

“Paper Water” — Does Orange County Have A Reliable Future?

Summary

“Paper water” is an illusion. It is a term used in the water industry that represents an entitlement, existing only on paper, which agencies can expect to receive from state and federal water projects based on projections and expectations. The gap between allocated “paper water” and available “real water” can be dramatic. This term may succinctly define Orange County’s water future as judicial rulings systematically continue to remove available supplies from the reach of Orange County’s consumers.

The Grand Jury has learned from multiple, expert sources that Orange County’s water supply is very vulnerable to extended outages from catastrophic disruptions and other long-term system failures. These are issues above and beyond concerns of drought. Critical parts of the water supply infrastructure upon which much of California and Orange County relies is in a deplorable state of disrepair and neglect.

The Grand Jury investigated how Orange County’s cities, water districts, residents and businesses are—or are not—planning for and responding to a profound redistribution of water supplies away from Orange County, with the potential of affecting its residents’ quality of life for generations.

The following excerpts from this report highlight some significant issues that led the Grand Jury to reach conclusions from which it has posed a series of key findings and recommendations:

On the State Water Project...

“Predictions are for a 67% chance of drastic levee failures sometime during the next 25 years. In a seismic failure, scientific models predict massive areas of the Delta inundated with a reverse flow of seawater from the San Francisco Bay. Fresh water in the Delta will be rendered useless for agricultural irrigation. Moreover, the drinking water supply to southern California would be destroyed for two to four years, or longer.”

On water from northern California...

“...for the first time in Metropolitan’s 80-year history, the agency is projecting a significant drawdown in its water reserves. . . . Metropolitan’s water reserves are being rapidly depleted and the ability to refill its reservoirs has become increasingly problematic.”

On water from the Colorado River...

“The assumption that ... we will continue to find new sources of water ... is wrong. Those days are over Every source of water coming into southern California from afar ... is increasingly unreliable.”

On coordination of land-use planning with water resources planning...

“... land planning and water resources planning have distinctly different, highly complex parameters that drive their technical analyses and decision-making processes.

The unique complexities of these professions tend to deter either side from interacting effectively.”

On public awareness...

“...the residents of Orange County do not seem to understand the perilous conditions within which they live. Orange County water consumers have not, to any significant degree, experienced long-duration water supply outages. The public’s consideration for water supply typically starts and stops at the faucet handle as they expect, with every turn, dependable delivery of high-quality, safe, clean water.”

On water reliability for south Orange County...

“Approximately 95 percent of south Orange County’s water is imported from northern California and the Colorado River and ... sent 35 miles to south County via two, aging pipelines, traversing active seismic faults.”

On emergency water supply planning...

“The current emergency relief through Orange County water reliability planning is approximately ... 10 percent of what is needed. [The remainder] will arrive when a planned array of pump, pipeline, treatment and reservoir projects is built ... as well as [having] available brackish and seawater purification systems ... for south Orange County.”

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On Orange County’s groundwater resources...

“Water experts ... universally praise the innovative and effective methods by which Orange County has protected and managed its innate water resources. In particular, its groundwater aquifer is an incredibly rich natural resource that is the envy of many areas in the country challenged by depleted and damaged water tables.”

On the governance of Orange County’s fragmented, autonomous water resources agencies...

“The MWDOC member agencies need to resolve their differences and dedicate themselves to a unified vision, whether it be continuing with MWDOC under a modified agreement or creating a new, unified, County-wide water authority.”

This report offers several ways to strengthen government processes whereby the residents and decision makers of Orange County will be knowledgeable about the County’s water supplies. It also pinpoints areas needing attention by water agencies to become as prepared as possible for any potential adverse water supply event.

These issues are discussed more fully in this report. It is important to recognize that the Grand Jury found all the agencies it contacted to be performing their duties professionally and with due diligence. This is reassuring but it neither solves the underlying problems nor absolves the officials. More needs to be done.

Reason for Investigation

News reports and alarming warnings from knowledgeable wa-

ter officials throughout California have raised serious concerns: (1) Supply deficiencies are becoming critical due to a prolonged drought. (2) Court rulings intended to protect environmental impacts in the Sacramento-San Joaquin Delta and redistribute water rights from the Colorado River have forced drastic supply cutbacks. (3) Water delivery infrastructure is in a precarious and deteriorating condition and subject to severe damage in the event of seismic and other natural forces.

The current, unusually severe economic contraction affecting the home-building market has slowed population growth statewide. If conditions were different, a more controversial public policy debate would likely be occurring over the accuracy of adequate water supply projections to serve these developments. This situation is in dramatic contrast to major projects receiving environmental approval even as recently as within the past five years.

The Grand Jury reviewed environmental and planning documents that were approved in 2004, for 14,000 homes in southern Orange County. Water supply for this extensive, planned community received virtually no overt concern aside from a brief discussion to address growth-inducement and emergency outages within the supplying water district’s system.¹ No comments on water supply were found from **any** environmental agency, in contrast to the project’s extensive debate over traffic/transportation and flora/fauna impacts.

Accurate water supply projections are elusive at best and are the reason we are in our current situation. A “water emergency” is a result of a complex interrelated series of actions and conditions.

Conservation - and then rationing - are the first steps in controlling the situation. However, increased demand is inherent in population growth. Legislation was enacted within the past eight years to increase the responsible coordination between approval of projects that induce growth in population and identification of water supplies to support increased demand. **California Government Code** Sections 66455.3 and 66473.7 requires identification of adequate potable water supplies to serve a planned development project based on at least 20 years of historical data. **California Water Code** Sections 10631, 10656, 10910, 10911, 10912, 10915 and 10657 require Water Supply Assessments (WSA’s.) These laws, commonly referred to respectively as SB 221 and SB 610, are viewed by some as environmentalist-driven mechanisms for curtailing growth.² Other water experts involved with the crafting of these bills have indicated that the legislation does not go far enough since only projects over 500 dwelling units are required to comply with these laws. Regardless, these measures have helped to place a greater importance on responsible planning, identifying dependable, long-term water supplies preceding major development approvals. This seems not only reasonable but responsible.

The Grand Jury desired to assess the following:

- whether and to what extent the County’s water supplies are vulnerable to major disruption
- to what extent the residents and decision makers are aware of the County’s water supply conditions
- how the development project

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approval process is conducted in Orange County with respect to water supplies

- what measures are being taken by water managers to ensure the integrity of the County’s water delivery systems
- how public awareness, the project review process and the County’s water system integrity may be strengthened

Method of Investigation

As part of this investigation, the Grand Jury researched numerous documents obtained from expert sources and interviewed representatives of numerous agencies. Agencies and their staff consulted during this study included the following:

- Major water retailers (water districts and cities) both in Orange County and adjacent counties
- Water wholesalers such as the Municipal Water District of Orange County (MWDOC)
- Groundwater purveyors both inside Orange County and in adjacent counties
- Local agency planning departments
- Renowned academic authorities who have studied California’s unique water resources issues for decades.

The Grand Jury visited a number of local facilities that have demonstrated innovative means of producing “new” water such as Orange County Water District’s (OCWD’s) Groundwater Replenishment System and Irvine Ranch Water District’s Deep Aquifer Treatment System. It observed the state of southern California’s water supply on a three-day inspection of the immense State Water Project. This system, along with the Colorado

River Aqueduct, conveys at least 50 percent of the water consumed by Orange County. The study included review of authoritative textbooks and documentaries that provided an overview of current conditions as they affect Orange County, the region and the nation.

From these interviews and investigations, a repetitive pattern of concern emerged over many key issues. They were seen to threaten the availability of adequate water supply to support California’s growth.

Background and Facts

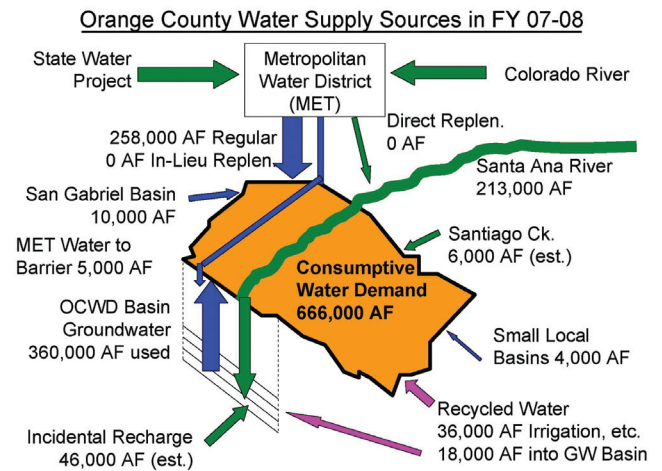
Organizational Structure Delivering Orange County’s Water Supply

Orange County relies heavily on imported water for its on-going supply as well as much of its groundwater storage replenishment needs. Exhibit A depicts the sources of supply and flow volumes. Imported water from Metropolitan Water District of Southern California (Metropolitan) constitutes over one half of Orange County’s supply.

Metropolitan pumps its supply through aqueducts from the State Water Project in northern California and through pipelines from the Colorado River along California’s easterly border with Nevada and Arizona. Persistent drought conditions have compromised the State Water Project’s as well as the Colorado River’s supplies. Reservoirs and dammed storage have

reached reduced levels that are worrisome. Diamond Valley Lake, Metropolitan’s newest reservoir built to provide emergency storage, is today less than one-half full.

