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Optimizing Land Use and Water Supply Planning: A Path to Sustainability?

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ARTICLE

OPTIMIZING LAND USE AND WATER
SUPPLY PLANNING: A PATH TO
SUSTAINABILITY?*RANDELE KANOUSE & DOUGLAS WALLACE**

I. INTRODUCTION

On October 9, 2001, Governor Gray Davis signed two landmark bills, SB 221 and SB 610, marking the end of a long legislative march toward better coordination of land use and water supply in the planning process.¹ Although the logic of the bills might appear self-evident today, achieving passage was a hard-fought battle, with the State Senate approving SB 221, originally, by a bare majority.² Despite the adamant opposition at the time, the passage of these laws heralded a sea change in how water providers would prepare for the future.

Historically, the prime directive for water managers had been to plan and develop water projects to serve all the customers in their service

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¹ See RANI ISAAC, CALIFORNIA RESEARCH BUREAU, ESTIMATED WATER USE ON LARGE PROJECTS IN 2004-2006 1 (2008), available at www.policyarchive.org/handle/10207-/bitstreams/11709.pdf.

² Cal. S. J., 2001-2002 Reg. Sess., No. 128. In the California legislature, members may switch their votes after the initial vote as long as the original outcome of the bill is not affected. Thus, although the final Senate vote count after Assembly amendments on September 13, 2001, was 25-10, the bill originally only passed by a bare majority. See CALIFORNIA STATE ASSEMBLY, OFFICE OF THE CHIEF CLERK, LEGISLATIVE PROCEDURE 23 (2007).

areas, as determined by the local land use agencies.³ Playing any role in influencing the land use planning and approval process was viewed by water managers as exceeding the legitimate bounds of their responsibilities.⁴ For their part, most city and county officials viewed land use decisionmaking authority as their sole prerogative, certainly not to be shared with water district officials.⁵ So long as new water supplies were available to be tapped, this arrangement worked.

The rise of the environmental movement and the growing public embrace of ecological values roughly coincided with the end of the dam-building era. By the 1970s, most of the good sites for dams had already been taken, and those that remained, such as California's North Coast rivers, were increasingly valued as natural and recreational resources that should be permanently protected.⁶ At the same time, California's population continued to swell, from under 20 million in 1970 to nearly 38 million today.⁷

How did these trends affect water supply development in California? Among other impacts, the average time a major water supply project took from conception to construction more than doubled.⁸ Before the enactment of the major environmental statutes of the 1970s, project planning was far simpler, because the adverse impacts could largely be overlooked.⁹ With the advent of environmental impact reports and public involvement, planning water projects became much more complex and time-consuming, as the bar charts below attest.¹⁰ Moreover, the projects that succeeded in getting built added progressively smaller increments of storage to the state's supply, with the hurdles of increasing complexity and expense. As water supply development began to slow down, the prospects for serious rationing became more real.

³ See JEFF LOUX, WATER SUPPLY AND URBAN GROWTH IN CALIFORNIA: FORGING NEW INSTITUTIONAL LINKAGES OR BUSINESS AS USUAL? 3, 7 (2004), available at www.des.ucdavis.edu/faculty/handy/ESP171/Loux_paper_on_water_supply.pdf.

⁴ See *id.* at 8.

⁵ See *id.*

⁶ See *id.* at 2.

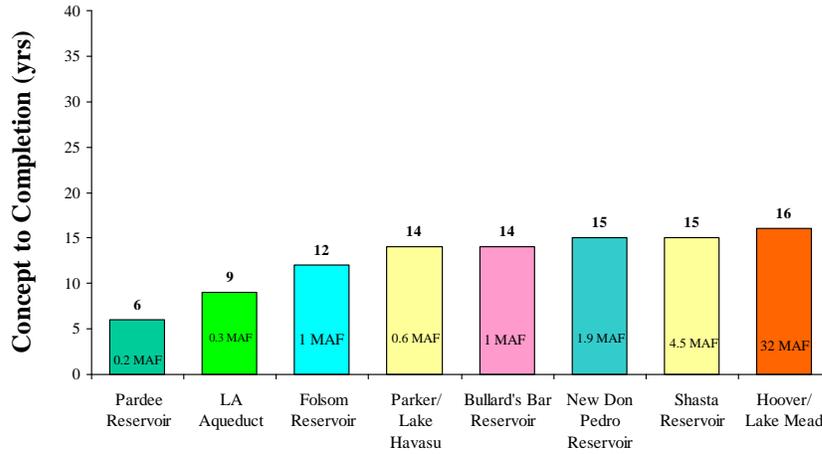
⁷ Matt Rosenberg, *California Population: The Population of California, the Most Populous State in the United States*, About.com Guide, Aug. 9, 2009, geography.about.com/od/obtain-populationdata/a/californiapopulation.htm.

⁸ RANDELE KANOUSE, SHOW ME THE WATER: QUENCHING CALIFORNIA'S GROWING THIRST 5, 6 (Jan. 22, 2005), www.waterlawsymposium.com/media/Land%20Use%20-%20Kanouse.pdf.

