

## ATTACHMENT 2 - DROUGHT IMPACTS

### 2.1 Drought Impacts and Funding Need (max 5 pages, 10 pt font min)

The current drought has the potential to severely impact the human right to water, and increase the risk of not meeting existing demands and violating secondary maximum contaminant level (MCL) standards for Total Dissolved Solids (TDS) in the two watersheds, Santa Ana River Watershed and the Upper Santa Margarita River Watershed, that lie in the semi-arid region of Southern California. These issues are compounded by the fact that the Santa Ana River Watershed is considered the fastest growing region in California and still has some of the poorest residents in the state. According to the California Department of Finance's January 2014 Population Projections, by 2060 Riverside County will have the largest growth (approximately 2 million) of any county in the state. Riverside will become the second most populated county in the state at 4.2 million, trailing only Los Angeles at 11.6 million. The Inland Empire, including Riverside and San Bernardino counties, will grow by 3.4 million. Even with the Santa Ana River Watershed's numerous groundwater basins, several are now experiencing declining groundwater levels and potential overdraft conditions. The Santa Ana River Watershed is also reliant on imported water, but supplies from the State Water Project (SWP) have been curtailed with DWR's announcement of a 5% allocation for 2014. This loss in supply has a multiplying effect, as the Bay-Delta water can be used for blending with brackish groundwater. Thus, local resources like groundwater supplies can no longer be leveraged. With the uncertainties regarding the length of the current drought and climate change-related impacts, competing needs are taking even greater precedence than ever, affecting how the watersheds manage water for the future.

The Interregional Landscape Water Demand Reduction Program uses the collaborative approaches described in the Santa Ana River Watershed's One Water One Watershed 2.0 IRWM Plan and the 2014 Upper Santa Margarita Watershed IRWM Plan Update. This proposal is a collaborative effort between different water agencies and stakeholders that have worked together within a region of Southern California that is structured by a complex and often fragmented water management system. The Program, based on the latest data and scientific information such as the California Center for Sustainable Communities report "Residential Water Consumption in Los Angeles: What are the Drivers and are Conservation Measures Working?" (specific page #s 11, 15, 16) and the University of California, Riverside/Baerenklau et al. study "Residential Water Demand Effect of Increasing Block Rate Water Budgets" (specific page #1), is centered on reducing the wasteful use of water which will provide for a more reliable water supply for human health and safety. Water use efficiency is recognized as absolutely necessary and a key integration component of the overall watershed portfolio of existing, and planned water supply strategies to ensure a sustainable watershed for future generations.

Regional water management impacts for the Santa Ana River Watershed and the Upper Santa Margarita Watershed due to the 2014 Drought and projected impacts if drought or dry year conditions continue into 2015 are explained for the following below. The Santa Ana River Watershed's IRWM Plan's vision statement is to attain a drought-proofed and salt-balanced watershed by 2035 and this solicitation's critical Proposition 84 Chapter 2 funding is of significant importance as the drought continues.

#### 2.1.1 *Drinking water MCL violations:*

The primary water quality impact currently and into 2015 with continued drought conditions statewide is in exceedance of the secondary MCL standards for TDS because of a greater reliance on Colorado River supplies in the absence of SWP supply availability. For the Upper Santa Margarita Watershed, this has the effect of raising import water TDS from 400-460 mg/l to well over 600 mg/l. This negatively impacts drinking water aesthetics as well as causing reduced crop yields (a negative impact to the local economy) and the requirement to apply more water to crops using water to flush salts lower than the root zone. Upward trends in TDS will affect compliance with discharge permits in both the Santa Ana River Watershed and the Upper Santa Margarita Watershed.

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Without the Bay-Delta low TDS sweet water to blend, water agencies will find themselves out of compliance. Some water agencies have already hit their limits at this time.

High salt levels are a long-standing groundwater quality issue in the Santa Ana River Watershed. The Santa Ana Watershed Project Authority (SAWPA), working closely with the Santa Ana Regional Board, has recognized the paramount importance of addressing the salt issues and has established effective salinity management for the watershed with extensive monitoring and operations of a brine disposal pipeline to remove over 75,000 tons/year. Further, the vision statement of the Santa Ana River Watershed IRWM Plan is to attain a drought-proofed and salt-balanced watershed by 2035. Sources of elevated levels in the Santa Ana River Watershed include mineral content in the sediments, recharge and drainage patterns, source water quality, irrigation, wastewater discharges, and historic land use. Managing levels of TDS in groundwater basins is a significant challenge as the recycling of waste water increases in the watershed. Urban and agricultural runoff continues to be of concern as a potential source of TDS, especially as residential and urban areas also expand within the two Program watersheds. The Temecula Valley Basin Salt and Nutrient Management Plan indicates that return flow of applied water, predominantly from turfgrass with a smaller amount from agriculture and septic tanks, is the largest contributor to TDS loading in the Temecula Valley Groundwater Basin. The importance of the watershed's groundwater basins are explained below.

### **2.1.2 Groundwater basin overdraft:**

#### *2.1.2.1 Santa Ana River Watershed*

In the Santa Ana River Watershed, which includes portion of Orange, Riverside and San Bernardino Counties, water supplies and groundwater storage have been depleted to historic levels. Disadvantaged communities in particular use this vital resource as their primary drinking water source. In general, the watershed relies on precipitation stored as groundwater to provide about 50% of the water supply. Due to reduced natural runoff/recharge and imported SWP recharge, the Santa Ana River Watershed has suffered a significant depletion of groundwater storage.

The possibility of continued drought and future droughts seriously threatens the Santa Ana River Watershed's supply and could be economically catastrophic. According to the 2014 San Bernardino County's Community Indicators Report, the unemployment rate has been higher in the County than the state and nation since 2007 (specific page #25). Impacts of a continued drought would include severe, mandatory cutbacks, permanent degradation of groundwater basins and more reliance on supply from the SWP and Colorado River. In addition, public confidence in the Santa Ana River Watershed's water supply reliability may discourage business, thus negatively impacting the local economic and job recovery from the recession, and property values. Since 2008, a cumulative total of 74,571 jobs have been lost in Riverside-San Bernardino Counties, while 32,302 housing units were permitted. Water demand will increase as the parts of the region rebounds from the Recession, and more families are able to purchase homes and re-occupy repossessed homes. Funding is needed to increase water use efficiency in the watershed to reduce the reliance on imported water and avoid permanent degradation of the groundwater basins in the Santa Ana River Watershed as the region balances economic recovery and new growth.

The groundwater basins within the Santa Ana River Watershed provide storage for local and imported water supplies used during droughts or other shortages. In the northeastern part of the watershed, at the base of the San Gabriel and San Bernardino mountains, the San Bernardino Basin Area (SBBA) has an estimated capacity of 5 million AF, supplying nearly 850,000 people 70% of their water supply. In 2013, SBBA experienced the largest single year decline since 1934. The cumulative change in storage for 2014 will undoubtedly be the lowest ever recorded. In the southeastern area of the inland portion of the Watershed, the Eastern Municipal Water District (EMWD) service area serving 777,000 people, groundwater and surface water diversions are reliant on the Hemet/San Jacinto Groundwater Management Area. Groundwater levels have been in a severe decline, with most groundwater levels at, or near, all-time lows, resulting in the loss of approximately 5,000 AF/year of water supplies. The San Jacinto River that flows into the EMWD service area has not provided any diversion of surface water since May 2011, a loss of 5,760 AF/year of EMWD surface water supply, and loss of all Lake Hemet Municipal Water District surface water supply from Lake Hemet of 6,000 AF/year. In the southwestern portion of the inland

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portion of the Watershed, Western Municipal Water District's (WMWD) 527 mile service area, groundwater supplies account for approximately 25% of total water demand. Drought conditions, with rainfall down to 4-inches to 6-inches over the last 3 years from an annual average of 13-inches, have significantly reduced the amount of natural recharge to these basins. This has resulted in decline of 165,800 AF of groundwater in storage. For the northwestern portion of the Watershed, the Chino Basin (Basin) has 5,000,000 AF of storage and provides almost 60% of the total water supply for the Inland Empire Utilities Agency (IEUA) service area. Since 2000 to present, the Basin has experienced nine years of below average rainfall. In 2012, the Basin received approximately 9.9 inches and again in 2013, only 4.2 inches of rainfall was recorded. This decrease in rainfall has drastically reduced the amount of recharge and associated storage.

In the western portion of the watershed, the Orange County Groundwater Basin supplies 70% of water supply for 2.4 million people in the Orange County Water District (OCWD) service area. Over the last three years, rainfall has been less than half of the 14-inches/year average. It is estimated the Orange County Groundwater Basin has had a reduction of 183,000 AF of storage in the last three years. The current storage level in the basin is within the safe operating range identified by OCWD, but is nearing the bottom end of the range. If the drought continues into 2015, this safe operating range will be jeopardized.

### *2.1.2.2 Upper Santa Margarita Watershed*

Rancho California Water District (RCWD) manages the Temecula Valley Groundwater Basin on a long-term sustainable, safe yield basis, and water levels generally move in a downward trend during times of extended drought. With local conditions being rated "Critically Dry" for 2012 and 2013, and "Below Normal" for 2014 (according to the rating criteria of the Cooperative Water Resources Management Agreement between RCWD and Camp Pendleton), RCWD is at risk for a reduction in "local" or "native" groundwater production should dry conditions extend through 2015. This is due to a reduction in local water precipitation runoff in the watershed and corresponding lack of groundwater basin recharge. At a minimum, a financial impact will occur when imported recharge water is used to make up for the lack of locally generated recharge water. If drought conditions continue into 2015, import recharge water most likely becomes physically unavailable both regionally and statewide.

### **2.1.3 Discharge water TMDL violations:**

While this is currently not applicable, the U.S. Bureau of Reclamation discharge order for applied reclaimed water irrigation in the Upper Santa Margarita Watershed is likely to be violated based on TDS exceedance with continued reliance on Colorado River supplies in the absence of State Water Project supplies as previously discussed.

### **2.1.4 Risk of not meeting existing drinking water demands and existing agricultural water demands:**

Both drinking water (municipal and industrial [M&I]) and agricultural water demands are met from potable water supply/distribution systems in both the Santa Ana River Watershed and the Upper Santa Margarita Watershed. Both types of demand are served at the same level of service reliability until higher shortage stages in Metropolitan Water District of Southern California (MWD) Water Shortage Contingency Plans are enacted, where agricultural use will be curtailed before M&I.

For 2014, MWD has stated there is sufficient water in their surface and groundwater storage programs to meet all demands. If statewide drought conditions continue into 2015, then MWD could reach the point of depletion of storage where all demands cannot be met. This will result in MWD and its member and sub-member agencies, many which overlie the Santa Ana River Watershed and the Upper Santa Margarita River Watershed, enacting high shortage stages of their Water Shortage Contingency Plans where water is curtailed in the priorities defined in each shortage level. The severity of the drought quite possibly would trigger the MWD Allocation Plan, further limiting the water available to MWD's member and sub-member agencies.

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### 2.1.5 Risk of not meeting ecosystem water demands:

A major source of pollution to surface waters, that provide habitat and refugium, is "non-point source" pollution, or pollution that comes from an indirect source. Excess irrigation is a primary source of non-point source water pollution. The proposed program removes approximately 4,950,000 SF turf, often laden with fertilizers and pesticides, which is typically over-watered and over-fertilized.

### 2.1.6 Other drought-related adverse impacts:

Between 2010 and 2012, RCWD reduced its gallons per capita per day (GPCD) water use by 7% or 23 gallons per person per day, through a combination of implementation of the budget-based water rate structure and water use efficiency programs for both the urban and agriculture communities. In 2013, RCWD experienced a substantial increase of 34.5 GPCD, and is headed into additional increases in GPCD as the drought continues. This is a direct result of a lack of rain for irrigation of landscape and agricultural crops and the hot, dry conditions.

## 2.2 Water Conservation Measures (max 5 pages, 10 pt font min)

### Santa Ana River Watershed

Water agencies and cities in the Santa Ana River Watershed have established water use efficiencies programs, and enacted water use efficiencies measures and passed conservation resolutions as a result of the 2014 drought. These water use efficiency programs include the large-scale replacement of old inefficient water fixtures and education programs to foster an understanding of water issues and promote wise water use. A variety of water use efficiency management programs, pilot programs, and outreach efforts have been implemented by the regional water agencies, MWD, cities and counties, and other entities from within the watershed. These include:

- Targeted Water Conservation Programs;
- Water-wise Ordinances and Landscape Design Guidelines for New and Existing Developments;
- Weather-Based Irrigation Controller Programs and rebates;
- Landscape Audit Programs;
- Rotating Sprinkler Nozzles for Sprinkler Heads Rebates; and
- Conservation based rate structures.

Across the Santa Ana River Watershed, agencies and cities have passed water use efficiency resolutions or enacted measures based on a long term commitment to water use efficiency and drought proofing the watershed as reflected by the SAWPA OWOW mission. In the portion of the watershed in southwestern San Bernardino County, IEUA issued Drought Resolution 2014-4-3 calling for 20 percent water use reduction. As part of that resolution, they coordinated with their retail agencies, cities and communities and developed a unified regional message to significantly accelerate their outreach effort to communicate the urgent need to conserve water. The Cucamonga Valley Water District, which is a subagency of IEUA, Board of Directors adopted Resolution No. 2014-4-2 on April 22, 2014 acknowledging concerns regarding the statewide drought and critical need that all Californians use water efficiently on an ongoing basis.

In the western portion of the Watershed, the Municipal Water District of Orange County (MWDOC) passed a resolution for Orange County residents and businesses to reduce their water use through enhanced water use efficiency measures. The Board's resolution asks all water users to take necessary actions in an effort to extend stored water supplies and prepare for a prolonged drought. In addition, OCWD has constructed, and then expanded, the Groundwater Replenishment System, recharging the groundwater basin with recycled water, therefore reducing reliance on imported water by 103,000 AF/year.

In the northeastern part of the Watershed, at the base of the San Gabriel and San Bernardino mountains, SBVMWD passed conservation Resolution No. 1016 and also re-formed its Water Supply Contingency

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Workgroup/drought task force made up of retail agencies. A voluntary cutback of 20% has been communicated throughout the area through press release(s) and an outreach plan. SBVMWD has also been preparing for drought by storing water. Since 2008, the area has locally stored 106,628 AF of SWP water to be used during a drought such as this one. In addition, SBVMWD also purchased storage in the Kern-Delta Water District storage program in the Central Valley. Valley District can receive up to 5,000 AF per year from this program. In the mountain portion of the watershed, on February 3, 2014 the Big Bear Community Services District Board of Directors voted to implement mandatory Stage 1 Water Restrictions: whereby watering with sprinklers is prohibited between 9 a.m. and 6 p.m. Turf irrigation between November 1 and April 1 is also prohibited under the restrictions.

In the southeastern part of the inland portion of the Watershed, EMWD issued a Stage 2 supply alert urging heightened water conservation by customers in response to the statewide drought. In addition, EMWD has implemented budget-based water rates in their retail service area resulting in 10% to 15% conservation, and recycled water seasonal storage ponds are being designed and constructed to increase recycled water use and decrease imported water needs.

In the southwestern part of the inland portion of the Watershed, WMWD adopted Resolution 2859 (attached) seeking a 20% voluntary reduction in water demand. A comprehensive public outreach campaign to inland residents and businesses is currently being prepared to complement the statewide and MWD efforts. In 2011, WMWD's Board of Directors approved implementation of a budget-based water rate structure. In the last year alone, WMWD's water customers have reduced their over-budget water use by 23% or 10 gallons per person per day. In the coming months, WMWD will consider adopting a new type of Water Shortage Contingency Plan based on customer water budgets.

### **Upper Santa Margarita Watershed**

RCWD has moved forward with a diversity of enhanced water use efficiency and water conservation programs, which have proven to result in substantial water savings in both drought periods and in normal times to reserve water for drought periods. For now, RCWD continues to operate in its Stage 1 – Water Watch shortage stage, with the knowledge there are continued long-term challenges that warrant continued wise and efficient water use. As the drought continues through 2014 and into 2015, RCWD Board of Directors will consider the impacts and identify the appropriate response and water shortage stage. Further, in the coming months, RCWD will be updating its Water Shortage Contingency Plan, consistent with WMWD and EMWD plan revisions, to include shortage stage reductions based on customer water budgets, a change that will signal users to conserve water and show that the District and the State are seriously responding to the drought conditions in this region.

WMWD and EMWD water conservation measures discussed above under the Santa Ana River Watershed are also consistent with measures in their service area in the Upper Santa Margarita Watershed.

If the drought continues into 2015, it is anticipated that mandatory cutbacks will be required in many areas of both the Santa Ana River Watershed and the Upper Santa Margarita Watershed. Indirectly, more extreme cutbacks can have an adverse impact on the environment as support for water supply for non-urban uses can quickly wane, extending beyond the cessation of the drought.

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# **Residential Water Consumption in Los Angeles: What are the Drivers and are Conservation Measures Working?**

A policy summary based on the Ph.D. dissertation of Caroline Mini at UCLA  
Supervised by Terri Hogue and Stephanie Pincetl

Funding was provided by the National Science Foundation  
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*Citation: Mini, Caroline, 2013: Residential water use and landscape vegetation dynamics in Los Angeles, Ph.D. Dissertation, University of California, Los Angeles, CA 90095*

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## EXECUTIVE SUMMARY

In January 2014, Governor Brown declared a drought state of emergency following the driest year in California history and record low river and reservoir levels. This crisis may be an indication of a shift in climate that will make precipitation more uncertain and bring warmer temperatures to Southern California. This issue is compounded by additional water stress caused by increased urban water demand in a region structured by a complex and fragmented water management system dependent on imported water. These interconnected problems necessitate sound water management and efficient water use practices both in the short- and long-term.