Exhibit A

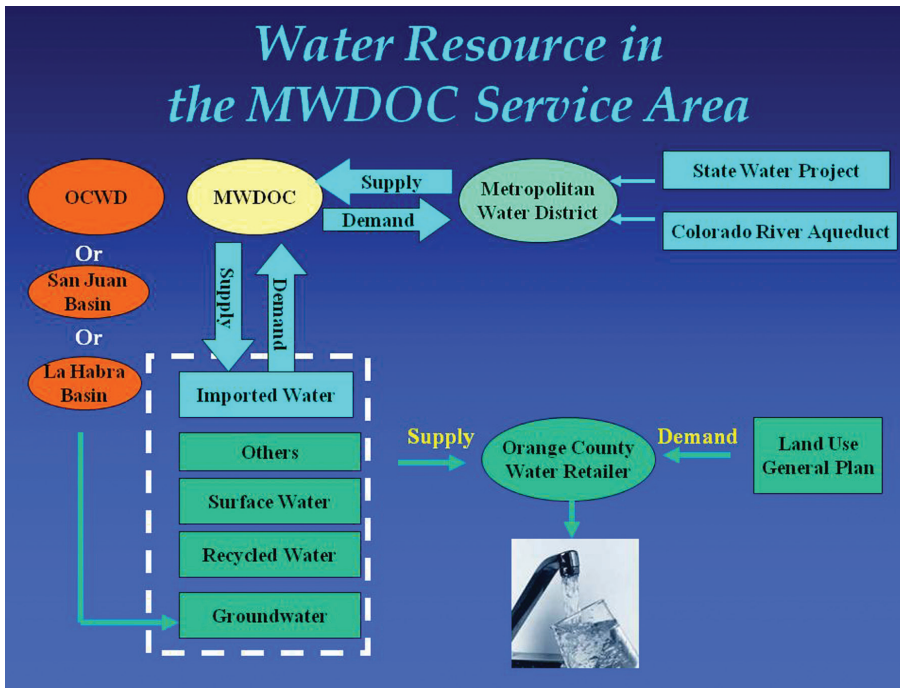


Most of the immediate impact of this has been seen in cutbacks for agricultural uses and groundwater replenishment. Added concerns have arisen most recently over the December 14, 2007 ruling by U.S. District Court Judge Oliver W. Wanger in what has become known as the “Wanger Decision” (Case No. 1:05-cv-1207 OWW GSA) which adversely affects the State Water Project. The Colorado River water allocations have also suffered significant court decisions adverse to southern California.

Exhibit B depicts how water is distributed within Orange County. MWDOC is the predominant intermediary that buys *imported* water from Metropolitan and sells it to Orange County’s retail water agencies (cities and special districts). Note that OCWD is a major provider of *groundwater only*, generally limited to the cities in the north Orange County area.

Exhibit C demonstrates how widespread MWDOC’s influence is

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Orange County's Precarious Water Systems

Orange County's water supplies, from all imported sources, are in great peril. Metropolitan has developed an extensive infrastructure backbone to bring water to southern California. It is the predominant supplier of imported water to every area within Orange County. These supplies are completely dependent on two primary, man-made conveyances: (1) the State Water Project which taps the Sierra Nevada mountain range snow melt in northern California and (2) the Colorado River Aqueduct which intercepts

Exhibit B

in Orange County. MWDOC represents nearly every water agency in Orange County on the Metropolitan Board of Directors. However, three cities (Anaheim, Fullerton and Santa Ana) are direct member agencies to Metropolitan. MWDOC's role as the wholesaler to every corner of the County is an important facet of this investigation.

Exhibit D (on the following page) depicts the general boundaries of the Orange County groundwater basin administered by OCWD. This water is accessible, by law, only to cities and special districts overlying the 350-square-mile service area that serves 75 percent of the County's three million residents. Typically, the agencies with groundwater rights draw approximately two-thirds of their supplies from the groundwater basin and purchase their remaining demand from Metropolitan via MWDOC. Three cities (Anaheim, Fullerton and Santa Ana) purchase their water from Metropolitan directly.

Exhibit C



MWDOC Service Area and Member Agencies

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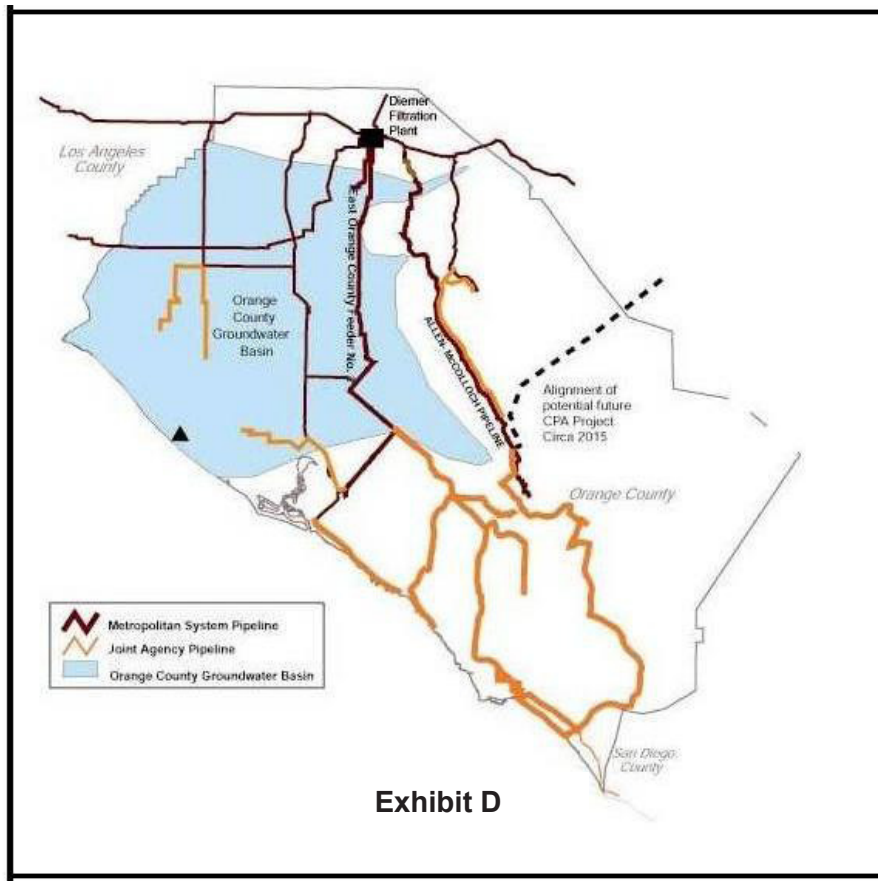


Exhibit D

runoff from the west slopes of the Rocky Mountains, as far north as Wyoming, via the Colorado River.

The current water supply situation in Metropolitan's service area and throughout the state of California is critically tenuous and signals 2007-2009 as one of California's most severely-dry three-year periods in over 100 years. In addition to the lack of precipitation in early 2008, the following warm spring season resulted in early depletion of the mountain snowpack. This is considered the largest "reservoir" for California's water supply to see the state through the ensuing seasons. Without a substantial snowpack leading into spring, California must rely on its man-made reservoirs and stored groundwater to survive the dry seasons. Even though 2009 snow pack achieved 80 percent of normal volume, it cannot overcome the

depletion caused by the two, previous, record-low years, especially when hobbled by the court-enacted pumping restrictions. Until now, consumers' conservation efforts, combined with water managers' programs to install low-flow fixtures, agricultural usage cutbacks and other restrictions, have been effective in substantially reducing consumer demand. Unfortunately, this has finally fallen short and local water agencies are predicting a 50% likelihood of embarking on water rationing as summer 2009 approaches. In fact, several agencies have already instituted the first stages of rationing as a result of Metropolitan's adopted Water Supply Allocation Plan which takes effect July 1, 2009.

The 2008-2009 Grand Jury is extremely concerned that residents, planners and decision makers

in Orange County are not doing enough to recognize and publicize the perilous condition of our water supplies. They are not giving this issue adequate consideration in the process of approving plans for the growth of Orange County.

The State Water Project

Metropolitan, on average, does not have sufficient water supplies to meet demands. Watersheds are currently providing 650 thousand acre-feet (about 212 billion gallons) lower than normal runoff due to reduced rainfall and snowpack. The Wanger Decision ordered the State Water Project to reduce pumping from the Sacramento-San Joaquin River Delta due to identified, adverse environmental impacts on a threatened fish species, the Delta smelt. In April, 2008, Judge Wanger issued a second ruling, further cutting water exports to protect the declining populations of Chinook salmon³

Judge Wanger's rulings resulted in Metropolitan curtailing delivery of 500 thousand acre-feet (about 163 billion gallons) of water from northern California in 2008. These lost resources would have provided water for over seven million Californians for a year. As a result, for the first time in Metropolitan's 80-year history, the agency is projecting a significant drawdown in its water reserves. Before the Wanger Decision, projections were for surplus conditions 70 percent of the time and reserve drawdowns required 30 percent of the time. Now, this projection is reversed with surplus conditions expected 30 percent of the time and drawdowns 70 percent of the time. Metropolitan's water reserves are being rapidly depleted and the ability to refill its reservoirs has become increasingly problematic.