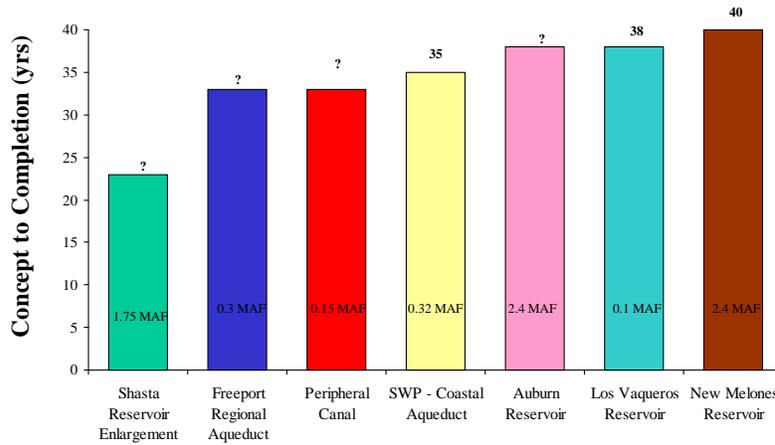
⁹ See *id.* at 5.

¹⁰ See *id.* at 6.

Pre-1970s Water Storage Projects: Very Little Controversy



Post-1970s Water Storage Projects: Lacking Political Consensus



? = Projected in-service date unknown



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Meanwhile, land use decisionmakers continued to face enormous pressure to approve new developments to meet the growing demand for housing and other construction. Because California had been so successful in developing its water supplies, few considered the need to ensure that adequate water supplies would continue to be available to serve this new growth.¹¹ The acute drought of 1976-77 signaled the fallibility of this belief; the much more sustained and punishing drought of 1987-92 removed any doubt that abundant water supplies could no longer be taken for granted.¹²

As the multi-year drought was occurring, the East Bay Municipal Utility District (EBMUD), a public water agency based in Oakland, became the unintended standard bearer for legal reforms to link water supply and land use planning.¹³ Beginning in the early 1980s, plans began to emerge for the development of the Dougherty Valley, situated near the City of San Ramon.¹⁴ In 1991, Contra Costa County issued a Notice of Preparation for a draft Environmental Impact Report (EIR) for a General Plan Amendment to assume control of the planning for an 11,000-home development covering nearly 6,000 acres.¹⁵ This was a joint project of Shapell and Windemere developers that would ultimately require 5.4 million gallons per day (MGD) for its water supply.¹⁶ From the outset, the County planned that EBMUD should be the water supplier for this development, even though the area was mostly outside the water agency's service area.¹⁷ EBMUD was equally quick to assert that it did not have sufficient water supplies to serve the new customers without imposing a risk of shortages on its existing customers.¹⁸ Nonetheless, in December of 1992 the County Board of Supervisors formally approved the EIR for Dougherty Valley and identified EBMUD as the water

¹¹ Randle Kanouse, *Water Supply Planning and Smart Growth*, in *NAVIGATING ROUGH WATERS: ETHICAL ISSUES IN THE WATER INDUSTRY* 82 (Cheryl K. Davis & Robert E. McGinn eds., 2003).

¹² KANOUSE, *supra* note 8, at 4.

¹³ See LOUX, *supra* note 3, at 5.

¹⁴ See René Davids, *Development, Topography, and Identity: The Dougherty Valley and the New Suburban Metropolis*, 20 *PLACES* 58, 60 (2008), available at www.escholarship.org/uc/item/8bv0117x.

¹⁵ Memorandum from Phil Wong, San Ramon City Planning Services Manager, City Council/Planning Commission (Apr. 2, 1991).

¹⁶ Ryan Waterman, *Addressing California's Uncertain Water Future by Coordinating Long-Term Land Use and Water Planning: Is a Water Element in the General Plan the Next Step?*, 31 *ECOLOGY* L.Q. 117, 125-26 (2004).

¹⁷ *Id.* at 125.

¹⁸ *Id.* at 125-26.

provider.¹⁹

In light of its concerns about ensuring firm water supplies for development, EBMUD undertook a survey in 1995 of 110 new major developments in California to determine how the water supplies would be provided to the thousands of new residents and businesses.²⁰ The report found that, of the EIRs prepared for these proposed projects, almost none of the proposed developments identified a firm water supply beyond a speculative reliance on, for example, the State Water Project. EBMUD's research validated the increasingly common criticism that "paper water" was being widely relied on to "bootstrap" development and water supply, so that the water supplies would be secured only after the development was approved. While this approach had often worked in the past, it often led to adverse impacts on other water users in California.²¹

Earlier that year, EBMUD filed suit against the County's EIR, alleging violations of the California Environmental Quality Act (CEQA).²² Soon after, the County and the developers filed their own countersuit against EBMUD on the grounds that EBMUD's policies illegally obstructed development.²³ In 1994, the tide began to turn in EBMUD's favor with a ruling by the superior court that the project had failed to achieve the fundamental purpose of CEQA—that is, to inform the public and other agencies in advance about the environmental consequences of such planning decisions.²⁴

Over the course of this conflict, many observers characterized the position of EBMUD's Board of Directors as seeking to control growth by refusing to provide water for Dougherty Valley. This perception was reinforced by the election of an "environmental majority" to EBMUD's board in 1990.²⁵ However, EBMUD's stated purpose in denying service to the new development was motivated out of a concern for consumer protection; the board found it unacceptable to compromise supply reliability and impose the risk of rationing on existing customers by supplying Dougherty Valley.²⁶

¹⁹ *Id.* at 125.

²⁰ EBMUD "New Towns" Report (1995) (on file with authors).

²¹ See Paul S. Kibel & Barry H. Epstein, *Sprawl and "Paper Water": A Reality Check from the California Courts*, 20 CAL. REAL PROP. J. 21 (2003).

²² E. Bay Mun. Util. Dist., *EBMUD to Sue Contra Costa over Dougherty Valley Approval*, EBMUD News (Jan. 13, 1993) (on file with authors).

²³ Waterman, *supra* note 16, at 126.

