2018

Tennessee's Roadmap to Securing the Future of Our Water Resources

Legal & Institutional Framework Working Group

Preface

TN H20 is a planning initiative to assess current water resources for the State and to develop recommendations to ensure that Tennessee has an abundance of water resources to support population and economic growth. This planning initiative involved a steering committee that provided general direction, and volunteer subcommittees that helped prepare the actual components of the TN H20 plan. This paper represents the work product of the Legal & Institutional Framework Subcommittee. Members of the Legal & Institutional Framework Subcommittee spent many hours researching, analyzing, discussing, and writing this paper. The State of Tennessee is grateful for their contributions.

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I. EXECUTIVE SUMMARY

Tennessee has a wide variety of statutes, rules, regulations, and case law that relate to its many surface water and groundwater resources. However, Tennessee does not have in place a long-term, comprehensive water use and supply plan directing the efficient and uniform use of these tools. Despite forecasts that project Tennessee's population to double by 2050, as well as the existence of a "comprehensive growth plan" statutory requirement,[1] state government has not realized a long-term water policy for decades. *See* John G. Morgan, *Tennessee's Water Supply: Toward a Long-Term Water Policy for Tennessee*, COMPTROLLER OF TREASURY (Mar. 2002), http://www.comptroller.tn.gov/Repository/RE/waterpolicy.pdf (hereinafter "*Comptroller's Report*"). In an effort to galvanize a response to this mounting necessity, the following paper catalogues the ways in which Tennessee currently employs—shortcomings included—its many water-related legal tools in the context of water use and supply.

"Common Law" legal principles regarding water use and supply arise from years of case law precedent, and provide a necessary background and logical starting point for evaluation of the legal and institutional framework. Important common law principles such as riparian rights and reasonable use are alive and well in Tennessee. Tennessee has also moved toward a "regulated riparianism" model as the State has created new statutes, regulations and administrative agencies that supplement the common law.

The Tennessee Department of Environment and Conservation (TDEC) is the State administrative agency that is primarily responsible for managing, protecting, and enhancing

[1] Tenn. Code Ann. § 6-58-101 *et seq.*

Tennessee's many water resources through all manner of voluntary, regulatory, and educational programs. Within TDEC, the Division of Water Resources (DWR) implements the water rules and regulations that the Tennessee Board of Water Quality, Oil & Gas (Board) promulgates. However, "[l]aws specifically addressing water supply in Tennessee have provided [TDEC and the DWR with] limited authority to monitor and regulate water use," a fact unchanged since the Tennessee Comptroller's Report in 2002. *Id.* at 13.

TDEC is not the only entity involved in managing Tennessee's water use and supply. From a federal standpoint, the Tennessee Valley Authority (TVA) uses a series of dams and reservoirs to regulate the Tennessee River system—the fifth largest in the United States with a watershed that drains 40,910 square miles across seven states.[2] In addition to monitoring water supply, TVA employs this system to facilitate navigation, provide flood control, and generate electricity. The U.S. Army Corps of Engineers (USACE) also plays a significant federal role in managing water resources within Tennessee through its operation of multi-purpose projects on the Cumberland-Tennessee River systems for the congressionally authorized purposes of commercial navigation, flood risk management, hydropower production, recreation, municipal and industrial water supply, and environmental stewardship.

There are also municipal and county water systems, each of which acts on a local legislative body's authority to establish water rates, adopt regulations for water service, and finance water system capital improvements. Relatedly, utility districts act as their own public corporations to provide their customers with water, sewer, and other authorized utility

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[2] https://www.tva.gov/file_source/TVA/Site%20Content/Environment/Environmental%20Stewardship/Water%20Quality/water_usereport.pdf.

services. Finally, Tennessee's Department of Agriculture funds voluntary programs aimed at educating the State's many agricultural enterprises on ways they can reduce the effects their land-based activities have on water supply. In short, this diverse network of entities—each with its own goals and guiding authorities—combines to have a wide-reaching impact on Tennessee's water supply.

Importantly, this paper also discusses concerns about intrastate and interstate legal challenges and issues that we are currently facing in Tennessee, including input obtained across the various TN H2O working groups to identify potential gaps with respect to Tennessee's current legal and institutional framework. A variety of topics and issues are discussed, such as: interstate disputes and mechanisms for dividing waters between and among states; the role of federal agencies in water management, supply, and allocation; surface water and groundwater withdrawals from shared rivers or aquifers in bordering states; intrastate water resource conflicts and regional cooperation; flood planning and mitigation; drought planning and preparedness; water withdrawals for agricultural purposes; contaminants of emerging concern; and conservation and demand management strategies.

II. COMMON LAW BACKGROUND CONSIDERATIONS

A. General Discussion

The regulation of water quantity and the allocation of water supply in the United States have traditionally been functions of state law rather than federal law. Such state law is based on common law doctrines developed by state courts deciding litigated cases over time, and it is directly related to real property ownership. In general, western states adopted systems of

"prior appropriation" water rights or "first in time, first in right," deemed necessary where water is scarce. Eastern states, however, historically put in place American "riparian rights" systems adapted from the English legal heritage and suitable for locations where water has been more abundant. In modern times, eastern states are transitioning into varied kinds of "regulated riparianism" -- adding statutes, rules, and programs -- to allow for better up-front regulation, management, and planning for water supply and also for resource sustainability and environmental protection. Nonetheless, the common law governing water can still come into play and is an important foundation for understanding water law in any location. Surface water and groundwater may be governed differently by law in many states but are nonetheless interconnected both physically and legally, as are issues of water quantity and water quality. Moreover, federal authority and presence have become crucial or even determinative in many water supply situations. Water conflicts and water allocation pressures both large and small continue to grow in eastern states including Tennessee.

1. Surface Water

Surface water "riparianism" entails water use rights held in association with ownership of land that abuts or underlies a surface water body. The rights exist regardless of whether the water is "navigable" or not, although this classification determines whether a landowner or the state owns the stream bed. Each riparian owner can use water from the natural surface water body bordering or crossing his/her property. The right generally assumes that there will be enough water for all. It comes with the land and does not depend on when the land ownership or water use began or whether the water right is continually in use. The water itself in many states is claimed in trust for the people as waters of the state, but even when so, the common

law water use right of the riparian landowner is still well-established. (Typically, a state does not "own" its waters in a proprietary capacity, but it may exercise sovereign authority to regulate the natural resource.)

Riparian water rights are non-exclusive and shared with other riparian landowners along the surface water body regardless of respective parcel sizes, relative locations on the water body, or each parcel's length of water body frontage. Each owner is entitled to reasonable use of the water so long as that does not interfere with the same use rights enjoyed by the co-riparian owners. A right of water use does not guarantee a common law minimum or set a common law maximum but is governed by a reasonableness standard in relation to other uses and users of the same water body which may change over time. Unlike water rights in the west, typically the eastern riparian water right is not severed or conveyed as a separate property interest from land ownership (although contracts for water supply and use by others are sometimes entered into). Competing uses of water in-stream or on riparian parcels can be valued against each other, if needed, by courts based on the legitimate purposes of water uses -- domestic, municipal, industrial, agricultural, power generation, recreation, navigation -- and other factors that may be assessed and balanced as needed. See RESTATEMENT (SECOND) OF TORTS § 850A.

2. Groundwater

Groundwater governance doctrines under common law in the east typically have included "American Reasonable Use" and "Correlative Rights" standards. In some states the groundwater is owned as property by the overlying landowners. In other states it is deemed to be "waters of the state" by statute; but even if so, the common law right to use that water by

an overlying landowner remains strong barring overall depletion of the resource. Under "reasonable use" principles, water may be put to expected and acceptable uses on the overlying tract of land even if that negatively affects well supplies of neighbors, so long as not done with malicious intent or engaging in waste of water. "Correlative rights" doctrine or "vertical riparianism," on the other hand, involves equal and reasonable beneficial water use rights for landowners above a shared aquifer so long as one does not materially deplete the wells and supplies of others. In a dispute or in a time of shortage, a court may apply the common law to apportion available water supply among using owners. See RESTATEMENT (SECOND) OF TORTS § 858.

B. Tennessee

Tennessee has largely followed the basic tenets of eastern states' common law for surface water, subject to statutory and regulatory modifications that have come about in recent times. Owners of riparian land along surface streams and lakes in Tennessee have limited common law rights of building out into the water, rights of reasonable use of the water in-stream, and reasonable rights of withdrawal and consumption of the water on land -- while not blocking use or interfering with flows to the detriment of other rights holders. This is not property ownership of the water itself but the "usufruct" right to use the property of another, in this case the waters of the state which are claimed in trust by Tennessee unless isolated and confined to a single privately owned parcel. See Tenn. Code Ann. §§ 68-221-702, 69-3-102(a), and 69-3-103; Cox v. Howell, 108 Tenn. 130, 65 S.W. 868 (1901); see also Keltner v. Open Lake Sporting Club, 2003 Tenn. App. LEXIS 128 (2003); Pointe, LLC v. Lake Management Ass'n, Inc., 50 S.W.3d 471 (Tenn. Ct. App. 2000).

Riparian landowners' water rights in Tennessee are shared with the other riparian property owners along the same surface water body, as described above. They are equal and correlative among holders. Use may cause some diminution to others but not materially so. In addition, what is a reasonable diversion or use of a portion of a stream or lake in comparison to the rights of others may depend on the size and flow of the stream or lake, the purpose of the use, the number of riparian users, and other specific facts. The only common law water usage priority in Tennessee, when competing uses are valued against each other in litigation, is for domestic use withdrawals (unless a water body is also used for commercial navigation, which adds navigation as another priority for that water). See, e.g., American Ass'n, Inc. v. Eastern Ky. Land Co., 2 Tenn. Ct. App. 132 (1901), aff'd (Tenn. Sup. Ct. 1901). Importantly, rightful water use by a riparian may have to be adjusted over time to accommodate new users or reasonably to share the burden and impact of shortage conditions. See Webster v. Harris, 111 Tenn. 668, 69 S.W. 782 (1902), partially overruled on other grounds by State ex rel. Cates v. West TN Land Co., 127 Tenn. 575, 158 S.W. 746 (1913). This required flexibility as to riparian water use quantities, often not judged or enforced until judicial consideration of issues after the fact, can ultimately mean uncertainty for common law water rights users absent governmental regulatory intervention earlier in time. See e.g., Tallassee Power Co. v. Clark, 77 F.2d 601 (6th Cir. 1935).

One historical issue with a riparian landowner's common law right to withdraw and use water is whether the water can only be used on the riparian parcel and connected parcels of the same owner, or may it be transported by pipeline or other means for use elsewhere. A limitation of this kind has not usually been applied to municipal or other public water supply

systems, the very purpose of which is to treat and distribute the withdrawn water over a larger area. This concept, however, and whether the destination of withdrawn water is outside of the same watershed as well as simply to non-riparian parcels, may still arise within overall considerations of common law "reasonableness" of water use and absent any regulatory authorizations or limits. See generally 78 Am. Jur. 2d Waters, §§ 287-90; RESTATEMENT (SECOND) OF TORTS § 850A.

Another common law issue of importance is access to Tennessee surface water resources by those who do not hold the rights of riparian landowners. As noted above, if a surface water body would be deemed legally "navigable" by a jury under state common law (not necessarily the same as what is deemed “navigable” under federal law), then the State owns the stream bed or lake bed up to the low-water mark. To be "navigable" in this sense a water body must, in its ordinary state, be capable of and suited to navigation by vessels employed in the ordinary purposes of commerce. If a water body is "non-navigable," however, then the riparian landowner or landowners may privately own the land beneath the waterway. The public may traverse a navigable stream but should stay on state land, not go onto private property without permission, and must gain access to the surface water body from public property such as a park or public road crossing. However, even for legally "non-navigable" waterways, and despite private ownership of the stream bed or lake bed, the public maintains a right to free and uninterrupted use of the waterway for transportation and navigation purposes "if it is naturally adapted to such uses" (and if public access to it can be gained from a public location or with private owner permission). See Tenn. Att'y Gen. Op. 11-75 (October 21, 2011), "Determination of Navigability and Ownership of Land Beneath a River". Despite the murkiness

of this common law distinction between navigable and non-navigable waters, conceivably these doctrines mean that the public may boat on a legally non-navigable stream or lake, even if it overlies private land, so long as the water body is capable of such use and there is no trespassing onto the privately owned beds or banks.

Groundwater use in Tennessee also follows eastern common law principles and appears to be based on both "reasonable use" and "correlative rights" standards, although many points are unsettled due to lack of state case law on the subject. Such water rights are held by the fee landowners above the groundwater and once again are "usufruct" in nature as the state claims groundwater in trust as waters of the state. Landowners above a groundwater aquifer each share a similar right of reasonable use of the water resource, and each should take into account the others and not deplete the resource to the extent of limiting or injuring those shared rights. Under the common law there is no seniority of a particular groundwater use, no quantification of shared rights in advance, and no guarantee of an exact flow level. See Nashville, Chattanooga & St. Louis Ry. v. Rickert, 19 Tenn. App. 446, 89 S.W.2d 889 (Tenn. Ct. App. 1935), cert. denied (Tenn. Sup. Ct. 1936). Reasonable water use factors to be balanced under common law might include the purpose of the use (with domestic water supply potentially having priority), suitability to the aquifer and any water courses affected, economic value, social value, extent or potential for harm caused, practicality of avoidance or adjustment, and impacts on the rights of others. Groundwater use may also be restricted to, or favored for, consumption on the overlying land itself or at least within the same basin. Finally, groundwater not presumed to be "percolating" and thus considered instead to be part of a rare underground stream in a defined channel is even more likely to be allocated like a surface water stream with consideration for

the shared rights of other owners along its proven course. Tennessee Elec. Power Co. v. Van Dodson, 14 Tenn. App. 54 (1931), cert. denied (Tenn. Sup. Ct. 1932). When a shared aquifer and its groundwater cross under state boundary lines and not just under private property lines, conflicts can arise as to which state's common law principles may apply to its use or whether federal common law and apportionment between the states might govern, as is being contested in the current Mississippi and Memphis litigation.

Common law principles developed over time may be utilized today to add trespass, nuisance, injury, property damage, or other claims to statute-based actions involving water. They may also arise in attempts to challenge permit authorizations and limits regulating water supply or water pollution control, or in situations where no permits have been required. In addition, the "public trust doctrine," derived from both common law and certain statutes, may also be asserted in some water allocation disputes or water supply litigation.

In conclusion, common law authorities governing water supply, quantity allocation, and water rights in Tennessee provide for:

- Riparian rights of reasonable water use shared by property owners abutting or underlying a surface water body.
- Reasonable use rights of groundwater shared by property owners overlying a groundwater aquifer.
- Courts with power to allocate supplies, accommodate users, and resolve disputes after they arise based on the purposes of water uses, other common law elements such as reasonableness and value, and the specific facts presented.

Before one begins any regulatory process required under current State laws and rules for gaining access to water from a natural source in Tennessee (other than by purchase from a water supply utility or other third party, or by acquiring a right to withdraw water from storage space in a federally-managed reservoir), one typically must first secure a traditional common

law right to use that water through land ownership. See generally Comment, Water Rights in Tennessee, 27 Tenn. L. Rev. 557 (1960). Water supply planning in Tennessee, therefore, generally should be coordinated with land use planning.

III. TENNESSEE WATER USE & SUPPLY LEGAL FRAMEWORK / STATE ENTITIES

Created and enabled in 1937 by Tenn. Code Ann. §§ 4-3-501 and 11-1-101 *et seq.*, then reorganized several times, TDEC now consists of fourteen program areas that protect Tennessee's air, land, and water through applicable regulatory frameworks. With respect to water use and supply, DWR handles the day-to-day responsibilities of administering water programs for the following statutory schemes: (1) Tennessee Water Quality Control Act; (2) Tennessee Water Resources Information Act; (3) Inter-Basin Transfer Act; (4) Tennessee Safe Drinking Water Act; and (5) other source water protection statutes, including the Water Wells Act. The Board of Water Quality, Oil and Gas (Board) is the administrative tribunal for hearings in enforcement cases and permit appeals.[3] The Board has policy-making authority and is also responsible for promulgating rules and regulations for most of the State's water programs.

A. Water Quality Control Act

[3] The Board of Water Quality, Oil and Gas will be renamed the Tennessee Board of Energy and Natural Resources. 2018 Public Chapter 839, sections 1 and 47. This will take effect 8 months after receiving notification that Tennessee has primacy over the surface coal mining program.

TDEC is given broad water-related authority by the Tennessee Water Quality Control Act of 1977 (WQCA).[4] The WQCA declares that the waters of Tennessee are held in public trust for all Tennesseans and subject to the regulatory authority of the sovereign. Tenn. Code Ann. § 69-3-102(a). The WQCA provides that State government "has an obligation to take all prudent steps to secure, protect, and preserve this right [to unpolluted waters]." *Id.* While Tennessee's WQCA is modeled after federal law by addressing discharge of pollutants to surface waters and regulating water quality standards, the WQCA also defines "waters" to include both surface water and groundwater and gives the State the authority to regulate groundwater. Another focus of the WQCA is that it addresses alterations and discharge of pollutants through permitting. Water quality, which affects water supply, is primarily addressed through such discharge permitting. This paper, however, primarily addresses water supply.

