2016

A Next, Big Step for the West (Part II): Model Water-Climate Enabling Legislation with Commentary

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INTRODUCTION

This model legislation is the culmination of an earlier work, *A Next, Big Step for the West: Using Model Legislation to Create a Water-Climate Element in Local Comprehensive Plans.*[1] That articleargues that local governments, as the primary regulators of land use and population planning, are integral to our climate and drought response in the West. That article then calls for a new, freestanding "water-climate element" in local government comprehensive plans that integrates the often disparate realms of land use, water use, and climate planning and better prepares communities for "managing water in wise, resilient, and collaborative ways."[2] This approach offers the possibility of uniform water-climate planning across local jurisdictions and watersheds and pushes us to think beyond the short-term, assured supply paradigm that limits our current thinking.[3] This approach also provides a tangible response to the emerging consensus that local-level initiatives may be the most essential path to confronting the climate challenges of our time.[4]

Inspired by the model land use enabling legislation that swept our nation in the 1920s, the earlier article generally outlines the content for new model enabling legislation that the state legislatures of today can adopt.[5] What follows below is the specific language of that model

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1 Michelle Bryan Mudd, *A Next, Big Step for the West: Using Model Legislation to Create a Water-Climate Element in Local Comprehensive Plans*, 32 WASH. J. ENVTL. L. & POL'Y 1 (2013).

2 *Id.* at 1.

3 *Id.* at 24–30 (summarizing the reasons why this approach offers great benefits in the West).

4 U.S. ENVTL. PROT. AGENCY, DRAFT CLIMATE CHANGE ADAPTATION PLAN 17 (June 2012), http://www3.epa.gov/climatechange/pdfs/EPA-climate-change-adaptation-plan-final-for-public-comment-2-7-13.pdf ("[A] key challenge will be how to *help local decision makers understand potential local impacts, and how to make long-term plans under a new range of uncertainty about future hydrologic conditions.* Water resource managers will also need to consider the local impacts of climate change as they grapple with other challenges—including *population growth, land use changes*, economic constraints, and a variety of stressors to the quality and quantity of our nations waters.") (emphasis added). *See also* Patricia E. Salkin, *Sustainability and Land Use Planning: Greening State and Local Land Use Plans and Regulations to Address Climate Change Challenges and Preserve Resources for Future Generations*, 34 WM. & MARY ENVTL. L. & POL'Y REV. 121, 147 (2009) ("[L]ocal governments may be the most important players."); Robin Kundis Craig, *"Stationarity is Dead"—Long Live Transformation: Five Principles for Climate Change Adaptation Law*, 34 HARV. ENVTL. L. REV. 9, 29 (2010) ("[M]any adaptation strategies will have to be intensely local in implementation . . . .").

5 Bryan, *supra* note 1 at 33–59 (outlining general content for model enabling legislation).

legislation, patterned after its 1920s predecessors, with annotations and supporting commentary.[6]

I
MODEL ENABLING LEGISLATION FOR LOCAL WATER-CLIMATE PLANNING

PREAMBLE

Mindful of the West's rapid land use growth and development, of the competing demands for limited water resources, and of the uncertainty in future climatic conditions, the Legislature concludes that local governments should have both the responsibility and power to engage in land use planning and water resource planning in wise, resilient, and integrated ways. Historically, local government planning has not fully considered the connection between land use and water supply, nor the impact climate may have on that supply. This lack of integrated planning can cause detrimental effects on the public health, safety and welfare, the economy, and the health of the natural environment.

This legislation envisions that local governments will include within their comprehensive land use plans a Water-Climate Element that analyzes projected population, land use development, and community goals alongside community water supply capacity and climate vulnerability. Joint land use and water supply planning will enable communities to play a direct role in the health of their water supply systems and increase awareness of their local hydrology and climate. To this end, the Legislature intends local governments to use this planning element to identify areas where the community's anticipated or desired pattern of growth may place unrealistic demands on existing water supply. Local governments should also use this planning element to collaborate with other jurisdictions having shared interests in the same water supply. From this approach, local governments can develop informed responses to water shortages, collaborate in areas of shared

6 This piece is written with a legislative audience in mind. For more in-depth source material and analysis, I encourage readers to read my preceding article, *A Next, Big Step for the West*, *supra* note 1.

water resources, and responsibly plan for the water futures of our state's inhabitants.[7]

[§ A] Water-Climate Element[8]

A local government comprehensive plan shall[9] include a Water-Climate Element that contains the following:

(1) A comprehensive inventory of the jurisdiction's water resources that:

(a) describes all of the water resources of the jurisdiction, including all surface and groundwater in all watersheds[10] contributing to, and affecting availability of, water supply within the jurisdiction;

(b) summarizes scientific data on the quantity, quality, and hydrologic function of all water resources described in (1)(a);

(c) identifies the water resources legally available to meet the water supply needs within the jurisdiction;[11]

(d) projects how future climate variability may affect the quantity, quality, hydrologic function, and legal availability of all water resources described in (1)(a); and

(e) notes areas of uncertainty in its data or projections.

(2) An analysis of the local government's water resources capacity that:

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7 *Drafting Note*: Many states have state and basin-level water plans which a Legislature may wish to reference here, as local water planning can be viewed as "nested within" larger water plans.

8 *Drafting Note*: This model law is intended to be added as a subsection within a state's existing enabling legislation authorizing or mandating the adoption of a local government comprehensive plan. Different states may use a term other than "comprehensive plan," such as "land use plan" or "growth policy." Traditional elements in a comprehensive plan include population, housing, economy, transportation, and the like. Thus, this legislation introduces a new element that should be viewed alongside these traditional elements.

9 *Drafting Note*: Because adequate water supply is fundamental to supporting a human population and natural environment, the word "shall" is recommended. A legislature could alternatively use "may," which would empower local governments with the option of water-climate planning, but would not ensure that such planning occurs.

10 Watersheds rarely fall neatly within jurisdictional boundaries. Thus, it is important for local governments to think beyond their boundaries and take a watershed approach to water-climate planning. By necessity, this will encourage a community to collaborate with other jurisdictions that share the same watershed. For this reason, § B of this model law enables inter-governmental cooperative arrangements.

