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## Estimated Water Use on Large Projects in 2004-2006

*Projects affected by  
Senate Bills 221 and 610,  
signed into law in 2001*

*By Rani Isaac  
Economist and Senior Research Specialist*

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## Introduction

Senator Sheila Kuehl asked the California Research Bureau (CRB) to provide certain information about the impact of two bills enacted in 2001: SB 221 and SB 610.<sup>1</sup> The request is in Appendix 1. These bills require local agencies to determine that a reasonably reliable water supply exists before approving new residential subdivisions with over 500 units, as well as certain large industrial and commercial projects. Senator Kuehl asked the Bureau to determine the number of subdivisions and dwelling units that were subject to the requirements of these two bills from 2004 to 2006. She also asked for estimates of the amount of water used by these subdivisions and how those estimates would change if the finding requirement applied to subdivisions with over 250 units. Finally, with respect to large industrial and commercial projects, she asked CRB to provide data on the numbers of projects affected.

**Background.** On October 9, 2001, Governor Davis signed two bills intended to ensure adequate water supplies before large-scale developments were approved and built. SB 221 (Kuehl) covers residential developments and SB 610 (Costa) covers large industrial and commercial projects.

SB 221 prohibits city or county approval of a tentative map, a parcel map, or a development agreement for a subdivision of more than 500 dwelling units, unless the permitting agency provides written verification from the applicable public water system that enough water will be available prior to completion of the project. The law exempts infill projects adjoining or within existing city limits as well as housing for low-income households. SB 221 modified the existing “Subdivision Map Act”.

SB 610 also augmented earlier requirements.<sup>2</sup> It amended the California Environmental Quality Act (CEQA) by expanding the existing requirement for public water systems to prepare water supply assessments for large development projects, including commercial projects and residential developments of 500 or more dwelling units. SB 610 required every large, non-governmental project to conduct a water supply assessment, not just projects that needed environmental impact reports (EIRs), as had been the case before 2001. It required cities or counties to prepare the assessments if public water systems or supplies were not identified.<sup>3</sup>

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<sup>1</sup> Senate Bill 221 amended Section 11010 of the Business and Professions Code, and amended Section 65867.5 of the Government Code, relating to land use, and created new Sections 66455.3 and 66473.7. Senate Bill 610 amended Section 21151.9 of the Public Resources Code, and amended Sections 10631, 10656, 10910, 10911, 10912, and 10915 of the Water Code, but repealed Sections 10913 and 10657.

<sup>2</sup> SB 610 revised and extended SB 901, enacted six years earlier in 1995.

<sup>3</sup> SB 610 strengthened the requirements of the Urban Water Management Planning Act (UWMP), California Water code Div. 6, Part 2.6, Chapter 1, 10610, requiring water agencies to produce a report every five years on their water supplies and the projected demands on those supplies for 20-25 years.

Table 1 provides a broad overview of California's total urban water use in acre feet, by construction type, from 2004 to 2006. The numbers were generated from a model licensed and run by the State Water Resources Control Board (SWRCB) and present plausible estimates for new water use. For residential development in 2006, the increase

**Table 1. California's Estimated Urban Water Use**  
*Environmental, agricultural and other uses are excluded*

Residential	2004	2005	2006
Population (Dept. of Finance) +	36,454,471	36,896,220	37,332,976
Change in Population in Households +	510,258	441,749	436,756
Change in Dwelling Units (2.77/unit)	184,209	159,476	157,674
Water Use (acre feet)	6,396,123	6,473,630	6,550,261
Change in Water Use (acre feet)	89,527	77,507	76,631
Commercial			
Output (\$ Bil. in 2000\$) *	1,550	1,624	1,710
Water Use (acre feet)	1,749,976	1,833,117	1,929,841
Change in Water Use (acre feet)	56,833	83,141	96,724
Industrial			
Output (\$ Bil. in 2000\$) *	703	740	792
Water Use (acre feet)	692,635	729,763	780,920
Change in Water Use (acre feet)	63,342	37,128	51,157
Total Urban Use			
Water Use (acre feet)	8,838,734	9,036,510	9,261,023
Change in Water Use (acre feet)	209,702	197,776	224,512

+ Household data from Dept. of Finance Table E-5 differs from these assumptions, with size at about 2.94 people per household, suggesting more water use per unit.

\* Commercial and industrial output are components of California's Gross State Product. GSP measures construction put in place over the course of a year, in phases, as a project is built and paid-out incrementally in inflation-adjusted dollars. GSP does not capture new project starts where all the project's value is added or counted at the beginning.

Sources: REMI, an Amherst, MA firm that licensed its economic impact model to the State Water Resources Control Board's Office of Research, Planning & Performance.

in water use of 76,631 acre feet was attributed to 157,674 new housing units using 0.5 acre feet of water each.<sup>4</sup> For all three years, new residential development required 243,665 acre feet of water to serve a total of 501,359 new households (dwelling units).

<sup>4</sup> The use of 0.5 acre feet of water per household per year is a commonly accepted average. It may seem like a large amount of water per household, but the average home has a lawn, garden or common grounds requiring sprinklers. Townhomes or condominiums with limited yards would use less water. However, some households have pools and fountains and would normally use more water.