1. Aquatic Resource Alteration Permits (ARAPs)

The WQCA prohibits the alteration of physical, chemical, or biological properties of any water of the State without a permit. Tenn. Code Ann. § 69-3-108(b)(1).[5] TDEC issues permits for such activities, other than discharges from wastewater conveyances, through the ARAP program. These activities include "water withdrawals," Tenn. Comp. R. & Regs. 0400-40-07-.01(3), which allow ARAPs to play a role in "plan[ning] for the future use of waters so that the water resources of Tennessee might be used and enjoyed to the fullest extent[.]" Tenn. Comp.

[4] The WQCA is the state counterpart to the Federal Water Pollution Control Act, as amended, commonly referred to as the "Clean Water Act" (CWA), which is codified at 33 U.S.C. § 1251 *et seq.* (1972).

[5] ARAPs may also be required for any of the activities outlined in Tenn. Code Ann. § 69-3-108(b)(1), including "stream channel modifications, . . . wetlands alterations including drainage, and other construction activities which result in the alteration of the waters of the State." In addition, TDEC has issued some general ARAPs by rule for certain categories of activities. See Tenn. Comp. R. & Regs. 0400-40-07-.04(1) and (2). Following a public participation process, individual ARAPs are issued by the Commissioner of TDEC with conditions necessary to protect the waters. TENN. COMP. R. & REGS. 0400-40-07-.04. As of this writing, TDEC has proposed a number of changes in the ARAP rules.

R. & Regs. 0400-40-07-.01(1). ARAPs can apply broadly when a proposed water withdrawal may affect the quality of a source stream by removing a significant portion of its flow:

> Where a permit for water withdrawal is required, the Commissioner [of TDEC] shall establish permit conditions which are protective of the source stream's resource value. These conditions may include flow levels below which no withdrawal may occur. The Commissioner may also establish a maximum withdrawal rate in order to maintain the natural flow fluctuation characteristics of the source stream.[6]

Tenn. Comp. R. & Regs. 0400-40-07-.04. However, ARAPs are not applicable to all withdrawals: for example, agriculture and forestry activities are largely exempt from ARAP requirements. Tenn. Code Ann. § 69-3-120(g); Tenn. Comp. R. & Regs. 0400-40-07-.02. Another exemption exists for unchanged withdrawals in place prior to July 25, 2000, when the earliest ARAP regulations for this purpose were created, if such withdrawals do not adversely alter or affect the water for its classified uses. Tenn. Comp. R. & Regs. 0400-40-07-.02(4). ARAPs do not apply to groundwater alterations unless a withdrawal of groundwater would impact a surface water source. Tenn. Comp. R. & Regs. 0400-40-07-.04(5).

B. Water Resources Act and Water Resources Information Act

The Water Resources Act (WRA) of 1957 created the Water Resources Division within TDEC (this is not the same as the current-day DWR). The WRA made the Director of that division responsible to the Commissioner of TDEC "for the general direction of all matters pertaining to conservation, protection and development of the water resources of the [S]tate[,]

[6] EPA directs each state to develop a statewide "antidegradation" policy to ensure the continued maintenance and protection of water quality. 40 C.F.R. § 131.12. Under Tennessee's antidegradation statement, proposed new or expanded surface water withdrawals that would degrade a stream's flow beyond a *de minimis* level must first analyze reasonable alternatives, including "water conservation, water reuse or recycling, off-stream impoundments, water harvesting during high flow conditions, regionalization, withdrawing water from a larger waterbody, use of ground water, connection to another water supply with available capacity, and pricing structures that encourage a reduction in consumption." TENN. COMP. R. & REGS. 0400-40-03-.06(1)(b)3.(ii).

and the continued study of water resources looking toward the creation and development of a basic, long-range water resource policy for the state[.]" Tenn. Code Ann. § 69-7-102. Because of consistent funding limitations, however, the "provisions of the Water Resources Act of 1957 have never been fully implemented, including the planning and data gathering functions recommended by this and previous reports." *See Comptroller's Report* at 13.

In 2002, Tennessee's General Assembly acknowledged that the withdrawal of groundwater has lowered the groundwater table in other states and that there is potential for groundwater or surface water withdrawals to impact the State's ability to access and enjoy its many groundwater and surface water resources. Tenn. Code Ann. § 69-7-302. To enable more accurate monitoring of water withdrawal, the General Assembly passed the Tennessee Water Resources Information Act (WRIA)—a water registration system designed to facilitate more accurate forecasts of water use and demand. *Id.*

Under the WRIA, "no person shall withdraw ten thousand (10,000) or more gallons of water per day from a surface water or a groundwater source unless the withdrawal is currently registered with the commissioner." Tenn. Code Ann. § 69-7-304(a). However, "[a] person may withdraw water for agricultural purposes[7] without having registered the withdrawal." Tenn. Code Ann. § 69-7-304(d). From a data-gathering standpoint, any registration exception limits the State's ability to accurately frame its water portfolio and are ripe for reconsideration.

The WRIA also authorized the formation of the Water Resources Technical Advisory Committee (WRTAC), Tenn. Code Ann. § 69-7-309, which convened in 2008 after a severe,

[7] The WRIA defines "agricultural purposes" as including the "irrigation of crops, vines, production of hay, turf production and nursery stock production . . . and watering of poultry or livestock. TENN. COMP. R. & REGS. 0400-45-08-.03(1).

statewide drought.[8] A joint committee of utility, state, and federal representatives, WRTAC was tasked to develop recommendations to manage Tennessee's water resources to meet the growing demand. [9] The WTARC focused on regional water supply planning, and the effort culminated in the completion of two pilot studies and several related planning documents.[10] This effort also included updating TDEC's Drought Management Plan in 2010.[11]

C. Inter-Basin Water Transfer Act

In response to growing concerns about increased population and drought, as well as certain nearby interstate water compacts,[12] Tennessee passed the Inter-Basin Water Transfer Act (IBWTA) in 2000. Tenn. Code Ann. § 69-7-201 *et seq.* The IBWTA acknowledges that "[a]lthough the common law addresses some of these concerns, it relies on after-the-fact litigation rather than a modern regulatory system." Tenn. Code Ann. § 69-7-202**.** Thus, the IBWTA serves to facilitate "regulation on the basis of the quantity of water in river basins[,]" and acts as "an explicit mechanism . . . to regulate proposals for the diversion of water from one river basin to another." *Id.* As the IBWTA "is remedial and police power legislation, [it] shall

8 In 2000, a previous water supply panel was organized by TDEC which made recommendations that resulted in the WRIA and updates to the Well Driller's Act, Tenn. Code Ann. § 69-10-101 *et seq*. Comptroller's Report, p.1-2

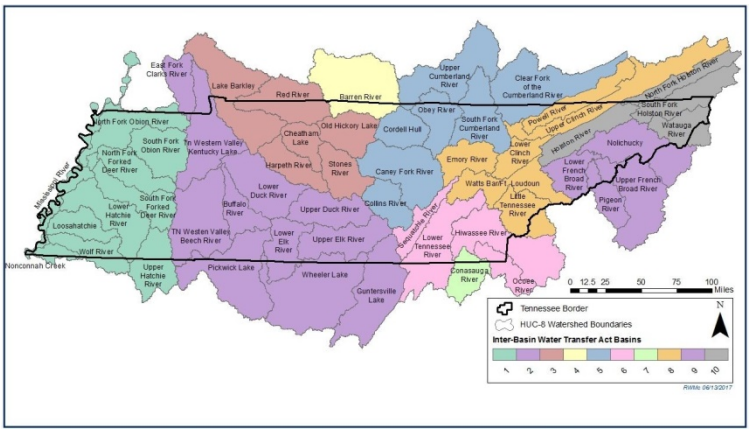
9 *Statewide Analysis of Hydrologic and Water System Information: WRTAC Recommendations*, WATER RES. TECHNICAL ADVISORY COMM., https://www.tn.gov/content/dam/tn/environment/documents/wr-wq_regional-planning_wrtac-statewide-analysis_june-30-2014.pdf.

10 https://www.tn.gov/environment/program-areas/wr-water-resources/water-quality/water-resources-regional-planning.html

11 *Drought Management Plan*, TENN. DEP'T ENVTL. CONSERVATION, http://drought.unl.edu/archive/plans/drought/state/TN_2010.pdf. Many cities and towns across Tennessee have adopted their own drought management plans. *See, e.g.*, *Metro Water Services Drought Management Plan*, METRO. GOV. NASHVILLE, https://www.nashville.gov/Portals/0/SiteContent/WaterServices/docs/reports/Metro%20Water%20Services%2016%20Drought%20Management%20Plan%20-%20%2006-17-2016.pdf; *Town of Brighton: Drought Management Plan*, BRIGHTON BD. MAYOR ALDERMEN, http://www.townofbrighton.com/Drought%20Management%20Plan%2004.2017.pdf.

12 In 1997, Congress approved an interstate water compact for the Alabama-Cotoosa-Tallapoosa (ACT) and the Apalachicola-Chattahoochee-Flint (ACF) river basins. After substantial interstate litigation—which entailed disputes over minimum flow requirements, general operation standards, and consumption caps—the ACT and ACF compacts were abandoned by their participating states in 2003 and 2004, respectively.

be liberally construed to effectuate its purpose." *Id.* The IBWTA established ten large water basins, as shown on the figure below.[13]



[14]

An inter-basin transfer occurs when water is withdrawn from any of Tennessee's ten watersheds and transferred directly or through intermediaries to a point outside that watershed. To conduct an inter-basin transfer, a public water system or party acting on behalf of a public water system must first secure an IBTWA permit from the Commissioner of TDEC. Tenn. Code Ann. § 69-7-204; Tenn. Comp. R. & Regs. 0400-40-13-.01. The Commissioner makes IBTWA permit decisions based on a host of factors including, among others, stream flow of the losing river(s), reasonable foreseeable water needs, conservation, and whether an applicant's proposed use is reasonable and beneficial. Tenn. Comp. R. & Regs. 0400-40-13-.05(2). The Commissioner maintains discretion in applying these factors, and may allot greater weight to

[13] These include: (1) The Mississippi River and all of its tributaries west of the Tennessee River Valley; (2) The Duck River, the Elk River, and the western Tennessee River Valley; (3) The lower Cumberland River to the downstream point of the mouth of the Caney Fork River, the Harpeth and the Stones rivers; (4) The tributaries of the Barren River; (5) The upper Cumberland River, the Caney Fork, the Obed, and the Big South Fork of the Cumberland River; (6) The lower Tennessee River in East Tennessee up to and including the Hiawassee River; (7) The Conasauga River; (8) The Upper Tennessee River in East Tennessee upstream of the Hiawassee, the Little Tennessee, the Clinch, and the Emory rivers; (9) The French Broad River and the Nolichucky River; and (10) The Holston River and the Watauga River. Tenn. Code Ann. § 69-7-203.

[14] *River Basins Regulated by the Inter-Basin Transfer*, TENN. DEP'T ENVTL. CONSERVATION, https://www.tn.gov/environment/program-areas/wr-water-resources/water-quality/river-basins-regulated-by-the-inter-basin-transfer.html.

individual factors based on the circumstances. *Id.* The Commissioner may also establish IBWTA permit conditions to prevent an adverse impact on the "losing river," including seasonal variation, transfer restrictions based on flow, and mitigation of future adverse conditions. Tenn. Comp. R. & Regs. 0400-40-13-.06(2). The Board may also establish "protected areas" where water withdrawal or consumption is creating, or is threatening to create, a shortage in some or all of a basin. Tenn. Code Ann. § 69-7-210; Tenn. Comp. R. & Regs. 0400-40-13-.11. The protected areas would be off-limits for inter-basin transfers because of the current or anticipated demands. *See id*.

D. Safe Drinking Water Act

Tennessee's Safe Drinking Water Act (SDWA)[15] governs the construction and operation of public water supply systems, including community water systems and non-community water systems (*e.g.*, hotels, restaurants, and industries that rely on their own surface or groundwater source for drinking water). Tenn. Code Ann. § 68-221-704. A public water system has "fifteen or more connections or . . . regularly serves twenty-five or more individuals daily at least sixty days out of the year." Tenn. Code Ann. § 68-221-703(19). Under the SDWA, the Board has established standards for drinking water to protect against health risks. The SDWA reiterates the WQCA's public trust doctrine, stating that "the people of the state . . . have a right to both an adequate quantity and quality of drinking water." Tenn. Code Ann. § 68-221-702.

E. Source Water Protection

Drinking water source protection regulations "establish a statewide program for development and implementation of wellhead protection plans by public water systems." Tenn.

[15] Tennessee's SDWA is the state counterpart to the federal Safe Drinking Water Act, 42 U.S.C.A. §§ 300(f) – (j).

Comp. R. & Regs. 0400-45-01-.34(1)(a). These regulations "protect aquifers and surface water bodies used as potable water supply sources by public water systems from contamination[.]" *Id.* A public water system using a groundwater source must prepare a "wellhead protection plan" that identifies the wellhead's range of supply and any potential contaminant sources within the area. Tenn. Comp. R. & Regs. 0400-45-01-.34.[16] Relatedly, the Tennessee Water Well Act of 1963, as amended in 2002, requires all persons drilling a geothermal, monitoring, or water well to first obtain a license from TDEC. Tenn. Code Ann. § 69-10-101 *et seq.* TDEC's Well Driller Supervision Program oversees this licensing process, and ensures that well siting and construction do not undermine groundwater quantity and quality.[17]

F. Underground Injection Control

Tennessee's Underground Injection Control (UIC) program addresses the potential for subsurface waste disposal to contaminate groundwater.[18] Tennessee's UIC legal framework is set forth in the WQCA. Tenn. Code Ann. § 69-3-105(j).[19] The UIC program prevents potential contamination of Underground Sources of Drinking Water (USDW) from injection wells. "Injection well" is broadly defined as a structure or device used for the emplacement of fluids into a subsurface stratum, including but not limited to a well, a subsurface fluid distribution system,[20] an improved sinkhole, infiltration cell, or modified recharge point. *Id*. No such

[16] Certain information concerning public water systems, including location of intakes, source water protection areas, and well head protection area are deemed confidential and are not open to public inspection. Tenn. Code Ann. § 10-7-504(a)(21)(A)(i); Tenn. Comp. R. & Regs. 0400-01-01-.01(5).

[17] *Well Water*, TENN. DEP'T ENVTL. CONSERVATION, https://www.tn.gov/environment/program-areas/wr-water-resources/water-quality/well-water.html.

[18] https://www.tn.gov/environment/program-areas/wr-water-resources/water-quality/underground-injection-control--uic-.html

[19] In the federal context, the federal Safe Drinking Water Act creates the UIC program.

[20] TDEC regulates small septic tank and drain field systems under the Subsurface Sewage Disposal System law, Tenn. Code Ann. § 68-221-401 *et seq*.

injection is authorized without approval from TDEC. *See generally*, Tenn. Comp. R. & Regs. 0400-45-06.

G. Other Tennessee State Agencies, Roles & Responsibilities

1. Tennessee Department of Agriculture

Tennessee's Department of Agriculture (TDA)—in particular, the Forestry Division and the Land and Water Stewardship Section—addresses the potential impact of land-based agricultural activities upon the waters of our State through the funding of voluntary, on-the-ground improvements,[21] educational efforts, and programs focused on the agricultural enterprises of Tennessee.[22] The Tennessee legislature created TDA by statute[23] in 1923. TDA is the successor to the State Agricultural Bureau that dates all the way back to in 1854. TDA is empowered to "encourage and promote, in every practicable manner, the interests of agriculture, including horticulture, livestock industry, dairying, poultry raising, beekeeping, production of wool, and other allied industries".[24] TDA is under the charge and general supervision of the Commissioner of Agriculture[25] who has the authority to promulgate rules.[26]

Recognizing the importance of agriculture in the State's life and economy, the Tennessee legislature has historically enacted laws that define a public policy that supports and protects agriculture and agricultural uses of land and water. The WQCA generally exempts agricultural and forestry related activities from NPDES and ARAP permitting unless there is a

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[21] These include the best management practices (BMPs) for non-point sources in the Department of Agriculture's Division of Forestry. TENN. COMP. R. & REGS. 0080-07-03-.01.
[22] *Land and Water Stewardship*, TENN. DEP'T AGRIC., https://www.tn.gov/agriculture/farms/conservation.html.
[23] Tenn. Code Ann. § 4-3-201
[24] Tenn. Code Ann. § 4-3-203(1)
[25] Tenn. Code Ann. § 4-3-202
[26] Tenn. Code Ann. § 4-3-203(10)(A)

point source discharge. Tenn. Code Ann. § 69-3-120(g). The WRIA specifically exempts agricultrual activities from the requirement that any person withdrawing 10,000 gallons or more per day from surface or groundwater register with TDEC and annually report withdrawal amounts. Tenn. Code Ann. § 69-7-304(d).