In Los Angeles, the LADWP has already begun such practices. Conservation policies over the past decade have led the city to becoming the most water efficient of U.S. cities over 1 million people (LADWP 2011). As the LADWP pursues further strategies to reduce residential water use, this analysis can help the utility better understand water use and consumption patterns at a neighborhood scale, enabling it to better calibrate its policies to its users.

This report presents three years of National Science Foundation funded research to understand water use patterns and factors that drive residential water consumption across the City of Los Angeles over a 10-year period (fiscal years 2001-2010). We examine the influence of socio-economic, climate, vegetation greenness and pricing variables on Single-Family Residential (SFR) water consumption over ten years of monthly residential water use data provided by the LADWP. This is the first study of its kind to study water consumption in relation to various socio-economic characteristics and at the census tract level in Los Angeles. Our findings, based on developed statistical models, demonstrate that Single-Family Residential water use in the City of Los Angeles is primarily driven by household **income**, landscape **greenness**, **water rates** and **water volume allocation** [11]. Additionally, there is a **distinct clustering of water use patterns across the city**, with higher consumption rates in the northern, warmer and more affluent parts, and lower consumption rates in the less affluent neighborhoods near Downtown.

We also consider the links between outdoor irrigation, landscape greenness and various socio-economic variables in order to uncover some of the underlying drivers of Single Family Residential outdoor water consumption. We find that **SFR outdoor use varies greatly across the city**, and that **income is one of its primary drivers** [11,12].

Furthermore, we undertake an analysis of the effectiveness of LADWP's water restriction programs implemented between 2007 and 2009. These measures consisted in both voluntary and mandatory measures, which decreased the water allotment for the Tier 1 block, increased Tier 2 rates and limited outdoor irrigation practices.

Our results indicate that **mandatory restrictions are most effective at reducing water consumption for SFR households**. The greatest impact of measures resulted from the combination of mandatory watering restrictions and the price increase, which led to a **water reduction of 23% in July/August 2009, while voluntary restrictions led to only a 6% reduction in water use** [13].

In order to illustrate our findings across the cityscape, we conduct a neighborhood-by-neighborhood analysis of thirteen areas representative of Los Angeles' diverse socio-economic and micro-climactic characteristics. This analysis colors the differential water consumption patterns across the city and depicts various housing, land use, household and population characteristics of each area for the reader.

Finally, we provide a few policy recommendations at the end of this report, which we hope can serve as a starting point for reflection on future water saving measures for the LADWP. Among our **key recommendations**, we encourage the utility to **examine a restructuring of the two-tier system, establish water budgets, separate indoor use from outdoor use by installing dual meters and continue to support efficient landscaping practices.**

Our analysis provides additional understanding of spatial and temporal water use patterns and of the key factors that drive both indoor and outdoor water consumption across the city. A brief summary of the methods used for all of our findings is located in the appendix at the end.

We are grateful to the LADWP for the data they have generously provided the California Center for Sustainable Communities that have made this study possible. This report is based on the findings presented in Dr. Caroline Mini's PhD thesis submitted in December of 2013 at UCLA and a set of related journal papers that are published or in review.

## I) Drivers of SFR water use

Just as the size and make-up of Single-Family Residential households vary greatly across the city of Los Angeles, so do their water consumption levels and patterns. In order to understand these differences, we undertook a socio-economic analysis at a highly disaggregated scale, both to illustrate these differential patterns and to understand what drives them. In our study, we examine SFR water consumption and its relation to the following variables: income, climate, vegetation greenness and water pricing. This analysis was conducted across the entire city of Los Angeles at the census tract level and is based on ten years of monthly residential water use data (detailed study in Mini et al., 2014a [11]).

Our results suggest that Single-Family Residential water use across the City of Los Angeles is primarily driven by 1) household **income** 2) landscape **greenness** (proxied by cumulative Enhanced Vegetation Index (EVI)), 3) **water rates** and household **water volume allocations**. Each of these findings is explained in greater depth in their own section below.

Additionally, average Single-Family water consumption at the census tract level differs significantly across the city, ranging from a ten year average (2001-2010) of 307 m<sup>3</sup>/SFR/yr to 827 m<sup>3</sup>/SFR/yr. Furthermore, these consumption patterns can roughly be divided into **three geographical clusters**: the **northern warmer area (San Fernando Valley)**, the **older, denser Downtown area** and the **coastal zone**. In general, **higher water use occurs across the warmer northern parts of the City and in the coastal area, while lower water use occurs in the downtown region**.

While our analysis was conducted at the census tract level, we also examine how these findings translate across thirteen representative L.A. neighborhoods to provide a more descriptive analysis of these findings. (See the Neighborhood-by-Neighborhood analysis in the Appendix).

### 1) Income

Income is one of the primary forces driving Single-Family Residential water use in the city of Los Angeles. LADWP monthly residential water use data reveals that **on average, wealthier neighborhoods consume three times more water than less affluent ones**. This translates at the census tract level to SFR water consumption rates ranging from 37.4 HCF/SFR customer/year in the Downtown area to 1,214 HCF/SFR customer/year in the area adjacent to the Santa Monica mountains (see Figure 1). This disparity reflects different land uses, built densities, climates and the vast differences in wealth that make-up a city where the top 5% earns over twelve times more than the bottom 20%.

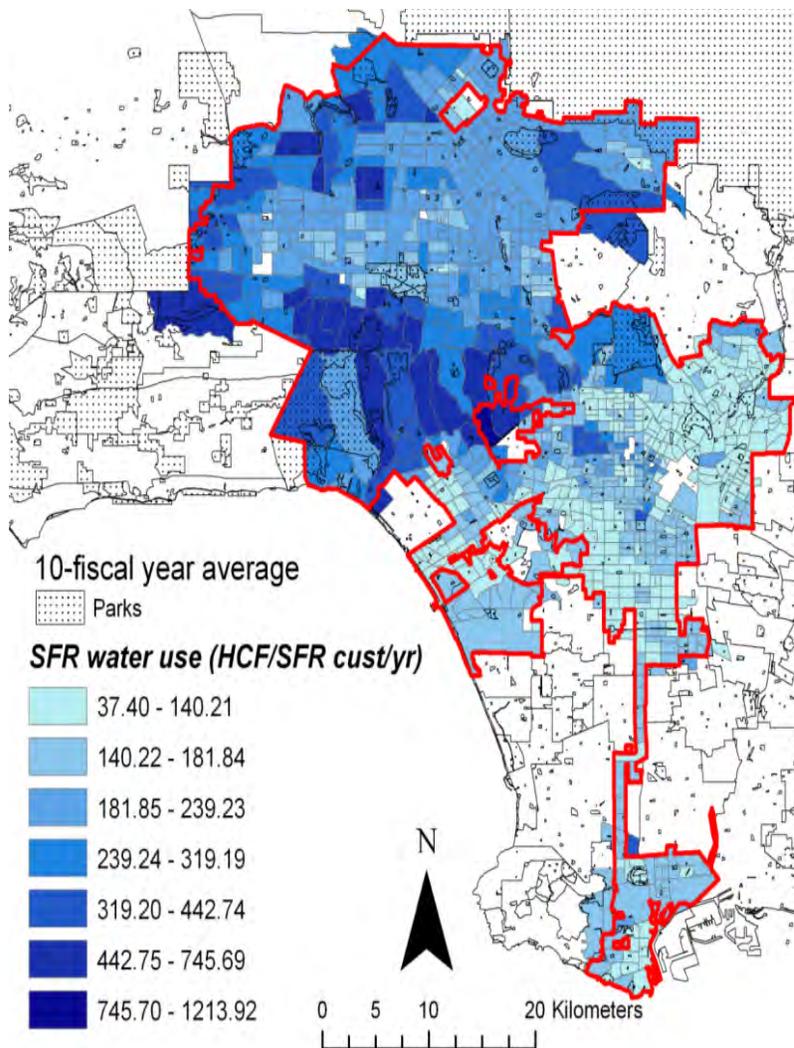
At the neighborhood scale, Pacific Palisades had both the highest median income (\$148,984 in 2012), and the highest ten-year average SFR water use of 827 m<sup>3</sup>/SFR cust./yr. In contrast, lower-income areas, such as Downtown (\$13,504 median income) and Florence (\$29,174) consumed on average 369 m<sup>3</sup>/SFR cust./yr and 385 m<sup>3</sup>/SFR cust./yr respectively.

There exists a distinct **clustering in water use and income** across the city, with high water users located in the census tracts near the Santa Monica Mountains and in the warmer northern sections of the City, while low water users are situated north of the Downtown area, as well as in the less affluent areas of Florence and Leimert Park (Figure 1). At the neighborhood level, the coastal areas of Playa Vista and Venice reveal themselves to be exceptions to this rule, with higher median incomes and lower water use levels. This can be explained in part by the housing and land use characteristics of these neighborhoods: Playa Vista is a newly developed area, built with higher densities, and with landscaping and irrigation needs met entirely by reclaimed water. Venice, which has a median household income of \$76,578 and the lowest water use of the thirteen studied neighborhoods—307 m<sup>3</sup>/SFR cust/yr—is a denser neighborhood in the coastal climate zone, with smaller lot sizes and a lower average household size than other neighborhoods.

Previous studies have demonstrated that residential water use is greatly influenced by the **size of lots, gardens, and buildings, as well as building age**: denser urban neighborhoods typically consume less water than areas with larger lots and irrigated gardens. These building and housing characteristics can be traced across the clusters shown in the map above: wealthier neighborhoods in the north and along the coast are comprised of single detached homes, with larger lot sizes and outdoor landscaping, while low water use clusters inland and in the south contain older buildings, higher densities, smaller lots and less outdoor areas.

Overall, we find that lower income neighborhoods consume relatively less water than their more affluent counterparts. However, we also note that **a \$1,000 increase in median household income would increase Single-Family water use by about 2%**, indicating that income plays a determining role on water consumption levels of all consumer groups.

With income and water use so tightly bound together, further incentive must be given to higher water users—and thus higher-income customers—to conserve more. Targeting higher user groups more directly will enable greater water savings and allows for a more equitable distribution of costs across user groups. The policy recommendations section at the end of this report outlines several ways forward for achieving these goals.



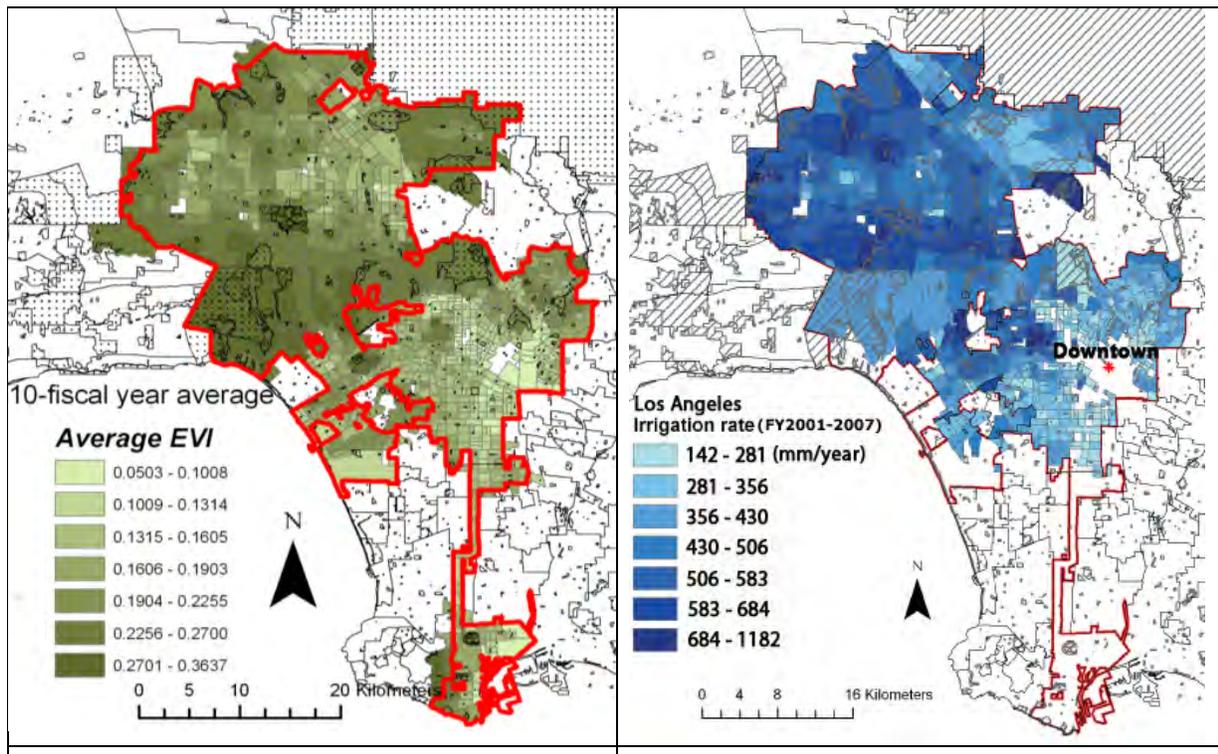
**Figure 1.** Ten-year average single-family (SFR) water use per census tract (1000L/SFR customer/year) across Los Angeles. The selected study neighborhoods are also outlined (black lines) with abbreviations, including Florence (FL), Koreatown (KR), Leimert Park (LM.P), Mid Wilshire (MD.W), Silver Lake (SL.L), Playa Vista (PL.V), Pacific Palisades (PC.P), Venice (VN), Pacoima (PC), Reseda (RS), Sherman Oaks (SH.O), Downtown (DW) and North Hollywood (NR.H).

## 2) Landscape greenness and outdoor water use

Another important driver of Single Family Residential water use in Los Angeles is **landscape greenness**—or the existence of vegetation—calculated in our analysis by cumulative Enhanced Vegetation Index. According to our findings, this **greenness is primarily driven by outdoor water use**, as precipitation accounts for only a small portion of variation in greenness patterns ( $R^2=0.018$ ). Our results indicate that on average, **outdoor water use accounts for 54% of overall SFR water consumption**,

within LADWP's estimated range of 40-60%. It should be noted that, as we do not have separate outdoor billing data, we developed a model to calculate SFR outdoor use, applying Normalized Difference Vegetation Index (NDVI) values to the census tract level. The developed model (details in Mini et al., 2014b [12]) is an effective tool for measuring outdoor water use, and thus, for facilitating outdoor water conservation measures targeted at higher outdoor users.

Both **greenness and outdoor water use vary across the city as well as across climates, seasons and regions**, as demonstrated in the maps below (Figure 2). These variations are spatially clustered with the lowest EVI values (indicating less vegetation) situated in the Downtown areas ranging from 0.05 to 0.15, and the highest EVI values of around 0.4 in Pacific Palisades obtained in the spring and summer periods. Similarly, **outdoor irrigation use is greater in the warmer parts of the city, and lower in the denser parts**. (Note: the maps in Figure 2 have overlapping but not identical time scales—outdoor irrigation patterns demonstrated in the map on the right were calculated before the 2007-2009 water restriction programs were implemented.)



**Figure 2.** Ten-year average (2000-2010) of the MODIS cumulative Enhanced Vegetation Index (EVI) per census tract over the study area (left figure) and average landscaping irrigation rate (in mm/year) for the FY2001-FY2007 period from single-family customers at the Census tract level (right figure).

These spatially clustered patterns of vegetation greenness and outdoor water use might be explained by differing climate zones, as well as amounts and types of trees and grass cover in residential landscapes across the census tracts.

They may also be explained by socio economic factors: our analysis proves that **income is strongly correlated with landscaping irrigation volumes across the city** (correlation of 0.71 significant at  $p < 0.05$ ), **as well as with landscape greenness** (correlation of 0.58 significant at  $p < 0.05$ ). As such, **higher incomes, higher outdoor water use and greener landscapes are closely related**. This pertains to lot size and other housing and land use characteristics as described in the previous section.

**Outdoor water use patterns may also be linked to various other socio-economic drivers, such as origin, age, and occupation status.** According to our findings, people of Hispanic or Latino origin have lower landscape irrigation levels. This may be due to different landscape types or water use habits. Conversely, households with higher amounts of residents aged 60 years and over, irrigate more, as do owner-occupied housing units, which have higher outdoor water rates than renter-occupied housing units.

These findings are by no means exhaustive, but they help underline the complex relationship of outdoor water consumption patterns across the city of LA and highlight the need for outdoor water use data in order to pursue this kind of analysis further.

### 3) Tier water rates and allotment

**The price and household allotment of water also influence Single-Family Residential water consumption patterns.** In 1993, the LADWP revised its rate structure to two tiers, in order to better reflect differing lot sizes and microclimates across the city. Residential water prices were set at a lower rate based on a lower water allotment (Tier 1) and a second higher rate (Tier 2) for every additional billing unit (1 HCF). Allotments were set by zip code, lot size, season and temperature zone, with additional water volume allocated to larger households in Tier 1 (Table 1).

