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Examining the Water and Land Use Connection in Water Utility Planning Requirements: An Inventory of the Laws of all 50 States

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Abstract

This project examined and evaluated the legal requirements for water utility plans in each of the 50 states, with a particular emphasis on how those plans intersect with land use policy and planning. The Alliance for Water Efficiency (AWE), together with the Environmental Law Institute (ELI), surveyed the statutes and regulations of each state and extracted the relevant sections for review and evaluation.

AWE and ELI reviewed relevant laws of all 50 states to answer a series of questions about how community land use factors are considered in the requirements of water utility plans. The information gleaned from this review was validated and deepened through case study interviews within six states, chosen based on their rigorous water utility planning requirements, history of working on land use and water integration, and geographic diversity.

This report summarizes the methodology, findings, and implications of this research. The document is intended for state policy makers and local utility managers interested in integrated land use and water management.

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Overview

A community can grow and prosper when it plans for and executes sustainable management of water resources. Historically, the planning for and management of drinking water and wastewater services has been the sole purview of the community water utility, with very little connection to or collaboration with the municipal planning agencies that adopt the governing local growth plans in their service area. When water resources become scarce, the shortfall between available water supply and the demands of a growing community can significantly impact a community's ability to approve new development. Community leaders can find themselves in a bind if they have failed to plan for economic development that will be sustainable in the long run. Headlines paint a dire picture: "East Palo Alto imposes development moratorium due to lack of water," (Landgraf 2016) and "Pismo Beach approves building moratorium because of California's drought," (Johnston 2015). And water scarcity is not just occurring in California—a headline from a few years ago in Bozeman, Montana declared, "Water shortage may force West Yellowstone building moratorium" (Dietrich 2016).

The scarcity situation is further exacerbated when the local water utility and the municipal planning agencies have not closely coordinated their planning. Such coordination is not as common across the country as it should be, nor is the problem exclusive to the arid West. Even in traditionally water-rich areas, such as the Great Lakes region, new development can be impacted by a shortfall in water availability if the community's water supplies come solely from dwindling groundwater sources.

Thus, a new perspective on coordinating water and land use is needed. Better coordination will be vital to addressing long-term sustainability in the context of accelerating urbanization and population growth. Many metropolitan areas in the United States are growing at extraordinary rates, and much of this growth is concentrated in areas where water supplies are already strained. As modern cities seek to absorb thousands and even millions of additional residents in the coming years, they will need to reevaluate the traditional approach to urban planning and to better coordinate urban plans with water utility projections of available supplies.

Water utility managers are not always comfortable with this kind of coordinated planning, and historically most water and wastewater utility mangers have not been closely connected to their staff counterparts at municipal planning agencies. But that is beginning to change. This report examines which of the 50 states have enacted requirements in statute or in regulation that mandate closer coordination between the water utility planning process and the community land use agencies in the area that the utility serves. The research is aimed at providing the necessary background information to promote better coordination of water and land use planning, examining it from the perspective of the water utility planning requirements. The goal is to determine which states have the most robust requirements and can serve as models for states that lack such mandates.

The Alliance for Water Efficiency (AWE) and the Environmental Law Institute (ELI) reviewed the relevant laws of all 50 states to answer a series of questions about how community land use factors are considered in the requirements for water utility plans. The information gleaned from this review was validated and deepened through interviews within six case study states, selected for their strong water utility planning requirements, history of working on land use and water integration, and geographic diversity.

This resulting summary of the methodology, findings, and implications of this research is intended for state policy makers and local utility managers interested in integrated land use and water management.

Methods

This work was conducted in two parts: an inventory of state requirements, and interviews within six key states to verify the information collected in the inventory and to gain additional understanding about their legal requirements.

50-State Inventory

The legal requirements for water utility plans in each of the 50 states were compiled and evaluated, with a particular emphasis on how water utility planning intersects with planning for water resources in community land use. A set of seven questions were answered for each state about water utility planning requirements and how community land use factors are considered in those plans.

The detailed results for each state—with the relevant statutory and regulatory narratives for each question—are aggregated in Appendix A, with "Yes" or "No" answers for each question. All "Yes" answers have a link to the corresponding legal text. Each state has its own separate worksheet with detailed findings for each question.

Interviews and Case Studies

The research team conducted interviews of six case study states that were chosen based on their strong water utility planning requirements, history of working on the land use and water issue, and geographic diversity. The six states are: California, Colorado, Connecticut, Florida, Minnesota, and Washington. A standard set of questions was asked of key state and local staff in these case study states to obtain a deeper perspective and to document examples.

Summary: Inventory of Laws

The inventory of laws on water utility planning requirements, and how utility plans must connect with local land use, reveal the wide diversity of adopted state-level requirements. Each state that has some form of water utility planning requirements contains unique elements. When included, the land use considerations vary among states as well. This lack of homogeneity among state water utility planning requirements is likely representative of the different natural resource challenges and political climates found throughout the 50 states.

However, the overall results indicate that there is significant opportunity for states to learn from each other and to better address land use considerations in water utility planning in the future.

Summary of Responses by Question

Question 1: What are the basic administrative procedures required by state statutes/regulations for creating or updating water utility plans?

The first question of the survey identified whether the state requires water providers to submit and update plans, and if so, what process must be followed for developing, approving, and updating those plans. Thirty-two states require water utilities to submit plans, but the type and complexity of the plans, the entities involved in the review and approval process, and the frequency of required updates vary significantly. Appendix A provides the specifics of those requirements.

Question 2: Items required by state statute/regulation to be included in water utility plans.

Table 1 summarizes the findings for question 2, which sought details on 10 plan elements that might be required of water providers. The table includes the number of states that expressly require each element in statute or regulation and identifies those states. Where the requirement is weak or only remotely connected, the “yes” answer is qualified in a comment included in Appendix A.

Table 1: States with various plan elements required by statute/regulation to be included in water utility plans

Demand Forecast	Supply Assessment Forecast	Supply/Demand Challenges	Water Conservation/ Efficiency	Water Quality	Stormwater
16 states (32%) AZ, CA, CT, HI, IN, KY, MD, MI, MN, NV, NM, NC, OR, RI, VA, WA	23 states (46%) AL, AZ, CA, CO, CT, HI, IA, KY, MD, MI, MN, NV, NH, NM, NY, NC, OR, RI, SC, UT, VA, WA, WV	21 states (42%) CA, CT, HI, IN, IA, KY, MI, MN, MO, NV, NH, NY, NC, OH, OR, RI, SC, VA, WA, WI, WV	19 states (38%) AZ, CA, CO, CT, IA, KY, MD, MN, NV, NM, NY, NC, OR, RI, SC, TX, VT, VA, WA	20 states (40%) AL, CA, CT, HI, IN, KY, MD, NH, NJ, NY, NC, OH, OR, RI, TN, UT, VT, VA, WA, WV	1 state (2%) MD
Water Infrastructure	**Drought**	**Climate Change**	**Water Management**	**Other Specific Requirements**	
19 states (38%) AZ, CA, CO, CT, HI, IN, KY, MD, MN, NV, NH, NJ, NY, NC, OR, RI, VA, WA, WV	16 states (32%) AL, AZ, CA, CT, KY, MN, NV, NM, NY, NC, OH, RI, SC, TX, VA, WA	1 state (2%) CA	10 states (20%) AZ, CA, CO, CT, MN, OR, RI, SC, TX, WA	16 states (32%) AL, CA, CO, CT, HI, KY, MN, NV, NY, NC, OR, TN, TX, UT, VA	

As Table 1 illustrates, no single state requires inclusion of all 10 topics in a mandated water provider plan. Supply assessments or forecasts are the most common requirement of the 10, but still fewer than half the states require it. As suggested above, the detail required for each of these topics varies significantly from state to state. Generally, Arizona, California, Connecticut, Hawaii, Kentucky, Nevada, North Carolina, Oregon, Rhode Island, Virginia, and Washington have the greatest depth and breadth of detail required for mandatory water supplier plans, although most are stronger on some topics they cover than others. Some of the other states require extensive detail on one or more of the few topics they require in the plans.

Question 3: Are water utilities required to incorporate land use considerations (including but not limited to building/plumbing codes, subdivision regulations, land use plans, site plan reviews, development reviews, and things affecting zoning) into their water plans?

Our analysis found that only nine states require water utilities to incorporate land use planning into their water plans. The methods water utilities are required to use to incorporate land use considerations vary considerably. Details from each of the nine states are listed below.

1. **California** requires that water use projections display and account for land use plans identified by the urban water supplier and are applicable to the supplier's service area. Additionally, California legislation requires local land use authorities to demonstrate long-term water supply availability before projects are approved. (See the detailed Case Study on California.)
2. **Colorado** requires that water utility plans include best management practices for water demand management, water efficiency, and water conservation that may be implemented through land use planning efforts. They also have a very comprehensive voluntary coordination process on water and land use activities involving multiple stakeholders in the Colorado Land and Water Planning Alliance. (See the detailed Case Study on Colorado.)
3. **Connecticut** requires that any plan contain an analysis of present and future water supply demands, including descriptions of local, state, and regional land use plans, policies, and zoning as related to projected water demands and future service areas. The state also runs a detailed regional coordination process, the Water Utility Coordinating Councils, that involves local land use planners. (See the detailed Case Study on Connecticut.)
4. **Kentucky** requires representatives of each county, its municipalities, and the water suppliers to form a planning council to supervise the water supply planning process and to review any plans and studies by city, county, regional, state, and federal agencies that are related to, among other things, commercial and industrial growth, including existing ordinances and planning goals.
5. **Maryland** requires that each county account for all relevant planning and zoning information in its plan, in order to achieve development of the water supply and sewerage systems that are consistent with county comprehensive planning.
6. **Rhode Island** requires that water supply system management plans are coordinated with applicable local comprehensive plans.
7. **Tennessee** requires that wellhead protection plans and contaminant source inventories address land management strategies.
8. **Utah** requires public water systems to consider land management strategies to control pre-existing potential contamination areas. This includes working with towns and counties to protect groundwater sources from potential hazardous contamination.
9. **Washington** requires that all water system plans and small water system management programs include local land use plans with basic data such as land use, zoning, population, and water demand. (See the detailed Case Study on Washington.)

The types of land use plans and practices that water suppliers or associated entities must incorporate into their water plans vary, as do the methods of incorporation. Moreover, the level

of legal detail regarding the incorporation of land use plans into water plans ranges widely from state to state.

Question 4: Please identify the threshold type or size of agency/utility that triggers the water utility plan requirements above (as listed in state statute/regulation).

Thirty-one states specify a threshold type or size of agency or utility that triggers water utility planning requirements. A variety of thresholds were observed throughout the different states. They are listed below.

- 15 connections/25 people
  - AL, AZ, HI (+ other requirements), IN, KY, MI, MO, NH, NC (+ more conditions), OH, RI (+ other requirements), TN, UT, VT, VA, WV, WI,
- 1,000+ people (or other variations of that)
  - CT, MN, OR (1000+ or 300+ connections), WA
- 3,300+ people
  - NY
- 500 + Service Connections
  - NJ
- 3,300 + Service Connections
- 2,000 acre-feet and above
  - CO
- 3,000 acre-feet (or 3000 end users)
  - CA
  - TX
- Many non-numeric conditions
  - IA, MD, NV, NM, SC

Seventeen states require utilities that qualify as public water suppliers to develop a certain type of water plan. They define a "public water supplier" as an agency or utility that provides year-round service to 15+ connections or 25+ people, a definition drawn from the federal Safe Drinking Water Act. This threshold was by far the most common; over 50 percent of states with listed thresholds (16/30) use this standard. Four states use a larger threshold, not requiring the development of a plan unless the utility supplies over 1,000 people. No other threshold was used by more than one state.

Question 5: Are community land use plans required to incorporate water utility plans?

Ten states require community land use plans to incorporate water utility plans or water quantity and quality concerns. The details for each of these 10 states are listed below.

1. **Delaware** requires counties with 2,000 or more residents to adopt comprehensive land use plans that detail critical areas such as source water assessment, wellhead protection, and groundwater recharge potential. Additionally, these counties must adopt regulations to protect critical areas that may harm or endanger water quality.

2. **Florida** requires local governments to consider water supply and demand information when developing any comprehensive plan. Additionally, coordination with the appropriate water district(s) is required.
3. **Maryland** requires that drinking water, stormwater, and wastewater be included in the land use element of any comprehensive plan.
4. **Minnesota** requires that all communities with a municipal water system in a metropolitan area include a water supply plan in the local comprehensive plan.
5. **Montana** requires every county to have a growth plan. Within this growth plan, each county must have a strategy to develop and maintain drinking water systems, sewer systems, and water treatment plants.
6. **Nevada** requires that each county with between 100,000 and 700,000 people develop a comprehensive regional plan that includes policies relating to water protection, natural recharge areas, wetlands, and floodplains.
7. **Rhode Island** requires that comprehensive plans include sections about natural resource identification and conservation (water, wetlands, floodplains, aquifers, etc.), services and facilities (water supply management, wastewater management, and water conservation), and implementation programs.
8. **South Carolina** requires that local comprehensive plans include a community facilities element that considers water supply and sewage system nuances.
9. **Virginia** requires local governments to adopt a local program that includes revisions to comprehensive plans, water supply plans, or water and sewer plans that are necessary for the local region.
10. **Washington** requires local comprehensive plans to have a land use element that includes protections of the quantity and quality of groundwater used for public water supplies.

While each of these states has distinct ways of incorporating water utility plans and other water concerns into community land use plans, a few characteristics are common. Five of the 10 states expressly mention water supply in statutes or regulations that specify the required content of land use plans. Additionally, multiple states require the inclusion of drinking water and sewage elements in land use plans, albeit with different levels of emphasis.

Each state requires unique elements to be included in land use plans, such as stormwater, groundwater, wetlands, and wellhead considerations. Overall, the 10 states approach the inclusion of water concerns in land use planning quite differently, which offers a variety of examples from which to learn.

<u>Question 6: Are water utilities required to coordinate with land use planners in their communities?</u>

This question concerned communication and collaboration between water and land use planners. Only six states require in statute or regulation, that water utilities directly coordinate with land use planners in their communities.

1. **Connecticut** requires the Department of Health to notify local governmental officials and regional planning organizations of new water supply plans and to request comment on them.

2. **Maine** requires that trustees of a sewer district cooperate with municipal officials in the development of growth management or other land use plans and ordinances.
3. **Rhode Island** requires water suppliers to coordinate with appropriate municipalities on service expansions that are consistent with the comprehensive plans of those communities.
4. **Tennessee** requires that wellhead protection plans list the steps the public water system is taking to protect and manage the wellhead protection area. This includes proposed local ordinances in cooperation with the regional government.
5. **Virginia** requires community water systems to cooperate and participate with the local government during the preparation of water plans, resource conditions, and drought response and contingency plans.
6. **Washington** requires water purveyors to request adjacent utilities and local governments to review their water system plans for consistency with other planning efforts.

While there is coordination between water utilities and land use planners in each of the six states, the level and type of coordination varies. Connecticut, Virginia, Maine, and Rhode Island all require cooperation between various types of water companies (utilities and sewer districts) and land use planners (local governments and regional planners) to help establish local plans. Tennessee and Washington have distinct cooperation protocols focused on specific water plans: wellhead protection planning and water system planning, respectively.

Question 7: Is state funding or other assistance available to support this coordination between water utilities/plans and land use planners/plans?

Only three states indicate in statute or regulation the availability of funding or other assistance to help support coordination between water utilities and land use planners. Other states might offer financial assistance in ways not expressly authorized by law, but those programs are beyond the scope of this analysis.

1. **California**'s Regional Water Planning Act of 2002 provides state funding to support integrated, multi-benefit regional water projects.
2. **Colorado**'s Water Conservation Board and division of Local Government provide free training on water demand, consumption, and usage to local land use and water planners.
3. **Maryland** has a Sanitary Facilities Fund which is available to finance the development of county plans for water and sewage facilities.

California is the only one of these three states to provide direct monetary support to coordinate land use planners and water utilities. Colorado and Maryland have chosen indirect methods, such as providing training or financing the development of a local governmental plan. Colorado's Division of Local Assistance additionally provides staffing support for supporting the integrating of water and land use planning at the local level.

Summary of Results

The data collected and organized in Appendix A reveal the wide diversity of state-level water utility planning requirements and their land use considerations. Each state that has water utility

planning requirements contains unique elements. When included, land use considerations vary among states as well. This lack of homogeneity among state water utility planning requirements is likely representative of the different natural resource challenges and political climates found throughout the 50 states. However, the overall results indicate that there is significant opportunity for states to learn from each other and better address land use considerations in water utility planning in the future.

Interviews and Case Studies

California, Colorado, Connecticut, Florida, Minnesota, and Washington were chosen as case study states for additional research based on their strong water utility planning requirements, history of working on the land use and water issue, and geographic diversity. The deeper perspective provided by these interviews enabled the documentation of example programs and activities to better coordinate water utility and land use planning.

California

California has been a leader in many resource management areas, and comprehensive water utility planning is a clear example of that. The Urban Water Management Planning Act, enacted in 1983 and amended numerous times thereafter, establishes the most comprehensive set of planning requirements for water supply providers in our survey. It is the only state that requires water providers to consider climate change in their plans. In addition, separate pieces of "show me the water" legislation (SB 901, SB 610, and SB 221) enacted over the past 20 years require new land use to document sources of water supply. While that presumably indicates a very strong connection between water and land use in California, the state still does not require a water element in general plans, although there is a specific legislative mandate that the water utility to coordinate with the land use planners in their service areas when preparing utility plans.

California water utilities are beginning to work with land use planners in their communities in several more creative ways: for example, California is the only state in our survey to provide direct monetary support to coordinate land use planners and water utilities. Another initiative by Smart Growth California mounted in 2019 aims to better connect the dots between water and land use in the state (Smart Growth California 2019). The California Department of Water Resources (DWR) manages the review of urban water management plans submitted by water providers every five years under the Urban Water Management Planning Act (California Open Data Portal 2015). In addition, DWR administers the Model Water Efficient Landscaping Ordinance, adopted in 1993, which requires cities and counties to adopt land use ordinances on water efficient landscaping requirements for new development—although enforcement of this requirement remains spotty (California Department of Water Resources). The Governor's Office of Planning and Research (OPR) provides support and guidance on land use planning issues to communities in California. Research has been done over the past two decades on the water and land use connection by the Public Policy Institute of California (Governor's Office of Planning and Research). More information on that topic follows below.

Interviews began with a review of the initial survey and data collection conducted by the Environmental Law Institute and the Alliance for Water Efficiency, compiled in Appendix B. The interviews progressed through the six questions for discussion.

1. What was the reason for the mandate adoption? What led up to it? Who were the key stakeholders? Did any of the stakeholders surprise you? Was there any political backlash or groups that lobbied against the mandate?

   The basic requirements for urban water supply planning were adopted in state law in 1983 in the Urban Water Management Planning Act. The statute was adopted due to a very severe drought that plagued California in the late 1970s and caused water shortages. Water providers serving 3,000 or more connections or 3,000 acre-feet or more per year are required to file plans every five years. DWR manages the urban water management planning process, but it is not required by law to actually approve the plans as sufficient, only that the plans are complete according to the checklist contained in the law. State funding in the past has been tied to a complete urban water management plan on file. The statute has been amended numerous times to add additional reporting requirements.

   Key stakeholders in this process have been the water supply utilities, represented in the aggregate by the Association of California Water Agencies. While the utilities have been generally compliant with the law, they are vigilant watchdogs on what new requirements are being added and are generally not the proposers of the changes (although that was not the case in 1993 when they were indeed the active proposers). Another important participating stakeholder is the Natural Resources Defense Council, as they were active in proposing new amendments to the law on multiple occasions. The Building Industry Association has also been involved, as they are concerned that adequate water supplies remain available for development. No stakeholders were actively opposed to the urban water planning mandates in general, although the water providers often grumbled about the extent of new requirements being added to the law.

2. What else is in your legal framework other than what is here? Are there other legal requirements that enable or support land and water integration?

   Another drought that plagued California in the late 1980s and early 1990s resulted in the passage of additional legislation that aimed to ensure that adequate water supplies were identified to support large developments (e.g. 500 dwelling units or more). There were three bills that addressed this issue: SB 901, SB 610, and SB 221 (California Legislative Information 1995; 2001a; 2001b). These "show me the water" bills, originally the idea of the East Bay Municipal Utility District, were enacted over a period of years from 1995 to 2001, and the overall purpose of the bills was to require new developments to authenticate the sources of water supply to serve them.

   There has been some controversy over whether these laws have actually solved the problem. Ellen Hanak of the Public Policy Institute of California has published several evaluations of the water and land use issue (Public Policy Institute of California 2005). She found that that the "show me the water" laws are indeed being enforced effectively, despite the reports that

new developments were being sized in 499-unit chunks specifically to avoid compliance with the law. “The challenge is to screen the development applications well without unreasonably slowing approval of the development,” says Hanak.

3. How do the requirements work in practice and implementation? Are there any lessons learned or results that you can share?

   The Urban Water Management Planning Act seems to be working well and has had a strong track record that is more than 35 years old. The last filed plans were in 2015, and 467 water suppliers filed plans as required, including 11 suppliers below the required threshold. The next round of plans is due to be filed by December 31, 2020.

   The planning requirements for water utilities are quite detailed, but the law does not require that the water provider actually implement the activities in the plan. Every five years the utility is required to file a plan which summarizes what they have achieved in water supply reliability. A separate law requires that utilities achieve a 20 percent reduction in water use demand by 2020, and that law is the mechanism to achieve the water use reduction that is presumably planned for in the Urban Water Management Plans.

   In 2011, SB 244 was passed, which requires the planning and zoning agency to include in its final approval a legal determination of the adequacy of the present and planned capacity of public facilities and adequacy of public services, including sewers and water (California Legislative Information 2011). When the Housing Element of the General Plan is updated, an assessment of drinking water must be provided.

Lessons Learned:

- Many utilities work with new development projects to require efficiency measures and to reduce expected water use. For example, in 1989 the El Dorado Irrigation District reached an agreement with Serrano Partners to develop a system to provide recycled water to irrigate the master planned community's front yards, backyards, parks, common areas, and golf course. These kinds of requirements are starting to become commonplace in California.
- The Model Landscape Water Efficiency Ordinance, adopted in 1993, requires cities and counties to adopt land use ordinances requiring water efficient landscaping for new development. Updates in 2010 and 2015 were opposed by some municipalities. Enforcement of this ordinance remains spotty since there is no penalty nor loss of state funding for non-compliance. Model ordinances need teeth to ensure success.
- In sensitive groundwater basins, communities like Madera County have adopted development ordinances that assess the impact of development on groundwater supplies. This has been a useful tool.
- A water and land use review is triggered by the California Environmental Quality Act (CEQA) when the development is a large enough size (as triggered by SB 610 and SB 221). Although there is no mandatory requirement for communities to have a water element in their general plans, this CEQA trigger has been useful to enable land use

agencies to get involved in large projects that will have an impact on water supply reliability.

- Typically, no one looks to the State of California for enforcement. Parties just go to the courts directly when aggrieved by non-compliance.
- Our interviewees did not believe California needed more new laws on water and land use. "This is an unfunded mandate" is a familiar refrain from those opposing new requirements, where local politics may not be focused on long term water resource sustainability. There has historically been a resistance to making the water element mandatory in the general plan at the local level, although OPR does provide guidance on how to produce a water element for communities that wish to do so.
- On the other hand, best practices in new development have progressed over the years, and planners are increasingly taking the opportunity to get reductions in water use in development through the site plan review process. This works most effectively when sunk investments haven't already been made by the developer and where there is flexibility to accommodate changes.

4. Do your utilities coordinate with land use planners anyway at the local level without a legal mandate? Provide anecdotes and examples of exemplary utility coordination.