11 Under the West's prior appropriation system for water rights, water may be legally transported outside of its watershed of origin. Thus, not all waters present within a local government's jurisdiction are necessarily available for its use.

(a) uses a fifty-year planning horizon[12] to compare the jurisdiction's water supply availability under (1) with jurisdiction's current and projected water supply needs for human population, land uses, and the natural environment;[13] and

(b) in light of the comparison in (2)(a), identifies existing or future water supply issues, concerns, and vulnerabilities.

(3) Community water-climate goals that:[14]

(a) identify the water supply conditions necessary and desirable for the local government to meet its current and projected water supply needs;

(b) address the water supply issues, concerns, and vulnerabilities identified in (2)(b), including the potential impacts of climate variability; and

(c) indicate priorities to ensure that the most pressing water supply needs are adequately met.

(4) Implementation strategies to achieve the water-climate goals identified under (3), including:

(a) actions to be taken toward each goal;

(b) types of approaches to be used for each action, such as regulations, educational programs, incentive-based initiatives, fundraising, agreements, or water marketing or acquisition;

(c) clear roles and responsibilities for each identified action;

(d) time frames for taking actions toward each goal;

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12 To reflect hydrologic time, a time horizon much longer that the standard 5, 10, or 20 years is advised. Fifty years is a conservative estimate, with some jurisdictions requiring 100 or even 300 years. *Drafting Note:* If a state has an assured supply law in its development regulations that has a different planning horizon, this number could be adjusted to match, for consistency.

13 This comparison functions essentially like a "water budget" that should be in balance so that water supply needs do not exceed available water supply.

14 *Drafting Note*: Presumably a state's law will elucidate the relationship between the goals of a comprehensive plan and how those goals are implemented through subdivision and zoning laws, and well as individual development decisions. In most states, including Arizona, California, Montana, Nebraska, Oregon, and Washington, local laws and decisions must be "consistent with" plan goals. Stuart Meck, *The Legislative Requirement that Zoning and Land Use Controls be Consistent with an Independently Adopted Local Comprehensive Plan: A Model Statute*, 3 WASH. U. J.L. & POL'Y 295 (2000). If this is not specified in a state's laws then a legislature might consider adding language to impose a consistency requirement.

(e) performance benchmarks and targets for measuring the progress and success of goals and implementation strategies;[15] and

(f) specific plans for coordinating with other jurisdictions that share the same water resources.[16]

[§ B] Inter-Governmental Coordination[17] and Joint Planning

(1) In carrying out its responsibilities under the Water-Climate Element, a local government is authorized to:

(a) enter into inter-governmental partnerships, collaborations, or agreements[18] with local jurisdictions, special districts, federal or state agencies, or Indian Tribes that share a common interest in the water resources;

(b) collaborate with citizen interest groups, nonprofit organizations, companies, and individuals;[19]

(c) undertake joint water-climate studies and share water-climate data;[20]

(d) form inter-governmental advisory commissions and bodies;[21]

(e) coordinate across local departments; and

(f) exercise any other local government powers recognized by law.

(2) When a local government action under the Water-Climate Element has the potential to implicate the interests of an Indian Tribe, a local government shall:

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15 Ongoing assessment is a best practice in land use planning. A community's progress towards achieving its water-climate goals should be measured against pre-determined targets which track progress and allow for reevaluation when targets are not met. These benchmarks should thus be integrated with the assessments and updates in § C.

16 Section B(1) authorizes various types of inter-governmental water planning.

17 Recognizing that different levels of government have authority over water (vertical authority), and that water resources span multiple jurisdictions (horizontal authority), this section enables both vertical and horizontal coordination.

18 This provision provides for a variety of collaborative tools, in recognition that community-driven solutions will be tailored to the unique dynamics of each watershed.

19 This provision recognizes that non-governmental cooperation is crucial for local implementation of water-climate planning.

20 Coordinated research and data sharing not only enable local governments to form a more complete picture about water supply and climate, but to share costs associated with creating and implementing a Water-Climate Element.

21 *Drafting Note*: This provision is limited to "advisory" bodies that lack regulatory authority, under the assumption that inter-governmental bodies exercising regulatory authority require specific, express state authorization. A legislature could opt to modify this provision to expressly authorize regulatory bodies in select watersheds where appropriate.

(a) consult with the Indian Tribe through timely, meaningful, and substantive dialog, before taking the action;[22] and

(b) coordinate water-climate planning efforts with the Indian Tribe.[23]

[§ C] Updates and Regular Assessment[24]

(1) A local government shall update its entire Water-Climate Element at least once every five years.[25]

(2) Local governments shall also regularly assess whether new or changed information related to its Water-Climate Element warrants a more immediate updating or modification of the element.[26] This assessment shall occur at least once a year.

[§ D] Funding and Technical Support[27]

(1) An annual amount of $_____ shall be designated to support local government preparation, data gathering and analysis, implementation, assessment, updating, coordination, and other activities related to this Water-Climate Element.[28] This funding

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22 This precautionary, consultation approach with Indian Tribes mirrors that used by federal agencies pursuant to Presidential Order. Exec. Order No. 13,175, 65 Fed. Reg. 67,249 (Nov. 6, 2000); *see also* Presidential Memorandum on Tribal Consultation, 74 Fed. Reg. 57,879 (Nov. 9, 2009).

23 Many Indian Tribes lack the resources to develop planning departments, let alone integrated water-climate planning programs. Thus, local governments should be encouraged to support Tribal efforts to achieve coordinated planning.

24 Because of the dynamic nature of water supply and climate, and the critical need to quickly adapt and respond to water realities, local governments should assess their Water-Climate Element on an ongoing basis. This differs from the standard state approach to comprehensive planning, in which a plan is typically updated after several years have elapsed.

25 *Drafting Note:* Five years is recommended as a best practice by the American Planning Association. To the extent existing that state enabling comprehensive planning legislation envisions a lengthier period between comprehensive plan updates, a shorter, more stringent timeline should be specified for the water-climate element.