Zip code	Temperature zone	<7500 ft <sup>2</sup>	7500-10999 ft <sup>2</sup>	11000-17499 ft <sup>2</sup>	17500-43559 ft <sup>2</sup>	43560 ft <sup>2</sup>
		Season Low/High	Season Low/High	Season Low/High	Season Low/High	Season Low/High
90266-90277	Low	26/32	32/46	48/72	56/90	72/110
90001-90044	Medium	28/36	234/52	50/80	58/102	76/124
91040-91367	High	28/38	34/54	50/84	58/106	76/130

**Table 1** Tier 1 water allocation: Bimonthly quantity of water in HCF (1 HCF=748 gal) allocated by lot size and temperature zone (and billed under the first tier (High season: June 1-Oct. 31, Low season: Nov. 1-May 31, Normal year water rates) Additional water demand above this quantity is

billed under Tier 2 rate

In our analysis, we examine how changes in the price of water and household volume allocation impact the water consumption of low, medium and high income groups (divided into quartiles) as well as low, medium and high water users across all census tracts. In such a way, we are able to separate out whether these changes have a greater influence on consumers based on their income or water use levels. **Overall, we observe that when water prices increase, water consumption for all households decreases, regardless of income, neighborhood or water use level.** Additionally, **when household water volume is increased, SFR water consumption rises as well.**

### *Price*

**Single-Family Residential households, across all income and water use groups (low, medium, high), respond more to increases in Tier 1 rates than in Tier 2 rates.** If Tier 1 rates were to increase by 10%, water demand would decrease by 2% for Tier 1 and by 0.7% for Tier 2. **Higher water users and higher income groups are particularly sensitive to changes in Tier 1**, indicating that Tier 2 prices are not triggering their intended savings. This may be explained by the fact that both lower income and lower user groups have a less great margin to reduce their water use, as they dispose of a relatively higher indoor use and a reduced outdoor use overall.

An increase to the Tier 2 rate has less of an effect on the behavior of low, medium and high water users, as they all change their use by a similar amount. However, **lower income customers are more sensitive to changes in the Tier 2 price** (price elasticity of -0.10) **than higher income customers** (-0.027). As such, the current structure is not effectively targeting those who consume more and can afford to reduce their water intake, while lower income groups are being disproportionately affected. Tier 2 must then be restructured to shift the price burden away from low-income groups and more adequately target high user groups.

### *Water Volume Allocation*

**An increase in the household volume allocation of 10 HCF per single-family customer in Tier 1—equivalent to a 30% average increase over selected census tracts—would result in an increase in Single-Family water consumption of around 9%.** In this regard, low-water users are more affected by an increase in water volume allocation than high water users. With regards to income, water consumption would increase at a similar rate for both high- and low-income customers should the allotment be increased, signifying water use level is more greatly related to allocation than income.

**As low water users are most sensitive to increases in volume allocation, household allotment thresholds may need to be revised in order to generate greater savings from medium and higher water use groups.** Overall, we find the current prices and household allocations are not sufficiently targeting high water users. The two-tier system may need to be adjusted and perhaps even replaced to induce higher water savings.

## II) Effectiveness of the 2007-2009 water restrictions

The LADWP has a proven record in reducing water consumption levels via effective restriction programs. Following a decades' worth of rebates and conservation programs, the 2001-2005 average total water demand was 3.4% lower than the 1986-1990 water demand level, in spite of a 9% population increase. Between 2007 and 2009, the LADWP reintroduced water conservation efforts in response to a renewed drought. These consisted in: voluntary reduction measures in June 2007; mandatory water restrictions in August 2008, prohibiting water waste and limiting irrigation practices; and more stringent mandatory restrictions in June 2009, which further restricted landscaping and other irrigation practices, reduced Tier 1 water allocation by 15% and increased Tier 2 rates in order to trigger higher reductions (Table 2).

Water conservation measures implemented between June 2007 and June 2009 in response to water shortage conditions		
June 2007 Voluntary conservation	August 2008 Mandatory restrictions (Phase I)	June 2009 Increased mandatory restrictions and price conservation incentive (Phase III+Price)
<ul style="list-style-type: none"> <li>• Voluntary conservation measures called by the Mayor</li> </ul>	<ul style="list-style-type: none"> <li>• No irrigation between 9am and 4pm</li> <li>• Limitation in frequency and duration of landscape irrigation depending on the irrigation technique (for spray head, bubblers, standard rotors and multi-stream rotary heads)</li> <li>• Limitation of water waste practices (no washing vehicles with a hose, no use of a water hose to wash paved surfaces, no irrigation during rain, no watering with excess water flow)</li> </ul>	<ul style="list-style-type: none"> <li>All previous prohibited uses +</li> <li>• Two-day watering allowed per week only</li> <li>• No washing of vehicles in streets</li> <li>• No filling of residential pools and spas with potable water</li> <li>• Increased reductions in watering times and frequency for all types of irrigation nozzles</li> <li>• Implementation of water shortage year rate: Decrease in single-family household water allocation by 15% Increase in second Tier rate by 44% for single-family customers</li> </ul>

**Table 2:** LADWP restriction programs (2007-2009)

We studied the impact of these various programs on Single-Family Residential water use, both on indoor and outdoor use, to evaluate the effectiveness of these measures and assess the change in consumption by temperature zone, income range and lot size category at the same regional spatial scale (details in Mini et al. 2014c [13]).

Additionally, we developed a linear regression model that we believe can serve as a useful evaluation tool for the LADWP. (For more detail on the model, see the Methods Appendix at the end).

Our results indicate that **mandatory restrictions are more effective at reducing water consumption for SFR households than voluntary measures**. Furthermore, **mandatory savings have the highest impact on higher income users**. At the neighborhood level, annual single-family water use decreased by about 17% in Pacific Palisades and 11% for Florence between 2008 and 2010 relative to water use levels in 2008. Additionally, while water use decreased only slightly for medium and high use neighborhoods, the **more stringent mandatory restrictions implemented in June 2009, significantly impacted consumption in all neighborhoods**. Even the lower landscape and less affluent neighborhoods (Leimert Park, Downtown, Florence, etc.) consumed less water following these measures.

Additionally, **higher reductions were achieved in hotter temperature zones**. Low water users were found to be more sensitive to water price increases than other users, signifying **low-water users save more than high water users when water rates increase**. Similarly, **lower income groups responded more to the voluntary and mandatory reduction policies of 2007 and 2008 compared to the higher income groups** (from 12% to -4% respectively), meaning **less affluent consumers conserved more than higher income groups**. These are particularly noteworthy findings as higher income users and warmer parts of the city tend, overall, to have higher water use levels, as demonstrated in the previous section. This points to a potential margin for reducing consumption particularly at the higher income and higher use levels.

Overall, **voluntary restrictions did not lead to a significant reduction in water use**. This finding is echoed by previous studies that debate the benefits of such restrictions.

According to our analysis, **the greatest impact of measures resulted from the combination of mandatory watering restrictions and the price increase**. This led to **the highest water reduction of 23% in July/August 2009**. This suggests the potential for long-term and durable reductions, particularly in outdoor use, should these measures be sustained over time.

### ***Restrictions and outdoor water use***

In order to isolate the effects of these restrictions on outdoor irrigation practices in particular, we created a separate model holding water consumption for purposes other than landscaping irrigation constant. In this scenario, **stringent mandatory restrictions of June 2009 yield a larger decrease in outdoor irrigation** (around 35% relative to the 2001-2007 period) than the voluntary restrictions, which leads to an expected decrease of 6%. Considering landscaping irrigation use represents on average 54% of total Single-Family water use, this represents a dramatic reduction in use, and demonstrates the effectiveness of mandatory water restrictions—which includes the 2-day/week irrigation limit, the water rate increase and decrease in water allotment—in reducing landscape irrigation.

These findings are particularly important considering that despite these restrictions, **Los Angeles generally maintained the same level of greenness, with EVI values**

**remaining stable.** This suggests that **vegetation may be over-watered and that there is still room for outdoor water conservation.**

The LADWP's restriction programs implemented between 2007 and 2009 were successful in reducing SFR water consumption levels. Taking into consideration how these programs affected user groups differently will allow for even greater savings in the future.

### III) Policy recommendations

As our analysis demonstrates, on several different counts—be it with regards to the current tier rate and allotment system, the levels, patterns and drivers of consumption— it becomes evident that more can be done to incentivize higher water users to conserve more.

#### Revising the two-tier system

At present, Single-Family Residential consumers are more sensitive overall to changes in Tier 1 water prices—and particularly higher water user and higher income census groups. This implies that increasing the Tier 1 rate may be an effective measure to achieve greater water conservation in Los Angeles. Tier 2 rates on the other hand, impact low-income customers more than other groups and at their current levels, are not sufficiently compelling higher users to lower their consumption. It therefore seems necessary to reevaluate the Tier 2 rate, with careful attention being paid to equity concerns so as not to penalize low-income groups. We believe the LADWP should examine the costs and benefits of moving beyond its current two-tier system, in order to develop a rate system that better reflects actual consumption levels, and ties prices to the vastly differential consumption rates across the city.

We understand however, that restructuring the current rate system is no small feat, particularly when considering the utility's important operating and maintenance costs. However, these suggestions may serve as a basis for thinking through a more targeted, effective and equitable rate structure for the LADWP, in order to generate even more conservation. There are multiple ways to calculate rates. We outline only a few suggestions here to provide some initial ideas.

A first approach could be to create an **increasing block rate structure**, in which the unit price for water increases with the volume consumed. The city of St George, Utah for example has an incremental pricing structure with nine different unit rates ranging from \$0.78 for lower end consumers, to \$1.66 for higher end users. This kind of rate structure can be combined with other measures, such as in Salt Lake City, where a seasonal rate structure is combined with increasing block rates with 4 tiers (Table 3). These incremental rates apply during the summer months, intended to curb consumption during the higher demand months.

Municipality [Water provider]	Rate structure type	Fixed Monthly Service Charge	Consumption rate
St. George [City of St. George Water Dept.]	<b>Increasing block rate</b>	<b>Ranges from \$22.47 to \$845.61 depending on meter size</b>	\$0.78 – from 5,000 to 10,000 gal. \$0.90 – from 10,000 to 15,000 gal. \$1.00 – from 15,000 to 20,000 gal. \$1.11 – from 20,000 to 25,000 gal. \$1.22 – from 25,000 to 30,000 gal. \$1.33 – from 30,000 to 35,000 gal. \$1.44 – from 35,000 to 40,000 gal. \$1.55 – from 40,000 to 45,000 gal. \$1.66 – over 45,000 gal.
Salt Lake City [Salt Lake City Public Utilities]	<b>Seasonal and increasing block rate</b>	<b>Ranges from \$9.14 to \$101.36 depending on meter size</b>	Nov. - March: \$1.01 April - Oct.: \$ 1.01 – 1-10 HCF \$ 1.55 – 11-30 HCF \$ 2.14 – 31-70 HCR \$ 2.25 – 70 HCF and above

**Table 3:** Water Rates for Residential Accounts in St George and Salt Lake City, Utah (2014). Adapted from Western Resource Advocates 2005

### Water budgets

Another approach worth considering could be to **establish reasonable water budgets** for households, above which use water is priced very high, similar to those implemented in several water districts in Orange County. The Moulton Niguel Water District for instance, has instituted both indoor and outdoor water budgets for its customers, where those who consume above their allocated budget see an increase in their water bills. The indoor budget is calculated by number of people per household, based on each person consuming 65 gallons of water per day, and number of days per billing cycle. Outdoor budgets take into consideration the size of the outdoor irrigable landscape, daily evapotranspiration rates and the “plant factor” – which allocates more or less water depending on the type of plant. This kind of system takes into account the variations that exist across household water uses, levels and patterns and could greatly benefit lower use and lower income groups in Los Angeles.

### Decreasing the SFR household water volume

Decreasing the threshold of water allocated to SFR households may be another effective tool to reduce water consumption according to our findings. However, as we have demonstrated, lower water users would be more impacted than higher water users by such a measure. As lower water use customers have less of a margin to reduce consumption and indoor use is likely a larger portion of their water budget, such a measure would need more thorough examination in order to not penalize low water users disproportionately. An important step forward in this regard would be to **disentangle water volume allocation from lot size**, as giving greater water allotments to consumers with larger lot sizes does not incentivize higher users to conserve more.

## **Separating indoor from outdoor use**

The next phase of restriction programs should target outdoor irrigation, considering the greatest savings can be made in this area (35%), it represents a high percentage of total Single-Family water use (54%) and greenness levels are not affected greatly by reductions in irrigation. We believe dual-metering systems should be installed to set outdoor water allocations and monitor their levels for greater reductions. Separating outdoor from indoor water use is critical to further improve landscape water budgets and models. This would give households and utilities alike a greater understanding of the amount of water used for outdoor vs. indoor purposes and enable greater savings both in terms of money and water.

It would also provide an opportunity to introduce a new threshold in water pricing and/or water allotments specifically targeting customers with higher landscaping irrigation. As previous studies have demonstrated, outdoor water use is more discretionary and more price elastic than indoor use—meaning, consumers would decrease their outdoor use more if outdoor water prices were to increase. Billing outdoor use separately from indoor use could be an effective way to target higher users who have larger irrigable landscapes and are less impacted by the current rate structure.

## **Landscaping options**

Finally, as irrigation acts as the primary driver of landscape greenness, continued programs, incentives and education on landscaping options and more efficient irrigation systems by the LADWP is necessary. DeOreo et al. give important insights on the levels of efficiency of water uses – for example: households that use hand held hoses use 33% less water than other households, whereas households that use an automatic timer to control their irrigation systems use 47% more water outdoors than those that do not. This seems counter intuitive, yet illustrates the need to better understand outdoor water use in order to accurately define outdoor use reduction measures.

## **IV) Summary remarks**

These findings improve our understanding of residential water use patterns, drivers and demand across the city of Los Angeles. By examining socioeconomic factors coupled with greening impacts of drought restrictions, this analysis can help the LADWP more finely calibrate its measures to its different customers, while addressing important equity concerns. Furthermore, our research contributes to measuring and evaluating outdoor water use as well as underlying outdoor use as the primary target for future conservation strategies. The findings show that water restrictions do not impact the current greenness of the city, and point to much greater potential of water conservation with landscape change over time.

In the face of continued water stress, it is equally important the LADWP examine additional ways forward—beyond conservation programs—to tackle California's water crisis. Factoring the State's future water scarcity into the cost of water itself may be something the utility should consider. Popular education remains another fundamental piece, ensuring Angelenos are educated in water conservation and waste. Larger

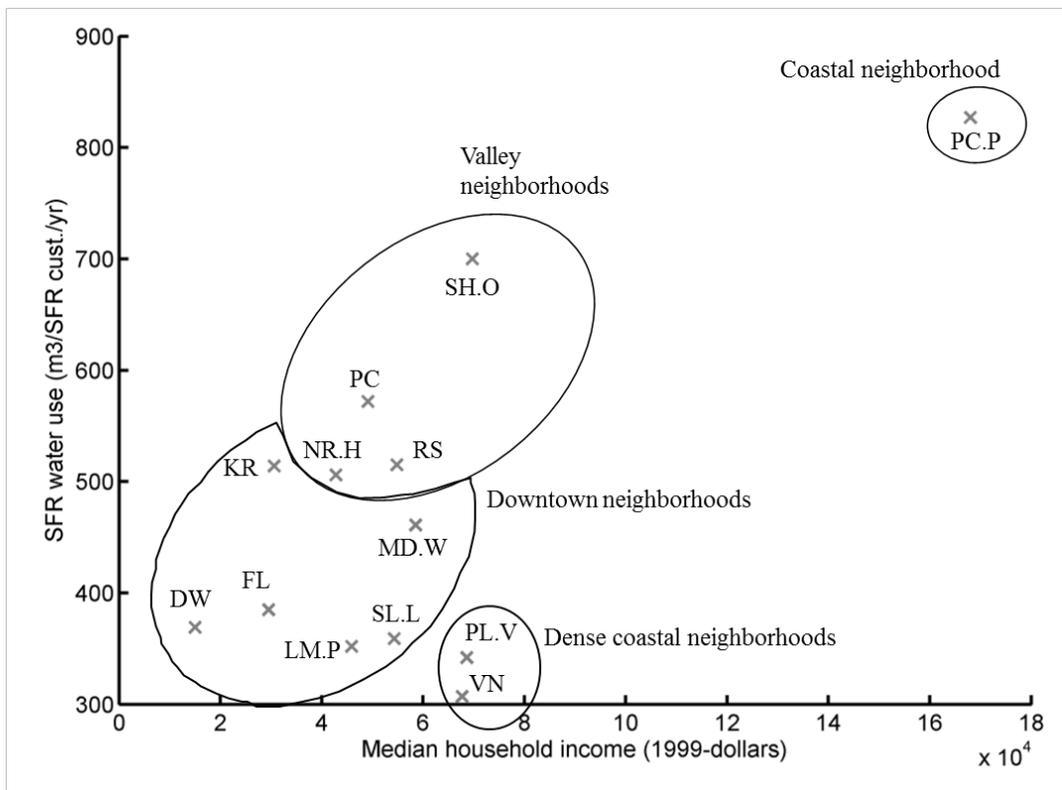
questions about residents' relationship to water must also be asked: how can we bring about a wider cultural shift so that water may be seen as a common property resource necessary to conserve for the benefit of all? What kinds of programs or incentives can bring about this kind of change? Ensuring a stable water future for our city also means adopting long-term sustainable practices, regardless of periods of drought and water stress, or not.

We hope these findings can help inform future conservation policies, and that our methods may be applied to the rest of the region in order to help assist in greater conservation efforts beyond the LADWP's remit.

## APPENDIX 1: Neighborhood-by-Neighborhood Analysis

In order to present a more descriptive analysis of the complex landscape of residential water consumption patterns in Los Angeles, we selected thirteen neighborhoods representative of the city's socio-economic and climactic diversity. These neighborhoods were chosen based on their variability in population, median household income, average household size, education level and microclimate criteria and generally represent the socio-economic diversity and climate variability across the City [see reference #11]. Census tracts within each neighborhood boundary were identified and median single-family water use and average EVI were estimated for each unit.

We subsequently traced clusters of neighborhoods that share similar water use patterns, socio-economic, housing characteristics and geographies. Four distinct clusters emerge from these thirteen selected neighborhoods: the Downtown neighborhoods, the Valley neighborhoods, the dense coastal neighborhoods and the coastal neighborhoods.