   Some water providers have instituted regular communication on their own with their local land use agencies. One good example is the East Bay Municipal Utility District, who develops the estimates of their future projections for water use in their urban water management plan based on the full build scenarios of the zoning maps in the communities that they serve. They also sometimes require "offsets" of projected water use in a new large development when it will have to be annexed to them for service.

   Many utilities do work with new development projects to require efficiency measures and reduce the expected water use. As discussed above, in 1989, the El Dorado Irrigation District reached an agreement with Serrano Partners to develop a system to provide recycled water to irrigate the master planned community's front yards, backyards, parks, common areas, and golf course. These kinds of requirements are starting to become more prevalent.

   Lastly, in the summer of 2015, the Governor's Office of Planning and Research began an outreach project to ask the question, "How do we better align land use and water?" Around 100 phone interviews were conducted, and six regional workshops were hosted around the State in addition to two statewide conversations in Sacramento. The phone interviews and statewide discussions drew from a range of leaders in the water and land use sectors. Specific recommendations in six categories (Data/Information/Tools; Governance; Financing; Laws/Regulations; Planning/Management; and Public Education/Leadership) were made by the participating stakeholders. Principal conclusions were as follows: trust is an issue and relationships need to be created; sharing the same foundational data is critical, especially at the parcel scale to avoid discrepancies; and water budgets should be prepared at the watershed scale.

5. Do you have any groups or stakeholders that are actively working to connect land use and water?

   The water supply providers are a key stakeholder group, represented by the Association of California Water Agencies. The Local Government Commission, based in Sacramento, has been doing significant work in this area and published a report in April 2019 on how to better bring water and land use together (The Local Government Commission 2019). The Building Industry Association is also a main participant in water and land use discussions, as is the Farm Bureau of California. Unfortunately, the California Section of the American Planning Association does not appear to be very involved in this issue, in the opinion of those interviewed.

   However, active citizens are also stakeholders, as the existing laws enable citizen enforcement of the statutory requirements. The gaps are in faster-growing areas of the state that do not have an informed citizenry. But where active citizens participate in watershed groups, very progressive work can be accomplished. For example, the Ventura County Watershed Council contributed in 2019 to the development of a countywide watershed plan, the Ventura County Integrated Regional Water Management Plan, and also completed a watershed management plan for the Ventura River watershed which provides land-based actions to increase stream flow (Watershed Coalition of Ventura County 2019). Every water utility in the county was at the table for those negotiations.

6. How do you otherwise support water utility planning, program implementation, or coordination with land use planners (e.g. educational programs, grant funding)?

   An initiative mounted in 2019 by the Community Water Foundation aims to better connect the dots between water and land use in the state. The Local Government Commission Report (mentioned above) is a primary source of information and recommendations on how to improve water and land use coordination.

   In addition, the California Legislature passed the Regional Water Management Planning Act (SB 1672) in 2002. This act provides state funding to support and advance integrated, multi-benefit regional water projects through the Integrated Regional Water Management (IRWM) program. The Local Government Commission's report (mentioned above) signaled that these IRWM grants could be a significant source of future water and land use coordination projects since the money is available and usable for that purpose.

Colorado

Colorado was chosen as a case study by virtue of the extraordinary work they are doing on connecting water and land use—not from the perspective of specific state legal requirements, but from the perspective of achieving the goal on a voluntary basis. This case study explains why so much is being accomplished without a strong state statutory mandate.

Colorado does, however, have a state requirement for utility planning for water conservation. The Water Conservation Act of 2004 mandated that all retail water providers that sell 2,000 acre-

feet or more on an annual basis have a state-approved water efficiency plan containing certain required minimum plan elements (Colorado Water Conservation Board Department of Natural Resources). A guidance document to assist water utilities was issued in 2005; this was an important step to getting water utilities on board. The guidance document was subsequently updated in 2012, and an important addendum to the guidance document covering "Best Practices for Implementing Water Conservation and Demand Management Through Land Use Planning Efforts" was issued in 2019 (Castle and Rugland 2019).

In 2015, SB 8 was enacted, which set the stage for the introduction of land use coordination into the water efficiency plans (codified as §37-60). The Colorado Water Plan was also adopted in 2015 with the help of hundreds of stakeholders and over 30,000 comments from interested persons across the state. One objective of Colorado's Water Plan is that by 2025, 75 percent of Coloradans will live in communities that have incorporated water-saving actions into land use planning. Colorado is the first and only state in the country to articulate such a goal in its State Water Plan.

Colorado is a local control state, largely without much state guidance on planning. But it is also the only state to have created a statewide organization to integrate water and land use issues. The Colorado Water Conservation Board (CWCB) and the Department of Local Affairs (DOLA) have been working together on these issues since 2009, and in 2017 they formed the Colorado Water and Land Use Alliance, a broad stakeholder coalition which is co-managed by DOLA and the CWCB. More information on the Alliance follows below.

Interviews began with a review of the initial survey and data collection conducted by the Environmental Law Institute and the Alliance for Water Efficiency, attached in Appendix B. The interviews progressed through the six questions for discussion.

1. What was the reason for the mandate adoption? What led up to it? Who were the key stakeholders? Did any of the stakeholders surprise you? Was there any political backlash or groups that lobbied against the mandate?

   The requirements in §37-60 for water efficiency plans derived from the passage of Senate Bill 8 in 2015, sponsored by Senator Ellen Roberts from Durango. The bill contained language requiring water utilities to include in their water efficiency plans "best management practices for water demand management, water efficiency, and water conservation that may be implemented through land use planning efforts." It also required the CWCB, in consultation with DOLA, to develop training programs which must be provided "on a recurring basis, free of charge to local water use, water demand, and land use planners." Lastly, the bill requires CWCB and DOLA to "make recommendations on how to better integrate water demand management and conservation planning into land use planning."

   This is a pretty remarkable bill. How did it happen? And how did it pass in just one year?

   The key here was the West Slope stakeholders, who firmly believed that the Front Range municipalities were not doing enough water conservation and were thus not wisely using the water supplies that were largely being drawn from the West Slope. They were also feeling

the impacts from wildfires in Northern Colorado that were impacting available water supplies, and West Slope water that was also becoming degraded. Senator Roberts was motivated by these West Slope stakeholders to better define water conservation requirements for Front Range utilities, and to force a reckoning with climate change and land use growth. She also firmly believed that more training on a widespread basis throughout the state was necessary to "ensure that an essential conversation was happening."

The secret to passage of this bill in just one year was her leadership. Key stakeholders like The Colorado Municipal League and the Colorado Counties, Inc., were both strongly opposed to the concepts in the bill and charged that she was "meddling in their territory." During the interim between the 2014 and 2015 sessions, she worked closely with them both to craft bill language that met their concerns, and also including Denver Water in the discussion.

2. What else is in your legal framework other than what is here? Are there other legal requirements that enable or support land and water integration?

   Colorado has a strong local control framework. Cities and towns are legally enabled to make all land use decisions on their own with very few requirements in general from the State for local comprehensive planning. Since the local communities have full autonomy, they tend to resist any state requirements being imposed on them for best planning practices. For example, HB 1095—which passed in 2020 outlining water policies in comprehensive plans—took four years to pass because of stiff opposition.

   Also, Colorado has water adequacy statutes which factor into local land use decisions. Since 1972, counties have been subject to the requirement that a board of county commissioners may not approve a preliminary plan or final plat unless the developer has provided evidence that there will be a sufficient water supply for the proposed subdivision in terms of quantity, dependability, and quality. The statutes specify the detailed procedures for a review by the State Engineer as to any likely material injury to other water rights and the adequacy of proposed water supply to meet the requirements of the proposed subdivision.

3. How do the requirements work in practice and implementation? Are there any lessons learned or results that you can share?

   Because the legal requirements for water efficiency plans are not onerous, they seem to work well in practice, particularly because the CWCB and DOLA provide such strong technical and financial support. DOLA is non-regulatory and they provide training, technical assistance, and funding.

   Lessons Learned:

   - The winning concept was to marry water efficiency and land use plans. That was one of the keys to getting SB 8 passed.

- DOLA is non-regulatory, so it is not threatening to towns or to water providers. Local communities can request funding for preparing comprehensive plans. Funding and assistance from DOLA clearly drive the innovation process at the local level.
- Requiring water planning is not the only path to success. Colorado has achieved some very progressive approaches with "carrots" like training and funding.
- It was important to prepare the guidance document addendum "Best Practices for Implementing Water Conservation & Demand Management Through Land Use Planning Efforts" to give communities and water utilities a perspective for how to integrate water and land use planning. Training workshops were also held across the state in fall of 2019 to educate water providers about this new guidance.
- The law does not require that water suppliers file demand forecasts with their water efficiency plans, but Kevin Reidy at the CWCB makes water suppliers do it anyway to ensure that the planning is more comprehensive.
- Interestingly the water utility plans do not include drought planning—this in a state that suffers from drought on a regular basis. Drought response is managed at the state level through a State Drought Mitigation and Response Plan.
- Key stakeholder organizations like the Colorado Municipal League, the Colorado Counties, Inc, and the Special District Association generally oppose bills including new local requirements at first, but keeping them engaged will reduce their opposition long term—and once on board they become really good partners. All three organizations are now active participants in the Colorado Water and Land Use Planning Alliance.

4. Do your utilities coordinate with land use planners anyway at the local level without a legal mandate? Provide anecdotes and examples of exemplary utility coordination.

   In preparing water efficiency plans, utilities must include "best management practices for water demand management, water efficiency, and water conservation that may be implemented through land use planning efforts." This language comes straight from § 37-60. Although "may" provides less than a hard requirement, it still is remarkable that land use planning efforts were singled out in this statute.

   Following up on § 37-60, DOLA provides the "carrots" of technical assistance and funding to make this coordination happen. Foremost in all of this is the creation of the Colorado Water and Land Use Planning Alliance, which has created significant coordination energy with stakeholders at their quarterly meetings. Very good working relationships have been built in the Alliance with a lot of collaborative partnerships. The Alliance gets local governments interested in beginning to institutionalize water into the planning process, in a voluntary, non-threatening way. Westminster is an example of a community where that has happened, even before the Alliance was formed. Alliance members have helped numerous Colorado communities with a variety of planning processes, including adding water policies to comprehensive plans, writing landscaping ordinances, and updating building codes. In addition to providing direct technical assistance, Alliance members are working to create metrics that measure the effectiveness of land use and water integration actions. The goal for these metrics is to empower local governments to self-assess their efforts as well as to enable the state to track progress towards the Water Plan goal.

5. Do you have any groups or stakeholders that are actively working to connect land use and water?

   The stakeholders and groups working on connecting land use and water are all part of the Colorado Water and Land Use Planning Alliance, which is co-convened by CWCB and DOLA. The list of participants currently stands at 121 members. This strong network of stakeholders includes: NGOs (Sonoran Institute, the Babbitt Center for Land and Water Policy at the Lincoln Institute of Land Policy, and Western Resource Advocates); state government staff (CWCB, DOLA, the Colorado Department of Agriculture, and the Colorado Department of Health and Environment); academic researchers; local communities; and water utilities (Denver Water, Aurora, Westminster, Colorado Springs, Greeley, Fort Collins, and others).

6. How do you otherwise support water utility planning, program implementation, or coordination with land use planners (e.g. educational programs, grant funding)?

   Funding is available from the CWCB for the creation and implementation of water efficiency plans. The "unobligated balance of the five percent share of the severance tax operational fund" can be used to provide assistance. Further, the general assembly is obligated to appropriate up to $500,000 annually for the purpose of providing grants to utilities and other state and local governmental entities to aid in the planning and implementation of water conservation plans and education and outreach programs. The funding also covers the preparation of drought plans, but since these are not legally required, not many communities apply.

   The CWCB also has funding for water plan grants appropriated by the Legislature. To date CWCB has received $4.75 million for the Water Conservation and Land Use Grant Fund. These funds are required to tie back to the objectives of the State Water Plan.

   Funding is also available from DOLA for local communities to prepare comprehensive plans. Many communities take advantage of this funding, and because of that, DOLA can require more innovative, best practice approaches in the comprehensive plans. Over the lifetime of the program, DOLA has funded 158 comprehensive plans. In these grants, integration between water conservation and land use is encouraged (Colorado Department of Local Affairs).

   Training programs for smart land use are also funded. The Sonoran Institute ran "Colorado Growing Water Smart" training workshops, funded jointly by the Lincoln Institute of Land Policy, Gates Family Foundation, and the CWCB (Sonoran Institute and Lincoln Institute of Land Policy 2019). Another series of workshops will be starting soon. It seems to be the appropriate pipeline to introduce municipalities to the land use/water integration world and the Alliance, and it is in the training workshops that participants learn about the availability of DOLA's and CWCB's technical and financial resources. Six Colorado workshops have been held as of this writing, training local leaders that represent 3.5 million people or 56 percent of population in the State. The next round of workshops may end up increasing that

number to jurisdictions that serve 75-80 percent of the state's population. The training is successful because it presents an attractive "toolbox" approach, which gives options for tailoring programs to the local community's needs. With this approach even small, rural, conservative communities are now participating.

Here is another interesting funding story, one that speaks to the NGO/State government collaboration that Colorado does so well. The Babbitt Center at Lincoln Institute approached CWCB and DOLA in 2018 with a proposal to help fund a position to work on land use and water integration at the Colorado Water and Land Use Alliance. The State of Colorado couldn't justify creating a new FTE at the time, and was struggling trying to staff the Alliance since this was another job on top of other regular jobs. A compromise was reached whereby CWCB and DOLA funded 25 percent each and the Lincoln Institute funded 50 percent for the Alliance position for a period of two years. That arrangement is just wrapping up now, and Christy Wiseman, DOLA's current Land Use and Water Planner, will move into the position created by HB 20-1095. Thus, the budget constraints were overcome by innovative funding, collaboration, and institutional support.

Connecticut

Connecticut is a national leader in the requirements for water utility planning and was one of the strongest states found in this survey, not only in water utility planning but also in the area of coordinating water and land use. Efforts on these issues go back to 1985 when a Water Resources Task Force Report recommended new laws be adopted to deal with the recent drought that had depleted the state's drinking water reservoirs (State of Connecticut General Assembly Environmental Committee 1985). Major water supplier planning legislation was enacted requiring that water utilities supplying 1,000 or more people or 250 or more connections must develop a water supply plan that evaluates the water supply needs in the service area and proposes a strategy to meet those needs. That same statutory section requires utilities to include in their water supply plans a description of any local, state and regional land use plans, policies, and zoning as related to projected water demands and future service areas.

The water assessment prepared in the water utility plan must also be coordinated with other water providers and stakeholders in the region's watershed under a "Water Utility Coordinating Committee" process (Connecticut State Department of Health). That process is described below. Also enacted in 1985 was a requirement for a water quality classification of the state's groundwater basins, similar to the classification of surface waters that had been developed 10 years earlier. This is a major undertaking and has served the state well in avoiding needless contamination of water supplies. Connecticut remains today a leader in drinking water quality—it is the only state in the country that prohibits the discharge of wastewater and water-borne contaminants into Class A or Class AA (drinking water quality) streams and groundwater basins.

A State Water Plan was adopted in June 2019 following a 2016 drought that occurred in Connecticut (Connecticut Water Planning Council). The plan aims to balance the uses of water, promote a stronger water conservation ethic, and maintain the highest water quality. There are 17 requirements for State agencies to undertake in the State Water Plan, which includes a recommendation on land use measures (#6).

Requirements of the State Water Plan

1. Identify the quantities/qualities of water available
2. Identify present/projected demands for water
3. Recommend utilization of water resources to balance public water supply, economic development, recreation, and ecological health
4. Recommend steps to increase the climate resiliency of existing water resources and infrastructure
5. Recommend technology and infrastructure upgrades, interconnections, and/or major engineering works
6. Recommend land use and other measures to ensure the desired water quality/abundance and promote development in concert with available water resources
7. Take into account desired ecological, recreational, agricultural, industrial, and commercial use of water bodies
8. Inform state residents on the importance of water resource stewardship/conservation
9. Establish conservation guidelines/incentives for water conservation with energy efficiency consideration
10. Develop a water reuse policy with incentives for matching the water quality to the use
11. Meet data collection and analysis needs to provide for data-driven decisions
12. Account for the ecological, environmental, public health/safety, and economic impact implementation will have on the state
13. Include short- and long-range objectives/strategies to communicate and implement the plan
14. Incorporate regional and local plans/programs for water use and management
15. Promote intra-regional solutions and sharing of water resources
16. Develop and recommend strategies to address climate resiliency
17. Identify modifications to laws/regulations necessary to implement recommendations

Connecticut also has a State Plan of Conservation and Development, which was first required by a House Joint Resolution in 1971 (State of Connecticut Office of Policy and Management). A plan was published in September 1974, and it served as the official policy for the Executive Branch in matters pertaining to land and water resources conservation. In 1976 the Plan was made official in state legislation, and required to be approved by the Legislature on a five-year cycle. The current plan contains six growth management principles, one of which is to "Promote Integrated Planning Across all Levels of Government to Address Issues on a Statewide, Regional and Local Basis."

The draft 2018-2023 Plan of Conservation and Development still awaits Legislative approval as required by law (Capitol Region Council of Governments 2016). The State Office of Policy and Management (OPM) administers the State Plan, but it has no purview over water utilities and their possible compliance with it. Public water utilities are regulated by the Department of Public Health and the Department of Energy and Environmental Protection, and private water companies are regulated by the Public Utilities Regulatory Authority.

The Regional Plans of Conservation and Development and Municipal Plans of Conservation and Development must be consistent with the State Plan. Any state funding for projects is tied to this

compliance, and a sponsoring agency for funding may ask OPM for a formal determination whether a project is indeed in compliance with the Plan. Compliance with the Connecticut Environmental Policy Act is also a factor in determining if state funding will be allowed.

Connecticut's current slow growth rate has rendered the State Plan of Conservation and Development less influential in the water and land use discussion.

Interviews began with a review of the initial survey and data collection conducted by the Environmental Law Institute and the Alliance for Water Efficiency, attached in Appendix B. The interviews progressed through the six questions for discussion.

1. What was the reason for the mandate adoption? What led up to it? Who were the key stakeholders? Did any of the stakeholders surprise you? Was there any political backlash or groups that lobbied against the mandate?

   The original water supply planning law contained in §25-32d was adopted in 1984. After a drought lowered drinking water reservoirs throughout Connecticut in 1987-1989, the law was amended in 1989 to add strict requirements for preparing water conservation plans as a condition of a water supply permits issued by the Department of Public Health. This section of the law has been amended at least a dozen times since then.

   Key stakeholders in this process at that time were the state regulatory agencies (Public Health and Environmental Protection, acting on the orders of the Governor) and water utilities represented by the Connecticut Water Works Association. Environmental groups concerned about diminishing flows in rivers were also stakeholders participating in the process. There was no political backlash to the water supply planning requirement, but some of the water providers did balk at a separate bill in 1989 requiring them to conduct water conservation programs that would be pre-approved by the Department of Public Health.

   More recently, the stakeholders involved in water issues (like the State Water Plan) are still mostly the water providers and environmental groups. The Rivers Alliance of Connecticut is a particularly active stakeholder, and includes numerous watershed organizations such as the Farmington River Watershed Association and the Housatonic Valley Association. Key stakeholders that do not seem to be involved are the real estate industry and chambers of commerce. Homebuilders in particular have been difficult stakeholders if they are not involved early in the process.

2. What else is in your legal framework other than what is here? Are there other legal requirements that enable or support land and water integration?

   Connecticut has a unique water utility coordination process which was adopted in 1985 after a model pioneered in Washington State. The Water Utility Coordinating Committees (WUCCs) are convened by the Commissioner of Public Health, one for each water supply management area. There are three WUCCs: Western, Central Corridor, and Eastern.

Each WUCC must prepare a coordinated water system plan for their public water supply management area, and promote cooperation among public water systems and stakeholders in the region. The plans must cover a number of utility related issues and must also include integration of land use and water system plans. All three WUCC's in Connecticut have developed plans and received State approval for them. Funding from the State was provided to help bring the WUCC plans to fruition.

The Department of Energy and Environmental Protection (DEEP) enforces an Aquifer Protection Act program that works to control potentially toxic land uses to prevent them from being located over mapped and designated aquifer recharge zones (Connecticut Department of Energy and Environmental Protection). This is a program that intersects with municipal land use agencies. Technical training is provided to help local officials manage the program (Connecticut Department of Energy and Environmental Protection).

On September 19, 2019, Governor Lamont issued Executive Order No. 3 amending an Executive Order in 2015 that created a Climate Change Initiative, including a Governor's Council on Climate Change (State of Connecticut 2019 and Connecticut Department of Energy and Environmental Protection). By December 31, 2021, each state agency must report on what measures they will take to address climate change; included in this mandate is the State Water Plan, the State Plan of Conservation and Development, and coordination of publicly regulated water systems. This will be a further opportunity to integrate future land use and growth issues.

3. How do the requirements work in practice and implementation? Are there any lessons learned or results that you can share?

The Water Supply Planning process required under §25-32d has worked very well since the requirement was adopted. Utilities have complied and the plans have been useful. Local coordination, however, can be improved, particularly in larger water utilities serving many communities and that don't have easy access to distant town planners.

Lessons Learned:

- Many communities in Connecticut have municipal water systems, which because they serve only the municipality, are in close contact with their own municipal planning department. Coordination is thus much easier.
- Larger water utility systems serving numerous communities have a tougher time coordinating with the local land use agencies. Sometimes a large water system can serve 25 or more towns. In these cases, the utility must make a special effort to coordinate with town planning functions throughout their service area.
- The DEEP Aquifer Protection Program is a successful strategy for securing source water protection at the land use planning level. It is a good program for gauging the strength of the water supplier and local land use connection.

4. Do your utilities coordinate with land use planners anyway at the local level without a legal mandate? Provide anecdotes and examples of exemplary utility coordination.

   Some water providers do meet regularly with their local land use officials. Here are two examples:
   - The Regional Water Authority of South Central Connecticut participates in local land use proceedings to provide comments about how local development is likely to impact their drinking water wells.
   - The Connecticut Water Company meets annually with every Town Planner in their service area to coordinate expected development with the available water supplies.

5. Do you have any groups or stakeholders that are actively working to connect land use and water?

   The watershed organizations in Connecticut are very active in promoting the connection between land use and water. As an example, the Housatonic Valley Association in northwest Connecticut has a program called Greenprint Collaborative, which helps the towns in the Housatonic Valley watershed to map their natural resources. Both GIS services and land planning services are provided to landowners, municipalities, and other organizations to help guide water-sustainable growth and development in the watershed. Another good example is the Pomperaug River Watershed Coalition, which actively monitors flows in the Pomperaug River, and conducts numerous scientific studies of the watershed on issues such as recharge mapping. These watershed organizations are valuable partners in the policy arena.

6. How do you otherwise support water utility planning, program implementation, or coordination with land use planners (e.g. educational programs, grant funding)?

   Connecticut does not have any state funding to promote water and land use. Education programs are undertaken by DEEP on a variety of topics, including on Landscape Stewardship for Towns and Cities (Connecticut Department of Energy and Environmental Protection). This training provides basic information and guidance to municipal officials on a wide variety of topics related to environmental protection, so that local decision makers are informed about key environmental topics and are better able to manage the resources (including water) within their communities.

Florida

Florida, the fifth fastest-growing state in the country, has many natural resource and water issues. In 1985 it was one of only two states in the country to pass a Growth Management Act (the other state was Oregon). The State of Florida has one of the most comprehensive and progressive land use planning programs in the country. The authority and responsibility for establishing and implementing the roles, processes, and powers of comprehensive planning programs to guide and control future development in Florida is vested in local governments, because local governments have regulatory authority over the use of land. But how Florida integrates its land use planning with water utility planning is the issue explored here.

Evaluating Florida's state-level requirements for water utilities was complicated due to the presence of five separate and distinct water management districts: agencies of the state that operate individually and independently. No other state surveyed had this kind of complex structure.

