



WATER MANAGEMENT IN CENTRAL TEXAS

Envision Central Texas Work Group Report

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Foreword: Why is ECT drafting this position paper?

Envision Central Texas (ECT) was created to assist in the public development and implementation of a regional vision addressing the growth of Central Texas. Our ongoing role is to serve as a catalyst for regional cooperation and planning in order to realize the common Vision elements as appropriate across the many communities of Central Texas. These elements focus on preserving and enhancing our natural resources, economic vitality, social equity and overall quality of living. The principles articulated in the regional Vision include:

- An effective transportation system that improves mobility throughout the region, increases choices of how we get around, including roads, rail, trails and bikeways, and is coordinated with land use planning.
- **Protection of our environment and natural resources so we will have the open space, parks and trails that people cherish, preserve our ecologically sensitive land and ensure sustainable clean water and air for future generations.**
- A diverse and thriving economy with a robust base of businesses throughout the region and quality job opportunities for our citizens.
- A variety of housing choices that are affordable for everyone in the region and offer a mix of styles, such as neighborhoods with pedestrian-friendly streets or housing within walking distance of transit and stores.
- Preservation of our region's unique character by protecting and enhancing our neighborhoods, towns, rural areas, historic sites and special sense of place.
- An understanding that social equity and racial harmony are core values that strengthen us and actions that foster respect, civility and opportunities for all.
- **A region-wide understanding that our fortunes are tied together requiring planning, participation and collaboration by stakeholders throughout our region to ensure a successful and livable Central Texas in the future.**

The ECT Vision¹ can be downloaded from www.envisioncentraltexas.org.

We believe establishing advocacy positions on critical regional policy issues is a necessary component of achieving the ECT Vision. In 2008, ECT identified two issues for advocacy: local transportation funding options and county growth management authority². Because of the importance of water and the challenges inherent in the coordination and management of this resource in the region, the ECT Board of Directors recommended the creation of a working group to examine water issues and to develop a position statement.

Executive Summary

The debate over water in Texas runs through the core of Texas culture and politics. In Texas's arid frontier history, the people's relationship to water was quickly established in laws entangled with land ownership. These early approaches contributed to the independent identity of the state as it grew and matured. Texas's continued growth and westward expansion from the more water-abundant portions of the state has placed immense pressure on our traditional approaches to managing water, spawning new ideas such as massive reservoirs, inter-basin transfers, new authorities to manage flow, and water reuse. However, the promise of enough clean water to support the economic and quality of life endeavors of our own and future generations of Texans is in question.

Over the last few years, as Envision Central Texas has promoted a change in the way growth is viewed and managed in our region, water has become an increasingly dominant concern. It faces the same basic challenge that we identified in our County Growth Management position paper from 2009: “[Governments] in rapidly developing areas such as the five-county Envision Central Texas region ... built on a 140 year-old pattern, are struggling to cope with these demands and the conflicts that arise from them. But their ability to deal with the challenges is limited by Texas law and tradition.” Central to ECT's mission is to elevate our conversations and solutions to overcome these conflicts to sustain our region's quality of life and economic competitiveness.

ECT intends to add value to the conversation regarding water in the upcoming legislative session and beyond. We fully understand that many state and local agencies are already involved and that there are many starting points to begin to address water issues: Should we focus on managing surface water or groundwater first? How do we address the complex connections between surface water and groundwater? Should we prioritize, and if so, do municipal, agricultural, private or public needs and rights come first? Manage to quality or quantity? Ensure stream flows or expand reuse? Quantify actual availability supply and coordinate allocation? And many more, all of which are valid and all are facets of the whole. This means all must eventually be addressed regardless of starting point. Water management,

as with all other aspects of shaping growth in a fast-growing region, is ultimately a generational issue. The obligation of our generation is to move past the debate over where best to start and just get to work applying our Texas ingenuity to the challenge.

In this Advocacy Paper, the ECT Water Working Group seeks to briefly summarize the main water issues -- from data to public awareness to who has control, as they apply to Central Texas -- then to draw out themes from this collection. Those already aware of water issues will likely find many familiar themes in our summaries as described by people who work in and advocate for water issues in Central Texas every day. We did not attempt to address all possible issues, or rank them in priority, but rather to capture the essence of those that resonated most with our Working Group and the ECT Board. We also recognize that there are many ongoing efforts and controversies that influence, and are influenced by, the legislative process, such as water treatment capacity, water sales and transfers within and across basins, ground- and surface-water interaction, and oil and gas production technologies, just to name a few. We also recognize that addressing these issues during the upcoming legislative session will be impacted by priorities such as balancing the State's budget and decennial redistricting.

Rather than taking positions on particular legislative issues, the Working Group intentionally chose instead to develop a set of principles that can serve to inform, and ideally be exemplified in, legislation addressing water issues in Central Texas. While this paper strives to layout an ambitious legislative context for water issues in the upcoming 82nd Texas Legislative Session, we recognize that these are complex issues that can take years to work through. Our interest is to elevate the conversation in a sincere and meaningful way and to establish a framework and approach that will foster ongoing, thoughtful dialogue in the region.

In the service of elevating the conversation on complex challenges, ECT has a strong tradition of recognizing dissenting or multiple viewpoints on an issue, even as we invest in activities and education around a particular consensus viewpoint. Therefore, we have added footnotes into the working paper based on feedback received after the completion of the document. The feedback provided in these footnoted comments may reflect a minority opinion or may simply

serve to help clarify or broaden understanding on a particular issue. They may or may not represent views shared by Working Group members but rather are included here to reflect the richness and complexity of perspectives on the topics being addressed.

With the issue summaries and key principles in mind, and with an awareness of the context of our moment in time, the Working Group drafted a position statement along with recommendations for ECT action steps for the coming legislative session:

Envision Central Texas believes that improving how we manage water resources in Central Texas is as core to sustaining quality of life and economic competitiveness in our region as are improving land use and transportation. Water issues of every kind are ever present in ECT activities and throughout our communities, urban and rural. ECT will seek opportunities to educate our supporters and legislators on the importance of water related legislation that exemplifies these key principles:

- Uses the best data and research possible on water resources;
- Promotes the long-term public interest in water policy implementationⁱ;
- Encourages and funds new strategies in water conservation and management;
- Coordinates for impacts across ecosystems and infrastructure.