**FIGURE 3.** Coastal, Valley and Downtown neighborhoods identified by SFR water use and income. SFR water use is 10-fiscal year average annual single-family water use (m<sup>3</sup>/customer/year) and income is median household income in 1999-dollars (1999). Study areas are abbreviated as noted in Figure 1.

### Downtown neighborhoods

Situated in and around Downtown Los Angeles, this cluster is comprised of Florence, Koreatown, Leimert Park, Mid-Wilshire, Downtown and Silverlake and is largely representative of the lower income and denser parts of the city. These areas are more concentrated, with average household sizes ranging from 2 to 4 persons per household,

and higher numbers of Hispanic or Latino residents. Income levels are among the poorest in the city, with per capita incomes ranging from around \$10,000 to \$38,000 (in 2012). Unemployment rates are higher here than elsewhere with (between 7-10%) and there are very high incidences of poverty, with percentages of people whose incomes fell below the poverty level in the past year up to 41% in Downtown.

Single family residential water use in these neighborhoods is typically lower than in other areas, with a ten-year average ranging from 352 to 514 m<sup>3</sup>/SFR cust./yr. Downtown neighborhoods also have less irrigated residential green space and are typically situated in the medium temperature zone.

### **Coastal neighborhoods**

We distinguish between two kinds of coastal neighborhoods in Los Angeles: the **dense neighborhoods** of Playa Vista and Venice, and the **coastal neighborhood** of Pacific Palisades, as despite similar geographic and climactic characteristics, they have distinct socio-economic and water use patterns. Overall however, **the coastal and dense coastal neighborhoods** generally have higher education levels associated with higher median income levels—\$80,000 in 2012 for the dense coastal, and \$150,000 for Pacific Palisades. These neighborhoods have a higher percentage of White residents than other neighborhoods (90% in Pacific Palisades; 77% in Venice), and a lower average household size, between 2-2.5 persons per household.

As mentioned in section 1, Playa Vista and Venice are notable for having higher income levels and lower water use averages, with Venice having the lowest average ten-year water use of the thirteen neighborhoods, at 307 m<sup>3</sup>/SFR cust./yr. This can be explained by their denser make-up, Playa Vista's compact and green buildings, Venice's very low average household size. They also have smaller lot sizes and in Playa Vista's case, all green space is currently irrigated with recycled water. Pacific Palisades, on the other hand, is the most affluent of the thirteen neighborhoods with the highest ten-year average water use of 827 m<sup>3</sup>/SFR cust./yr.

### **Valley neighborhoods**

Finally, the **Valley neighborhoods** are comprised of Reseda, Pacoima and North Hollywood, which have warmer climates and similar median household incomes—around \$50,000, as compared to Sherman Oaks which has a higher median income level (~\$73,000). The average household size of these neighborhoods varies from 2 to 4.6 persons per household, with Sherman Oaks having a larger proportion of White residents, and Reseda, Pacoima and North Hollywood more Hispanic or Latino residents.

These neighborhoods are known for having more single detached residential homes, larger lots and more irrigated space, than their denser counterparts. As a result they have higher average water uses, ranging from 506 m<sup>3</sup>/SFR cust./yr in North Hollywood to the second highest of the studied neighborhoods, 700 m<sup>3</sup>/SFR cust./yr in Sherman Oaks.

Cluster	Neighborhood	Zip code	Temperature zone	Population 2010 (thousands)	10 year average single-family water use (m <sup>3</sup> /SFR cust./yr)	Average household size 2010	Median household income (2012)	Income per capita (2012)	Unemployment (%) (2012)	Percentage of people whose income in the past 12 months is below the poverty level (2012)	No of people with HS degree or less (2012)	Percentage of white people 2010 (%)	Percentage of Hispanic or Latino origin (of any race) 2010	% of residents foreign born (2012)
Downtown neighborhoods	Downtown (DW)	90021	MED	4	369	1.6	13,504	19,953	10.2	41.3	13.5	41	41.3	41.8
	Leimert Park (LMP)	90008	MED	32.3	352	2.3	39,661	24,031	8	25.3	3.1	8.5	23.4	10.7
	Florence (FL)	90003	MED	66.3	385	4.2	29,174	10,041	8.3	38.9	23.3	30	74.5	39.4
	Koreatown (KR)	90005	MED	37.7	514	2.5	32,086	18,688	8	26.6	43.9	29.1	52	68.7
	Mid-Wilshire (MD.W)	90019	MED	64.5	461	2.7	41,257	24,419	7.3	23.5	8.5	30	46.1	33.9
	Silverlake (SL.L)	90039	MED	28.5	359	2.5	64,073	37,851	7.1	14	8.9	56.5	40.9	41.1
Dense coastal	Venice (VN)	90291	LOW	28.3	307	1.95	76,578	59,527	7.5	12.3	7.2	77	20	22.3
	Playa Vista (PL.V)	90045	LOW	39.5	342	2.4	79,913	42,564	5.5	11.7	0.8	61.1	18.2	31.1

coastal	Pacific Palisades (PC.P)	90272	LOW	23	827	2.5	148,984	102,773	5.9	4.5	1.5	90	4.5	15.5
Valley neighborhoods	North Hollywood (NR.H)	91601	MED	37.2	506	2.3	48,889	28,308	9.6	17.5	27.6	59.2	43.8	46.4
	Reseda (RS)	91335	HIGH	74.4	515	3.2	53,107	21,110	6.8	14.7	21.1	53.8	50.6	43.1
	Pacoima (PC)	91331	HIGH	103.7	572	4.6	50,794	14,312	8.3	27.6	31.7	44.4	87.8	47.1
	Sherman Oaks (SH.O)	91423	MED	31	700	2.1	73,030	53,815	8.1	9	10.8	80	12	26.2

**Table 4:** Study neighborhoods with key characteristics (U.S. Census 2010, American Community Survey 2012)

## **APPENDIX 2: Methods**

For each of our research questions, we developed a series of unique models, all of which are based on ten years of monthly residential water billing data (2000-2010) generously provided by the LADWP. In all cases, records were aggregated to the census tract level to protect customer privacy.

In order to study Single-Family Residential water use patterns and drivers across the city, we developed a statistical model using socio-economic, vegetation greenness, grass cover, climate, and water pricing data. Statistically significant results are at the 95% confidence level ( $p < 0.05$ ). For a more in-depth explanation of our model and results, please refer to Mini et al. 2014(a) [11].

We employed three methods to calculate SFR outdoor water use at the census tract: two of the methods developed by the Pacific Institute and a third approach that utilizes remotely sensed vegetation and water billing data. These are described at length in Mini et al. 2014(b) [12].

Finally, to understand the effectiveness of the 2007-2009 restriction programs, we developed a linear regression model integrating monthly single-family customer water use records at the Public Use Microdata Area level from 2000 to 2007 as well as unemployment and climate information during a period without restrictions. Unemployment data was selected to represent economic recession conditions between 2007 and 2009. The predictions from the developed model were then compared to actual consumption data to evaluate the impact of water restrictions during the 2008-2010 period. For more on this model, please refer to Mini et al. 2014(c) [13].

We believe each of these models can be adopted by both the LADWP and other utilities more widely, as they have proven to be more accurate and effective than existing models.

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# Forthcoming in Land Economics

## **Residential Water Demand Effect of Increasing Block Rate Water Budgets**

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## *Increasing Block Rate Water Budgets*

### Abstract

We investigate the effect of introducing a fiscally neutral increasing block rate water budget price structure on residential water demand. We estimate that demand was reduced by around 17%, although the reduction was achieved gradually over more than three years. As intermediate steps we derive estimates of price and income elasticities that rely only on longitudinal variability. We investigate how different subpopulations responded to the pricing change and find evidence that marginal, rather than average, prices may be driving consumption. We also derive alternative rate structures that might have been implemented, and assess their estimated demand effects.

### Key words

Block rate pricing, DCC model, residential water demand, water budgets.

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As urban water utilities confront increasingly scarce and less reliable water supplies due to population growth, environmental regulation, and climate variability, water managers are seeking opportunities to reduce residential water demand. While the adoption of non-price instruments (e.g., short-term water restrictions, subsidies for water-saving technologies, and public-awareness campaigns) likely will continue to be wide-spread, volumetric pricing and, in particular, block-rate pricing is gaining traction. This is not surprising to economists who have long espoused the merits of pricing as an efficient and effective means to address water scarcity (e.g., Howe and Linaweaver 1967; Chesnutt and Beecher 1998; Renwick and Green 2000; Griffin 2001; Dalhuisen et al. 2003; Olmstead and Stavins 2009; Grafton et al. 2011). One challenge confronting water utilities that are considering switching to volumetric pricing is identifying the particular rate structure that is best suited to their needs. One structure that is increasingly being adopted by California water utilities is the increasing block-rate water budget.

Increasing block rate (IBR) water budgets (which we refer to herein more simply as “water budgets”) are a particular type of escalating tiered price structure in which the block sizes are based on household-specific characteristics (e.g., household size, irrigated area), environmental conditions (e.g., evapotranspiration), and a judgment by the water utility with regard to what constitutes “efficient” water use given those characteristics and conditions. This means that price structures can differ across households at any given time, and through time for any given household. Water budgets are a relatively new pricing tool. One of the earliest adopters was the Irvine Ranch Water District (IRWD) in southern California which instituted such pricing in the early 1990s (IRWD 2013).

Water budgets are thought to have significant advantages over more commonly used rate structures.<sup>1</sup> Foremost, water budgets provide utilities with the means to promote conservation through appropriate price signals while also maintaining fiscal balance. Under water budget pricing, each

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<sup>1</sup> We thank an anonymous reviewer for helping to improve this section.

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household pays a higher price for additional water only when total consumption exceeds that household's "efficient" level of use for the current billing period (Mayer et al. 2008). Hall (2009) argues that the conservation incentives provided by water budgets are even stronger than those provided by standard IBR pricing with fixed volumetric blocks because water budgets adjust the blocks according to the size of each household. Thus both large and small households pay higher prices as consumption increases, whereas small households would rarely enter the upper blocks under a standard IBR price structure. Hall (2009) notes that this feature also improves the economic efficiency of water budgets because all households consume marginal water, and the marginal cost of water supply tends to be increasing. Furthermore, by more closely matching the price structure to the cost of supply, water budgets help utilities maintain fiscal balance despite potentially significant demand fluctuations. Water budgets also can accommodate equity concerns by charging lower prices for the most essential uses of water such as drinking, cooking and cleaning (Mayer et al. 2008). By keeping these prices low for every household regardless of size, water budgets tend to be more politically acceptable than standard IBR pricing (Hall 2009). Last, water budgets provide utilities with the ability to respond flexibly and immediately to evolving environmental and fiscal conditions with a price-based regulatory instrument (Mayer et al. 2008).

As of 2008, fewer than 14 California water utilities had implemented IBR water budgets (Mayer et al. 2008), even though around 50% of all California water utilities were utilizing IBR *pricing* as of 2005 (Hanak 2005). Recently, though, there appears to be renewed interest in water budgets. This trend has been driven, in part, by California's "20x2020 Water Conservation Plan" which aims to reduce statewide per-capita urban water use by 20% before 2020 (California DWR 2010). Between 2008 and 2011, at least nine southern California water utilities adopted water budgets as part of their efforts to comply with the plan (Ash 2011).

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Despite the potential advantages offered by water budgets and renewed interest by utilities, there remain widespread uncertainties and concerns about switching to such a price structure. A prominent concern, and the focus of this study, is the extent to which water budgets actually reduce demand. Anecdotal evidence suggests that the demand effect may be quite large. For example, the Irvine Ranch Water District reports that in the 13 years following the introduction of water budgets, average per-acre outdoor water use declined by 61% (IRWD 2013). However, statistics such as this can be misleading because observed changes in demand are the product of multiple competing effects. For example, changes in the broader economy can drive per-capita water demand up or down as prices and incomes fluctuate. Changes in weather and climate, such as cyclical precipitation patterns or regional temperature trends, are important drivers of outdoor water use. Changes in the availability of, and preferences for, water conserving technologies (such as weather-based irrigation systems and low-flow toilets and sprinkler heads) can reduce demand. And even population *growth* can reduce per-capita demand if new homes must be built with such water-efficient technologies. To determine the effect of introducing a water budget rate structure on demand, these other factors must be accounted for.

Another related issue is the transferability of results from one water utility, such as IRWD, to others. The extent to which a water budget rate structure impacts demand depends on the features of the rate structure and how those features compare to the rate structure that it replaces: water budgets with smaller blocks and higher prices should have greater effects on demand, *ceteris paribus*. Therefore we might not expect the outcome for a particular water utility to be relevant for other utilities, unless those utilities intend to adopt similarly structured water budgets and have similar customer bases. Although rate structures clearly will differ across utilities, there is one fairly common feature that can be used as a convenient benchmark to increase the transferability of results across utilities. In many cases, such as the southern California examples cited above, utilities will desire to maintain fiscal neutrality when switching from uniform rates to water budgets in order to avoid incurring budgetary surpluses or

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deficits. Indeed, under California's Proposition 218, revenues derived from water fees cannot exceed the funds required to provide the service (ACWA 2007); in other words, utilities must set their rates to balance revenues with costs. Focusing on fiscally neutral rate structures thus narrows the scope of the investigation while promoting broader applicability of the results.

With these issues in mind, this study estimates the effect of introducing a fiscally neutral water budget rate structure on residential demand in the Eastern Municipal Water District (EMWD) of southern California. The dataset follows over 13,000 single family households with continuous monthly water use records from 2003-2012. We account for socio-economic differences across households and through time with data from the U.S. Bureau of the Census and Bureau of Economic Analysis. We control for climate variability with spatially and temporally variable estimates of evapotranspiration. We include a time trend to capture changes in preferences and technologies, and we hold the housing stock fixed in our sample to control for vintage effects.

We estimate that EMWD reduced water demand by approximately 17% by switching to a fiscally neutral water budget rater structure, although the reduction was achieved gradually over more than three years. As intermediate steps we derive estimates of price and income elasticities that rely only on the longitudinal variability in our panel dataset. We investigate how different subpopulations of households responded to the pricing change and find convincing evidence that marginal, rather than average, prices are driving consumption choices. We also use a discrete-continuous choice model of water demand under IBR pricing to derive alternative rate structures that might have been implemented, and compare their estimated demand effects with the actual rate structure that was implemented. We find that additional demand reductions could be achieved by increasing particular block prices or decreasing particular block volumes, or by removing, splitting, or adding additional blocks in simple ways, while maintaining stable revenue per unit. From these observations we draw some

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implications for water utilities that are considering implementing water budgets and discuss directions for future work.

### **Related Literature**

The literature on residential water demand and pricing is large. Dalhuisen et al. (2003) provide an overview as part of their meta-analysis of 64 pricing studies between 1963 and 2001. A significant analytical innovation was provided by Hewitt and Hanemann (1995) who demonstrate how the discrete-continuous choice (DCC) framework of Burtless and Hausman (1978) can be applied to structural analysis of water demand under block rate pricing. Recent empirical studies using the DCC framework include Pint (1999), Olmstead et al. (2007), Olmstead (2009), and Miyawaki et al. (2011). However many studies continue to use reduced-form demand estimation for block-rate analysis (Fordyce 2005, cited by Olmstead 2009), perhaps due to the computational difficulty of estimating the DCC model.

The DCC model has been critiqued recently by Strong and Smith (2010) who argue that applied welfare analysis is problematic within a DCC framework because, as noted by Bockstael and McConnell (1983), the Marshallian demand function does not exist when the budget constraint is nonlinear. Strong and Smith instead propose estimating the structural parameters of the direct utility function for purposes of welfare analysis. However, largely due to the nature of their data, their approach stops short of a framework that permits individual consumers to locate at the kink points on their budget constraints, or that permits simulating changes in any aspect of the price structure, including scenarios that might cause consumers to move consumption to different facets of their budget constraints.<sup>2</sup>

The main thrust of the most recent empirical work on IBR water pricing has been investigations of consumer price responsiveness, and whether price elasticities appear to differ across price structures.

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<sup>2</sup> While the ability to conduct welfare analysis within the DCC framework is clearly a fundamental issue, and development of a theoretically consistent approach would be an important contribution, this study does not undertake welfare estimation and therefore adopts the established DCC model for block-rate price analysis.

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Olmstead et al. (2007) find evidence that price elasticity does appear to differ between uniform and block rate price structures but they are unable to provide a definitive conclusion due to unresolved endogeneity issues in their data. The main focus of our study is related to but distinct from this work. Rather than comparing parameter estimates under uniform and block rate structures, we estimate a uniform rate model that then is used to predict what demand would have been had IBR water budgets not been adopted. We then investigate the differences between observed and predicted demand to characterize the demand effect of water budgets. To our knowledge this is the first study to utilize IBR *water budget* pricing data, and the first to estimate the demand effect of introducing such a price structure.

### **Empirical Situation and Data**

The data for this study come from the Eastern Municipal Water District of southern California. EMWD is a member agency of the Metropolitan Water District of southern California, and serves a diverse region of western Riverside County that includes the cities of Moreno Valley, Perris, Hemet, Murrieta and Temecula. This region covers 542 square miles and has a population of over 768,000 (EMWD 2013). As of 2012, EMWD provided around 90,000 acre-feet of water to approximately 136,000 domestic water service accounts and a much smaller number of agricultural and irrigation water service accounts (EMWD 2013).

EMWD is trying to achieve a state-mandated 20% reduction in per-capita water use before 2020. Prior to April 2009, EMWD charged each household a fixed “daily service charge” (DSC) plus a uniform price per unit of water consumed. Beginning in April 2009, EMWD changed from uniform-rate pricing to household-specific water budgets to help achieve the 20% reduction. There are four blocks in this IBR price structure. The cumulative block sizes are calculated as follows:<sup>3</sup>

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<sup>3</sup> The block labels (i.e., indoor, outdoor, excessive, and wasteful) are EMWD’s terms.