The five districts are:

1. Northwest Florida Water Management District
2. Suwannee River Water Management District
3. St. Johns River Water Management District
4. Southwest Florida Water Management District
5. South Florida Water Management District

Water management districts manage the consumptive use of water, well construction, and environmental resource permitting. The Florida Department of Environmental Protection (DEP) oversees the water management districts and "exercises general supervisory authority over the districts through a cooperative working relationship and guidance memos" (Florida Department of Environmental Protection). A water management district can operate independently and may make requirements of the water providers in their district that are not connected to other statewide requirements or required by other water management districts. This creates a patchwork of differing requirements across the State.

In addition to the complex water management district structure, there are several stakeholders involved, and a good deal of agency coordination that connects land use beyond what is required by the State or by the water management districts. One of the most notable stakeholder groups in Florida is the irrigation industry, which is very proactive in response to state landscaping requirements and programs. The irrigation industry developed the Landscape Irrigation & Florida-Friendly Design Standards in response to Section 373.228 of the Florida Statutes, which directs a number of organizations to work together to improve landscape irrigation and design standards (Southwest Florida Water Management District 2006 and The Florida Legislature 2020a). Section 373.185 of the Florida Statutes also includes provisions related to Florida-friendly landscaping, such as management districts designing and implementing incentive programs to encourage local governments to adopt new ordinances or amend existing ones. It also directs water management districts to work with "the department, local governments, county extension agents or offices, nursery and landscape industry groups, and other interested stakeholders to promote, through educational programs, publications, and other district activities authorized under this chapter, the use of Florida-friendly landscaping practices…" (The Florida Legislature 2020b). It also forbids local governments, deed restrictions and covenants to prohibit any property owner from implementing Florida-friendly landscaping on their land.

The State also has model guidelines for a landscape ordinance: FloridaFriendly Landscaping™ Model Guidelines for Ordinance Language for Protection of Water Quality and Quantity (University of Florida Levin College of Law 2009).

The interview began with a review of the initial survey questions and the data collection conducted by the Environmental Law Institute and the Alliance for Water Efficiency, which is

included in Appendix B. During the review of the survey, there was a lot of discussion about FLA. STAT. ch. 163.3167 related to Comprehensive Plans and how the Comprehensive Plans connect to water utility plans, called "water supply facilities work plans" or WSFWPs. The Florida Department of Economic Opportunity (DEO) has developed useful explanatory resources on these plans:

1. Water Supply Planning Page with Statutory Requirements, Guidelines for Preparing Water Supply Facilities Work Plans, and Water Management Districts' Regional Water Supply Plans (Florida Department of Economic Opportunity).
2. *A Guide for Preparing Water Supply Facilities Work Plans* (Florida Department of Economic Opportunity. 2012a).
3. *A Guide to the Data and Analysis to Support Comprehensive Plan Amendments* (Florida Department of Economic Opportunity 2012b).

The Water Management Districts manage this process, although they use the DEO Guides. For example, the St. Johns River Water Management District's page on Comprehensive Plan Amendments contains the DEO guide for preparing WSFWPs and the DEO Guide to the Data and Analysis to Support Comprehensive Plan Amendments (St. Johns River Water Management District). But it is common practice for DEO to simply defer to the water management districts as to whether a local government's WSFWP meets the Ch 163 requirements (St. Johns River Water Management District). The reality is that when a local government planner is developing or updating their WSFWP, the vast majority of planners do not reach out to DEO staff for assistance—the local government planners reach out directly to their respective water management districts since the district will ultimately approve the plan. Another good resource on WSFWP planning at the District level is the South Florida Water Management District's Water Supply Facilities Work Plans web page (South Florida Water Management District).

One of the bridges that links land use planners with water supply planners in Florida is the local government application of Ch. 163.3180(2)–see Figure 1. This provision was tweaked in 2005, at the same time as the provisions related to WSFWPs. Section 163.3180(2) requires local government comprehensive plans to implement a "concurrency" management system. Relative to water, the concurrency management system must not only address the capacity of potable water facilities, but also the availability of 'adequate water supplies.' There is a two-part test (capacity and supply). The other concurrency management components (solid waste, drainage, etc.) only have a single test (capacity).

Figure 1: The 2020 Florida Statutes, Title XI, Ch. 163:3180(2)

(2) Consistent with public health and safety, sanitary sewer, solid waste, drainage, adequate water supplies, and potable water facilities shall be in place and available to serve new development no later than the issuance by the local government of a certificate of occupancy or its functional equivalent. Prior to approval of a building permit or its functional equivalent, the local government shall consult with the applicable water supplier to determine whether adequate water supplies to serve the new development will be available no later than the anticipated date of issuance by the local government of a certificate of occupancy or its functional equivalent. A local government may meet the concurrency requirement for sanitary sewer through the use of onsite sewage treatment and disposal systems approved by the Department of Health to serve new development.

(The Florida Legislature 2020c)

This requirement means that when local governments process a comprehensive plan amendment, they must conduct an analysis on whether they have both water treatment plant facility capacity and adequate water supplies already permitted or planned to support the increase in development caused by the proposed comprehensive plan amendment. The provision goes even further by dictating coordination between local government planning/building departments and the applicable water supplier.

DEP is working on a rule with the Central Florida Water Initiative that would eventually include some of the detailed plan elements listed in question 2 of the survey and which are now missing from the water utility planning requirements in Florida. This would impact portions of the St. Johns River Water Management District, the Southwest Florida Water Management District, and the South Florida Water Management District. DEP would not actually enforce the rule, but instead would be setting goals to ensure that there is enough water supply to meet the 2030 demand projections in those areas.

Question 3 of the survey asks "Are water utilities required to incorporate land use considerations (including but not limited to building/plumbing codes, subdivision regulations, land use plans, site plan reviews, development reviews, and things affecting zoning) into their water plans?" Although we found that statewide the answer was no, it was noted during the interview that some water management districts may have land use requirements related to water use planning and permitting. In some districts these land use requirements may just be irrigation restrictions. St. Johns River Water Management District (SJRWMD) aggressively "encourages" that irrigation restrictions be adopted by communities because the St. Johns Water Management District can only enforce locally via consent orders, versus the local ability to enforce with fines. Consumptive use rules for St. John's also require landscape design language that is water-conserving. The details are in the SJRWMD Applicant's Handbook: Consumptive Uses of Water (St. Johns River Water Management District 2018).

An interesting example was given from a county in St. Johns River Water Management District's territory in which a water utility had to work with land use planners to get their landscape

irrigation codes up and running. It was noted that this is likely a common effort for land use planners and utility staff to partner on throughout the state. In St. Johns County, land use planners and code enforcement officers implemented a design code that is very aggressive related to irrigation system design, and the water utility did not take the lead in the development or implementation of the code.

Hillsborough County and the Hillsborough County Planning Commission have strong interagency and interdisciplinary coordination and communication, where land use planners and utility staff work together on planning and utility topics. This was attributed in part to the interdepartmental relationships, Comprehensive Plan structure and having a very strong Urban Service Area. They also do a lot of joint outreach on larger projects.

The remainder of this section contains answers and resources related to the interview questions.

1. <u>What was the reason for the mandate adoption? What led up to it? Who were the key stakeholders? Did any of the stakeholders surprise you? Was there any political backlash or groups that lobbied against the mandate?</u>

   There was not much discussion about the origins of any mandates, such as FLA. STAT. ch. 163.3167. These mandates have been on the books since the 1980s, similar to other states that we interviewed. One interviewee said that in 2011 FLA. STAT. ch. 163.3167 was watered down a bit. Another interviewee had a different view of it and noted that some would say the changes to Ch 163 in 2011 were, in effect, the State taking the "training wheels" off local government planning departments by letting the local governments be responsible for their own land use planning decisions. Importantly, several other concurrency-related provisions were changed since 2011 (e.g., eliminating transportation, school capacity). But the 2005 changes relative to 'adequate water supplies' in 163.3180(2) were intentionally left as is.

   Droughts or other naturally occurring events have been a trigger for new permanent rules that became a part of land use planning. Ten years ago, freezes in Tampa Bay caused strawberry farmers to pump more water for crop protection. Several sinkholes occurred, which resulted in new rules for pumping and a Water Use Caution Area.

   In terms of stakeholders, agriculture was identified as an active stakeholder. The Florida Home Builders Association has been relatively uninvolved in landscape irrigation code development, but in 2018 it partnered with the St. Johns River Water Management District in administering the Florida Water Star Program, a third-party certification program focusing on water efficiency in residential and commercial construction. It was noted that the Tampa Bay Builders Association is very responsive and engaged. The phosphate mining industry is an active stakeholder group.

   Utilities are a huge stakeholder group as well. Not necessarily stakeholders in opposition, but more to get feedback and develop rules in a cooperative manner. 1,000 Friends of Florida is an environmental and planning NGO that has been very involved. The St. Johns River Keeper is also an involved stakeholder.

Lastly, the landscape irrigation industry is a very involved stakeholder, writing their own landscape irrigation standards to raise the bar and bring down water use, essentially creating a model ordinance that can be adopted by local governments.

2. What else is in your legal framework other than what is here? Are there other legal requirements that enable or support land and water integration?

   Minimum stream flows and levels are required statewide.

   Some local governments such as Hillsborough County have Wellhead Resource Protection Areas or Surface Water Protection Areas that regulate or prohibit certain land uses in order to protect potable supply.

   Another area is protections related to Outstanding Florida Waters which are protected by Rule: 62-302.700. An Outstanding Florida Water (OFW) is a water source designated worthy of special protection because of its natural attributes. This special designation is applied to certain waters and is intended to protect existing, good water quality. This can have the effect of limiting new land uses (Florida Department of Environmental Protection and Florida Administrative Code & Florida Administrative Registry 2006).

3. How do the requirements work in practice and implementation? Are there any lessons learned or results that you can share?

   Code enforcement is an issue in Florida—and generally speaking, codes are only as good as they are enforced. Lake County made a code voluntary because they didn't have the staff to enforce it.

   Water Supply Facilities Work Plans are sometimes seen as a "check the box" requirement that can be farmed out to consultants rather than taken as a serious utility planning program. An additional issue of concern is when population projections are different among different agencies, which can cause planning challenges (specifically in water management districts and local planning agencies).

   It was noted that additional discussion and communication between land use planners and utility staff should be encouraged to increase understanding of the impacts of land use decisions. An example of low-density developments that may require long service lines was given. Planners may not be aware of the fiscal impact that will have on a utility to install and maintain those lines.

4. Do your utilities coordinate with land use planners anyway at the local level without a legal mandate? Provide anecdotes and examples of exemplary utility coordination.

   The most progressive group in the St. Johns River Water Management District is Alachua County. They have done a lot of work around land development codes and have analyzed its impact to water use. Planners, environmental staff, and Gainesville utilities were focusing on

how they can develop and increase water efficiency but there was no requirement to do so. Ongoing pressures on water quality and quantity have brought together the various departments to work together with a strong environmental ethic. The University of Florida drives a lot of progressive action.

The Hillsborough County One Water Initiative is a great example of coordination. The plan was developed collaboratively by long-range planners from the Hillsborough County Planning Commission and Hillsborough County staff experts in development review, stormwater, wastewater, potable water, and resource protection (Plan Hillsborough). The collaborative effort was not required, but it resulted in a stronger work product that is implementable and that incorporates best practices in both planning and water resources.

Charlotte County is also taking on a One Water Initiative that is connected to the comprehensive plan and other efforts. Charlotte County has a Future Land Use page that includes water (Charlotte County Florida).

5. Do you have any groups or stakeholders that are actively working to connect land use and water?

   See discussion of stakeholders in Question 1.

6. How do you otherwise support water utility planning, program implementation, or coordination with land use planners (e.g. educational programs, grant funding)?

   There is funding provided by DEP for alternative water supply projects: $40 million is available per year for projects designed to meet future demands. The funding cannot be used specifically for coordination between water and land use, but projects could be funded that result in better water and land use coordination as a side benefit. The funds go to the water management districts to oversee implementation and are typically a 50/50 cost share (Florida Department of Environmental Protection 2020b).

   Funds are also available under DEP Section 319(h) Nonpoint Source Education Grant Projects. DEP also provides Water Springs Restoration funding.

   Some of the water management districts also have funding. The Southwest Florida Water Management District offers technical assistance to local governments on their water supply facilities work plans.

Minnesota

Minnesota—the land of 10,000 lakes—is a very active state regarding water planning, and the State does require water utilities to submit plans. The law requiring water utility plans in Minnesota was enacted in the 1980s, similar to other states we surveyed (California and Connecticut). While older laws demonstrate early adoption and progressive action for that time, they can fail to evolve with issues, needs, and what is being done in practice. For example, interview participants noted that the law is too old to consider climate change and it

unfortunately has not been amended to add it, although general emergency preparedness planning has been added and is now required. Two state agencies are involved in water utility planning: The Department of Natural Resources manages water supply plans (including approving utilities' water supply plans); and funding from the Department of Health for water utilities (like state revolving loan funding) is contingent on compliance with the approved water supply plans.

Additionally, counties are required to create comprehensive local water management plans (county water plans) per the Comprehensive Local Water Management Act of 1985. This process is managed by the Minnesota Board of Water and Soil Resources. The key connections between water planning and land use are the requirement of comprehensive plans to include a water chapter, and completion of the natural resource impacts section of the water supply plan template table. This table includes impacts of groundwater pumping on wetlands and surface water and comes the closest to a water utility intersection with land use.

State law (Section 473.858) requires the Metropolitan Council, the regional policy-making body, planning agency, and provider of essential services for the Twin Cities metropolitan region, to create regional plans and policies to guide growth and manage regional systems for transportation, aviation, water resources, and regional parks (Minnesota Legislature 2020a). The law also requires local governments to update their comprehensive plans. The required content of a comprehensive plan is contained in Section 473.859 which includes water and land use planning. See Figure 2.

Figure 2: The 2020 Minnesota Statutes, 473.859 Comprehensive Plan Content

> Subd. 2.Land use plan. (a) A land use plan shall include the water management plan required by section 103B.235, and shall designate the existing and proposed location, intensity and extent of use of land and water, including lakes, wetlands, rivers, streams, natural drainage courses, and adjoining land areas that affect water natural resources, for agricultural, residential, commercial, industrial and other public and private purposes, or any combination of such purposes.

(Minnesota Legislature 2020b)

Interviews began with a review of the initial survey and data collection conducted by the Environmental Law Institute and the Alliance for Water Efficiency, attached in Appendix B. The interviews progressed through the six questions for discussion.

1. <u>What was the reason for the mandate adoption? What led up to it? Who were the key stakeholders? Did any of the stakeholders surprise you? Was there any political backlash or groups that lobbied against the mandate?</u>

   The Minnesota legislature adopted the Groundwater Protection Act (Chapter 103H of the Minnesota Statutes) in 1989 due to the drought of 1987-1988. This broad law had implications for the Pollution Control Agency, Department of Agriculture, and other agencies. Legislators wanted a better idea of how water is used in the State and to encourage municipalities to use water efficiently and not waste water. It also aimed to prevent conflict

and deal with the impacts of future droughts. The Department of Natural Resources (DNR), Metropolitan Council, and municipalities finished the third round of 10-year plans in 2016-2018.

At the time of the passage of the law, the Legislature was looking to put limits on how much water could be appropriated. Consideration was given to three million gallons/year for maximum surface water appropriation. Aquifers were examined. For instance, the Mount Simon Aquifer can now only be used for drinking water purposes in the Twin Cities Metropolitan Area. Another change resulting from the Groundwater Protection Act was that once-through cooling was eliminated and all systems must be closed loop systems. Lastly, in the Twin Cities Metropolitan Area, the volume of water was limited that could be pumped from groundwater and put into surface water (usually lakes or ponds).

2. What else is in your legal framework other than what is here? Are there other legal requirements that enable or support land and water integration?

There are a number of additional laws, regulations, and programs in Minnesota that connect water and land use.

- Minnesota counties are required to have Comprehensive Plans via Chapter 394 of the Minnesota Statutes where the policies, statements, goals, and interrelated plans for private and public land and water use, transportation, and community facilities are set forth, including recommendations for plan execution, documentation in texts, ordinances, and maps. This chapter guides the future development of the county or any portion of the county (Minnesota Legislature 2020c).
- There is a Statewide Drought Plan required by section 103G.293 of the Minnesota Statutes (Minnesota Legislature 2020d).
- Floodplain Management rules include utilities and water suppliers and the requirements that they must follow, such as how their facilities are flood-proofed and elevated (Minnesota Legislature 2020e).
- Section 103G.287 of the Minnesota Statutes, related to Ground Water Management Areas, broadly discusses water supplies and land use (Minnesota Legislature 2020f).
- Watershed districts, overseen by the Board of Water and Soil Resources, were created by the Watershed Act. The purpose as expressed in statute is, "To conserve the natural resources of the state by land use planning, flood control, and other conservation projects by using sound scientific principles for the protection of the public health and welfare and the provident use of the natural resources, the establishment of watershed districts is authorized under this chapter (Minnesota Legislature 2020g, Subdivision. 1)."
- The Minnesota Department of Health has a Source Water Protection program that identifies uncontrolled land development as a risk (Minnesota Department of Health).
- The Minnesota Department of Health also defines Drinking Water Supply Management Areas–water supply well development can occur safely without impact from contaminant and hazardous sources and with grants.
- Environmental Assessments are managed by the Minnesota Environmental Quality Board. The environmental assessment worksheets require discussion of the impact of development (Minnesota Environmental Quality Board).

- According to Minnesota Statutes 103B.151, the Environmental Quality Board must coordinate a comprehensive long-range water resources plan for the state every 10 years. The 2020 State Water Plan was focused on climate change (Minnesota Environmental Quality Board 2020). Other water assessments and required reports are defined in Section 103A.43 of the Minnesota Statutes (Minnesota Legislature 2020h).
- The Minnesota Pollution Control Agency developed a process to identify and address threats to water quality in each of these major watersheds for the Watershed Restoration and Protection Strategy.
- Groundwater Restoration and Protection Strategy (GRAPS) reports contain maps and data describing groundwater conditions in the watershed. The reports identify local groundwater concerns and outline strategies and programs to address them. Counties and local communities can use these reports to develop their water management plans. The GRAPS program is coordinated by the Minnesota Department of Health and includes involvement from multiple state agencies (Minnesota Department of Health).
- One Watershed, One Plan is a program through the Board of Water and Soil Resources that supports partnerships of local governments in developing prioritized, targeted, and measurable implementation plans. Key principles are planning at the major watershed scale, and aligning local plans with state strategies. Plans created through this program are called comprehensive watershed management plans and are described in Section 103B.801in the Minnesota Statutes (Minnesota Board of Water and Soil Resources 2018).
- There are several laws and regulations that support environmental sustainability and are tangentially related to water supply planning:
  - Trout Streams - Minnesota Statutes 103G.285, Subd. 5 and Rules 6115.0670, Subp. 3 B prohibit water withdrawals that impact designated trout streams. A list of designated trout streams is found in Minnesota Rules 6264.0050, Subpart 4.
  - Calcareous Fens - These are unique wetlands that require an upwelling of groundwater similar to a spring to survive and can be impacted by groundwater withdrawals. These wetlands are protected under Minnesota Statutes 103G.223 from being wholly or partially degraded.
  - Public Waters Inventory - Public waters wetlands include all type 3, type 4, and type 5 wetlands (as defined in U.S. Fish and Wildlife Service Circular No. 39, 1971 edition) that are 10 acres or more in size in unincorporated areas or 2.5 acres or more in size in incorporated areas (see Minnesota Statutes Section 103G.005). The Department of Natural Resources utilizes county-scale maps to show the general location of the public waters and public waters wetlands (lakes, wetlands, and watercourses) under its regulatory jurisdiction. These maps are commonly known as Public Waters Inventory maps.
  - Wetland Conservation Act - To retain the benefits of wetlands and reach the legislation's goal of no-net-loss of wetlands, the Wetland Conservation Act requires anyone proposing to drain, fill, or excavate a wetland to first try to avoid disturbing the wetland; second, to try to minimize any impact on the wetland; and, finally, to replace any lost wetland acres, functions, and values.
  - Mt. Simon-Hinckley Aquifer - The Mt. Simon-Hinckley aquifer is the deepest formation in the Twin Cities Metropolitan Area and is protected as a drinking water

source. This aquifer can only be used as a potable water supply when there are no other alternatives and conservation measures are being implemented.

- Section 103G.261 of the Minnesota Statutes, Water Allocation Priorities, sets six allocation and priorities for the consumptive appropriation and use of water. The first priority is municipal water supply (Minnesota Legislature 2020i).

3. How do the requirements work in practice and implementation? Are there any lessons learned or results that you can share?

Overall, there is good cooperation between state agencies in enforcing the requirements. The Department of Natural Resources conducted in-person training workshops related to the water supply plans and found that the workshops were helpful in spurring action to complete them. It also brought people together.

- There were so many levels of planning that Minnesota implemented the One Watershed One Plan program.
- The Metropolitan Council provides funding to cities that is tied to their comprehensive plans.
- Metropolitan Council and the Minnesota Department of Health have historically looked at drinking water protection, land use and water supply planning and have prepared a guide on these subjects (Minnesota Department of Health 2014).
- Funding from the Department of Health is tied to approval of the water supply plan.
- Communities that want to do mitigation with federally eligible grant funds must have their County All Hazard Plan completed in order to get funding to protect existing facilities.

Lessons Learned:

- Environmental Assessment Worksheets need to be prepared, sometimes to protect communities from lawsuits.
- In strategic plans, implementation and monitoring often falls short.
- The community must be engaged early on with public facing documents.
- No water supply plan is perfect, and quality varies considerably. Cities will be weak in some areas, and while some aspects of the plan are very important, other areas are important to include, but not as essential.
- Minnesota does not include climate change or cyber security in the statute or current plans, but it would be a good amendment to add in the future.
- The natural resource impacts section of the water supply plan template gets municipalities to consider how their water use may be impacting surface water features (wetlands, lakes, streams). Municipalities struggled with that in the first year.
- Specific lessons with Water Supply Planning:
    - Creating an electronic template where cities can fill in their information worked well. They did not need to hire a consultant to "write" the plan, they could just fill in the blanks. This saved the cities money and time.
    - There was no easy way to aggregate the data in tables on a statewide or regional basis, so a Water Conservation Reporting system was created. In the next round

of plan writing, cities will not need to write this section, just summarize their accomplishments and discuss future steps.
    - It worked well to integrate the Metropolitan Council requirements into the Department of Natural Resources Water Supply Plan template. The timeline there worked fine. However, the Department of Health Wellhead Protection Plan requirements could not be integrated due to entirely different timelines. Ideally, these should merge because they overlap in most cases except for cities with surface water.
    - Even with templates, it is a huge time commitment for DNR staff to review and approve 340 water supply plans in three years.
    - In-person training workshops, provided by DNR, were appreciated by municipal staff and resulted in greater compliance with completing plans on time. Each Workshop consisted of between 8-25 neighboring communities, Minnesota DNR hydrologists, Metropolitan Council or Minnesota Rural Water Association staff, and sometimes Minnesota Department of Health staff.
    - The Minnesota DNR Emergency Preparedness section is out-of-date. The old EPA emergency plan is extinct and now replaced with EPA's Creating Resilient Water Utilities resources and tools. University of Minnesota, Minnesota Department of Health, and Minnesota Rural Waters have offered training on this program. In the next round of water supply planning, the plan template should also include information about cyber security and climate change. However, DNR has tried to keep the plan template to only what is required by statute.

4. Do your utilities coordinate with land use planners anyway at the local level without a legal mandate? Provide anecdotes and examples of exemplary utility coordination.

   Utilities and land use planners do coordinate in Minnesota.