26 The use of benchmarks and targets under §A(4)(f) is one way in which local governments can ensure regular assessment.

27 *Drafting Note*: We anticipate that this portion of the model law will be modified to comply with a state's particular funding laws and mechanisms. There is no "one-size-fits-all" provision for how a state may fund a local government endeavor. That being said, this model law would not be complete without this provision, which prompts a legislature to expressly address financial and technological support—support that if lacking could undermine the very success of a Water-Climate Element. Thus, regardless of wording, this model law recommends regular and sufficient state-level funding of local government water-climate planning. The language should specify whether payments go directly to local governments or whether a state agency is charged with administering the funding.

28 Alternative or supplementary funding possibilities are explored in Part II, *infra.*

shall be allocated among local governments on a watershed basis as follows: _____.[29]

(2) The [Department of Water Resources][30] shall provide technical and educational support to local governments fulfilling their requirements under this Water-Climate Element. To facilitate inter-governmental coordination and joint planning, the [Department] shall also maintain a state repository of each local government Water-Climate Element, along with updates, as well as the underlying data and analyses related to each local government Water-Climate Element.[31]

Definitions[32]

(1) **"assessment"** means an ongoing, iterative process that examines (1) whether underlying data, information, or assumptions have changed and (2) whether goals, implementation strategies, coordination efforts, or other features of a plan element should be modified accordingly.

(2) **"hydrologic function"** means the ways in which a watershed affects the human and natural environment, including: collecting water from rainfall and snowmelt; storing water in various amounts and durations; discharging water as runoff; responding during flood events; providing habitat for plants and animals; and creating conditions that affect water quality.

(3) **"Indian Tribe"** means an Indian or Alaska Native tribe, band, nation, pueblo, village, or community that the Secretary of the Interior acknowledges to exist as an Indian tribe pursuant to the Federally Recognized Indian Tribe List Act, 25 U.S.C. 479a, or that is officially recognized by this state.

(4) **"interests of an Indian Tribe"** mean interests related to an Indian Tribe's water supply, water resources, water rights, land use planning or governance, or other related issues that may affect

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29 The provision contemplates funding by watershed, which further promotes data-sharing a joint planning among jurisdictions that share a common water source. When necessary, a legislature could consider staggered funding with first priority for jurisdictions where water supply demands are the most critical.

30 *Drafting Note*: A legislature should insert those agencies, departments, or other government service providers that can provide technical or educational support to local governments.

31 A statewide database further promotes joint planning among jurisdictions and can reduce costs for governments relying on common data sources.

32 *Drafting Note*: These definitions should be inserted into the broader set of definitions contained in a state's comprehensive planning enabling act.

an Indian Tribe's political integrity, economic security, health or welfare.[33]

(5) **"performance benchmarks"** mean monitoring measures or standards, based on pre-determined time frames, by which a local government can measure whether goals and implementation strategies are being achieved over time.

(6) **"water marketing"** means the buying, selling, leasing, exchanging, changing, or transferring of water supply under the laws governing water rights in this state.

II
SUPPORTING COMMENTARY FOR LEGISLATURES

In this part, we support the Model Enabling Legislation for Local Water-Climate Planning by summarizing key rationale for the proposed language. In addition, we provide examples of existing efforts to integrate local water planning, land use planning, and climate planning to varying degrees. While none of the examples achieves the level of integration called for in the model legislation, they point in the right direction. For a more in-depth discussion of these rationale, as well as more detailed source materials, see the precursor to this work—*A Next, Big Step for the West: Using Model Legislation to Create a Water-Climate Element in Local Comprehensive Plans*.[34]

A. General Commentary

Protecting healthy watersheds, restoring degraded hydrologic systems, and preparing for anticipated future water needs are a few of the nation's most significant unmet challenges.[35] And, unlike natural resources that may exist within more static boundaries, watersheds are dynamic, span political borders, and require a highly collaborative approach among all users of shared water resources.

Because water law is predominantly a matter of state and federal law, local governments have historically experienced disproportionate,

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33 This requirement incorporates principles of Tribal sovereignty recognized in *Montana v. United States*, 450 U.S. 544 (1981).

34 Bryan, *supra* note 1.

35 Among the many studies identifying these local challenges, legislatures and local governments should examine U.S. ENVTL. PROT. AGENCY, *supra* note 4.

if not little, control over water use.[36] Yet local governments are at the front lines of regulating private land use activities that directly rely upon and impact water supply. The location, pace, and type of land development within a community directly affects water demand, fire response, flooding and surface runoff, water quality, water recharge, and habitat values.[37] These water-based issues have significant public health and economic impacts. Thus, adoption of a Water-Climate Element is a critical step toward local communities playing a more active role in the outcome of their water futures, particularly in the face of climate variability.

Local government comprehensive plans are a well-established tool used throughout the West for communities to inventory, set goals, and plan for their futures. These plans thus offer an existing, indispensable, and logical path toward integrating land use, water use, and climate within the traditional universe of local government planning. These plans also go beyond the reactive, project-specific "assured supply" laws currently used during development review.[38] Plans are proactive and take a holistic view of the community as it exists now and how it intends to exist in the future.

While enabling the *option* of local water climate planning is a good first step, the urgency of population growth, over-tapped water supplies, and dramatic climate change impacts in the West underscore the need for a *mandatory* Water-Climate Element in local comprehensive plans. Making water-climate planning universal and compulsory promotes consistency across shared watersheds, cost and information sharing, and ease of integration with state, federal, and Tribal water plans.

B. Comprehensive Inventory of Water Resources

A community's greatest opportunity to achieve a healthy water supply is through intimate familiarity with its own water resources. A

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36 "Not only do local units of government lack direct control of waters within their borders, another legacy of the 19th and 20th century centralization of water is the assumption that state regulation preempts indirect as well as direct local control because it is a matter of statewide concern." A. Dan Tarlock, *The Potential Role of Local Governments in Watershed Management*, 20 PACE ENVTL. L. REV. 149, 164 (2003).