²⁴ See *id.*

²⁵ *Id.* at 127.

²⁶ *Id.* at 125-26.

This commitment was underscored when a newly constituted board of directors, minus the environmental majority, maintained this position in the litigation.²⁷ And in August 1995, just seven months after its new board was sworn in, EBMUD and the County Board of Supervisors settled the suits when the developers agreed to seek a new water supply to serve the new development.²⁸ A key to achieving this outcome was a long-term transfer of water from the Berrenda-Mesa Water Storage District in the Central Valley, which would provide a firm supply of water to Dougherty Valley.²⁹

II. A BRIEF LEGISLATIVE OVERVIEW

The very first bill introduced in California to address the land use and water supply conundrum was AB 455, a one-sentence bill in 1991 authored by then-Assemblyman Dom Cortese. The bill read as follows: “No lead agency shall approve a development project unless the applicant identifies a long-term, reliable supply of water to serve the proposed project.”³⁰ This initial attempt at codifying rules for land use and water supply took place just as the court battle over Dougherty Valley was getting underway.³¹ By then, EBMUD had concluded that CEQA was too vague to adequately address the land use and water supply nexus with the necessary specificity. Several other bills would be introduced between 1991 and 1995, but all of them either failed passage or were watered down by legislative compromise to the point where they had little impact.

Senator Jim Costa succeeded in passing SB 901 in 1995, the first assured water supply bill that would directly address the issue.³² SB 901 required that public water suppliers provide an assessment of water supply reliability for projects subject to the California Environmental Quality Act.³³ However, an EBMUD survey determined that in the six years following passage of SB 901, only two out of 255 projects obtained

²⁷ See *id.* at 127.

²⁸ *Id.*

²⁹ *Id.*

³⁰ *Id.* at 124-25.

³¹ *Id.* at 125.

³² See S.B. 901, ch. 881, 1995 Reg. Sess. (Cal. 1995), available at info.sen.ca.gov/pub/95-96/bill/sen/sb_0901-0950/sb_901_bill_951016_chaptered.html.

³³ Lincoln L. Davies, *Just a Big, “Hot Fuss”?* Assessing the Value of Connecting Suburban Sprawl, Land Use, and Water Rights Through Assured Supply Laws, 34 *ECOLOGY L.Q.* 1217, 1247 (2007).

a thorough water supply assessment.³⁴ More than half of those projects were not assessed because of loopholes in SB 901 and related laws.³⁵ “SB 901 also failed to create any obligation for localities to tie project approvals to water availability; simply assessing supplies was sufficient.”³⁶ As a result, local governments paid scant attention and the intent of the bill was derailed.³⁷

Recognizing the limits of SB 901, Senator Costa and Senator Sheila Kuehl prevailed, respectively, in passing SB 610 and SB 221 in 2001.³⁸ These complementary laws sought to accomplish a linkage of land use and water supply planning from two directions.³⁹ SB 610 effectively strengthened SB 901 by requiring water suppliers to include in the Urban Water Management Plan a description of all water supply projects and programs to meet total projected water use.⁴⁰ The bill requires the appropriate local agency, for any project subject to CEQA, to secure a Water Supply Assessment from the local water supplier that identifies the sources of water needed to supply that project, and, if water supplies are insufficient, to prepare plans for acquiring additional water supplies.⁴¹ The bill thus provides an early-warning system for developments by specifying an earlier, more conceptual stage at which specific water supplies have to be identified. SB 221 requires a local agency, at the tentative-map stage of land use planning for any development exceeding a threshold size, to secure a written verification from the local water purveyor that adequate supplies are available.⁴² This bill took a different tack than the CEQA-based bills by planting a “stop sign” for developments that could not identify an assured water supply.⁴³ Among its specific requirements, the bill:

- Requires that proof of the availability of a sufficient water supply be based on a written verification from the applicable public water system;

³⁴ See ASSEMB. COMM. ON WATER, PARKS AND WILDLIFE, S.B. 221 ANALYSIS, Reg. Sess., at 6 (Cal. 2001), available at www.leginfo.ca.gov/pub/01-02/bill/sen/sb_0201-0250/sb_221_cfa_20010625_153332_asm_comm.html.

³⁵ *Id.*

³⁶ Davies, *supra* note 33, at 1247.

³⁷ See ASSEMB. COMM. ON WATER, PARKS AND WILDLIFE, *supra* note 32.

³⁸ Waterman, *supra* note 16, at 152-53.

³⁹ See *id.*

⁴⁰ *Id.* at 154-55.

⁴¹ *Id.* at 152, 154.

⁴² *Id.* at 152.

⁴³ ISAAC, *supra* note 1, at 1.

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- Allows a city or county to find that sufficient water supplies will be available, even if the public water system does not provide written verification; and
- Requires that, when a public water system's written verification relies on projected water supplies, the verification be based on written contracts, adopted capital outlay programs, and infrastructure construction permits.⁴⁴

III. WHAT IMPACT HAVE THESE LAWS HAD?

While the opponents of these bills voiced dire predictions about how they would stifle development and add an unnecessary layer of regulation, the track record over the eight years since enactment has not borne them out. The authors are unaware of any systematic survey that has been conducted on the positive or negative impacts of these laws to date, so no final conclusion can be drawn.