2. Natural Resource Protection

The original common law system of riparian rights governing water allocation in Tennessee allowed for all reasonable water uses that did not involve one user injuring or limiting the similar shared rights of other users. It provided no mechanism, however, to preserve some increment of the water's quantity to protect flora and fauna and the environment of the water body itself for everyone's benefit. Thus, other mechanisms of law were needed to avoid the "Tragedy of the Commons" – where if everyone shares the right to use all of a resource, adjusting those rights only to accommodate each other, then eventually nothing of the resource will be left for anyone.

With this in mind, Tennessee's natural resources—our water, fish, wildlife, forests, grasslands, air, soils, and their interrelationships—eventually came to occupy a central place in Tennessee's legal landscape. In 1870, the General Assembly added an amendment to the State's constitution that specifically authorized "laws for the protection and preservation" of game and fish. Tenn. Const. art. XI, § 13. Following this constitutional directive, Tennessee declared that all wild game and fish "belong[] to the people in their collective capacity."[27] Over

[27] Marge Davis, Sportsmen United: The story of the Tennessee Conservation League, 14 (1997*). Cf, Geer v. State of Conn.,* 161 U.S. 519 (1896), *overruled by Hughes v. Oklahoma*, 441 U.S. 322 (1979).

the next century, Tennessee enacted protections for both wildlife[28] and the natural resources that support a healthy ecosystem. These State laws, such as the State Natural Areas Preservation Act,[29] acknowledged the intrastate value of protecting species in conjunction with their habitats.

Today, Tennessee's natural resource laws are implemented, overseen, or enforced primarily by TDEC, the Tennessee Wildlife Resources Agency (TWRA)[30] and the Tennessee Fish and Wildlife Commission.[31] Tennessee's natural resource laws reflect the inter-relatedness of water, species, and habitat throughout the hydrologic cycle. Historically, in passing laws that protect water availability, threatened species, and diminished habitats, Tennessee's lawmakers highlighted the myriad benefits that accrue to Tennessee citizens from protecting natural resources. For example, the WQCA, § 69-3-101 *et seq.* was enacted one year prior to the Federal Water Pollution Control Act Amendments of 1972 (Clean Water Act[32]), and Tennessee was one of the first states to establish a "scenic rivers" program. The scenic rivers program was designed to protect not only the aesthetic qualities of free-flowing rivers but also the "recreational, geological, fish and wildlife, botanical, historical, archaeological and other

[28] *See* Tenn. Code Ann. Title 70, esp. chapter 4 for wildlife laws.
[29] Tenn. Code Ann. § 11-14-101 *et seq.* Also the State Park Act has the purpose of protection as well as recreation. Tenn. Code Ann § 11-3-102
[30] Tenn. Code Ann. § 70-1-302. The mission of the TWRA is to preserve, conserve, manage, protect, and enhance the fish and wildlife of the state. It has four regional offices across the state and is funded primarily through permit/license fees for hunting and fishing. Tenn. Code Ann. § 70-1-302.
[31] Tenn. Code Ann. § 70-1-201. The Commission is a 13 member body appointed by the Governor and the Speakers of the House and Senate. It hires the executive director, approves a budget, and adopts rules and regulations including setting fees. Tenn. Code Ann. § 70-1-201.
[32] Although the Title of the Water Quality Control Act states that it is the Act of 1977, the 1977 Act amended the original Act passed in 1971.

scientific and cultural values of great present and future benefit to the people."[33] Similar value pronouncements were included in the Conservation Easement Act of 1981[34] and the State Natural Areas Preservation Act. [35]

One of the ways in which adequate water quantity for natural resources is protected is by managing the instream flow of waters (water flowing in a stream channel). Instream flow is primarily protected through Tennessee's NPDES and ARAP permitting programs [discussed supra at Section III. A.].[36] Tennessee's rare and endangered natural resources are primarily protected pursuant to the Rare Plant Protection and Conservation Act of 1985 and the Tennessee Nongame and Endangered or Threatened Wildlife Species Conservation Act of

[33] Tenn. Code Ann. § 11-13-101(b). "[P]riority and especial emphasis" for designating state scenic rivers was to be "given to the preservation of natural, unspoiled, undeveloped river areas," because "Few of these are left in the eastern United States and the general assembly feels a strong obligation to the American people to protect the remarkably beautiful ones in Tennessee."

[34] "It is the finding of the general assembly that the protection of the state's land, water, geological, biological, historical, architectural, archaeological, cultural, and scenic resources is desirable for the purposes of maintaining and preserving the state's natural and cultural heritage, and for assuring the maintenance of the state's natural and social diversity and health, and for encouraging the wise management of productive farm and forest land." Tenn. Code Ann. § 66-9-302.

[35] "The general assembly finds that in the countryside of Tennessee there are areas possessing scenic, scientific, including biological, geological and/or recreational values, and which are in prospect and peril of being destroyed or substantially diminished by actions such as dumping of refuse, commercialization, construction, changing of population densities or similar actions, there being either no regulations by the state or by local governments or regulations which are inadequate or so poorly enforced as not to yield adequate protection to such areas. It is the intention of the general assembly to provide protection for such areas." Tenn. Code Ann. § 11-14-102.

[36] Tenn. Code Ann. § 69-3-108(b)(4). Rule 0400-40-07-.04(5)(c). A central tenet of Tennessee law is that the physical properties of waters may not be altered unless permitted. "Pollution" means such alteration of the physical, chemical, biological, bacteriological, or radiological properties of the waters of this State, including, but not limited to, changes in temperature, taste, color, turbidity, or odor of the waters that will: (A) Result or will likely result in harm, potential harm or detriment to the public health, safety, or welfare; (B) Result or will likely result in harm, potential harm or detriment to the health of animals, birds, fish, or aquatic life; (C) Render or will likely render the waters substantially less useful for domestic, municipal, industrial, agricultural, recreational, or other reasonable uses; or (D) Leave or likely leave the waters in such condition as to violate any standards of water quality established by the board. Tenn. Code Ann. § 69-3-103.

1974,[37] as well as the federal Endangered Species Act.[38] The State's protection of aquatic species and plant communities is also tied to the State's protection of instream flow and water quantity.[39] Indeed, because the health of aquatic natural resources depends on the amount of water available, the State's regulations defining how much of an impact constitutes pollution state: "Stream or other waterbody flows shall support the fish and aquatic life criteria."[40] Moreover, when TDEC evaluates a permit application and determines the conditions necessary to protect fish and aquatic life, a stream's assimilative capacity for waste is evaluated based on factors including volume and rate of flow.[41]

TDEC and TWRA are tasked with protecting wildlife by prohibiting the destruction of aquatic life and habitat.[42] For example, with respect to TDEC, the WQCA provides protection for aquatic life, both in the water itself and for the habitat necessary for fish and other aquatic

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[37] Tenn. Code Ann. § 70-8-301; Tenn. Code Ann. § 70-8-101; Tenn. Comp. R. & Regs. 0400-06-02-.03 (listing criteria for listing a rare plant as endangered, threatened, or of special concern). Tenn. Comp. R. & Regs. 1660-01 (Wildlife Resources); Tenn. Comp. R. & Regs. 1660-01-14-.10 (State Operated Wildlife and/or Waterfowl Refuges).

[38] 16 U.S.C. § 1531 et seq.

[39] The statutes enforced by TWRA provide that any activity that is injurious to fish or other aquatic organisms or destructive of habitat is a class A misdemeanor. Tenn. Code Ann. § 70-4-206(a)

[40] Tenn. Comp. R. & Regs. 0400-40-03-.03(o).

[41] Tenn. Comp. R. & Regs. 0400-40-03-.02(3); Tenn. Comp. R. & Regs. 0400-40-03-.03 (Criteria for Fish and Aquatic Life). Tenn. Comp. R. & Regs. 0400-40-03-.03(m) ("The waters shall not be modified through . . . physical alteration to the extent that the diversity and/or productivity of aquatic biota within the receiving waters are substantially decreased or, in the case of wadeable streams, substantially different from conditions in reference streams in the same ecoregion."); Tenn. Comp. R. & Regs. 0400-40-03-.03(n) ("The quality of stream habitat shall provide for the development of a diverse aquatic community that meets regionally-based biological integrity goals. Examples of parameters associated with this criterion include but are not limited to: . . . embeddedness of riffles, velocity/depth regime, ... Types of activities or conditions which can cause habitat loss include, but are not limited to: . . . stream flow changes . . . .").

[42] TWRA provision, Tenn. Code Ann. § 70-4-206(a) ("No pollution, including, but not limited to, dye waste, petroleum products, brine waste, refuse from a mine, sawmill or construction activity, industrial or domestic sewage, or any deleterious or poisonous substance or activity, shall be thrown or be caused, or allowed to run into, wash into or take place in any waters, either private or public, in a manner injurious to fish life or other aquatic organisms, or that could be injurious to the propagation of fish, or that results in the destruction of habitat for fish and aquatic life."). TDEC provision, Tenn. Comp. R. & Regs. 0400-06-02-.13(2) ("The Commissioner may suspend, revoke, and/or deny the issuance of a license or permit to a nursery farmer, or person who takes for scientific, educational, or propagative purposes, who violates the act or these regulations.").

species. Under the Act, activities that adversely affect the "biological properties" are unlawful unless permitted[43] and, if an activity will "result or will likely result in harm, potential harm or detriment to… fish, or aquatic life," it is unlawful pollution subject to a civil penalty assessment; criminal prosecution may follow for a felony if the activity is willful and knowing.[44]

Tennessee law also contains protections for natural resources of a high quality or on public lands. For example, water below ground surface is classified as "special source waters" if it is of an exceptional quantity which is ecologically significant. Tenn. Comp. R. & Regs. 0400-40-04-.07(4)(a). Also, water levels in natural areas may not be altered unless previously altered and necessary for a management plan essential for the maintenance of the area.[45]

Finally, protection for aquatic habitat and/or funding mechanisms for the acquisition of natural resources are contained in the Wildlife Preserves and Restoration Projects Act,[46] urban growth boundary requirements,[47] the real estate transfer tax,[48] and the Tennessee Heritage Conservation Trust Fund Act of 2005.[49]

IV. TENNESSEE WATER UTILITY SYSTEMS LEGAL FRAMEWORK

A. Types of Water Systems in Tennessee

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[43] Tenn. Code Ann. § 69-3-108(b).
[44] Tenn. Code. Ann. § 69-3-115(a) and (c).
[45] Tenn. Comp. R. & Regs. 0400-02-08-.20 (Water Level Control). *See also* Tenn. Comp. R. & Regs. 0400-02-09-.20 (Water Level Control).
[46] *See* Tenn. Code Ann. § 70-5-101(a).
[47] "Each rural area shall . . . . Reflect the county's duty to manage growth and natural resources in a manner that reasonably minimizes detrimental impact to agricultural lands, forests, recreational areas and wildlife management areas." Tenn. Code Ann. § 6-58-106(c).
[48] Tenn. Code Ann. § 67-4-409. Subsection (g) (wetlands acquisition fund); subsection (i) (Local Parks Land Acquisition Fund); subsection (j) (State Lands Acquisition Fund); subsection (l) (Agricultural Resource Acquisition Fund).
[49] Tenn. Code Ann. § 11-7-101 *et seq.*

Utilities that provide drinking water service to end-user customers in Tennessee are regulated community public water supply systems and consist primarily four types of entities: municipalities and counties; utility districts; investor-owned utilities; and water cooperatives and homeowners associations. When available, these water utilities also provide water for irrigation and fire protection within their service areas. The vast majority of water service is provided by public water systems owned and operated by cities, counties and utility districts, all of which are governmental entities. There are less than ten investor-owned water utilities in Tennessee. There are approximately five water cooperatives that operate water systems in Tennessee, and there are a few homeowners associations which operate very small water distribution systems in Tennessee.

1. Municipal Water Systems

Tennessee cities, towns, and metropolitan governments (municipalities) have the power to operate water systems pursuant to several general laws that authorize their creation and give them the authority to operate public utilities.[50] In addition, many municipalities operate water systems under authority provided in State private acts (the municipal charters of such cities and towns). Because of the variety of both general laws and private acts under which Tennessee municipalities own and operate water systems, the operations and powers of municipal water systems vary. Nevertheless, municipal water systems generally fall into three categories (based upon the governing boards with primary responsibility for their operations):

[50] Tenn. Code Ann. § 6-2-201(11) (Mayor-Aldermatic Charter); Tenn. Code Ann. § 6-19-101(11) (City Manager-Commission Charter); Tenn. Code Ann. § 6-33-101(a) (Modified City Manager-Commission Charter Charter); Tenn. Code Ann. § 7-3-302 (Metropolitan Governments; Revenue Bond Law, Tenn. Code Ann. §§ 7-34-101 to -118; Tenn. Code Ann. §§ 7-35-401 to -432.

(1) water systems operated as a department of the municipality where the governing board of the municipal water system is the governing board of the municipality;[51]

(2) water systems operated by a separate utility board created by general law or a private act;[52]

(3) water systems operated by independently created municipal authorities which provide water service and may provide sewer, natural gas, or electric services as well.[53]

Municipal Water Departments. Municipal water systems operated as a department of a city, town, or metropolitan government function much like any other municipal department. The governing board of the municipal water system is the municipal legislative body comprised of the elected officials of that body. The power to establish water rates, to adopt rules and regulations for water service, to approve contracts for the operation and maintenance of the water system, and to finance water system capital improvements are vested in the municipal legislative body.

Municipal Utility Boards. Municipal utility boards created under general law or by private act are granted the power and authority to supervise and control the operation, maintenance, construction, improvement, and extension of a municipal water system. While these utility boards are independent, they are not separate governmental entities. Debt issued to finance the acquisition, construction, or improvement of the municipal water system is

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[51] *See* Charter of the Metropolitan Government of Nashville and Davidson County, Tennessee § 8.501; Johnson City Municipal Code § 18.401.

[52] *See* Columbia Municipal Code § 18.301 creating the Board of Public Utilities of the City of Columbia, Tennessee pursuant to Tenn. Code Ann. § 7-35-407; Ordinance No. 943 of Board of Mayor and Council of City of Lawrenceburg, Tennessee (July 2001) creating the Lawrenceburg Board of Public Utilities pursuant to Tenn. Code Ann. §§ 7-52-107 and 111.

[53] *See* 2001 Tenn. Private Acts Chap. 55 creating the Jackson Energy Authority; 2016 Tenn. Private Acts Chap. 54 creating the Tullahoma Utilities Authority.

issued in the name of the municipality. Most utility boards adopt customer rates and charges for water service for their municipal water systems. However, the customer rates and charges adopted by some utility boards must be approved by the municipal governing body.[54] Two of the largest municipal water systems in Tennessee, in the cities of Memphis and Knoxville, are operated by separate utility boards created wholly or in part by private acts of the Tennessee legislature.[55]

Municipal Utility Authorities. The legislature has created several municipal energy authorities and municipal utility authorities by private act (collectively, "municipal utility authorities"). After a municipal utility authority is created, the municipality conveys its utility systems to the utility authority, which then has full discretion to supervise and control the operation, maintenance, construction, improvement, and extension of the municipal water system and any other municipal utility systems conveyed to the utility authority. The governing boards of these municipal utility authorities are appointed as set forth in each authority's private act. Municipal utility authorities are separate, independent governmental entities that have the power to issue municipal bonds in their own names to finance the construction or improvement of their municipal water systems.

2. County Water Systems

Under Title 5, Chapter 16 of Tennessee Code Annotated, counties have the power to own and operate public water systems. Counties may operate their water systems by using an existing county agency, creating a county public works department, or creating a county board

[54] 1939 Tenn. Private Acts Chap. 381, Sec. 7, creating Memphis Light, Gas and Water.

[55] Memphis Light, Gas and Water, 1939 Tenn. Private Acts Chap. 381; Knoxville Utilities Board, 1939 Tenn. Private Acts Chap. 106.

of public utilities. Tenn. Code Ann. § 5-16-102. In the seven[56] Tennessee counties that have created water systems, six of the water systems are operated by a county board of public utilities. County boards of public utilities operate similarly to municipal utility boards. The board members are appointed by the county mayor and are confirmed by the county legislative body. Tenn. Code Ann. § 5-16-103.

County boards of public utilities have the power and authority to supervise and control the acquisition, improvement, operation, and maintenance of county water systems. A county board of public utilities establishes customer rates and charges for water service, and adopts rules and regulations governing the provision of water service for the county water system. County boards of public utilities are independent boards, but they are not separate governmental entities. Debt issued to finance the acquisition, construction, or improvement of a county water system must be issued by the county.

In 1974 the legislature enacted the Water and Wastewater Treatment Authority Act, Tenn. Code Ann. §§ 68-221-601 to -620, which allowed counties to create an authority to acquire, construct and operate a water and/or sewer system.[57] Only one water and wastewater treatment authority created in Tennessee provides water service: The Water and Wastewater Authority of Wilson County. The board members are appointed by the county mayor of the creating county and are confirmed by the county legislative body. Like municipal

[56] This number excludes county utility authorities created by private act and county water and wastewater treatment authorities.

[57] While the Water and Wastewater Treatment Authority Act appeared to create a statutory procedure to allow municipalities, counties and utility districts to combine their water and sewer systems, only one authority has used the act for this purpose. Hamilton County created the Hamilton County Water and Wastewater Treatment Authority which has constructed a sewer system for unserved areas of Hamilton County and which acquired some municipal sewer systems in Hamilton County.

utility authorities, water and wastewater treatment authorities are separate, independent governmental entities. Any creating county or participating governmental entity may, but is not required, to issue bonds for the benefit of the authority.