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Located in California’s Butte County, Lake Oroville is the farthest upper reach of the State Water Project. Exhibits E-1 and E-2 provide a startling contrast of the drastic changes that had occurred in fewer than three years. In February 2009, Oroville Dam’s storage was at 30 percent of its capacity. Because of near-average precipitation this year, the reservoir has recovered to nearly 60 percent of its capacity. But even with some gains in rainfall and snowpack in 2009, conditions are still below normal and the drought continues to stifle the buildup of reserves.

No State Water Project water delivered to southern California and Orange County arrives without traversing the Sacramento-San

Joaquin Delta (Exhibit F, on the following page). The Delta is a convergence of five major rivers in the Central Valley which have been tamed by mining and agricultural operations dating back to the mid-19th century. This was accomplished by building what is now an 1,100-mile “spider web” of predominantly privately owned, non-engineered, earthen levees. From its accumulated data, Metropolitan has asserted the following with regard to the Delta:

- There have been at least 166 documented levee failures over the last 109 years, causing geotechnical experts to describe the situation in a rather cynical manner: There are two types of levees in the Delta. There are those

that *have* failed and there are those that *will* fail.

- Predictions are for a 67% chance of drastic levee failures sometime during the next 25 years. Most likely, the failures will be associated with either a 6.7 or greater magnitude seismic event, severe earth subsidence or a 100-year intensity flood.
- In a seismic failure, scientific models predict massive areas of the Delta inundated with a reverse flow of seawater from the San Francisco Bay. Fresh water in the Delta will be rendered useless for agricultural irrigation. Moreover, the drinking water supply to southern California would be destroyed for two to four years, or longer.
- The potential for calamity has been recognized by recent Legislature budget discussions. It also has received a high priority with the Governor when he created the “Blue Ribbon Task Force” that led to the 2007 *Delta Vision* report. However, action for urgent, preemptive levee restorations has not materialized.

Even without a catastrophic incident, experts are forewarning of major, long-range degradation of the Delta ecosystem. California needs to prepare for the inevitable end of the Delta’s role as a massive drinking water conveyance as its salinity increases to non-potable, brackish levels.³

The Colorado River Aqueduct

The original allocations of Colorado River water to the southwestern states and Mexico were sealed by the 1922 Colorado River Compact and the Boulder Canyon

Exhibit E-1



Lake Oroville
June 2005: 597.12 Feet Elevation - 3,192,262 Acre Feet

Exhibit E-2

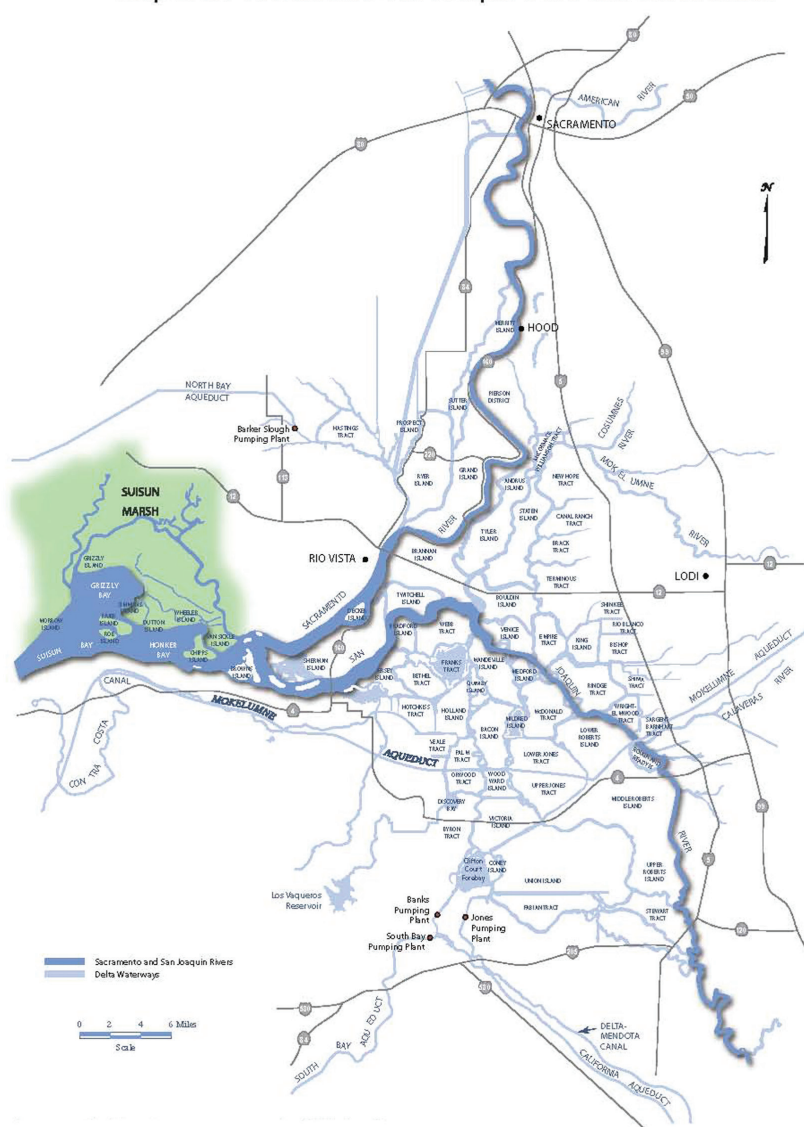


Lake Oroville
February 2006: 719.86 Feet Elevation - 1,412,524 Acre Feet

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Exhibit F

Map of the Sacramento-San Joaquin Delta and Suisun Marsh



Project Act of 1928. In retrospect, water planners today recognize that those allocations were based on overly optimistic assumptions. The historical hydrographic data of that time was unusually wet. Also, the population projections for all the now clearly-identified high-growth areas of the southwestern states, and southern California in particular, were notoriously short sighted.⁴

Two critical forces have created major problems for the viability of the Colorado River: (1) The Color-

ado River Basin at Lake Powell has been suffering from severe drought conditions since October 1999. (2) The 2003 Colorado River Quantification Settlement Agreement, involving Metropolitan, San Diego County Water Authority, Coachella Valley Water District, Imperial Irrigation District and numerous other federal, state and regional agencies and interest groups have redistributed the available water within southern California. Deliveries to Metropolitan are down some

400,000 acre-feet (130 billion gallons) as a result.

Considering the plight of our Colorado River allocation, Dr. Peter Gleick, President of the Pacific Institute, in 2008, observed the following: “The assumption that southern California can grow as much as it wants and that we will continue to find new sources of water ... is wrong. Those days are over. ... Every source of water coming into southern California from afar ... is increasingly unreliable.”⁷⁴

Researchers have posed the concern whether the Colorado River, which provides up to three-fourths of Metropolitan’s supply, will cease to be a viable water source within the next 20 years. Recently, U.S. Secretary of the Interior Ken Salazar, when he was a Senate member of the Energy & Natural Resources Commission, asserted that water in the United States has always been taken for granted. As a result, as might be expected, the only time people understand the importance of water is when they don’t have it. In summary, experts have sent this warning: “The water crisis is much more significant to the world than is the energy crisis... Try living without water...it doesn’t work.”⁷⁴

The following is a synopsis of comments uncovered by the Grand Jury in the context of the future of the Colorado River:

- Mark Pisano, past Executive Director of the Southern California Association of Governments, in the context of water supplies, predicted the following: “We’re going to grow differently in this century than we did in the past century. ... [L]arge regions are going to

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have to be much more sensitive to what supports them environmentally so that they're sustainable ... and if they're not sensitive to [this] they're going to have real difficulty.”⁴

- Secretary Salazar stated that, in communities where there is not a dependable, long-term source of water, there will be “... an explosion of controversy because land-use planners have not done what they should have done.”⁴
- Scripps Institution of Oceanography researchers Tim Barnett and David Pierce, wrote a paper, *When will Lake Mead go dry?*, that was accepted for publication in the journal *Water Resources Research*, by the American Geophysical Union. They concluded that, because of allocation demand, aggravated by climate changes, the reservoirs on the Colorado River system will never fill again. They further predicted that there is a 50-percent probability Lake Mead will be dry by 2021. Barnett stated that they “... were stunned at the magnitude of the problem and how fast it was coming at us. ... Make no mistake, this water problem is not a scientific abstraction, but rather one that will impact each and every one of us that live in the Southwest.”⁵

Environmental Consequences

One internationally acclaimed water resources expert has experienced and analyzed the effects of severe water shortages worldwide. He offered what he considers to be one of the earliest signs and one of the most tragic long-term, damaging outcomes that occur when regions are faced with water crises.

Specifically, where water supplies are chronically unable to meet demand in spite of all conservation, rationing and similar cutbacks, essential surface flows begin to drain from environmentally sensitive habitats. Wetlands areas begin to desiccate and degrade. Groundwater basin overdrafting creates irreversible geological subsidence, permanently damaging the basin's ability to recover. If water supply desperation reaches those levels, fundamental changes in that aspect of the ecosystem could occur.

Land-Use Planning and a Crisis-Oriented Public

How do California's statewide water supply issues directly affect Orange County? The Grand Jury found that there are two, equally important points. First, long-range water resources planning takes a major degree of innovation and creativity to establish dependable sources of diversified supply. This includes bringing “new” water to serve new homeowners in the growth areas, and the industry and commerce that sustains them. It also requires a degree of good data analysis to accurately project hydrologic and climatologic data decades into the future.