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Block 1. Indoor water use:  $w_1 = (HHS \times PPA) \times DF + IV$

Block 2. Outdoor water use:  $w_2 = w_1 + (ET \times CF \times IA + OV) \times DF$

Block 3. Excessive water use:  $w_3 = 1.5 \times w_2$

Block 4. Wasteful water use: water use in excess of  $w_3$

Variables used to calculate block sizes are household size (HHS), per-person allowance (PPA), drought factor (DF), indoor variance (IV), evapotranspiration (ET), conservation factor (CF), irrigated area (IA), and outdoor variance (OV). HHS is reported to EMWD by each household;<sup>4</sup> PPA is set by EMWD at 60 gallons per day; DF is set less than or equal to 1 depending on environmental conditions;<sup>5</sup> IV is negotiated between EMWD and households that report unusual indoor circumstances such as medical need or in-home daycare; ET is derived from real-time measurements for a reference crop which are then adapted to 50 designated microclimate zones within the EMWD service area; CF converts the reference crop ET to turfgrass ET;<sup>6</sup> IA is reported to EMWD by each household;<sup>7</sup> and OV is negotiated between EMWD and households that report unusual outdoor circumstances such as maintenance of large animals or turfgrass establishment.

Block-specific prices are set such that  $p_1 < p_2 < p_3 < p_4$ , where  $p_k$  is the price charged for block  $k$ . A household's "water budget" is defined as the first two blocks, or cumulative consumption of  $w_2$ . Consumption above  $w_2$  is deemed to be "excessive" or "wasteful" and is thus charged a significantly higher price than consumption below  $w_2$ . It is worth emphasizing that  $w_2$  and  $w_3$  are functions of ET and

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<sup>4</sup> EMWD uses a default value of 3 if a household does not report the household size, and requires verification if a reported value exceeds 9 people.

<sup>5</sup> In our dataset,  $DF = 1$  for all observations.

<sup>6</sup> Most water districts assume a baseline of turf grass given its high ET relative to most other grasses and plants; consequently, these districts are providing an overly-generous allocation for ET.

<sup>7</sup> EMWD uses Riverside County Assessor data to calculate a default value (up to a maximum of 6000 sq-ft) if a household does not report the irrigated area, and requires verification if reported values seem excessive.

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thus fluctuate from month-to-month. When ET is high, households are allocated larger monthly water budgets (i.e., more water in blocks 2 and 3); when ET is low, households are allocated smaller budgets.

To analyze the demand effect of introducing water budgets, we identified 13,565 residential accounts with uninterrupted monthly water consumption records between January 2003 and September 2012. The fact that these accounts remained open is a good indication that there were no tenancy changes in these households during this period.<sup>8</sup> In addition to monthly water consumption data, EMWD also provided information on prices paid by each account, the household size (HHS) and irrigated area (IA) associated with each account, dates when households were asked to increase their water conservation efforts (e.g., due to system maintenance or local supply scarcity), monthly ET under water budgets for each of the 50 microclimates, and the relevant microclimate for each account. EMWD also provided the latitude and longitude of the meter for each account which enables us to georeference against census data to obtain information on income and education at the tract level.

A crucial piece of missing data is microclimate ET during uniform-rate pricing. During this period EMWD had no need for ET data and thus did not track it. Obtaining this data directly from the commercial provider was prohibitively costly, so we developed a simple but effective model to estimate it. First we obtained publicly available ET data from three CIMIS stations in western Riverside County.<sup>9</sup> We then regressed EMWD's available ET data for each of the 50 climate zones on the CIMIS ET data and a set of 12 monthly dummy variables as follows:

$$ET_{zt} = \beta_{zm} + \beta_{z1}ET_{1t} + \beta_{z2}ET_{2t} + \beta_{z3}ET_{3t} + \varepsilon_{zt}. \quad [1]$$

Here,  $ET_{zt}$  is observed ET for climate zone (z) during month (t);  $\beta_{zm}$  is a constant term that applies only to a given zone (z) and month (m) – in other words, there are 12 such coefficients for each zone;  $\beta_{z1}$  is a

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<sup>8</sup> An exception could be rental properties for which the utility accounts are registered to the owner rather than the tenants. We are not able to identify such accounts in our dataset.

<sup>9</sup> CIMIS is the California Irrigation Management Information System, developed and maintained by the California Department of Water Resources ([www.cimis.water.ca.gov](http://www.cimis.water.ca.gov)).

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slope coefficient that is specific to zone ( $z$ ) and that relates changes in ET at the first CIMIS station to observed changes in ET for zone ( $z$ );  $\beta_{z2}$  and  $\beta_{z3}$  are defined similarly for the other two CIMIS stations;  $ET_{1t}$  is monthly ET at the first CIMIS station, and similarly for the other stations;  $\varepsilon_t$  is the residual.

Equation 1 is estimated separately for each of the 50 climate zones using ordinary least squares to produce a set of coefficient estimates that is specific to each zone. Estimation results are very good. The mean absolute prediction error across all regressions is only 2.2%. The highest error for any month is 7%; the highest error for any zone is less than 4%. Adjusted  $R^2$  values for the 50 zones are all between 0.976 and 0.992. We then use the coefficient estimates to predict ET values for the entire observation period and use these predictions in our analysis. Figure 1 presents a typical comparison of observed and predicted ET monthly values for a representative climate zone.

Summary statistics for the data used in the regression analyses that follow are presented in Table 1.<sup>10</sup> Conservation requests refer to the fraction of months in which households were asked to increase water conservation efforts, typically due to system maintenance or heat waves. We do not include data on EMWD's other water conservation program efforts (e.g., rebates for high-efficiency toilets, washers, shower heads, and sprinkler nozzles) because the estimated savings from such programs amounts to less than 0.5% of residential deliveries. Nominal and real prices are the prices charged per hundred cubic feet (CCF) of water (one uniform rate from 2003-08; four increasing block rates from 2009-12). Under uniform-rate pricing, these prices are the same as the average prices paid by households. However under water budgets, the average price paid is a function of water consumed and thus is listed separately in the table.<sup>11</sup> As in Strong and Smith (2010), budgets are based on census

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<sup>10</sup> Data for 2012 is from January through September only and is thus omitted from the table for purposes of comparison. However it is worth noting that nominal block prices in 2012 are unchanged from 2011 and thus real block prices in 2012 are slightly lower than for 2011. Data for 2012 is included in the regression analyses.

<sup>11</sup> Average price paid in 2009 is a blend of uniform rates for January through March (nominally unchanged from 2008) and block rates for April through December (shown in the table).

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income (Minnesota Population Center 2011) and are adjusted for the fraction of income typically spent on the category of “utilities, fuels, and public services.” (U.S. Bureau of the Census 2012).<sup>12</sup> Budgets also are adjusted for temporal changes in per-capita personal income for the Ontario-Riverside-San Bernardino metropolitan statistical area (U.S. Bureau of Labor Statistics 2013). Education is expressed as the fraction of the census tract reporting “some college” or more education (U.S. Bureau of the Census 2012). Household size, irrigated area, and education are treated as constant characteristics because we lack information on monthly changes in these variables.<sup>13</sup> Figure 2 presents selected summary statistics as relative trends through time, with 2003 values normalized to unity. As can be seen in the figure, ET and real budgets changed little during the period of analysis while there are noticeable changes in demand and prices, particularly after 2007.

Summary statistics under water budgets are shown by marginal consumption block in Table 2. The table shows that marginal consumption is within a household’s water budget (block 1 or 2) in 82% of our observations.<sup>14</sup> Only 18% of our observations have marginal consumption in block 3 or 4. The table shows that household consumption increases with the marginal block but water budgets do not: water budgets are largest for block 2 consumers and smallest for block 1 and 4 consumers. The large water budgets associated with block 2 consumption appear to be explained by higher ET and irrigated area, whereas the household size is slightly below average. Block 3 and 4 consumers appear to be somewhat wealthier and thus perhaps less sensitive to the higher prices in those blocks; consequently they may be less inclined to make an effort to better match their water use with their water budgets.

### **Estimation Strategy**

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<sup>12</sup> Using data from the 2010 Consumer Expenditure Survey, we estimate the following relationship between budget ( $y$ ) and income ( $m$ ) for the range of incomes observed in our sample:  $y = 99.8941m^{0.3339}$ ,  $R^2 = 0.9915$ .

<sup>13</sup> Census data suggests that overall education levels in the study area remained fairly constant from 2000-2010.

<sup>14</sup> This does not imply that 82% of households always consume within their water budgets. Marginal consumption for a given household tends to move across blocks through time.

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To facilitate comparisons, our analysis is based on a log-linear demand model similar to that used in previous studies of block-rate water pricing (e.g., Hewitt and Hanemann 1995; Pint 1999; Olmstead et al. 2007; Olmstead 2009):

$$\ln(w_{it}) = \delta \mathbf{z}_{it} + \alpha \ln(p_{it}) + \gamma \ln(y_{it}) + \eta_i + \varepsilon_{it} \quad [2]$$

Here,  $w_{it}$  is demand by household (i) during month (t);  $\mathbf{z}_{it}$  is a vector of household, economic, and environmental characteristics that are thought to affect demand;  $p_{it}$  is the marginal water price faced by the household;  $y_{it}$  is the household's budget for utilities and related expenditures;  $\eta_i$  captures unobserved preference heterogeneity;  $\varepsilon_{it}$  is an error term capturing the remaining unexplained variation in demand; and  $\{\delta, \alpha, \gamma\}$  are parameters to be estimated.

Equation 2 forms the basis for two separate estimations: (1) a uniform-rate demand model estimated using 2003-08 data, and (2) an IBR demand model estimated using 2009-12 water budget data.<sup>15</sup> For the uniform-rate demand model, we model unobserved preference heterogeneity as fixed effects and derive parameter estimates from an OLS regression on deviations of the variables in equation 2 from their respective means.<sup>16</sup> The model is then used to predict demand during 2009-12 if uniform-rate pricing had remained in effect. The predicted demand is then compared to the actual demand under water budgets and the difference is analyzed to estimate the demand effect of the water budget rate structure.

For the IBR demand model, we implement a standard DCC model that assumes the unobserved preference heterogeneity is randomly distributed. The DCC framework models demand as a joint choice

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<sup>15</sup> Olmstead et al. (2007) also use equation 2 as the basis for a combined estimation including both uniform and block rate pricing data, but find evidence that some parameter estimates (notably price and income elasticities) may differ across pricing structures. To allow for this possibility, we forego the combined estimation and perform two separate estimations.

<sup>16</sup> We also estimated a random effects uniform-rate model which is structurally more similar to the DCC framework. Coefficient estimates generally were similar to the fixed effects estimates, but the fixed effects model exhibits better overall predictive accuracy.

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involving selection of a price block and the amount to consume within that block. The framework allows a household to optimally select a consumption level within a block or at the edge of a block (also called a “kink point” because the consumer’s budget constraint has an abrupt change of slope at these points). Within a block, demand is given by equation 2 but is implicitly conditional on the choice of that block and thus is referred to as a “conditional demand.” For expositional purposes below, we rewrite equation 2 as:  $\ln(w_{it}) = \ln(w_{it}^*) + \eta_i + \varepsilon_{it}$ , where  $w_{it}^* = \exp(\delta \mathbf{z}_{it}) p_{it}^\alpha y_{it}^\gamma$  is estimated demand.

Under IBR pricing, the marginal water price  $p_{it}$  differs across blocks. Due to the nonlinear budget constraint, the effective household budget  $y_{it}$  also will differ across blocks to account for the fact that consumption is cheaper in the lower blocks. Thus unconditional demand with  $K$  price blocks can be written as (dropping the subscripts  $i$  and  $t$  for simplicity):

$$\ln w = \begin{cases} \ln w_0 + \varepsilon, & -\infty < \eta \leq \ln w_0 - \ln w^*(p_1, y_1) \\ \ln w^*(p_1, y_1) + \eta + \varepsilon, & \ln w_0 - \ln w^*(p_1, y_1) < \eta \leq \ln w_1 - \ln w^*(p_1, y_1) \\ \ln w_1 + \varepsilon, & \ln w_1 - \ln w^*(p_1, y_1) < \eta \leq \ln w_1 - \ln w^*(p_2, y_2) \\ \ln w^*(p_2, y_2) + \eta + \varepsilon, & \ln w_1 - \ln w^*(p_2, y_2) < \eta \leq \ln w_2 - \ln w^*(p_2, y_2) \\ \ln w_2 + \varepsilon, & \ln w_2 - \ln w^*(p_2, y_2) < \eta \leq \ln w_2 - \ln w^*(p_3, y_3) \\ \vdots & \vdots \\ \ln w^*(p_K, y_K) + \eta + \varepsilon, & \ln w_{K-1} - \ln w^*(p_K, y_K) < \eta < \infty \end{cases} \quad [3]$$

Here,  $p_k$  is the price associated with block  $k$ ;  $y_k$  is the consumer’s budget associated with block  $k$ ;  $w^*(p_k, y_k)$  is the estimated demand conditional on block  $k$ ;  $w_k$  is the quantity associated with kink point  $k$ ; and the other notation is the same as in equation 2. It is apparent from equation 3 that the unobserved preference heterogeneity ( $\eta$ ) influences the block or kink point on which the consumer desires to consume; and the additional error term ( $\varepsilon$ ) explains the deviation of actual consumption from estimated or “planned” consumption. Equation 3 is the basis for maximum likelihood estimation of the parameters in equation 2. Waldman (2000, 2005) provides a general statement of the likelihood function for the DCC model, which also forms the basis for predicting demand under IBR pricing. We also use this model to derive alternative rate structures that generate equivalent revenue per unit, and

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compare their estimated demand effects against the actual rate structure that was implemented by EMWD.

### **Results and Discussion**

#### ***Uniform-Rate Model***

We estimated several different specifications of the demand model in equation 2, and found that the performance of a relatively simple specification with few regressors was nearly indistinguishable from that of more complicated (and, for the DCC model, computationally burdensome) specifications.<sup>17</sup> Table 3 shows the variables used in the analysis along with the parameter estimates and standard errors for the uniform-rate model. Note that a constant term, education, household size, and irrigated area do not appear in the table because they drop out of the fixed effects estimation; however, these terms do appear later in the DCC model. Table 3 summarizes results for seven different samples: the full sample (all 13,565 accounts); high, moderate, and low usage accounts (i.e., 2003-08 average usage in the top, middle, and bottom thirds); and high, moderate, and low income accounts (i.e., 2010 census income in the top, middle, and bottom thirds). All estimated parameters are significantly different from zero at well above the 99% confidence level. Signs and magnitudes generally are intuitive and exhibit similarities across subsamples. Some noteworthy observations include the following.

Requests by the water district for increased water conservation efforts appear to produce a 5% reduction in demand during the month in which a request is made. This is not an insignificant response to a request for voluntary action to support a public good.

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<sup>17</sup> It is also worth noting that both the uniform rate and water budget models include the appropriate Slutsky restriction as a constraint on the estimation. Slutsky restrictions are not always imposed on standard demand models (or, at least, not discussed in the subsequent analysis), but here it plays an essential role in proper estimation of the DCC framework. In both models the restriction binds; without it, income effects appear much larger and some of the estimated block probabilities in equation 3 are negative.

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There appears to be a slight *upward* trend in overall water consumption through time (0.7% per year) after controlling for other variables affecting demand; however the high usage subsample exhibits a downward trend. For the full sample, this amounts to a 4.3% *increase* in household demand during the observation period. This unexpected result could reflect the housing bubble of the mid 2000's, to the extent that (1) rapidly rising home values through 2006 created an additional income effect and/or increased the perceived marginal benefit of investing in one's home (including landscaping and swimming pools), and (2) such investments and the associated increased water use were relatively permanent and thus not reversed during the period of rapidly declining home values beginning in 2007. However this is speculative and cannot be inferred directly from our dataset.

The estimated price elasticity (coefficient on  $\ln(p_{it})$ ) for the full sample is -0.76. This estimate and the others for the subsamples are consistent with, though somewhat higher than, estimates from previous work that tend to average around -0.4 to -0.5, or around -0.6 for longer time periods (Espey et al. 1997, Dalhuisen et al. 2003). Considering the subsample regressions, price elasticity appears to decrease monotonically with usage but exhibits a non-monotonic trend with income. In absolute terms, we estimate that a 1% price increase would produce expected reductions of 0.159 CCF/month from a high usage account, 0.143 CCF/month from a moderate usage account, and 0.095 CCF/month from a low usage account. Thus the high usage group is the most responsive in absolute terms, even though its price elasticity is lowest. The observed pattern in price elasticities across usage groups may reflect differing preferences for outdoor water use. Average irrigated areas for the high, moderate, and low usage groups are 5985, 3512, and 3034 square feet, respectively. The high usage group appears qualitatively different in this regard, suggesting that it may be comprised of households with strong preferences for outdoor landscaping who are more reluctant to reduce irrigation in response to price increases.

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Income elasticities are estimated by interacting the budget elasticity (coefficient on  $\ln(y_{it})$ ) with the derived relationship between budget and income (see footnote 12). The estimated income elasticity for the full sample is 0.1616. This is close to but somewhat lower than most previous estimates: in a meta-dataset used by Dalhuisen et al. (2003), the mean and median income elasticities were 0.43 and 0.24, respectively. Although our analysis exhibits several of the characteristics that were found by Dalhuisen et al. (2003) to be significantly correlated with *higher* income elasticity estimates, it appears that the Slutsky restriction is causing our estimate to be lower.<sup>18</sup>

The model generally fits the data well, particularly when we consider average consumption through time, which is important for generating predictions beyond the observation period. Figure 3 shows the average monthly observed and predicted usage for the full sample. Analogous graphs for the six usage and income subsamples (not shown) exhibit similarly good predictions.