The most noteworthy case regarding SB 610 was the 2007 decision by the California Supreme Court, *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova*.⁴⁵ The case involved an EIR for a 6,000-acre, master-planned community known as Sunrise-Douglas that would include 22,000 residential units and a future population of approximately 60,000 people near Sacramento.⁴⁶ As described by one commentator, the court observed that:

[N]one of the prior Court of Appeal[] decisions suggests that a guaranteed water supply and delivery facilities is necessary for an EIR to be adequate. Neither, according to the court, do the two 2001 water supply bills (SB 221 and SB 610) require assurances regarding long-term future water[] supplies at an early phase of planning for large land development projects.⁴⁷

The decision established, among other things, that a higher level of supply assurance would be required at a later stage of project development (i.e., under the provisions of SB 221), and that the two bills were mutually reinforcing in the objective of assuring adequate water

⁴⁴ Waterman, *supra* note 16, at 152-53, 155.

⁴⁵ *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova*, 40 Cal. 4th 412, 433-34 (2007).

⁴⁶ RONALD BASS, THE IMPACT REP, ADDRESSING WATER SUPPLY IN CEQA DOCUMENTS: COPING WITH *VINEYARD AREA CITIZENS FOR RESPONSIBLE GROWTH, INC. V. CITY OF RANCHO CORDOVA* 1 (2008), available at www.icfi.com/docs/Vineyard-CEQA.pdf.

⁴⁷ *Id.* at 3.

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supplies. The court majority averred that, taken together, SB 221 and SB 610:

demand . . . that “water supplies must be identified with more specificity at each step as land use planning and water supply planning move forward from general phases to more specific phases.” The plans and estimates that [SB 610] mandates for future water supplies at the time of *any* approval subject to CEQA must, under [SB 221], be replaced by firm assurances at the subdivision map approval stage.⁴⁸

Davies interpreted the ruling as holding that “while speculative sources and unrealistic allocations (‘paper water’) are insufficient” under CEQA, the water relied on by a project need not be available as a certainty, but need only “bear a *likelihood* of actually proving available.”⁴⁹ Further, “the necessary degree of confidence involved for approval of a conceptual plan is much lower than for issuance of building permits.”⁵⁰

A 2008 assessment by the California Research Bureau of the two bills considered whether the threshold of 500 residential units should be reduced.⁵¹ The author calculated that if the threshold had been 250 units, the increment of water would have been roughly 19,000-21,000 acre-feet with another 107 projects.⁵² In other words, approximately two and a half times as much water use would have been documented if the lower threshold had been in place. From a larger perspective, total new residential development over the three years considered in the assessment study required 243,665 acre feet of water to serve a total of 501,359 new units.⁵³ So even with a lower SB 221 threshold, less than 15% of the total new residential demand would be documented.⁵⁴ This research highlights that the great majority of residential developments in the state are of fewer than 500 units, suggesting that many projects are “escaping the net” provided by SB 221.⁵⁵ On the other hand, it signals the importance of the *Vineyard* ruling that all projects subject to CEQA must contain more specificity for water supply planning in later stages of

⁴⁸ *Vineyard Area Citizens for Responsible Growth, Inc.*, 40 Cal. 4th at 433-34.

⁴⁹ Davies, *supra* note 33, at 1254 (emphasis added).

⁵⁰ *Vineyard Area Citizens for Responsible Growth, Inc.*, 40 Cal. 4th at 433-34.

⁵¹ ISAAC, *supra* note 1, at 5-7.

⁵² *Id.*

⁵³ *Id.* at 2.

⁵⁴ *Id.* at 3, tbl. 2.

⁵⁵ *See id.*

environmental analysis.⁵⁶

Davies identifies five characteristics that an “ideal” assured supply law should have: compulsoriness, stringency, universality, granularity, and interconnectedness (with respect to the jurisdiction’s broader planning processes and conservation initiatives).⁵⁷ In assessing the two California laws, Davies concludes that their only major weakness is that they are insufficiently “granular,” meaning that too many projects escape the provisions of the law because of the high threshold number, at 500 residential units.⁵⁸ While there has been movement in the legislature to lower the threshold, it promises to be a difficult task politically, given how hard this issue was fought in 2001.

Several examples in different regions of California shed light on how the laws have encouraged a more holistic and creative approach to land use and water supply planning, with a strong emphasis on demand reduction. In many cases, developers, local agencies, and water suppliers are evaluating and implementing non-traditional solutions to boosting their water supplies – directly as a result of the requirements of SB 221 and SB 610. Each of the water providers described below faced water shortages that posed challenges to compliance with the assured supply laws. In a departure from the water supply paradigm of the 1970s, each of these water suppliers explored new supply options that would not have been contemplated in that earlier era and, furthermore, were not prescribed in the statutes.

The Eastern Municipal Water District in Riverside County put ten separate projects on hold between late 2007 and 2009 due to water supply limitations. As a result of implementing a tiered rate structure, area-specific Geographic Information System-based water budgets, and a strict landscaping ordinance for new development, the District was able to “firm up” its water supplies and approve all projects.⁵⁹

As the largest development ever proposed in Los Angeles County, the Newhall Ranch project has been a hotbed of court battles over growth for over two decades.⁶⁰ While the project has been through many iterations (including bankruptcy as of this writing), the current plan is for a new residential and commercial site covering 19 square miles for a

⁵⁶ See *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova*, 40 Cal. 4th 412, 433-34 (2007).

⁵⁷ Davies, *supra* note 33, at 1262.

⁵⁸ *Id.* at 1264.

⁵⁹ Telephone interview with Elizabeth Lovested, Senior Civil Engineer, Eastern Municipal Water District (Nov. 18, 2009).

⁶⁰ Davies, *supra* note 33, at 1275.