   - Rochester, MN (home of the Mayo clinic) is expecting a lot of growth and was noted for doing a lot of planning for increased water demand along with land use. Other developing communities such as Woodbury, Lakeville, Rosemont, and Farmington have been actively planning as well. St. Cloud has state of the art wastewater treatment facilities.
   - Utilities will provide water and sewer services to the proposed developed land, so they naturally work together.
   - The Department of Health monitors where nitrate is getting into wells, and sometimes water utilities have to put in a denitrification plant. The Minnesota Department of Agriculture is responsible for nitrogen fertilizer use and management under the Groundwater Protection Act. To meet this need, the Department of Agriculture, in cooperation with a multi-stakeholder Advisory Committee and a public review process, developed a management plan. Dakota County is working on a plan for the county because nitrate contamination is a big issue. They are trying to get producers to reduce runoff and are looking at well depth to determine impact. Farmers are being limited to shallow nitrate-rich water, but when they pull from shallow aquifers, they can be impacting streams.
   - Designated Groundwater Management Areas are another area of coordination. For example, in the development of the North & East Metro Groundwater Management Area

Plan, "DNR established a Project Advisory Team with representatives of city, township and county governments, industrial water users, a lake conservation district, a watershed district, the Metropolitan Council, and state and federal agencies. This team met 15 times between October 2013 and May 2015, providing input and advice on the plan (Minnesota Department of Natural Resources 2015, v)."

- Appropriations of water are being limited in some areas for commercial, industrial, or agricultural uses in order to serve the cities.
- Planners will consider the 3M plume before developing new areas/wells. There are several areas in Minnesota that have been polluted with Perfluoroalkyl Substances (PFAS) by the company 3M. This includes water sources and is an important consideration for development.

5. Do you have any groups or stakeholders that are actively working to connect land use and water?

   There are several stakeholders working on this issue. The Community-based Aquifer Management Partnership is a civic engagement effort designed to ensure that land use decisions and water use decisions will not impact aquifers.

   Other stakeholders include the Metropolitan Council, the Minnesota Rural Water Association, the Groundwater Management Areas, watershed districts and watershed citizen organizations, and regional planning groups in southern Minnesota. Also involved are the Institute on the Environment and the Water Resources Center at the University of Minnesota, the Freshwater Society, Friends of the Mississippi, Clean Up the River Environment, and other non-profit groups, the Soil and Water Conservation District, and the Minnesota Environmental Partnership. It does not appear that the building industry is very involved.

6. How do you otherwise support water utility planning, program implementation, or coordination with land use planners (e.g. educational programs, grant funding)?

   DNR is the most active in funding and provides grants that can be used to protect/create habitat, protect water resources, and provide water and land recreational opportunities. DNR staff provide assistance with feasibility studies and provide support with local planning. Minnesota has two special funding sources that aid with water resources: the Clean Water Fund and Legislative-Citizen Commission on Minnesota Resources.

   The Minnesota Department of Health has multiple funding sources and programs, such as grants related to source water protection. Water Efficiency grants are offered by the Metropolitan Council and 40 communities are participating in its 2019-2022 grant cycle. The funding is used to lower the cost of the purchase and installation of products that reduce water consumption.

   Minnesota has many resources that can be used by planners. A Geologic Atlas is being generated for every county in Minnesota which provides information about the geology and groundwater resources of a county. This includes groundwater quality, quantity, and

sensitivity to pollution. Well monitoring occurs for approximately 1,100 wells and streamflow monitoring reports are available.

DNR's environmental review process for permitting informs decision makers about project effects and measures that can be taken to avoid or minimize the severity of those effects. Environmental review is required for DNR permits. DNR also comments on non-DNR permits throughout the state including local water plans, comprehensive land use plans, and watershed district plans.

DNR develops standards for various land use or zoning programs such as the Shoreland Management Program, Floodplain Management Program, Wild and Scenic Rivers Program, and the Mississippi River Corridor Critical Areas Program. For example, the Shoreland Management Program guides land development along Minnesota's lakes and rivers to protect their ecological, recreational, and economic value.

Washington

Washington State employs several important methods to promote coordination among water and land use planners: 1) issues state requirements for coordination; 2) through the Department of Health (DOH), uses a color-coded operating permit system that has consequences for non-compliance (Washington State Department of Health); and 3) takes an assistance-based approach to water utilities as a matter of philosophy. The State prefers to guide utilities toward compliance rather than using enforcement and penalties to achieve it.

Enforcement is tricky, and DOH must pick its battles. Enforcing safe drinking water regulations and water quantity rules are a clear priority. Interviews indicated that requirements on paper may look better than what is done in practice. As in California, the same is true regarding the content of utility plans versus what is actually implemented by the utility. That said, a lot of planning and action does occur because the state requires it.

The operating permit categories are a powerful enforcement tool on their own; a "red" classification carries pretty severe financial implications since it indicates publicly that the permittee is violating the law. A community with a red permit is not eligible for growth, and surprisingly, banks may not even loan money for home loans in areas with a red permit. Food and liquor licenses could be denied as well. Although the State philosophy is to guide systems toward compliance rather than punish systems with fines, this red permit classification can be a very big deterrent against non-compliance.

There was discussion in the interview of whether the State would ever turn a system operator's permit to red for not having a water conservation plan; e.g., whether absence of a water conservation plan would constitute a system operator being "substantially out of compliance with requirements" (Washington State Department of Health). It was noted that in a rare case, the state was once hours away from turning a water provider's permit to red for not reporting annual water use. The hesitancy in assigning red status is not only because the State believes it should provide technical assistance first and foremost, but because it is also easier for staff to offer

assistance rather than endure the political consequences of publicly punishing a water provider with a red categorization.

There do not appear to be any consequences for not meeting the goals in a conservation plan, and there is no requirement related to progress towards the goals. The related topics of stormwater and wastewater are handled by the Department of Ecology. In the interview it was put this way, "The Department of Ecology protects the environment from people, and Department of Health protects people from the environment."

Central to the coordination among water and land use planners is the Local Government Consistency Determination Form, which requires the municipal water supplier and the local governments to work together on planning and engineering submittals to determine consistency with local comprehensive plans, land use plans, and development regulations (Washington State Department of Health 2016). The water system plan is sent to land use planners, and any land use planning agency that is within the water service area must sign off on the water system plan saying it is consistent with their land use planning. This was identified as the strongest tie between land use and water. In practice, it is a great tool to get people talking to each other and coordinating; the best water supply plans are the ones where the local government planner is involved. For example, the water system plan for Othello was noted as being outstanding and uses a parcel-level analysis for water (Grey & Osborne, Inc. 2011). Othello connects its comprehensive planning to water planning and has many resources and studies available (City of Othello).

It was also noted that community land use plans must demonstrate that water utilities have capacity for the growth in the area in question. This required element is described in RCW 36.70A.070, which also states that "The land use element shall provide for protection of the quality and quantity of groundwater used for public water supplies" (Washington State Legislature 1995).

Interviews began with a review of the initial survey and data collection conducted by the Environmental Law Institute and the Alliance for Water Efficiency, attached in Appendix B. The interviews progressed through the six questions for discussion.

1. <u>What was the reason for the mandate adoption? What led up to it? Who were the key stakeholders? Did any of the stakeholders surprise you? Was there any political backlash or groups that lobbied against the mandate?</u>

   The mandates built up over time starting in 1977 with the Public Water System Coordination Act, which said that drinking water was not an appropriate area for competition. Washington started planning for growth early on, so the state would be ready for growth when it occurred.

2. <u>What else is in your legal framework other than what is here? Are there other legal requirements that enable or support land and water integration?</u>

   The Public Water System Coordination Act, Growth Management Act, and Municipal Water Law are all required planning elements and these three pieces work together. Municipal

water law can prevent a development from moving forward if there are no water rights under Section 246-290-106 of the Washington Administrative Code, Duty to Provide Service (Washington State Legislature 2008).

3. How do the requirements work in practice and implementation? Are there any lessons learned or results that you can share?

   Land use planners and water utility planners coordinate with each other in Washington and they talk frequently as a result of the State's requirements. That is the biggest benefit and lesson learned. How well it works definitely depends on the people involved, but often this coordination gets communities going beyond the State's requirements as they work together. Water planning continues to improve and the plans are getting better.

4. Do your utilities coordinate with land use planners anyway at the local level without a legal mandate? Provide anecdotes and examples of exemplary utility coordination.

   There is a legal mandate, but a few examples of good coordination were offered. Othello was discussed (see above) as well as the Spokane Aquifer Joint Board. The Spokane Aquifer Joint Board has a regional wellhead protection program. A number of communities draw water from the same aquifer. They work together to protect the aquifer. As a group they have joint notifications in order to coordinate effectively. They also have a regional system to educate people about the aquifer: "Don't pollute, it is beneath you" (Spokane Aquifer Joint Board).

5. Do you have any groups or stakeholders that are actively working to connect land use and water?

   There are not many groups or stakeholders because the coordination is being done across agencies automatically as a matter of law. Futurewise was mentioned as the most active stakeholder working in this space. The mission of this 30-year-old organization is to work throughout Washington State to encourage healthy, equitable, and opportunity-rich communities, and to protect valuable farmlands, forests, and water resources through wise land use policies and practices.

6. How do you otherwise support water utility planning, program implementation, or coordination with land use planners (e.g. educational programs, grant funding)?

   The Infrastructure Assistance Coordination Council (IACC) was offered as an example. According to the website, "IACC is a unique organization that has enhanced the relationships between government agencies, tribes, and communities in Washington for over 25 years" (Infrastructure Assistance Coordinating Council). IACC includes planning, general government and infrastructure associations, state and federal departments, and nonprofits that provide technical and financial assistance for a variety of infrastructure projects. There are a number of services provided by IACC, including an annual conference and tech teams, where multiple agencies come together to receive information about a problem/project that a system would like to solve, and alternatives are provided to solving that problem.

Implications and Conclusion

This research demonstrates that legal policies in all 50 states could be strengthened to require more coordination between water utility planning and local land use planning. Even water utility planning itself was not very detailed in most state requirements. Although 31 states require some kind of water utility planning, most of those states do not mandate much in the plans. As an example, of the 10 land-use relevant topic areas that could be included in water utility planning requirements, no state requires all 10 to be included in a mandated water provider plan. Supply assessments or forecasts are the most common requirement, but these are required in fewer than half the states. Most telling is that only one state requires that the water utility examine the impacts of climate change on water supply availability.

With regard to coordination, the research found that only nine states require water utilities to incorporate community land use planning into their water plans, although 10 states require the reverse: that community land use plans incorporate water utility plans or water quantity and quality concerns. While each of these states has diverse and distinct ways of incorporating water utility plans and other water concerns into community land use plans, a few characteristics are common. Five of the 10 states expressly mention water supply in the statutes or regulations that specify the required content of land use plans. Yet only six states require water utilities to directly coordinate with land use planners in their communities, with three of those six states providing in statute or regulation the availability of funding or other assistance to help support coordination between water utilities and land use planners.

The six case study interviews revealed many interesting lessons learned, notably:

- Providing funding can be an important catalyst to incentivize best practice coordination between water suppliers and land use agencies, especially when used for preparation of comprehensive plans. Funding and assistance from the Colorado Department of Local Affairs clearly drives the innovation process at the local level and can include planning requirements that are not in state law as a condition of funding.
- Very robust water utility planning requirements in law, such as California's Urban Water Management Planning Act, can accelerate the necessary coordination with local land use agencies, even if such coordination isn't specifically mandated.
- Adopting separate legislation that requires large developments to prove water supply availability can produce better coordination between utilities and land use agencies.
- Training programs focused on smart land use planning can bring local planners and water utility planners together.
- Voluntary organizations to focus on water and land use planning can provide a good platform for improving coordination between water utilities and land use planners, even if such coordination is not mandated by statute.
- A mandatory water element in all local master plans can be a good catalyst to achieving better coordination between the local land use agencies and the utilities.
- Coordination is easier where the water utility is a municipal system tied closely with the municipal planning department. Coordination is much harder and requires special effort when the water utility covers multiple jurisdictions.

- Adopting Local Aquifer Protection Programs can be a successful strategy for securing source water protection at the land use planning level and promote better integration of water into land use plans.
- Encouraging water utilities to work with new development projects to require efficiency measures and to reduce the expected water use can improve working relationships between water and land use staff. This requires, however, that the water utility closely coordinate with municipal planning and zoning departments so that the input to the developer is consistent.

State policymakers can benefit from these lessons to strengthen collaboration between land use planners and water utilities within their states, by employing any number of the strategies for success revealed through this research. Further efforts to create model or uniform laws related to water utility planning may also enhance this practice nationwide. Funding voluntary efforts that improve water utility planning, especially that which involves land use planning, will also lead to successful collaboration and in turn stronger water utility plans that adequately prepare the community for future growth.

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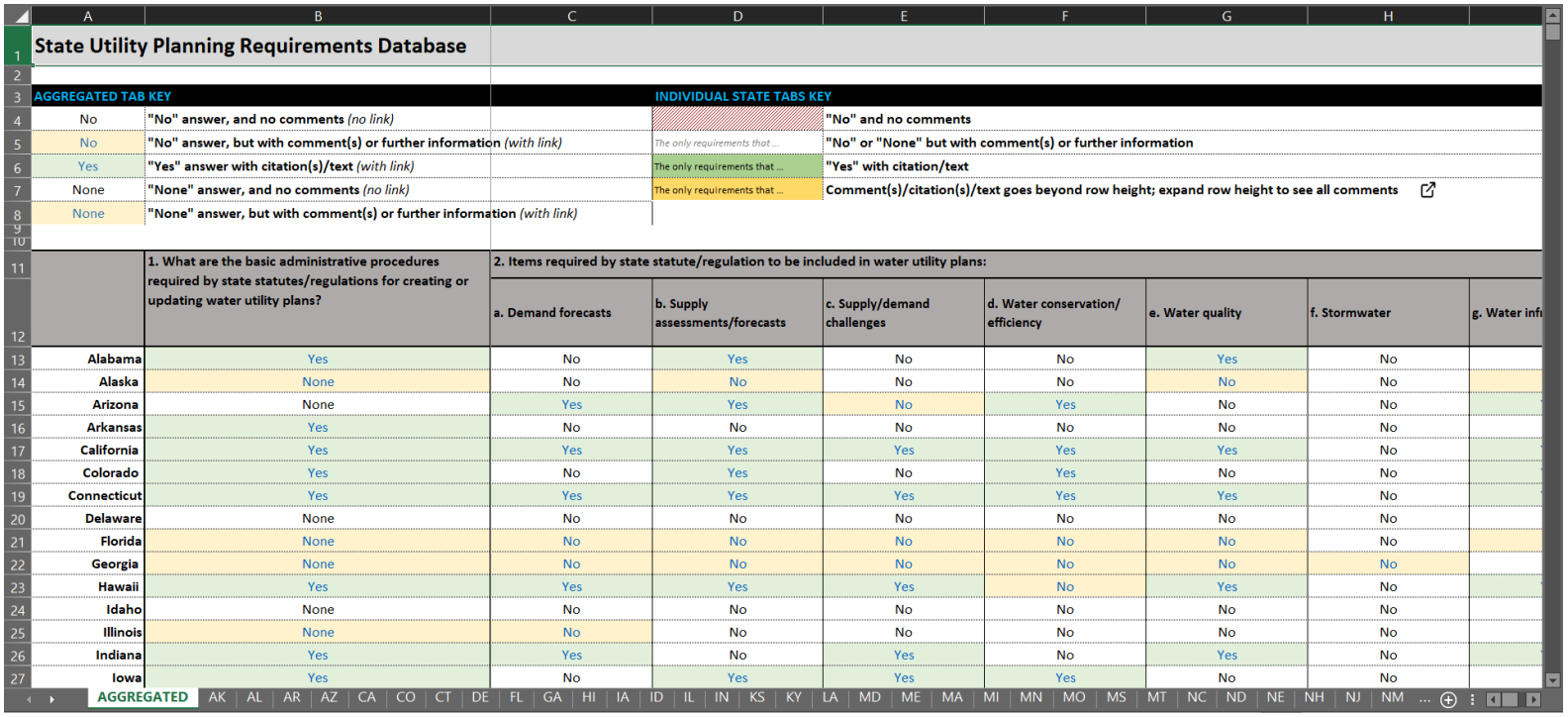
Appendix A: State Utility Planning Requirements Database

Access and download the full database on the Lincoln Institute website https://www.lincolninst.edu/sites/default/files/0_state_utility_planning_requirements_database.xlsx.



State Utility Planning Requirements Database

AGGREGATED TAB KEY		INDIVIDUAL STATE TABS KEY	
No	"No" answer, and no comments *(no link)*		"No" and no comments
No	"No" answer, but with comment(s) or further information *(with link)*	The only requirements that ...	"No" or "None" but with comment(s) or further information
Yes	"Yes" answer with citation(s)/text *(with link)*	The only requirements that ...	"Yes" with citation/text
None	"None" answer, and no comments *(no link)*	The only requirements that ...	Comment(s)/citation(s)/text goes beyond row height; expand row height to see all comments
None	"None" answer, but with comment(s) or further information *(with link)*		

	1. What are the basic administrative procedures required by state statutes/regulations for creating or updating water utility plans?	2. Items required by state statute/regulation to be included in water utility plans:						
		a. Demand forecasts	b. Supply assessments/forecasts	c. Supply/demand challenges	d. Water conservation/ efficiency	e. Water quality	f. Stormwater	g. Water infr
Alabama	Yes	No	Yes	No	No	Yes	No	
Alaska	None	No	No	No	No	No	No	
Arizona	None	Yes	Yes	No	Yes	No	No	
Arkansas	Yes	No	No	No	No	No	No	
California	Yes	Yes	Yes	Yes	Yes	Yes	No	
Colorado	Yes	No	Yes	No	Yes	No	No	
Connecticut	Yes	Yes	Yes	Yes	Yes	Yes	No	
Delaware	None	No	No	No	No	No	No	
Florida	None	No	No	No	No	No	No	
Georgia	None	No	No	No	No	No	No	
Hawaii	Yes	Yes	Yes	Yes	No	Yes	No	
Idaho	None	No	No	No	No	No	No	
Illinois	None	No	No	No	No	No	No	
Indiana	Yes	Yes	No	Yes	No	Yes	No	
Iowa	Yes	No	Yes	Yes	Yes	No	No	

AGGREGATED | AK | AL | AR | AZ | CA | CO | CT | DE | FL | GA | HI | IA | ID | IL | IN | KS | KY | LA | MD | ME | MA | MI | MN | MO | MS | MT | NC | ND | NE | NH | NJ | NM ...

Appendix B: Case Studies—Further Information

California Water Utility Planning and Land Use Coordination Interview

Interview dates: October 16 and October 27, 2020

Interviewees

Debbie Franco
Senior Advisor, Water and Rural Affairs
Governor's Office of Planning and Research
State of California

Julia Ekstrom ad Julie Saare-Edmonds
Water Use and Efficiency Branch
California Department of Water Resources

Ellen Hanak
Vice President and Director of the Water Policy Center
Public Policy Institute of California

Greg Young
Founding Principal
Tully & Young, Inc.

State of California Water Utility Plan Requirements

1. **What are the basic administrative procedures required by state statutes/regulations for creating or updating water utility plans?**

   Every urban water supplier must adopt an urban water management plan (Cal. Water Code §10620(a-b)). This requirement can be satisfied by participating in area-wide, watershed, regional, or basin-wide urban water management planning, if the approach will reduce preparation costs and advance the overall goals of efficient water use, conservation, and improved local drought resilience (Cal. Water Code §10620(d)(1)). Indeed, coordinating plan preparation with other "appropriate agencies," including other water management agencies, water suppliers that share a common source, and relevant public agencies, is required to the extent practicable (Cal. Water Code §10620(3)). However, each urban water supplier must develop its own water shortage contingency plan as part of its urban water management plan (Cal. Water Code §10620(d)(2); §10632(a)).

   Urban water management plans must be updated at least once every five years, on or before July 1 in years ending in one and six (Cal. Water Code §10621(a)). Prior to adopting an urban water management plan, urban water suppliers must make the plan available for public inspection and hold at least one public hearing on its contents (Cal. Water Code §10642). At least 60 days before a public hearing on a plan, urban water suppliers must notify the cities or

counties within which they provide water that they will be reviewing the plan and considering amendments or changes to it (Cal. Water Code §10621(b)). After the hearing or hearings, an urban water management plan will be adopted as prepared or modified during the hearings (Cal. Water Code §10621(b)).

Adopted urban water management plans, and amendments to those plans, must be submitted to the California Department of Water Resources, the California State Library, and any city or county within which the supplier provides water within 30 days of a plan's adoption (Cal. Water Code §10644(a)(1)). The urban water supplier must implement its urban water management plan according to the schedules set forth in the plan (Cal. Water Code §10643). The California Department of Water Resources prepares and submits a report to the California Legislature in the years ending in two and seven, summarizing the status of the plans (Cal. Water Code §10644(c)(1)).

2. Are the following items required by state statute/regulation to be included in water utility plans?

a. Demand forecasts

☒ Yes ☐ No

"Each plan shall include a simple lay description of... how much [water the agency] needs in the foreseeable future..." (Cal. Water Code §10630.5). The water use projections in the plans "shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code..." (Cal. Water Code §10631.1(a)).

Additionally, plans for urban retail water suppliers must include records of past, current, and projected water use in five-year increments for the categories of single-family residential; multifamily; commercial; industrial; institutional and governmental; landscape; sales to other agencies; saline water intrusion barriers, groundwater recharge, or conjunctive use; agricultural; and distribution system water loss (Cal. Water Code §10631(d)(1-2)).

b. Supply assessments/forecasts

☒ Yes ☐ No

"Each plan shall include a simple lay description of how much water the agency has on a reliable basis..." (Cal. Water Code §10630.5). Additionally, each plan must "[d]escribe the service area of the supplier, including current and projected population, climate, and other social, economic, and demographic factors affecting the supplier's water management planning" (Cal. Water Code §10631(a)). The description also must "include the current and projected land uses within the existing or anticipated service area affecting the supplier's water management planning" (Cal. Water Code §10631(a)).

c. Supply/demand challenges

☒ Yes* ☐ No

"Each plan shall include a simple lay description of... the challenges facing the agency and any other information necessary to provide a general understanding of the agency's plan" (Cal. Water Code §10630.5).

* *"Challenges facing the agency" does not necessarily mean water supply or demand challenges. It could include other challenges, such as fiscal ones.*

d. Water conservation/efficiency

☒ Yes ☐ No

"Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area" (Cal. Water Code §10631(d)(4)(A)).

"The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area..." (Cal. Water Code §10633). The plan shall include "(a) [a] description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal[;] (b) [a] description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project[;] (c) [a] a description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use[;] (d) [a] description and quantification of the potential uses of recycled water, including but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater discharge, indirect potable reuse, and other appropriate uses[;] (e) [t]he projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision[;] (f) [a] description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year[;] (g) [a] plan of optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater, that meets recycled water standers, and to overcome any obstacles to achieving that increased use" (Cal. Water Code §10633).

In the case of an urban retail water supplier, the plan must include descriptions of water waste prevention ordinances, metering, conservation pricing, public education and outreach, programs to assess and manage distribution system real loss, water conservation program coordination and staffing support, and other demand management measures that have a significant impact on water use (Cal. Water Code

§10631(e)(1)). In the case of an urban wholesale water supplier, the plan must include metering, public education and outreach, water conservation program coordination and staffing support, and other demand management measures that have a significant impact on water use (Cal. Water Code §10631(e)(2)).

Urban water management plans must include a quantification of the distribution system water loss for each of the five preceding years (Cal. Water Code §10631(d)(3)(A)). "In the plan due July 1, 2021, and in each update thereafter, data shall be included to show whether the urban retail water supplier met the distribution loss standards enacted by the board pursuant to Section 10608.34" (Cal. Water Code §10631(d)(3)(C)).

e. Water quality

☒ Yes ☐ No

"The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments... and the manner in which water quality affects water management strategies and supply reliability" (Cal. Water Code §10634).

f. Stormwater

☐ Yes ☒ No

g. Water infrastructure

☒ Yes ☐ No

"Every urban water supplier shall prepare and adopt a water shortage contingency plan as part of its urban water management plan that consists of each of the following elements… The procedures used in conducting an annual water supply and demand assessment that include, at a minimum, both of the following… The key data inputs and assessment methodology used to evaluate the urban water supplier's water supply reliability for the current year and one dry year, including all of the following… Existing infrastructure capabilities and plausible constraints" (Cal. Water Code §10632.5).