Second, the water resource agencies, the land-use planning agencies and the consumers all need to be equally focused on the possibility of major supply outages to which the County is vulnerable. The Grand Jury found that the water agencies and, in fact, the water industry as a whole, are keenly aware of the inadequacies and potentially disastrous circumstances California faces. The sense of urgency could not be higher. But, it seems that gaining the attention of a crisis-oriented public is a different story.

The Grand Jury found that planning agencies dealt with these concerns very differently. In fact, water issues seem to be of no more consequence than a noise impact study or a traffic impact analysis. Water resource issues in Orange County demand more than a check box on the environmental review form. Based on what was observed in this investigation, this has not been the case.

Johnson and Loux described this issue as a “black box” phenomenon⁶ wherein the professions of land planning and water resources planning have distinctly different, highly complex parameters that drive their technical analyses and decision-making processes. The unique complexities of these professions tend to deter either side from interacting effectively.

Adding to the professionals' difficulties, the residents of Orange County do not seem to understand the perilous conditions within which they live. Orange County water consumers have not, to any significant degree, experienced long-duration water supply outages. The public's consideration for water supply typically starts and stops at the faucet handle as they expect, with every turn, dependable delivery of high-quality, safe, clean water.

The perception that water supplies are taken for granted is an understatement. Water agencies' conservation messages are successfully making consumers more aware of their responsibility to conserve water resources. But, this is merely a fraction of the larger, more compelling issue. Conservation happens **after** the problem has been identified. Consumers need to be cognizant of the impacts of

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development and the need for decisions **before** land-use decisions are made.

Case Studies

The Grand Jury interviewed key staff and studied voluminous public records of land-use applications and environmental reviews pertaining to several, recent, major development proposals in various areas of the County. In each case, the entire land-use decision-making process as it relates to water resources, one of the County’s most precious and precarious commodities, was found to be very disappointing. When analyses were required, land-use and development decision makers deferred to the water agencies to solve the water issues. Typically, the input came via a WSA, after which it quickly disappeared from the public dialogue. Public input to express any shred of concern for—or to even question—the long-term viability of potable water resources was conspicuous by its absence. If not relegated to a separate volume of appendices, the water supply reports were found buried hundreds of pages behind other, more “visible,” issues raised by vocal constituents, never to be heard from again in the public process.

In these case studies, the Grand Jury could find little, if any, expressed concern from any person or responsible agency. This begged the question as to whether the public process is flawed in light of the gravity of our water resources predicament. It also substantiated the inference that, aside from the caveats involved, “...the duty to serve is often viewed as the first, foremost, and perhaps only mission of a water-purveying agency.”⁶

Case Study #1: County of Orange - Rancho Mission Viejo

(The Ranch Plan) Development

The Rancho Mission Viejo development (known as “The Ranch Plan”) is in south Orange County. The County of Orange processed this development over a several-year period, culminating in its adoption by the Board of Supervisors in 2004. This master planned 22,000 acres of land with 7,700 acres designated for 14,000 dwelling units. Other significant elements were established with 130 acres for urban activity centers, 258 acres for business parks, 39 acres for neighborhood retail centers, five golf courses and a 1,079-acre regional park.

The Ranch Plan Program Environmental Impact Report (EIR) and General Plan Amendment, prepared in 2003, presented exhaustingly detailed analyses of, among other particulars, watershed runoff water quality, traffic circulation impacts and endangered flora and fauna protection. Mention of emergency water storage and concern for temporary water disruption via the imported water connections were limited to a single paragraph. Aside from that outdated discussion, no mention was found of how reliable water supplies would be ensured. Indeed, there was a WSA prepared by Santa Margarita Water District which also fully complied with SB 221 and SB 610 but the Grand Jury found no substantive discussion from its review of the following EIR sections:

- Executive Summary: References were made to “areas of controversy” voiced during public comments at scoping meetings. No water supply concerns were considered worthy of any mention.
- Growth Inducing Impacts: Over a dozen, nearby, devel-

opment-related, potentially growth-inducing projects were discussed, each making no mention of water supply concerns.

- Water Resources: This pertained primarily to surface water quality and runoff hydrology, with absolutely no discussion of potable water resources.

There was seemingly no concern for water supply scenarios that could leave 14,000 homes without water. Indeed, the following EIR excerpt clearly established the priorities: “Due to the nature of the project, potential impacts to biological resources, hydrologic conditions and [runoff] water quality are of primary concern.”

The EIR process solicited comments not only from the public but also via the State Clearinghouse from every agency and environmental group in the state. There were records of interminable (albeit important) discussions and debates over such issues as traffic and endangered species but potable water supply was a non-issue. It was not even deemed to be of enough relevance to be mentioned in the 2004 staff report when the project was presented to the Board of Supervisors.

The aforementioned 2003 WSA was appended to The Ranch Plan. It was a comprehensively written document that assessed California’s water future. The WSA provided the required numerical justification for 25 years of water to this area, based on a series of assumptions that have long since been superseded by changed conditions. The numerous, crucial effects over just the past few years have great potential to derail many of the critical decisions made in the recently adopted

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plan. The Grand Jury’s view on the state of affairs is that a six-year-old water planning document, with a 25-year projection upon which **permanent** development is hinged, leaves much to be desired. It makes no sense to have so little attention paid to a natural resource with such a profound impact.

Despite all this, the 2003 WSA was apparently enough for the decision makers and the public. Despite the fact that this development will take place in a water-deficient area of the County that relies virtually entirely on imported supplies from Metropolitan, the Grand Jury could find **not one** comment at all from the general public, let alone **any** expression of concern during the public review period. The agencies have argued that the absence of comment is not necessarily indicative of a lack of concern but rather a recognition that all issues were addressed. The Grand Jury, for all the reasons cited in this report, has found otherwise and that there should be concern.

Clearly, the agencies processing The Ranch Plan followed the mandatory processes to determine adequate water supplies, using established procedures and their best efforts to provide professional data to decision makers. Nonetheless, the glaring point of this investigation is that there is a serious disconnect in the process where critical data are presented seemingly as footnotes and decisions are made in a manner that masks the situation from public awareness. This was certainly not found to have been done intentionally but rather was the inevitable byproduct of the sheer volume and complexity of the documents.

Typically, it is safe to presume that anyone lacking an engineer-

ing degree is challenged in comprehending the complex technical analyses of water supply issues and the concomitant impacts of various adverse scenarios. The tendency is to accept WSAs on face value and not challenge the caveats and qualifying statements that render these assessments tentative at best. WSAs providing 20 to 25-year projections on land uses that can be expected to be in place for at least 100 years can encounter dramatic changes. The 2003 WSA for The Ranch Plan was prepared long before several major changes were made that affect the dependability of water supplies to southern California. There should be, at least, a mitigation and monitoring reporting requirement in the Plan. Optimally, the question about an update to the WSA should be raised **now**, not later when specific project development permit applications are submitted. At that point, developers, in the heat of financing time constraints, will be in no mood to deal with the obstacles of additional engineering analyses; rather, they will do whatever it takes to demand that their project approvals be granted.

Case Study #2: City of Orange – Santiago Hills II and East Orange Areas Planned Community Development

In a very similar fashion to south Orange County, the central Orange County city of Orange, is facilitating aggressive expansion within its Sphere of Influence east and south of the Peters Canyon region of the Irvine Ranch.

The development agreement for this area provided **vested rights** to development to the Irvine Company in 2005 for approximately 4,000 dwelling units. Irvine Ranch Water District (the designated water

purveyor for this area) provided a series of “Water Supply Verifications” subsequent to this agreement to carry the project for 20 years.

While the water supply verifications conclude that sufficient supplies are available pursuant to state law, it is interesting to assess the methodologies, caveats and disclaimers accompanying the certification sheet. In particular, the water supplier affirms that it “... does not allocate particular supplies to any project, but identifies total supplies for its service area.” It would be safe to conclude that both the land planners and the water providers were satisfied that their requirements had been met and, in fact, Irvine Ranch Water District officials have subsequently emphasized that this is the case and that sufficient supplies are available. Although no documents were found to evidence their discussions, the officials have also emphasized that the agencies have had a dialog regarding the conditions under which the water supplies would be offered and District staff testified on pertinent issues at the City Council public hearings.

As with the The Ranch Plan, the decisions on this major project establish commitments far beyond the planning horizon. It is unclear how a developer’s vested rights may prevail over any changes in the WSA over time.

Case Study #3: City of Brea - Canyon Crest Development

In north Orange County, the city of Brea, in 2009, approved (subject to appeal) the development of 165 homes on 367 acres of hillside pasture and open space surrounded by Chino Hills State Park, near Carbon Canyon Road.

As would be expected, the project environmental review

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extensively evaluated the woodland habitat and wildlife corridors. An elaborate and extensive monitoring and mitigation program was developed for the oak-walnut woodland habitat. Because the size of this project fell short of the trigger points for SB 221 and SB 610, no WSA was required. In fact, the EIR concludes specifically that “[n]o impact will result from the Project involving the acquisition of new or expansion of existing water supply entitlements or resources.” This was the only mention found concerning water supply by either the environmental consultant or by any person, agency or group concerned with the impacts of this project.

Admittedly, this single project would have a nominal annual demand of perhaps 100 acre-feet (about 33 million gallons), on the County’s water supply, which would add about one percent to Brea’s annual demand. But, it is indicative of how the cumulative impacts of such projects can incrementally affect the overall supply.