37 Many of these issues touch upon "ecosystem services," defined as "processes by which the environment produces resources utlilised by humans such as clean air, water, food and materials." *What are Ecosystem Services?*, ECOSYSTEM SERVICES, http://www.ecosystemservices.org.uk/ecoserv.htm (last updated June 14, 2011).

38 Bryan, *supra* note 1, at 24–25.

logical first step toward water-climate planning is thus to account for local water resources as they exist, both physically and legally. Only by understanding the relationship between water supply (surface and ground)[39] and legal water availability, the hydrologic functions of water within a watershed, and the climate impacts upon water supply, can a community effectively evaluate and plan for its future.

Because a watershed typically spans multiple jurisdictions, a community conducting a water inventory will be joining in a common enterprise with other communities within a shared watershed. By virtue of this coordination, information and costs may be shared by multiple local governments.

Some data gathering and modeling may also exist within state or federal agencies, universities, or local water districts. In these instances, local governments can build on existing information. When such information does not exist, states should provide funding to fulfill the mandates contained in the Water-Climate Element.

Examples:

King County, Washington, a leader in linking climate planning to land use planning, collaborated with university experts, other local governments, nonprofits, and scientists to develop the underlying data for its planning work.[40] In its 2016 Comprehensive Plan Update, the county observes:

> Financial resources for environmental protection programs, including monitoring, are limited. Because baseline monitoring does not result in an actual project "on the ground," and often is not

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39 While the importance of documenting surface water use and availability is widely acknowledged, a similar understanding of groundwater resources has lagged far behind. Ironically, groundwater resources directly provide up to 45% of water consumed by irrigation and domestic use in the West. GARY C. BRYNER & ELIZABETH PURCELL, GROUNDWATER LAW SOURCEBOOK OF THE WESTERN UNITED STATES 1 (2003). In certain parts of the country, groundwater contributions account for as much as 83% of total water use. *See* CAL. DEP'T OF WATER RES., CALIFORNIA'S GROUNDWATER, BULLETIN 118, at 140 (2003) (finding that groundwater furnishes over 83% of the water used by agricultural and urban users in the Central Coast of California). As a direct result, over-drafting of groundwater and its associated negative impacts remain a serious problem in vast areas of the High Plains (including the Ogallala Aquifer), Pacific Northwest, and Southwest. U.S. GEOLOGICAL SURVEY, FACT SHEET 103-03, GROUND-WATER DEPLETION ACROSS THE NATION 3–4 (2003), http://pubs.usgs.gov/fs/fs-103-03/JBartolinoFS%282.13.04%29.pdf.

40 KING CTY., STRATEGIC CLIMATE ACTION PLAN 19 (2015), http://your.kingcounty.gov/dnrp/climate/documents/2015_King_County_SCAP-Full_Plan.pdf. Note that this plan is an update to the King County 2007 Climate Plan referenced in a precursor article. Bryan, *supra* note 1, at 21 n.109.

> mandated, it may not compete well with other priorities for limited funding. However, investments in monitoring will provide essential information for evaluating the effectiveness of current actions and guiding future policy decisions, priorities, and investments. To make the most efficient use of limited resources, it is critical that the county look for opportunities to coordinate its data collection and dissemination efforts so that they can meet as many information needs as possible. The county should also partner with entities conducting monitoring, including other governments and universities.[41]

California bypassed statewide groundwater management in favor of management through local water districts. "A number of these districts have set a goal of minimizing surface-water impacts, studied interactions between groundwater and surface water, and even encouraged groundwater users in areas with a high probability of impacts to switch to surface supplies."[42]

Minnesota has embraced a local watershed planning approach with its 2013 One Watershed, One Plan. This legislatively created program within the Minnesota Board of Water & Soil Resources enables and aligns "local water planning on major watershed boundaries with state strategies towards prioritized, targeted and measurable implementation plans . . . ."[43] In its initial stages, the agency is assisting several local pilot programs in developing watershed management plans.[44]

C. Capacity-Vulnerability Analysis

After collecting critical data regarding the community's water resources, local governments can measure that information against land use projections such as population growth and locations of planned development. By comparing water supply and land use demand through a "water budget" approach, a community is able to clearly identify whether its available water supply and hydrologic system capacity are in harmony with land use models and goals, particularly in light of future climatic shifts. This comparison is sometimes termed a "conflicts analysis" because it flags where conflicts exist between a

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41 KING CTY., 2016 UPDATE PUBLIC REVIEW DRAFT: KING COUNTY COMPREHENSIVE PLAN 5-89 (2016), http://www.kingcounty.gov/depts/executive/psb/regional-planning/king-county-comprehensive-plan/2016-KCCP-Update.aspx.

42 Barton H. Thompson, Jr., *Beyond Connections: Pursuing Multidimensional Conjunctive Management*, 47 IDAHO L. REV. 273, 281 (2011).

43 *One Watershed, One Plan*, MINN. BOARD OF WATER & SOIL SOURCES, http://www.bwsr.state.mn.us/planning/1W1P/index.html (last visited Feb. 20, 2016).

44 *Id.*

community's land use plans and its natural resources.[45] By highlighting these areas of vulnerability, local governments can identify, plan for, and adapt to the limits of their watersheds.

In addition to supply and demand comparisons, a community that engages in capacity-vulnerability analysis can identify areas least suitable to land development because of their role in the hydrologic system, such as areas needed for flood control, groundwater recharge, or the delivery of water for irrigation of farm land. Similarly, communities facing water quality issues may be better positioned to identify those lands most likely to contribute to runoff and other water quality concerns if developed. Ultimately, "[a]s our concerns over the consequences of climate change heighten, the legal system must continue to adapt and lead the way to create climate friendly settlement patterns."[46]

Although the APA generally recommends a twenty-year planning window (updated in five-year intervals) for comprehensive plans,[47] a longer planning window is appropriate for water supply. One commentator observes: "[A] couple of decades is a blip in hydrological time" and such a narrow focus "can mask much larger, longer-term fluctuations in climate and river flows."[48] A lengthier planning horizon also makes sense when considering the permanency of land use structures and their dependence on water. One commentator suggests that "projections on the order of 100 years or longer would seem reasonable as a starting point for an assured [water] supply . . . deemed well rooted in sustainability's forward-looking aim."[49]

Identifying where data or projections are uncertain is an important component of a capacity-vulnerability analysis. Uncertainties highlight where a community should prioritize future research and proceed with caution (to avoid irreversible impacts to its water supply) until it has

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45 AM. PLANNING ASS'N, GROWING SMART LEGISLATIVE GUIDEBOOK: MODEL STATUTES FOR PLANNING AND THE MANAGEMENT OF CHANGE 7-141-42 (Stuart Meck ed., 2002), https://www.planning.org/growingsmart/guidebook/print/pdf/chapter7.pdf.