Table 1 urban water use includes the water used by all new commercial, industrial and residential developments, not just large projects. Total new water use is the sum of all three types of development, but excludes environmental, agricultural and some other uses. The bottom line of Table 1 gives the growth or change in total urban water use in each of the three years, 2004-2006.

This model-generated information provides the context in which the threshold limit for new subdivisions is discussed in detail in later sections of this report. The model uses different algorithms and multipliers for each type of construction.

Non-residential (commercial and industrial) water use estimates, discussed later in a special non-residential section, also relied on data from Table 1. Non-residential water use in all three years was 388,325 acre feet.

## The Number of Subdivisions and Units

The CRB identified two sources of data that could be used to quantify the number of subdivisions and units affected by SB 221 and Section 66473.7 of the Government Code Appendix 2 discusses both data sets and why CRB used Department of Real Estate (DRE) filings to its Subdivisions Section for the analysis of SB 221.

From 2004 to 2006, the DRE data indicate that only 33 residential projects that submitted filings included more than 500 units and therefore might have been affected by SB 221's water verification requirement (see Table 2). Those 33 projects included 25,245 dwelling units.

The projects affected by SB 221 were located in only ten counties. Table 3 summarizes the 33 residential projects in the DRE database that included more than 500 units. Many of the projects were in the fastest growing counties in the state or adjacent to large metropolitan areas (Also know as metro's or MSA's) that were already substantially developed. For example, Orange and

**Table 2. Projects in New Subdivisions with 250 Units or More, 2004 - 2006**

Subdivision Size Measured in Units	Sum 2004-06	
	Units	Projects
Total units > 250	62,915	140
Total units > 500	25,245	33
Between 250 and 500	37,670	107
	Units	Filings
Final DRE Applications Received and Corresponding Units	356,498	12,730
<b>Water Usage for DRE Units, Assuming 0.5 Acre Feet of Water per Household</b>		
	Water Use	
Total units > 250	31,458	acre feet
Total units > 500	12,623	acre feet
Between 250 and 500	18,835	acre feet
Sources: Department of Real Estate (DRE), Dept. of Water Resources (DWR), Author's calculations		



Riverside counties, adjacent to already densely settled Los Angeles and San Diego counties, had the most new large projects.<sup>5</sup>

**Table 3. Counties with Large New Subdivisions of > 500 Units, 2004 - 2006**

County	Units	Projects
Alameda	520	1
Contra Costa	1,054	2
Los Angeles	3,023	3
Orange	5,241	7
Placer	816	1
Riverside	7,083	9
Sacramento	2,151	3
San Bernardino	2,547	3
San Diego	679	1
Ventura	2,131	3
<b>Total</b>	<b>25,245</b>	<b>33</b>

Overall, DRE received 12,730 final applications for 356,498 units during this three-year period (an average of 4,243 final applications and 118,833 units annually). Developments including at least 500 units comprised 7.1 percent of the total number of DRE's filings.<sup>6</sup>

### Water Use for Subdivisions

Under SB 221 (2001), local approval of a large residential subdivision requires substantial evidence that enough water is available to serve the subdivision's estimated future water use.<sup>7</sup> The DRE data imply that 12,623 acre feet of water per year will be used by the 33 large new projects subdivided in the three years 2004-2006 when they are built out.<sup>8</sup>

<sup>5</sup> In large metros like Los Angeles, San Diego, and Sacramento, condominium conversions of existing apartments might have made a significant contribution the number of subdivision units approved by DRE. If condominium conversions and other infill projects could have been identified for this analysis, the project and unit count would have been lowered by the numbers of units included in those projects, since most infill is not covered by SB 221.

<sup>6</sup> DRE data are not as comprehensive as permit data compiled from counties and cities by the Construction Industry Research Board. CIRB reported that permits were issued for 586,212 units in that same three-year period. CIRB numbers include construction of rental apartment units and development on existing lots that do not show up in the DRE numbers. Permits do not always translate into starts in the same year, and there are sometimes considerable time lags between permits and construction starts. The number of building permits issued in a given time frame is not directly related to the number of subdivision units approved through DRE during that same period. Observing that units in DRE's 33 large projects made up only 4.3 percent of total residential permits issued  $((25,245 / 586,212) * 100 = 4.3\%)$ , mixes apples and oranges to some extent, but puts the subdivisions in a broader context. Some new units portrayed in Table 1 were vacant or for seasonal use. However, vacant units were not deducted from the water use estimates. Since the units have already been built and will ultimately be occupied, the new water demand should roughly match these estimates, eventually.

<sup>7</sup> This multi-part section of law addresses design of a subdivision for which a tentative map is required pursuant to Section 66426 of the Government Code. Section 66473.7 specifically addresses water supply for subdivisions.

<sup>8</sup> Because SB 221 excludes water use by infill or low income housing developments, the data reported here may overstate all "new" water use by large residential projects. On the other hand, DRE data may not capture all eligible projects, as discussed earlier (see footnote 5). The state does not currently have a database specifically used to track local developments by size and water use, as discussed in Appendix 2.

Table 2 assumes water usage per unit of 0.5 acre feet of water per household per year, based on data provided by the Department of Water Resources and model results from the Regional Economic Models, Inc. (REMI) water use model under license to the State Water Resources Control Board (SWRCB). Table 1 gives the REMI model's estimates of total new use, regardless of project size. Overall, SWRCB puts total new residential use at 243,666 acre feet of water for those three years. The large residential DRE projects used just 5.2 percent of that total.