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community of nearly 70,000 people.⁶¹ Citizen groups have repeatedly challenged the project on various grounds, including the adequacy of the Urban Water Management Plan prepared by the Castaic Lake Water Agency, the water wholesaler for the area. The Valencia Water Company is an investor-owned water retailer that currently serves the city of Valencia and is the intended future supplier to the Newhall Ranch development. Its Water Smart program anticipates the future new demand by relying primarily on water budgets and tiered rates to help customers meet their water needs with maximum efficiency. In addition, 50% of Newhall Ranch's future demands are planned to be met with recycled water.⁶²

Kern County has confronted a number of challenging cases regarding water supply as many of the aquifers in the county have not been mapped or adjudicated, and supplies from the State Water Project have become highly unreliable in recent years. For all developments (not just those of 500 or more units), the County requires developers to bring additional water into the groundwater banks that they intend to use. Any water features, such as artificial lakes, must not rely on existing potable supplies, but bring their own new supply of water such as recycled water.⁶³ The County has also strongly encouraged small agencies that are anticipated to grow into the requirement to prepare an Urban Water Management Plan in advance of the statutory requirement.⁶⁴

The Tejon Mountain Village is a proposed resort community in the Tehachapi Mountains, which, if approved, will establish strict water budgets for each lot.⁶⁵ The developer has been required to secure 30,000 acre-feet in a Kern County water bank for its base supply, and to identify additional water that would be available in a worst-case supply scenario.⁶⁶

IV. EBMUD: THE TEST CASE FOR WATER-NEUTRAL DEVELOPMENT

EBMUD's service area extends over 331 square miles in the mostly

⁶¹ Friends of Santa Clara River, Newhall Ranch, June 2009 Update, www.fscr.org/html/newhall.html.

⁶² Telephone interview with Robert DiPrimio, President, Valencia Water Co. (Dec. 23, 2009).

⁶³ Telephone interview with Lorelei Oviatt, Division Chief of Kern County Special Planning Division (Jan. 4, 2010).

⁶⁴ *Id.*

⁶⁵ *Id.*

⁶⁶ *Id.*

urbanized eastern region of the San Francisco Bay Area.⁶⁷ While some growth is anticipated in the coming decades, the service area is urbanized and largely built out. As the requirements of SB 221 are not applicable to urban infill projects, EBMUD's obligations under the two laws have mainly been confined to Water Supply Assessments requested by local agencies for proposed projects under CEQA.⁶⁸ The water demands of nearly all the proposed projects are accounted for in the District's projections in its Urban Water Management Plan, pursuant to SB 610.⁶⁹

Notwithstanding the relatively low projected growth rate in the service area population, the future reliability of EBMUD's water supplies is challenged by several factors. EBMUD's water rights on the Mokelumne River, its primary water source, are junior to a number of others that will be increasingly exercised as growth occurs in the Sierra foothill counties.⁷⁰ Environmental requirements to restore degraded habitat in the Delta are becoming more stringent and will call for more flow releases by all water users over time.⁷¹ Finally, climate change threatens to inflict more frequent and more intense droughts in California, intensifying the already significant challenges to water supply reliability.⁷²

Even as the Dougherty Valley case was still being played out, other projects began to come online in EBMUD's service area that incorporated new solutions to the problem of water supply limits. In the effort to facilitate the approval for the construction, the concept of "water-neutral" development took root, in which no new water supplies would be required for the project, resulting in a "zero water footprint."⁷³ This would be achieved through developer-paid investments in water-use efficiency, both on-site and off-site.⁷⁴

The first generation of water-neutral residential projects in EBMUD's service area included The Meadows, Wendt Ranch, and Wiedemann Ranch developments in the San Ramon Valley.⁷⁵ Like

⁶⁷ See E. Bay Mun. Util. Dist., Service Area Map, www.ebmud.com/about-ebmud/our-story/service-area-map.

⁶⁸ See CAL. PUB. RES. CODE, § 21151.9 (Westlaw 2010); CAL. WATER CODE, § 10910 (Westlaw 2010); CAL. CODE REGS. tit. 14, § 15155 (2010).

⁶⁹ See E. BAY MUN. UTIL. DIST., 2005 URBAN WATER MANAGEMENT PLAN, ebmud.com/sites/default/files/pdfs/20080412%20-%20UWMP%202005%20Final%20Book.pdf.

⁷⁰ *Id.* at 2-1.

⁷¹ *Id.* at 2-6.

⁷² See Waterman, *supra* note 16, at 122.

⁷³ Interview with William Kirkpatrick, Manager of Distribution Planning, E. Bay Mun. Util. Dist., in Oakland, Cal. (Jan. 11, 2010).

⁷⁴ *Id.*

⁷⁵ *Id.*

Dougherty Valley, these proposed developments also required annexation into EBMUD's service area; however, they were smaller projects and proposed for parcels already surrounded on several sides by areas served by EBMUD.⁷⁶ Nonetheless, any proposed annexations were inherently controversial and strongly opposed by environmental interests. When EBMUD finally agreed to provide water to these projects, it was contingent on implementing water efficiency measures with a 1:1 offset ratio.⁷⁷ That is, the estimated water savings would equal the anticipated total water demand of the developments. Recognizing EBMUD's ongoing concerns with securing sufficient supplies to meet existing drought-year demands, the developers readily accepted this condition and agreed to finance the necessary efficiency measures.⁷⁸

In 2001, a consortium of four developers, consisting of Shapell Industries, Braddock and Logan Group, Lennar, and Ponderosa Homes, proposed a large residential development called the Camino Tassajara Integrated Project.⁷⁹ This was to be an approximately 1,200-home development, including schools, community centers, and associated buildings, about forty percent of which lay outside of EBMUD's ultimate service boundary.⁸⁰ Numerous obstacles lay in the path to approval for this project, not the least of which was the fresh memory of the battle over Dougherty Valley. In addition, EBMUD had only just concluded a decades-long process of securing a supplemental supply for drought years, with its Freeport Regional Water Project on the Sacramento River.⁸¹ The sizing of that project had not accounted for potential new demand outside EBMUD's service area, thus raising the bar to achieve a green light for developments such as Camino Tassajara.