ECT convened a Working Group of people who work on water issues every day across Central Texas to discuss and highlight those water issues of greatest resonance in our region. During the upcoming 82nd Legislative Session, there will be limited but vital opportunities for various water-related issues and legislation to be introduced and debated. Beyond the 82nd Legislative Session, improving how we manage water resources will continue to be an important and energizing conversation. ECT will seek opportunities to highlight water planning and investment that exemplify the principles above through our ongoing activities and public outreach efforts.

ⁱ **Board feedback:** This interest includes a concern for the social equity component discussed “Key Principles: Protecting the Public Interest”.

As with all ECT products, and central to the concept of a long-term regional Vision, the expressions of these principle-based positions are dynamic – as we apply these principles to our actions and as we make progress on the Vision, our position statements will evolve appropriately in pursuit of the Vision.

Main Issue Summaries

Each of the issue summaries was drafted and reviewed by members of the Working Group and seeks to highlight the status of the issue, key concerns and their relevance within Central Texas.

Data

Texas has a large amount of water data and it continues to increase. In addition to state and federal agencies, numerous regional water authorities and the many Groundwater Conservation Districts (GCDs) collect water data. Unfortunately, for the most part, all of these types of information are presented in isolation and putting the pieces together is a challenge for knowledgeable individuals and nearly impossible for the general public.ⁱⁱ Water data types include groundwater availability, groundwater - surface water interaction, in-stream and environmental flows, water quality, and water use. Some water data are difficult to obtain even in isolation, including wholesale water contract volumes and reported groundwater pumpage from within individual GCDs. State agencies are given various water-related charges by the Texas Legislature at different times and through different pieces of legislation. Since these data-collection programs are largely created in isolation, with very specific program-related performance objectives and measures, less emphasis is given to coordinating and compiling the data. If any one agency or organization is charged with acting as a clearinghouse of water data and presenting the information together in a geographic presentation, it is the Texas Water Development Board. The TWDB already collects, analyzes, and reports a significant amount of various water data. Data can be accessed through individual water plans of the Regional Water Planning Groups (RWPGs), but conflicts among data and between adjoining plans in the ECT area can be hard to discern or

ⁱⁱ **Board Feedback:** Clearly identifying where each municipality will get its water from is important for future needs. We know the planned growth areas and potential build-outs, coming up with the water needs and where to get that water should follow. It will help reduce the public debate as to why you are not getting water from another source and not from their backyard. As with the case with Leander pulling from Lake Travis (closest source) and being asked why we are not pulling from the Carrizo (very long distance away).

resolve. Sometimes, data conflicts persistⁱⁱⁱ within and between RWPG water plans in the interest of ensuring a plan is consistent with earlier plans^{iv}. There is no central collection of contractually allocated surface water volumes and the majority of the groundwater conservation districts are hampered by their financial and/or technical ability to collect and provide relevant data. This state of affairs makes it very difficult for both citizens and professionals outside the various water agencies to use the data in a useful manner.

Rule of Capture / Authority

Unlike surface water, which is defined as public “waters of the State”, groundwater has long been considered legally a private property right, attached to and owned by the surface estate. This is embodied most visibly in the so-called Rule of Capture, which holds that the landowner may pump as much groundwater as can be put to beneficial (i.e., non-wasteful) use, even if in doing so it deprives the neighboring landowner of water. The Rule of Capture is really a legal construct that indemnifies landowners from liability from adverse consequences of their own making. However, it also creates a “rush to the pump” that encourages landowners to pump at least as much groundwater to offset the effects of pumping from neighboring wells. This untenable approach is at best a “non-management” strategy and at worst has led in various parts of the state to inefficient if not gross over-production, dried-up wells and springs, and low stream flows, all without legal consequence. To regulate the manifest adverse effects of the Rule of Capture, the Texas Legislature established GCDs as the preferred means to manage the particular groundwater resources of a local area so that the groundwater might be preserved, conserved, and protected while being efficiently and prudently used.

Inside a GCD, the Rule of Capture is legally modified to enable the goals established by that particular GCD to be achieved, whether that be sustainable production, or a minimum springflow, or a defined rate of depletion, or something else. A GCD essentially provides

ⁱⁱⁱ **Board Feedback:** The regional water plans are created with the input of a large number of stakeholders and incorporate data for all areas of Texas from numerous sources, so disagreements between interested parties regarding the data used for the plans cannot be avoided in some cases.

^{iv} **Board Feedback:** Unfortunately, in some cases, disagreements go unresolved and erroneous data are accepted under the auspices of being “administratively complete”.

tools for landowners to protect their property rights and provides a legal consequence for any well owner/operator who does not comply with properly established, reasonable regulations of the GCD that are publicly promulgated and fairly administered to all users/landowners. Outside a GCD, the Rule of Capture is appropriately called the “Law of the Largest Pump”. All areas of the state that have or are expected to have groundwater problems (Priority Groundwater Management Areas) are statutorily required to have GCD management and protection.

Each GCD determines what method or combination of methods for managing its resources is most appropriate, and is empowered to codify that method in its rules and regulations. The approaches used by GCDs are highly varied, reflecting the variety of the aquifers’ hydrologic characteristics, the linkage to surface water systems, the climatology and extremes in weather, the uses and users of the groundwater resource, and likely future requirements -- they are a testament that “one size does not fit all.” An approach that works best in one part of the state often will not work in some other part of the state, or even in a nearby region. But all GCDs derive their basic authority from Chapter 36 of the Texas Water Code, and typically also from their own enabling legislation that generally fine-tunes, within some limits, the authorities of individual GCDs. And in contrast to the Rule of Capture, a GCD is able to protect private property rights by protecting the rights of all users who want to pump groundwater and also the rights of those who want to conserve the resource for their later use.^v

The five ECT counties are part and parcel of three Regional Water Planning Groups³ (RWPGs), five Groundwater Management Areas⁴ (GMAs), and five GCDs⁵. Various decisions made regarding water issues in the ECT region by these and other planning entities are strongly influenced by the rest of the region. RWPGs have authority to plan for their regions but do not have any authority to implement the plan. Implementation authority is the purview of local counties, municipalities, GCDs, and the State. However, to get State funding for a project, it must be a recommended project in a RWPG Regional Water Plan.