## Lowering the Threshold from 500 to 250 Units

This section estimates the number of subdivisions and units that would have been affected by SB 221 requirements if the definition of subdivision were lowered to 250 dwelling units from 500. According to the DRE data, lowering the limit would have required 107 more developments to complete water supply assessments in the three years 2004-2006 (see Table 2).

The additional 107 projects would then have fallen under the more rigorous procedural requirements of the Urban Water Management Plan Act (UWMP). Developers of those projects would have been required to verify their water supply at the tentative subdivision map approval stage. The California Environmental Quality Act (CEQA) requires an evaluation of a project's water supply so the public and county officials can fairly evaluate the merits of the proposed development.

Had the threshold been lowered to 250 units, those additional 107 projects would have subjected an additional 37,670 units to the water assessment process. Overall, the existing and changed laws would have impacted 62,915 units included in 140 projects in 21 counties.<sup>9</sup>

The law, with a 250-unit threshold, would have affected issuance of 10.7 percent of all state permits ( $((62,915 / 586,212) * 100 = 10.7\%)$ ) in the three-year period from 2004 to 2006 (see Table 2).

**Two methods for calculating water use.** The first method uses the state average method of 0.5 acre feet consumed per home each year. The advantage of this method is that it is relatively simple. This method produces the estimate that the additional 107 projects would have required an estimated 18,835 acre feet of water in the three-year period 2004-06. Table 2 shows the detailed results produced by this method. All 140 projects would have used 31,458 acre feet of water.

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<sup>9</sup> As mentioned earlier, the DRE filings only capture a subset of total permits, 356,498 or 61 percent of a total 586,212 units, as reported by the CIRB (see footnote 5).



Using an alternative method, water use was calculated for each county using data prepared by the Statewide Water Planning Branch in the Department of Water Resources. In Table 4, the average use per household was calculated, separately, for each of the 21 counties with large subdivisions of more than 250 units. Unfortunately, the 2000 county-specific water use data depicted was the latest available for a near-normal or slightly above-normal rainfall year. Water use varies by hydrologic region and also depends on whether it is a normal, wet or dry year.<sup>10</sup> Precipitation in the first year under study, 2004,

**Table 4. Water Use in 21 Counties Affected by SB 821**

Counties with Large New Subdivisions of > 250 Units in the Three Years 2004-2006			Water Use by County in 2000 per Household (HH), in Acre Feet	
County	Projects	Units	Use per HH	SB 821 Use
Alameda	3	1,125	0.3	329
Contra Costa	6	2,688	0.3	874
El Dorado	1	448	0.4	199
Kern	4	1,456	0.9	1,278
Los Angeles	13	6,361	0.4	2,784
Monterey	1	280	0.4	113
Nevada	1	353	0.4	154
Orange	19	9,535	0.4	3,679
Placer	4	1,879	0.5	903
Riverside	31	14,799	0.8	11,316
Sacramento	11	4,798	0.5	2,480
San Bernardino	7	4,120	0.7	2,991
San Diego	22	8,422	0.4	3,459
San Francisco	2	692	0.2	172
San Joaquin	1	313	0.5	172
San Luis Obispo	1	307	0.4	122
Santa Clara	6	1,878	0.3	602
Stanislaus	1	336	1.1	356
Ventura	4	2,564	0.4	1,056
Yolo	1	260	0.5	123
Yuba	1	301	0.7	204
<b>Total</b>	<b>140</b>	<b>62,915</b>		<b>33,365</b>

Sources: Statewide Water Planning Branch, Dept. of Water Resources, Dept. of Real Estate, Dept. of Finance, and Author's calculations.

<sup>10</sup> Historical data is from the Department of Water Resources Division of Flood Management, Hydrology Branch at their website <http://cdec.water.ca.gov/cgi-progs/precip1/8STATIONHIST>. but the latest data on water use per household by county was only available for three years: 1998, 2000, and 2001.

was below normal. Water use may be substantially curtailed in dry years, so might have been less than implied by using data from the wetter year in 2000. In the other two years under study, 2005 was the most like the year 2000, with slightly above-average precipitation during the rainy months of October to April, but 2006 was a wet year.<sup>11</sup>

The results in Table 4 are slightly higher than results portrayed in Table 2 where water use for all 140 projects was calculated using a statewide average. Using the county-specific method depicted in Table 4, all 140 projects would have required higher water use totaling 33,365 acre feet, since new, large subdivision development was concentrated in hotter, drier areas of the state. Accordingly, the water use for those 107 projects would have been four percent higher, at 19,600 acre feet of water.

## **Non-Residential Projects**

McGraw-Hill project data on large non-residential development in California show that 157 commercial and industrial projects in eleven metropolitan areas (21 counties) would have fit the criteria for “large” project water assessments (see Tables 5 and 6) in the three years under study.<sup>12</sup>

CRB grouped the McGraw-Hill data into four nonresidential categories to match as closely as possible the definitions of “large project,” given in Section 10912 of the Water Code.<sup>13</sup> According to that code, a “large project” includes any of the following:

- shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
- commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- proposed hotel or motel, or both, having more than 500 rooms;
- industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area, and
- mixed-use project that includes one or more of the projects specified above.