3. Utility Districts

Utility districts are governmental entities which are created for the purpose of providing water, sewer, and other authorized utility services. There are approximately 160 utility districts that provide water service in Tennessee. Most water utility districts were created in rural areas and serve less than 5,000 customers. There are several water utility districts that now serve urban and suburban areas in Tennessee, as their service areas have changed from rural to urban and suburban areas with population growth.

Water utility districts are created by and operate their water systems pursuant to the Utility District Law of 1937, Tenn. Code Ann. §§ 7-82-101 to -804. The power to operate a utility district is vested in the utility district's board of commissioners. Utility district commissioners are appointed by the county mayor or county mayors of the counties where the utility district serves. Utility districts are independent governmental entities.[58] They are not an agency of the county or counties in which they are created and operate. Utility districts have no taxing power. They operate their utility systems solely from revenues received from rates and fees charged to their customers.

4. Investor-Owned Water Utilities

[58] Under Tenn. Code Ann. § 7-82-301(a), a utility district is "a 'municipality' or public corporation in perpetuity under its corporate name." *See First Suburban Water Util. Dist. v. McCanless*, 177 Tenn. 128, 130, 146 S.W.2d 948, 950 (1941).

Investor-owned water utilities in Tennessee are regulated by the Tennessee Public Utilities Commission (TPUC). Tenn. Code Ann. §§ 65-4-101(6), 65-4-104. The TPUC is a state agency which has broad regulatory jurisdiction over the operations of investor-owned utilities in Tennessee. An investor-owned water utility must obtain a certificate of convenience and necessity from the TPUC before providing water service in Tennessee or expanding service to new areas. Tenn. Code Ann. § 65-4-201. The TPUC must approve all customer rates and charges for water service charged by a investor-owned water utility. Tenn. Code Ann. § 65-5-101. The TPUC must also approve all of the rules and regulations governing the provision of water service to the customers of investor-owned water utilities. Tenn. Code Ann. § 65-4-117(a)(5). Investor-owned water utilities must obtain a franchise from any municipality within which it seeks to provide water service; however, any franchise agreement between a municipality and investor-owned water utility must be approved by the TPUC.

Currently, the TPUC has issued certificates to seven investor-owned utilities to provide water service within Tennessee.[59] All of these water utilities are very small except for the Tennessee American Water Company which provides water service to approximately 78,000 customers in Chattanooga and surrounding communities.

5. Water Cooperatives and Homeowner Associations

Tennessee has approximately five small water cooperatives which are nonprofit corporations that provide water service to their members. Water cooperatives are exempt from federal income tax under Section 501(c)(12) of the Internal Revenue Code. Because water cooperatives provide services to their members, they do not have an exclusive geographic

[59] See https://www.tn.gov/content/dam/tn/publicutility/documents/utilitydivdocs/listofnontelecomutilities.pdf

service area. Historically, water cooperatives have not been regulated by the TPUC[60] and are not regulated by any state agency except TDEC which establishes drinking water quality standards for all public water systems in Tennessee. Water cooperatives set their own rates for water service and establish their own rules and regulations for providing water service to their customer-members.

There are a few nonprofit homeowners associations or property owners associations in Tennessee which operate a drinking water system to supply water service within a subdivision or development. Generally, these water systems are constructed when no other water utility is willing or available to serve a subdivision or development. These association water systems are usually small.[61] Water systems owned and operated by an association are generally not subject to regulation by the TPUC or by any other state agency except TDEC for drinking water quality standards. Therefore, they set their own rates for water service and establish their own rules and regulations for providing water service to their customer-members.

B. Ratemaking

1. Municipal and County Water Systems

The rates, fees, and charges for water service provided by municipal and county water systems are established by the governing boards of those systems. Except as set forth in this section regarding the Water and Wastewater Financing Board, no state agency has any regulatory power to establish or review the rates of municipal or county water systems. Under Tenn. Code Ann. § 7-34-115(a), municipal and county water systems must be self-sufficient

[60] However, in 2011 the Tennessee legislature amended the definition of exempt utility cooperatives to only include electric and telephone cooperatives. Tenn. Code Ann. § 65-4-101(6)(A)(v).

[61] Because homeowner associations typically serve a single subdivision, their water systems usually serve less than 100 customers.

entities. Utility rates charges and fees must "reflect the actual cost of providing the services rendered." Revenues from a municipal water, sewer, electric or natural gas system cannot be used to fund any other municipal purposes.

In 1987, the legislature created the Water and Wastewater Financing Board (WWFB) to "effect reasonable user rate increases or to effect system efficiencies through the negotiated consolidation of certain water systems and wastewater facilities." Tenn. Code Ann. § 68-221-1007. The WWFB has jurisdiction over water systems operated by any city, town, metropolitan government, county or water authority created by general law or private act. A community public water supply system becomes subject to the jurisdiction of the WWFB when its annual audit shows the water system is "financially distressed." Tenn. Code Ann. § 68-221-1010(a)(1). If a public water system fails to implement a rate structure to improve its financially distressed position, the WWFB has the power to enter an order mandating the rates it deems are necessary to make the public water system operate in a financially self-sufficient manner. Tenn. Code Ann. § 68-221-1010(c).

2. Utility Districts

Pursuant to Tenn. Code Ann. § 7-82-403, a utility district must establish and collect reasonable rates, fees, tolls, or charges for its services so that the utility district always remains self-supporting. A utility district's rates are set by its board of commissioners. No state agency reviews or sets the water rates of a utility district's customers except for the limited review of

rates granted to the Utility Management Review Board (the UMRB)[62] which power is rarely used.

The UMRB serves a similar function for water and sewer utility districts as the WWFB does for municipal and county water and sewer systems. When a utility district's annual audit shows that the utility district is financially distressed, the UMRB has the power to enter an order mandating the rates it deems are necessary to ensure the utility district operates in a financially self-sufficient manner. Tenn. Code Ann. § 7-82-703.

3. Investor-Owned Water Utilities

The TPUC regulates the rates charged by investor-owned water utilities in Tennessee. Tenn. Code Ann. §§ 65-5-101 to -104. When an investor-owned water utility wants to increase rates, the utility must file a petition for rate increase with the TPUC. The TPUC conducts a contested case hearing on the rate increase and enters an order granting all, some or none of the requested rate increase. The TPUC must ensure that investor-owned water utilities charge "just and reasonable rates" which "takes into consideration the interests of both the consumer and the utility." *Tennessee Cable Television Ass'n v. Tennessee Pub. Serv. Comm'n*, 844 S.W.2d 151, 159 (Tenn. Ct. App. 1992).

4. Water Cooperative and Associations

These water utilities are non-profit entities. Water rates set by the governing boards of these water utilities are not subject to oversight by the WWFB, UMRB, TPUC or any state or local government agency.

[62] Under Tenn. Code Ann. § 7-82-102, the UMRB may review the water rates of a utility district upon the petition of 10% of the utility district's customers. Under Tenn. Code Ann. § 7-82-402, the UMRB may review the decision of a utility district's board on customer rate protest which rate protest may be filed after the annual publication of a utility district's financial condition.

C. Water System Service Areas

Most water utilities in Tennessee have some degree of exclusivity or priority in providing service within their service areas or boundaries. Municipal water systems have the exclusive right to provide service within the municipality's limits. When a municipality annexes territory, the municipality may elect to provide water service within any annexed territory when it operates its own municipal water system. Tenn. Code Ann. § 6-51-111. Utility districts providing water service have the exclusive right to provide water service within their boundaries. Tenn. Code Ann. § 7-82-301(a). An investor-owned water utility has the exclusive right to provide service within the geographic boundaries set forth in its certificate of convenience and necessity issued by the TPUC. County water systems which are operated by a county board of public utilities do not have an exclusive service area under Tennessee law. County water authorities created by private act generally are granted an exclusive right to provide water service within a defined service territory. A county water and wastewater system treatment authority may designate its own exclusive service area. Tenn. Code Ann. § 5-6-120.

Federal law provides many rural water utilities in Tennessee with service area protection not available under Tennessee law. Beginning in 1961, Congress authorized the United States Department of Agriculture (USDA) to make loans and grants to rural water utilities to make water line extensions and improvements to expand drinking water systems into rural areas in the United States. When a rural water utility borrows money from USDA to acquire or construct water system improvements, "[t]he service provided or made available through any such [rural water utility] shall not be curtailed or limited by inclusion of the area

served by such association within the boundaries of any municipal corporation or other public body." 7 U.S.C. § 1926(b). Therefore, a water utility district which has an outstanding loan from USDA has a prior right to continue providing water service in any area where the water utility district has made water service available even when a municipality annexes territory within a water utility district's service area. *Ross Cty. Water Co. v. City of Chillicothe*, 666 F.3d 391 (6th Cir. 2011); *Lexington-S. Elkhorn Water Dist. v. City of Wilmore, Ky*., 93 F.3d 230, 233 (6th Cir. 1996). These cases hold that the service area protection provided to rural water utilities by 7 U.S.C. § 1926(b) preempts state law.

Most water utility districts in Tennessee have an outstanding loan from USDA. Rural county water systems, small municipal systems, and water cooperatives are also eligible for funding from USDA for rural water system improvements, and several of these systems have such loans. The service area protection provided by 7 U.S.C. § 1926(b) to rural water systems has a substantial impact on these water systems and adjacent water service providers. The term of most USDA loans is 38 years, and eligible water systems can borrow additional funds from USDA before an outstanding loan is paid off, allowing it to preserve the service area protection provided under federal law for long periods of time.

D. Merger, Consolidation and Sales of Water Systems

The merger, consolidation, or sale of water systems in Tennessee is rare. A municipality or county may sell or transfer its public water system to another water utility by agreement. No State agency must approve the sale, although the TPUC must approve the acquisition of any water utility system by an investor-owned water utility. Tenn. Code Ann. §§ 65-4-107, -201. The most recent sale or transfer of a municipal water system to an investor-owned water utility

occurred in 2013 when the Tennessee Regulatory Authority (now the TPUC) approved the acquisition of the City of Whitwell's water system by the Tennessee American Water Company.[63]

For the purpose of more efficiently and conveniently furnishing water service to its customers, a utility district may petition a county mayor (or the county mayors in multi-county utility districts) to approve: (1) the merger or consolidation of the utility district with another utility district; or, (2) to approve the consolidation of the utility district with a municipality or a county by transferring all of its property and obligations to the municipality or county. Tenn. Code Ann. § 7-82-202(e). No State agency must approve the merger or consolidation of a utility district with another utility district, municipality or county. According to the records of the UMRB, since 2010 five utility districts have either merged with other utility districts or consolidated with municipal or county water systems. A utility district has no legal authority to sell its water system to an investor-owned water utility. *See United Cities Gas Co. v. Wigington*, 815 S.W.2d 506, 509 (Tenn. 1991).

An investor-owned water utility may sell its water system to a municipality, county, utility district or water cooperative by agreement without obtaining the approval of the TPUC. Tenn. Code Ann. § 65-4-112(b). An investor-owned utility is only required to get the approval of the TPUC when it sells its water system to another investor-owned water utility or merges into another investor-owned water utility. Tenn. Code Ann. §§ 65-4-112(a), -113.

[63] Joint Petition of Tennessee American Water Company, The City of Whitwell, Tennessee, and The Town of Powells Crossroads, Tennessee for Approval of a Purchase Agreement and a Water Franchise Agreement and for the Issuance of a Certificate of Convenience and Necessity, No. 12-00157 (Tenn. Regulatory Authority, Oct. 15, 2013).

Water cooperatives and associations may sell their water systems by agreement; however, the TPUC must approve the acquisition of any water utility system by an investor-owned water utility.

Some water utilities have consolidated or financed the construction of joint water supply and water treatment plant facilities pursuant to private acts enacted by the Tennessee legislature. In 1990 the legislature enacted Chapter 124 of the 1990 Tennessee Public Acts, as amended by Chapter 51 of the 2001 Tennessee Private Acts, to create the Water Authority of Dickson County to provide a vehicle for water utilities in Dickson County to consolidate and jointly finance the construction of a new connection to the Cumberland River to increase water supply in Dickson County.

E. Interlocal Agreements and Joint Cooperation

Under the Interlocal Cooperation Act, Tenn. Code Ann. § 12-9-101 to -112, local governments may by agreement jointly exercise their powers and authority with any other public agency of this State having the same powers and authority. A few cities and counties have used the Interlocal Cooperation Act to jointly operate water systems and jointly finance new water supply and treatment facilities. The cities of Caryville and Jacksboro in Campbell County have operated a joint municipal water system for many years as the Caryville-Jacksboro Utilities Commission. The cities of Manchester and Tullahoma created a new entity, the Duck River Utility Commission, which financed the construction of a new water intake and water treatment plant on TVA's Normandy Reservoir to supply treated water to the Manchester and

Tullahoma municipal water systems.[64] In addition, most water systems have agreements with neighboring systems for permanent, intermittent, or emergency water supply.

F. Authority to Require Consolidation

There is no statutory authority to mandate the consolidation of water utilities. Under Tenn. Code Ann. § 69-7-308, the Commissioner of TDEC and the Board are directed to "encourage and support regional water planning whenever possible." If a water utility eligible for a loan from the State drinking water revolving loan fund does not have the requisite technical, managerial, and financial capability for its system, the loan may be conditioned upon appropriate changes in operations of the water utility as required by the WWFB or the UMRB, which may include changes in "ownership, management, accounting, rates, maintenance, consolidation, alternative water supply, or other procedures." Tenn. Code Ann. §§ 7-82-709(a), 68-221-1206(a)(3).

Under Tenn. Code Ann. § 7-82-704(a), the UMRB "may consider the consolidation of the utility district with another utility district or districts, municipal utility system or county utility system to restore financial stability and to ensure continued operations for the benefit of the public being served by the utility district." The UMRB may mandate that a financially distressed utility district negotiate a potential consolidation with another utility district, municipality, or county, but the UMRB does not have the power to order such a consolidation.

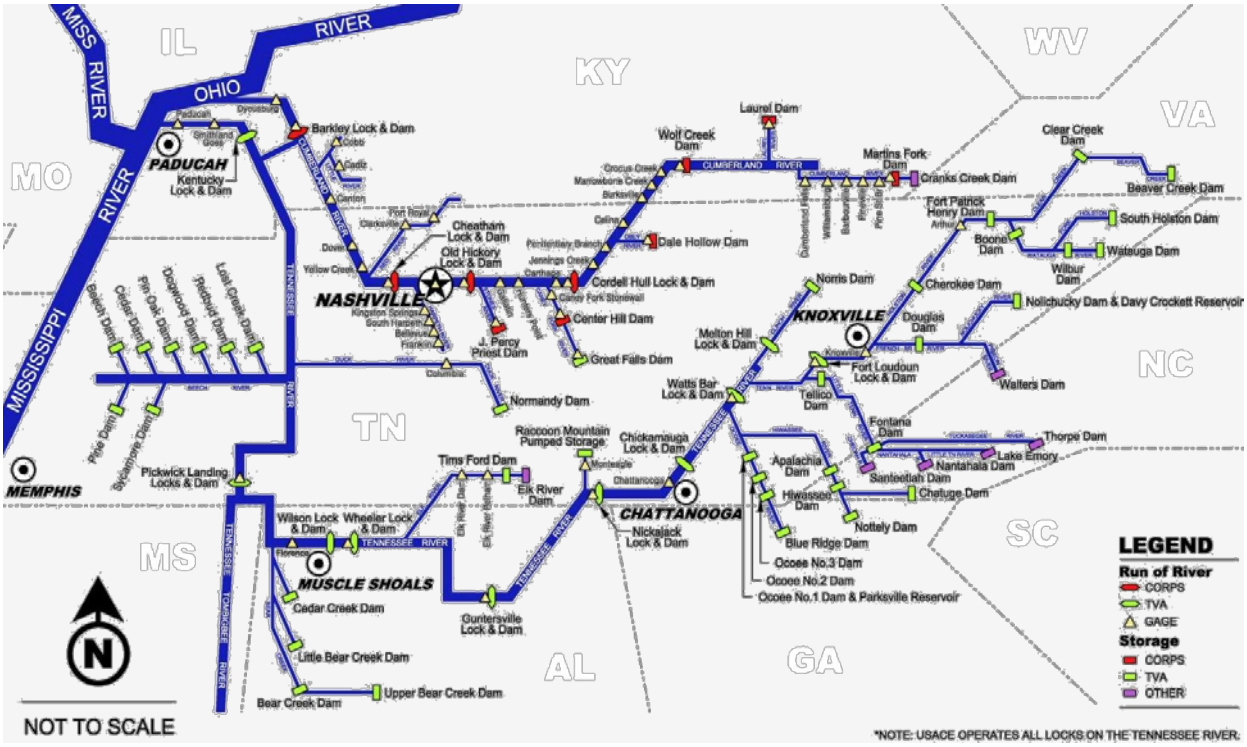
[64] http://www.druc.org/home.html

V. FEDERAL OVERLAY – U.S. ARMY CORPS OF ENGINEERS & TENNESSEE VALLEY AUTHORITY

A. Federal Authority

Federal water supply policy has been developed over a number of years and is still being clarified and extended by legislation and regulation. As with federal water pollution control, this policy recognizes a significant federal interest in the long-term management of water supplies but considers municipal and industrial (M&I) water supply development and management to be the primary responsibility of states and local entities.