#### ***Demand Effect of Water Budgets***

The uniform-rate model can be used to estimate the demand effect of introducing water budgets in 2009. To do this, we create a new dataset that includes the same explanatory variables as in table 3 but with values updated for the prediction period (2009-2012). We update conservation requests, ET, and household budgets accordingly. We also create new seasonal dummies and extrapolate the time trend into the prediction period. Finally we set prices equal to the annual average real prices paid under water budgets (shown in table 1). Predicted demand thus corresponds to the hypothetical case where uniform-rate pricing continued beyond 2008 and prices were increased such that they matched the average annual prices paid under water budgets. From the perspective of a water utility, this is a useful baseline from which to judge the demand effect of water budgets since such a uniform-rate structure

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<sup>18</sup> When we relax the Slutsky restriction, the estimated income elasticity for the full sample is 1.16.

### ***Increasing Block Rate Water Budgets***

would produce revenues equal to those of the water budget structure under the null hypothesis that there is no demand effect.

Figure 4 summarizes the estimated demand effect. Panel A shows the 12-month moving averages for observed and predicted demand from December 2003 to September 2012, normalized to the 12-month period of April 2008 – March 2009. The vertical dashed line corresponds to April 2009, when water budgets were introduced. Panel B shows, beginning in April 2009, the difference between the two moving averages in panel A, expressed as a percent. Both panels demonstrate that water budgets initially had a relatively small effect on residential water demand: between April 2009 and March 2010, both observed and predicted demand exhibit similar declines. As of March 2010, observed demand is only 1.4% lower than predicted demand. However, the demand effect clearly grows through time. As of March 2011, two years after implementation, the 12-month moving average for observed demand is 5.2% below that for predicted demand. As of March 2012, three years after implementation, there is a 13.1% difference. More recently, as of September 2012, the difference grows to 16.8%. Water budgets appear to have had a significant effect on demand, however it has required a substantial amount of time for that effect to be realized.<sup>19</sup> This result is consistent with Dalhuisen et al. (2000) who find that households appear more responsive to price changes when they have had more time to adapt.

Another way to gauge the water budget effect is as follows. During the most recent 12 month period in our data, the average price paid per CCF under water budgets is 3.7% higher (in real terms) than the average price paid in 2008. Our model predicts that uniform rates would have had to increase by 34% to achieve the same level of demand observed during this period. Notably, the average *marginal* price paid during this period is 34% higher than in 2008. This suggests that marginal prices may be

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<sup>19</sup> Omitting the time trend from the predictions decreases the estimated demand effect by around 2%. Residential water conservation programs also appear to have had a negligible impact on the estimated demand effect: the annual water savings from these programs were less than 0.5% of residential deliveries and decreasing from 2009-12.

### ***Increasing Block Rate Water Budgets***

having a stronger influence on consumption than average prices, and helps to inform the ongoing debate on this subject.<sup>20</sup>

Also of interest, average prices paid under water budgets declined from 2010 through 2012. This largely explains the corresponding increase in the 12-month moving average for predicted demand beginning in January 2011 (weather also played a role but incomes were quite stable). However the 12-month moving average for observed demand remains essentially unchanged during 2011 and only begins to turn up moderately in 2012. During this period of price decreases, predicted demand increases by 15.7% but observed demand increases by only 3.6%. This suggests that under water budgets, households may be gradually adopting relatively permanent water conservation habits as they learn how to use water more efficiently—habits that are largely retained even when prices subsequently decrease. This observation could motivate adding a subjective learning component to Borenstein’s (2009) hypothesis about utility demand being driven by consumption “rules” that are fixed prior to a consumption period and updated only when feedback is received in the form of a bill.

Results for the high and moderate usage and income subsamples are generally the same as for the full sample: the introduction of water budgets caused consumption to decrease more than predicted if uniform rates had been set equal to the average prices paid under block rates. For the low usage and income subsamples, the water budget effect was strong enough to overcome *decreases* in average prices paid by these groups under increasing block rates. In other words, our model predicts increased demand by these groups if uniform rates were set equal to average prices paid under block rates, but we observe decreased demand. Not surprisingly, average *marginal* prices paid by these groups did

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<sup>20</sup> Ito (2014) finds strong evidence of consumer responsiveness to average rather than marginal prices for the case of electricity demand. Borenstein (2009) also finds evidence that electricity consumers are responding either to average price or expected marginal price (which entails averaging over uncertain consumption) rather than the actual marginal price paid. Nataraj and Hanemann (2011) conclude that water consumers do respond to changes in marginal price. The extent to which these discrepancies are due to fundamental differences between water and electricity consumption, and/or between the price structures under investigation, is a topic for future work.

## ***Increasing Block Rate Water Budgets***

increase under block rates. This again is strongly suggestive of the importance of marginal rather than average prices in determining residential water consumption levels.

### ***Block-Rate Model***

Estimation results for the DCC model are shown in table 4. Parameter estimates can be interpreted directly as the effect of each regressor on *conditional* demand (i.e., holding block choice fixed); simulations are needed to interpret the effect of each regressor on unconditional demand. As with the uniform-rate model, the parameter estimates generally have intuitive signs and magnitudes and are all significantly different from zero at well above the 99% level. Similar to Gilg and Barr (2006), we find a positive relationship between water use and education and, somewhat unexpectedly, a slightly larger coefficient on the fall dummy than on the summer dummy. Conservation requests appear to have a larger effect under water budgets (though only one such request was made, in January 2011), and the time trend is now negative.

At the household level, the model fit is not particularly good. When we evaluate expected household consumption as  $\hat{w}_{it} = E_{\eta, \varepsilon}[w_{it}^* \exp(\eta) \exp(\varepsilon)]$ , where  $w_{it}^* = \exp(\delta \mathbf{z}_{it}) p_{it}^\alpha y_{it}^\gamma$  and different portions of the distribution of  $\eta$  correspond to different conditional demand curves, we get an adjusted  $R^2$  value less than zero.<sup>21</sup> When we set  $\eta$  and  $\varepsilon$  equal to their means (zero) and evaluate expected household consumption as  $\hat{w}_{it} = w_{it}^*$ , we get an adjusted  $R^2$  value of 0.1661. Although the first approach is the correct one, close inspection of the results reveals that the disturbance term simulations, in conjunction with our convex demand function, produce some very large simulated consumption values that tend to reduce the model fitness. However this approach provides a good fit to the average monthly data, as can be seen in figure 5.

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<sup>21</sup> We use multidimensional quadrature (Judd 1999) to evaluate the expectation. We use Gauss-Legendre quadrature to integrate over the piecewise distribution of  $\eta$  and Gauss-Hermite quadrature to integrate over  $\varepsilon$ .

### ***Increasing Block Rate Water Budgets***

Price and income elasticities are estimated by simulating the demand effects of a 1% increase in all prices, and a 1% increase in household incomes, throughout the water budget observation period. Results are shown in table 4. Both estimates are less than their uniform rate counterparts. The price elasticity estimate (-0.58) is very close to those reported by Olmstead et al. (2007) for a log-linear DCC model of IRB pricing, which range from -0.59 to -0.61. The income elasticity estimate (0.05) is close to that estimated by Olmstead et al. (2007) in a random effects model of uniform-rate pricing (~0.04) but below their DCC estimates for IBR pricing (~0.18), all of which they note are low compared to previous estimates. Those authors cite evidence that omitting household characteristics from the regression (as is common in previous studies) tends to increase the estimated income elasticity due to correlations between those characteristics and income. Because our fixed (uniform rate) and random effects (water budgets) panel data specifications implicitly capture all constant household characteristics, this may help to explain our relatively low income elasticity estimates.

### ***Demand Effects of Alternative Water Budget Rate Structures***

As described above, EMWD has implemented a relatively sophisticated water budget rate structure with four blocks that vary in magnitude across households and through time. The rate structure was designed, in part, to be fiscally neutral. Although we cannot use our limited data on household demand to rigorously test for fiscal neutrality, we can investigate how the existing rate structure could be modified such that demand is further reduced with limited fiscal impact. To address this question we consider alternative rate structures that maintain equivalent revenue per unit. Although this does not guarantee fiscal neutrality in all cases, such rate structures should have small fiscal impacts for utilities operating on relatively uniform average costs curves that are characteristic of industries with economies of scale, while also being politically acceptable to implement. The demand effects of such alternative rate structures could be of interest not only to utilities that already have implemented water budgets and are now facing relatively extreme circumstances (e.g., acute drought,

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rapid population growth, prolonged supply scarcity), but also to utilities that are in the process of designing or redesigning their water budgets. While there are many alternative structures to consider, here we focus on some relatively simple modifications to EMWD’s existing rate structure that intuitively could be of interest. For each scenario, we find the parameters of the hypothetical rate structure that produce the same expected revenue per CCF as the current rate structure, and we compare the associated expected demand against that for the current rate structure. For all scenarios we use the data from the most recent 12-month period in our dataset as the basis for the simulations.

Figure 6 summarizes the effects of several rate structures that reduce demand below the current baseline while maintaining stable revenue per unit.<sup>22</sup> Scenarios 1-7 maintain the existing rate structure but make changes to its quantity and price parameters. Utilities might take such actions in response to intense short-term drought conditions or unexpected reductions in supply. A simple but effective alternative is scenario 2 (20% decrease in block 2 size) which would decrease expected demand by 4.3% while maintaining stable revenues per unit of water consumed. This has about the same demand effect as scenario 5 which reallocates  $\frac{1}{4}$  of block 2 into block 3 but leaves the sum of blocks 2 and 3 unchanged (whereas scenario 2 reduces this sum by decreasing the size of block 2). Scenarios 6-7 examine the demand effect of reallocating additional block 2 water into block 3, and show that the effect increases sharply. Reallocations like these might be justified by a water utility as a means to implement new expectations for irrigation efficiency and use of native landscaping in place of turfgrass. Scenario 8 considers simplifying the rate structure by removing the “wasteful” water use block, and shows that a simultaneous 35% increase in the block 3 price would reduce demand slightly while maintaining stable average revenue. Alternatively, scenario 9 considers complicating the rate structure

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<sup>22</sup> In all cases the expected revenue per CCF is within 0.5% of the baseline. We investigated other rate structures that ultimately could not maintain similar revenue per unit and are thus not reported here.

### ***Increasing Block Rate Water Budgets***

by adding a new block between blocks 2 and 3 with a price that maintains the increasing block rate structure and finds a demand effect similar to that in scenario 8.

Overall these simulations suggest that there are relatively small conservation gains to be realized from fundamentally changing the existing rate structure by adding or removing blocks when fiscal neutrality must be maintained. Rather, most of the conservation potential appears to be associated with changes in the existing blocks 2 and 3. This is perhaps not surprising because the marginal consumption of most households occurs within these blocks.

### **Conclusions and Implications**

This study utilizes a high quality panel dataset of household water consumption for a large southern California water district to estimate the demand effect of switching from uniform-rate pricing to fiscally neutral increasing block rate water budgets. More than three years after the rate structure changed, we estimate that demand under water budgets was 17% below where it would have been under a comparable uniform-rate price structure. Whereas average prices paid rose by less than 4% under the block rate structure, average prices paid under the uniform-rate structure would have had to rise by nearly 34% to achieve the same demand reduction. These results suggest that water budgets are potentially a highly effective conservation tool although a substantial amount of time is required for demand reductions to be realized. Furthermore, to the extent that more complicated water budget structures are both more costly to implement and harder for consumers to understand (and thus respond to), our findings suggest that utilities can safely pursue relatively simpler rate structures, with perhaps only three blocks, without foregoing significant conservation opportunities.

Our analysis also finds some evidence of a price-induced “ratcheting effect” whereby households that are faced with higher water prices—particularly higher *marginal* prices that are characteristic of IBR structures—learn how to be more water efficient, adopt those new habits, and thus are less prone to “back-sliding” if and when prices decline in the future. This finding, although somewhat

### ***Increasing Block Rate Water Budgets***

circumstantial, is consistent with Borenstein's (2009) hypothesis about the formation of consumption "rules" in electricity demand analysis and lends additional legitimacy to related modeling efforts including formal investigations of learning and habit formation in utility demand contexts.

For water utilities that are considering adopting water budgets as a conservation tool, this study provides strong support for doing so and also facilitates effective communication to stakeholders of the benefits provided by such rate structures. An important caveat is that conservation goals may take years to achieve. Efforts to promote quicker re-learning of water consumption habits should hasten the attainment of those goals, but exactly how to go about doing this is a topic for future work. A potentially fruitful line of research would investigate the extent to which non-price instruments and/or neighborhood effects influence learning and habit formation. Some water utilities have begun reporting local average water consumption on individual bills to give households a better idea of how their own consumption compares to a relevant peer group. Such information, combined with a high marginal price for "excessive" water use, could prove to be a highly effective approach to encouraging urban water conservation.

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### Increasing Block Rate Water Budgets

Table 1: Summary statistics.

Variable	2003	2004	2005	2006	2007	2008	2009	2010	2011
Consumption (CCF/month) <sup>a</sup>	20.70	21.14	20.12	20.77	20.99	19.74	17.77	15.99	15.73
ET (in/month) <sup>b</sup>	4.67	4.87	4.59	4.73	4.87	4.81	4.70	4.55	4.85
Conservation requests	0.17	0.00	0.08	0.25	0.08	0.08	0.08	0.00	0.08
Nominal price (\$/CCF)	1.43	1.46	1.53	1.62	1.69	1.85	1.27	1.43	1.44
Nominal average price paid (\$/CCF)							2.33	2.61	2.64
							4.17	4.68	4.73
							7.63	8.56	8.65
							1.93	2.10	2.05
Real price (2010\$/CCF)	1.66	1.66	1.68	1.72	1.77	1.86	1.30	1.43	1.39
Real average price paid (2010\$/CCF)							2.37	2.61	2.54
							4.25	4.68	4.55
							7.78	8.56	8.33
							1.98	2.10	1.98
Real budget (2010\$/month)	316.26	317.45	318.05	319.20	320.78	316.70	311.07	309.96	309.44
Household size (#)	3.53								
Irrigated area (sq-ft)	4,177								
Education <sup>c</sup>	0.50								

<sup>a</sup> CCF = hundred cubic feet.

<sup>b</sup> A principle components analysis on all available weather data during the observation period for one of the CIMIS stations reveals that ET captures 94% of the total weather variability.

<sup>c</sup> Fraction of residents reporting at least some college education.

### **Increasing Block Rate Water Budgets**

Table 2: Summary statistics under water budgets by marginal consumption block.<sup>a</sup>

<b>Variable</b>	<b>Full Sample</b>	<b>Block 1</b>	<b>Block 2</b>	<b>Block 3</b>	<b>Block 4</b>
Fraction of observations	1.00	0.26	0.56	0.15	0.03
Consumption (CCF/month) <sup>b</sup>	16.92	6.26	17.88	27.05	37.97
Water budget (CCF/month)	25.84	20.69	29.52	22.41	20.34
ET (in/month)	5.03	4.34	5.33	5.17	4.81
Budget (2010\$/year)	310.27	299.89	312.08	319.39	319.11
Household size (#)	3.53	3.60	3.48	3.53	3.60
Irrigated area (sq-ft)	4176.95	3481.27	4753.42	3364.07	3700.60
Education <sup>c</sup>	0.50	0.49	0.49	0.52	0.52

<sup>a</sup> Includes 569,730 observations. Average consumption and ET values for the full sample are above annual means because the sampling period (April 2009 – September 2012) includes a relatively larger share of warmer, drier months. Block-weighted averages may not match full sample averages due to rounding error.

<sup>b</sup> CCF = hundred cubic feet.

<sup>c</sup> Fraction of residents reporting at least some college education.

### Increasing Block Rate Water Budgets

Table 3: Uniform-rate model parameter estimates and standard errors.