Steps Toward Understanding

A better interface between land-use planners and water planners has evolved over the years with the assistance of the State Legislature.

Since the 1983 adoption of the *Urban Water Management Planning Act* (California Water Code Section 10610 et seq), California has required each water purveyor to prepare and submit, every five years, an Urban Water Management Plan (UWMP). This is a foundational document and a source of information for long-range water planning. Cities and counties are required to use these documents when preparing their General Plans.

The UWMP, while important, is a fairly general planning docu-

ment. It was not until 2001 (after most of Orange County already had been developed) that the State seriously acknowledged that water supply and local land-use development planning are inextricably intertwined. The California Legislature’s SB 221 and SB 610 exemplify this need for an administrative record in the environmental documents. These laws only apply to large projects and, according to one expert in the water environmental field, do “... little more than raise awareness.”

Also in 2001, the Legislature passed the *Integrated Regional Water Management Planning* (IRWMP) Act, which allows a regional water management group to prepare and adopt an IRWMP that encourages local agencies to work cooperatively in managing their entire array of water resources for beneficial use.

Innovative Solutions to Long-Term Supply Shortages and the State of Orange County’s Water Resources

Some experts in the academic and industrial communities consider that California’s water crises can be avoided by a concerted effort on four fronts: (1) improving water use efficiencies through conservation, water-saving appliances and technological advances (e.g. “smart” irrigation timers); (2) advancing innovative water recycling and reuse strategies; (3) improving storm water runoff capture, storage and groundwater recharge; and (4) securing water transfer agreements between agencies to effectively balance supply and demand. The Grand Jury found that Orange County water agencies are, in many cases, setting the example of best practices through sophisticated ap-

plications on each of these fronts. In addition, concerted public/private efforts are underway to build at least two major seawater desalination plants in Orange County. Combined with a third desalination plant near Camp Pendleton, planned jointly with the San Diego County Water Authority, coastal desalination projects will supply up to 140,000 acre-feet (45.6 billion gallons) per year of new water.

Orange County water agencies are pursuing long-term water transfers outside the County boundaries. An agreement with the South Feather Water and Power Agency in northern California was being negotiated to bring up to 10,000 acre-feet (about 3.3 billion gallons) per year to Orange County.⁷ While this project now appears unlikely to be consummated, there are other, similar efforts underway that are considered to be more viable.

Santa Margarita Water District’s transfer agreement with Cucamonga Valley Water District also represents individual agency attempts to secure firm water contracts. In this case, 4,250 acre-feet (about 1.4 billion gallons) per year would be allocated to Orange County from surplus water in an entirely separate groundwater basin. This basin resides within Metropolitan’s service area, which helps to facilitate the actual water transfer.

Irvine Ranch Water District is developing a water banking program in partnership with the central valley Rosedale-Rio Bravo Water Storage District near Bakersfield in Kern County. This arrangement will provide up to 17,500 acre-feet (5.7 billion gallons) per year from groundwater recharge and recovery facilities, along with expanding the Cross Valley Canal to transfer

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stored water to the Irvine Ranch facilities

The Grand Jury was particularly impressed with the OCWD’s Ground Water Replenishment System (GWRS) established in conjunction with its adjacent wastewater treatment agency, the Orange County Sanitation District. The Grand Jury witnessed the GWRS while in operation, delivering 72,000 acre-feet (about 23.5 billion gallons) per year of ultra-pure water for direct, potable reuse via 1,600 acres of percolation basins in north Orange County. This is about 10 to 14% of total basin demand and production is expected to expand to 100,000 acre-feet (32.6 billion gallons) per year within the next three years.

The 2003-2004 Orange County Grand Jury also recognized the GWRS while it was still in its implementation stages. This unique project is the largest of its kind in the world. It exemplifies how technology is providing innovative solutions to environmental problems and insight to our future.

The capital cost of the GWRS system was approximately \$500 million. While immensely expensive to build and operate, federal and state grants and subsidies have reduced the unit cost of the product water to approximately \$650 per acre-foot. Since imported Metropolitan water is anticipated to pass \$700 per acre-foot this summer, the break-even point may be imminent. As water becomes increasingly scarce and prices rise accordingly, recycled wastewater systems, even those meeting stringent human consumption requirements, are anticipated to become more competitively cost effective.

All these innovative programs are admirable but they do not solve

the problem. Shortfalls from the State Water Project and the Colorado River of the magnitudes cited by Metropolitan and others cannot be made up by these relatively limited efforts.

Response to Catastrophic Supply Interruptions

Regional shortages: The most serious water supply concerns affecting Orange County lie outside its boundaries. Metropolitan has elaborate response plans and infrastructure in place to deal with supply curtailments; the most recent notable example is its Diamond Valley Lake near Hemet. This is an 800-thousand acre-foot (260 billion gallons) reservoir, of which about one-half is reserved for catastrophic emergencies. Completed in 1999, Diamond Valley took four years to fill with a six-month emergency water supply and is considered the most important achievement in protecting southern California against a State Water Project system outage.

County-wide shortages: If circumstances dictate that Orange County is forced into being self-sufficient for an extended period, how will it survive? Orange County water managers have been diligent in preparing to overcome worst-case water delivery interruption scenarios. In times of dire need, being able to instantly re-route water from the north County groundwater basin, to the south County supply lines, through pre-established pipeline routes, is crucial.

Beginning in 1983, the Orange County water agencies developed a **Water Supply Emergency Preparedness Plan**, jointly funded by MWDOC and OCWD, and supported by the Orange County Water Association. This eventually

resulted in the formation of the Water Emergency Response Organization of Orange County (WEROC), a single point of coordination for every conceivable type of acute, water-related disaster in Orange County.

Approximately 95 percent of south Orange County’s water is imported from northern California and the Colorado River and delivered to Metropolitan filtration plants in north Orange County before it is sent 35 miles to south County via two aging pipelines traversing active seismic faults. The **Orange County Water System Reliability Study**, along with the **South Orange County Water Reliability Study** established an array of project remedies to address specific threats to water transmission and distribution infrastructure throughout Orange County and, in particular, south Orange County, in times of long-term crisis. On August 15, 2001, and again on April 23, 2003, MWDOC and OCWD adopted a **Memorandum of Understanding** to accomplish among other objectives, an on-going implementation monitoring effort to help facilitate the various agencies involved in completing these projects.

The current emergency relief through Orange County water reliability planning is approximately 3,000 acre-feet (about 1 billion gallons) from an emergency connection to Irvine Ranch Water District’s Dyer Road well field in Santa Ana. This provides only about 10 percent of what is needed. The other 27,000 acre-feet (about 9 billion gallons) will arrive when a planned array of pump, pipeline, treatment and reservoir projects is built. These projects will be able to transfer and store emergency potable water as well as have avail-

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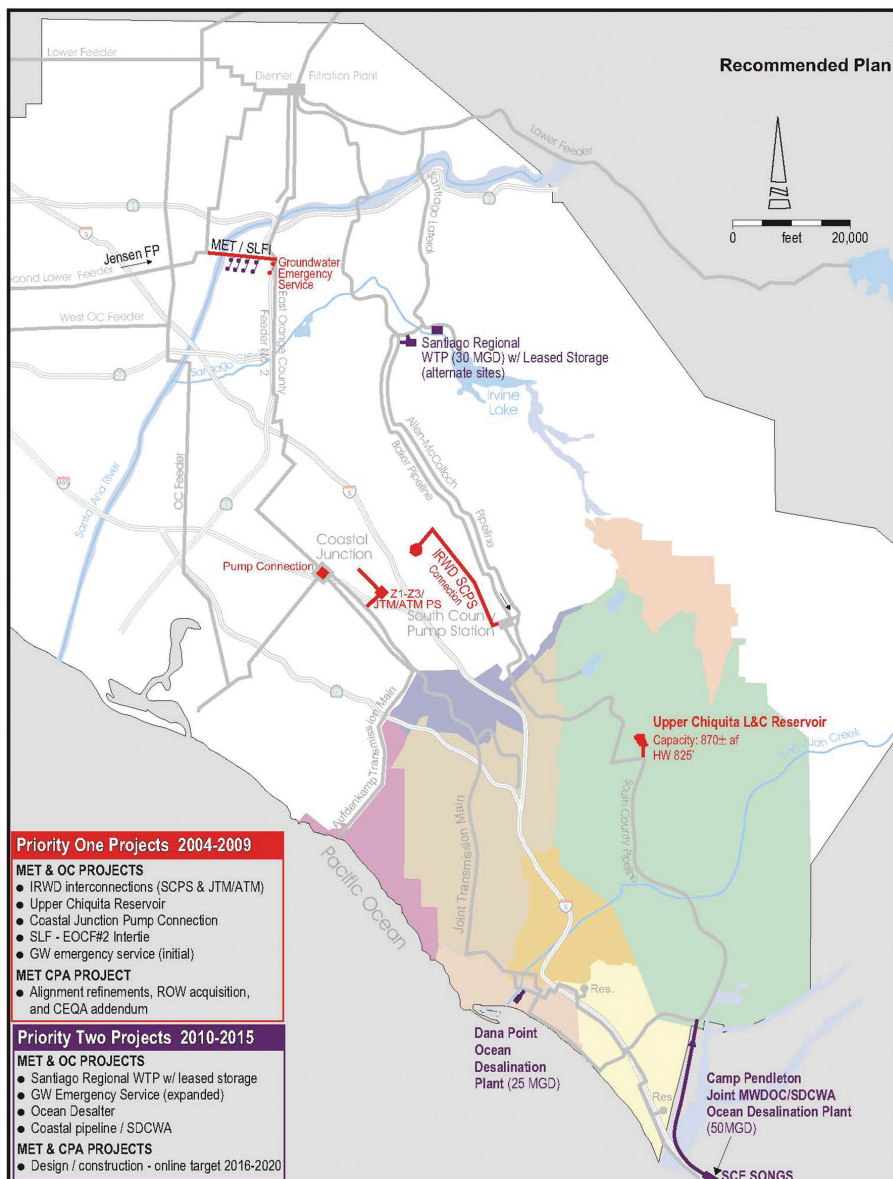


Exhibit G

able brackish and seawater purification systems to create “new” water for south Orange County. These projects are depicted in Exhibit G.