"[B]eginning January 1, 2020, the [water shortage contingency plan] shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities" (Cal. Water Code §10632.5).

h. Drought

☒ Yes ☐ No

Urban water management plans must include "[a] detailed discussion of anticipated supply availability under a normal water year, single dry year, and droughts lasting at least five years, as well as more frequent and severe periods of drought..." (Cal. Water Code §10631(b)(1)). In addition, plans must contain a "drought risk

assessment," which must include: "(1) [a] description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts five consecutive water years... [;] (2) [a] determination of the reliability of each source of supply under a variety of water shortage conditions... [;] (3) [a] comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period... [;] (4) [c]onsiderations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally available criteria" (Cal. Water Code §10635(b)).

i. Climate change

☒ Yes* ☐ No

The plans must include information about climate change, but only as it relates to the reliability of the water supply. Urban water management plans shall "[i]dentify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier… providing supporting and related information, including all of the following: (1) A detailed discussion of anticipated supply availability under a normal water year, single dry year, and droughts lasting at least five years, as well as more frequent and severe periods of drought, as described in the drought risk assessment. For each source of water supply, consider any information pertinent to the reliability analysis conducted pursuant to Section 10635, including changes in supply due to climate change" (Cal. Water Code §10631(b)(1)).

While not a requirement, there is the statement of intent for the legislation: "It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied, while accounting for impacts from climate change" (Cal. Water Code §10630).

* *Neither provision here is a robust example. The former merely requires climate change to be considered, and only insofar as it affects water supply, and the latter is not a requirement.*

j. Water management strategies

☒ Yes ☐ No

Urban water management plans must "include a simple lay description of… what the agency's strategy is for meeting its water needs" (Cal. Water Code §10630.5). In addition, "[t]he urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions" (Cal. Water Code §10620(f)).

Urban water management plans must provide "a description of the supplier's water demand management measures" (Cal. Water Code §10631€). "When multiple sources of water are identified, [plans must include] a description of the management of each supply in correlation with the other identified supplies" (Cal. Water Code

§10631(b)(2)). Plans also must include "a description of the measures that are being undertaken to acquire and develop those water supplies" (Cal. Water Code §10631(b)(3)). In addition, plans must "[i]nclude a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use" (Cal. Water Code §10631(f)). Plans must "[d]escribe the opportunities for exchanges or transfers of water on a short-term or long-term basis" (Cal. Water Code §10631(c)). They must also "[d]escribe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply" (Cal. Water Code §10631(g)).

If groundwater is identified as an existing or planned source of the utility's water, additional information is required in the plan, including: a groundwater sustainability plan, a groundwater management plan; a description of any groundwater basin or basins from which the urban water supplier pumps groundwater; a copy of the legal decree giving the urban water supplier rights to the groundwater; a detailed description of the efforts being undertaken to coordinate with groundwater sustainability or management agencies; a detailed description conveying the location, amount, and sufficiency of groundwater pumped by the urban water supplier in the last five years; as well as a detailed description conveying the location and amount of groundwater projected to be pumped by the urban water supplier (Cal. Water Code §10631(b)(4)).

k. Other specific requirements for inclusion in water utility plans

☒ Yes ☐ No

"An urban water management plan shall include any of the following information that the urban water supplier can readily obtain: (1) [a]n estimate of the amount of energy used to extract or divert water supplies[;] (2) [a]n estimate of the amount of energy used to convey water supplies to the water treatment plants or distribution systems[;] (3) [a]n estimate of the amount of energy used to treat water supplies[;] (4) [a]n estimate of the amount of energy used to distribute water supplies through its distribution systems[;] (5) [a]n estimate of the amount of energy used for treated water supplies in comparison to the amount used for nontreated water supplies[;] (6) [a]n estimate of the amount of energy used to place water into or withdraw from storage[;] (7) [a]ny other energy-related information the urban water supplier deems appropriate" (Cal. Water Code §10631.2(a)).

According to Section 10632 of the California Water Code, every urban water supplier must prepare a water shortage contingency plan as part of its urban water management plan. It must include the following elements: (1) an analysis of water supply reliability; (2) the procedures used in conducting an annual water supply and demand assessment, including the written decision making process that the urban water supplier will use each year to determine its water supply reliability as well as the key data inputs and assessment methodology used to evaluate the supplier's reliability for the current year and one dry year; (3) water shortage contingency plans corresponding to 10, 20, 30, 40, 50, and greater than 50 percent shortages; (4)

shortage response actions that include, among others, locally appropriate supply augmentation actions and locally appropriate demand reduction actions; (5) communication protocols and procedures to inform customers, the public, interested parties, and local, regional, and state governments of current or predicted shortages and shortage response actions; (6) a description of the legal authority that empowers the urban water supplier to implement and enforce its shortage response actions; (7) a description of the financial consequences of and responses for drought conditions; and (8) reevaluation and improvement procedures for systematically monitoring and evaluating the functionality of the water shortage contingency plan (Cal. Water Code §10632(a)). Urban retail water suppliers also must include customer compliance, enforcement, appeal, and exemption procedures for triggered shortage response actions, as well as include their monitoring and reporting requirements and procedures that ensure appropriate data are collected, tracked, and analyzed for the purposes of monitoring customer compliance (Cal. Water Code §10632(a)(6, 9)).

3. **Are water utilities required to incorporate land use considerations (including but not limited to building/plumbing codes, subdivision regulations, land use plans, site plan reviews, development reviews, and things affecting zoning) into their water plans?**
☒ Yes ☐ No

"Water use projections, where available, shall display and account for... land use plans identified by the urban water supplier, as applicable to the service area" (Cal. Water Code §10631(d)(4)(A)). Further, the plans must "[p]rovide citations of the various... land use plans utilized in making projections" and "[i]ndicate the extent that the water use projections consider savings from... land use plans" (Cal. Water Code §10631(d)(4)(B)).

In addition, Senate Bills 221 and 610 (known as "Show Me the Water" laws) require local land use authorities to demonstrate long-term water supply availability before having their large development projects approved (Cal. Water Code §10910; Cal. Gov't Code §66473.7). Section 10910 of the Water Code (incorporating Senate Bill 610) requires the development of a water supply assessment for these projects, an assessment that includes a discussion of whether the total projected water supplies will meet the projected water demand associated with the proposed project during normal, a single dry, and multiple dry water years (Cal. Water Code §10910(b), (c)(4)).

Section 66473.7 of the Government Code (incorporating Senate bill 221) requires a final check on water availability for the proposed development at the later stage of subdivision map approval. It requires written verification from the applicable public water system as proof of the availability of a sufficient water supply for the development (Cal. Gov't Code §66473.7(b)). However, if the verification indicates that the public water system is unable to provide a sufficient water supply, the local agency still can approve the development by finding that "additional water supplies not accounted for by the public water system are, or will be, available prior to completion of the subdivision that will satisfy the requirements of this section" (Cal. Gov't Code §66473.7(b)(3)).

4. **Please identify the threshold type or size of agency/utility that triggers the water utility plan requirements above (as listed in state statute/regulation).**

Every urban water supplier must adopt an urban water management plan within one year after becoming an urban water supplier (Cal. Water Code §10620(a-b)). There are two types of urban water suppliers: urban retail water suppliers and urban wholesale water suppliers (Cal. Water Code §10608.12). Urban retail water suppliers directly provide potable municipal water to more than 3,000 end users or supply more than 3,000 acre-feet of potable water annually at retail for municipal purposes (Cal. Water Code §10608.12(t)). Urban wholesale water suppliers provide more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes (Cal. Water Code §10608.12(w)). Both types of urban water suppliers can be publicly- or privately-owned. Some of the plan requirements apply only to urban retail water suppliers and some apply only to urban wholesale water suppliers. According to Section 10620(c) of the California Water Code, whether an urban water supplier directly or indirectly provides water to their customers matters for the contents of the urban water management plans they must submit: "[a]n urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies."

5. **Are community land use plans required to incorporate water utility plans?**
☐ Yes ☒ No

Climate change, energy, water, and health are considered optional elements on land use plans. *See* The Institute for Local Government, Understanding the Basics of Land Use and Planning: A Guide to Local Planning, page 15 (The Institute for Local Government, 2010).

6. **Are water utilities required to coordinate with land use planners in their communities?**
☐ Yes ☒ No

Water utilities are not required to coordinate with land use planners in their communities, but some interaction is likely necessary, as water utilities must include aspects of land use plans in their urban water management plans.

7. **Is state funding or other assistance available to support this coordination between water utilities/plans and land use planners/plans?**
☒ Yes ☐ No

The California Legislature passed the Regional Water Management Planning Act (SB 1672) in 2002. This act provides state funding to support and advance integrated, multi-benefit regional water projects through the Integrated Regional Water Management (IRWM) program. The IRWM provides grants for projects targeting the unique needs and conditions of California regions. The California Local Government Commission's January 2019 report to the Community Foundation Water Initiative signaled that IRWM grants could be a source of future coordination. The report also noted that the Sustainable Communities Strategy process "ha[s] been successful at least in some regions" (The Local Government Commission 2019, 17).

Colorado Water Utility Planning and Land Use Coordination Interview

Interview dates: September 30 and October 30, 2020

Interviewees

Kevin Reidy
Water Conservation Technical Specialist
Colorado Water Conservation Board

Christy Wiseman
Land Use and Water Planner
Community Development Office
Colorado Department of Local Assistance

Ellen Roberts
Former State Senator and President Pro-Tempore
Colorado State Legislature

State of Colorado Water Utility Plan Requirements

1. **What are the basic administrative procedures required by state statutes/regulations for creating or updating water utility plans?***

   Each "covered entity" must develop, adopt, make publicly available, and implement a plan to "encourage its domestic, commercial, industrial, and public facility customers to use water more efficiently." Colo. Rev. Stat. Ann. § 37-60-126(2)(a). A "covered entity" is defined as any "municipality, agency, utility, including any privately-owned utility, or other publicly owned entity with a legal obligation to supply, distribute, or otherwise provide water at retail to domestic, commercial, industrial, or public facility customers, and that has a total demand for such customers of two thousand acre-feet or more." Colo. Rev. Stat. Ann. § 37-60-126(1)(b).

   Draft plans must be made publicly available for review and comment according to the entity's own rules, codes, or ordinances. Colo. Rev. Stat. Ann. § 37-60-126(5). If the entity does not have any rules governing its public planning process, then it must "publish a draft plan, give public notice of the plan, make such plan publicly available, and solicit comments from the public for a period of not less than sixty days." *Id.* The plan must be accompanied by an implementation schedule, and both the plan and schedule must be provided to the Office of Water Conservation and Drought Planning for review within ninety days after their adoption. Colo. Rev. Stat. Ann. § 37-60-126(3).

   While covered entities can update or otherwise change their plans at any time, they are required to do so at least every seven years. Colo. Rev. Stat. Ann. § 37-60-126(3), (4)(d). Additionally, if a covered entity decides to seek financial assistance from either the Colorado Water Conservation Board or the Colorado Water Resources and Power Authority, it must submit a new or revised plan. Colo. Rev. Stat. Ann. § 37-60-126(2)(c). For any changes to an

approved plan, the covered entity must notify and receive concurrence from the Office of Water Conservation and Drought Planning; "[i]f the proposed changes are major, the covered entity shall give public notice of the changes, make the changes available in draft form, and provide the public an opportunity to comment on such changes before adopting them." Colo. Rev. Stat. Ann. § 37-60-126(8).

State government provides financial assistance for the creation and implementation of plans. The Colorado Water Conservation Board may use "the unobligated balance of the five percent share of the severance tax operational fund" to provide assistance to covered entities to develop water conservation plans. Colo. Rev. Stat. Ann. § 37-60-126(6). Further, the general assembly is obligated to appropriate up to $500,000 annually for the purpose of providing grants to covered entities and other state and local governmental entities to aid in the planning and implementation of water conservation plans. Colo. Rev. Stat. Ann. § 37-60-126(12)(a)(III).

* *The required planning at the center of these answers is water conservation planning. It is not as comprehensive and holistic as that of other states.*

2. Are the following items required by state statute/regulation to be included in water utility plans?

a. Demand forecasts

☐ Yes ☒ No

b. Supply assessments/forecasts

☒ Yes* ☐ No

"A plan developed by a covered entity pursuant to subsection (2) of this section must, at a minimum, include a full evaluation of… the covered entity's best judgment of the role of water conservation plans in the covered entity's water supply planning." Colo. Rev. Stat. Ann. § 37-60-126(4)(b).

* *Requiring evaluation of the role of conservation plans in the utility's water supply planning expects some degree of water supply planning, which expects supply assessment and forecasting. We suspect that there is additional state guidance and will seek that in state interviews.*

c. Supply/demand challenges

☐ Yes ☒ No

d. Water conservation/efficiency

☒ Yes ☐ No

The plan must include a full evaluation of "the water-saving measures and programs to be used by the entity for water conservation. In developing these measures and programs, each covered entity shall, at a minimum, consider the following: (I) Water-efficient fixtures and appliances, including toilets, urinals, clothes washers, showerheads, and faucet aerators; (II) Low water use landscapes, drought-resistant vegetation, removal of phreatophytes, and efficient irrigation; (III) Water-efficient industrial and commercial water-using processes; (IV) Water reuse systems; (V) Distribution system leak identification and repair; (VI) Dissemination of information regarding water use efficiency measures, including by public education, customer water use audits, and water-saving demonstrations; (VII)(A) Water rate structures and billing systems designed to encourage water use efficiency in a fiscally reasonable manner. (B) The department of local affairs may provide technical assistance to covered entities that are local governments to implement water billing systems that show customer water usage and implement tiered billing systems. (VIII) Regulatory measures designed to encourage water conservation; (IX) Incentives to implement water conservation techniques, including rebates to customers to encourage the installation of water conservation measures." Colo. Rev. Stat. Ann. § 37-60-126(4)(a).

In addition, the plan must include "an estimate of the amount of water that will be saved through conservation when the plan is implemented." Colo. Rev. Stat. Ann. § 37-60-126(4)(e).

e. Water quality

☐ Yes ☒ No

f. Stormwater

☐ Yes ☒ No

g. Water infrastructure

☒ Yes* ☐ No

The plan must include a full evaluation of "the water-saving measures and programs to be used by the entity for water conservation. In developing these measures and programs, each covered entity shall, at a minimum, consider the following: …(IV) Water reuse systems; (V) Distribution system leak identification and repair…" Colo. Rev. Stat. Ann. § 37-60-126(4)(a).

* *This provision very minimally addresses water infrastructure*.

h. Drought

☐ Yes ☒ No

i. Climate change

☐ Yes ☒ No

j. Water management strategies

☒ Yes ☐ No

The plan must include "best management practices for water demand management, water efficiency, and water conservation that may be implemented through land use planning efforts." Colo. Rev. Stat. Ann. § 37-60-126(4)(f)(I).

k. Other specific requirements for inclusion in water utility plans

☒ Yes ☐ No

The plan must include "steps that the entity used to develop, and will use to implement, monitor, review, and revise, its water conservation plan" Colo. Rev. Stat. Ann. § 37-60-126(4)(c).

The plan also must include the "time period, not to exceed seven years, after which the covered entity will review and update its adopted plan." Colo. Rev. Stat. Ann. § 37-60-126(4)(d).

3. Are water utilities required to incorporate land use considerations (including but not limited to building/plumbing codes, subdivision regulations, land use plans, site plan reviews, development reviews, and things affecting zoning) into their water plans?

☒ Yes* ☐ No

The plan must include "[b]est management practices for water demand management, water efficiency, and water conservation that may be implemented through land use planning efforts." Colo. Rev. Stat. Ann. § 37-60-126(4)(f)(I).

* *The term "may" makes this provision less of a requirement.*

4. Please identify the threshold type or size of agency/utility that triggers the water utility plan requirements above (as listed in state statute/regulation).

If the utility has a total demand for domestic, commercial, industrial, or public facility customers of two thousand acre-feet or more, the water utility plan requirements are triggered. This applies to privately owned utilities as well as publicly owned ones. Colo. Rev. Stat. Ann. § 37-60-126(1)(b), (2)(a).

5. Are community land use plans required to incorporate water utility plans?

☐ Yes ☒ No

There are no requirements, but Colo. Rev. Stat. Ann. §30-28-106(3)(a)(IV) and Colo. Rev. Stat. Ann. §31-23-206(1)(d) indicate that counties and municipalities may, but do not have to, include a water supply component in master plans for development in their jurisdictions. Also, the state has an adequate supply law (Colo. Rev. Stat. Ann. §29-20-301 et. seq.).

6. **Are water utilities required to coordinate with land use planners in their communities?**
☐ Yes ☒ No

According to §30-28-106(3)(a)(IV), if a county master plan includes a water supply element, "the planning commission shall consult with the entities that supply water for use within the county or region to ensure coordination on water supply and facility planning, and the water supply element shall identify water supplies and facilities sufficient to meet the needs of the public and private infrastructure reasonably anticipated or identified in the planning process."

This provision does not merit a "yes" for this question because county master plans are not required to include a water supply element and, even when they do include that element, the obligation to consult is on the planning commission, not the utility.

7. **Is state funding or other assistance available to support this coordination between water utilities/plans and land use planners/plans?**
☒ Yes ☐ No

In order to assist covered entities in fully evaluating best management practices for water demand management, water efficiency, and water conservation that may be implemented through land use planning efforts, the Colorado Water Conservation Board and the Division of Local Government (located under the Department of Local Affairs) will:

- "Develop training programs, including introductory programs, refresher programs, and advanced programs, for local government water use, water demand, water consumption, and land use planners regarding best practices for water demand management, water efficiency, and water conservation." Colo. Rev. Stat. Ann. § 37-60-126(4)(f)(II)(A) (West 2019).
- "Provide the training, on a recurring basis, free of charge to local water use, water demand, and land use planners." Colo. Rev. Stat. Ann. § 37-60-126(4)(f)(II)(B).
- "Make recommendations regarding how to better integrate water demand management and conservation planning into land use planning, including, as appropriate, legislative, regulatory, and guidance or policy recommendations." Colo. Rev. Stat. Ann. § 37-60-126(4)(f)(II)(C).

Connecticut Water Utility Planning and Land Use Coordination Interview

Interview dates: October 16 and October 26, 2020

Interviewees

Martin L. Heft
Acting Undersecretary
Intergovernmental Policy and Planning Division
Connecticut State Office of Policy and Management

Dan Morley and Bruce Wittchen
Intergovernmental Policy and Planning Division
Connecticut State Office of Policy and Management

Lori J. Mathieu
Public Health Branch Chief
Environmental Health & Drinking Water Branch
Connecticut State Department of Public Health

State of Connecticut Water Utility Plan Requirements

1. **What are the basic administrative procedures required by state statutes/regulations for creating or updating water utility plans?**

   Water companies supplying 1,000 or more people or 250 or more consumers, or any other water company requested by the Commissioner of Public Health, must develop a water supply plan that evaluates the water supply needs in the water company's service area and proposes a strategy to meet those needs. CONN. GEN. STAT. ANN. § 25-32d(a); CONN. AGENCIES REGS. § 25-32d-3. If the Commissioner of Public Health requests a water company to submit an initial plan, the water company must do so within two years of the request. CONN. AGENCIES REGS. § 25-32d-2(b). A plan must be revised between six and nine years after the most recent approval, when the water company or the Commissioner of Public Health determines is appropriate. If the water company fails to meet public drinking water supply quality and quantity obligations, a revised plan must be filed six years after the most recent approval, unless the Commissioner of Public Health requests otherwise. CONN. GEN. STAT. ANN. § 25-32d(a). If the Commissioner of Public Health requests a plan revision, the water company must submit the revised plan within one year of the request. CONN. AGENCIES REGS. § 25-32d-2(c).

   To submit an initial plan, revised plan, or modified plan, the water company must provide three copies of the plan to the Department of Public Health, four copies to the Commissioner of Environmental Protection, two copies to the Executive Secretary of the Department of Public Utility Control, one copy to the Secretary of the Office of Policy and Management, and one copy to each regional planning organization covering any portion of the company's existing or proposed source or service area. The Department of Public Health then notifies each chief elected official, local health official, and regional planning organization covering

any portion of the company's existing or proposed source or service area of the plan and the opportunity to comment on it. CONN. AGENCIES REGS. § 25-32d-5(a).

The plan must receive approval from the Commissioner of Public Health and the concurrence of the Commissioner of Energy and Environmental Protection. The concurrence of the Department of Public Utility Control also is required if the water company is regulated by that authority. CONN. GEN. STAT. ANN. § 25-32d(a). The Department of Environmental Protection and the Department of Public Utility Control, if appropriate, have 60 days from receipt of the plan to comment to the Department of Public Health on the completeness of the plan. The plan is deemed complete if the Commissioner of Public Health does not request additional information within 90 days of submission or, in the event that additional information was requested, within 45 days after the submission of that information. CONN. GEN. STAT. ANN. § 25-32d(f). The Department of Environmental Protection and the Department of Public Utility Control, if appropriate, have 90 days from receiving notice that a plan is deemed complete to comment on the plan. Failure to meet this deadline will prompt a notice by the Department of Public Health, triggering a 60-day period for the Department of Public Health to make a determination on approval, modification, or rejection of the plan. If the Commissioner of Public Health fails to approve or reject the plan within the required timeframe, the plan is deemed approved as submitted. If the Commissioner of Public Health rejects the plan, the reason why the plan cannot be approved must be provided, and an opportunity for appeal is available. CONN. AGENCIES REGS. § 25-32d-5(c).

The state also requires the development of coordinated water system plans, to promote cooperation among public water systems (private, municipal, and regional utilities supplying water to 15 or more service connections or 25 or more people). CONN. GEN. STAT. ANN. §§ 25-33d(a), 25-33h(a). These coordinated water system plans must include, among other provisions, the integration of water company plans and an areawide supplement that addresses areawide water system concerns not otherwise in each water company's individual water system plan, as well as integration of land use and water system plans. CONN. GEN. STAT. ANN. § 25-33d(a); CONN. AGENCIES REGS. § 25-33h-1(c)(1). The coordinated water system plans are required to be prepared by the water utility coordinating committees (WUCCs), of which there are three in the state (Eastern, Central Corridor, and Western), each consisting of one representative from each public water system with a source of supply or service area in the public water supply management area and one representative from each regional planning agency in the public water supply management area. CONN. GEN. STAT. ANN. § 25-33h(a); CONN. AGENCIES REGS. § 25-33h-1(a)(13). The coordinated water system plans were required to be submitted to the Commissioner of Public Health for approval not more than two years after the first meeting of the WUCC. CONN. GEN. STAT. ANN. § 25-33h(a). The WUCCs had to solicit comments on their plans from the Commissioners of Public Health and Energy and Environmental Protection, the Public Utilities Regulatory Authority, the Secretary of the Office of Policy and Management and any municipality, regional council of governments, or other interested party in the management area. CONN. GEN. STAT. ANN. § 25-33h(b). Each WUCC must review and update its coordinated water system plan every 10 years, or sooner if the WUCC or the Department of Public Health deems it necessary. CONN. AGENCIES REGS. § 25-33h-1(i)(1).

2. Are the following items required by state statute/regulation to be included in water utility plans?

a. Demand forecasts

☒ Yes ☐ No

"Any water supply plan submitted pursuant to this section shall evaluate the water supply needs in the service area of the water company submitting the plan and propose a strategy to meet such needs. The plan shall include…(2) an analysis of future water supply demands…" CONN. GEN. STAT. ANN. § 25-32d(b).