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<sup>11</sup> At the end of Water Year 2006 (October 1, 2005 through September 30, 2006), California statewide hydrologic conditions were as follows: precipitation, 140 percent of average to date; runoff, 170 percent of average to date; and reservoir storage, 120 percent of average for the date. The Northern Sierra, 8-Station Precipitation Index, seasonal total as of September 30 was 80.1", which is 160 percent of a normal Water Year (50.0"). Water Year 2006 was the fifth wettest year for the 8-Station precipitation record (1921-2006). During Water Year 2005, the 8-Station Index had 57.5", or 115 percent of the seasonal normal. Water year 2004 was a dry, below, normal year.

<sup>12</sup> CRB purchased McGraw-Hill data specifically for this analysis. The data from 2004-2006 were for commercial and industrial categories covered in SB 610 (2001). The data, arranged by area (square footage), address item seven, as shown in Appendix 1.

<sup>13</sup> Large non-residential projects are subject to the California Environmental Quality Act (CEQA). CEQA data (Division 13, as defined in Section 21080 of the Public Resources Code) are compiled by the Office of Planning and Research, but OPR's data was not suited to the analysis. Those data are collected for purposes other than the SB 610 purpose of ensuring adequate water supplies (see Appendix 2).

**Table 5. Total Non-Residential Construction for California, Metropolitan Areas (MSAs) and/or Counties and SB 610 Projects**

<b>MSA (Metro )</b>	<b>Counties</b>	<b>Data</b>	<b>Total for 2004-06</b>	<b>Subject to SB 610</b>	<b>SB 610 % of Total</b>
Los Angeles-Long Beach-Santa Ana	Los Angeles Orange	Value (000 \$)	18,031,669	3,216,552	17.8%
		Area (000 Sq. Ft.)	122,031	28,838	23.6%
		Number of Projects	6,445	61	0.9%
Modesto	Stanislaus	Value (000 \$)	937,154	338,000	36.1%
		Area (000 Sq. Ft.)	6,790	2,558	37.7%
		Number of Projects	400	5	1.3%
Oxnard-Thousand Oaks-Ventura	Ventura	Value (000 \$)	926,752	17,500	1.9%
		Area (000 Sq. Ft.)	7,164	285	4.0%
		Number of Projects	556	1	0.2%
Riverside-San Bernardino-Ontario, CA	Riverside San Bernardino	Value (000 \$)	8,315,833	1,373,282	16.5%
		Area (000 Sq. Ft.)	95,900	27,961	29.2%
		Number of Projects	2,644	32	1.2%
Sacramento--Arden-Arcade--Roseville	El Dorado, Placer, Yolo, Sacramento	Value (000 \$)	4,515,217	415,470	9.2%
		Area (000 Sq. Ft.)	34,071	3,618	10.6%
		Number of Projects	2,498	8	0.3%
San Diego-Carlsbad San Marcos, CA	San Diego	Value (000 \$)	5,717,301	1,162,209	20.3%
		Area (000 Sq. Ft.)	40,852	10,942	26.8%
		Number of Projects	1,300	24	1.8%
San Francisco-Oakland-Fremont	5 counties - see footnote	Value (000 \$)	7,970,822	1,081,268	13.6%
		Area (000 Sq. Ft.)	35,401	5,004	14.1%
		Number of Projects	2,857	13	0.5%
San Jose-Sunnyvale-Santa Clara	San Benito Santa Clara	Value (000 \$)	3,317,782	458,810	13.8%
		Area (000 Sq. Ft.)	17,168	4,148	24.2%
		Number of Projects	1,719	7	0.4%
Stockton	San Joaquin	Value (000 \$)	920,563	72,000	7.8%
		Area (000 Sq. Ft.)	7,879	1,426	18.1%
		Number of Projects	437	2	0.5%
Vallejo-Fairfield	Solano	Value (000 \$)	1,247,439	344,160	27.6%
		Area (000 Sq. Ft.)	6,084	1,809	29.7%
		Number of Projects	299	3	1.0%
Visalia-Porterville	Tulare	Value (000 \$)	602,904	43,000	7.1%
		Area (000 Sq. Ft.)	5,165	817	15.8%
		Number of Projects	321	1	0.3%
Total Statewide Value (000 \$)			59,831,566	8,522,251	14.2%
Total Area (000 Sq. Ft.)			430,270	87,406	20.3%
Total Number of Projects			23,535	157	0.7%

The San Francisco-Oakland-Fremont MSA includes the following: Alameda, Contra Costa, Marin, San Francisco, San Mateo.

Source: McGraw-Hill Construction, Author's calculations

The McGraw-Hill data was not available for the SB 610 “large project” criteria that specified number of rooms for hotels. McGraw-Hill sometimes includes number of rooms as part of its project description, but it is not a regular, searchable field. Therefore, square footage or “area” was the best criteria to use across all commercial categories.

Hotels were included at the most conservative threshold of 250,000 sq. ft. A standard hotel room is about 300 square feet, and as SB 610 suggests, a large hotel has 500 rooms or more (300 sq. ft x 500 rooms = 150,000 sq. ft.). To be consistent with other commercial buildings, CRB included hotels with areas of at least 250,000 sq. ft. to include meeting space, restaurants, pool and gym facilities and lobby space. At 250,000 sq. ft., hotels match the project criteria for other commercial or mixed-use buildings.

