Analysis of Water Loss).

Decreasing utility system water loss can be expensive, and many utilities do not have the revenues available to embark on large pipe or meter replacement projects. The TWDB does offer some limited financial assistance to help utilities decrease water loss, but much more is needed.

8.2.7.3.2 Policy Statement

The LCRWPG supports the continuation and expansion of TWDB funding for retail utility water loss projects.

8.2.7.3.3 Actions Needed

Texas Legislature and TWDB - should provide additional funding in the form of low-interest loans and grants to assist water providers in reducing system water loss. The additional resources would be used to replace aging or deteriorated pipe, to replace inaccurate or incorrectly sized water meters, to enhance leak detection efforts, or to implement a pressure reduction strategy if warranted.

8.2.7.4 Conservation Coordinators

8.2.7.4.1 Background Information

The conservation plans required of water suppliers by the state of Texas often do little more than collect dust due largely to the lack of responsibility for implementation. With the current state water plan depending so heavily on conservation to meet future water needs, it is essential that water conservation plans result in real water conservation. To that end requiring a designated water conservation coordinator would increase accountability for the implementation of water conservation measures and the tracking of water savings.

8.2.7.4.2 Policy Statement

The LCRWPG supports the required use of a conservation coordinator by all public water suppliers with the responsibility for the implementation and monitoring of the conservation plan, tracking and reporting water savings to the state, and recommending further improvements to the plan. Responsibility could be assigned to a newly created position for this purpose, an existing position or employee of the water provider, or a shared water conservation coordinator contracted through several small water providers.

8.2.7.4.3 Actions Needed

TCEQ - The LCRWPG encourages the TCEQ to amend Title 30, Texas Administrative Code (TAC) Chapter 288, so that all public water suppliers required to have a conservation plan also be required to have a designated water conservation coordinator with the duties before mentioned.

8.2.7.5 Conservation Messaging Coordination

8.2.7.5.1 Background Information

Water suppliers may be reluctant individually to take on the burden of conservation messaging efforts. Coordination and pooling of resources for the purpose of developing public awareness messages with a regional emphasis, particularly for communities reliant on the same water supply source, would help water providers reach a greater audience while resulting in less confusion for the end-user. Such coordination and pooling would enable small to medium sized water suppliers to participate in efforts that would otherwise not take place.

8.2.7.5.2 Policy Statement

The LCRWPG supports the regional coordination and pooling of resources for uniform conservation messaging.

8.2.7.5.3 Actions Needed

TWDB – The LCRWPG encourages the TWDB to aid communities in adjacent media areas to coordinate their messaging for clarity and ease of understanding by customers.

8.2.7.6 Property Owners' Associations' Outdoor Water Use Policies

8.2.7.6.1 Background Information

House Bill 645 allows property owners' associations to restrict the type of turf used by a property owner to require water-conserving varieties. The bill also restricts property owners' associations from regulating rainwater harvesting devices and prohibits the regulation of efficient irrigation system installation. While these policies are beneficial, additional legislation could be developed that would limit the ability of property owners' associations to restrict water saving landscape and irrigation practices while also providing associations additional tools to further adoption of conservation practices by association members.

8.2.7.6.2 Policy Statement

The LCRWPG encourages the legal enablement of property owners' associations to promote or require the use of drought tolerant plants and turf grasses and to adopt restrictive covenants that are consistent with their water providers' drought restrictions and conservation recommendations.

8.2.7.6.3 Actions Needed

Texas Legislature – The LCRWPG encourages the Legislature to adopt the necessary measures to:

enable property owners' associations to promote or require the use of drought tolerant plants and turf grasses and to adopt restrictive covenants that are consistent with their water providers' drought restrictions and conservation recommendations and

prevent property owners' associations from requiring irrigation systems, minimum turf areas and other landscaping requirements that impede low-water use landscaping practices.

8.2.7.7 Dedicated Conservation Funding

8.2.7.7.1 Background Information

Water conservation programs offered by water providers are typically funded on an annual basis from revenues received from water use. Unfortunately, the funding can vary yearly because water use is impacted by the volatility of the weather from year-to-year. In particular, some providers have historically cut program funding during non-drought years, assuming that conservation is only needed for droughts. However, if conservation is to provide a significant new source of water supply for Texas in the future, a reliable fund must be available to sustain and grow conservation programs.