46 John R. Nolon, *The Land Use Stabilization Wedge Strategy: Shifting Ground to Mitigate Climate Change*, 34 WM. & MARY ENVTL. L. & POL'Y REV. 1, 11 (2009).

47 AM. PLANNING ASS'N, *supra* note 45, at 7-84-86.

48 Robert W. Adler, *Revisiting the Colorado River Compact: Time for A Change?*, 28 J. LAND RESOURCES & ENVTL. L. 19, 31 (2008) (commenting on Colorado River data deficiencies).

49 Lincoln L. Davies, *Assured Water Supply Laws in the Sustainability Context*, 4 GOLDEN GATE UNIV. ENVTL. L. J. 167, 189 (2010).

the resources and information to make more informed decisions.[50] Some have termed this a "no regrets" strategy.[51]

Examples:

On the national level, the U.S. Environmental Protection Agency (EPA) has recognized the importance of identifying and acknowledging areas of community vulnerability. In the EPA's *Draft Climate Change Adaptation Plan*, the agency highlights an extensive list of negative impacts that affect natural hydrologic systems as a result of a warmer drier climate in the future.[52] The agency also highlights areas of greatest uncertainty, such as "local impacts to precipitation and hydrology for use in planning long-lived water infrastructure" and "shifts in water quality and aquatic ecosystems in watersheds."[53]

Arizona has a long water supply planning horizon, requiring that development have a 100-year water supply before it can be approved.[54] El Paso County, Colorado, goes even further, requiring developers to demonstrate a "renewable groundwater life" of 300 years.[55]

In Hawaii, the state water permitting agency must proceed with caution and obtain more data when habitat may be irreversibly damaged due to depleted water supply. The state is currently determining minimum water flows for each stream so that communities better understand what land uses are appropriate within their water supply.[56]

D. Water-Climate Goals

Setting goals that address uncertainty and vulnerability in water supply helps a local government make connections between its

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50 Bryan, *supra* note 1, at 37–39.

51 Craig, *supra* note 4, at 67.

52 The EPA's list of negative impacts includes: decreases in water quality, aquatic habitat health, and water quantity. U.S. ENVTL. PROT. AGENCY, *supra* note 4, at 17–20; *see also* Craig, *supra* note 4, at 43 ("[E]cosystems . . . already coping with other problems, such as pollution, habitat destruction, and loss of biodiversity, are [also] more vulnerable to climate change impacts than systems not already suffering from such stresses.").

53 U.S. ENVTL. PROT. AGENCY, *supra* note 4, at 13.

54 ARIZ. REV. STAT. ANN. §§ 45-108(I), 45-576(J) (2016).

55 EL PASO COUNTY LAND DEVELOPMENT CODE § 8.4.7 (2013), http://adm.elpasoco.com/Development%20Services/Pages/LandDevelopmentCode.aspx.

56 *In re* Water Use Permit Applications, 9 P.3d 409, 466–67 (Haw. 2000) (applying "precautionary principles" to water permitting for new land development); HAW. CODE § 174C-71 (2012); Telephone Interview with Dean Uyeno, Hydrologist, Hawaii Commission on Water Resource Management (Apr. 11, 2013).

traditional land use planning goals and the realities of water supply and climate, better integrating those important issues and preparing for a community's future. Goals might include obtaining additional water supply, reducing land use demands on existing water supply through conservation practices, formulating a response to wildfire threats, protecting against water quality degradation, improving riparian habitat health, converting consumptive use water rights to instream flow rights, replacing aging water infrastructure, or increasing water storage.

In this stage of water-climate planning, the public's role is particularly important because the plan must "protect and balance agricultural, environmental, economic, municipal, and cultural uses of water."[57] Achieving well-informed, broad-based public support is critical to the successful implementation of strategies to help communities reach their goals.

Examples:

To help set priorities and goals, the U.S. Environmental Protection Agency stresses the importance of "developing decision-support tools to improve the quality and efficacy of decisions related to outcomes that are sensitive to changes in climate."[58] Two such support tools are the *ICLEI Oceana: Local Government Climate Change Adaptation Toolkit* and the *California-EPA Region 9 Climate Change Handbook for Regional Water Planning*.[59]

Oregon provides an example of state-supported local government goal-setting. The state's Department of Land Conservation & Development is responsible for the creation, adoption, and implementation of Oregon's statewide planning goals, on which local comprehensive plans must be based. The Goal 1 is "citizen involvement" and Goal 6 addresses water resources protection, along with a requirement that local governments implement the goal through

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57 LORA LUCERO, *Comments: Connecting Water and Land,* in WET GROWTH: SHOULD WATER LAW CONTROL LAND USE? 447 (Craig Anthony (Tony) Arnold ed., 2005).