<b>Variable</b>	<b>Description</b>	<b>Full Sample</b>	<b>High Usage</b>	<b>Moderate Usage</b>	<b>Low Usage</b>	<b>High Income</b>	<b>Moderate Income</b>	<b>Low Income</b>
<i>Spring</i>	Dummy for Apr-Jun	0.1598 (0.0015)	0.1818 (0.0029)	0.1739 (0.0029)	0.1387 (0.0029)	0.1873 (0.0030)	0.1543 (0.0028)	0.1426 (0.0029)
<i>Summer</i>	Dummy for Jul-Sep	0.4324 (0.0019)	0.4741 (0.0035)	0.4548 (0.0034)	0.3827 (0.0034)	0.4911 (0.0035)	0.4159 (0.0034)	0.3961 (0.0033)
<i>Fall</i>	Dummy for Oct-Dec	0.3384 (0.0011)	0.3840 (0.0020)	0.3550 (0.0020)	0.2943 (0.0022)	0.4131 (0.0020)	0.3155 (0.0019)	0.2963 (0.0020)
<i>Conserve</i>	Dummy for conservation request	-0.0514 (0.0012)	-0.0552 (0.0021)	-0.0538 (0.0022)	-0.0485 (0.0034)	-0.0559 (0.0026)	-0.0448 (0.0026)	-0.0542 (0.0019)
<i>ET</i>	ET (in/month)	0.1001 (0.0005)	0.1128 (0.0008)	0.1047 (0.0008)	0.0861 (0.0009)	0.1097 (0.0009)	0.1003 (0.0008)	0.0918 (0.0008)
<i>Time trend</i>	Linear annual increments	0.0069 (0.0001)	-0.0173 (0.0006)	0.0048 (0.0002)	0.0232 (0.0007)	0.0160 (0.0008)	0.0045 (0.0007)	0.0040 (0.0007)
$\ln(p_{it})$	log real price	-0.7648 (0.0055)	-0.5101 (0.0193)	-0.7293 (0.0052)	-0.8296 (0.0232)	-0.9507 (0.0266)	-0.7511 (0.0240)	-0.7915 (0.0262)
$\ln(y_{it})$	log real budget	0.4840 (0.0279)	0.3084 (0.0260)	1.6973 (0.1509)	3.3045 (0.1818)	1.1395 (0.0818)	0.8134 (0.0604)	0.5231 (0.0338)
<i>Adjusted R<sup>2</sup></i>	Model fit	0.3438	0.3860	0.3838	0.2721	0.3905	0.3459	0.3006
<i>Income elasticity</i>	1% change in income	0.1616	0.1030	0.5667	1.1034	0.3805	0.2716	0.1747

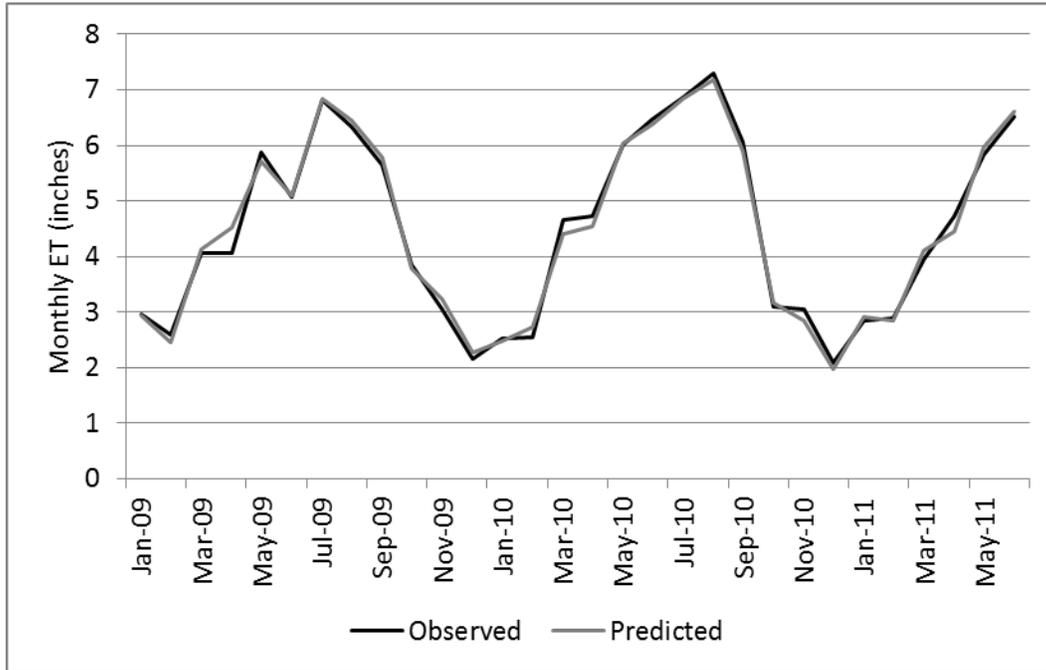
### **Increasing Block Rate Water Budgets**

Table 4: Block-rate model parameter estimates and standard errors.

<b>Variable</b>	<b>Description</b>	<b>Estimate (Std Err)</b>
<i>Constant</i>	Constant	0.1135 (0.0134)
<i>Education</i>	Fraction of census tract residents reporting “at least some college” or more education	0.5355 (0.0087)
<i>HHS</i>	Household size (# of persons)	0.1309 (0.0012)
<i>IA</i>	Irrigated area (1000 sq ft)	0.0303 (0.0006)
<i>Spring</i>	Dummy for Apr-Jun	0.2392 (0.0053)
<i>Summer</i>	Dummy for Jul-Sep	0.5352 (0.0072)
<i>Fall</i>	Dummy for Oct-Dec	0.5731 (0.0051)
<i>Conserve</i>	Dummy for conservation request	-0.1412 (0.0053)
<i>ET</i>	ET (in/month)	0.1545 (0.0016)
<i>Time trend</i>	Linear annual increments	-0.0906 (0.0031)
$\ln(p_{it})$	log real price	-1.0505 (0.0090)
$\ln(y_{it})$	log real budget	0.2921 (0.0022)
$\sigma_{\eta}$	Standard deviation for $\eta$	0.8486 (0.0025)
$\sigma_{\varepsilon}$	Standard deviation for $\varepsilon$	0.2998 (0.0017)
<i>Price elasticity</i>	Demand response to 1% change in all prices	-0.5759
<i>Income elasticity</i>	Demand response to 1% change in income	0.0520

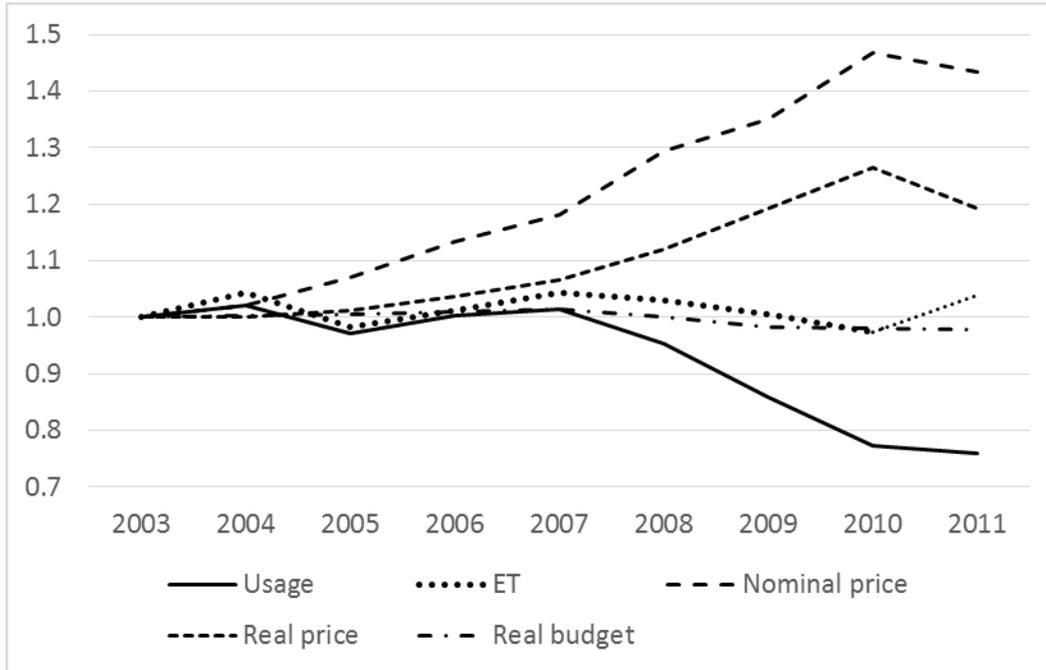
### Increasing Block Rate Water Budgets

Figure 1: Comparison of observed and predicted ET for a sample climate zone



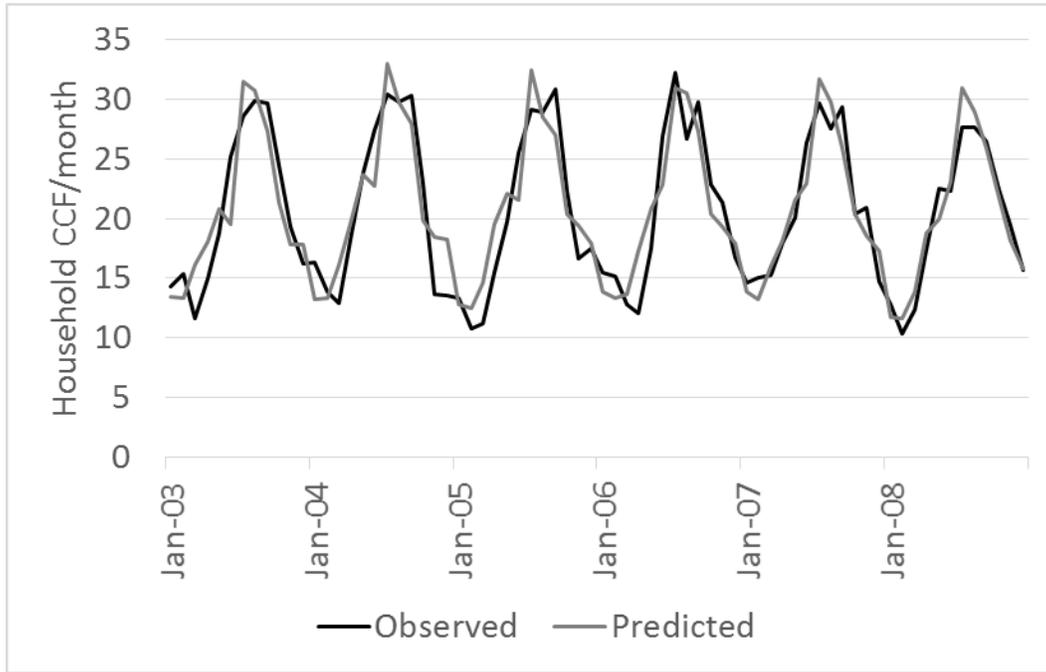
**Increasing Block Rate Water Budgets**

Figure 2: Selected statistics in relative terms.



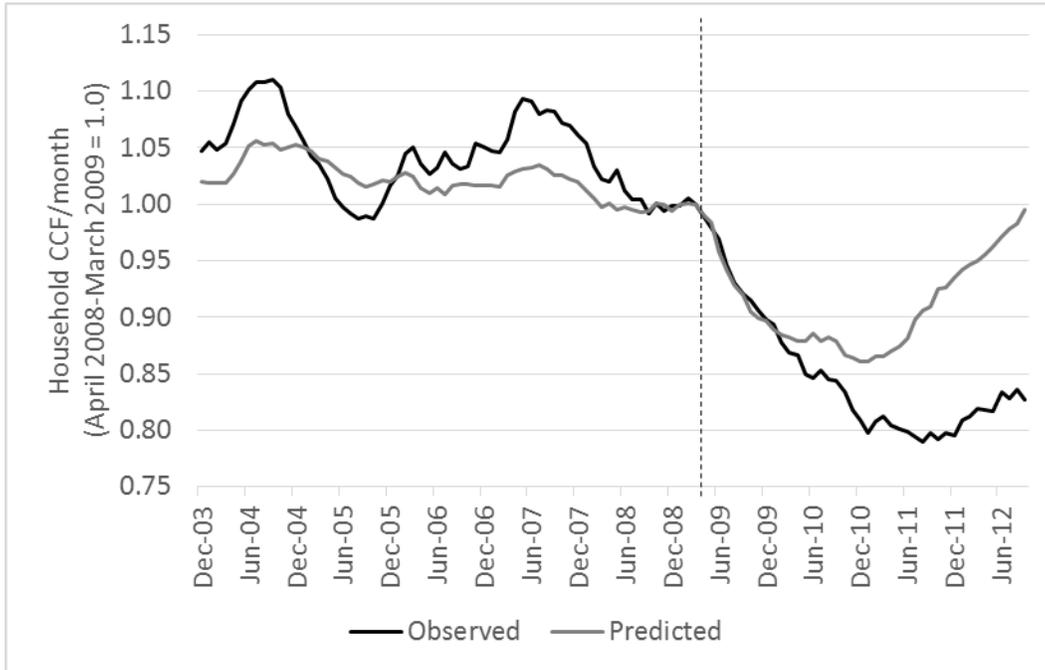
***Increasing Block Rate Water Budgets***

Figure 3: Observed and predicted average monthly household consumption for the full sample under uniform-rate pricing.

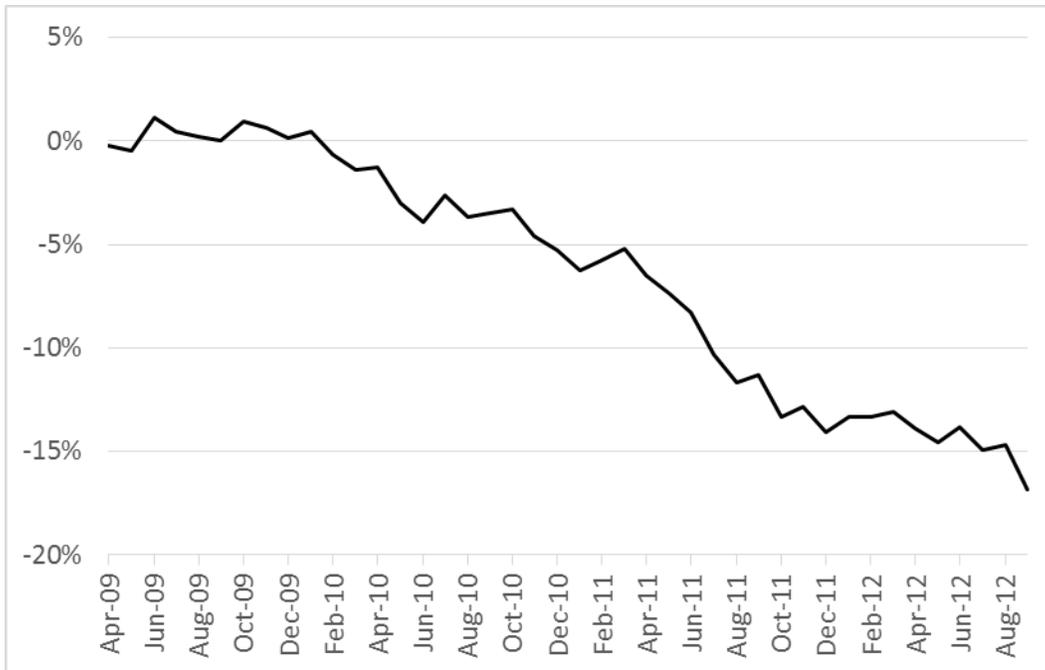


**Increasing Block Rate Water Budgets**

Figure 4: Estimated demand effect of IBR water budgets.



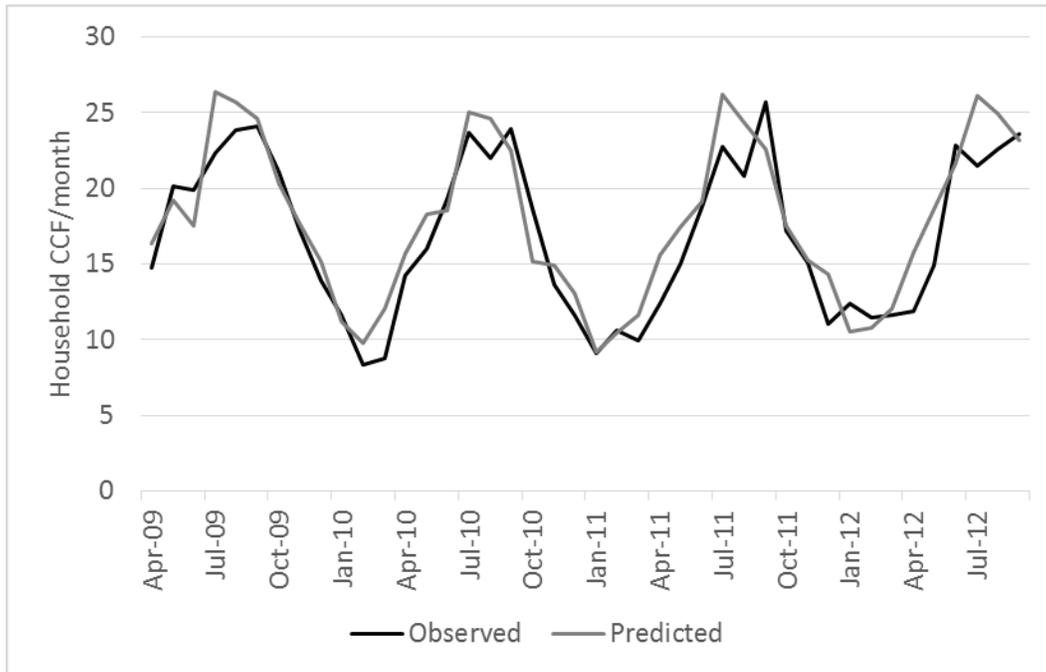
Panel A: Observed vs. predicted demand, 12-month moving average.



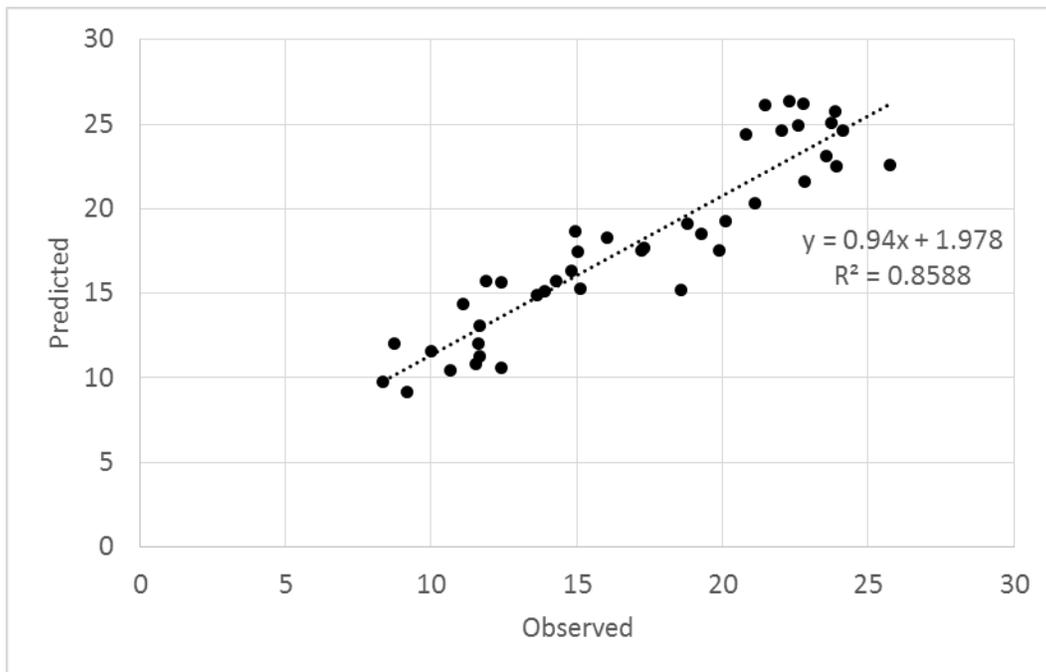
Panel B: Estimated demand effect of IBR water budgets, 12-month moving average. Measured as the difference between observed demand under water budgets and predicted demand under comparable uniform rate pricing, expressed as a percentage.