^v **Board feedback:** A GCD is less able, due to other constraints, of adequately protecting the rights of users who wish to conserve their water for future use or future generations. This has lead many landowners to lease or sell their rights to water marketers in order to protect their near-term financial interests.

Challenges presented by the current approach to water planning include: competing desires for quantity and quality of water ranging from sustainable management of resources to consumptive use of resources to satisfy near-term growth at the expense of the future; lack of coordination among the many entities involved in planning and managing; and fragmented authority for planning, management, and implementation.^{vi} One consequence of the fragmented nature of water planning and management authority is the issue of “overdrafting”. An overdraft of an aquifer could be defined as “pumping more than natural recharge” having negative effects on the aquifer and existing wells. The negative effects on the aquifer could include drawdown and loss of hydraulic pressure, decrease or cessation of spring flows, commingling with water of poorer quality, and decreased recharge to other aquifers. These can be translated to increased pumping cost from having to pump water from deeper depths, lowering of pumps, loss of springs, reversed interaction with streams and springs, loss of flow to artesian wells, degradation of water quality and lower recharge rates to other aquifers. All of these impacts have been or may soon be encountered in our region.

Water Quality

Central Texas is known and celebrated for creeks, rivers, lakes, and springs. The long list of waterways includes Lady Bird Lake, Lake Austin, and Lake Travis; the Colorado, San Gabriel and Blanco Rivers; and San Marcos Springs, Jacob’s Well and Barton Springs. Access to an abundant, reliable, and clean source of water played a key role in the original decision in 1835 to locate Austin just downstream of Barton Springs along the Colorado River and to select it as the state’s capital in 1839. And today, these water features continue to be the source of intense pride for area residents and a powerful magnet for visitors, new residents, and businesses. Citizens and policymakers alike agree that water quality is not only important for environmental health, but vitally affects our quality of life and economic wellbeing.

^{vi} **Board Feedback:** A regional water system that is drawing from multiple water sources and allows for inter-connection between systems so water can be transferred as needed. This transfer could occur due to a water source being effected more than others due to drought, water contamination, etc. We need the flexibility to better manage where we pull our water from. Additional storage/reservoirs to hold the rainwater that is available in the good times to use in times of drought.

The area's environmental appeal has contributed to its enormous urban expansion. Central Texas has experienced population growth that is among the most rapid and sustained in the nation. The impacts of this pressure began to show quickly on water quality. The area's signature clean, clear water began to be altered and degraded by urban and suburban runoff. Key resources were put in jeopardy, including the Edwards Aquifer, which was determined to be "the most ecologically vulnerable to outside elements"⁶ in the state, and the Highland Lakes, which supply drinking water to over one million people in the region, and more downstream. Beginning in the 1970s, it was recognized that decisive measures would need to be taken to protect the land during and after development to maintain a high level of water quality.

In response, Central Texas communities have emerged over the last 40 years as regional and even national leaders in the science of water quality protection. Enormous progress has been made in developing the tools to achieve this—such as stream buffers, engineered controls, and impervious cover limits. The City of Austin, Lower Colorado River Authority, Travis County, Hays County, Dripping Springs, San Marcos, Bee Cave, and many other Central Texas communities have tailored their own water quality protection ordinances to meet their local needs. Cooperative, voluntary efforts have led to the Barton Springs Zone Regional Water Quality Protection Plan and the Gilleland Creek Total Maximum Daily Load Implementation Plan, both joint city-county-citizen efforts. But the challenges remain. Local initiative and innovation, and a science-based approach are needed to continue to meet these challenges and assure that Central Texas retains the high level of water quality that has long been at the heart of its economic vitality and quality of life. To a large extent, the Texas Legislature's actions and inactions will determine whether those challenges are dealt with appropriately and cost-effectively.

Ecological Flows

Water issues in Texas focus on 1) the supply of available surface and groundwater versus the demand needed for municipal, irrigation, livestock, manufacturing, mining, and steam electric uses, and 2) the quality of water based on state and federal standards established for public

water supply, water-contact recreation, aquatic life, fish consumption, and general use. With recent passage of Senate Bill 2 (in 2001) and Senate Bill 3 (in 2007), the environmental flow requirements for water to maintain an ecologically sound environment have been recognized, and processes are now established to plan for environmental needs of river basins, bays, and estuaries. However, these needs usually compete for already over-allocated resources.

Conjunctive Use

The connection and interaction of groundwater and surface-water resources provides essential ecological services to the earth and society. A failure to adequately recognize, value, and conjunctively plan for the use and protection of these linked resources can have far-reaching ecological, economic, and social repercussions. Though the interaction between groundwater and surface water is clearly recognized by scientists and laypersons, conjunctive use and planning of groundwater and surface water resources have not been formally acknowledged by the Legislature but have, by default, become the limited purview of RWPGs. Groundwater availability and use decisions are being made without adequate consideration of impacts on surface waters or ecology. Groundwater availability models (GAMs) and surface water availability models (WAMs) do not adequately or accurately account for groundwater–surface water interactions, generally leading to significant over-reliance on groundwater resources to fill demand gaps. Our region should encourage sustainable growth and use of natural and human resources in a way that balances human and environmental needs and efficiently plans for the conjunctive use of water resources.