These projects vary significantly in their planning, design and construction complexities as well as in their funding requirements. Completion of the entire system is not expected until at least 2015. Once completed, the projects will serve daily needs while being ready to deliver emergency reserves if the supply network becomes disrupted at any point.

Emerging self-sufficiency management strategies: Several efforts have commenced to maximize the ability of Orange County to be self-sustaining, especially in times of crisis. The most comprehensive planning underway was begun in 2000, headed by the OC Watersheds Division of OC Public Works. It consolidates efforts in urban runoff watershed management and regional water resources planning strategies. A comprehensive approach is underway, addressing

the County’s 13 watersheds with several objectives:

- Protect communities from drought
- Enhance local water supply and system reliability
- Ensure continued water security
- Optimize watershed and coastal resources
- Improve watershed water quality
- Safeguard endangered species habitat

Nearly 100 projects have been identified that encompass, among other facets, the following:

- Water supply reliability, water conservation and water use efficiency
- Storm water capture, storage, treatment and management
- Creation and enhancement of wetlands and acquisition, protection, and restoration of open space and watershed lands
- Non-point source pollution reduction, management and monitoring
- Groundwater recharge and management
- Water banking, water exchange, water reclamation, desalting, and other treatment technologies

Disaster Planning: In November, 2008, the entire County of Orange participated in an exercise dubbed “Golden Guardian,” based on a Richter Scale magnitude 7.8 seismic event. Part of this exercise was to include dealing with the expected effects of disrupted local and County-wide water transmission and distribution systems. WEROC volunteers participated in this event to test the water agencies’ ability to respond effectively during emergency events. The lessons learned

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from this exercise were valuable in identifying the need for better integration of the individual agencies’ responses through WEROC and on to the Orange County Operational Area Emergency Operations Center (EOC). The issues appear to be those requiring improved communication rather than inadequate resources.

MWDOC and Its Member Agency Conflicts

As introduced earlier, MWDOC, with some exceptions, is the predominant water wholesaler that arranges for Orange County water retailers’ imported delivery of Metropolitan water for their customers. MWDOC is solely an administrative agency in that it operates no infrastructure facilities that physically deliver water to any of its member agencies, comprised of cities, special districts and quasi-public companies. Because of its unique connection with nearly every water agency in Orange County, by default it has become the coordinator of many regional programs that are generally suited for a centralized, coordinated response. This applies to consistent water conservation plans; compatible Urban Water Management Plans; universal customer education outreach; centralized legislative advocacy; and coordinated emergency preparedness.

MWDOC also is allocated four seats on Metropolitan’s 37 member board of directors. These four members (not all of them are necessarily MWDOC board members), represent the interests of MWDOC’s 28 member agencies.

MWDOC was formed in 1951, when Orange County demographics were quite different. Today, it finds its role challenged, primarily by

several major, south Orange County member agencies, over some key differences in representation and governance.

In June, 2006, MWDOC was anticipating a scheduled Municipal Services Review (MSR) by the Orange County Local Agency Formation Commission (LAFCo). LAFCo’s Mission Statement emphasizes that it “... serves the citizens of Orange County by facilitating constructive changes in governmental structure and boundaries through special studies, programs, and actions that resolve intergovernmental issues, by fostering orderly development and governance, and by promoting the efficient delivery of services.” The MSR process, which is basically a performance audit, is one of the most effective means to accomplish this goal.

MWDOC had commenced stakeholder meetings with its member agency colleagues to resolve key issues of disagreement:

- Representation on Metropolitan’s board of directors
- Budget process and fairness of rate structures
- Lack of inclusiveness of south County agencies in setting rates
- MWDOC’s financial involvement in local projects (e.g. desalination)
- Duplicative services (e.g. legislative and public outreach)
- Financial reserve policies

LAFCo discovered, when it embarked on its MSR process in February, 2007, that there were still major, unresolved issues. It facilitated several meetings to attempt resolution. In November, 2007, after limited success, LAFCo decided to convene a “governance study” with a definite timetable for reaching consensus on conclusions

and specific recommendations. The final approval for that effort was given in January, 2008, commenced in June, 2008, and continues to the present time.

All 28 member agencies have participated in the governance study. After nearly a year of effort, the feasible revamping options have been narrowed to three:

1. Continuing with MWDOC’s current structure, subject to several administrative adjustments to eliminate the current points of disagreement
2. Dissolving MWDOC and forming a new, County-wide water authority
3. Creating a separate south County water authority to, basically, provide similar services now provided by MWDOC but being more responsive and accountable to the unique needs expressed by the south County agencies, particularly for more equitable representation with Metropolitan.

The particulars of the governance study discussions are beyond the scope of this investigation so they were not reviewed in detail. From the Grand Jury’s perspective of the issues, however, Option 3 seems short sighted. Bifurcating the County into two, basically competing agencies would be counterproductive as Orange County moves into a future with increasingly difficult and contentious water issues.

LAFCo has been consolidating agencies where jurisdictional effectiveness would be improved. Splitting a major overseer of the County’s water supplies into two jurisdictions would seem to contradict LAFCo’s previous efforts. LAFCo has a unique role in this discussion as a facilitator. Even though it has hired professional

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support consultants and should be lauded for its initiative, one noted professor in the field has observed that LAFCo may be operating beyond its technical abilities to effectively facilitate the varied, complex technical issues.

The MWDOC member agencies need to resolve their differences and dedicate themselves to a unified vision, whether it be continuing with MWDOC under a modified agreement or creating a new, unified, County-wide water authority. As rate increases mount and water supplies diminish, the need for unification will become increasingly essential. If a catastrophic event occurs, the need for unification will become urgent.

Conclusions

The following conclusions raise important concerns over the precarious condition of Orange County’s water resources. More public awareness and process improvement regarding water issues must be made as the development of Orange County continues. The numerous water agencies in Orange County need to strengthen their unified approach in preparing for a difficult future. Some of the specific points are as follows:

- State Water Project infrastructure is extremely vulnerable to catastrophic failures from natural events in the Sacramento-San Joaquin Delta and seismic events affecting other major water transmission infrastructure. Having a two-out-of-three chance of drastic levee failures within 25 years which could disable the state’s water supply for at least two years is alarming.
- Scientists have projected the inevitable end to the Delta

as a fresh water conveyance due to uncontrollable salinity increases. This adds more apprehension about Orange County’s water future.

- Recent court rulings on environmental habitat protection and water rights allocations have raised the level of urgency by imposing possibly permanent cuts to southern California’s formerly reliable, traditional water supplies from northern California and the Colorado River. While the California Department of Water Resources recently adjusted 2009 State Water Project deliveries upward to 30 percent of normal allocations, they had, at one point, fallen to 10 to 15 percent of normal.
- Orange County’s water supply infrastructure and supply constraints have received minimal attention in the overall discussion of developing Orange County.
- Interaction of land planners and water planners in the development process must be improved.
- Water pricing to pay for the various, necessary, costly supply sources, under even the best-case scenarios, will rise to levels never before seen. In this water-scarce region, consumers are facing dire circumstances regardless of population growth and housing construction.
- Public awareness of water supply issues is far below acceptable levels and must be improved.
- A number of innovative infrastructure projects and transfer

agreements are underway to create sources of “new” water for Orange County. The adequacy of contributions from these new sources is uncertain.

- Orange County is a unique territory with many inherent advantages to endure the impending water crises. If Orange County’s water agencies work together seamlessly and the County’s resident consumers become more involved stakeholders, a positive outcome is much more likely.
- Orange County’s groundwater storage resources are world class, both in innovative technical superiority and in their management. Water experts in both industry and academic institutions universally praise the innovative and effective methods by which Orange County has protected and managed its innate water resources. In particular, its groundwater aquifer is an incredibly rich natural resource that is the envy of many areas in the country challenged by depleted and damaged water tables.
- Orange County natural water storage differs dramatically between its north and south reaches. South Orange County has no groundwater basin, making it almost wholly dependent on imported supplies from Metropolitan.
- The County’s resources have allowed water managers to institute protocols to deal with emergencies. Examples of effective working relationships have been demonstrated in associations such as WEROC. It would be a shame

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to politically sever the County water resources management structure and make a unified working relationship all the more difficult.

In closing, the announcement for the May 15, 2009, *O.C. Water Summit* in Anaheim succinctly raises the level of urgency: “Most business leaders and residents of Orange County have no idea that the water crisis is this serious and escalating.” Specific actions are urgent. This investigation is intended to offer several of them that will strengthen the County’s condition.