With portions of the project area lying farther outside EBMUD's service area, this proposal was even more highly charged, as Dougherty Valley was still fresh in the public memory, and the court settlement had not been satisfactory to a number of environmental and public-interest groups.⁸² In addition, the state legislature was still in the throes of debate

⁷⁶ See, e.g., Contra Costa County, Local Agency Formation Commission Resolution 97-5 (Mar. 12, 1997) (annexing the "Wendt Ranch Territory" to EBMUD's service area).

⁷⁷ Interview with William Kirkpatrick, *supra* note 73.

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ Press Release, Senator Dianne Feinstein, "Joint Statement by the Mayor of Sacramento, Chairman of the Sacramento County Board of Supervisors, President of the East Bay Municipal Utility District Board of Directors and the Department of the Interior" (Dec. 8, 2000) (on file with authors).

⁸² Interview with William Kirkpatrick, *supra* note 73.

over SB 221 and SB 610. With the ground rules for water supply and land use still in flux, the negotiations over Camino Tassajara proceeded on a parallel track with the progress of the two bills.

After a spirited and lengthy public debate, the EBMUD board annexed this project on the condition that the four developers finance water efficiency features that would achieve a 2:1 offset.⁸³ In other words, twice as much water would be conserved through various efficiency measures as would be required to serve the development's needs. This higher requirement was intended to provide a stronger guarantee (with commensurate funding) that existing EBMUD customers would not face a higher risk of water shortages as a result of the EBMUD's agreement to serve Camino Tassajara.⁸⁴

The process of achieving the water savings for the offset involved two basic steps.⁸⁵ It began with identifying state-of-the-art efficiency measures on-site to minimize the water demand.⁸⁶ This included highly efficient water fixtures (such as front-loading washing machines) and irrigation systems, but also turf restrictions and installing recycled water systems for playfields and common areas.⁸⁷ This resulted in nearly a 30% reduction from the baseline demand, or almost 30% less water than a typical, comparable development would have required.⁸⁸ The revised "project water budget" then had to be offset by a two-to-one factor with other conservation actions implemented off-site.⁸⁹ In turn, each lot size was assigned a water budget based on meeting its indoor and irrigation needs after the requisite efficiency features had been factored in.⁹⁰

EBMUD staff identified the number and type of actions needed for this offset, and calculated the cost to accomplish them.⁹¹ This cost became the "Water Demand Mitigation Fee," which would be paid by the developers to finance the off-site actions.⁹² The steps in reducing the project's water demand are summarized in the table below, where "MGD" refers to "million gallons per day" of water.

⁸³ Rande Kanouse, Special Assistant to the General Manager, E. Bay Mun. Util. Dist., PowerPoint Presentation ("Ensuring Water Neutral Demand in New Developments") at the Planning and Conservation League Legislative Symposium, Sacramento, Cal. (Feb. 7, 2009) (on file with authors).

⁸⁴ *Id.*

⁸⁵ *Id.*

⁸⁶ *Id.*

⁸⁷ *Id.*

⁸⁸ *Id.*

⁸⁹ *Id.*

⁹⁰ *Id.*

⁹¹ *Id.*

⁹² *See id.*

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Table 1.

| Baseline Demand | On-Site Conservation Demand Reduction | On-Site Recycled Water Demand Reduction | Project Water Budget | Off-Site Demand Mitigation (2:1) |
|-----------------|---------------------------------------|---|----------------------|----------------------------------|
| 0.626 MGD | 0.035 MGD | 0.139 MGD | 0.452 MGD | 0.904 MGD |

Source: Author presentation, 2009.⁹³

Completing this evaluation required substantially more time and effort on the part of EBMUD staff than the typical plan review; however, Camino Tassajara was different both in scale and in kind than the urban infill projects that EBMUD customarily reviews. As a result of the planning process, the developers agreed to install the following on-site conservation measures:

- Dual-flush (high efficiency) toilets in every home.
- Front-loading clothes washers.
- Hot-water-on-demand systems for the 90 largest single-family homes.
- Submetering for common area irrigation & multi-family/senior housing.
- Xeriscaping and drip irrigation.
- Self-adjusting (evapotranspiration) irrigation controllers in all landscaped areas.⁹⁴

Recycled water was planned for irrigating common areas and parks, school play fields, and landscape around artificial-turf soccer fields. The recycled water would be provided by the San Ramon Valley Water Recycling Project, a collaborative effort of EBMUD and the Dublin-San Ramon Services District. Providing recycled water to Camino Tassajara offset the baseline demand by an additional 0.139 MGD.⁹⁵

⁹³ *Id.*

⁹⁴ *Id.*

⁹⁵ *Id.*

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The off-site efficiency measures constitute a major commitment on the part of both the developers and EBMUD. The “Water Mitigation Fee” paid by the developers for a residence with a standard meter is currently \$8,680.⁹⁶ For its part, EBMUD assumed responsibility for implementing and monitoring a variety of actions in different customer classes. In the residential and commercial sector, the Water Mitigation Fee finances the installation of efficient plumbing fixtures (toilets, showerheads), weather-based irrigation technology, laundry equipment, recycled and gray water systems, and the submetering of new multi-family units.⁹⁷ In the food-service and hospitality sectors, additional water savings are achieved with equipment such as self-contained (connectionless) food steamers, commercial dishwashers, pre-rinse spray valves, and air-cooled ice machines.⁹⁸ Finally, customers in the health-care sector could be equipped with more efficient X-ray film/photo processors and steam sterilizers.⁹⁹ All efficiency measures, whether on-site or off-site, must have measurable results that do not rely solely on customer behavior (e.g., shorter showers) to achieve real savings.