Wastewater / Reuse

Wastewater is a constant wherever there is development. Regional wastewater management is increasing, but in 1998, about one quarter of Texans relied on septic systems for their residential wastewater disposal⁷. While on-site treatment of wastewater affords opportunity to use reuse water on the same site in the form of irrigation, consideration should also be given to the quality of the water being used and the lack of regular maintenance for most of these systems. “Reclaimed water quality requirements depend not only on the relevant regulations

and guidelines, but also on specific applications for which reclaimed water is to be used. Demand and supply balance and needs for infrastructure also vary with various applications. Infrastructure must have a capacity to supply reclaimed water safely, sufficiently, and reliably. Thus, a water reuse project cannot be planned without identifying primary and potential users of the reclaimed water and understanding how reclaimed water is to be used in each application.”⁸

Reclaimed water has been an important water resource in Texas for many years. As water demand in the State continues to grow, the importance of reclaimed water will also grow^{vii}. The 2007 State Water Plan⁹ indicates that nearly 1.3 million acre-feet/year of additional reclaimed water is needed to meet future demands. As the amount of reclaimed water grows, new uses for this water must be evaluated. Scientific research is necessary to evaluate the appropriateness of reclaimed water for a variety of uses. In a report¹⁰ being completed for the Texas Water Development Board, initial recommendations include studies to achieve the following goals:

1. Understanding the role of environmental buffers for indirect reuse projects
2. Effectiveness of treatment wetlands in improving reclaimed water quality
3. Use of managed aquifer recharge systems to facilitate water reclamation in Texas
4. Understanding the effectiveness of nutrient removal processes in the reduction of emerging constituents
5. Understanding the benefits of using nanofiltration as a beneficial treatment process for indirect reuse projects
6. Understanding the organizational, institutional, and public awareness framework needed to advance water reuse in Texas
7. Development of integrated water quality models for river systems where de facto reuse occurs due to the effluent dominated nature of rivers, such as the Trinity River

We must seek greater understanding of ecological flows and the implications on wastewater and reuse. More work is also needed to understand the risks posed by emerging constituents. Emerging constituents are products that are beginning to be detected in wastewater but are not

^{vii} **Board Feedback:** Water conservation will be even more important. Planning and allowing for re-use in irrigation. Having development standards that encourage use of native drought tolerant plants and have less need for irrigation. Allow for inter basin water transfers. Allow treated water to be put back into reservoirs. Using stormwater as a design amenity when it comes to drainage and storage.

currently treated by wastewater processes. Common examples of these products include pharmaceuticals, personal care products, caffeine and flame retardants.

In addition, consideration must be given to new approaches for distributed water resource management. Systems that integrate water supply and wastewater management and utilize existing technologies that effectively and safely manage wastewater on a more localized rather than regional basis may afford both cost and resource saving opportunities. For example, reclaimed water routed for local area non-potable reuse might be used for applications such as residential landscape irrigation, sports field maintenance, and cooling tower makeup. Cost savings could be realized from reducing the need for extensive water infrastructure systems that cover large distances and the associated costs of ongoing maintenance and energy use. Current regulatory systems governing wastewater management make integrated, distributed water and wastewater systems difficult to establish and operate. Continued education of the methods and benefits of this approach is needed, as well as an examination of the policies and rules that would enable it.

Energy-Water Nexus

An important consideration when examining water issues is the deep inter-connections and trade-offs involved in meeting both water and power needs in an increasingly resource-constrained world. A report entitled “Energy-Water Nexus in Texas”¹¹ examines water use for energy production and energy use for water distribution. Water is used for electricity production directly through hydroelectric power generation at major dams and indirectly as a coolant for thermoelectric power plants. In addition to using water for energy, we also use energy for water. A significant amount of electricity is used to produce, deliver, heat and treat water supplies and to deliver and treat wastewater. Despite the interconnections, historically these two sectors have been regulated and managed independently of one another, and planning in one sector has not given sufficient consideration to the needs or requirements of the other. Failure to consider the interdependencies of energy and water introduces vulnerabilities whereby constraints of one resource introduce constraints in the other. That is, droughts and heat waves create water constraints that can become energy constraints, and grid

outages or other failures in the energy system can become constraints in the water and wastewater sectors. In the report, researchers acknowledge changing technology will impact these issues, but they clearly identify the need for substantially more site-specific data in order to fully understand the nature of the energy-water nexus in Texas.

While these trends, and trade-offs, still need to be better understood, it is undeniable that there will be important implications for water and energy policy at the state and local level. The over-arching message from the “Energy-Water Nexus in Texas” report is that implementing advanced efficiency is the key to the sustainable use of both energy and water, and that state and local governments should continue, and wherever possible, increase funding and technical support for water and energy conservation and efficiency programs.

Cost of Infrastructure / Maintenance

According to the Journal of Finance and Management for Water and Wastewater Professionals¹², in the United States alone, the network of drinking water transmission lines extends to almost a million miles — more than four times the length of the National Highway System. This aging infrastructure, some of which is more than 100 years old, has long exceeded its useful life and in many areas is in a state of utter disrepair. In some areas, water loss exceeds 50 percent during distribution because of leakage — a production loss that would not be even remotely tolerated in any other industry. The Environmental Protection Agency estimates that domestic water utilities will need to invest over \$330 billion over the next 20 years to replace aging pipes and treatment plants¹³. New developments, security upgrades, advanced treatment methods and other needs may raise that bill to \$500 billion. Some estimates put these figures much higher. Climate change will likely increase the amount of money necessary for storing and distributing water, and innovative solutions must emerge as the magnitude of these looming expenditures becomes clearer. From underground aquifer storage and recovery in lieu of expensive surface impoundments, to in-place rehabilitation of existing piping instead of outright replacement – expect more dollars to be spent in more creative ways.

The 2009 “Report Card for America’s Infrastructure”¹⁴ provides an assessment of the state of the nation’s infrastructure. Conducted by the American Society of Civil Engineers and led by a panel of 28 of the nation’s leading civil engineers, the effort analyzed hundreds of studies, reports, and other sources, and surveyed thousands of engineers nationwide to determine what was happening in the field. Letter grades were assigned according to a traditional grading scale. Thus, if 77 percent of bridges were in good condition or better, that category earned a grade of C. Despite the tragic role played by an interstate highway bridge’s failure in calling attention to infrastructure shortcomings, bridges actually earned a C. Conversely, drinking water, inland waterways, and wastewater received the lowest score: D–. The inland waterways category declined from a D+ in the 2001 assessment to a D– in the 2009 edition; wastewater and drinking water both dropped from a D to a D–; and dams remained the same, receiving a D in both reports. According to an August 2007 Congressional Budget Office paper, “Trends in Public Spending on Transportation and Water Infrastructure 1956 to 2004,”¹⁵ expenditures on highways, roads, aviation, mass transit, and rail all have been trending up while “expenditures on water transportation, water supply, waste treatment, and water resources in general have been trending down or are flat”.^{viii}

Growth/Conservation Practices and Funding

Development patterns influence water demand: large lots and lawns result in greater landscaping and peak/total demand, low density results in more transmission lines and more water leaks, and maintenance of existing lines is often deferred in favor of new infrastructure. In addition water utilities that hold Certificates of Convenience and Necessity (CCN) from the Texas Commission on Environmental Quality are required to serve all in their CCN area, regardless of the type of development, as long as the user pays a reasonable fee. Failure to provide water can be grounds for the area to be taken out of the utility’s CCN^{ix}. Growth principles, such as more contiguous and compact growth, reduce water demand^x. For Fiscal Year 2010, the Clean Water and Drinking Water State Revolving Fund¹⁶ (SRF) programs

^{viii} **Board feedback:** Encourage multi-city projects such as the one between Cedar Park, Leander and Round Rock for water intake and treatment.