Having a dedicated conservation fund would help water providers plan for multi-year conservation programs and pursue research opportunities to help further water conservation efforts. Dedicated financial support for conservation could be achieved by assessing a meter or account conservation fee, or through a set-aside of a certain percentage of the annual revenues, as seen with a number of water providers throughout Texas.

8.2.7.7.2 Policy Statement

LCRWPG supports water providers having the ability to have a dedicated yearly funding source for water conservation programs and projects.

8.2.7.7.3 Actions Needed

Encourage the state to adopt legislation that would allow water providers to have a dedicated funding source for water conservation that is in place for multiple years.

8.2.8 Reuse (including basin-specific assessment of reuse potential and impacts)

8.2.8.1 Background Information

Water reuse typically can be divided into two types, direct and indirect. Direct reuse is when reclaimed water or treated effluent is pumped directly from a wastewater treatment plant to a place of use. The TCEQ administers water quality requirements for direct reuse through its Chapter 210 rules. Indirect reuse is a method by which discharged effluent is conveyed to a downstream point of use via the bed and banks of a watercourse.

Under most surface water rights, the full amount of water may be used and reused for the purposes and location of use provided for in the underlying water right without additional authorization. However, once this water is discharged to a stream, it becomes waters of the state, available for appropriation by others. Specific authorization for indirect reuse must be obtained to convey discharged effluent for reuse at a downstream point of use.

In addition to the traditional protections against carriage losses, indirect reuse authorizations are subject to special conditions to protect downstream water rights that may have been granted in reliance on the flows remaining in the watercourse or to protect the environment.

Water reuse is an important water management strategy. There is considerable debate and disagreement, however, over which entities should have the right to reuse water and to what extent.

A TCEQ staff memorandum to the Commission, dated February 25, 2005, summarizes the status of these reuse issues as follows:

“As municipalities have increasingly looked to their effluent as an additional water resource, the Commission and the Legislature have endeavored to specify and interpret the law related to reuse. Challenges arise, in part, because in the past the Commission has issued some permits based on the existence of return flows being in the river. In the adjudication process, some claims were established based on return flows being in the stream. Also in the past, some bed and banks authorizations (to allow use of the river to transport water for reuse) were issued with a priority date and some were not.

In 1997, the Legislature enacted Senate Bill 1, which amended Section 11.042 and Section 11.046 of the Texas Water Code. These amendments resolved some issues, such as providing for the Commission to protect existing water rights and the environment in permitting reuse. However, not all issues were resolved. Since the passage of SB 1, new issues have developed related to how the Commission should permit the use of a watercourse to transport water for reuse.

A major issue is the conflict between Tex. Water Code §§ 11.042 and 11.046. Section 11.046(c) states that once surface water diverted under a permit is returned to the stream, absent any provisions in a water right to the contrary, it becomes state water again subject to appropriation by others. However, Section 11.042(b) and (c), allow the owner of the groundwater-based return flows, or the water right holder or discharger of surface-water-based return flows, to obtain a bed and banks permit to transport this water to a place of reuse.

Thus conflicts between appropriators and those who wish to indirectly reuse effluent are inevitable.”

8.2.8.2 Policy Statement

LCRWPG supports reuse as a water management strategy, in accordance with State Law and SB 1. The Group recognizes that there are potentially complex issues associated with reuse. Therefore, LCRWPG will continue to examine reuse as a water management strategy in an effort to better understand potential long-term impacts. LCRWPG will continue to monitor legislative developments regarding reuse, and will incorporate those developments into its deliberations and planning.

8.2.8.3 Actions Needed

Texas Commission on Environmental Quality – LCRWPG encourages TCEQ to continue its thorough review and approval processes for indirect reuse applications. It is through this application process that potential impacts, including environmental and water rights impacts, should be addressed.

8.2.8.4 Timing and/or Conflicts

Consideration of reuse should be an integral part of the ongoing regional water planning process.

8.2.9 Brush Control

The LCRWPG adopted the following motion regarding the potential water supply benefits of brush management for the purpose of enhancing water supplies:

The LCRWPG recommends and endorses studies of brush control projects on a voluntary basis for the Lower Colorado Region, especially west of Interstate Highway 35, and recommends that state and/or federal funds be made available for landowner assistance on a pro-rata basis as needed or requested.