In Tennessee, the significant federal presence of the USACE and the TVA exists as shown on the below figure. The USACE and TVA coordinate daily operations between the two rivers.



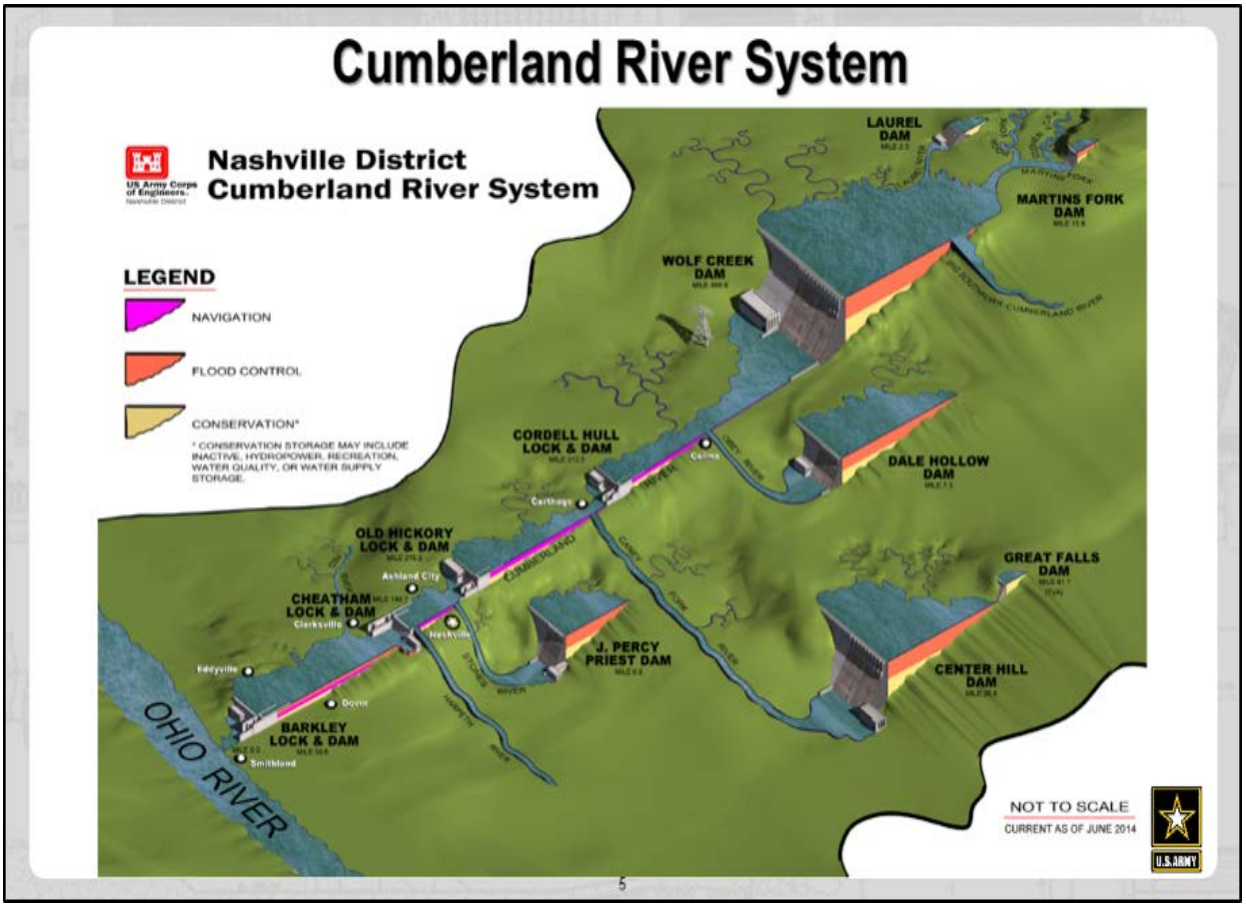
B. U.S. Army Corps of Engineers

The USACE is a direct reporting unit under the command of the Department of the Army. In accordance with congressional authorization, the USACE may participate and cooperate in developing water supplies through the construction, operation, and modification of federal multi-purpose projects, subject to conditions of non-federal participation. USACE projects in the Cumberland River system consist of lock and dam projects on the main stem and reservoir projects on tributaries and headwaters. USACE-provided water supply services generally mean providing reservoir space for storing water, and facilities in the project structure for withdrawing the stored water for water supply purposes. The Water Supply Act of 1958, 43 U.S.C. § 390b, as amended, a general discretionary authority applicable to all USACE reservoir projects, is the primary vehicle for USACE involvement in water supply storage.

Congress authorizes the purposes served by USACE water resources development projects. Most purposes served by USACE reservoir projects fall into eight general categories: flood control, navigation, hydroelectric power, irrigation, M&I water supply, water quality, fish and wildlife, and recreation. The laws in which Congress provides the purposes that a reservoir project is to serve may be grouped into three general categories: (1) laws initially authorizing construction of the project; (2) laws specific to the project passed subsequent to construction; and (3) laws that apply generally to all USACE reservoir projects.

Specific project authorizations are commonly found in a series of River and Harbor Acts, Flood Control Acts, and Water Resources Development Acts passed by Congress since 1870. The specific purposes for which USACE projects on the Cumberland River were commonly authorized include flood control, navigation, and hydropower. General authorities, in contrast,

allow for the addition of project purposes without specific congressional authorization, provided the requirements of the respective authorities are met. Congress has granted general authority to operate USACE reservoirs for several purposes, including recreation (16 U.S.C. § 460d and 16 U.S.C. § 460l-12, *et seq*.), M&I water supply (43 U.S.C. § 390b), and fish and wildlife conservation (16 U.S.C. § 662, *et seq.*), as long as such operations are consistent with the purposes Congress specifically authorized for the reservoirs. In addition, USACE activities are implemented consistent with the preservation of threatened or endangered species and habitat (16 U.S.C. § 1535, *et seq*.). The graphic below provides an example of USACE authorizations related to the Cumberland River System.



The USACE is also responsible for water control management at the reservoir projects it owns and operates throughout the United States. The USACE Nashville District's Water Management Program maintains the Cumberland River system in partnership with other federal, state, and local governmental entities. The basic objectives of USACE water control management for USACE projects with controlled reservoir storage are: (1) operate in accordance with authorized purposes and applicable law; (2) maintain the structural and operational integrity of the project; and (3) avoid risk to public health and safety, life, and property. The balancing of water use demands and priorities is defined in the project's water control plan, which can include coordinated reservoir regulation schedules for project or system regulation. A reservoir regulation schedule is a compilation of operating criteria, guidelines, rule curves and specifications for storage and release functions of a reservoir. Close coordination with all appropriate international, federal, state, regional, and local governmental authorities and stakeholders should be maintained in the development and execution of water control plans, and all water control management plans should have associated drought contingency plans.

A typical USACE multi-purpose reservoir consists of three pools: a flood control pool, a conservation pool, and an inactive or sediment pool. The flood control pool is normally kept empty to allow storage of runoff during times of high inflow. The conservation pool can consist of dedicated storage for one or more purposes such as: hydropower, navigation, water supply, water quality, and irrigation. The inactive pool is normally set aside for hydropower head or to store the sediment expected to accumulate over the life of the project.

1. Water Supply Act of 1958

The Water Supply Act of 1958 (Pub. L. No. 85-500), 43 U.S.C. § 390b, allows M&I water supply storage space to be included in any reservoir project surveyed, planned or constructed by USACE, provided that state or local interests agree to pay for the cost of the storage provided.[65] Under the Water Supply Act, storage may be included in the plans for a reservoir, or provided from storage at an existing reservoir project. A "reallocation" of storage is the reassignment of the use of existing storage space in a dam and reservoir project to another purpose. Any modification of a planned or existing reservoir project that would seriously affect the purposes for which the project was authorized, surveyed, planned or constructed, or would involve major structural or operational changes, must be approved by Congress.

The Water Resources Development Act (WRDA) of 1986 (Pub. L. No. 99-662) must also be taken into consideration with respect to USACE reservoir storage allocations under the Water Supply Act of 1958. WRDA established new cost sharing rules for all studies and projects conducted by USACE, placing greater financial responsibilities on non-federal sponsors. Section 103 provides that non-federal sponsors must pay 100% of the share of the cost assigned to M&I water supply in a project. Section 932 of WRDA 1986 specifically amended the Water Supply Act of 1958 by eliminating the 10-year interest free period for future water supply, modifying the interest rate formula, reducing the repayment period for reallocated storage from 50 years to 30 years from the date on which the storage is made available, and requiring allocated

[65] Federal funding for water supply storage reallocation studies is difficult to obtain. Section 111 of the Energy and Water Appropriations Act of 2012 (Pub. L. No. 112-74), however, amended the contributed funds authority codified in 33 U.S.C. § 701h, allowing USACE to accept and expend voluntarily contributed funds from state and political subdivisions to complete water supply storage reallocation studies. Potential contributors should submit an inquiry to their local USACE district office.

operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) costs to be reimbursed on an annual basis.

Water storage agreements between state and local interests and the Department of the Army under the Water Supply Act include all costs allocated to the storage space included in the reservoir project for present use and future water supply. For new projects, non-federal costs are based on the actual development costs allocated to the water supply storage. For reallocations of storage for water supply, the cost for storage allocated to a non-federal sponsor will normally be established as the highest of the benefits or revenues foregone, the replacement cost, or the updated cost of storage in the project (*i.e.*, the cost of the storage as if the project were constructed today). The non-federal entity is also responsible under either scenario for a proportionate share of the annual costs, including specific and joint-use OMRR&R costs. Water supply agreements entered into under the Water Supply Act are for storage space only and do not guarantee a yield.

Per Public Law No. 88-140, non-federal sponsors can acquire a permanent right to use storage after they have repaid the costs of the storage provided in the project under an agreement with the federal government. Their rights to use the storage continue as long as the storage is physically available, taking into account equitable reallocations as necessitated by sedimentation. The user also must continue to pay its share of annual operation and maintenance costs allocated to the water supply storage, together with its share of the costs allocated to any necessary repair, reconstruction, rehabilitation, or replacement of any features which may be required to operate the project. Surplus water agreements executed under the

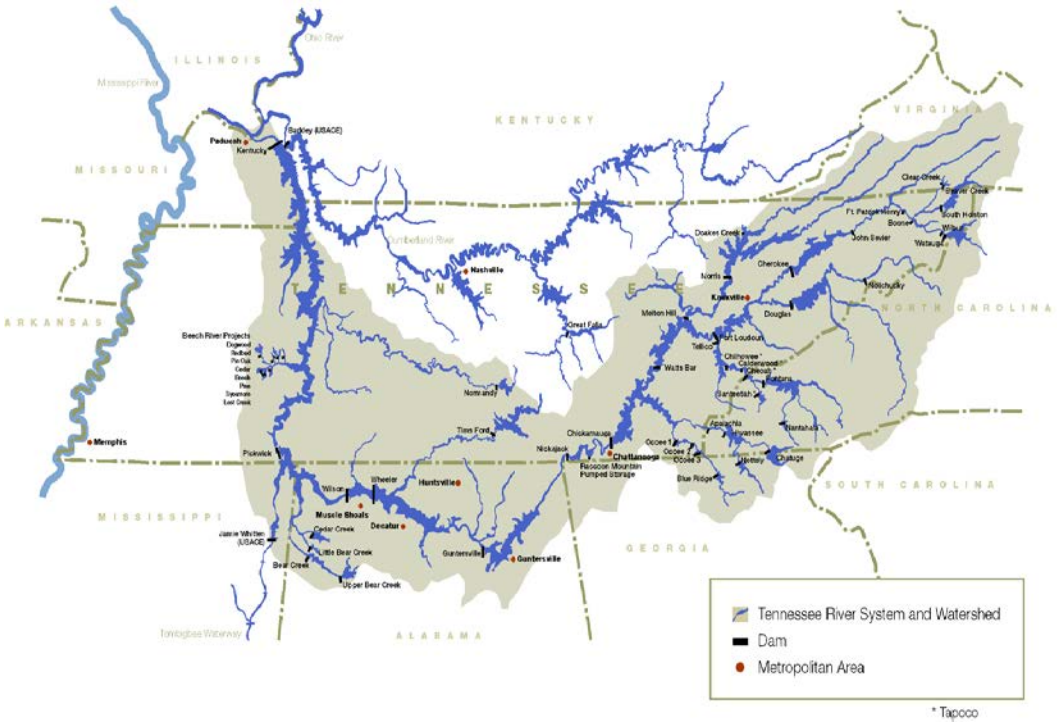
authority of section 6 of the Flood Control Act of 1944, in contrast, do not provide permanent rights to storage.

2. Section 6 of the Flood Control Act of 1944

Under section 6 of the Flood Control Act of 1944 (Pub. L. No. 78-534), 33 U.S.C. § 708, the Secretary of the Army is authorized to enter into agreements with states, municipalities, private concerns, or individuals for uses of surplus water for domestic, municipal, and industrial uses at any reservoir under the control of the USACE at such prices and on such terms as the Secretary may deem reasonable. Surplus water is classified as either (1) water stored in a USACE reservoir that is not required because the authorized use for the water never developed or the need was reduced by changes that have occurred since authorization or construction, or (2) water that would be more beneficially used as municipal and industrial water than for the authorized purpose that, when withdrawn, would not significantly affect authorized purposes over some specified time period. In providing surplus water under the authority of section 6 during drought or other emergencies affecting M&I water supplies, the USACE's preferred approach is for a state or subdivision of the state to enter into an agreement with the Secretary of the Army to agree to act as a wholesaler for all of the water requirements of individual users.

C. Tennessee Valley Authority

The TVA is a multi-purpose federal corporation responsible for managing a range of programs for the use, conservation, and development of the water resources related to the Tennessee River system (shown below).



1. The TVA Act

The TVA Act authorized the agency to construct and operate dams and reservoirs in the Tennessee River and its tributaries to control destructive floods and to promote navigation. In carrying out this mission, TVA operates a system of dams and reservoirs with associated facilities to manage the water resources of the Tennessee River for myriad purposes including navigation, flood control, power production, recreational opportunities and other public benefits. TVA also acts as a steward of the quality of the water resources, water quality and aquatic life that inhabits the Tennessee River. The authority for these activities is found both in the preamble to the TVA Act and in Section 22, which gives TVA broad responsibility for developing the natural resource systems of the Tennessee River and provide for the general welfare of area citizens. 16 U.S.C. § 831u.

Section 26a of the TVA Act is a key tool in TVA's management of the Tennessee River system. It provides:

> The unified development and regulation of the Tennessee River system requires that no dam, appurtenant works, or other obstruction, affecting navigation, flood control, or public lands or reservations shall be constructed, and thereafter operated or maintained across, along, or in the said river or any of its tributaries until plans for such construction, operation, and maintenance shall have been submitted to and approved by the [TVA] Board; and the construction, commencement of construction, operation, or maintenance of such structures without such approval is hereby prohibited. When such plans shall have been approved, deviation therefrom either before or after completion of such structures is prohibited unless the modification of such plans has previously been submitted to and approved by the Board.

16 U.S.C. § 831y-1. Importantly, TVA's Section 26a jurisdiction does not replace existing laws but is an addition to them.

TVA's Section 26a jurisdiction applies at locations across, along or in the Tennessee River or any of its tributaries. A tributary is any watercourse the contents of which, if not obstructed, diverted or consumed, will ultimately flow into the Tennessee River. TVA's jurisdiction thus extends to the limits of the Tennessee River watershed. On TVA reservoirs, that jurisdiction typically applies to the limits of the 500-year floodplain or to the upper limits of TVA flowage rights, whichever is higher. On-reservoir locations generally equate to the area where TVA has obtained land and/or land rights. On regulated river and stream reaches where TVA has not obtained land or land rights and on all unregulated tributary streams, that jurisdiction typically applies to the limits of the 100-year floodplain.

Section 26a regulation is limited to plans for the construction of obstructions affecting navigation, flood control or public lands. An obstruction is generally "any man-made physical condition that during its continuance after completion impounds, checks, hinders, restricts,

retards, diverts or otherwise interferes with the movement of water or of objects on or in the water." 81 Fed. Reg. 59846, 59846 (Aug. 31, 2016). Whether an obstruction requires a permit depends, to some extent, on its location. Obstructions across, along or in the Tennessee River, TVA reservoirs and stream reaches downstream of TVA dams require a Section 26a permit. Obstructions across, along or in tributary reaches that are upstream of the influence of a TVA reservoir operation may not require a permit. TVA's Section 26a regulations and application instructions are available to the public on TVA's website. *TVA, Section 26a*, https://www.tva.gov/Environment/Shoreline-Construction/TVA-Act-26a-Standards-and-Regulations.