^{ix} **Board feedback:** The process for being taken out of a utility’s CCN is cumbersome.

^x **Board feedback:** These growth principles could reduce water demand. However, many CCN holder’s geographic situation may present constraints to growth principles by their lack of technical sophistication, and management of infrastructure practices affecting water quality and water quantity (pressure).

included an additional requirement that 20% of funding should be made available for projects addressing “green infrastructure, water or energy efficiency improvements, or other environmentally innovative activities.” In May 2010, the EPA released a draft policy instructing states to adopt certain growth principles when ranking projects to fund with federal money through the State Revolving Fund program¹⁷. By encouraging local government to adopt such growth policies through financial incentives, Central Texas growth will become more sustainable and water-efficient. Though 20% of SRF funding is intended for the Green Project Reserves, state agencies decide whether such projects are subsidized beyond the base SRF interest rates, such as zero-interest loans or grants. Considerations in these funding processes must be made for those water utilities that may not have zoning powers or limited influences on development.

Consumer Behavior

Consumers have direct control of their consumption behavior. It is the collective power of their choices that will, in the end, dictate the direction of growth and level of local resources use within the Central Texas region. While the public is generally aware and supportive of efforts to conserve local resources, most decisions concerning consumption are not directly linked with, or influenced by the desire to conserve those resources. Rather, most consumption choices are separate decisions influenced by consumer desire, product cost, convenience and perceived value. Without local resource-related information being provided in an effective and appropriate manner to help consumers with their choices, private consumption decisions will likely remain disconnected from the community’s broader interests and vision. New awareness of the importance of using limited water and other community resources to assure the long term quality of life and economic sustainability of local communities makes it timely for city and county governments to consider the use of active marketing tools to provide end consumers with the information they need to make informed private consumption decisions and achieve meaningful levels of resource conservation. Focus for these new marketing efforts should be toward providing information that can help consumers connect their key consumption decisions, such as those related to indoor and outdoor water use, especially irrigation systems and type of landscaping, with other local resource conservation and community quality of life considerations, such as lot

size and location. In doing so, Central Texas governments will be providing an important service to their communities that also help them better manage as well as accommodate forecasted regional growth and provide continued economic opportunity.

Key Principles

As the Working Group discussed and drafted the issue summaries above, several recurring themes emerged as common to the persistent conflict of the issue or to any optimal solution. We summarize these themes below and have used them to craft the final recommended ECT Position Statement. These principles should be reflected in any legislation and other initiatives that ECT supports.

Using the best possible data and research

Any significant long-term management effort relies on accurate data of past and current conditions as well as rigorous methods for projecting future conditions. Planning for water requires long-term forecasting and the consequences of poor data or policy that ignores good data are expensive and affect the public welfare.

While certainly reasonable minds can disagree on the interpretation of data and information, reasonable minds should be able to agree on data sources and research methods. Perhaps of greater difficulty is agreeing on the definitions or scope of the problem of water issues where we need good data, solid methods and ways to prioritize. Definitions that are too ambiguous and research of limited bounds may decrease the reliability of the data and analysis and conclusions.

Protecting the Public Interest

The management of water in Texas has evolved over many decades and has become as emotional an issue as any policy discussion the state has seen. We now wrestle with multiple layers of authority and control, along with significant gaps in control, all of which make comprehensive water planning very difficult. As a result, competing interests may enable decisions committing water in ways that may benefit few while potentially harming many.^{xi} Even the most well intentioned legislation or private investment, especially at a state or inter-

^{xi} **Board feedback:** This interest includes a concern for the social equity component. An example would be a situation where a group of people and/or the natural resources of one area are damaged by market forces in order to satisfy the needs of another area and commercial entities profit from the transaction.

regional level, may not address the potential negative impacts its implementation will have on other facets of water and growth management, especially at the local level.

This is simply how our water management approach has evolved, it is no one's historical fault. But we are now at a point where a higher burden of proof is needed to protect long term, local supplies in high growth areas. Discussing and implementing some means of checks and balances that engage the existing agencies and stakeholders will better ensure that poorly executed policy, or poorly conceived projects or projects that manifest unplanned, perhaps unforeseen, consequences have some means of redress prior to litigation.

Investing in New Strategies

Many resource management efforts, including those for water, rely on constant innovation to ensure the optimum use of the resource as demand increases (e.g., with population growth) and/or supply decreases. Many of the issues summarized in this paper directly reference new strategies for Texas, from water supply alternatives to wastewater and reuse to conservation – ideas that have gone through trial and error elsewhere and demonstrated potential to extend water supplies.

Some strategies are targeted and will not necessarily solve all facets of water management (highlighting the need for integrated thinking), but show such potential as to warrant funding for pilot programs. Similarly, while any new idea runs the risk of poor implementation (highlighting the need for checks and balances), we should be willing to apply our Texas ingenuity to new means of expanding the value and supply of our water resources.

Coordinating across ecosystems and infrastructure

A great body of science has contributed to our understanding of ecological systems, and the role water plays in the functioning of those systems and their contribution to human endeavors. A great amount of funding has been put into our urban and rural infrastructure systems to uphold the promise of safe, clean, on-demand drinking water, whether from individual wells or mains. Both urban and rural systems are highly complex and can be significantly and negatively affected by small variations – and in ways we could not have

anticipated. Because there are limits to the amount of water available to our ecosystems and to the amount of funding for any infrastructure, we must improve our level of coordination across urban and rural systems – with a special focus on the relationship between surface and ground water sources.