"Each water supply plan submitted shall evaluate the water supply needs in the service area of the water company and propose a strategy to meet such needs. The plan shall contain:
…(b) An analysis of present and future water supply demands for the five, twenty, and fifty year planning periods, including:
(1) A description of the present population distribution patterns and population served;
(2) data and an evaluation of current and historic water use in each water supply system for the past five years of record, or since the most recent submittal of a water supply plan, including average daily, maximum month and peak day demands and sales to other water companies. Water companies that have this data compiled by user categories shall provide data in that form;
(3) a description of local, state and regional land use plans, policies and zoning as related to projected water demands and future service areas;
(4) projected water demands for the five, twenty and fifty year planning periods, including sales to other water companies, based on user categories if data is available, and local land use plans and zoning regulations;
(5) an assessment of population changes within existing and future service areas for the five, twenty, and fifty year planning periods using the Office of Policy and Management's most current population data and projections, including an explanation of any deviations thereto and maps depicting the existing and future service areas;
(6) identification of any sources of supply that will no longer be used to meet system demands or any sources of supply to be abandoned;
(7) an analysis of the relationship between available water and average daily demand as determined for the most recent representative period of record not affected by unusual demand conditions such as drought or a significant temporary increase in demand, maximum month demand and peak day demand and the margin of safety to be maintained by the water company currently and for the five, twenty, and fifty year planning periods;
(8) demonstration that the margin of safety is sufficient to meet the water company's current and future needs considering factors such as potential increases or decreases in demand, the time required to bring new sources of supply on line, potential losses of sources of supply or decreased capacities, land area available for development, available interconnections and other factors which may increase or reduce supply or demand;

(9) an analysis of any treatment limitations, water quality concerns, or distribution system limitations and the ability to meet demands currently and for the five, twenty and fifty year planning periods; and
(10) an analysis of any system improvements necessary to minimize the effect of a water supply emergency on critical system components as identified in subdivision (1) of subsection (d) of this section…" CONN. AGENCIES REGS. § 25-32d-3.

"The coordinated water system plan shall include, but not be limited to, the following:
…(2) An areawide supplement that shall address areawide water system concerns pertaining to the public water supply management area which are not otherwise included in each water company's individual water system plan. The areawide supplement consists of a water supply assessment, exclusive service area boundaries, integrated report, and executive summary. The areawide supplement shall include at least the following:
(C) Integrated Report
An integrated report shall be developed which provides an overview of individual public water systems within the management area; addresses areawide water supply issues, concerns, and needs; and promotes cooperation among public water systems. The integrated report shall contain at least the following:
(i) An areawide overview which integrates individual water system plans. This should include at least the following:
(aa) Population and consumption projections for 5, 20 and 50 year planning periods for the public water supply management area as a whole and for each municipality within the area.
(bb) Projected population, historical and projected water demand by user category for 5, 20 and 50 year planning periods for each public water system's exclusive service area and for the combined service areas..." CONN. AGENCIES REGS. § 25-33h-1(d)

b. Supply assessments/forecasts

☒ Yes ☐ No

"Any water supply plan submitted pursuant to this section shall evaluate the water supply needs in the service area of the water company submitting the plan and propose a strategy to meet such needs. The plan shall include: (1) A description of existing water supply systems…(3) an assessment of alternative water supply sources which may include sources receiving sewage and sources located on state land..." CONN. GEN. STAT. ANN. § 25-32d(b).

"Each water supply plan submitted shall evaluate the water supply needs in the service area of the water company and propose a strategy to meet such needs. The plan shall contain:
(a) A description of the existing water supply system, including:
(1) The legislative or franchise authority for the areas proposed to be served by the plan;
(2) a list and description of: service areas; sources of supply, including active, emergency and inactive sources, with a description of what portion of the service area

is served by each source of supply; pump stations; and storage and treatment facilities;
(3) a map of: water company owned lands, service areas, sources of supply, interconnections, pumping stations, pressure zones, source water protection area boundaries, storage, treatment facilities, public or privately-owned protected lands.
(4) a map and description of existing transmission and distribution facilities, including age, materials, capacity and condition, if known;
(5) a description of meter reading and testing program and extent of metering;
(6) a schematic of the water supply system's hydraulic profile;
(7) a general discussion of the water supply system's fire flow capabilities;
(8) the calculation of the safe yield of each source of supply in accordance with Section 25-32d-4 of the Regulations of Connecticut State Agencies;
(9) a summary of monthly system production data by sources of supply and a summary of system average daily demands, maximum month demands and peak day demands for the previous five years;
(10) a list, description, and map of existing interconnections, and the quantities of water sold to or purchased from other water companies during the previous five years, and any limitations on their use;
(11) a history of water quality violations in each water supply system for the previous five years and a trend analysis for water quality parameters that may be approaching water quality standards;
(12) a description of the watershed inspection program required pursuant to subsection (b) of section 19-13-B102 of the Regulations of Connecticut State Agencies and the cross-connection inspection program required pursuant to subsection (f) of section 19-13-B102 of the Regulations of Connecticut State Agencies, and demonstration of compliance with certification requirements pursuant to sections 25-32-7a to 25-32-14, inclusive, of the Regulations of Connecticut State Agencies;
(b) An analysis of present and future water supply demands for the five, twenty, and fifty year planning periods, including:
…(6) identification of any sources of supply that will no longer be used to meet system demands or any sources of supply to be abandoned;
…(c) An assessment of potential alternative sources of supply, including:
(1) An analysis of alternatives to allow the use of inactive or emergency sources of supply and the safe yield of existing active sources of supply beyond any current limitations in order to meet demands currently and in the five, twenty and fifty year planning periods;
(2) an evaluation of potential new sources of supply and a description of existing state, local and regional land use plans, policies, classifications and zoning as they relate to source development;
(3) identification of potential or historic pollution sources which may affect any new source of supply; and
(4) a demonstration of the ability of the selected alternatives to meet future system demands, including a conceptual implementation plan…" CONN. AGENCIES REGS. § 25-32d-3.

"The coordinated water system plan shall include, but not be limited to, the following:
…(2) An areawide supplement that shall address areawide water system concerns pertaining to the public water supply management area which are not otherwise included in each water company's individual water system plan. The areawide supplement consists of a water supply assessment, exclusive service area boundaries, integrated report, and executive summary. The areawide supplement shall include at least the following:
(A) Water Supply Assessment
A water supply assessment shall be developed to evaluate water supply conditions and problems within the public water supply management area. The WUCC shall prepare a preliminary and then a final water supply assessment. The water supply assessment shall be a factual and concise report including at least the following topics as they relate to public water systems in the public water supply management area:
(i) Description of existing water systems, including
(aa) History of water quality, reliability, service, and supply adequacy;
(bb) General fire-fighting capability of the utilities; and
(cc) Identification of major facilities which need to be expanded, altered, or replaced.
(ii) Availability and adequacy of any future water source(s).
(iii) Existing service area boundaries and public water system limits established by statute, special act or administrative decision, including a map of established boundaries, and identification of systems without boundaries.
(iv) Present and projected growth rates, including population data, land use patterns and trends, and identification of lands available for development.
(v) Status of water system planning, land use planning and coordination between public water systems.
…(C) Integrated Report
An integrated report shall be developed which provides an overview of individual public water systems within the management area; addresses areawide water supply issues, concerns, and needs; and promotes cooperation among public water systems. The integrated report shall contain at least the following:
(i) An areawide overview which integrates individual water system plans. This should include at least the following:
…(cc) Sources of supply, safe yield and amounts of purchased water available for 5, 20, and 50 year planning periods for each public water system's exclusive service area and for the combined service areas.
…(ee) Identification of areas not within exclusive service area boundaries and discussion of water supply alternatives. Attention should be given to existing and potential water quality problems, supply availability, population projections, and development potential.
…(iii) Evaluation and identification in priority order of alternative water sources recommended to supply future areawide water system needs. Include appropriate ground or surface water studies, safe yield estimates and arrangement for development and delivery of the water supply..." CONN. AGENCIES REGS. § 25-33h-1(d)

c. Supply/demand challenges

☒ Yes ☐ No

"The plan shall include…(4) contingency procedures for public drinking water supply emergencies, including emergencies concerning the contamination of water, the failure of a water supply system or the shortage of water…" CONN. GEN. STAT. ANN. § 25-32d(b).

"The plan shall contain:
…(b) An analysis of present and future water supply demands for the five, twenty, and fifty year planning periods, including:
…(8) demonstration that the margin of safety is sufficient to meet the water company's current and future needs considering factors such as potential increases or decreases in demand, the time required to bring new sources of supply on line, potential losses of sources of supply or decreased capacities, land area available for development, available interconnections and other factors which may increase or reduce supply or demand;
(9) an analysis of any treatment limitations, water quality concerns, or distribution system limitations and the ability to meet demands currently and for the five, twenty and fifty year planning periods; and
(10) an analysis of any system improvements necessary to minimize the effect of a water supply emergency on critical system components as identified in subdivision (1) of subsection (d) of this section.
…(d) A water supply emergency contingency plan, including emergencies due to contamination of water, power outages, drought, flood or failure of any or all-critical system components. Such water supply emergency contingency plan shall include:
(1) A list identifying critical system components and potential water supply emergencies that may affect them including contamination, power outages, drought, flood or failure, but excluding routine events, such as water main breaks and inoperable valves;
(2) A list identifying significant user groups in commercial, industrial, municipal and residential categories, and discussions of mechanisms of direct technical assistance to these significant quantity user groups.
(3) a description of the level of service to be sustained during water supply emergencies, including identification of priority users, procedures for public notification of priority users, and the means for provision of essential potable water to priority users where priority is based on the potential risk to health, safety and welfare posed by the curtailment of service; and procedures for advance notice to users for which service may be suspended if rationing is required and for implementation of rationing and use bans;
(4) procedures for responding to toxic spills or hazardous materials that may contaminate a watershed or aquifer used for drinking water;
(5) an inventory of equipment needs and availability, including location of existing emergency equipment, generators and spill response materials, identification of additional emergency equipment needs, and procedures for obtaining additional equipment or services;
(6) a list prioritizing emergency sources, including interconnections and independent industrial and commercial water supplies within the service area, and describing

contractual, technical and financial requirements for their use, a schedule for activation, available yield and known water quality problems or limitations;
(7) procedures for notification of local, state and federal officials and the public;
(8) a description of duties and responsibilities of key personnel involved in emergency response actions, and a procedure for contacting and scheduling staff;
(9) a description of local ordinances and municipal authority to implement water use restriction.
(10) a description of four stages of response during drought-based emergencies, including identification of trigger levels which initiate each stage based on water supply availability and demand situation, reservoir storage levels, or critical operational indicators, including storage tank recovery, pumping capacity, or for groundwater dependent systems, the number of hours of continuous well pump operation. Additional trigger levels may include; precipitation, groundwater, stream flow, and reservoir levels, and also include, the Palmer Drought Severity Index, crop moisture index and fire danger index. The four stages of response shall include: a drought advisory, a drought watch, a drought warning, and a drought emergency. Triggers shall give sufficient lead time to adequately implement response actions. The plan shall include the following stages and actions unless otherwise approved by the department:
(A) a list of actions to be taken in a drought advisory, including contacting the department and affected municipalities, evaluation of emergency source options, schedule for obtaining emergency equipment, implementation of internal measures to maximize use of existing active sources, promotion of voluntary conservation in residential, commercial and industrial facilities to reduce demand by ten percent from previous non-drought average for the appropriate month, preparation for mandatory conservation including necessary enforcement mechanisms, activation of the budget process for funding necessary projects;
(B) a list of actions to be taken in a drought watch, including contacting the department, preparing emergency sources for use, implementation of voluntary conservation to reduce demand by an additional five percent for a total of fifteen percent from previous non-drought average for the appropriate month, coordination with local officials concerning alternative facilities for obtaining water, reevaluation of priority among users and those actions required under previous water supply emergency contingency plan stages;
(C) a list of actions to be taken in a drought warning, including contacting the department, activation of emergency sources upon department approval, institution of mandatory conservation to reduce demand by an additional five percent for a total of twenty percent from previous non-drought average for the appropriate month, initiation of weekly reporting of reservoir water supply status to the department and those actions required under previous water supply emergency contingency plan stages; and
(D) a list of actions to be taken in a drought emergency, including contacting the department, activation of emergency sources upon department approval, institution of the second phase of mandatory conservation to reduce demand by an additional five percent for a total of twenty-five percent from the previous non-drought average for the appropriate month, coordination with local officials for the provision of emergency services for bathing and obtaining drinking water for the highest priority

users, enforcement of measures through local ordinances and state and municipal authorities and those actions required under previous water supply emergency contingency plan stages; and
(11) a signed statement by the water company's chief executive officer attesting to the existence of procedures for sabotage prevention and response. For security and safety reasons, procedures for sabotage prevention and response shall not be submitted for state agency review…" CONN. AGENCIES REGS. § 25-32d-3.

d. Water conservation/efficiency

☒ Yes ☐ No

"The plan shall include…(8) an analysis of the impact of water conservation practices and a strategy for implementing supply and demand management measures…" CONN. GEN. STAT. ANN. § 25-32d(b).

"The plan shall contain:
(h) An analysis of the impact of water conservation practices and a strategy for implementing supply and demand management measures, as follows:
(1) The water conservation plan shall be designed to meet the specific needs of the water supply system for which it is designed. In all cases the plan shall be designed to increase the efficiency of the system, reduce waste and encourage consumer water conservation efforts.
(2) Water conservation plans shall include both demand management and supply management measures and address short and long-term water conservation. The measures that will be implemented and the implementation schedule shall depend on the specific needs of the water supply system and its ability to meet current and future water system needs. There shall be detailed discussion of each water conservation measure which shall include the following:
(A) objective;
(B) assessment of current conditions including deficiencies, if any;
(C) activities and measures taken or to be taken to achieve or maintain the objectives; and
(D) procedures for implementation, including an identification of the groups and agencies which need to be involved.
(3) The demand management section of the water conservation plan shall be designed to reduce peak day demand or average daily demand or both, depending upon the condition of the system, and shall include at least the following information:
(A) goals and objectives for demand management;
(B) strategies to reduce maximum month and peak day demands;
(C) existing demand management elements including a detailed description of each element with the dates or period of introduction;
(D) alternative demand management solutions to supply deficiencies, if applicable, including the feasibility of establishing a no demand increase policy for new service connections, which would require potential customers to invest in water saving programs within the existing system which would save the amount of water needed to serve new development;

(E) a program to provide technical assistance to major users in the performance of water audits and in the formulation and implementation of retrofitting. Such programs shall:
(i) provide a list of the current major users with their annual water use for the last year of record in gallons per day, and type of use, prioritizing those which have the greatest potential to conserve water;
(ii) describe and evaluate the water audit programs available to the major users, including the following categories of water use: process, sanitary, domestic, heating, cooling and outdoor, for each customer; the areas in which overall efficiency of water use can be improved, and an estimate of water savings if improvements are made;
(iii) address recycling, reuse, process changes, replacement or retrofitting, and other efficiency measures; the areas in which peak demands can be reduced and the estimated amount of the reductions; leak detection services which can be offered to consumers; a written report to the customer, with specific recommendations, projected water savings, implementation cost estimates and pay-back period estimates;
(iv) report on past program accomplishments since the last water supply plan, including the number of audits performed, and a summary of estimated water use reduction achieved; and
(v) describe any additional technical assistance that has been undertaken or is planned;
(F) plumbing retrofit programs that:
(i) briefly describe any residential retrofit program since the last water supply plan; and
(ii) describe how water companies that are supply deficient or anticipate development of a new source of supply within the next ten years will investigate ways to encourage residences to retrofit with additional efficient and water-conserving appliances and fixtures and ways to encourage the retrofitting of process and domestic uses of commercial, industrial, and institutional users;
(G) water rates and pricing information that:
(i) discusses the present rate structure; and
(ii) assesses rate structure alternatives and frequency of billing to evaluate their anticipated impact on water conservation. Rate structure alternatives to be assessed include: eliminating or consolidating the blocks of existing declining block rate structures; implementing a separate uniform metered rate for each user category or for all consumption by the elimination of declining block rates; minimizing customer service charge that will recover no more than the minimum costs of reading meters, billing of customers, and meter-related costs; implementing seasonally increased rate structures to reduce peak demands; implementing an inclining block structure for all metered consumption or for each user category; for water companies not regulated by the Department of Public Utility Control, assessing enterprise fund accounting with a program for establishing full-cost pricing and self-sustaining budgets; and
(H) a public education program that:
(i) addresses water conservation for all residential, industrial, commercial, institutional, agricultural, and public authority customers, and evaluates the following components for inclusion: advice to local hydrant users about proper utilization and maintenance of hydrants; bill stuffers; consumer education on self-monitoring using

home water meters; displays at home shows, fairs, libraries, and town halls; displays or information regarding water efficient plantings and gardening methods and native landscaping; education program for municipal and water company employees; notification to customers with unusually high recorded uses to check for household leaks; newspaper and magazine articles; pamphlets, handbooks, posters, newsletters, and billboards; information to homeowners on more efficient means of watering lawns and ornamental shrubs; speakers on various water conservation topics; and school programs. If there is an existing program, it shall discuss how it can be continued or, if necessary, what improvements should be made in the program;
(ii) describes how the program of public education will be implemented; and
(iii) addresses compliance with sections 25-32k and 25-32l of the Connecticut General Statutes, to provide to residential customers, without charge, educational materials or information on water conservation.
(4) The supply management section of the water conservation plan shall:
(A) state the goals and objectives for supply management;
(B) discuss a meter management program, with the discussion including:
(i) a schedule for one hundred percent source metering in compliance with subsection (n) of section 19-13-B102 of the Regulations of Connecticut State Agencies within five years, if all sources of supply are not currently metered; details on the current source meter reading, testing, calibrating, repair, and replacement program; the adequacy of the metering program and a schedule of activities necessary to correct deficiencies and to achieve source metering objectives; and the extent of metering of other major system components; and
(ii) the extent of consumer metering, plans to expand metering, and the current frequency of meter testing, maintenance and calibration, and the replacement rate; the benefits of metering all individual, residential, commercial, industrial, and public authority customers, if no metering is in place or if there is only partial metering; whether existing meters are of appropriate size and design type; and if meter downsizing should be implemented to reduce lost water;
(C) determine, by means of an annual evaluation of the water supply system, the amount, location, and causes of non-revenue water; discuss the annual water system evaluation process based on the actual evaluation data from the previous five years, or if such data is unavailable, on the most current calendar or fiscal year data; and discuss the results and conclusions of such evaluations and where applicable plans to reduce non-revenue water; and
(D) discuss the current leak detection and repair program and any plans to expand leak detection efforts and plans to reduce water lost from leaks, including the following:
(i) an explanation of the method used for leak detection and description of the sensitivity of the equipment used;
(ii) a discussion based upon the most recent leak detection survey, if one has been performed, of the number of leaks found, the number fixed, the estimated amount of water saved, and the existing leakage rate in gallons per day per mile;
(iii) a discussion of the existing and projected costs of this program and an evaluation of the cost effectiveness of further distribution system rehabilitation to correct sources of lost water; and

(iv) if leak detection and repair objectives have been achieved, a discussion of the planned continuing maintenance program to retain and achieve the lowest leakage rate feasible; and
(E) evaluate the effects that a pressure reducing program would have with respect to water conservation and discuss plans to reduce water losses through pressure reduction.
(5) A five-year implementation plan shall be developed providing a schedule and estimated budget for implementing selected demand and supply management measures.
(6) This analysis of the impacts of water conservation practices shall discuss the procedures and criteria to measure the effectiveness of the water conservation measures to be implemented." CONN. AGENCIES REGS. § 25-32d-3.

e. Water quality

☒ Yes ☐ No

"The plan shall include…(9) on and after January 1, 2004, an evaluation of source water protection measures for all sources of the water supply, based on the identification of critical lands to be protected and incompatible land use activities with the potential to contaminate a public drinking water source…" CONN. GEN. STAT. ANN. § 25-32d(b).

"The plan shall contain:
(a) A description of the existing water supply system, including:
…(11) a history of water quality violations in each water supply system for the previous five years and a trend analysis for water quality parameters that may be approaching water quality standards;
(12) a description of the watershed inspection program required pursuant to subsection (b) of section 19-13-B102 of the Regulations of Connecticut State Agencies and the cross-connection inspection program required pursuant to subsection (f) of section 19-13-B102 of the Regulations of Connecticut State Agencies, and demonstration of compliance with certification requirements pursuant to sections 25-32-7a to 25-32-14, inclusive, of the Regulations of Connecticut State Agencies;
(b) An analysis of present and future water supply demands for the five, twenty, and fifty year planning periods, including:
…(9) an analysis of any treatment limitations, water quality concerns, or distribution system limitations and the ability to meet demands currently and for the five, twenty and fifty year planning periods;
…(c) An assessment of potential alternative sources of supply, including:
…(3) identification of potential or historic pollution sources which may affect any new source of supply;
…(d) A water supply emergency contingency plan, including emergencies due to contamination of water, power outages, drought, flood or failure of any or all-critical system components. Such water supply emergency contingency plan shall include:
…(4) procedures for responding to toxic spills or hazardous materials that may contaminate a watershed or aquifer used for drinking water;

…(i) Provide an evaluation of source water protection measures. The evaluation shall analyze potential hazards to public drinking water sources of supply. This evaluation shall also, at a minimum, include the following information:
(1) Drinking water sources of supply identified in the 5-year planning period of the approved water supply plan, including all active, emergency, and future drinking water sources of supply;
(2) Identification of critical lands to be protected, in table format, including: number of acres by town for all water company-owned lands; percentage or acreage of land owned or controlled within 200 feet of ground water wells, through easement or other means; number of acres for all source water protection areas; and number of acres of public or privately-owned protected lands located within each source water protection area if known or available;
(3) An inventory of land use activities for each delineated source water protection area, in table format, that are of immediate concern to water quality, or have a significant potential to contaminate a public drinking water supply, as determined by a public water system. Such inventory shall be based on: 1) source water assessment reports developed by the Department of Public Health and; 2) inspection reports or survey data, or both, compiled or maintained by the public water system. The following supportive information shall also be provided:
(A) For each delineated source water protection area: a description and location of inventoried land use activities with significant potential to contaminate; and an assessment as to which of these activities are the most significant regarding the potential to contaminate a public drinking water source of supply.
(B) Description and location of any historic spills, discharges or environmental issues which occurred within the delineated source water protection area, that may affect sources of supply, or are of immediate concern to water quality;
(C) A compilation of untreated water quality data for each source of public drinking water, required under section 19-13-B102(c) of the Regulations of Connecticut State Agencies for the previous five years, and a summary analysis of such data. Test results, if available, for volatile and synthetic organic chemicals shall also be included in the compilation and summary analysis.
(4) A narrative describing:
(A) Land use activities with the most significant potential to contaminate, as assessed and identified in subdivision (3)(A) of this subsection;
(B) Information about plans or programs to reduce potential public health risks for each inventoried land use activity of immediate concern to water quality, to include;
(i) Engineering controls,
(ii) Drinking water source protection management plans,
(iii) Recognized best management practices or other strategies.
(C) Existing state, local, and regional land use plans, policies, classifications and zoning ordinances as they relate to drinking water source protection within the source water protection area; and
(D) The public water system's drinking water source protection program including a discussion of measures to strengthen source water protection within each delineated source water protection area." CONN. AGENCIES REGS. § 25-32d-3.