V. COMPLIANCE AND ENFORCEMENT

While the developers were responsible for installing on-site water-efficient features, the homeowners’ associations would be responsible for ongoing compliance by homeowners. Ensuring compliance is critical to achieve the projected water savings over time. Without effective enforcement, homeowners could deliberately or passively disable the efficiency features, undermining the assurances EBMUD needs for its other customers that they would not be subject to water rationing as a result of the annexation.

For these reasons, EBMUD and the developers gave very careful scrutiny to designing a reliable and fair compliance mechanism.¹⁰⁰ The parties ultimately agreed that EBMUD should not be responsible for compliance at the development, but rather that this obligation should be assumed by the appropriate homeowners’ association (HOA).¹⁰¹ Under

⁹⁶ EBMUD Schedule of Rates and Charges to Customers of the East Bay Municipal Utility District, Schedule N, Water Demand Mitigation Fees, 14-E (adopted Aug. 10, 2009), *available at* ebmud.com/search/ebmud/EBMUD%20Schedule%20of%20Rates%20and%20Charges%20to%20customers%2C%20Schedule%20N.

⁹⁷ Kanouse, *supra* note 82.

⁹⁸ *Id.*

⁹⁹ *Id.*

¹⁰⁰ *Id.*

¹⁰¹ Little & Saputo, Declaration of Covenants, Conditions, and Restrictions of Alamo Creek,

state law, each HOA must adopt a body of rules called “Covenants, Conditions, and Restrictions” or CC&Rs.¹⁰² Attorneys from both sides worked intensively to craft water-use efficiency requirements in the CC&Rs that would apply both to the HOAs, particularly regarding the landscaping and irrigation of common areas, and to lot owners. For example, lot owners must use only high-efficiency washing machines, maintain weather-sensitive irrigation controllers, and limit the turf area to twenty-five percent of the landscaping.¹⁰³ In practice, however, the water budget, whether for a specific lot or for a common area, is the sole measure by which compliance is gauged.¹⁰⁴ A HOA that maintains *overall* water use within its allotted project water budget is considered to be in compliance. If water consumption exceeds the project water budget by twenty percent in a given year, the HOA would then be required to pay an additional Water Demand Mitigation Fee on the total excess to EBMUD.¹⁰⁵ The CC&Rs for Alamo Creek, Shapell’s subdivision within Camino Tassajara, state:

The Association shall request EBMUD to provide the Association with individual water use information for each water meter that provides service to the Project. By acceptance of a deed to a Lot, each Owner hereby consents to the release of such information by EBMUD to the Association.¹⁰⁶

Based on this information, the HOA is required to determine which individual lots exceeded their water budget during the year, and whether water usage in the common areas exceeded the water budget. Lot owners who have exceeded their individual water budgets are then subject to Water Surcharge Assessments from the HOA, based on a schedule contained within the CC&Rs.¹⁰⁷ The HOA may also enforce such assessments by liens. An unusual feature of these CC&Rs was that EBMUD was made an express third-party beneficiary such that no changes in the water efficiency provisions could be made without EBMUD’s formal consent.¹⁰⁸ For its part, EBMUD has committed to an

40-41 (May 19, 2006) (on file with authors).

¹⁰² See Davis-Stirling Common Interest Development Act, CAL. CIV. CODE §§ 1350-1378 (Westlaw 2010).

¹⁰³ Little & Saputo, *supra* note 101, at 22.

¹⁰⁴ *Id.* at 40.

¹⁰⁵ *Id.* exhibit D.

¹⁰⁶ *Id.* at 30.

¹⁰⁷ *Id.* exhibit D.

¹⁰⁸ *Id.* at 2, 45.

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annual review of the water budgets with each HOA in the development.¹⁰⁹

It is essential to emphasize that the HOAs, which in many cases have minimal staff, are not expected or required to “police” the various conservation provisions in the CC&Rs. Extraordinary effort was made by all parties in the planning process for Camino Tassajara to “build in” design features that would maximize the chances for ongoing water efficiency. Monitoring compliance with the water budget for each HOA serves as the proxy for ensuring the overall water-conservation objectives of the project.¹¹⁰

In conclusion, enforcement that was closest to the site was deemed to offer the best chance of success. In the case of Camino Tassajara, the CC&Rs will ensure that the water savings anticipated from the array of demand mitigation measures will meet EBMUD’s fundamental condition for approving the project—that there would be no impact on the water supply of its existing customers. In the effort to facilitate new, sustainable development, it is crucial not to run the risk of relying once again on “paper water” that could be created with unenforceable water-conservation offsets.

VI. LESSONS LEARNED

Camino Tassajara represents a unique partnership in water-conservation offsets, one of the first of its kind in the United States. Targeting less-than-zero net water use provides a cushion for ensuring sustainable water neutrality, and utilizing state-of-the-art measures indicates that on-site water savings of twenty to thirty percent are possible. The developer funding of off-site mitigation programs provides the means to “wring out” additional savings to achieve the target offset, providing benefits both to new and existing customers.