8.2.10 Recommended Improvements to the Regional Planning Process (SB 1 - 75th Legislature)

The following six recommendations have been developed by the LCRWPG in order to improve the ongoing regional water planning process:

- 1. The LCRWPG continues to support action by the State to provide for the integration of water quantity (supply) and water quality planning. The TWDB, and the TCEQ should work to coordinate the regional planning process with the Texas Clean Rivers Program, which is a partnership that uses a watershed management approach to identify and evaluate water quality issues. The RWPGs are considering water quality issues during this revision to the plan and continued coordination with the Texas Clean Rivers Program is desirable.*
- 2. The LCRWPG supports action by the State to continue to fund programs for the collection of water data and groundwater availability information, which remains a critical need in the planning process. The State should provide adequate, continuous funding in order to improve the collection, development, monitoring, and dissemination of such water data.*

3. *The LCRWPG continues to support action by the State to provide assistance to the RWPGs with public information materials and administrative support.*
4. *The LCRWPG continues to support action by the State to provide for the opportunity to have improved representation of women and minorities on the RWPGs to ensure a true diversity of interests.*
5. *The LCRWPG supports action by the State to structure the planning process to include environmental needs in order to get a clear picture of the amount of available water resources for all users. Environmental needs and water supply strategies should be planned for just like Agricultural, Municipal, Industrial and other uses in the state.*
6. *The LCRWPG supports adequate and timely state funding for the regional water planning process. This funding is critical for the development of long-term, sustainable, environmentally protective and conservation-effective water management strategies as well as the collection of water data and groundwater availability information, including the refinement of modeling data, public information materials, and administrative assistance.*

8.2.11 Other Policy Recommendations

8.2.11.1 Radionuclides in the Hickory and Marble Falls Aquifers

The *Region "K" Water Supply Plan for the Lower Colorado Regional Water Planning Group, Volume I, December 2000* provided background information and a policy recommendation on the issues surrounding radionuclides in the Hickory and Marble Falls aquifers. This is an update of the issues and policy recommendation.

EPA (U.S. Environmental Protection Agency) revised the federal radionuclides regulations, which had been in effect since 1977, effective in 2003. Radionuclides emit ionizing radiation, which can cause various kinds of cancers, depending on the type and concentration of radionuclide a person is exposed to via drinking water. These rules cover man-made and naturally occurring radionuclides in drinking water and include a first-time standard for uranium. EPA revised this regulation in accordance with the requirements of the 1986 Amendments to the SDWA (Safe Drinking Water Act) and the 1996 Amendments to SDWA. The statute calls for regulation of radionuclides and a review of regulations every six years. Additionally, according to the SDWA Amendments, the EPA must maintain or provide for greater protection of the health of persons when revising regulations. The EPA reviewed the most current health, occurrence, treatment, and analytical methods in revising these regulations to ensure that safe drinking water is protective of public health.

The TCEQ received an extension from EPA and then adopted the provisions of the Radionuclides Rule into the Texas Administrative Code in December 2004.

The concentration of radionuclide contaminants in the water entering the distribution system shall not exceed the following maximum contaminant levels: combined radium (radium isotopes No. 226 and No. 228) cannot exceed 5 picoCuries/liter (pCi/l); gross alpha-radiation emitters cannot exceed 15 pCi/l (not including radon and uranium); and effective December 8, 2003, 30 micrograms per liter (g/L) for uranium. The Texas rules states that MCLs (maximum contaminant levels) for beta particle and photon radioactivity from man-made radionuclides in drinking water in community water systems are equivalent

to the MCLs under 40 Code of Federal Regulations (CFR) §141.66(d) as amended and adopted in the CFR through December 7, 2000, which was adopted by reference. The Texas Rule contains applicability, monitoring, reporting, and public notification requirements, and analytical requirements for radionuclide contaminants and compliance determination.

There are several water utilities currently providing water to the public from the Hickory and Marble Falls aquifers where radionuclide contaminants occur. These include San Saba County, within the Lower Colorado Region, as well as seven counties in Region F, Mason, Brown, Coleman, Concho, McCulloch, Menard, and Kimble. Safe drinking water is a concern of these utilities. With Commission approval, utilities may be able to continue to use the water and/or bottled water on a temporary basis while they seek a long-term solution. Efforts are underway to investigate the development of alternative water sources or effective treatment and radioactive waste disposal. These small towns and water utilities have limited financial resources with which to treat the groundwater for municipal uses.