New water management ideas and renewed commitment to using appropriate water data may not be able to anticipate or fully describe every scenario within these systems, but they must reflect a sensitivity and flexibility to the differences between them and to the new realities of managing water at a regional scale on the basis of land use patterns instead of contour lines.

Legislative Context

The main concerns of the upcoming legislative session will clearly be related both to budget and to the revision of legislative districts' boundaries based on the decennial census. The issues of growth management, mobility management, and water management, among others, will all find difficulty capturing the focus of the Legislature. This context creates both an opportunity and concern for legislation to move quickly or not at all. Groups such as ECT with an interest in educating legislators on specific concerns and approaches may find difficulty competing with these realities.

However, within that larger context, there are several uncertainties and water initiatives that might arise or be resolved before and during the legislative session and that could affect water-related legislation and have regional consequence. This section summarizes some of the key uncertainties and possible initiatives.

Uncertainties

Supreme Court Decision in *EAA v. Day and McDaniel*

This closely watched Texas Supreme Court case deals fairly narrowly with the vested property right of groundwater and potential compensable takings by Groundwater Conservation District (GCD) regulation. The opinion may or may not address the characteristics of groundwater as a private property right attached to the surface estate, or how and where such a property right vests, or whether and/or under what conditions a takings claim might be asserted for groundwater pumping limitations under properly

developed, non-arbitrary GCD rules. The nature of the decision, which may be rendered before the session starts, will be key, both in its scope as to how it affects GCDs' abilities to function as intended by the Legislature and also in its legal basis. While perhaps unlikely, if parts of the legislation governing all GCDs is voided on constitutional grounds, the Legislature may not be able to "rectify" that via legislation even if it wants to.

Hays County Stakeholder Assessment

Senator Wentworth and Representative Rose established a stakeholder group earlier this year to provide input to their decision-making as to whether and how to change the enabling legislation for the Hays-Trinity GCD to manage and protect the Trinity Aquifer and the surface streams and springs that are under strain, especially during droughts. This stakeholder input, which is being facilitated by Andrew Sansom, the Executive Director of the River Systems Institute at TSU-San Marcos, is scheduled to be available in the fall, so the legislators can develop and sponsor appropriate legislation. This input and any legislation that it might engender may also be used to inform the considerations in an evidentiary SOAH hearing on a new TCEQ report that addresses the need to provide full GCD protection in southwestern Travis and northern Hays Counties in the ECT area.

Sunset Reviews of TCEQ & TWDB

The Texas Commission on Environmental Quality (TCEQ) and the Texas Water Development Board (TWDB) are currently undergoing the sunset review process conducted by the Sunset Advisory Commission. Reauthorization bills must be passed by the 82nd Legislature in order for these two agencies to continue to exist. Such legislation could include contraction, consolidation, or expansion of agency functions and authority.

Private Deals

While private market actions often serve to provide innovative solutions to resource management concerns, they sometimes have the unintended effect of committing public resources to local projects that are in conflict with other regions and/or the public's interest. This is especially true in areas where legislative intent is unclear or not addressed, such as groundwater-surface water relationships, groundwater ownership, and local control of water resources.

Municipal Management Districts (MMDs)

Initially known as "Improvement Districts", MMDs were historically created for economic development and business recruitment projects rather than funding mechanisms for basic community infrastructure. Recent MMD legislation has included standard Municipal Utility District (MUD) powers (roads, transit, water and wastewater infrastructure financing, solid waste, police, and beautification), as well as additional powers. Special powers can include the authority for housing finance corporations, tax abatements, economic development tools, sales taxes, and hotel occupancy taxes. The Senate Intergovernmental Affairs Committee has convened a working group for the creation of future MMDs. The goal is to develop generally applicable language to standardize MMD powers and streamline the legislative process to create such districts.

This committee led a similar effort during a prior legislative session that resulted in a template for the creation of new MUDs.

Potential Water Themes in the 82nd Legislative Session

Auxiliary and Alternative Water Sources

The development of urban regions will be greatly aided by finding alternative water sources beyond limited conventional surface and groundwater sources. “Auxiliary water sources” (collected rainwater, HVAC condensate, etc.) will help to conserve public drinking water supplies. New regulations are needed regarding indoor uses of auxiliary water for users also connected to a public water supply system. TCEQ currently has regulations for using graywater but none for other auxiliary water uses such as rainwater or HVAC condensate. Such regulations need to guard against being obstacles to developing and using these new water sources.

Graywater

“Graywater” is another alternative source to help stretch and conserve drinking water supplies. Graywater is defined as wastewater from laundries, showers and bathroom sinks. Revisions to Title 30 Texas Administrative Code Chapter 210 and Chapter 285 requirements are needed to minimize the number of case-by-case reviews that TCEQ currently has to perform. The current rules are difficult to implement, can appear to be without justification, and may prevent many developers and existing homeowners from using graywater as an option.

Groundwater Desalination

A potential new water supply of unknown but likely significant size exists in the eastern part of the ECT area, in parts of Travis, Hays, and Caldwell Counties. This brackish to saline groundwater in the Edwards formation will require extensive treatment before it is used, but the technologies for such treatment are now becoming cost-competitive with the alternatives to acquire, treat, and transmit increasingly valuable fresh water from far away. The risks associated with the development of this new resource are perceived to be high by potential developers/users. The State may help mitigate the risk by providing funds for specific resource assessment, by reconsidering statutory barriers that might exist in some parts of the ECT area, and by facilitating the introduction of this new water supply into existing supplies by both regulatory and structural improvements.

Integrated Decentralized Water and Wastewater Management

Institutional and practical obstacles exist to the use of decentralized wastewater reuse from advanced on-site treatment at individual residential sites or clusters of sites. From a water demand perspective, the highest and best use of locally-derived wastewater is not to “dispose” of it, but to re-use it in the local area (e.g., for landscape and lawn irrigation) after treatment in small-scale treatment facilities. Reuse water may be treated cost effectively to a quality that is appropriate to its intended use and that affords environmental and public health protection. Implementation of these systems *vis a vis* centralized systems may be based on assessing the relative risks and costs of protecting public and ecosystem health and securing future water supply. For economy-of-scale and

operational stability, such local systems may need to be slightly larger than now allowed to be authorized as simple on-site systems, and their use should be facilitated and promoted, perhaps through the creation and use of a general permit.