58 U.S. ENVTL. PROT. AGENCY, *supra* note 4, at 39.

59 ICLEI OCEANIA: LOCAL GOVERNMENT CLIMATE CHANGE ADAPTATION TOOLKIT (2008), http://archive.iclei.org/fileadmin/user_upload/documents/ANZ/CCP/CCP-AU/Projects/AI/AdaptationToolkit/Toolkit_CCPAdaptation_Final.pdf (prepared for the Commonwealth of Australia); CAL. DEP'T OF WATER RES., CLIMATE CHANGE HANDBOOK FOR REGIONAL WATER PLANNING (2011), http://www.water.ca.gov/climatechange/docs/Climate_Change_Handbook_Regional_Water_Planning.pdf (prepared for the U.S. EPA Region 9 and California Dept. of Water Resources).

local initiatives.[60] The agency notes that "designing goals specifically related to an individual community's needs provides local governments with the ability to easily adapt and/or amend the goals to changing circumstances."[61]

Among its many water-related goals, King County, Washington, adopted the following goal in its 2016 Comprehensive Plan Update:

> Development shall occur in a manner that supports continued ecological and hydrologic functioning of water resources and should not have a significant adverse impact on water quality or water quantity, or sediment transport, and should maintain base flows, natural water level fluctuations, unpolluted groundwater recharge in Critical Aquifer Recharge Areas and fish and wildlife habitat.[62]

E. Implementation Strategies & Performance Benchmarks

A Water-Climate Element should include concrete strategies for implementing a community's water-climate goals. Implementation can take a variety of forms, including regulatory approaches (e.g., zoning and subdivision rules) and non-regulatory approaches like developer incentives, market-based transactions, and educational programs. Further, implementation can occur through both micro- and macro-level strategies. Micro-level strategies generally focus on small-scale project site design, whereas macro-level strategies focus on coordinating programs and actions on a watershed scale.[63]

To effectively monitor the achievement of community water-climate goals, implementation strategies should include performance benchmarks—a concept significant enough to appear as a definition in the model enabling legislation. Benchmarks should be specific about what party is responsible for particular strategies, along with timetables for completing those strategies and reaching community goals.[64]

Water marketing, another defined term in the model enabling legislation, is an often- suggested, non-regulatory approach to flexibly manage water systems in light of unpredictable future climatic conditions.[65] Based on their water inventories, some communities may

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60 *Statewide Planning Goals*, OR. DEP'T LAND CONSERVATION AND DEV., http://www.oregon.gov/lcd/pages/goals.aspx (last visited Apr. 30, 2016).

61 *Overview of the Oregon Land Use Planning Program*, OREGON.GOV, http://www.oregonlandusetraining.info/data/1_index.html (last visited Apr. 30, 2016).

62 KING CTY., *supra* note 41, at 5-59.

63 Bryan, *supra* note 1, at 47.

64 *Id.* at 45-46; LUCERO, *supra* note 57, at 447–48.

65 *See generally* Robert David Pilz, *Lessons in Water Policy Innovation from the World's Driest Inhabited Continent: Using Water Allocation Plans and Water Markets to Manage*

identify a water surplus that provides economic opportunities. Others may identify a water deficit that necessitates the reallocation or acquisition of water supplies.[66] While water markets exist throughout the West to varying degrees, the suitability of this tool is highly dependent on state laws and regulatory barriers, as well as "location-specific conditions and needs."[67]

Examples:

There are a variety of micro-level implementation strategies, including: green building requirements, xeriscaping requirements, and other small-scale efficiency focused requirements. In California, the East Bay Municipal Utility District has required "water neutral" developments that offset water use through on-site and off-site actions. Onsite, water efficient fixtures and irrigation, turf limitations, lot water budgets, and recycled water have resulted in a nearly thirty percent savings compared to a conventionally designed development. Offsite, developers have paid a mitigation fee used by local utilities to finance similar water efficiency measures within their service areas.[68]

Macro-level strategies might take the form of protected area overlays in floodplains and aquifer recharge zones, community drought response planning, stormwater management programs, or the synthesis of multiple tools to form a comprehensive plan of action.[69] In a study done by the Rocky Mountain Land Use Institute, "[t]he vast majority of communities with water conservation ordinances in place couple these regulatory tools with an essential variety of educational materials and financial incentives to promote optimal efficiency."[70]

Water Scarcity, 14 U. DENV. WATER L. REV. 97(2010); Bonnie Saliba & David B. Bush, WATER MARKETS IN THEORY AND PRACTICE: MARKET TRANSFERS, WATER VALUES, AND PUBLIC POLICY (1987); H.J. Vaux Jr. & Richard E. Howitt, *Managing Water Scarcity: An Evaluation of Interregional Transfers*, 20 WATER RES. RESEARCH 785 (1994).

66 In 2003, a majority of states anticipated water shortages over the subsequent decade, even in the absence of drought conditions. G. Tracy Mehan III, *Energy, Climate Change, and Sustainable Water Management*, DAILY ENVT. REP. 4 (2007).

67 Pilz, *supra* note 65, at 127.

68 Randele Kanouse & Douglas Wallace, *Optimizing Land Use and Water Supply Planning: A Path to Sustainability*, 4 GOLDEN GATE U. ENVTL. L.J. 145, 156–60 (2010).

69 *See, e.g.*, John T. Andrew et al., *California Water Management: Subject to Change*, 14 HASTINGS W.-NW. J. ENVTL. L. & POL'Y, 1463, 1469–71 (2008).

70 ROCKY MOUNTAIN LAND USE INST., WATER CONSERVATION (2009), http://www.law.du.edu/documents/rmlui/sustainable-development/water-conservation.pdf.

The American Planning Association (APA) *Growing Smart Legislative Guidebook* calls for "benchmarks and procedures to monitor the effectuation of the plan."[71] Effective performance benchmarks use baseline indicators, thresholds, and outcomes to "periodically track the achievement of those desired outcomes."[72] To ensure accountability, the APA recommends that all strategies include the following: a timeframe that identifies a specific schedule for action, an assessment of coordination between various groups of stakeholders, a detailed allocation of specific roles and responsibilities, and standards by which the effectiveness of the particular strategy can be measured.[73]

King County, Washington, again serves as a strong example through its performance benchmarks. There, thirty-five cities in the Seattle metropolitan area established a benchmark system to monitor the effectiveness of countywide planning policies. The participating communities prepare reports tracking the outcomes described in the benchmarks.[74] This system has proved effective in enabling King County to meet goals regarding surface and groundwater quality data, Chinook salmon returns, amount of forest land, decreases in domestic water consumption, and aquatic habitat continuity.[75] Other examples include: water conservation targets, like California's target for twenty percent per capita reduction in urban water use by 2020 in the Bay-Delta area,[76] targets for sensitive lands acres preserved from development,[77] or targets for residential acreage present in the floodplain.[78]

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71 AM. PLANNING ASS'N , *supra* note 45, at 7-151.