The LCRWPG recommends *the State should provide adequate funding for water treatment and radioactive waste disposal for those rural communities that may lose their water supply if such financial support is lacking. In addition, State agencies should develop disposal procedures to provide for the safe handling of the radioactive wastes derived from the treatment processes.*

8.3 SUMMARY OF UNIQUE STREAM SEGMENT RECOMMENDATIONS

No new unique ecological stream segments are recommended by the LCRWPG for this planning cycle. The unique stream segment recommendations from the 2006 Region K Plan can be found in *Appendix 8E*.

8.4 SUMMARY OF POTENTIAL SITES UNIQUELY SUITED FOR RESERVOIRS

No new potential reservoir sites are recommended by the LCRWPG for this planning cycle. Descriptions of potential reservoir sites from the 2006 Region K Plan can be found in *Appendix 8F*.

8.5 UNRESOLVED ISSUES

While the LCRWPG has been able to reach consensus on a number of strategies and related issues regarding future water supplies for the Lower Colorado Region (Region K), not all issues have been able to be resolved. Other issues have certainly not yet been identified and many more cannot be identified, which are all expected occurrences at this stage of the planning process. Many new issues will come to light during the planning, permitting, construction, and operational phases of the identified water management strategies and resulting projects for Region K. Most of these issues will need to be resolved between the various parties responsible for the development and implementation of selected strategies and affected interests.

The following have been identified as unresolved issues by the LCRWPG:

- The LCRWPG has met with the TWDB staff and Region L to resolve the potential interregional conflict regarding the over-allocation of the Carrizo-Wilcox Aquifer in Bastrop County. During this planning round, the LCRWPG worked diligently to avoid over-allocation of this water source within Region K. In fact, there is not sufficient availability of the Carrizo-Wilcox Aquifer supplies to meet all of the projected demands for those WUGS which currently rely on this aquifer for their municipal supplies; consequently, additional water management strategies in addition to expansion and development of groundwater supplies have been recommended during the latter decades of the plan to meet those needs. Bastrop County is an area of Region K that is growing very rapidly with growth rates exceeding previous projections. As a result, the 2011 Region K Water Plan includes significantly revised population and water demand numbers for this round of planning which reflect that projected high growth rate. Many of the municipal WUGs in Bastrop County currently rely on the Carrizo-Wilcox Aquifer as their sole or primary water source. In addition, these WUGs already have existing groundwater permits that currently meet or exceed the annual amount of water identified as needed for their future system demands within the fifty-year planning period of the 2011 Region K Water Plan. Unfortunately, the amount of Carrizo-Wilcox Aquifer water currently permitted to WUGs in Bastrop County by the Lost Pines GCD is 43,486 ac-ft/yr, which is already greater than the 28,000 ac-ft/yr that is currently estimated to be the maximum availability of this source. Because these WUGs in Bastrop County already have existing permits that meet or exceed the quantities of water shown as water management strategies in the 2011 Region K Water Plan, and because Region K itself has not over-allocated the Carrizo-Wilcox Aquifer in Bastrop County, it does not appear reasonable to propose plans for these WUGs to develop new water management strategies in order to accommodate export of the groundwater supplies to another County and planning region of the state.

- Region G included a demand of 16,000 acre-feet for Williamson County from Region K in the 2001 Region G Regional Plan. According to HB 1437 of the 76th Texas Legislative Session, no transfer of water may occur unless there is “no net loss” of water to the Colorado River Basin. If Region L fully implements Region K’s regional cooperation plan, all of the available savings from conservation of water in rice irrigation will be allocated to the Region L project. Therefore, to the extent that the “no net loss” is satisfied through conservation of water in the rice irrigation districts, alternative means for satisfying this “no net loss” requirement will need to be identified since the conservation savings will no longer be available for the Region G project. Further work is needed to resolve this potential deficit.
- Much emphasis has been placed on groundwater modeling as the source for reliable data on groundwater availability in the next few years. However, the models have suffered from significant delays and some level of inaccuracy that is being attended to currently. In any event, it will require significant additional effort over a period of years to refine the models and strengthen their capability for evaluating local area issues. Many of the issues identified are of concern on a more local basis, and the localized impacts of groundwater pumpage on existing wells from future production are undeterminable at this time.
- The Regional Planning Group is generally concerned that the requirement of a Run 3 WAM is unreasonably restrictive in a 50-year water planning context. Use of this version of model requires full and simultaneous exercise of all water rights in the basin and zero return flows, creating an artificial picture of the anticipated condition of the river basin over the planning period, in particular in the early decades when we know that water rights are not likely to be fully exercised and that return flows will continue to be discharged to the river in significant quantities. This approach then results in artificial shortages for water users and the environment to be identified in the process for which water supply strategies then have to be developed.