Water withdrawals from the Tennessee River require TVA approval under Section 26a of the TVA Act. All permits for water intake structures will include special conditions and requirements for water withdrawals. The conditions regulate the withdrawal rate and, in some cases, may limit approved uses and require compensation for loss in power benefits. Permit conditions including the extraction, limitation and reporting requirements are tracked by TVA's Water Supply program. If, during routine activities, a water intake is identified that does not have TVA approval, the structure is in violation of the Section 26a regulations and the situation will be handled through the violation and encroachment process. Any permitting action regarding the violation is handled in the same way as a new permit and will involve TVA's Water Supply program in the permit review and decision.

The person or entity holding a permit for a water intake structure may request a change in the rate of withdrawal or the use of the water (e.g., begin an inter-basin transfer). Such changes may come to the attention of TVA by notification from the permit holder, during

routine review of permitted facilities, or through other means. If there is an associated physical change in the obstruction, a permit modification should be applied for and processed as discussed above. If there is no associated physical change in the obstruction, the Regional Watershed Office will discuss the situation with the Water Supply office of TVAto determine whether a new Section 26a permit is required. If Water Supply determines that a new permit is required, the Regional Watershed Office will set up a meeting with the applicant and include the Water Supply representative to explain the situation. Inter-basin transfers of water may require TVA Board of Directors approval. TVA has a standardized process to ensure that such transfer requests are evaluated for impacts to the operation of the river system and are coordinated with the Tennessee Valley states.

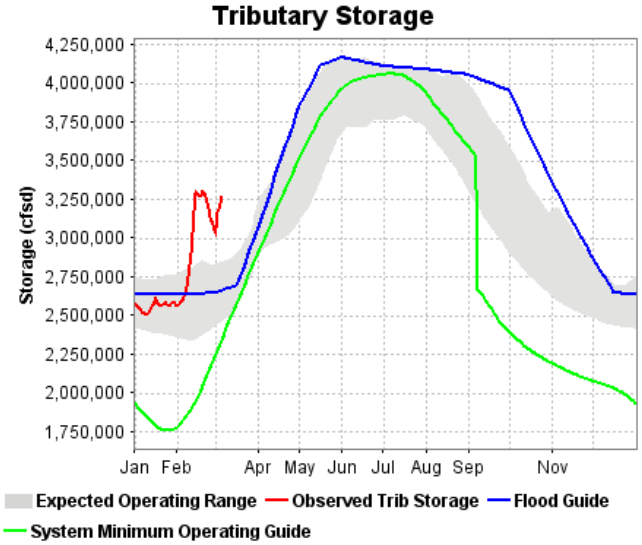
TVA determines whether a Section 26a permit is required for temporary withdrawals or extractions of water for agricultural and irrigation purposes on a case-by-case basis. However, since the amount of water that must remain in streams for aquatic habitat or other purposes is primarily regulated by the individual Valley states, any such requests should first be directed to the appropriate state permitting authorities. If the state in which the extraction is to take place approves or concurs in writing to TVA that the temporary withdrawal or extraction of water is acceptable to that particular state, then TVA will make a determination as to whether a 26a permit is required from TVA. TVA's decision on the need for a 26a permit will be based on a number of factors including the state's approval, location of extraction, purpose, extraction amount, duration, environmental impacts, operational impacts, and other potential case-specific considerations.

Similarly, TVA will determine whether a 26a permit is required for emergency municipal water withdrawals on a case-by-case basis. Temporary, emergency municipal water intakes differ from those requested for agricultural irrigation in that the municipal water intakes have generally already been permitted by the states and possibly TVA. Since the amount of water that must remain in streams for aquatic habitat or other purposes is primarily regulated by the individual Valley states, any requests for emergency municipal withdrawals should first be directed to the appropriate state permitting authorities. If the state in which the emergency intake is proposed approves or concurs in writing to TVA that the water intake is acceptable (a municipality may provide a state withdrawal permit to show that its proposal has been approved), TVA will determine whether the intake is temporary or permanent. TVA's decision will be based primarily on the type of structure proposed, the length of time the structure is proposed to be in use, and the nature of permanent modifications to the system being proposed to meet continuing intake needs. Other situation-specific factors may be considered as well. TVA's Regional Watershed Office will coordinate all emergency municipal water intake requests with its Water Supply program.

2. TVA Management of the Tennessee River System

TVA has nine mainstream dams (Fort Loudoun, Watts Bar, Chickamauga, Nickajack, Guntersville, Wheeler, Wilson, Pickwick Landing, Kentucky) with navigation locks and forty tributary dams, one of which has a navigation lock and one which is connected by a canal to a mainstream reservoir. The Tennessee River is also connected to the Cumberland River System and the Tennessee-Tombigbee Waterway by canals.

TVA's general practice is to fill all of its reservoirs in the spring. During the summer, the water is released for minimum flows, thermal cooling, and power generation. During the fall, reservoirs are gradually reduced preparing the reservoirs for winter rain. Tributary storage reservoirs and local inflow provide the water necessary to maintain navigation on the mainstream reservoirs.



Based on the amount of water stored in these reservoirs in relation to the Minimum Operations Guide shown on the graph above, TVA will release enough water to meet the average minimum flows at Chickamauga Dam. When dry conditions prevail on the Tennessee River below Chickamauga Dam, it may be necessary to release additional water to meet requirements at Kentucky Dam at the end of the system. Water may also be released from reservoirs during summer months after significant storm events to ensure adequate flood storage capacity.

Inflow to the reservoirs is dependent on many factors including water flow, soil moisture, snow cover, precipitation, temperature, and weather patterns. TVA monitors these

factors and forecasts river conditions to ensure adequate preparation for a river emergency. Numerous variables affect how much water is in the river system at any given time.

D. Other Federal Authorities Relevant to Water Supply

USACE Civil Works studies and projects, including water supply storage reallocation studies, must be conducted in compliance with all applicable federal environmental statutes, regulations, and executive orders. The Water Resources Planning Act (WRPA), 42 U.S.C. §1962a-2, as amended, and the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §§4321, *et seq.*, guide the Civil Works planning process. Congress established the WRPA in 1962 in recognition of the need for coordinated planning related to the conservation, development, and utilization of water resources. WRPA required the establishment and use of principles, standards and procedures for the formulation and evaluation of water and related land resources projects. The Water Resource Council's "Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies" (P&G), dated 10 March 1983, are the implementing regulations for the WRPA. The P&G establish that the federal objective of water and related land resources planning is to contribute to national economic development consistent with protecting the nation's environment, pursuant to national environmental statutes, applicable executive orders, and other federal planning requirements.

As a federal agency and instrumentality of the United States, TVA must conduct its activities in compliance with all applicable federal environmental statutes, regulations and executive orders; a few most applicable to water regulation include the CWA, SDWA, and Executive Orders on wetlands and floodplains. The primary legal authority which guides TVA's

actions related to water supply is, of course, the TVA Act; but because issuing permits under Section 26a of the TVA Act constitutes a "major federal action," as defined by NEPA, TVA is subject to NEPA and its regulations when issuing 26a permits.

NEPA requires federal agencies, including USACE and TVA, to comply with a process that includes the inventory and assessment of environmental resources within the study or project area. NEPA also requires the evaluation and comparison of alternatives to determine the impacts to those environmental resources identified and investigated. Involvement by resource agencies, interested and affected groups and individuals, and the general public during the study process is further required. The NEPA process is integrated with USACE's and TVA's planning processes.[66]

VI. POTENTIAL ISSUES AND OPPORTUNITIES – INTERSTATE

A. Introduction

Tennessee and other southeastern states have experienced rapid population growth, new economic development, increases in competing water uses, and growing demands for water resources. Combined with periods of drought, these factors all give rise to conflicts and concern among water users within Tennessee and beyond its borders. To be sure, water often flows through multiple political jurisdictions and does not adhere to man-made boundaries. Historically, interstate water conflicts primarily occurred in the western United States.

[66] Both the USACE and TVA are also subject to a host of federal environmental authorities, which include, but are not limited to, the Clean Air Act of 1963, 42 U.S.C. §§ 4701, *et seq.*; the Federal Water Pollution Control Act Amendments of 1972 (known as the Clean Water Act), 33 U.S.C. §§ 1251, *et seq.*; the Endangered Species Act of 1973, 16 U.S.C. §§ 1531, *et seq.*; the Fish and Wildlife Coordination Act of 1958, 16 U.S.C. §§ 661, *et seq.*; and the National Historic Preservation Act of 1966, 54 U.S.C. §§ 300101, *et seq*.

However, water conflicts are becoming increasingly frequent in the eastern United States and are now occurring in and around Tennessee. This section of this paper discusses several recent and ongoing interstate issues of concern that Tennessee must keep in mind as it plans for its own future water use and supply.

B. Constitutional Concerns and Federal Agencies

When there is a dispute between states about how to allocate interstate water resources, the Constitution has assigned roles to the United States Supreme Court and to Congress to resolve the disputes. There are traditionally three ways that interstate waters can be divided between the states that use and rely upon them:

1. States can seek an allocation from Congress.[67]
2. States can enter into a compact, which Congress then approves.[68]
3. States can ask to invoke the Supreme Court's "original jurisdiction," U.S. Const. Art. I, § 2. Then, applying the federal common law of equitable apportionment, the Court allocates the right to use an interstate water source among the competing states.[69]

The practical, legal, and political challenges of developing a formal interstate compact can be daunting. Historically, interstate compacts relating to water resource management have

[67] This has only happened once. *See Arizona v. California*.

[68] U.S. Const. Art. I, Section 10, Clause 3 ("No State shall, without the consent of Congress . . . enter into any Agreement or Compact with another State."). Tennessee is not a party to any interstate water compacts. However, some cooperation between Kentucky and Tennessee does exist, as does some cooperation between Tennessee and Virginia.

[69] Interstate water disputes have repeatedly resulted in one or more states invoking the Supreme Court's original jurisdiction. *See Virginia v. Maryland*, 54 U.S. 56, 74 n.9 (2003) ("Federal common law governs interstate bodies of water, ensuring that the water is equitably apportioned between the States . . . ."). in fact, original jurisdiction water dispute cases are increasingly before the court. In January 2018, the Supreme Court heard argument in two such cases: *Florida v. Georgia*, discussed *infra*, and *Texas v. New Mexico and Colorado*. The latter is among a growing sub-genre: interstate groundwater disputes. In *Texas v. New Mexico,* as was true in *Kansas v. Nebraska*, the conflict arose in part because groundwater pumping had allegedly depleted water supplies allocated to downstream states under their respective compacts. Therefore, although the cases were not expressly related to allocation of aquifers among states, the discussion in the cases did not single-out or treat aquifers differently than surface water.

been formal legal documents that are regulatory in nature and require formal adoption by at least two states. The process of developing an interstate compact is resource intensive – necessitating significant involvement from a wide variety of stakeholders with expertise in relevant subject matter areas. Activities such as research, analysis, advising, drafting, communication, education and outreach, enactment, and transition are germane to this process of building consensus between two parties, which may take years to occur, if at all.[70]

There may be opportunities for states to engage in voluntary, collaborative activities to manage water resources outside of a formal compact development process. The legal mechanisms for and binding nature of such informal discussions are open questions at this point. Such an arrangement would require initiative among numerous stakeholders with a common interest in securing a multi-state water future, and would likely involve some sort of documentation that establishes roles and responsibilities for various parties. This may present a less resource intensive and less politically charged approach to interstate water resource planning, and could perhaps lead to more efficient discussions of a formal interstate compact if appropriate. Because federal agencies also play a role in water management, supply, and allocation, those agencies like the USACE or TVA may in a position to facilitate discussions and mediate disputes between states. Notably, the USACE Memphis District, to its credit, has already attempted to facilitate these types of informal discussions with respect to the Memphis Sands Aquifer and involved stakeholders from the University of Memphis, the City of Memphis, Arkansas, and Mississippi.

[70] See "Best Practices for Compact Development" by The Council of State Governments (May 2011) and "Interstate Compact – Process" by The Council of State Governments.

While primarily relating to water quality issues, another example of informal interstate cooperation short of a formal compact exists with respect to the Clinch and Powell River systems that run between Virginia and Tennessee. The EPA, TDEC, the Virginia Department of Environmental Quality, and Virginia Department of Mines, Minerals, and Energy recently announced that they have extended a 2008 Memorandum of Understanding that serves as a collaborative effort to protect and restore the Clinch and Powell river systems.[71]

To be sure, the current overlay of federal agencies' jurisdiction already provides some layer of actual regulation for significant withdrawals. This is important to Tennessee because sizeable surface water or groundwater withdrawals from shared rivers or shared aquifers just over Tennessee's borders can affect Tennessee's own ability to use shared resources in the future. One example of this current mechanism of regulation of water withdrawals is TVA's authority regarding withdrawals that occur within the Tennessee River System. Significant withdrawals from the Tennessee River, including inter-basin transfers, fall under the jurisdiction of Section 26a of the TVA Act. TVA has a procedure to ensure that inter-basin transfer requests comply with NEPA, are evaluated for impacts to the operation of the river system, and are coordinated with the Tennessee Valley States. However, similar regulatory approaches do not exist for all water withdrawals. As evidenced by arguments presented by Mississippi in current litigation with Tennessee, Memphis, and others; by claims made by Georgia with regard to Lake Nickajack and the Tennessee River; by periodic diversion of water resources to Alabama via the Tombigbee Waterway; and by use of aquifers for public and private purposes in Mississippi and for agriculture in Arkansas, it is in Tennessee's best interest to develop policy and consider

[71] https://www.epa.gov/newsreleases/agencies-extend-initiative-protect-clinch-and-powell-rivers

opportunities to work collaboratively with all stakeholders to address current and impending water resource concerns.

C. Mississippi vs. Tennessee

In 2014, Mississippi filed a motion in the United States Supreme Court for leave to commence an original action against the State of Tennessee, the City of Memphis, and the city's utility system, Memphis Light, Gas and Water. Mississippi alleged that Memphis was improperly withdrawing too much groundwater from the Memphis Sands Aquifer, which is Memphis' primary drinking water supply. Instead of seeking an equitable apportionment of the groundwater in the aquifer, Mississippi alleged that these withdrawals have been taking groundwater that is in Mississippi, which that state claims to own in a proprietary capacity. Mississippi sought an injunction to limit Memphis' groundwater withdrawals and $615 million in damages for the past withdrawals.[72] The Supreme Court issued an order granting the State of Mississippi's motion to file its action. The Special Master held an initial status conference, in which he granted Tennessee's and Memphis' request to file a motion for judgment on the pleadings, and stayed all discovery until he ruled on that motion. In August 2016, the Special Master denied Tennessee's motion for judgment on the pleadings. While the Special Master agreed with Tennessee's argument that Mississippi has no enforceable property right to the unapportioned groundwater in the aquifer, the Special Master viewed this legal argument as premised on the factual question of whether the aquifer is an interstate water resource, and

[72] Mississippi filed a similar motion in 2009, which the Supreme Court denied, after having originally brought suit in the United States District Court for the Northern District of Mississippi several years before. After years of discovery, scientific studies, and trial preparation, that District Court decided to avoid hearing the case due to failure to include Tennessee as an essential party and Supreme Court original jurisdiction over such interstate disputes.

asked the parties to meet and confer on whether to hold a limited evidentiary hearing on this factual question. The parties agreed that a limited evidentiary hearing would be appropriate and have engaged in discovery, exchanged material fact statements and responses, developed a joint final statement of undisputed and disputed facts, and submitted a joint proposed order setting forth their plan for the hearing and any pre-or post-hearing briefing. The progression of the hearing could have significant impacts on water resources in Mississippi and Tennessee.

D. Georgia Claims to Tennessee River

Georgia wants additional water resources, particularly to feed the growing water demands of Atlanta, which is currently served only by Lake Lanier and the Chattahoochee River.[73] Georgia lawmakers have tried to re-negotiate the location of the Georgia-Tennessee border with a focus on a strip of land that would provide Georgia with access to drinking water from the Tennessee River at Lake Nickajack.[74] While Georgia has sometimes sought a diplomatic approach to initiating conversations with Tennessee and at other times has issued threats, if unsuccessful, Georgia may consider taking its case to the United States Supreme Court for resolution. Georgia is engaging in similar conflicts over water resources with Florida, with a case now before the Supreme Court and which has had many other forms and facets over several decades.

E. Tennessee River Diversion to Mississippi and Alabama

The Tennessee Tombigbee Waterway is a 234-mile USACE-constructed and USACE-Mobile District operated and maintained waterway that links commercial navigation from the

[73] Lake Lanier has been at full pool in the summer less than 14 percent of the time. http://www.timesfreepress.com/news/breakingnews/story/2018/mar/23/georgia-wants-tennesseeland-/466708/.
[74] Georgia claims that the border was mapped incorrectly when surveyed in 1818.

mid-United States to the Gulf of Mexico, connecting the Tennessee River near Pickwick Dam in Tennessee, through Northeast Mississippi, and to the Tombigbee River near Demopolis, Alabama. Each time the waterway's locks are opened and filled for use by a southward traveling vessel, Tennessee water resources may effectively transfer to Mississippi and/or Alabama, as water that supplies the Tennessee Tombigbee Waterway originates from the Tennessee River. In addition to TVA regulation of water levels in the Tennessee River System for various purposes, Tennessee should consider how such a transfer of water may impact future water availability. Tennessee may further consider whether and how it might take a more active role in regulating these transfers.[75] One consideration should be whether use of the Waterway is symptomatic of a current gap in water resource regulation.