CRB broadly interpreted these project types to cover all other private unstated nonresidential categories, such as schools, colleges, dorms, hospitals, amusement and sports facilities, parking garages and automotive services, religious buildings and all other non-government structures of at least 250,000 sq. ft. CRB titled this category “Other Non-Residential,” as reflected in Table 6. CRB excluded all public infrastructure buildings since the law does not apply to those structures, including: airport buildings, prisons, power plants, libraries, government office buildings, public K-12 schools and colleges.

In evaluating industrial, manufacturing, or processing plants, McGraw-Hill provided data on all projects with at least 650,000 square feet of floor area. The McGraw-Hill data was not available for other project criteria such as whether the industrial park was planned to house more than 1,000 persons, or occupy more than 40 acres of land.

The totals at the bottom of Table 5 provide the total values, areas and numbers of all large non-residential projects subject to SB 610 in 2004-2006. Metropolitan and state data show how many projects were affected by SB 610 out of the total of all non-residential projects built statewide. By value, the SB 610 projects affected only 14.2 percent of all non-residential construction in the state. More importantly, by area, the SB 610 projects accounted for 20.3 percent of the total. CRB used that 20.3 area percentage in producing the following water use calculations.

CRB could not precisely calculate water use for all non-residential projects, since water use data by category type and area were not available.<sup>14</sup> Some estimates of water use per square foot for offices, hotels, supermarkets, and restaurants exist, but industrial, mixed-use and other nonresidential estimates were not available. Therefore, CRB used a rough estimate of water use by combining data from Table 5 and Table 1. New statewide commercial water use in years 2004-06 totaled 236,698 acre feet, and industrial water use was 151,627 acre feet, respectively, according to the REMI model output (Table 1). Large projects accounted for 20.3 percent of the total of all nonresidential projects built in the state in area (Table 5 at the bottom), so these large projects could be using as much

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<sup>14</sup> Complete water use data by category type and area were not available as requested in item eight of Appendix 1. Ideally, water use would have been calculated individually for each project.

as 78,830 acre feet of water per year now that they are probably fully operational ((236,698+ 151,627)\*.203 = 78,830).

Table 6 shows that the large non-residential projects were concentrated in three southern metropolitan areas. Los Angeles had the most projects, with 61 out of 157 and of those, 37 were other non-residential. Riverside’s largest projects were retail and San Diego had a concentration of commercial building.

**Table 6. Total Non-Residential Projects by Metropolitan Areas as Defined in SB 610 (2001) for 2004-06 Cumulatively**

Metropolitan Statistical Area (MSA)	Total Projects Subject to SB 610		Number of Projects by Non Residential Type *			
			Area project size limits in square feet +			
	Area +	Projects	> or = 250,000 sf	>= 500,000	>= 650,000	
			Commercial	Other NR	Retail	Industrial
Los Angeles-Long Beach-Santa Ana	28,838	61	18	37	6	0
Modesto	2,558	5	0	3	2	0
Oxnard-Thousand Oaks-Ventura	285	1	1	0	0	0
Riverside-San Bernardino-Ontario	27,961	32	5	1	23	3
Sacramento--Arden-Arcade--Roseville	3,618	8	2	4	2	0
San Diego-Carlsbad-San Marcos	10,942	24	12	10	1	1
San Francisco-Oakland-Fremont	5,004	13	3	9	1	0
San Jose-Sunnyvale-Santa Clara	4,148	7	3	4	0	0
Stockton	1,426	2	0	0	2	0
Vallejo-Fairfield	1,809	3	0	2	0	1
Visalia-Porterville	817	1	0	0	1	0
<b>Total State</b>	<b>87,406</b>	<b>157</b>	<b>44</b>	<b>70</b>	<b>38</b>	<b>5</b>

+ Projects were selected on total area to fit the large project criteria. Area is measured in 1000's of sq. ft.

\* Definitions of types: Commercial projects = or > 250,000 sq. ft. e.g. hotels, banks, offices, mixed use facilities; Retail Projects of at least 500,000 sq. ft. - Stores, Restaurants, Warehouses (excl. manufacturer owned); Industrial/Manufacturing/Processing Plants and mfg. owned warehouses = or > 650,000 sq. ft.; and Other Non Residential i.e. Schools, Colleges, Dorms, Hospitals, Amusement, Parking Garages and Automotive Service, Religious Buildings and all other PRIVATE nonresidential of at least 250,000 sq. ft.

Sources: McGraw-Hill Construction, Author's calculations and categorizations to fit SB 610 definitions

## Options for Legislative Consideration

After identifying large development projects affected by SB 221 and SB 610 (2001), and estimating the impact of a lower residential development threshold, the CRB offers the following options for potential legislative and administrative consideration and action. These options are not necessarily recommended by CRB or the author, but might improve policymakers’ ability to evaluate potential future water shortages.<sup>15</sup>

<sup>15</sup> Members of the technical advisory committee (Appendix 3) contributed substantially to this final section.