In addition, the complexity of the WAM model is such that it can only be understood by experienced hydrologists and others with a strong technical background related to modeling. Generally, the model does not provide an output format that can be easily understood or visualized by the average regional water planning group member. No calibration curves or other standard hydrology modeling techniques to verify accuracy were provided to the Planning Group to improve confidence. In essence, the strict application of the WAM and the complex nature of its code necessarily require a heavy reliance by the members of the planning group on technical consultants and others with water rights expertise. This has frustrated some planning members who do not feel well enough equipped to challenge the veracity of the technical analysis provided.

- The planning process as it is currently structured does not have a mechanism to plan for and provide water for environmental uses/needs. Healthy bays and flowing rivers are important components of Texas’ natural heritage and economy. We should plan for environmental water needs just as we do for municipal, agricultural, industrial and other needs in our state.
- The environmental impacts that developing additional new Colorado River water supplies in the basin will have on the reductions of instream flows and freshwater inflows to the bays and estuaries may be significant. Methods for mitigating and avoiding these impacts on the estuarine and riparian habitats within the Lower Colorado River Basin will be a fundamental consideration for determining the feasibility of such projects prior to their development and implementation.
- Another unknown that could potentially add balance to the impacts on the bay and estuarine is the contribution of rice irrigation flood-culture runoff to freshwater inflows to the bay and estuary

system. This concept needs additional work and quantification with at least three components to be considered: (1) runoff from flooded fields during rain events, (2) irrigation water drained from flooded fields prior to harvest, and (3) leakage from irrigation delivery systems.

- Concerns have also been expressed regarding the Plan's dependency on conservation to make up much of the available supplies in the future. Region K is dependent upon the success of the implementation of many of the conservation activities that are, in turn, dependent upon funds being made available from the sale of the developed new water supplies. These funds would be used to pay for implementation of additional on-farm and canal system improvements and water-use efficiencies, as well as research aimed at developing rice varieties that use less water and improve yield relative to water use.
- The Trinity Aquifer in Hays County is not shown in the plan as a source of supply for County-Other. Concerns have been raised that the aquifer is a source of supply for residential users in western Hays County. Concerns have also been raised that the water management strategies recommended for Hays County-Other would not be practical for providing water to western Hays County, and that the Trinity Aquifer would be a better option. Hays County is currently developing a facilities planning study, which will be finalized prior to the next round of planning. This study will be reviewed during the next planning cycle to determine if any changes related to the study should be made to the plan.

LCRWPG WATER PLAN

APPENDIX 8A
ADOPTED RESOLUTIONS

LCRWPG WATER PLAN

APPENDIX 8B

***INFORMATION PROVIDED BY THE TPWD, LCRA, BCEN, AND
REGION G FOR THE IDENTIFICATION OF ECOLOGICALLY UNIQUE
STREAM SEGMENTS IN THE LOWER COLORADO REGIONAL WATER
PLANNING AREA***

LCRWPG WATER PLAN

APPENDIX 8C

***SOURCE DOCUMENTS FOR THE 2006 REGION K PLAN UNIQUE
STREAM SEGMENT RECOMMENDATIONS***

LCRWPG WATER PLAN

APPENDIX 8D

***TPWD SUPPLEMENTAL INFORMATION RESOURCES FOR THE 2006
REGION K PLAN UNIQUE STREAM SEGMENT RECOMMENDATIONS***

LCRWPG WATER PLAN

APPENDIX 8E

***UNIQUE STREAM SEGMENT RECOMMENDATIONS FROM THE 2006
REGION K PLAN***

LCRWPG WATER PLAN

APPENDIX 8F

***DESCRIPTIONS OF POTENTIAL RESERVOIR SITES FROM THE 2006
REGION K PLAN***