Findings

In accordance with *California Penal Code* Sections 933 and 933.05, each finding will be responded to by the government entity to which it is addressed. The responses are to be submitted to the Presiding Judge of the Superior Court. The 2008-2009 Orange County Grand Jury has arrived at the following findings:

F.1: There is inadequate coordination between local land-use planning agencies and local water supply agencies, resulting in a process that fails to fully engage the issues.

F.1(a): Water agencies have tended to avoid interfering with or participating in growth-management decisions.

F.1(b): Cities and the County have tended to not critically evaluate the limitations of the water agencies’ supply projections.

F.2: California’s looming water supply crisis receives

very little, if any, expressed concern from the public in comparison to the numerous other environmental issues presented during development project reviews.

F.2(a): Orange County’s citizens and interest groups do not appear to grasp the seriousness of the water supply situation or the complexity and urgency of the necessary solutions.

F.2(b): Several recent, substantial water supply awareness efforts are underway (e.g. the O.C. Water Summit) that show promise but appear targeted to audiences that are already informed.

F.3: LAFCo is the agency charged with facilitating constructive changes in governmental structure to promote efficient delivery of services. To this end, LAFCo is conducting a governance study of MWDOC which is the designated representative for nearly all the Orange County retail water agencies, acting on their behalf with their surface water supplier Metropolitan.

F.3(a) There are a number of points of governance disagreement between MWDOC and several of its member agencies. This is creating an impediment to the on-going effectiveness of these agencies in critical areas of Orange County’s water supply management.

F.3(b) The current disagreement is a distraction from the greater good of the agencies working toward Orange County’s water future.

F.3(c) The stakeholders in LAFCo’s study failed to meet their March 11, 2009 deadline for LAFCo’s public hearing on this matter. Continued delays are unacceptable.

F.4: Orange County is uniquely fortunate to have a vast, high-quality, well-managed groundwater basin serving its north geographical area. However, in its south reaches, it has an equally large, high-growth area with virtually no available groundwater resources.

F.4(a): The difference in groundwater availability creates a “haves versus have-nots” situation that is conducive to inherent conflicts.

F.4(b): The difference in groundwater availability provides opportunities for responsible participants to develop and construct long-term solutions which will benefit the entire County.

Responses to Findings F.1, F.1(a), F.1(b), and F.2, F.2(a) and F.2(b) are required from the Board of Supervisors of the County of Orange; the city councils of all cities responsible for land-use planning: Aliso Viejo, Anaheim, Brea, Buena Park, Costa Mesa, Cypress,

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Dana Point, Fountain Valley, Fullerton, Garden Grove, Huntington Beach, Irvine, La Habra, La Palma, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, Los Alamitos, Mission Viejo, Newport Beach, Orange, Placentia, Rancho Santa Margarita, San Clemente, San Juan Capistrano, Santa Ana, Seal Beach, Stanton, Tustin, Villa Park, Westminster and Yorba Linda; the city councils and boards of directors of all retail water suppliers: cities of Anaheim, Brea, Buena Park, Fountain Valley, Fullerton, Garden Grove, Huntington Beach, La Habra, La Palma, Newport Beach, Orange, San Clemente, San Juan Capistrano, Santa Ana, Seal Beach, Tustin and Westminster; East Orange County Water District, El Toro Water District, Irvine Ranch Water District, Laguna Beach County Water District, Mesa Consolidated Water District, Moulton Niguel Water District, Santa Margarita Water District, Serrano Water District, South Coast Water District, Trabuco Canyon Water District and Yorba Linda Water District; the Board of Directors of the Municipal Water District of Orange County, the Board of Directors of the Orange County Water District, and the city councils of the cities served by Golden State Water Company; cities of Cypress, Los Alamitos, Placentia and Stanton.

Responses to Finding F.3, F.3(a), F.3(b) and F.3(c) are required from the Board of Directors of the Municipal Water District of Orange County; the city councils and boards of directors of all Municipal Water District of Orange County member agencies: cities of Brea, Buena Park, Fountain Valley, Garden Grove, Hunting-

ton Beach, La Habra, La Palma, Newport Beach, Orange, San Clemente, San Juan Capistrano, Seal Beach, Tustin and Westminster; East Orange County Water District, El Toro Water District, Irvine Ranch Water District, Laguna Beach County Water District, Mesa Consolidated Water District, Moulton Niguel Water District, Santa Margarita Water District, Serrano Water District, South Coast Water District, Trabuco Canyon Water District and Yorba Linda Water District; the Orange County Local Agency Formation Commission; the City Council of the cities of Anaheim, Fullerton and Santa Ana; and the city councils of the cities served by Golden State Water Company: cities of Cypress, Los Alamitos, Placentia and Stanton.

Responses to Finding F.4, F.4(a) and F.4(b) are required from the Board of Directors of the Municipal Water District of Orange County; the Board of Directors of the Orange County Water District; the city councils and boards of directors of all Orange County retail water suppliers: cities of Anaheim, Brea, Buena Park, Fountain Valley, Fullerton, Garden Grove, Huntington Beach, La Habra, La Palma, Newport Beach, Orange, San Clemente, San Juan Capistrano, Santa Ana, Seal Beach, Tustin and Westminster; East Orange County Water District, El Toro Water District, Irvine Ranch Water District, Laguna Beach County Water District, Mesa Consolidated Water District, Moulton Niguel Water District, Santa Margarita Water District, Serrano Water District, South Coast Water District, Trabuco Canyon Water District and Yorba Linda Water District; and the city

councils of the cities served by Golden State Water Company: cities of Cypress, Los Alamitos, Placentia, and Stanton.

Recommendations

In accordance with *California Penal Code* Sections 933 and 933.05, each recommendation will be responded to by the government entity to which it is addressed. The responses are to be submitted to the Presiding Judge of the Superior Court. Based on the findings, the 2008-2009 Orange County Grand Jury makes the following recommendations:

R.1: Each Orange County municipal planning agency, in cooperation with its respective water supply agency, should prepare for adoption by its city council, a dedicated **Water Element** to its General Plan in conjunction with a future update, not to exceed June 30, 2010. This document should include detailed implementation measures based on objective-based policies that match realistic projections of the County's future water supplies. These objectives, policies and implementation measures should address imported supply constraints, including catastrophic outages and incorporate the realistic availability and timing of "new" water sources such as desalination, contaminated groundwater reclamation and surface water recycling. (Findings F.1, F.1(a), F.1(b), F.2, F.2(a) and F.2(b))

R.2: Each Orange County retail and wholesale water

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agency should affirm its responsibility to develop new, additional, innovative public outreach programs, **beyond water conservation and rationing** programs, to expose the larger issues surrounding water supply constraints facing Orange County. The objective should be to connect the public with the problem. The outreach effort should entail a water emergency exercise that simulates a complete, sudden break in imported water deliveries. The exercise should be aimed directly at the public and enlist widespread public participation on a recurring basis beginning by June 30, 2010. This recommendation may be satisfied by a multi-agency exercise but the inability to coordinate such an event should not preclude the individual agency’s responsibility. (Finding F.2, F.2(a) and F.2(b))

R.3: Each MWDOC member agency should reaffirm to LAFCo that it will assign the resources necessary to expediently resolve regional governance issues. While the subject study is being facilitated by LAFCo, the options are with the agencies to decide what is best for all. Once conclusions are reached, the parties need to agree quickly and, hopefully, unanimously to adopt a course of action. (Finding F.3, F.3(a), F.3(b) and F.3(c))

R.4: Each Orange County retail and wholesale water

agency should affirm its commitment to a fair-share financial responsibility in completing the emergency water supply network for the entire County. The **entire** County should be prepared **together** for any conditions of drought, natural or human-caused disaster, or any other catastrophic disruption. WEROC should commence meetings of all parties, to facilitate consensus on an equitable funding/financing agreement. (Finding F.4, F.4(a) and F.4(b))

Responses to Recommendation R.1 are required from the Board of Supervisors of the County of Orange; the city councils of all cities responsible for land-use planning; Aliso Viejo, Anaheim, Brea, Buena Park, Costa Mesa, Cypress, Dana Point, Fountain Valley, Fullerton, Garden Grove, Huntington Beach, Irvine, La Habra, La Palma, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, Los Alamitos, Mission Viejo, Newport Beach, Orange, Placentia, Rancho Santa Margarita, San Clemente, San Juan Capistrano, Santa Ana, Seal Beach, Stanton, Tustin, Villa Park, Westminster and Yorba Linda; the city councils and boards of directors of all retail water suppliers: cities of Anaheim, Brea, Buena Park, Fountain Valley, Fullerton, Garden Grove, Huntington Beach, La Habra, La Palma, Newport Beach, Orange, San Clemente, San Juan Capistrano, Santa Ana, Seal Beach, Tustin and Westminster; East Orange County Water District, El Toro Water District, Irvine Ranch Water District, Laguna Beach County Water District,

Mesa Consolidated Water District, Moulton Niguel Water District, Santa Margarita Water District, Serrano Water District, South Coast Water District, Trabuco Canyon Water District and Yorba Linda Water District; the Board of Directors of the Municipal Water District of Orange County; Board of Directors of the Orange County Water District and the city councils of the cities served by Golden State Water Company: cities of Cypress, Los Alamitos, Placentia and Stanton.