1. The state currently lacks the ability to track the quality or impact of the local water assessment plans required for large-scale residential and non-residential development.<sup>16</sup>

- The state could collect local water assessment plans as the first step toward conducting a more detailed analysis. It could then assess whether local water assessment plans are actually complying with state requirements to ensure sufficient water supply as well as adequate water quality and reliability.<sup>17</sup> One approach would be to request and analyze the water assessment plans associated with the large projects identified in this report.<sup>18</sup>
- The study could also analyze a variety of water assessment plans and compare them with urban growth plans.<sup>19</sup> The study might identify areas where water is likely to become a development constraint. It would provide a statewide perspective on actual and projected water use for large projects.<sup>20</sup>
- There are a few candidates for doing such a one-time study if funding becomes available (see Option 3). Of the two state water agencies, the Department of Water Resources (DWR) has expressed an interest in such a study.<sup>21</sup> DWR has the expertise to determine whether local water assessments for new large residential and nonresidential projects meet expectations, and whether the projected water supplies are proving sufficient.<sup>22</sup> However, the State Water Resources Control Board (SWRCB) could be equally suited to do this study. The SWRCB regulates water rights and determines beneficial use of limited supplies. Alternatively, one of the state universities or the Public Policy Institute of California may also be good candidates for the study.

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<sup>16</sup> No state agency is tasked with reviewing the water assessment plans of large development projects. Instead, all large projects are given extra scrutiny by counties and cities as part of the California Environmental Quality Act (CEQA) process that requires environmental impact reports, including water evaluations. The Dept. of Real Estate (DRE) requires self-certification letters when private water companies or mutual water companies are indicated as water providers.

<sup>17</sup> The East Bay Municipal Utility District undertook an earlier analysis and found considerable variation in quality. Results were presented in a March 2001, presentation entitled *Ensuring Reliable Water Supplies for "Average-Intelligence" Growth*.

<sup>18</sup> CRB only identified 157 non-residential and 33 residential projects subject to the 2001 laws requiring new water assessments. Neither CRB nor any other state agency certifies that water assessments for those large projects were either completed or accurate.

<sup>19</sup> Urban Water Management Plans are not well integrated with general plans or (regional) integrated water management plans. The study could link water assessment plans and land use plans.

<sup>20</sup> Court cases regarding "paper water" such as the 2007 decision in *Vineyard Area Citizens for Responsible Growth versus the City of Rancho Cordova* (40 Cal. 4th 412), address the need for such a study. The court found the city could not rely on "paper water."

<sup>21</sup> DWR has a mandate to reach out to regional Councils of Governments, cities, and counties and to provide planning and other technical assistance. It could assemble a team of hydrologists, economists, land use planners and water use scientists to conduct analyses of water assessment plans.

<sup>22</sup> DWR is currently updating *Bulletin 160*, otherwise known as the State Water Plan. Assessing water use for past large projects would be congruent with the *Bulletin 160* study of the state's long-term water needs.

2. The Department of Real Estate (DRE) has a mandate to protect people purchasing new housing in new subdivisions. DRE issues the final white papers that allow developers to sell homes in new subdivisions to the public. It can refuse a developer a final white paper if water supplies are not adequate. DRE currently relies on counties and cities to determine that there is enough water to service large developments.<sup>23</sup> DRE does not provide an independent check on public water supplied by cities and counties.<sup>24</sup>

As water supplies become more limited, consumer protection could be strengthened. To provide a check for future projects, DRE and local governments could benefit from certification by water experts at the DWR or SWRCB. DRE could require that a certification letter from a state water agency be filed at a preliminary stage.<sup>25</sup> DRE already routinely secures letters from the Public Utility Commission when private water companies are involved in new projects.<sup>26</sup>

3. In a time of tight budgets, funding for state agencies to assist local planners to update Urban Water Management Plans (UWMPs), or general plans to include more detailed water information will be a challenge. However, Public Resources Code (PRC) Section 75065(a) states: “(\$90,000,000) shall be available for urban greening projects that reduce energy consumption, conserve water, improve air and water quality, and

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<sup>23</sup> Cities and counties wield considerable development power. When a final map is recorded for a given project, the city or county has essentially given the project its blessing. DRE currently uses the recording of the final map as assurance of adequate water for most large projects.

<sup>25</sup> Since a developer has made substantial commitments to a project by the time DRE reviews its application for a final white paper, the water supply assessments should be checked by DWR or SWRCB at the earliest CEQA stage or in conjunction with the tentative map, rather at the end of the process or final map stage. The state water agencies would need 60-90 days to make their own findings. The local government or developer could submit the water assessments contained in the CEQA environmental impact reports (EIRs) to DRW or SWRCB. The assessments could be evaluated and an approval letter sent back to the local government and/of developer. The developer could supply that letter to DRE for residential projects when it applies for a white paper. However, project-based development constraints imposed by a state entity would be an inefficient and costly way to add new development constraints or certify available water supplies in future projects. Option 4 may offer more direct and cost effective methods.

<sup>26</sup> The DRE website has a downloadable document called the *Subdivision Public Report Application Guide*. On pages 54-57, the guide lays out the steps a developer must follow to satisfy DRE that enough water will be available to serve a new development. The website also has downloadable forms that DRE requires of developers or private water companies to show adequacy, plans for additional system supplies, financing arrangements for completion of new systems and projected completion dates. Engineers' reports are typically required with those forms.



provide other community benefits.” This might provide a funding source.<sup>27</sup> There are numerous additional ways to fund projects for enhanced state and local cooperation for improved water assessments going forward.