F. Arkansas Rice Production Use of Aquifers

Arkansas is the largest producer of rice in the United States, and the majority of Arkansas' rice cultivation occurs in the eastern portion of the state. Arkansas' rice production requires significant water resources, which in eastern Arkansas primarily involves accessing groundwater via aquifers that also underlie Tennessee including the Mississippi River Alluvial Aquifer and Memphis Sands Aquifer. Similarly, Tennessee uses these aquifers to support west Tennessee agricultural, commercial, industrial, and residential water supply needs. While efforts to understand utilization and recharge of these aquifers continue, including any impact crossing under the Mississippi River surface water body itself, more careful planning and

[75] It should be noted that Tenn. Code Ann. § 69-8-301 *et seq*. requires initial and annual water withdrawal registrations and data to be filed with TDEC for surface water and groundwater withdrawals equal to or exceeding 10,000 gallons or more per day for days of actual withdrawal. Tenn. Code Ann. § 69-7-201 et seq. requires anyone who proposes to transfer water out of a major river basin for the benefit of or to supply a public water system to obtain an Inter-Basin Transfer Permit.

coordination among states accessing this groundwater resource may be necessary as competing uses for a limited resource intensify.

VII. POTENTIAL ISSUES AND OPPORTUNITIES - INTRASTATE

Because water has historically been in abundant supply in Tennessee, intrastate conflicts other than localized neighboring landowner disputes have been rare. However, as populations rapidly increase in communities across the State, the race to secure reliable and quality water supplies has intensified and will continue to intensify. When drought events or disagreements within the State among municipalities or utilities occur, State or local entities must mediate or resolve disputes among competing water supply interests. Congress considers the development of water supplies for domestic, municipal, and industrial purposes to be the primary responsibility of the states and local interests.[76] However, within Tennessee, the roles and responsibilities of State and local authorities for allocating Tennessee's water resources among intrastate users are not entirely clear, and there may be opportunities going forward to establish standard, consistent processes, roles, and responsibilities for reaching water use and supply decisions.

As in most states, as regulatory systems have supplemented reliance on traditional common law, water resources within Tennessee have been balanced for a variety of uses—such as municipal, industrial and agricultural water supply, navigation, flood control, hydropower,

[76] *See generally* 43 U.S.C. § 390b(a).

recreation, fish and wildlife, and water quality—through the cooperative efforts of federal, State, and local entities. As the building of large, new reservoirs has tapered off and the effects of age and sedimentation begin to threaten existing surface water storage—and as potential groundwater depletion becomes a greater concern—conflicts between competing demands for water use will increase.

Although states are generally considered to have primacy in allocating intrastate water, federal regulations and laws governing the management of federal projects as well as the Commerce Clause often overlay and may preempt state law. Because water shortages have been relatively infrequent and of a smaller scale here, Tennessee has rarely asserted its primacy and/or has not developed a refined approach for allocating rights to water. Given recent population and economic growth and increases in extreme weather, conflicts among uses and users may require more involvement of State agencies in water supply management, or perhaps more specific assignment of statutory authority to mediate disputes or encourage collaboration among users. A number of current and anticipated examples of such disputes, potential gaps in current regulatory framework, and other emerging concerns highlight this issue.

A. Examples Showing Increased and Competing Demands within Tennessee

The operation and maintenance of intake/withdrawal structures on USACE lock and dam projects on the Cumberland River main stem[77] have been authorized through the issuance of permits, easements, licenses, leases, or other real estate outgrants. Because these instruments

[77] "Main stem" is the main river system, as compared to USACE "reservoirs" that are found on tributaries to the main stem system. For example, Old Hickory Lock & Dam / Lake is a "main stem" USACE project along the Cumberland River System, but J.Percy Priest Dam / Reservoir is a USACE reservoir along the Stones River, a tributary to the Cumberland River System.

are not associated with water supply agreements, water supply users at lock and dam projects on the Cumberland River do not have rights associated with storage space in any USACE project. (That is, users may have authorized withdrawals from the USACE, as well as riparian rights if owning waterfront property, and even State permits, but users may not be guaranteed storage space in the water body.) USACE evaluates the impacts of existing water supply withdrawals from lock and dam projects on the Cumberland River main stem to ensure the projects are operated in accordance with their authorized purposes and applicable law.

As an example of current efforts to manage increased and competing demands, Middle Tennessee's burgeoning population combined with the unprecedented 2006–2009 drought led the USACE to institute a moratorium in January 2010 on new or increased municipal and industrial (M&I) water supply withdrawals from Old Hickory Lock and Dam, because the volume of withdrawals had reached the volume of natural inflows and further withdrawals would impact the authorized purposes of the project. The moratorium remains in place today.[78]

Town of Smyrna vs. United States Army Corps of Engineers[79] is a second example that highlights disputes that may arise due to increased and competing demands on federally

[78] USACE. 2016. Old Hickory Lake Master Plan.

[79] See docket No. 3:06-CV-675 (M.D. Tenn.). The Town sought declaratory judgment that the USACE had acted beyond the scope of its authority under the Water Supply Act of 1958 in its allocation of storage costs to the Town in the 2003 reallocation report for J. Percy Priest Reservoir (JPP) and in refusing to grant the Town additional storage in JPP because of the dispute. The USACE asserted a counterclaim seeking declaratory judgment that the Town must comply with federal law to utilize storage space in JPP, and, in the absence of such compliance, the Town must terminate its use of storage space in JPP. The Town and the USACE settled the lawsuit, wherein the Town agreed to execute a water storage agreement with the Department of the Army to pay for the costs of the storage reallocated for the Town's water supply needs based on the updated cost of storage in exchange for the USACE's commitment to conduct a reallocation study to determine if additional storage could be made available at JPP to meet the collective water supply needs of the Town and the region. Because the Town and the USACE also filed a joint motion to vacate the Court's September 26, 2007, Memorandum and Opinion and Order on motions filed by the parties prior to the settlement and joint stipulation of dismissal of the action with prejudice pursuant

managed water resources within the State. It also highlights the nationally-relevant issue of whether M&I water supply users with storage agreements on USACE projects receive direct credit for the water they return in the storage accounting process. In response to this issue, the Tennessee General Assembly enacted legislation in 2017 to address the issue of "return flows" in connection with water supply uses of a USACE reservoir. The new state law grants a person who has contracted for the right to store water in a USACE-owned reservoir the exclusive rights to any return flows that person generates directly or indirectly to that reservoir, provided that person has sufficient storage capacity in the reservoir to store those returns.[80] USACE's proposed water supply rulemaking would codify its existing, generally prevailing practice of accounting for return flows, meaning that all inflows to the reservoir, regardless of source, are credited to water supply storage accounts in proportion to their share of storage in the reservoir. The proposed rulemaking sought comment on an alternative approach in which inflows would be fully credited to the water supply storage account holder responsible for such flows, provided that the flows can be reliably measured.[81]

Although utilities that withdraw water from the Tennessee River system are not required to enter into water supply or storage agreements with TVA,[82] they face similar issues

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to the settlement agreement, which the Court granted, this case established no legal precedent for future disputes.

[80] Public Chapter 220, Acts of 2017, codified at Tenn. Code Ann., Section 69-3-108(u). When commenting on the fiscal impacts of this law, TDEC stated: "TDEC is not authorized to enforce this provision; therefore, any impact on TDEC expenditures will be not significant."

[81] Use of U.S. Army Corps of Engineers Reservoir Projects for Domestic, Municipal and Industrial Water Supply, Docket No. COE-2016-0016. 81 Federal Register 91558-91559. https://www.federalregister.gov/documents/2017/05/16/2017-09861/use-of-us-army-corps-of-engineers-reservoir-projects-for-domestic-municipal-and-industrial-water.

[82] The Water Supply Act of 1958, 43 U.S.C. § 390b, only applies to USACE and Bureau of Reclamation reservoir projects. Section 6 of the Flood Control Act of 1944, 33 U.S.C. § 708, only applies to reservoirs under the control of the Department of the Army.

over competing demands from time to time. For instance, utilities dependent on the Duck River have on occasion expressed concerns regarding management of TVA's Normandy Dam to meet water quality standards and balance water supply demands both above and below the dam. The Duck River Development Agency (DRA) developed a Comprehensive Regional Water Supply Plan in 2011 and a Duck River Regional Drought Management Plan in 2013 in an effort to combat drought in a manner that ensures water availability and continued economic development for utilities relying on the Duck River.[83]

Potential intrastate conflicts may also arise between towns (and utilities) connected by grant-funded water supply pipelines. Should they be resistant to sharing water resources due to potential revenue erosion or other concerns, utilities may choose to seek permitted increases from their own natural sources of water rather than exploring opportunities to share water resources and collaborate across service areas.

Amidst rapid population growth in specific areas of the state, multiple users withdrawing from the same source and in some cases withdrawing from very special and limited resources may present location-specific water availability concerns. Such circumstances may warrant additional State involvement or increased regional cooperation as a means of managing competing demands.

As these aforementioned examples demonstrate, given likely increases related to water availability issues, it could be in Tennessee's best interest to form a multi-disciplinary and multi-

[83] See generally *Duck River Comprehensive Regional Water Supply Plan* and *Drought Management Plan Report*, both accessible at http://www.duckriveragency.org/projects.htm.

stakeholder approach to proactive water supply planning, allocation, management of flow regimes, and conflict resolution for use when applicable circumstances arise.

B. Lack of Funding for Existing Regulatory Authority

Existing statutes provide TDEC with the authority to engage in various activities that contribute to water use and supply planning. For example, the Water Resources Division Act (Tenn. Code Ann. § 69-7-101 *et seq*.) assigns TDEC the responsibilities of: directing the conservation, protection and development of water resources of the state through study of water resources and creation and development of a water resource policy for the state; establishing, maintaining, and publishing an inventory of the state's water resources; determining, maintaining, and establishing estimates of existing and future water use in the state; and implementing the water resource policy of the state by creating and defining the rights of respective competing users of the water resources of the state. Similarly, the Water Resources Information Act (Tenn. Code Ann. § 69-7-301 *et seq*.) authorizes TDEC to gather water quantity data, including data and information on uses of water and well data.[84]

Prior to the State's current efforts to develop this plan, within the recent past, Tennessee has not exercised direct regulatory authority to fulfill these statutory obligations. This is apparently due to insufficient funding for administering this authority.[85] There is an opportunity for the State to consider development and implementation of mechanisms that would provide TDEC with necessary funding for fulfilling these responsibilities, which could be

[84] Notably, when the bill enacting this law was first introduced, it included a fee to cover costs associated with compilation of data. This provision was not included in the bill that passed.

[85] It should be noted that TN H2O has been possible through the *voluntary* efforts of over 100 stakeholders and interested parties involved in planning committees, steering committees, and sub-committees over a period of 8 months. Throughout this process, input has also been sought from the public. Financial resources will be required to maintain and continually update this information on a recurring basis.

used to support sufficient staff and monitoring equipment[86] to adequately assess surface and groundwater resources and plan for future water resource needs.

C. No Comprehensive Water Withdrawal Regulatory Framework

Tennessee currently lacks a comprehensive regulatory mechanism for understanding the scale and frequency of water withdrawals and their potential impact to water quantity. In the absence of such a comprehensive framework, a patchwork of existing regulatory mechanisms have become an indirect means of regulating quantity associated with water withdrawal. For example, ARAPs, a permitting mechanism associated with the WQCA, apply to proposed water withdrawals that may affect the *quality* of a source stream by removing a significant portion of its flow. While ARAPs have functioned in a manner to address some aspects of the water withdrawal regulatory gap, an ARAP is not triggered with every withdrawal. Only those with significant impacts to flow and the physical, chemical, and biological properties of the water body require a permit. In addition, a number of withdrawals are exempted from ARAP applicability, such as those relating to agriculture or forestry activities and those in place prior to July 25, 2000,[87] and ARAPs do not apply to groundwater withdrawals unless they would impact a surface water source.[88]

As a second example, the WRIA requires registration with TDEC prior to withdrawing 10,000 or more gallons of water per day from a surface water or groundwater source. Exemptions to the registration requirement exist for withdrawals for agricultural purposes and

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[86] Such as stream gauges.

[87] Grandfathered entities with withdrawals in place prior to July 25, 2000 pose considerable challenges with regard to consistent application of the law across the regulated community.

[88] Tennessee has at least one example of exploratory borings to locate karst features that connect directly to major surface waters with the intent of accessing drinking water sources through cave systems to avoid restrictions that may be made on withdrawals from a surface water.

for inter-basin transfers of groundwater that do not adversely affect the flow of a Tennessee surface water. These and other exceptions to and gaps within existing regulatory requirements prevent the state from maintaining accurate data regarding water availability and water consumption.

D. Regional Planning

In response to the 2006-2009 drought, and in accordance with WRIA § 69-7-309, TDEC organized the WRTAC to make recommendations on water resources issues. The 16-member committee provided helpful insight from diverse perspectives with the objective to help refine and improve water management policies or options for the department. In addition to developing the TDEC Drought Management Plan and requirements for Community Public Water Supply Systems to develop their own drought management plans, the WRTAC reviewed impacts from the 2006-2009 drought and recommended pilot regional water resource planning projects in the North Central Tennessee region and Southern Cumberland region to develop a process and policies for regional water resource planning. The WRTAC produced guidelines for entities interested in pursuing regional water resources planning in Tennessee.[89] These guidelines could become a more frequently utilized tool by water systems and local governments across the state.

While coordinated regional planning to date has occurred in response to drought events, increased regional planning and coordination may also provide significant opportunity for communities collaboratively to plan for and respond to a variety of other natural and

[89] https://www.tn.gov/environment/program-areas/wr-water-resources/water-quality/water-resources-regional-planning.html.

anthropogenic events as well as number of operational and financial challenges that may be faced by public water systems, such as equipment, collection system, treatment, distribution deterioration, or financial insolvency. Regional planning documents could also be used as tools to aid water systems in making decisions that align with regional water needs in both the long- and short-term.

In fact, current statutes encourage consideration of regional water planning when awarding grants, making loans, or funding projects.[90] It is rare for a public water system to undertake a major water treatment, collection, conveyance, or disposal project without receiving some state loans or grants.[91] The State should consider incorporating incentives for considering the feasibility of regional water planning or at the very least coordination amongst adjacent water systems making consistency with an applicable plan a condition for receipt of grants or loans.

While there are considerable opportunities for increasing utilization of regional planning, like flood planning and mitigation, numerous roles, responsibilities, and authorities exist at the federal, state, and local level. As such, the State should consider the pros and cons of taking a more active role in encouraging and coordinating regional planning.

E. Resolving Disputes and Enabling Cooperation between Water Utility Systems

Tennessee statutes provide legal authority for the creation and operation of multiple forms of water utility systems within the State, as shown in Section IV. above. However, there is currently not a statutory framework to address and mediate disputes between water utility

[90] See Tenn. Code Ann. § 69-7-308.
[91] Community Development Block Grants or State Revolving Fund loans are frequently utilized mechanisms for funding water-related projects.

systems (especially considering that the vast majority of water utility systems are not subject to TPUC jurisdiction). Similarly, no statutory authority exists to facilitate collaboration and cooperation between systems for the supply of water. Instead, most utility systems that desire to collaborate must go through the legislature's private act process, as opposed to being able to rely upon general statutory authority.

F. Drought Planning and Preparedness

Droughts are characterized by extended periods without sufficient rainfall, resulting in significant impacts to Tennessee's economy via damage to flora, fauna, agriculture, livestock, and water availability. Historically, Tennessee's most severe droughts have occurred in the western portion of the state and within a subset of Middle Tennessee.[92] Like flood planning and mitigation, drought planning and preparedness do not reside exclusively with a single organization in Tennessee, and instead, are addressed by a number of local, State, and federal agencies and programs.

Tennessee's recent past has also included significant drought events. The 2006–2009 drought was the worst on record in Tennessee. Similarly, water supply concerns also occurred in certain areas during 2012, and in late 2016 and early 2017 in areas of southeastern Tennessee, with customers of ten utilities being requested to limit water usage, in some cases for over 60 days. Events such as these have fostered a desire for the State and its communities, businesses, and residents to prepare for future and likely increasing drought events.

TDEC maintains a Drought Management Plan (the "Plan"), which outlines TDEC's approach for water management during extended periods of below average rainfall and

[92] *Id*.

streamflow. The Plan facilitates planning, action, and cooperation in water resources management among local, state, and federal agencies with drought-related responsibilities. The plan includes requirements for Community Public Water Systems to develop their own drought management plans separate from Emergency Operation Plans. TDEC has issued guidance that outlines what information should be included in Community Public Water System drought management plans.[93] Development of these resources was inspired by the 2006-2009 drought.