Responses to Recommendation R.2 are required from the city councils and boards of directors of all retail water suppliers: cities of Anaheim, Brea, Buena Park, Fountain Valley, Fullerton, Garden Grove, Huntington Beach, La Habra, La Palma, Newport Beach, Orange, San Clemente, San Juan Capistrano, Santa Ana, Seal Beach, Tustin and Westminster; East Orange County Water District, El Toro Water District, Irvine Ranch Water District, Laguna Beach County Water District, Mesa Consolidated Water District, Moulton Niguel Water District, Santa Margarita Water District, Serrano Water District, South Coast Water District, Trabuco Canyon Water District and Yorba Linda Water District; the Board of Directors of the Municipal Water District of Orange County. the Board of Directors of the Orange County Water District; and the city councils of the cities served by Golden State Water Company: cities of Cypress, Los Alamitos, Placentia and Stanton.

Responses to Recommendation R.3 are required from the Board of Directors of the Municipal Water District of Orange County; the city councils and boards of directors

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of all Municipal Water District of Orange County member agencies: cities of Brea, Buena Park, Fountain Valley, Garden Grove, Huntington Beach, La Habra, La Palma, Newport Beach, Orange, San Clemente, San Juan Capistrano, Seal Beach, Tustin and Westminster; East Orange County Water District, El Toro Water District, Irvine Ranch Water District, Laguna Beach County Water District, Mesa Consolidated Water District, Moulton Niguel Water District, Santa Margarita Water District, Serrano Water District, South Coast Water District, Trabuco Canyon Water District and Yorba Linda Water District; the Orange County Local Agency Formation Commission: the city councils of the cities served by Golden State Water Company: cities of Cypress, Los Alamitos, Placentia, and Stanton.

Responses to Recommendation R.4 are required from the Board of Directors of the Municipal Water District of Orange County; the Board of Directors of the Orange County Water District; the city councils and boards of directors of all Orange County retail water suppliers: cities of Anaheim, Brea, Buena Park, Fountain Valley, Fullerton, Garden Grove, Huntington Beach, La Habra, La Palma, Newport Beach, Orange, San Clemente, San Juan Capistrano, Santa Ana, Seal Beach, Tustin and Westminster; East Orange County Water District, El Toro Water District, Irvine Ranch Water District, Laguna Beach County Water District, Mesa Consolidated Water District, Moulton Niguel Water District, Santa Margarita Water District, Serrano Water District, South Coast Water District, Trabuco Canyon Water District

and Yorba Linda Water District: and the city councils of the cities served by Golden State Water Company: cities of Cypress, Los Alamitos, Placentia and Stanton.

Required Responses

The *California Penal Code* specifies the required permissible responses to the findings and recommendations contained in the report. The specific sections are as follows:

§933.05

1. For purposes of Subdivision (b) of Section 933, as to each grand jury finding, the responding person or entity shall indicate one of the following:

- (1) The respondent agrees with the finding.
- (2) The respondent disagrees wholly or partially with the finding, in which case the response shall specify the portion of the finding that is disputed and shall include an explanation of the reasons therefore.

2. For purposes of subdivision (b) of Section 933, as to each grand jury recommendation, the responding person or entity shall report one of the following actions:

- (1) The recommendation has been implemented, with a summary regarding the implemented action.
- (2) The recommendation has not yet been implemented, but will be implemented in the future, with a timeframe for implementation.
- (3) The recommendation requires further analysis, with an explanation and the scope and parameters of an analysis or study, and a timeframe for

the matter to be prepared for discussion by the officer or head of the agency or department being investigated or reviewed, including the governing body of the public agency when applicable. This timeframe shall not exceed six months from the date of publication of the grand jury report.

(4) The recommendation will not be implemented because it is not warranted or is not reasonable, with an explanation therefore.

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Table 1: Findings and Recommendations Matrix

City/Organization/ Agency	*	*	*	*					City/Organization/Agency	*	*	*	*				
	F 1	F 2	F 3	F 4	R 1	R 2	R 3	R 4		F 1	F 2	F 3	F 4	R 1	R 2	R 3	R 4
Land Use City & County Planners									Retail Water Suppliers								
Aliso Viejo	•	•			•				Anaheim	•	•	•	•	•	•	•	•
Anaheim	•	•			•				Brea	•	•	•	•	•	•	•	•
Brea	•	•			•				Buena Park	•	•	•	•	•	•	•	•
Buena Park	•	•			•				Fountain Valley	•	•	•	•	•	•	•	•
Costa Mesa	•	•			•				Fullerton	•	•	•	•	•	•	•	•
Cypress	•	•			•				Garden Grove	•	•	•	•	•	•	•	•
Dana Point	•	•			•				Huntington Beach	•	•	•	•	•	•	•	•
Fountain Valley	•	•			•				La Habra	•	•	•	•	•	•	•	•
Fullerton	•	•			•				La Palma	•	•	•	•	•	•	•	•
Garden Grove	•	•			•				Newport Beach	•	•	•	•	•	•	•	•
Huntington Beach	•	•			•				Orange	•	•	•	•	•	•	•	•
Irvine	•	•			•				San Clemente	•	•	•	•	•	•	•	•
La Habra	•	•			•				San Juan Capistrano	•	•	•	•	•	•	•	•
La Palma	•	•			•				Santa Ana	•	•	•	•	•	•	•	•
Laguna Beach	•	•			•				Seal Beach	•	•	•	•	•	•	•	•
Laguna Hills	•	•			•				Tustin	•	•	•	•	•	•	•	•
Laguna Niguel	•	•			•				Westminster	•	•	•	•	•	•	•	•
Laguna Woods	•	•			•				East Orange County Water District	•	•	•	•	•	•	•	•
Lake Forest	•	•			•				El Toro Water District	•	•	•	•	•	•	•	•
Los Alamitos	•	•			•				Irvine Ranch Water District	•	•	•	•	•	•	•	•
Mission Viejo	•	•			•				Laguna Beach County Water District	•	•	•	•	•	•	•	•
Newport Beach	•	•			•				Mesa Consolidated Water District	•	•	•	•	•	•	•	•
Orange	•	•			•				Moulton Niguel Water District	•	•	•	•	•	•	•	•
Placentia	•	•			•				Santa Margarita Water District	•	•	•	•	•	•	•	•
Rancho Santa Margarita	•	•			•				Serrano Water District	•	•	•	•	•	•	•	•
San Clemente	•	•			•				South Coast Water District	•	•	•	•	•	•	•	•
San Juan Capistrano	•	•			•				Trabuco Canyon Water District	•	•	•	•	•	•	•	•
Santa Ana	•	•			•				Yorba Linda Water District	•	•	•	•	•	•	•	•
Seal Beach	•	•			•				Wholesale Water Suppliers								
Stanton	•	•			•				Municipal Water District of Orange County	•	•	•	•	•	•	•	•
Tustin	•	•			•				Orange County Water District	•	•		•	•	•	•	•
Villa Park	•	•			•				Golden State Water Company Contract Agencies								
Westminster	•	•			•				City of Cypress	•	•	•	•	•	•	•	•
Yorba Linda	•	•			•				City of Los Alamitos	•	•	•	•	•	•	•	•
County of Orange	•	•			•				City of Placentia	•	•	•	•	•	•	•	•
* Includes subsets of findings [(a), (b), (c), etc.]									City of Stanton	•	•	•	•	•	•	•	•
									Other Public Agencies								
									OC Local Agency Formation Commission			•				•	

Glossary of Terms

- **Acre-foot:** The amount of water that would fill a one-acre area to a depth of one foot (equivalent to 325,851 gallons)
- **EIR:** Environmental Impact Report
- **LAFCo:** Orange County Local Agency Formation Commission
- **Metropolitan:** Metropolitan Water District of Southern California
- **MSR:** Municipal Services Review
- **MWDOC:** Municipal Water District of Orange County
- **New Water:** (1) A new source of potable water with or without a new pipeline delivering water from outside the area; (2) Purified brackish or recycled water within the area that has been treated to drinking water standards that would otherwise be discharged to waste
- **Non-Point Source Pollution:** Contaminated surface drainage water (runoff) of which the sources of the pollution are so numerous that individual responsibility cannot be determined
- **OCWD:** Orange County Water District
- **Paper Water:** A term used to describe allocated water which an individual or agency is entitled to receive, presuming that the water exists. Paper water differs from “wet water” in that paper water is based on projections and expected deliveries.
- **SB 221:** California Government Code Sections 66455.3 and 66473.7. Requires identification of adequate potable water supplies to serve most development projects over 500 dwelling units, using a historical water record of at least 20 years.
- **SB 610:** California Water Code Sections 10631, 10656, 10910, 10911, 10912, 10915 and 10657. Requires a WSA for most development projects over 500 dwelling units
- **UWMP:** Urban Water Management Plan
- **Vested rights:** A property owner’s right to proceed with his development in substantial compliance with the ordinances, policies and standards in effect at the time of agency approval. A vested project is generally immune from any new conditions that might otherwise have resulted between the date of approval and issuance of building permits had the project not received vesting status.
- **WEROC:** Water Emergency Response Organization of Orange County
- **WSA:** Water Supply Assessment

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6. *Water and Land Use; Planning Wisely for California’s Future*, Karen E. Johnson and Jeff Loux, Solano Press Books, 2004, pages 16 and 66
7. *2005 Urban Water Management Plan*, Municipal Water District of Orange County, adopted December 21, 2005, pages 105 and 178

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