4. There is no state enforcement of UWMPs and uneven compliance of large water suppliers with the UWMP Act (an urban water supplier has more than 3,000 connections or serves more than 3,000 acre feet of water per year). The law could be strengthened with gradations of encouragement to comply. At one end of the spectrum, state law could prevent a jurisdiction from making a determination about water if it does not have a completed UWMP. A more robust approach would seek a legislative change creating a rebuttable presumption of waste for failure to prepare long-term plans. Such action would effectively tie planning to water rights.<sup>28</sup>
5. A database could be developed that contains all UWMPs, city and county general plans and water plans. The plan data should be in a form that could be searched and analyzed easily and be available on the Internet. The state would benefit from a single or multiple databases by being better able to analyze and provide information on local water assessment activities (see Appendix 2 for a description of the data collected by Office of Planning and Research). It may not be practical to rely on just one database. A few existing databases could serve as platforms or models for such web-based development. They could each provide areas of specialization and be expanded.

The CERES website currently contains some general land use plans and information about water supplies and could be expanded to include a searchable database. It would be a logical platform for infrastructure and spatial data of all sorts.<sup>29</sup> The Water Planning Information Exchange (Water PIE), used by DWR to update the California

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<sup>27</sup> Bond Act funds from Proposition 84 were authorized in the budget, but not appropriated for this year or last year. The funds are directed towards numerous state agencies for very specific purposes. The funds are mostly intended for local use (e.g. \$900 million of the one billion total for “Integrated Regional Water Management” are allocated to specific hydrologic regions). Only five percent of the money can be used for planning (DWR staff time and expenditures) and 3.5 percent for administration (bond issuance and costs). A website provides status of the newer bonds (Propositions 1 and 84). [www.bondaccountability.ca.gov/](http://www.bondaccountability.ca.gov/) There is an unallocated pot (\$100 million) for Proposition 84 projects of statewide significance, although DWR has proposed full use of the funds. Proposition 50 funds may still also be available (Section 79546 is just being launched).

<sup>28</sup> Strengthening the existing requirements for UWMPs, fostering more evaluation of long-term needs, and integrating water plans with other relevant plans may be more constructive than imposing additional project-based development constraints.

<sup>29</sup> CERES is an information system developed by the California Resources Agency to facilitate access to a variety of electronic data describing California's rich and diverse environments. <http://ceres.ca.gov/> However, several years ago, the legislature terminated funding of the data on the CERES website. Most of the general plans and other local plans on the site are not current. The plans are not continuously updated on the site, and cannot be relied upon. Database upkeep of UWMPs may be more relevant and manageable at the local or regional, rather than a statewide, level.

Water Plan, could serve as the state Internet database for water plans.<sup>30</sup> The Water PIE database could ultimately run like the database operated by the UC Davis Information Center for the Environment (ICE), which provides a drinking water database for Health Services. ICE has an interactive database allowing 39 regional centers to upload data and provides data on more than 12,000 wells.<sup>31</sup> Database upkeep of UWMPs may be more manageable at the local or regional, rather than a statewide, level.

These searchable Internet databases would have a cost, of course, but would aid in the preparation of the new State Water Plan, and allow resource economists to do a better job of accounting for the state's current consumption.<sup>32</sup> It would also help planners to check the accuracy of their predictions. The paucity of data is becoming a barrier to infrastructure investment. Good decisions require good data.

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<sup>30</sup> Water PIE is a portal for voluntarily sharing information, rather than a central data base in which water planning information is stored and it will foster integrated regional water management planning. DWR's prototype of Water PIE, called IWRIS (Integrated Water Resource Information System) can be accessed at <http://www.water.ca.gov/iwris/>

<sup>31</sup> This ICE database could serve as a template for other repositories. It allows for local autonomy and multiple formats. It took five years to implement at about a cost of \$1million. The system disperses responsibility for upkeep and requires training of local agencies that upload data to a centralized site.

<sup>32</sup> DWR's support of Water PIE is in response to recommendation 11 from the California Water Plan, Update 2005 and recommendation 9 in Bulletin 118, Update 2003.

# Appendixes

## 1. Proposed Legislation – SB 821 as Amended 5/1/07

As Amended May 1, 2007, SB 821 requires the California Research Bureau (CRB) to provide a report covering the 2004, 2005, and 2006 calendar years that does all of the following:

- (1) Determines the number of subdivisions affected by Section 66473.7 of the Government Code.
- (2) Determines the number of dwelling units affected by Section 66473.7 of the Government Code.
- (3) Estimates the annual amount of water, in acre feet, consumed by the dwelling units affected by Section 66473.7 of the Government Code.
- (4) Determines the number of subdivisions that would have been affected by Section 66473.7 of the Government Code if the definition of “subdivision” in paragraph (1) of subdivision (a) of that section had referenced 250 dwelling units instead of 500 dwelling units.
- (5) Determines the number of dwelling units that would have been affected by Section 66473.7 of the Government Code if the definition of “subdivision” in paragraph (1) of subdivision (a) of that section had referenced 250 dwelling units instead of 500 dwelling units.
- (6) Estimates the annual amount of water, in acre feet, consumed by the dwelling units that would have been affected by Section 66473.7 of the Government Code if the definition of “subdivision” in paragraph (1) of subdivision (a) of that section had referenced 250 dwelling units instead of 500 dwelling units.
- (7) Estimates the number of projects, other than proposed residential developments of more than 500 dwelling units, affected by Section 10910 of the Water Code.
- (8) Estimates the annual amount of water, in acre feet, consumed by the projects, other than proposed residential developments of more than 500 dwelling units, affected by Section 10910 of the Water Code.
- (9) Presents options for legislative consideration of any statutory changes that the California Research Bureau believes to be necessary or useful to Section 66473.7 of the Government Code, Part 2.10 (commencing with Section 10910) of Division 6 of the Water Code, or any other provision of law relating to water supply planning or land use planning and development.