72 *Id.* at 7-261.

73 *Id.* at 7-151-53.

74 AM. PLANNING ASS'N, *supra* note 45, at 7-261. A sampling of these reports appears at Washington's Municipal Research & Services Center, *Growth Management Monitoring Programs*, http://mrsc.org/Home/Explore-Topics/Planning/General-Planning-and-Growth-Management/Growth-Management-Monitoring-Programs.aspx (last visited Apr. 30, 2016).

75 *See generally* KING CTY., KING COUNTY BENCHMARKS: ENVIRONMENT (2009), http://your.kingcounty.gov/budget/benchmrk/bench09/environment/Environment_09.pdf.

76 *See generally* CAL. DEP'T OF WATER RES. ET AL., 20X2020 WATER CONSERVATION PLAN (2010), http://www.water.ca.gov/wateruseefficiency/sb7/docs/20x2020plan.pdf (using baselines and targets for ten hydrologic regions).

77 AM. PLANNING ASS'N, *supra* note 45, at 7-263.

78 *Id.* at 7-264.

F. Coordination

Meaningful climate and water planning requires that local governments engage in horizontal and vertical coordination with other governmental entities and legislative bodies. Horizontal coordination accounts for the transboundary nature of waters, necessitating all of the entities geographically falling within a watershed to jointly plan for their shared resource. Vertical coordination accounts for the various layers of jurisdiction that overlay the resource from local, to state, to tribal, to federal jurisdiction. Holistic water-climate planning necessitates integrating planning efforts among these different levels of government.[79] This coordination is essential not only to ensure consistent management of the water resource, but, as noted, to share the burden of data gathering and climate response among jurisdictions facing a common water future.

Integrated regional water management (IRWM) is a term used to describe "a collaborative effort to manage all aspects of water resources within a region."[80] It differs from traditional water resource management, which divides water issues among multiple state agencies and sets of laws. IWRM is comprehensive in the scope of subjects it addresses (e.g., water demand reductions, supply enhancement, and water quality), the jurisdictional boundaries it transcends, and the diverse stakeholders it involves. Experts note that "[w]hile IRWM has long been recognized to be important in water management planning, the challenges posed by climate change make it a critical strategy for adoption."[81]

Implementation agreements are a primary mechanism for local governments to carry out inter-governmental coordination and joint planning. Implementation agreements should give local governments enough flexibility and discretion to work with other entities in ways best suited to a particular watershed. At the same time, implementation agreements provide an important legal durability and accountability among participants.

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79 *Id.* at 7-48-55.

80 Andrew et al., *supra* note 69, at 1471.

81 *Id.* ("IRWM transcends jurisdictional, watershed, and political boundaries; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the unique regional issues and differing perspectives of all parties involved through the development of mutually beneficial solutions.").

Indian tribes are included among the important entities with which local governments should coordinate and consult. Many tribes in the West have water rights holdings with senior priority dates, potentially both within and outside of reservation boundaries. Additionally, many Indian reservations contain non-Indian land holdings within reservation boundaries, which creates a checkerboard of land and water uses best addressed through joint planning and reciprocal sharing of information.[82]

Examples:

The Walla Walla Basin in Washington provides an example of horizontal and vertical coordination, using regional planning, state and federal laws, and local water markets.[83] Communities in the basin initiated watershed planning to protect existing water rights and instream flows for endangered fish species.[84] Participants include "local stakeholders representing twenty-nine entities, including the Confederated Tribes of the Umatilla Indian Reservation, Walla Walla and Columbia Counties, City of Walla Walla, Gardena Irrigation District No.13 and other governmental and non-governmental entities."[85] Landowners who drill exempt domestic wells in certain high density areas of the basin must mitigate bucket-for-bucket whatever water they withdraw. To facilitate the mitigation, there is a banking program that uses landowner payments to acquire, and then retire, senior water rights in the basin. The state, in turn, holds the retired water rights in trust to help serve mandatory instream flow standards. These instream flows are a critical part of ongoing local, state, tribal, and federal negotiations on the Walla Walla Bi-State Habitat Conservation Plan to help bring the region into compliance with the Endangered Species Act.[86]

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82 *See generally* Judith V. Royster, *Climate Change and Tribal Water Rights: Removing Barriers to Adaptation Strategies*, 26 TUL. ENVTL. L.J. 197 (2013).

83 Several additional examples are found at Bryan, *supra* note 1, at 55–58.

84 *Walla Walla Water Exchange*, WASH. WATER TR., http://www.washingtonwatertrust.org/walla-walla-water-exchange (last visited Feb. 24, 2016). Another area experiencing results under the Trust Water Program is the upper Kittitas Basin. *See* Wash. State Dep't of Ecology, *Yakima River Basin Water Exchanges*, http://www.ecy.wa.gov/programs/wr/cro/wtrxchng.html (last visited Feb. 24, 2016).

85 WASH. DEP'T OF ECOLOGY, *Walla Walla River Basin (WRIA 32) Rule Amendments*, http://www.ecy.wa.gov/programs/wr/instream-flows/wallawallabasin.html (last visited Feb. 24, 2016).

86 *See* Walla Walla Basin Watershed Council, *Walla Walla Basin Habitat Conservation Plan*, http://www.wwbwc.org/assessment/55-ww-hcp.html (last visited Feb. 24, 2016).