Ban on Direct Discharge of Wastewater in Sensitive Environments

The direct discharge of wastewater into small Hill Country streams can fundamentally alter and degrade sensitive waterways and the aquifers that are recharged by them. Proven and practical alternatives exist to avoid such practices and direct discharges, without preventing development. Legislation was proposed in the last session that would have restricted new wastewater discharges into the Barton Springs-Edwards Aquifer Contributing Zone consisting of the drainage areas of Barton and Onion Creeks and their tributaries upstream of the recharge zone. This action was supported by the governing jurisdictions that included some 94% of the affected area in the contributing zone, and by an essentially unanimous consensus of scientists in a TCEQ stakeholder process designed to assess such a prohibition and options. Since then, a US Geological Survey investigation has demonstrated how sensitive the chemistry and ecology of these streams are to even small inputs of nutrients. The extension of this type of ban to the contributing zone could prevent additional direct discharges to environmentally sensitive streams throughout Central Texas while also allowing reasonable development and promoting innovations in water reclamation and reuse in lieu of direct discharges.

Regulations Governing TCEQ Texas Land Application Permits (TLAPs)

Wastewater may be land-applied to mitigate the impacts of pollutants it contains and to avoid the problems noted above with direct-discharges to waterways. However, the specifics of their siting, design, operation, and monitoring are critical to ensure that they properly function across differing geographic settings and climatic conditions. Today's systems need to take advantage of improvements in our understanding of system components and environmental constraints. Modification to TCEQ's TLAP program based on technology changes and recent research would be beneficial and necessary to make TLAPs more economical to developers, better designed, and yet maintain or enhance their environmental function. As appropriate technology in sensitive Central Texas areas, TLAPs are successful when designed with adequate soil and storage facilities. However, the current restrictions on irrigation field use and storage volume have prompted some developers to opt for direct discharge permit to maximize their developed land area.

Provision of GCD Protection to All of the Hill Country PGMA

Nearly two decades ago, TCEQ designated all or parts of ten counties to be the Hill Country Priority Groundwater Management Area (PGMA), because the primary aquifer in the area, the Trinity Aquifer, was already expected to encounter water quantity and/or quality problems over the next 25 years. Several areas that have experienced high growth and have the most severe problems today are under increasing stress from development because they do not have effective TWC Chapter 36 protections in the form of a GCD – including southwestern Travis and northern Hays Counties. In early 2010, TCEQ issued a final report that recommended formation of a new multi-county GCD for that part of the

Hill Country PGMA. TCEQ can form this GCD under its current authority but its history suggests that it may seek legislative direction in lieu of or in addition to that authority.

Better Coordination Between RWPGs and GMAs

A series of prior legislative initiatives has established a rational basis for both surface water and groundwater planning in the State. Each has important and sound policy dimensions and generates essential information that is not provided by the other. Additional coordination between the two planning entities is needed to develop a set of standards and common approaches to participation and collaboration. In addition, GMA regional planning should be provided funds from the TWDB as are the RWPGs rather than having to rely solely on locally derived funds for regional planning.

Highland Lakes Discharge Ban

The environmental and scenic integrity of the Highland Lakes in Central Texas has long been protected by a ban on the direct-discharge of wastewater effluent. These lakes provide the great majority of the region's drinking water supply. Leander and Granite Shoals petitioned TCEQ to lift this ban in the fall of 2009, but this petition was not granted and TCEQ upheld its current ban on such discharges. This ban and the associated decisions to construct water reclamation and reuse projects by the Highland Lakes communities could be made more predictable and secure with state legislation.

Irrigator Regulations

The science and design of irrigation systems has significantly improved in recent years to improve water efficiency. Current requirements for these systems include many of these advancements. However, HB 2339 from the 81st Legislature sought to repeal many of the statewide irrigator regulations that were enacted in 2007 to return to earlier, weaker versions of these requirements. Since landscape irrigation often accounts for a large majority of water waste, statewide regulations on irrigators should remain in place or be enhanced, not weakened.

Local Groundwater Management

Groundwater and aquifer characteristics differ across the State. Taking a singular approach to managing these resources as has been taken on surface water (declaring them waters of the state) may not adequately balance maintenance of groundwater supplies and long-term aquifer protection. As refinement of legislation related to the definition of terms applied to groundwater management and export evolve, protective measures allowing and supporting adequate and equitable local regulation and enforcement of pumping limits are needed to ensure the integrity of the established desired future conditions. The policy-making authority of local groundwater management entities should be preserved.

Colorado River Protections

Rivers rely on natural soils and vegetation in riparian areas to protect water quality, protect private property, and maintain their scenic integrity. In 2008, the City of Austin and Travis County enhanced their protections of the Colorado River by requiring an improved buffer along the river. In the past, this buffer had been too narrow and allowed sand and gravel mining operations close to the bank which accidentally caused significant

breaches of the river, resulting in pollution of the channel and loss of property along the banks. These protections are critical to the environmental and cultural health of the river and need to be guarded.^{xii}

ECT Position Statement and Action Steps

Envision Central Texas believes that improving how we manage water resources in Central Texas is as core to sustaining quality of life and economic competitiveness in our region as are improving land use and transportation. Water issues of every kind are ever present in ECT activities and throughout our communities, urban and rural. ECT convened a Working Group of people who work on water issues every day across Central Texas to discuss and highlight those water issues of greatest resonance in our region.

During the upcoming 82nd Legislative Session, there will be limited but vital opportunities for various water related issues and legislation to be introduced and debated. ECT will seek opportunities to educate our supporters and legislators on the importance of water related legislation that exemplifies these key principles:

- Uses the best data and research possible on water resources;
- Promotes the long-term public interest in water policy implementation;
- Encourages and funds new strategies in water conservation and management;
- Coordinates for impacts across ecosystems and infrastructure.