In preparing the report, CRB was advised to consult with the State Clearinghouse in the Governor’s Office of Planning and Research (OPR). CRB was also encouraged to consult with any other federal, state, regional, or local agency and with any organization, institute, or association with expertise in water supply planning or land use planning and development.

## 2. Data Availability

CRB identified two sources of data to quantify the number of subdivisions and units:

1. Data from the State Clearinghouse in the Governor's Office of Planning and Research (OPR) that is taken from the California Environmental Quality Act (CEQA) database of environmental impact reports (EIRs).
2. Filings to Department of Real Estate (DRE), Subdivisions Section, from developers who have applied to market the projects to potential homeowners and investors. DRE data includes infill development such as condo conversions.

According to an April 2007 analysis of OPR data, there were 13,000 projects per year in the state on average for the period 2004-06. However, there were only 1,300 residential projects submitted per year in those three years. Each year, between 120 -150 projects met the "over-500-units" threshold, which represented about ten percent of the residential total or one percent of the overall total. If the OPR list were adjusted to eliminate master plans and specific plan amendments, only 45 projects would have fit the definition in those three years.<sup>33</sup>

Neither OPR's nor DRE's data may be exactly suited to the SB 821 analysis since those data are collected for purposes other than the bill's purpose of ensuring adequate water supplies. The DRE data captures fewer projects than OPR's data for the following reasons.

1. Many of the projects in the OPR data base were not built and may never come to fruition. Many were put on hold or mothballed during the planning process, rejected during the public comment phase of the review process, or voted down in elections.
2. The projects in the OPR database may be part of a long-range master planning process and units may not be built for many years.

## 3. Technical Committee

The following people have had much input into the planning and writing of this report. Their comments on data adequacy, guidance in interpreting the existing law and bill analysis of all three measures (SB 821, SB 01-610 and SB 01-221) were of great value.

From Senator Kuehl's Staff, Consultant, Mia Orr, [mia.orr@sen.ca.gov](mailto:mia.orr@sen.ca.gov).

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<sup>33</sup> The Planning and Conservation League (PCL) undertook a detailed analysis of OPR's data to sort out non-conforming projects. Programming was contributed by University of California Davis, Information Center for the Environment (ICE) and shared with PCL. PCL has in turn shared their analysis with Senate staff and CRB.

Representatives from Governor's Office of Planning and Research (OPR) Scott Morgan, Scott.Morgan@opr.ca.gov, and Terry Roberts, Terry.Roberts@opr.ca.gov, (916) 445-0613. Data from the State Clearinghouse in the OPR is taken from the California Environmental Quality Act (CEQA) database of environmental impact reports (EIRs).

American Planning Association, CA legislative director and Sonoma County Planner Pete Parkinson, pparkins@sonoma-county.org, (707) 565-1925, California Chapter - American Planning Association, <http://www.calapa.org/>.

Shannon Boyd, Deputy Commissioner, Dept. of Real Estate, Subdivisions Section, shannon\_boyd@dre.ca.gov, (916) 227-0808, and Chris Neri, Assistant Commissioner, Subdivisions, Chris\_Neri@dre.ca.gov, (916) 227-0813, for access to master file submissions from developers who have applied to market projects to potential homeowners and investors.

Dave Todd, Supervising Land and Water Use Analyst, Dept. of Water Resources, dtodd@water.ca.gov, (916) 651-7027. Department of Water Resources (DWR) handles water supply resources.

Tom Hawkins, Statewide Water Planning Branch, DWR, hawkins@water.ca.gov, (916) 653-5573 developed estimates of water use per household by county.

Jerry (Gerald) Horner, Ph.D. Senior Economist (RPS II), Ghorner@swrcb.ca.gov, (916) 341-5279. The State Water Resources Control Board handles water quality issues and provided REMI model output.

Linda M. Wheaton, Assistant Deputy Director, Division of Housing Policy Development, Dept. of Housing & Community Development (HCD), LWheaton@hcd.ca.gov, (916) 327-2642.

Principal Consultant: Natural Resources and Water Committee, Dennis O'Connor, Dennis.OConnor@sen.ca.gov.

Chief Consultant: Senate Local Government Committee, Peter Detwiler, peter.detwiler@sen.ca.gov.

Randy Kanouse, East Bay Municipal Utilities District, rkanouse@ebmud.com, (916) 443-6948.

Mike McCoy of UC Davis, Co-Director of ICE, Information Center for the Environment, mcmccoy@ucdavis.edu, (530) 754-9171, is the architect of OPR's CEQA database and can discuss the potential for extracting useful information from it.