Examples of tribal consultation can be found in numerous federal laws, including the National Historic Preservation Act[87] and agency regulations and policies like the U.S. Department of Agriculture's Tribal Consultation Regulations.[88] A noteworthy example of local government tribal consultation is exemplified in the Yakima County, Washington, Comprehensive Plan:

> Cooperation with the Yakama Indian Nation is mutually beneficial. As a basis for cooperation, it is important to recognize that the Nation is a sovereign nation, with a status unlike that of other jurisdictions . . . [The County should]: [r]ecognize and respect the sovereign nation status of the Yakama Indian Nation; [c]oordinate planning efforts with the Yakama Indian Nation for lands under County land use jurisdiction that lie within the exterior boundary of the Yakama Indian Reservation; . . . [and f]acilitate coordinated planning for lands within the exterior boundary of the Yakama Indian Nation through reciprocal sharing of plans, studies, policy documents, maps, data bases, and other information needed.[89]

G. Updates and Assessment

A community's Water-Climate Element will only be effective if it adapts to changes in climate and hydrologic conditions. The element should be regularly updated, perhaps even more frequently than other, more static elements within the comprehensive plan. As a general proposition, the APA recommends comprehensive plan updates at five-year intervals, and the Water-Climate Element should be no exception. Between update years, there also should be ongoing monitoring and continuous assessment in order to make mid-course corrections. As noted, while the Water-Climate Element requires frequent updating and adaption, the planning horizon for the element should encompass an extensive period of years.

"Adaptive planning" is "an iterative and evolving process of identifying goals and making decisions for future action that are flexible, contemplate uncertainty and multiple possible scenarios, include feedback loops for frequent modification to plans and their implementation, and build planning and management capacity to adapt

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87 36 C.F.R § 800 (2016).

88 U.S. Dept. of Agriculture's Tribal Consultation Reg. No. 1350-002 (Jan. 18, 2013), http://www.usda.gov/wps/portal/usda/usdahome?contentid=otr-tribal.xml.

89 PLAN 2015: A BLUEPRINT FOR YAKIMA COUNTY PROGRESS at I-IC-4 (May 1997), http://wa-yakimacounty.civicplus.com/DocumentCenter/View/2910.

to change."[90] Because conventional land use plans can be static and locked into particular time intervals, they can be ill-suited to the uncertainties surrounding water resources and climate.[91] Adaptive planning thus introduces greater potential for a water-climate element to be flexible and continuously adjusted as new data, models, and predictive tools become available.[92]

Examples:

Under the water supply plan for TriCities, Washington,[93] water suppliers must perform a new water balance every six years so that the cities can adjust their plan. This process involves the "recording of water volumes obtained from production and demand meters and estimates of unaccounted-for water volumes and non metered uses . . . ."[94]

When using an adaptive planning approach, one mechanism to ensure accountability is pre-negotiated "triggers." A trigger is "a type of pre-negotiated commitment made by an agency within an adaptive management or mitigation framework specifying what actions will be taken if monitoring information shows x or y."[95] For example, in a habitat conservation plan governing Plum Creek Timber Company, a one degree Celsius increase in water temperature requires the company to commence certain riparian enhancements to "help conserve native salmonids and their ecosystems while conducting commercial timber harvest within a framework of long-term regulatory certainty and flexibility."[96]

The King County 2016 Comprehensive Plan Update also illustrates monitoring, assessment, and adaptive planning. The need is

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90 Craig Anthony (Tony) Arnold, *Adaptive Watershed Planning and Climate Change*, 5 ENVTL. & ENERGY L. & POL'Y J. 417, 440, 455 (2010); *see also* Craig, *supra* note 4, at 40–41 (discussing the nonlinear, recursive approach required for climate change adaptation).

91 Arnold, *supra* note 90 at 454–56.

92 *Id.*

93 Even though the plan refers to "quad," people know of this place as the Tri-Cities and it thus is more recognizable.

94 2008 REGIONAL WATER FORECAST AND CONSERVATION PLAN UPDATE 10, 19 (Revised July 2010), http://www.go2kennewick.com/go2kennewick/default.aspx?option=com_docman&task=cat_view&Itemid=60&gid=378.

95 Courtney Schultz & Martin Nie, *Decision-Making Triggers, Adaptive Management, and Natural Resources Law and Planning*, 52 NAT. RESOURCES J. 443, 455 (2012).

96 *Id.* at 479 (describing the Plum Creek Timber Company's Native Fish Habitat Conservation Plan, which covers roughly 1.6 million acres of Plum Creek timberlands in Montana, Idaho, and Washington).

summarized as, "King County's policies, regulations, and actions to protect and restore the environment need to be assessed on an ongoing basis to ensure that they are having the intended effect, and that they are responding to changing conditions."[97] The county's goals also acknowledge that the community's understanding of its land and water resources comes with uncertainty, and that those resources are dynamic and changing: "King County should take precautionary action informed by best available science where there is a significant risk of damage to the environment. Precautionary action should be coupled with monitoring and adaptive management."[98]

H. Funding and Technical Support

The success of a Water-Climate Element depends greatly on appropriate levels of funding and technical support to conduct studies, monitor, and coordinate planning efforts. While local governments will likely rely on a variety of funding sources, without robust state-level support this element would be at risk of becoming an unfunded mandate. Examples of mechanisms commonly used to generate revenue include levies and property tax, sales and use tax, utility fees, and pollution discharge fees. Non-regulatory options such as grants and private donations can supplement direct state and federal funding sources.

As noted above, communities can coordinate efforts and seek state and federal agency technical support to reduce the costs of preparing and implementing the Water-Climate Element.

Examples:

The State of Washington has considered a bill to create watershed investment districts authorized to use taxation and other forms of revenue to locally conserve and restore lands and waters.[99]

In Minnesota, the state legislature funded the One Watershed, One Plan, providing funding to the Minnesota Board of Water & Soil Resources (BWSR) for assistance and grants to local governments. BWSR then selected five watershed areas for its pilot program, with

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97 KING CTY., *supra* note 41, at 5-88.

98 *Id.* at 5-41 (note E-417).

99 *Draft Watershed Investment District Legislation*, GOVLINK (July 2011), http://www.govlink.org/watersheds/9/plan-implementation/FundingMechanisms.aspx.

the goal of extending the program to all water sheds in the near future.[100]

King County, Washington, continues to partner with University of Washington researchers to study the impacts of climate change on local rainfall patterns, flood risk, and stormwater infrastructure sizing requirements. The research is funded through state-funded grants administered through the Washington Department of Ecology.[101]

100 MINN. BOARD OF WATER & SOIL SOURCES, *supra* note 43.

101 KING CTY., *supra* note 41, at 113–14.

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