Water control plans for multi-purpose USACE projects strike a balance among the use of water storage for all authorized purposes of the project. In response to a water shortage in a basin due to climatological drought, USACE drought contingency plans establish operational priorities for the basin, considering both authorized project purposes and USACE's overall responsibility to manage water resources to ensure public health and safety. The Cumberland River Basin Drought Contingency Plan[94] establishes the assurance of domestic water supply and associated water quality in the interest of public health and safety as the top operational priorities in response to a drought. Navigation is next on the priority list, followed by hydropower production, and then recreation.

TVA's general practice is to fill all of its reservoirs in the spring. During the summer, the water is released for minimum flows, thermal cooling, and power generation. During the fall, reservoirs are gradually reduced preparing the reservoirs for winter rain. Tributary storage reservoirs and local inflow provide the water necessary to maintain navigation on the mainstream reservoirs. How well TVA's system is balanced is determined by measurements

[93] https://www.tn.gov/content/dam/tn/environment/water/documents/droughtmgtplan_guidance.pdf.
[94] https://cdm16021.contentdm.oclc.org/digital/collection/p16021coll7/id/923.

taken at Chickamauga Dam near Chattanooga, Tennessee. If the volume of water flowing into Chickamauga Reservoir is less than needed to meet systemwide flow requirements, additional water must be released from upstream reservoirs—even during summer months. Depending on the time period and water volume, 10 tributary reservoirs[95] are considered for water release to improve overall system flow, resulting in a slight drawdown.

Based on the amount of water stored in these reservoirs in relation to the Minimum Operations Guide, TVA will release enough water to meet the average minimum flows at Chickamauga Dam. When dry conditions prevail on the Tennessee River below Chickamauga Dam, it may be necessary to release additional water to meet requirements at Kentucky Dam at the end of the system. Water may also be released from reservoirs during summer months after significant storm events to ensure adequate flood storage capacity.

G. Flood Planning and Mitigation

Floods are one of the most frequent and costly disasters in the United States and Tennessee.[96] Although not strictly a water supply issue, efforts to mitigate floods by, for example, keeping reservoir levels low to make room for heavy rains and avoid downstream flooding, can reduce the amount of water available for other uses. Also, floods themselves can damage water supply infrastructure. The 2010 flood in northern Middle Tennessee, for example, shut down one of Nashville's two water treatment plants for several weeks, and the city had to rely on its interconnections with other utilities to ensure continued service to its

[95] Blue Ridge, Chatuge, Cherokee, Douglas, Fontana, Nottely, Hiwassee, Norris, South Holston and Watauga.

[96] *State of Tennessee Hazard Mitigation Plan*. (2013). Tennessee Emergency Management Agency. https://www.tn.gov/content/dam/tn/tema/documents/TennesseeHazardMitigationPlan-2013.pdf

water customers. Floods may also present opportunities for utilities to save and store excess water resources for use during water shortages.

A variety of natural and anthropogenic (originating in human activity) phenomena can contribute to the occurrence of floods and as a result of predicted increases in precipitation (both overall and intensity) in the future, flooding is likely to increase in both severity and frequency in Tennessee.[97]

Flood planning and mitigation do not reside with a single organization in Tennessee and instead are addressed by a number of local, State, and federal agencies and programs. At the state and local levels, flood-preparedness planning and mitigation occur through community planning and risk management, via programs or services offered by State agencies, or as a qualification for disaster assistance or other types of funding that make preparedness a contingency, such as the National Flood Insurance Program (NFIP)[98]. The State of Tennessee is required by FEMA as well as State statute[99] to maintain an approved Hazard Mitigation Plan (HMP). Tennessee's HMP is developed by the Tennessee Emergency Management Agency (TEMA) and serves as the "primary document detailing the state's mitigation strategy targeting all natural hazards adversely affecting its citizens and their property," including flooding.[100] A number of Tennessee statutes grant authority to State agencies or local governments to engage

[97] *What Climate Change Means for Tennessee*. (2016). U.S. Environmental Protection Agency. EPA 430-F-16-044

[98] See Tenn. Code Ann. § 6-58-117 and § 12-4-109. The NFIP is a federally-subsidized flood damage insurance program administered by FEMA. In order for residents and business owners to be eligible to purchase flood insurance, communities must exchange a commitment to manage development in their special flood hazard areas according to minimum federal regulations. The NFIP is administered at the state level by TDEC and overseen by FEMA. The State of Tennessee has 401 communities that participate in the NFIP and 12 communities that belong to the Community Rating System.

[99] Tenn. Code Ann. § 58–2–101 through 58–2–124

[100] *State of Tennessee Hazard Mitigation Plan*. (2013). Tennessee Emergency Management Agency. https://www.tn.gov/content/dam/tn/tema/documents/TennesseeHazardMitigationPlan-2013.pdf. Also, see Tenn. Code Ann. §58-2-101.

in flood planning, preparedness, and mitigation activities, independently or collectively, oftentimes as part of zoning and building regulation.[101]

Tennessee also has a number of watershed and basin authorities that directly implement flood reduction measures and projects.[102] For example, the West Tennessee River Basin Authority exists to preserve the natural flow and function of West Tennessee's streams and rivers through environmentally sensitive stream maintenance. These authorities restore natural stream and floodplain dynamics, maintain or stabilize the function of altered streams and rivers, and provide regional and local leadership for the conservation and sustainable utilization of these river basins.

Federal agencies such as the USACE[103] and TVA[104] actively oversee flood control measures associated with flood monitoring, flow management, and floodwater storage in reservoirs operated throughout the state. Additionally, agencies such as the National Weather Service (NWS) and United States Geologic Survey (USGS) provide support to local, State, and other federal agencies by monitoring and forecasting flooding in the State of Tennessee.

Historic riverine flooding incidents have occurred in Tennessee's recent past with devastating impacts to multi-county areas within the State. The May 2010 flooding of the Cumberland River in Middle Tennessee resulted in the declaration of over 30 counties as major

[101] See generally, Tenn. Code Ann. §§ 13-17-101, 13-17-201, 13-3-101, 68-221-1103, 69-5-101, 58-2-116, 4-3-501, 69-1-101 and Title 68.

[102] See generally, Tenn. Code Ann. § 64-1-101, 64-3-101, 69-6-101

[103] In addition to its mission-related objectives to deliver engineering services, strengthen the Nation's security, energize the economy and reduce risks from disasters, the USACE also established the National Flood Risk Management Program (NFRMP) in May 2006 for the purpose of integrating and synchronizing USACE flood risk management programs and activities, both internally and externally with counterpart activities of the Department of Homeland Security, FEMA, other Federal agencies, state organizations and regional and local agencies as well as non-governmental organizations (NGO).

[104] TVA manages a system of dams to control flooding along the Tennessee River watershed, and each year prevents about $260 million in flood damage in the TVA region and along the Ohio and Mississippi Rivers.

disaster areas by FEMA. Mississippi River flooding in April 2011 affected a 7-state area, prompting the evacuation of over 1,300 homes in Memphis.

There is opportunity for the various parties involved in flood planning and mitigation activities to engage in more strategic coordination to prepare for future, and likely increasing, flooding. TEMA's HMP identifies a number of gaps and additional mitigation actions that the state should engage in to increase disaster preparedness.[105]

H. Valuation of Natural Resources

Tennessee is home to unique and diverse natural resources and ecosystems, which contribute significantly to the State's economy and status as a desirable place to live, work, and play. In order to preserve these natural resources, sufficient water resources are necessary. As Tennessee prepares for the future, it should comprehensively consider the value of ecosystems and natural resources and factor such value into planning and decision-making relating to water supply and water utilization in particular, but also to proposed activities with the potential to significantly alter the availability of nearby water resources.

I. Local Requirements / Groundwater and Land Use Restrictions

Local requirements are increasingly important considerations for water use and supply. For example, in Memphis and Shelby County, the local government through its "Ground Water Quality Control Board" regulates the construction and location of wells in Shelby County due to the importance of protecting the aquifers there as the sole source of drinking water for its large

[105] State of Tennessee Hazard Mitigation Plan. (2013). Tennessee Emergency Management Agency. https://www.tn.gov/content/dam/tn/tema/documents/TennesseeHazardMitigationPlan-2013.pdf. Gaps and opportunities include but are not limited to studying flash flooding damages and impacts that could have been mitigated, accelerating the repetitive loss/severe repetitive loss buyout programs, and enhanced engagement in outreach to local planning commissioners and zoning officials to spread awareness of assistance options, available grant programs, current and future development in hazard prone areas, and mitigation approaches.

population. There is an evolving Shelby County Well Construction Code that also includes provisions limiting water pumped by private parties for commercial and industrial purposes to reasonable use, and requiring the Health Department to have parties conserve water and reuse cooling water. Well-drilling standards, reports and filings, and site setbacks can also apply at this local level.

Local governments may also exercise their police power to constrain groundwater availability via land use restrictions (LURs): regulatory ordinances designed to protect the public health in light of water-related dangers. The chief legislative body of any municipality is empowered to regulate "the erection, construction, reconstruction, alteration and uses of buildings and structures and the uses of land" through zoning ordinances and other LURs when necessary to protect the general welfare. Tenn. Code Ann. §§ 13-7-201 and 13-7-202.[106]

Under the Hazardous Waste Management Act of 1983, the Commissioner TDEC may also determine that LURs are part of the appropriate remedial action at a remediation site (*e.g.*, a brownfield project). Tenn. Code Ann. § 68-212-225. In this scenario, a "Notice of Land Use Restrictions" is filed with the local register of deeds in the appropriate county. This notice must describe the site's dimensions, type and quantity of hazardous substances present, and current restrictions. Section 68-212-225(c) specifically states that LURs may apply to "use of groundwater[.]"

Based on the foregoing, certain regions with local requirements or recorded LURs may face these additional challenges in overcoming water supply issues and emergencies. Further,

[106] Note that Tenn. Code Ann. §§ 13-7-201(a)(1) permits municipalities to establish special districts in areas deemed subject to periodic flooding; regulations may be applied to minimize danger to life and property.

while the local requirements' intent may be in a community's or property owner's best interest, full notification and transparency may be lacking in Tennessee. LURs in the form of local ordinances do not always appear in title searches and are not readily available online. Given these circumstances, communities across the State often do not fully understand their potential water supply risks until emergency circumstances reveal local LURs. Further, it is not uncommon for a new landowner to make plans to install a well on his/her property with the intent of accessing groundwater, only to learn that such activity would not be allowable on that property due to an ordinance or LUR. Tennessee may consider opportunities for increasing public accessibility of information pertaining to local ordinances and LURs that may exist in locations with access to groundwater.[107]

J. Contaminants of Emerging Concern

Contaminants of emerging concern (emerging contaminants), are chemicals that, until recently, had not been detected, or were detected in far lesser concentrations than they are today, in water resources. Examples of emerging contaminants include pharmaceuticals, personal care products, endocrine disrupting compounds, micro plastics and perfluorinated compounds. The scientific community is working to understand the effects of emerging contaminants on water quality, and subsequently human health and the environment. However, as knowledge regarding these effects develops further, and as treatment technology evolves, Tennessee should seek to understand how the presence of and ability to treat water for emerging contaminants may impact water availability.

[107] There may be opportunities to enhance information currently offered to the public, such as TDEC's webpage or encourage municipalities with LURs to become members of Tennessee 811 and then use the Tennessee 811 system to alert landowners of potential LURs relating to groundwater prior to commencement of well construction.

K. Conservation and Demand Management

1. Water Loss

Based on data reported by utilities and municipalities, the Comptroller's report on water loss from 2017 states that water loss alone cost more than $64 million annually and accounts for over 51 billion gallons of wasted water a year.[108] Such monumental water losses (and subsequent increased withdrawals or expanded ARAPs) present significant opportunity for more efficient use of water (and energy) resources and associated financial savings to utilities. While some institutional and legal framework exists to address water loss through the WWFB and UMRB, development of a more direct and effective set of resources, policies, and incentives seeking to minimize water loss is necessary in Tennessee.

Tennessee experienced an unusual drought from 2006 through 2008. As a result, several water utilities in Tennessee went into emergency status due to low or no water supply. At that time a water loss of 40% or greater was common for many utilities. One municipal water utility was experiencing a 76% water loss, which means that for every gallon of water sold the utility had three gallons of water disappear. The State recognized that the proper use of the water resources in Tennessee mandated the implementation of a system for reporting and improving water losses by water utilities.

In 2007 the Tennessee General Assembly enacted legislation which gave UMRB the power to address water losses by utility districts and the WWFB the power to address water losses by municipal water systems, county water systems, and water authorities. The powers

[108] Estimates reflective of 78% of audits because 22% of the audits did not pass the filters recommended by AWWA.

given to both of these regulatory boards to address water loss are essentially the same. First, the boards were given the power to adopt rules to define excessive water loss for public water systems regulated by the boards. T.C.A §§ 7-82-702(a)(16), 68-221-1009(a)(7). Second, the regulated public water systems are required to include in their annual audit the system's water loss in the manner as prescribed by UMRB or WWFB. T.C.A §§ 7-82-401(h), 68-221-1012(b). Third, the UMRB and WWFB are granted the powers to investigate the water loss as reported and to order water systems to take the appropriate actions to reduce water loss to an acceptable level. T.C.A §§ 7-82-709(b), 68-221-1009(a)(8).

To our knowledge, investor-owned water utilities, water cooperatives, and homeowner associations are not subject to the water-loss jurisdiction of the UMRB or the WWFB. No State agency monitors or regulates the amount of water loss of the water systems operated by these water utilities.

The UMRB and the WWFB have entered orders defining excessive water loss and mandating the form required for reporting water loss to be included in the annual audit of public water systems. The board mandated the use of the American Water Works Association (AWWA) methodology to report water loss using AWWA water audit software. Under AWWA water audit software and tools, water produced or purchased by the water utility is designated either revenue water (water that someone paid for) or non-revenue water (water no one paid for). Water loss or non-revenue water is comprised of the following:

> (1) Unbilled authorized consumption (water used to fight fires or for mandated flushing of water lines);
>
> (2) Apparent losses (water theft and metering inaccuracies);

(3) Real losses (water leaks from transmission mains, storage facilities, distribution mains, or service connections).

The water loss report generated by the AWWA water audit software provides two measures: (1) a water audit data validity score; and (2) a percentage score which represents the percentage of non-revenue water (water loss) to the water utility's cost of operating its water system. The validity score is a self-measure of the water utility against best practices of other water utilities as determined by the AWWA. The goal of reporting water loss using the AWWA water audit software is to increase validity scores and decrease the percentage of non-revenue water to the water utility's cost of operating its water system.

The UMRB and the WWFB have the authority to order water systems to address water loss when the scores in an annual water audit of the water system meets or exceeds one of two water loss triggers. For audits received by the Comptroller of the Treasury from January 1, 2017 to December 31, 2018, the water loss triggers are: (1) a validity score of 75 or less; or, (2) a percentage of non-revenue water to the cost of the operation of the water system which is 20% or greater. For audits received by the Comptroller of the Treasury from January 1, 2019 to December 31, 2020, the water loss triggers become: (1) a validity score of 80 or less; or, (2) a percentage of non-revenue water to the cost of the operation of water system which is 20% or greater. The UMRB and WWFB have the power to order covered public water systems to take appropriate actions to reduce water loss to an acceptable level and to enforce those orders by filing actions in the local chancery courts to enforce their orders. T.C.A §§ 7-82-709(b), 68-221-1009(a)(8). Beyond the authorities provided to the UMRB and the WWFB to address water loss,

the state has an opportunity to incentivize water loss minimization though grant and loan programs.

2. Wastewater Reclamation and Reuse

Water reclamation and reuse also presents opportunities to use water resources more efficiently. Rapid growth in specific areas of the State has in many cases increased the cost of treating and disposing of wastewater. As receiving streams reach assimilative capacity, utilities and municipalities seek to meet total maximum daily loads (TMDLs);[109] and as the cost of open space for treatment and disposal via land application increases, reuse of treated wastewater becomes an attractive and cost-effective alternative to using potable water supply. In fact, Tennessee already has a number of municipalities and utilities engaging in wastewater reclamation and reuse for non-potable purposes. However, TDEC is aware of several communities throughout the State that are interested in pursuing potable reuse in the next ten to fifteen years. Additional policy encouraging water reclamation and reuse in Tennessee would further institutionalize efficient use of water resources.

L. Watershed District Law

Tennessee's Watershed District statutes govern the identification of individual watersheds throughout the State and regulation of boards designed to oversee each district. Tenn. Code Ann. § 69-6-101 *et seq.* Each watershed district then obtains a variety of corporate powers, including the ability to:

- Conserve soil and water to retard floods and develop water resources of the district;

[109] A TMDL establishes the maximum amount of a pollutant allowed in a waterbody and serves as the starting point or planning tool for restoring water quality.

- Construct any works or improvements for the control, retention, diversion, or utilization of water;
- Extend district boundaries or merge with adjoining watershed or drainage districts in accordance with the procedure provided in this chapter;
- Exercise all powers conferred upon levee and drainage districts; and
- Acquire water rights and distribute or sell water for irrigation or for other purposes, either within or without the district.

Tenn. Code Ann. § 69-6-118. While this law is antiquated and appears primarily intended to address flooding, with some tweaking, it may be possible that this statutory framework could be used in ways that address water supply either in certain localities or statewide.