As pioneers in water-neutral development, EBMUD staff “learned by doing” and established several guidelines for similar efforts in the future. Successful negotiations hinge in part on early communication with land use agencies and developers to review all water-efficiency options. The project applicants were also persuaded by EBMUD’s emphasis on proven technologies to achieve expected water savings and performance. The time taken to educate the developers about viable options such as high-efficiency devices and drought-tolerant landscaping

¹⁰⁹ Interview with Richard Harris, Manager of Water Conservation, E. Bay Mun. Util. Dist., in Oakland, Cal. (Jan. 10, 2010).

¹¹⁰ *Id.*

choices produced a successful result. Developers, architects, and consultants all benefited from assistance with reference materials on specifications and sources for products, plants, and other information to meet the water-offset requirement. Recognizing the new ground broken by this project, Land Development Magazine named the Alamo Creek subdivision its “Sustainable Visionary Project of the Year,” and other national honors have acknowledged its innovative, sustainable and water-efficient design.¹¹¹

In the wake of the Camino Tassajara experience, EBMUD’s recommended “recipe” for similar efforts in the future would likely include these steps:

- Implement a “WaterSmart from the start” principle – early involvement with the developer in project design;
- Avoid or reduce the environmental and economic impacts of providing for new demand;
- Demonstrate water-efficient fixture and landscape features, with lower impact from outset;
- Minimize the need for home retrofits (at higher costs) to get water savings later;
- Improve water conservation cost-effectiveness;
- Optimize recycled water supply; and
- Improve water supply reliability.

Even with the extraordinary investment of time and money in designing Camino Tassajara, success is not guaranteed. As of the time of this writing, the development is only fifty-percent built out, and while EBMUD is working with the HOAs on preliminary review of their individual water budgets, final project water demand and formal compliance with the demand mitigation provisions is not expected to be reached for several years.¹¹² EBMUD staff continues to inspect the construction sites and interact with the developers to ensure that the terms of water service are being met.

In 2007, EBMUD adopted new requirements that all commercial projects and residential developments of more than two units meet stringent conditions for water service, in order to “build in” water-use efficiency.¹¹³ For example, both toilets and washing machines must be

¹¹¹ *Id.*

¹¹² *Id.*

¹¹³ See EBMUD Regulations Governing Water Service to Customers of the East Bay Municipal Utility District, Section 31 Water Efficiency Requirements (revised July 1, 2009),

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high-efficiency models that exceed the existing plumbing code. For certain outdoor uses, automatic, self-adjusting irrigation controllers are required, and the turf area is generally limited to twenty-five percent of the irrigated landscape.¹¹⁴ EBMUD has established a successful track record of working with developers at the plan-review stage, when these design features can be most easily accommodated. In effect, the Camino Tassajara experience has prompted a new approach to planning all development served by EBMUD, with long-term benefits in demand reduction throughout the service area.

VII. THE WAY FORWARD

It may be that California has become a laboratory for experimentation at so many levels out of pure necessity. Few other places in the world have grappled with the same pace of cultural and economic change, matched by an extraordinary endowment of human and natural capital. Arguably, California as we know it would not be possible without the unmatched water supply infrastructure that undergirds the economy. Furthermore, the dual trends of continued growth and water shortages demand a deep reorientation toward sustainability. Water-neutral development in the future may not follow the exact example set by EBMUD and its partners, but this model for development offers a viable alternative in water-short areas, assuming a renewed future demand for new housing.

The California Legislature has taken notice of this trend, with four different bills introduced into the Assembly since 2008¹¹⁵ that sought to create ground rules for water-neutral development. As of this writing, none has passed the legislature, but much thought has been given to how the “rules of the game” should be framed. Among the key questions that have surfaced so far are the following:

- Which kinds of water efficiency measures qualify as actions that exceed mandatory requirements, taking note that local ordinances may vary in their requirements?
- What is an appropriate offset ratio to ensure that a water supplier’s existing customers do not have to sacrifice supply reliability to enable growth as time goes by? Is a 1:1 ratio

available at ebmud.com/sites/default/files/pdfs/water_efficiency_requirements_1.pdf.

¹¹⁴ *Id.* at 31-A, 31-B, 31-C.

¹¹⁵ A.B. 2153, 2007-08 Reg. Sess. (Cal. 2008); A.B. 2219, 2007-08 Reg. Sess. (Cal. 2008); A.B. 300, 2009-10 Reg. Sess. (Cal. 2009); A.B. 1408, 2009-10 Reg. Sess. (Cal. 2009). East Bay Municipal Utility District sponsored A.B. 1408, which failed passage.

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adequate as a standard, or should this be negotiated on a case-by-case basis? How would potential future adverse impacts to existing communities be addressed via CEQA?

- What is the obligation of the developer to ensure ongoing compliance with the water-savings targets after a project has been built out and the units sold? Should there be a time limit to this obligation?
- What is the best way to inform new homeowners and subsequent buyers of their obligations?
- Should the implementation of off-site conservation measures be confined to the water supplier's service area, or should the benefits be extended to low-income communities elsewhere? If the latter, what is the incentive for a water supplier to participate in such an arrangement?
- How is compliance monitoring best accomplished, and by whom? How will this activity be financed?
- What happens if a development fails to stay within its water budget?
- Most fundamentally, how can we ensure that "paper savings" become real savings?

The issue EBMUD faced squarely beginning in the late 1980s – preventing homes from being built using "paper water" – remains with us today. It will be essential to settle on fair and practical answers to these questions to ensure that provisions for water-offset measures are effective, verifiable, and durable in helping California communities meet their water supply reliability needs.