"The coordinated water system plan shall include, but not be limited to, the following:
…(2) An areawide supplement that shall address areawide water system concerns pertaining to the public water supply management area which are not otherwise included in each water company's individual water system plan. The areawide supplement consists of a water supply assessment, exclusive service area boundaries, integrated report, and executive summary. The areawide supplement shall include at least the following:
(A) Water Supply Assessment
A water supply assessment shall be developed to evaluate water supply conditions and problems within the public water supply management area. The WUCC shall prepare a preliminary and then a final water supply assessment. The water supply assessment shall be a factual and concise report including at least the following topics as they relate to public water systems in the public water supply management area:
(i) Description of existing water systems, including
(aa) History of water quality, reliability, service, and supply adequacy
…(C) Integrated Report
An integrated report shall be developed which provides an overview of individual public water systems within the management area; addresses areawide water supply issues, concerns, and needs; and promotes cooperation among public water systems. The integrated report shall contain at least the following:
(i) An areawide overview which integrates individual water system plans. This should include at least the following:
…(ee) Identification of areas not within exclusive service area boundaries and discussion of water supply alternatives. Attention should be given to existing and potential water quality problems, supply availability, population projections, and development potential.
…(ix) Consideration of the potential impacts of the plan on other uses of water resources, including water quality, flood management, recreation, hydropower, and aquatic habitat issues." CONN. AGENCIES REGS. § 25-33h-1(d)

f. Stormwater

☐ Yes ☒ No

g. Water infrastructure

☒ Yes ☐ No

"The plan shall include: (1) A description of existing water supply systems…(5) a recommendation for new water system development…(10) a brief summary of the water company's underground infrastructure replacement practices, which may include current and future infrastructure needs, methods by which projects are identified and prioritized for rehabilitation and replacement and funding needs." CONN. GEN. STAT. ANN. § 25-32d(b).

"The plan shall contain:
(a) A description of the existing water supply system, including:

…(2) a list and description of: service areas; sources of supply, including active, emergency and inactive sources, with a description of what portion of the service area is served by each source of supply; pump stations; and storage and treatment facilities;
(3) a map of: water company owned lands, service areas, sources of supply, interconnections, pumping stations, pressure zones, source water protection area boundaries, storage, treatment facilities, public or privately-owned protected lands.
(4) a map and description of existing transmission and distribution facilities, including age, materials, capacity and condition, if known;
…(10) a list, description, and map of existing interconnections, and the quantities of water sold to or purchased from other water companies during the previous five years, and any limitations on their use;
…(b) An analysis of present and future water supply demands for the five, twenty, and fifty year planning periods, including:
…(9) an analysis of any treatment limitations, water quality concerns, or distribution system limitations and the ability to meet demands currently and for the five, twenty and fifty year planning periods; and
(10) an analysis of any system improvements necessary to minimize the effect of a water supply emergency on critical system components as identified in subdivision (1) of subsection (d) of this section.
…(e) Recommendations for new water system development or system improvements, including:
(1) A conceptual plan for improvements necessary to meet current and projected water demands for the planning periods, to serve current and future service areas, and to minimize the effect of a water supply emergency, limited to improvements for transmission, pumping, emergency power generation, storage and treatment to deliver water to the projected service areas;
(2) identification of improvements in subdivision (1) of this subsection which are anticipated to be implemented in the five year planning period and a proposed schedule for implementation; and
(3) a conceptual implementation plan for the items identified in subdivision (1) of this subsection for the twenty and fifty year planning periods…" CONN. AGENCIES REGS. § 25-32d-3.

"The coordinated water system plan shall include, but not be limited to, the following:
…(2) An areawide supplement that shall address areawide water system concerns pertaining to the public water supply management area which are not otherwise included in each water company's individual water system plan. The areawide supplement consists of a water supply assessment, exclusive service area boundaries, integrated report, and executive summary. The areawide supplement shall include at least the following:
(A) Water Supply Assessment
A water supply assessment shall be developed to evaluate water supply conditions and problems within the public water supply management area. The WUCC shall prepare a preliminary and then a final water supply assessment. The water supply

assessment shall be a factual and concise report including at least the following topics as they relate to public water systems in the public water supply management area:
(i) Description of existing water systems, including
…(cc) Identification of major facilities which need to be expanded, altered, or replaced
…(C) Integrated Report
An integrated report shall be developed which provides an overview of individual public water systems within the management area; addresses areawide water supply issues, concerns, and needs; and promotes cooperation among public water systems. The integrated report shall contain at least the following:
…(v) A plan for joint use, management or ownership of services, equipment, or facilities, including:
(aa) A list of existing and planned shared or joint use facilities, together with documentation from the utilities involved outlining limitations on and arrangements and schedules for development, use, operation, and maintenance of such facilities.
(bb) Identification of services and equipment which could be made available to other utilities such as but not limited to leak detection and repair, and emergency equipment." CONN. AGENCIES REGS. § 25-33h-1(d)

h. Drought

☒ Yes ☐ No

"The plan shall contain:
…(d) A water supply emergency contingency plan, including emergencies due to contamination of water, power outages, drought, flood or failure of any or all-critical system components. Such water supply emergency contingency plan shall include:
…(10) a description of four stages of response during drought based emergencies, including identification of trigger levels which initiate each stage based on water supply availability and demand situation, reservoir storage levels, or critical operational indicators, including storage tank recovery, pumping capacity, or for groundwater dependent systems, the number of hours of continuous well pump operation. Additional trigger levels may include; precipitation, groundwater, stream flow, and reservoir levels, and also include, the Palmer Drought Severity Index, crop moisture index and fire danger index. The four stages of response shall include: a drought advisory, a drought watch, a drought warning, and a drought emergency. Triggers shall give sufficient lead time to adequately implement response actions. The plan shall include the following stages and actions unless otherwise approved by the department:
(A) a list of actions to be taken in a drought advisory, including contacting the department and affected municipalities, evaluation of emergency source options, schedule for obtaining emergency equipment, implementation of internal measures to maximize use of existing active sources, promotion of voluntary conservation in residential, commercial and industrial facilities to reduce demand by ten percent from previous non-drought average for the appropriate month, preparation for mandatory conservation including necessary enforcement mechanisms, activation of the budget process for funding necessary projects;

(B) a list of actions to be taken in a drought watch, including contacting the department, preparing emergency sources for use, implementation of voluntary conservation to reduce demand by an additional five percent for a total of fifteen percent from previous non-drought average for the appropriate month, coordination with local officials concerning alternative facilities for obtaining water, reevaluation of priority among users and those actions required under previous water supply emergency contingency plan stages;
(C) a list of actions to be taken in a drought warning, including contacting the department, activation of emergency sources upon department approval, institution of mandatory conservation to reduce demand by an additional five percent for a total of twenty percent from previous non-drought average for the appropriate month, initiation of weekly reporting of reservoir water supply status to the department and those actions required under previous water supply emergency contingency plan stages; and
(D) a list of actions to be taken in a drought emergency, including contacting the department, activation of emergency sources upon department approval, institution of the second phase of mandatory conservation to reduce demand by an additional five percent for a total of twenty-five percent from the previous non-drought average for the appropriate month, coordination with local officials for the provision of emergency services for bathing and obtaining drinking water for the highest priority users, enforcement of measures through local ordinances and state and municipal authorities and those actions required under previous water supply emergency contingency plan stages…" CONN. AGENCIES REGS. § 25-32d-3.

i. Climate change

☐ Yes ☒ No

j. Water management strategies

☒ Yes ☐ No

"The plan shall include…(8) an analysis of the impact of water conservation practices and a strategy for implementing supply and demand management measures…" CONN. GEN. STAT. ANN. § 25-32d(b).

"The plan shall contain:
(h) An analysis of the impact of water conservation practices and a strategy for implementing supply and demand management measures, as follows:
(1) The water conservation plan shall be designed to meet the specific needs of the water supply system for which it is designed. In all cases the plan shall be designed to increase the efficiency of the system, reduce waste and encourage consumer water conservation efforts.
(2) Water conservation plans shall include both demand management and supply management measures and address short and long-term water conservation. The measures that will be implemented and the implementation schedule shall depend on the specific needs of the water supply system and its ability to meet current and future water system needs. There shall be detailed discussion of each water conservation measure which shall include the following:

(A) objective;
(B) assessment of current conditions including deficiencies, if any;
(C) activities and measures taken or to be taken to achieve or maintain the objectives; and
(D) procedures for implementation, including an identification of the groups and agencies which need to be involved.
(3) The demand management section of the water conservation plan shall be designed to reduce peak day demand or average daily demand or both, depending upon the condition of the system, and shall include at least the following information:
(A) goals and objectives for demand management;
(B) strategies to reduce maximum month and peak day demands;
(C) existing demand management elements including a detailed description of each element with the dates or period of introduction;
(D) alternative demand management solutions to supply deficiencies, if applicable, including the feasibility of establishing a no demand increase policy for new service connections, which would require potential customers to invest in water saving programs within the existing system which would save the amount of water needed to serve new development;
(E) a program to provide technical assistance to major users in the performance of water audits and in the formulation and implementation of retrofitting. Such programs shall:
(i) provide a list of the current major users with their annual water use for the last year of record in gallons per day, and type of use, prioritizing those which have the greatest potential to conserve water;
(ii) describe and evaluate the water audit programs available to the major users, including the following categories of water use: process, sanitary, domestic, heating, cooling and outdoor, for each customer; the areas in which overall efficiency of water use can be improved, and an estimate of water savings if improvements are made;
(iii) address recycling, reuse, process changes, replacement or retrofitting, and other efficiency measures; the areas in which peak demands can be reduced and the estimated amount of the reductions; leak detection services which can be offered to consumers; a written report to the customer, with specific recommendations, projected water savings, implementation cost estimates and pay-back period estimates;
(iv) report on past program accomplishments since the last water supply plan, including the number of audits performed, and a summary of estimated water use reduction achieved; and
(v) describe any additional technical assistance that has been undertaken or is planned;
(F) plumbing retrofit programs that:
(i) briefly describe any residential retrofit program since the last water supply plan; and
(ii) describe how water companies that are supply deficient or anticipate development of a new source of supply within the next ten years will investigate ways to encourage residences to retrofit with additional efficient and water-conserving appliances and fixtures and ways to encourage the retrofitting of process and domestic uses of commercial, industrial, and institutional users;

(G) water rates and pricing information that:
(i) discusses the present rate structure; and
(ii) assesses rate structure alternatives and frequency of billing to evaluate their anticipated impact on water conservation. Rate structure alternatives to be assessed include: eliminating or consolidating the blocks of existing declining block rate structures; implementing a separate uniform metered rate for each user category or for all consumption by the elimination of declining block rates; minimizing customer service charge that will recover no more than the minimum costs of reading meters, billing of customers, and meter-related costs; implementing seasonally increased rate structures to reduce peak demands; implementing an inclining block structure for all metered consumption or for each user category; for water companies not regulated by the Department of Public Utility Control, assessing enterprise fund accounting with a program for establishing full-cost pricing and self-sustaining budgets; and
(H) a public education program that:
(i) addresses water conservation for all residential, industrial, commercial, institutional, agricultural, and public authority customers, and evaluates the following components for inclusion: advice to local hydrant users about proper utilization and maintenance of hydrants; bill stuffers; consumer education on self-monitoring using home water meters; displays at home shows, fairs, libraries, and town halls; displays or information regarding water efficient plantings and gardening methods and native landscaping; education program for municipal and water company employees; notification to customers with unusually high recorded uses to check for household leaks; newspaper and magazine articles; pamphlets, handbooks, posters, newsletters, and billboards; information to homeowners on more efficient means of watering lawns and ornamental shrubs; speakers on various water conservation topics; and school programs. If there is an existing program, it shall discuss how it can be continued or, if necessary, what improvements should be made in the program;
(ii) describes how the program of public education will be implemented; and
(iii) addresses compliance with sections 25-32k and 25-32l of the Connecticut General Statutes, to provide to residential customers, without charge, educational materials or information on water conservation.
(4) The supply management section of the water conservation plan shall:
(A) state the goals and objectives for supply management;
(B) discuss a meter management program, with the discussion including:
(i) a schedule for one hundred percent source metering in compliance with subsection (n) of section 19-13-B102 of the Regulations of Connecticut State Agencies within five years, if all sources of supply are not currently metered; details on the current source meter reading, testing, calibrating, repair, and replacement program; the adequacy of the metering program and a schedule of activities necessary to correct deficiencies and to achieve source metering objectives; and the extent of metering of other major system components; and
(ii) the extent of consumer metering, plans to expand metering, and the current frequency of meter testing, maintenance and calibration, and the replacement rate; the benefits of metering all individual, residential, commercial, industrial, and public authority customers, if no metering is in place or if there is only partial metering; whether existing meters are of appropriate size and design type; and if meter downsizing should be implemented to reduce lost water;

(C) determine, by means of an annual evaluation of the water supply system, the amount, location, and causes of non-revenue water; discuss the annual water system evaluation process based on the actual evaluation data from the previous five years, or if such data is unavailable, on the most current calendar or fiscal year data; and discuss the results and conclusions of such evaluations and where applicable plans to reduce non-revenue water; and
(D) discuss the current leak detection and repair program and any plans to expand leak detection efforts and plans to reduce water lost from leaks, including the following:
(i) an explanation of the method used for leak detection and description of the sensitivity of the equipment used;
(ii) a discussion based upon the most recent leak detection survey, if one has been performed, of the number of leaks found, the number fixed, the estimated amount of water saved, and the existing leakage rate in gallons per day per mile;
(iii) a discussion of the existing and projected costs of this program and an evaluation of the cost effectiveness of further distribution system rehabilitation to correct sources of lost water; and
(iv) if leak detection and repair objectives have been achieved, a discussion of the planned continuing maintenance program to retain and achieve the lowest leakage rate feasible; and
(E) evaluate the effects that a pressure reducing program would have with respect to water conservation and discuss plans to reduce water losses through pressure reduction.
(5) A five-year implementation plan shall be developed providing a schedule and estimated budget for implementing selected demand and supply management measures.
(6) This analysis of the impacts of water conservation practices shall discuss the procedures and criteria to measure the effectiveness of the water conservation measures to be implemented." CONN. AGENCIES REGS. § 25-32d-3.

k. Other specific requirements for inclusion in water utility plans

☒ Yes ☐ No

"The plan shall include…(6) a forecast of any future land sales, an identification which includes the acreage and location of any land proposed to be sold, sources of public water supply to be abandoned and any land owned by the company which it has designated, or plans to designate, as class III land; (7) provisions for strategic groundwater monitoring…" CONN. GEN. STAT. ANN. § 25-32d(b).

3. Are water utilities required to incorporate land use considerations (including but not limited to building/plumbing codes, subdivision regulations, land use plans, site plan reviews, development reviews, and things affecting zoning) into their water plans?

☒ Yes ☐ No

"The plan shall contain:
…(b) An analysis of present and future water supply demands for the five, twenty, and fifty year planning periods, including:

…(3) a description of local, state and regional land use plans, policies and zoning as related to projected water demands and future service areas;
(4) projected water demands for the five, twenty and fifty year planning periods, including sales to other water companies, based on user categories if data is available, and local land use plans and zoning regulations;
…(c) An assessment of potential alternative sources of supply, including:
…(2) an evaluation of potential new sources of supply and a description of existing state, local and regional land use plans, policies, classifications and zoning as they relate to source development;
…(i) Provide an evaluation of source water protection measures. The evaluation shall analyze potential hazards to public drinking water sources of supply. This evaluation shall also, at a minimum, include the following information:
…(4) A narrative describing:
…(C) Existing state, local, and regional land use plans, policies, classifications and zoning ordinances as they relate to drinking water source protection within the source water protection area…" CONN. AGENCIES REGS. § 25-32d-3.

"The coordinated water system plan shall include, but not be limited to, the following:
…(2) An areawide supplement that shall address areawide water system concerns pertaining to the public water supply management area which are not otherwise included in each water company's individual water system plan. The areawide supplement consists of a water supply assessment, exclusive service area boundaries, integrated report, and executive summary. The areawide supplement shall include at least the following:
(A) Water Supply Assessment
A water supply assessment shall be developed to evaluate water supply conditions and problems within the public water supply management area. The WUCC shall prepare a preliminary and then a final water supply assessment. The water supply assessment shall be a factual and concise report including at least the following topics as they relate to public water systems in the public water supply management area:
…(v) Status of water system planning, land use planning and coordination between public water systems.
…(C) Integrated Report
An integrated report shall be developed which provides an overview of individual public water systems within the management area; addresses areawide water supply issues, concerns, and needs; and promotes cooperation among public water systems.
The integrated report shall contain at least the following:
…(ii) Discussion of the relationship and compatibility of the coordinated water system plan with proposed or adopted land use plans and growth policies, as reflected in local, regional and state plans. Consideration should be given to both protection and development of public water supply sources and to availability of public water service." CONN. AGENCIES REGS. § 25-33h-1(d).

"After the WUCC has completed the coordinated water system plan, it shall submit the plan to the department for approval.
…(2) The department in making a decision to approve or reject a coordinated water system plan shall consider at least the following:

…(E) Consistency with local, regional, and state land use plans and growth policies…" CONN. AGENCIES REGS. § 25-33h-1(g).

4. **Please identify the threshold type or size of agency/utility that triggers the water utility plan requirements above (as listed in state statute/regulation).**

   Any water company requested by the Commissioner of Public Health to submit a water supply plan must do so. Water companies that supply water to 1,000 or more people or 250 or more consumers must submit a water supply plan even without a request. CONN. GEN. STAT. ANN. § 25-32d(a). "Water company" is defined as "any individual, partnership, association, corporation, municipality or other entity, or the lessee thereof, who or which owns, maintains, operates, manages, controls or employs any pond, lake, reservoir, well, stream or distributing plant or system that supplies water to two or more consumers or to twenty-five or more persons on a regular basis provided if any individual, partnership, association, corporation, municipality or other entity or lessee owns or controls eighty per cent of the equity value of more than one such system or company, the number of consumers or persons supplied by all such systems so controlled shall be considered as owned by one company for the purposes of this definition." CONN. GEN. STAT. ANN. § 25-32a.

5. **Are community land use plans required to incorporate water utility plans?**
   ☐ Yes ☒ No

6. **Are water utilities required to coordinate with land use planners in their communities?**
   ☒ Yes ☐ No

   The Department of Public Health must notify each chief elected official, local health official, and regional planning organization covering any portion of the company's existing or proposed source or service area of the water supply plan and the opportunity to comment on it. CONN. AGENCIES REGS. § 25-32d-5(a). Once approved, the water company must provide notice of the plan approval to all local health departments and municipal planning departments or agencies covering any portion of the existing or proposed source or service areas. CONN. AGENCIES REGS. § 25-32d-5(d).

   WUCCs must send one copy of each of the preliminary and final water supply assessment and preliminary and final exclusive service area boundaries to, among others, each chief administrative official of municipalities in the management area. They also must mail notice of the preliminary water supply assessment and preliminary exclusive service area boundaries, and the opportunity to comment on them, as well as notice of the finalization of those documents once approved, to each municipal planning commission, local health official, eligible WUCC member, and other interested people in the management area. CONN. AGENCIES REGS. § 25-33h-1(h)(1). WUCCs must distribute one copy of the executive summary of the coordinated plan and notice of the availability of the complete coordinated water system plan, and the opportunity to comment on them, to each chief administrative official of municipalities within the management area and to each chief administrative official with municipalities outside the management area in which a potential source of supply is located. CONN. AGENCIES REGS. § 25-33h-1(h)(2)(B). Once the coordinated plan is approved, the WUCC must mail written notice of the availability of the approved plan to

each municipal planning commission, local health official, eligible WUCC member, and the chief administrative official of each municipality (and other interested people) within the management area. CONN. AGENCIES REGS. § 25-33h-1(h)(3)(A). If the Department of Public Health determines that there have been major modifications since the distribution of the executive summary of the draft coordinated plan, the WUCC must distribute a copy of the executive summary of the approved coordinated plan to each chief administrative official of municipalities within the management area and to each chief administrative official with municipalities outside the management area in which a potential source of supply is located. CONN. AGENCIES REGS. § 25-33h-1(h)(3)(B).

The municipalities and regional councils of governments shall comment on, but shall not be limited to commenting on, the consistency of the coordinated water system plan with local and regional land use plans and policies. CONN. GEN. STAT. ANN. § 25-33h(b).

7. **Is state funding or other assistance available to support this coordination between water utilities/plans and land use planners/plans?**

☐ Yes ☒ No

Florida Water Utility Planning and Land Use Coordination Interview

Interview dates: October 15 and October 16, 2020

Interviewees

Edward Smith
Director of Ecosystems Projects
Florida Department of Environmental Protection

Deirdre Irwin
Water Conservation Coordinator
Bureau of Water Supply Planning
St. Johns River Water Management District

Melissa Dickens, AICP
Strategic Planning and Policy Manager
Plan Hillsboro

State of Florida Water Utility Plan Requirements

1. **What are the basic administrative procedures required by state statutes/regulations for creating or updating water utility plans?**

   None.

2. **Are the following items required by state statute/regulation to be included in water utility plans?**

   a. **Demand forecasts**
   ☐ Yes ☒ No

   b. **Supply assessments/forecasts**
   ☐ Yes ☒ No

   c. **Supply/demand challenges**
   ☐ Yes ☒ No

   d. **Water conservation/efficiency**
   ☐ Yes ☒ No

   e. **Water quality**
   ☐ Yes ☒ No

   f. **Stormwater**
   ☐ Yes ☒ No

g. Water infrastructure

☐ Yes ☒ No

h. Drought

☐ Yes ☒ No

i. Climate change

☐ Yes ☒ No

j. Water management strategies

☐ Yes ☒ No

k. Other specific requirements for inclusion in water utility plans

☐ Yes ☒ No

3. Are water utilities required to incorporate land use considerations (including but not limited to building/plumbing codes, subdivision regulations, land use plans, site plan reviews, development reviews, and things affecting zoning) into their water plans?

☐ Yes ☒ No

4. Please identify the threshold type or size of agency/utility that triggers the water utility plan requirements above (as listed in state statute/regulation).

N/A

5. Are community land use plans required to incorporate water utility plans?

☒ Yes ☐ No

FLA. STAT. ch. 163.3167 Scope of act.—
…(2) Each local government shall maintain a comprehensive plan of the type and in the manner set out in this part or prepare amendments to its existing comprehensive plan to conform it to the requirements of this part and in the manner set out in this part.
…(9) Each local government shall address in its comprehensive plan, as enumerated in this chapter, the water supply sources necessary to meet and achieve the existing and projected water use demand for the established planning period, considering the applicable plan developed pursuant to s. 373.709.

FLA. STAT. ch. 163.3177 Required and optional elements of comprehensive plan; studies and surveys.—
(1) The comprehensive plan shall provide the principles, guidelines, standards, and strategies for the orderly and balanced future economic, social, physical, environmental, and fiscal development of the area that reflects community commitments to implement the plan and its elements.