Beyond the 82nd Legislative Session, improving how we manage water resources will continue to be an important and energizing conversation. ECT will seek opportunities to highlight water planning and investment that exemplify the principles above through our ongoing activities and public outreach efforts.

^{xii} **Board feedback:** Likewise, as these protections are critical in Travis County, they need to be extended into other counties above and below Austin.

Working Group Members

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Resources/information provided by:

Steve Coonan, Alan Plummer Assoc.

David Fowler, Capital Area Council of Governments

Jeff Fox, Austin Water Utility

Endnotes

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- ³ Texas Water Development Board, websites regarding Regional Water Planning Groups, <http://www.twdb.state.tx.us/wrpi/rwp/rwp.asp> and <http://www.twdb.state.tx.us/wrpi/rwp/map.asp>
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APPENDIX

Authorities, Boards, Commissions, Districts & Planning Groups

Texas Water Development Board; <http://www.twdb.state.tx.us/home/index.asp>

Texas Commission on Environmental Quality; http://www.tceq.state.tx.us/nav/main/water_main.html

River Authorities:

Guadalupe-Blanco River Authority; <http://www.gbra.org/>

Lower Colorado River Authority; <http://www.lcra.org/>

Regional Water Planning Groups:

Brazos Regional Water Planning Group (Region G); <http://www.brazosgwater.org/>

Lower Colorado Regional Water Planning Group (Region K); <http://www.regionk.org/>

South Central Texas Regional Water Planning Group (Region L); <http://www.regionltexas.org/>

Groundwater Conservation Districts:

Barton Springs/Edwards Aquifer Conservation District; <http://www.bseacd.org/>

Edwards Aquifer Authority; <http://www.edwardsaquifer.org/>

Hays Trinity Groundwater Conservation District; <http://www.haysgroundwater.com/>

Lost Pines Groundwater Conservation District; <http://www.lostpineswater.org/>

Plum Creek Conservation District; <http://www.pccd.org/>

Groundwater Management Areas:

Groundwater Management Area #8; <http://www.twdb.state.tx.us/GwRD/GMA/gma8/gma8home.htm>

Groundwater Management Area #9; <http://www.twdb.state.tx.us/GwRD/GMA/gma9/gma9home.htm>

Groundwater Management Area #10; <http://www.twdb.state.tx.us/GwRD/GMA/gma10/gma10home.htm>

Groundwater Management Area #12; <http://www.twdb.state.tx.us/GwRD/GMA/gma12/gma12home.htm>

Groundwater Management Area #13; <http://www.twdb.state.tx.us/GwRD/GMA/gma13/gma13home.htm>

Maps

Groundwater Conservation Districts; http://www.twdb.state.tx.us/mapping/maps/jpg/gcd_only_8x11.jpg

Groundwater Management Areas; <http://www.twdb.state.tx.us/mapping/maps/pdf/GMA%20map%208x11.pdf>

Major Texas Water Resources; <http://www.twdb.state.tx.us/mapping/maps/pdf/MajorSurface-GroundwaterFeatures.pdf>

Regional Water Planning Areas; http://www.twdb.state.tx.us/mapping/maps/pdf/sb1_groups_8x11.pdf

River Authorities and Special Law Districts;
http://www.twdb.state.tx.us/mapping/maps/pdf/sb1_groups_8x11.pdf

Organizations Working on Water Issues:

Austin Water Utility; <http://www.ci.austin.tx.us/water/>

Capital Area Council of Governments; <http://www.capcog.org/>

Clean Water Action; <http://www.cleanwateraction.org/tx>

Environmental Stewardship; <http://environmental-stewardship.org/default.aspx>

Greater Edwards Aquifer Alliance; <http://www.aquiferalliance.org/>

Guadalupe Blanco River Trust; <http://www.gbrtrust.org/>

River Systems Institute; <http://www.rivers.txstate.edu/>

Save Our Springs Alliance; <http://www.sosalliance.org/>

Sierra Club Lone Star Chapter; <http://texas.sierraclub.org/water.asp>

Texas Alliance of Groundwater Districts; <http://www.texasgroundwater.org/>

Texas American Water Works Association; <http://www.tawwa.org>

Texas Association of Clean Water Agencies; <http://tacwa.org/>

Texas Parks and Wildlife; <http://www.tpwd.state.tx.us/landwater/>

Texas Rainwater Catchment Association; <http://www.texrca.org>

Texas State Soil and Water Conservation Board; <http://www.tsswcb.state.tx.us/>

Texas Water Conservation Association; <http://www.twca.org/about.html>

Texas Water Foundation; <http://www.texaswater.org/>

Texas Water Matters; <http://www.texaswatermatters.org/index.htm>

Texas Water Resources Institute; <http://twri.tamu.edu/>

Texas Water Utilities Association; <http://www.twua.org/>

U.S. Geological Survey Texas Water Science Center; <http://tx.usgs.gov/>

Water Conservation Advisory Council; <http://www.savetexaswater.org/>

Water Environment Association of Texas; <http://www.weat.org>

Water Quality Protection Division of EPA, Region 6; <http://www.epa.gov/region6/water/index.htm>

WaterReuse Association – Texas Section; <http://www.watereuse.org/sections/texas>

Reports and Studies:

2007 State Water Plan; <http://www.twdb.state.tx.us/wrpi/swp/swp.asp>

Carrizo-Wilcox Aquifer Study; <http://www.beg.utexas.edu/cswr/aquiferstudy/>

Energy-Water Nexus in Texas; http://www.texaswatermatters.org/pdfs/news_570.pdf

Lower Colorado River Authority Water Management Plan; <http://www.lcra.org/water/supply/wmp.html>

Protecting the Lifeline of the West; <http://www.westernresourceadvocates.org/water/lifeline/lifeline.pdf>

A Report on Progress of Water Conservation in Texas;
http://www.savetexaswater.org/documents/WCAC_report.pdf

Surface Water and Ground Water – Together Again?;
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http://www.twdb.state.tx.us/gwrp/pdfdocs/03-1_mace.pdf

Texas Alliance of Groundwater Districts Position Paper for the 82nd Texas Legislature;
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What is your Water IQ; http://www.tceq.state.tx.us/comm_exec/forms_pubs/pubs/pd/020/05-02/wateriq.html