…(4)(a) Coordination of the local comprehensive plan with the comprehensive plans of adjacent municipalities, the county, adjacent counties, or the region; with the appropriate water management district's regional water supply plans approved pursuant to s. 373.709; and with adopted rules pertaining to designated areas of critical state concern shall be a major objective of the local comprehensive planning process.
…(6) In addition to the requirements of subsections (1)-(5), the comprehensive plan shall include the following elements:
(a) A future land use plan element designating proposed future general distribution, location, and extent of the uses of land for residential uses, commercial uses, industry, agriculture, recreation, conservation, education, public facilities, and other categories of the public and private uses of land. The approximate acreage and the general range of density or intensity of use shall be provided for the gross land area included in each existing land use category. The element shall establish the long-term end toward which land use programs and activities are ultimately directed.
…2. The future land use plan and plan amendments shall be based upon surveys, studies, and data regarding the area, as applicable, including:
…d. The availability of water supplies, public facilities, and services.
…9. The future land use element and any amendment to the future land use element shall discourage the proliferation of urban sprawl.
a. The primary indicators that a plan or plan amendment does not discourage the proliferation of urban sprawl are listed below. The evaluation of the presence of these indicators shall consist of an analysis of the plan or plan amendment within the context of features and characteristics unique to each locality in order to determine whether the plan or plan amendment:
…(VIII) Allows for land use patterns or timing which disproportionately increase the cost in time, money, and energy of providing and maintaining facilities and services, including roads, potable water, sanitary sewer, stormwater management, law enforcement, education, health care, fire and emergency response, and general government.
…(c) A general sanitary sewer, solid waste, drainage, potable water, and natural groundwater aquifer recharge element correlated to principles and guidelines for future land use, indicating ways to provide for future potable water, drainage, sanitary sewer, solid waste, and aquifer recharge protection requirements for the area. The element may be a detailed engineering plan including a topographic map depicting areas of prime groundwater recharge.
…2. The element shall describe the problems and needs and the general facilities that will be required for solution of the problems and needs, including correcting existing facility deficiencies. The element shall address coordinating the extension of, or increase in the capacity of, facilities to meet future needs while maximizing the use of existing facilities and discouraging urban sprawl; conserving potable water resources; and protecting the functions of natural groundwater recharge areas and natural drainage features.
3. Within 18 months after the governing board approves an updated regional water supply plan, the element must incorporate the alternative water supply project or projects selected by the local government from those identified in the regional water supply plan pursuant to s. 373.709(2)(a) or proposed by the local government under s. 373.709(8)(b). If a local government is located within two water management districts, the local government shall adopt its comprehensive plan amendment within 18 months after the later updated regional water supply plan. The element must identify such alternative water supply projects and

traditional water supply projects and conservation and reuse necessary to meet the water needs identified in s. 373.709(2)(a) within the local government's jurisdiction and include a work plan, covering at least a 10-year planning period, for building public, private, and regional water supply facilities, including development of alternative water supplies, which are identified in the element as necessary to serve existing and new development. The work plan shall be updated, at a minimum, every 5 years within 18 months after the governing board of a water management district approves an updated regional water supply plan. Local governments, public and private utilities, regional water supply authorities, special districts, and water management districts are encouraged to cooperatively plan for the development of multijurisdictional water supply facilities that are sufficient to meet projected demands for established planning periods, including the development of alternative water sources to supplement traditional sources of groundwater and surface water supplies.

4. A local government that does not own, operate, or maintain its own water supply facilities, including, but not limited to, wells, treatment facilities, and distribution infrastructure, and is served by a public water utility with a permitted allocation of greater than 300 million gallons per day is not required to amend its comprehensive plan in response to an updated regional water supply plan or to maintain a work plan if any such local government's usage of water constitutes less than 1 percent of the public water utility's total permitted allocation. However, any such local government is required to cooperate with, and provide relevant data to, any local government or utility provider that provides service within its jurisdiction, and to keep its general sanitary sewer, solid waste, potable water, and natural groundwater aquifer recharge element updated in accordance with s. 163.3191.

(d) A conservation element for the conservation, use, and protection of natural resources in the area, including air, water, water recharge areas, wetlands, waterwells, estuarine marshes, soils, beaches, shores, flood plains, rivers, bays, lakes, harbors, forests, fisheries and wildlife, marine habitat, minerals, and other natural and environmental resources, including factors that affect energy conservation.

…2. The element must contain principles, guidelines, and standards for conservation that provide long-term goals and which:

…b. Conserves, appropriately uses, and protects the quality and quantity of current and projected water sources and waters that flow into estuarine waters or oceanic waters and protect from activities and land uses known to affect adversely the quality and quantity of identified water sources, including natural groundwater recharge areas, wellhead protection areas, and surface waters used as a source of public water supply.

c. Provides for the emergency conservation of water sources in accordance with the plans of the regional water management district.

…3. Current and projected needs and sources for at least a 10-year period based on the demands for industrial, agricultural, and potable water use and the quality and quantity of water available to meet these demands shall be analyzed. The analysis shall consider the existing levels of water conservation, use, and protection and applicable policies of the regional water management district and further must consider the appropriate regional water supply plan approved pursuant to s. 373.709, or, in the absence of an approved regional water supply plan, the district water management plan approved pursuant to s. 373.036(2). This information shall be submitted to the appropriate agencies.

…(h)1. An intergovernmental coordination element showing relationships and stating principles and guidelines to be used in coordinating the adopted comprehensive plan with the plans of school boards, regional water supply authorities, and other units of local government

providing services but not having regulatory authority over the use of land, with the comprehensive plans of adjacent municipalities, the county, adjacent counties, or the region, with the state comprehensive plan and with the applicable regional water supply plan approved pursuant to s. 373.709, as the case may require and as such adopted plans or plans in preparation may exist.

6. **Are water utilities required to coordinate with land use planners in their communities?**
   ☐ Yes ☒ No

7. **Is state funding or other assistance available to support this coordination between water utilities/plans and land use planners/plans?**
   ☐ Yes ☒ No

Minnesota Water Utility Planning and Land Use Coordination Interview

Interview date: October 13, 2020

Interviewee

Carmelita Nelson
Water Conservation Consultant
Ecological & Water Resources
Minnesota Department of Natural Resources

State of Minnesota Water Utility Plan Requirements

1. **What are the basic administrative procedures required by state statutes/regulations for creating or updating water utility plans?**

   All public water suppliers in the state serving more than 1,000 people and all communities in the metropolitan area with a municipal water supply system were required to submit a water supply plan to the Commissioner of Natural Resources for approval by January 1, 1996. They must update the plan and submit it to the Commissioner for approval every ten years. MINN. STAT. § 103G.291(3). The state has a webpage dedicated to these plans, offering a 49-page submission template with significant detail, instructions and a checklist, and a submission portal (Minnesota Department of Natural Resources).

2. **Are the following items required by state statute/regulation to be included in water utility plans?**

   a. **Demand forecasts**
   ☒ Yes ☐ No

   "…the plan must address projected demands..." MINN. STAT. § 103G.291(3)(a).

   b. **Supply assessments/forecasts**
   ☒ Yes ☐ No

   "…the plan must address … adequacy of the water supply system and planned improvements, existing and future water sources, natural resource impacts or limitations, emergency preparedness … supply and demand reduction measures..." MINN. STAT. § 103G.291(3)(a).

   c. **Supply/demand challenges**
   ☒ Yes ☐ No

   "…the plan must address … natural resource impacts or limitations, emergency preparedness..." MINN. STAT. § 103G.291(3)(a).

   d. **Water conservation/efficiency**

☒ Yes ☐ No

"…the plan must address … water conservation, supply and demand reduction measures...
For the purposes of this section, 'demand reduction measures' means measures that reduce water demand, water losses, peak water demands, and nonessential water uses. Demand reduction measures must include a conservation rate structure, or a uniform rate structure with a conservation program that achieves demand reduction. A 'conservation rate structure' means a rate structure that encourages conservation and may include increasing block rates, seasonal rates, time of use rates, individualized goal rates, or excess use rates. If a conservation rate is applied to multifamily dwellings, the rate structure must consider each residential unit as an individual user." MINN. STAT. § 103G.291(3)(a), (4)(a).

e. Water quality

☐ Yes ☒ No

f. Stormwater

☐ Yes ☒ No

g. Water infrastructure

☒ Yes ☐ No

"…the plan must address … adequacy of the water supply system and planned improvements…" MINN. STAT. § 103G.291(3)(a).

h. Drought

☒ Yes ☐ No

"…the plan must address … emergency preparedness..." MINN. STAT. § 103G.291(3)(a). [The submission template makes clear that drought is among the emergencies to be addressed.]

i. Climate change

☐ Yes ☒ No

j. Water management strategies

☒ Yes ☐ No

"…the plan must address … supply and demand reduction measures..." MINN. STAT. § 103G.291(3)(a).

k. Other specific requirements for inclusion in water utility plans

☒ Yes ☐ No

"…the plan must address … allocation priorities that are consistent with section 103G.261." MINN. STAT. § 103G.291(3)(a).

3. **Are water utilities required to incorporate land use considerations (including but not limited to building/plumbing codes, subdivision regulations, land use plans, site plan reviews, development reviews, and things affecting zoning) into their water plans?**
   ☐ Yes ☒ No

4. **Please identify the threshold type or size of agency/utility that triggers the water utility plan requirements above (as listed in state statute/regulation).**

   Every public water supplier (defined as "an entity that owns, manages, or operates a public water supply") serving more than 1,000 people must submit a water supply plan. MINN. STAT. § 103G.291(3)(a).

   While not water suppliers, all communities with a municipal water supply system in the metropolitan area (defined as "the counties of Anoka; Carver; Dakota excluding the cities of Northfield and Cannon Falls; Hennepin excluding the cities of Hanover and Rockford; Ramsey; Scott excluding the city of New Prague; and Washington") also must submit a water supply plan. MINN. STAT. §§ 103G.291(3)(b), 473.121(2).

5. **Are community land use plans required to incorporate water utility plans?**
   ☒ Yes ☐ No

   All communities with a municipal water supply system in the metropolitan area (defined as "the counties of Anoka; Carver; Dakota excluding the cities of Northfield and Cannon Falls; Hennepin excluding the cities of Hanover and Rockford; Ramsey; Scott excluding the city of New Prague; and Washington") are required to include the water supply plan in the local comprehensive plan. MINN. STAT. § 103G.291(3)(b). Specifically, the water supply plan is to be included in the public facilities plan, which is the part of the comprehensive plan that describes the character, timing, location, sequence, function, capacity, and use of existing and future public facilities of the local government. MINN. STAT. § 473.859(3).

6. **Are water utilities required to coordinate with land use planners in their communities?**
   ☐ Yes ☒ No

7. **Is state funding or other assistance available to support this coordination between water utilities/plans and land use planners/plans?**
   ☐ Yes ☒ No

Washington Water Utility Planning and Land Use Coordination Interview

Interview date: October 13, 2020

Interviewees

Brian A. Sayrs
Planning Policy Lead
Office of Drinking Water
Division of Environmental Public Health
Washington State Department of Health

Kelly O'Rourke
Water Conservation Manager
City of Seattle, Seattle Public Utilities
Saving Water Partnership

State of Washington Water Utility Plan Requirements

1. What are the basic administrative procedures required by state statutes/regulations for creating or updating water utility plans?

Community public water systems with one or more of the following characteristics must develop and submit a water system plan for review and approval by the Department of Health: new systems; systems serving 1,000 or more connections; any system experiencing problems related to system capacity, as determined by the department; systems required to develop water system plans under the Public Water System Coordination Act of 1977; systems operating under or proposing to operate under an unspecified number of service connections; systems proposing to use the document submittal exception process in WAC 246-290-125; or systems proposing to modify the service area identified in a previously approved planning document, increase the geographical area where direct service is provided, or install changes to existing source or storage or transmission facilities and increase the approved number of service connections. WASH. ADMIN. CODE § 246-290-100(2). The plan must include at least a description of the water system, basic planning data, demand forecasts, system analysis, water resource analysis, a source water protection program, an operation and maintenance program, an improvement program, a financial program, and a few other documents. WASH. ADMIN. CODE § 246-290-100(4). These water purveyors must work with the Department of Health to establish the relative priority and level of detail for each element of the water system plan, based on the size, complexity, water supply characteristics, forecasted demand characteristics, planning history, past performance, and use of the water system. WASH. ADMIN. CODE § 246-290-100(3).

These water purveyors must submit reports identifying their progress in developing their respective water system plans and provide the plans to adjacent utilities and all local governments with jurisdiction, to assess consistency with ongoing and adopted planning efforts. WASH. ADMIN. CODE § 246-290-100(6), (7). To receive plan approval by the Department of Health, the purveyor must hold an informational meeting for consumers and

obtain plan approval from the purveyor's governing body or elected board. WASH. ADMIN. CODE § 246-290-100(8). Approval by the Department of Health is effective for ten years unless the purveyor requests and receives a shorter period or the Department of Health requests an updated plan. WASH. ADMIN. CODE § 246-290-100(9). The purveyor must update the plan and obtain approval before the expiration of the current plan approval if the system meets any of the conditions noted above. WASH. ADMIN. CODE § 246-290-100(10).

A "community water system" is defined as any Group A water system (a "public water system" providing service such that it meets the definition of that term in the 1996 amendments to the Safe Drinking Water Act) that provides service to at least 15 service connections used by year-round residents for at least 180 days within a calendar year, regardless of the number of people, or regularly serves at least 25 year-round residents. WASH. ADMIN. CODE § 246-290-020.

All Group A water systems that are not required to complete a water system plan outlined above must develop and implement a small water system management program. WASH. ADMIN. CODE § 246-290-105(2). An existing system must submit the program for Department of Health review and approval when it has technical, operational, managerial, or financial problems, as determined by the Department, or when it is without approved construction documents and seeks as-built system approval under Wash. Admin. Code § 246-290-140. WASH. ADMIN. CODE § 246-290-105(3). In addition, programs must be submitted for review when a system applies for funding under chapter 246-296 WAC or when a new nontransient noncommunity public water system is created. *Id.* The twenty required program elements are listed in Wash. Admin. Code § 246-290-105(4).

2. Are the following items required by state statute/regulation to be included in water utility plans?

a. Demand forecasts

☒ Yes ☐ No

Water system plans must include, among other elements, basic planning data, including "(i) Current population, service connections, water use, and equivalent residential units; and (ii) Sufficient water production and consumption data to identify trends including the following elements…(B) Annual usage totals for each customer class as determined by the purveyor; (C) Annual usage totals for water supplied to other public water systems; and (D) For systems serving one thousand or more total connections, a description of the seasonal variations in consumption patterns of each customer class defined by the purveyor. (iii) Designated land use, zoning, population, and water demand within the water system's service area for the plan approval period, and at least a twenty-year planning period. (c) Demand forecasts, developed under WAC 246-290-221, for the plan approval period, and at least a twenty-year planning period. These shall show future use with and without savings expected from the system's water use efficiency program. (d) For systems serving one thousand or more total connections, a demand forecast for the plan approval period and at least a twenty-year planning period that projects demand if the measures deemed cost-

effective per WAC 246-290-810 were implemented." WASH. ADMIN. CODE § 246-290-100(4)(b)-(d).

Small water system management programs must include, among other elements, the average daily demand; the current population served; a forecast of the average daily demand based on the system's approved number of connections, considering water use trends based on actual water use records and applicable land use plans; and water production and consumption data, including annual consumption totals for residential and nonresidential connections and the total annual volume of water supplied to other public water systems. WASH. ADMIN. CODE § 246-290-105(4)(h)-(k).

b. Supply assessments/forecasts

☒ Yes ☐ No

Water system plans must include, among other elements, basic planning data, including "Sufficient water production and consumption data to identify trends including the following elements: (A) Monthly and annual production totals for each source, including water purchased from another public water system…" as well as a "[w]ater resource analysis for the plan approval period and at least a twenty-year planning period, including…(ii) Source of supply analysis, which includes: (A) An evaluation of water supply alternatives if additional water rights will be pursued within twenty years; and (B) A narrative description of the system's water supply characteristics and the foreseeable effect from current and future use on the water quantity and quality of any body of water from which its water is diverted or withdrawn based on existing data and studies…(iv) Water right self-assessment; (v) Water supply reliability analysis…" WASH. ADMIN. CODE § 246-290-100(4)(b)(ii), (f).

Small water system management programs must include, among other elements, a water right self-assessment; a description of the system's source(s), including the name and location of any waterbody from which its water is diverted or withdrawn; and water production and consumption data, including monthly and annual production for each source and purchased water. WASH. ADMIN. CODE § 246-290-105(4)(e), (f), (h).

c. Supply/demand challenges

☒ Yes ☐ No

Water system plans must include, among other elements, a system analysis, including a summary of system deficiencies, as well as a "[w]ater resource analysis for the plan approval period and at least a twenty-year planning period, including…(iii) A water shortage response plan as a component of the reliability and emergency response requirements under WAC 246-290-420…" WASH. ADMIN. CODE § 246-290-100(4)(e)(iv), (f)(iii).

d. Water conservation/efficiency

☒ Yes ☐ No

Water system plans must include, among other elements, a "[w]ater resource analysis for the plan approval period and at least a twenty-year planning period, including: (i) A water use efficiency program. Municipal water suppliers must meet the requirements in WAC 246-290-810……(vii) For systems serving one thousand or more total connections, an evaluation of opportunities for the use of reclaimed water, where they exist, as defined in RCW 90.46.120." The plans also must include an evaluation of the affordability of water rates and the feasibility of a rate structure that encourages water demand efficiency. WASH. ADMIN. CODE § 246-290-100(4)(f), (j)(iv).

Small water system management programs must include, among other elements, a water use efficiency program and an evaluation of the feasibility of adopting and implementing a rate structure that encourages water demand efficiency. WASH. ADMIN. CODE § 246-290-105(4)(g), (l).

e. Water quality

☒ Yes ☐ No

Water system plans must include, among other elements, a system analysis, including a water quality analysis, as well as a source water protection program under WAC 246-290-135. Wash. Admin. Code § 246-290-100(4)(e)(ii).

Small water system management programs must include, among other elements, a water quality monitoring program and a source water protection program. WASH. ADMIN. CODE § 246-290-105(4)(m), (p).

f. Stormwater

☐ Yes ☒ No

g. Water infrastructure

☒ Yes ☐ No

Water system plans must include, among other elements, a description of the water system, including "[s]ervice area maps, including retail service area and future service area, if applicable, and areas where wholesale water is provided to other public water systems. Municipal water suppliers shall identify the area that will expand their water rights' place of use if the requirements under WAC 246-290-107 have been met." The plans also must include system analysis, including system design standards, an inventory and analysis of water system facilities, and a summary of system deficiencies, as well as an "[i]mprovement program, including a capital improvement schedule that identifies all capital improvements scheduled within the plan approval period and any major projects or other capital improvements planned within at least a twenty-year planning period." WASH. ADMIN. CODE § 246-290-100(4)(a)(iv), (e), (i).

Small water system management programs must include, among other elements, a water facilities inventory form, service area and facility map, operation and maintenance program, and a list of planned system improvements. WASH. ADMIN. CODE § 246-290-105(4)(c), (d), (o), (q).

h. Drought

☒ Yes ☐ No

Water system plans must include, among other elements, a "[w]ater resource analysis for the plan approval period and at least a twenty-year planning period, including…(iii) A water shortage response plan as a component of the reliability and emergency response requirements under WAC 246-290-420…" WASH. ADMIN. CODE § 246-290-100(4)(f)(iii).

i. Climate change

☐ Yes ☒ No

j. Water management strategies

☒ Yes ☐ No

Water system plans must include, among other elements, a description of the water system, including related plans, such as groundwater management plans, basin plans, coordinated water system plans, and abbreviated coordinated water system plans, as well as an evaluation of the feasibility of a rate structure that encourages water demand efficiency. WASH. ADMIN. CODE § 246-290-100(4)(a)(iii), (j)(iv).

Small water system management programs must include, among other elements, an emergency response plan and an evaluation of the feasibility of adopting and implementing a rate structure that encourages water demand efficiency. WASH. ADMIN. CODE § 246-290-105(4)(l), (s).

k. Other specific requirements for inclusion in water utility plans

☐ Yes ☒ No

3. Are water utilities required to incorporate land use considerations (including but not limited to building/plumbing codes, subdivision regulations, land use plans, site plan reviews, development reviews, and things affecting zoning) into their water plans?

☒ Yes ☐ No

Water system plans must include, among other elements, a description of the water system, including related plans, such as local land use plans, coordinated water system plans, abbreviated coordinated water system plans, groundwater management plans, and basin plans, as well as basic planning data, including "designated land use, zoning, population, and water demand within the water system's service area for the plan approval period, and at least a twenty-year planning period." WASH. ADMIN. CODE § 246-290-100(4)(a)(iii), (b)(iii).

Small water system management programs must include, among other elements, a forecast of the average daily demand based on the system's approved number of connections, considering water use trends based on actual water use records and applicable land use plans. WASH. ADMIN. CODE § 246-290-105(4)(k).

4. **Please identify the threshold type or size of agency/utility that triggers the water utility plan requirements above (as listed in state statute/regulation).**

Community public water systems must develop and submit a water system plan for review and approval by the Department of Health if they have one or more of the following characteristics: new systems; systems serving 1,000 or more connections; any system experiencing problems related to system capacity, as determined by the department; systems required to develop water system plans under the Public Water System Coordination Act of 1977; systems operating under or proposing to operate under an unspecified number of service connections; systems proposing to use the document submittal exception process in WAC 246-290-125; or systems proposing to modify the service area identified in a previously approved planning document, increase the geographical area where direct service is provided, or install changes to existing source or storage or transmission facilities and increase the approved number of service connections. WASH. ADMIN. CODE § 246-290-100(2).

All Group A water systems that are not required to complete a water system plan must develop and implement a small water system management program. WASH. ADMIN. CODE § 246-290-105(2). An existing system must submit the program for Department of Health review and approval when it has technical, operational, managerial, or financial problems, as determined by the Department, or when it is without approved construction documents and seeks as-built system approval under Wash. Admin. Code § 246-290-140. WASH. ADMIN. CODE § 246-290-105(3). In addition, programs must be submitted for review when a system applies for funding under chapter 246-296 WAC or when a new nontransient noncommunity public water system is created. *Id.*

A public water system is "any system providing water for human consumption through pipes or other constructed conveyances, excluding a system serving only one single-family residence and a system with four or fewer connections all of which serve residences on the same farm." WASH. ADMIN. CODE § 246-290-020(1). A Group A water system is any public water system providing service such that it meets the definition of that term in the 1996 amendments to the Safe Drinking Water Act. WASH. ADMIN. CODE § 246-290-020(4). A "community water system" is defined as any Group A water system that provides service to at least 15 service connections used by year-round residents for at least 180 days within a calendar year, regardless of the number of people, or regularly serves at least 25 year-round residents. WASH. ADMIN. CODE § 246-290-020(5)(a).

5. **Are community land use plans required to incorporate water utility plans?**

☒ Yes ☐ No

Each comprehensive plan must include a plan, design, or scheme for the following:

"(1) A land use element designating the proposed general distribution and general location and extent of the uses of land…The land use element shall provide for protection of the quality and quantity of groundwater used for public water supplies…
… (4) A utilities element consisting of the general location, proposed location, and capacity of all existing and proposed utilities, including, but not limited to, electrical lines, telecommunication lines, and natural gas lines." WASH. REV. CODE § 36.70A.070.

6. **Are water utilities required to coordinate with land use planners in their communities?**
☒ Yes ☐ No

"Purveyors shall transmit water system plans to adjacent utilities and each local government with jurisdiction, to assess consistency with ongoing and adopted planning efforts." WASH. ADMIN. CODE § 246-290-100(7).

"…(2) Municipal water suppliers must request each local government with jurisdiction over the service area to provide a consistency review. Municipal water suppliers may exclude wholesale areas from the consistency review provided the water system receiving the wholesale water complies with the requirements for a consistency review when developing a water system plan for any new connection within the service area of the system receiving the wholesale water.
(a) Municipal water suppliers shall provide each local government with jurisdiction sixty days to review the planning or engineering document unless another state statute or state regulation requires a different time frame. The municipal water supplier must provide the local government with jurisdiction an additional thirty days for review if requested.
(b) If an inconsistency is documented by the local government with jurisdiction within the time frame outlined in (a) of this subsection, the municipal water supplier must provide the inconsistency information to the department.
(c) If the local government with jurisdiction documents in writing an inconsistency exists with local plans and regulations, the municipal water supplier shall address the inconsistency. The local government with jurisdiction shall be provided sixty days to review any revisions or responses that address the inconsistency.
(3) If the local government with jurisdiction does not provide a consistency review, the municipal water supplier shall complete the consistency review as described in subsection (1) of this section. The municipal water supplier must also document:
(a) The amount of time provided to each local government with jurisdiction to review the planning and engineering documents as defined in subsection (2) of this section; and
(b) The efforts taken to request a consistency review from the local government with jurisdiction." WASH. ADMIN. CODE § 246-290-108.

7. **Is state funding or other assistance available to support this coordination between water utilities/plans and land use planners/plans?**
☐ Yes ☒ No