### Increasing Block Rate Water Budgets

Figure 5: Observed and predicted average monthly consumption under block-rate pricing.



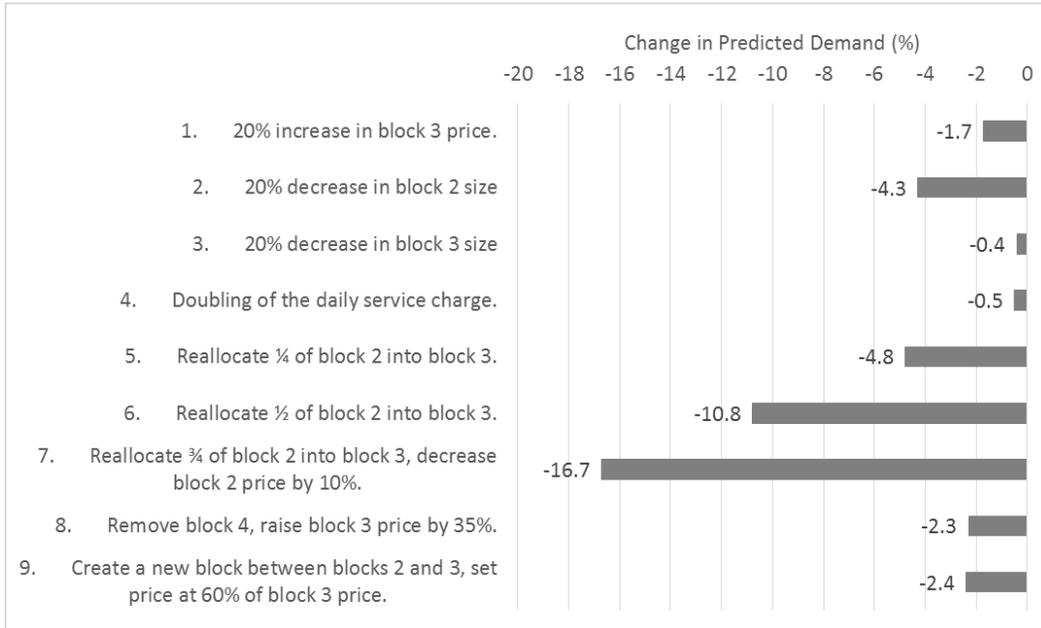
Panel A: Time trends.



Panel B: Linear regression of predicted average values on observed average values.

### Increasing Block Rate Water Budgets

Figure 6: Demand Effects of Alternative Water Budget Rate Structures.



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# San Bernardino County 2014

COMMUNITY  
INDICATORS  
REPORT





# COUNTY OF SAN BERNARDINO

## Board of Supervisors

County Government Center  
385 North Arrowhead Avenue  
San Bernardino, CA 92415-0110  
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Clerk of the Board of Supervisors

Building and maintaining a healthy, vibrant, and livable community demands honest and repeated self-assessment. It requires constantly measuring the progress we are making toward the realization of our shared Countywide Vision. That is the purpose of the annual San Bernardino County Community Indicators Report.

This 2014 report marks our fifth consecutive year of taking a hard look at our incredibly large and amazingly diverse county through the prisms of our economy, schools, healthcare, public safety, environment, and our overall quality of life. These are the interrelated and interdependent elements of the “complete county” our residents and investors want our community to become through the Vision process.

The idea behind making this report an annual effort was to measure our performance and detect trends so that the community could assess and refine its efforts toward achieving the Countywide Vision. After five years, we can begin to see the progress we are making and where more work needs to be done. The good news is that the county’s foreclosure rate has dropped from 5 percent to 1 percent and the high school dropout rate has declined by 30 percent. The bad news is that high blood pressure is on the rise and the county’s high rate of childhood obesity remains the same.

We hope this report serves as an impetus for government leaders, business people, community- and faith-based organizations, and others to come together and discuss strategies that are working for them and to bring those strategies to scale to serve our entire county.

The Community Indicators Report reflects an ongoing, annual commitment by our county to raise awareness and build stronger collaborative initiatives that address systemic challenges. This report provides a timely framework for understanding the elements of our county as an interrelated system that offers a superior quality of life and serves as a magnet for investment.

The San Bernardino County Board of Supervisors and The Community Foundation appreciate your interest and involvement, and we encourage you to use the information contained in this report to help us achieve our shared Countywide Vision.

Sincerely,

Janice Rutherford, Chair  
Board of Supervisors  
County of San Bernardino

Dr. Jonathan Lorenzo Yorba, President and CEO  
The Community Foundation  
Serving the Counties of Riverside and San Bernardino

*The mission of the government of the County of San Bernardino is to satisfy its customers by providing service that promotes the health, safety, wellbeing, and quality of life of its residents according to the County Charter, general laws, and the will of the people it serves.*

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# Introduction

The San Bernardino County Community Indicators Report provides a broad perspective of life in San Bernardino County and the many factors that contribute to sustaining a healthy economy, environment and populace. This report is not intended to be a marketing piece that only touts the county's positive characteristics. It does highlight trends where San Bernardino stands out as a leader among peer regions and neighboring counties. At the same time, it points out trends where the county is stagnating or even declining, flagging issues where work is needed.

The report does not shy away from an honest assessment of the county's status across multiple disciplines, recognizing that this analysis offers opportunities for action leading to growth and change. The ultimate goal of the San Bernardino County Community Indicators Report is to inform and inspire community members, policymakers, and business leaders working to make San Bernardino County the best it can be.

## Indicator Selection Criteria

Good indicators are objective measurements that reflect how a community is doing. They reveal whether key community attributes are improving, worsening, or remaining constant. The indicators selected for inclusion in this report:

- Reflect broad countywide interests which impact a significant percentage of the population,
- Illustrate fundamental factors that underlie long-term regional health,
- Can be easily understood and accepted by the community,
- Are statistically measurable and contain data that are both reliable and available over the long-term,
- Measure outcomes rather than inputs whenever possible, and
- Fall within the categories of the economy, education, community health and wellness, public safety, environment, and community life.

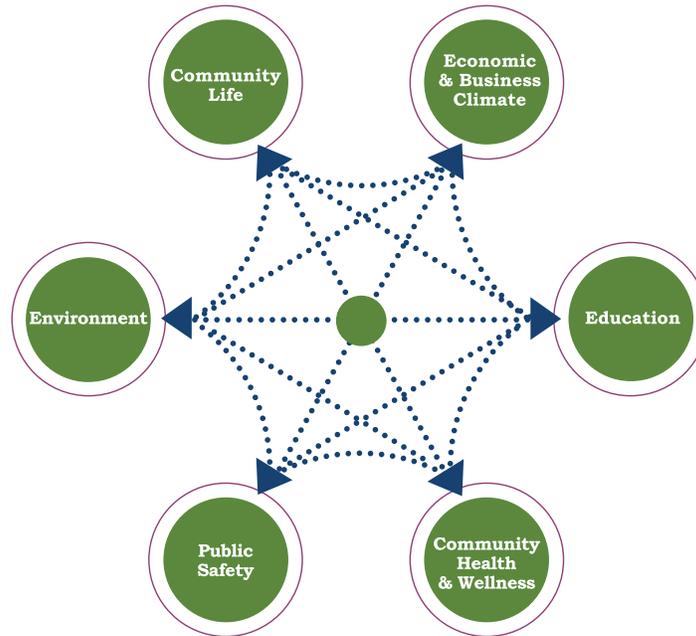
## Peer Regions

To place San Bernardino County's performance in context, many indicators compare the county to the state, nation or other regions. We compare ourselves to four neighboring counties to better understand our position within the Southern California region including Riverside, Orange, Los Angeles and San Diego counties. We also compare ourselves to three "peer" regions: Las Vegas, Nevada; Phoenix, Arizona; and Miami, Florida. These peer regions were selected because they are considered economic competitors or good barometers for comparison due to the many characteristics we share with them.

## Our Community is a System

Understanding that a community is a system of interconnected elements is increasingly important as the issues we face become more complex. The more we work collaboratively and across boundaries – whether historical, physical, political, or cultural – the more successful we will be in our efforts to sustain a high quality of life.

The graphic below illustrates the connectivity of the various aspects of our community. They are linked by virtue of the impact one has on the other, or the interplay between them.



### ● Connecting the Dots

Every indicator in this report is linked in some way. As you read the report, multiple linkages between indicators will likely come to mind as you “connect the dots” between indicators. For example:



## Supporting a Countywide Vision Statement

One of the primary uses for the annual Community Indicators Report is to measure San Bernardino County's progress toward achieving its Countywide Vision. The Vision was adopted in 2011 by the San Bernardino County Board of Supervisors and the San Bernardino Associated Governments Board of Directors, following a series of community and stakeholder meetings and extensive research. Intended as a roadmap to the future for the county as a whole, the Vision calls upon the county to capitalize on its diversity to create a broad range of opportunities that will lead to the realization of a "complete county." The Vision holds that the elements of that complete county – for example, education, public safety, jobs, recreation and wellbeing – are interrelated and depend on all sectors working collaboratively toward shared goals.

The first San Bernardino County Community Indicators Report was created in 2010 in anticipation of the Vision. Each successive report has become a valuable tool to measure progress toward becoming the complete county outlined in the Countywide Vision. Information on the Vision can be found at [www.sbcounty.gov/vision](http://www.sbcounty.gov/vision).



***We envision a complete county that capitalizes on the diversity of its people, its geography, and its economy to create a broad range of choices for its residents in how they live, work, and play.***

***We envision a vibrant economy with a skilled workforce that attracts employers who seize the opportunities presented by the county's unique advantages and provide the jobs that create countywide prosperity.***

***We envision a sustainable system of high-quality education, community health, public safety, housing, retail, recreation, arts and culture, and infrastructure, in which development complements our natural resources and environment.***

***We envision a model community which is governed in an open and ethical manner, where great ideas are replicated and brought to scale, and all sectors work collaboratively to reach shared goals.***

***From our valleys, across our mountains, and into our deserts, we envision a county that is a destination for visitors and a home for anyone seeking a sense of community and the best life has to offer.***

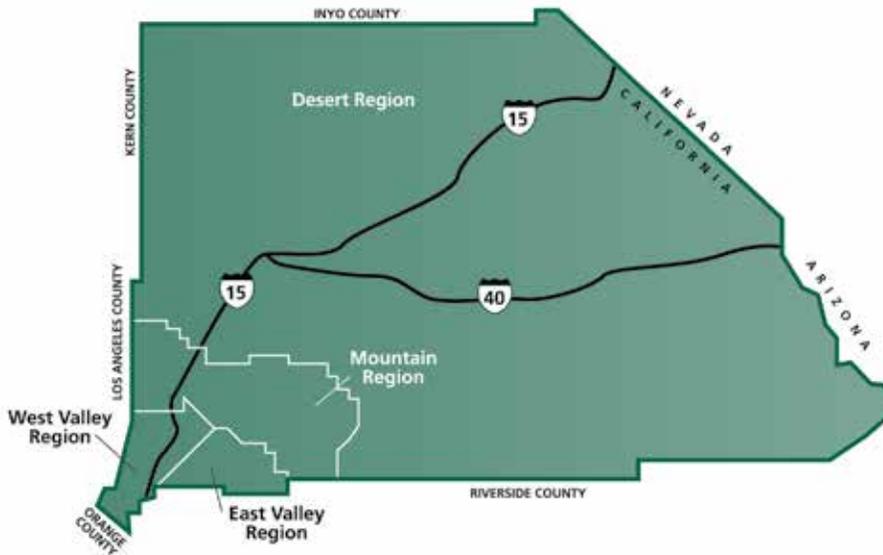
# County Profile

San Bernardino County is located in southeastern California, with Inyo and Tulare Counties to the north, Kern and Los Angeles Counties to the west, and Orange and Riverside Counties to the south. San Bernardino County is bordered on the east by the states of Nevada and Arizona. The county's diverse geography and extensive natural resources, as well as its proximity to major economic and population centers, provide unique opportunities for varied industry sectors to thrive, including commerce, education, tourism and recreation.<sup>1</sup> The following pages profile San Bernardino County's geography, land use, population density, demographics, housing, and employment characteristics.

## Cities, Towns and Communities in San Bernardino County

Valley Region	Mountain Region	Desert Region
Bloomington*	Angelus Oaks*	Adelanto
Chino	Big Bear City*	Apple Valley
Chino Hills	Big Bear Lake	Baker*
Colton	Crestline*	Barstow
Fontana	Lake Arrowhead*	Big River*
Grand Terrace	Lytle Creek*	Bluewater*
Highland	Oak Glen*	Fort Irwin*
Loma Linda	Running Springs*	Hesperia
Mentone*	Wrightwood*	Homestead Valley*
Montclair		Joshua Tree*
Muscoy*		Lenwood*
Ontario		Lucerne Valley*
Rancho Cucamonga		Morongo Valley*
Redlands		Mountain View Acres*
Rialto		Needles
San Antonio Heights*		Newberry Springs*
San Bernardino		Oak Hills*
Upland		Phelan*
Yucaipa		Piñon Hills*
		Searles Valley*
		Silver Lake*
		Spring Valley Lake*
		Twentynine Palms
		Victorville
		Yermo*
		Yucca Valley

\*Unincorporated



Sources: San Bernardino County Land Use Services Department, 2007 General Plan (<http://cms.sbcounty.gov/lus/Planning/GeneralPlan.aspx>); California State Association of Counties ([www.counties.org](http://www.counties.org)); Census Bureau, 2010 Census Tract Reference Maps ([www.census.gov/geo/www/maps/CP\\_MapProducts.htm](http://www.census.gov/geo/www/maps/CP_MapProducts.htm))

## GEOGRAPHY AND LAND USE

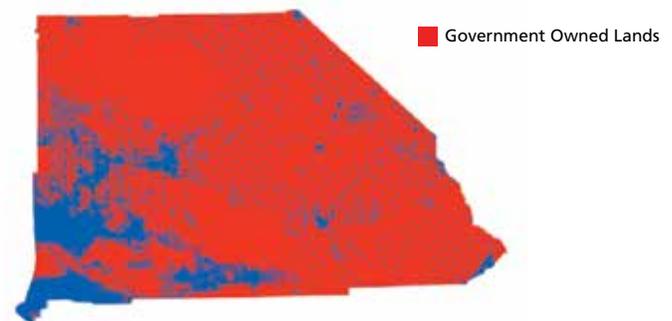
San Bernardino County is the largest county in the contiguous United States:

- The county covers over 20,000 square miles of land.
- There are 24 cities in the county and multiple unincorporated areas.
- 81% of the land is outside the governing control of the County Board of Supervisors or local jurisdictions; the majority of the non-jurisdiction land is owned and managed by federal agencies.<sup>2</sup>

The county is commonly divided into three distinct areas, including the Valley Region (sometimes divided into East and West Valley), the Mountain Region, and the Desert Region:

- The Valley Region contains the majority of the county's incorporated areas and is the most populous region.
- The Mountain Region is primarily comprised of public lands owned and managed by federal and state agencies.
- The Desert Region is the largest region (approximately 93% of the county's land area) and includes parts of the Mojave Desert.<sup>2</sup>

## Government Owned Land in San Bernardino County



San Bernardino County is mostly undeveloped:

- More than three-quarters (80%) of San Bernardino County is vacant land.
- 15% of the land is used for military purposes.
- Residential housing comprises 2.3% of the land area.
- Industrial uses make up 0.8% of the county's land use, followed by utilities (0.5%), agriculture (0.5%), transportation (0.4%), and parks (0.2%).
- Commercial uses, schools, offices, and government buildings each make up 0.1% or less of county land.<sup>3</sup>

## POPULATION DENSITY

Given its vast land area, the county's overall population density is low:

- San Bernardino's population density is estimated at 104 people per square mile, which is substantially lower than the four neighboring counties compared (Riverside, San Diego, Orange, and Los Angeles Counties).<sup>4</sup>
- It is also lower than peer regions of Las Vegas, Phoenix, and Miami.
- Within San Bernardino County, the Valley Region is the most densely populated area, with 73% of the population residing in that region, but accounting for only 2.5% of the county's land area.<sup>5</sup>
- Based on these figures, the estimated population density of the Valley Region is approximately 2,977 persons per square mile, which is similar to neighboring Los Angeles and Orange Counties.

## POPULATION

San Bernardino County has the fifth largest population in California:

- In July 2013, San Bernardino County's population was estimated at over two million (2,088,371).
- Among all California counties, only Los Angeles County (10,017,068), San Diego County (3,211,252), Orange County (3,114,363), and Riverside County (2,292,507) have more residents.
- San Bernardino County is the twelfth most populous county in the nation, with more residents than 15 of the country's states, including Idaho, West Virginia, and New Mexico.<sup>6</sup>

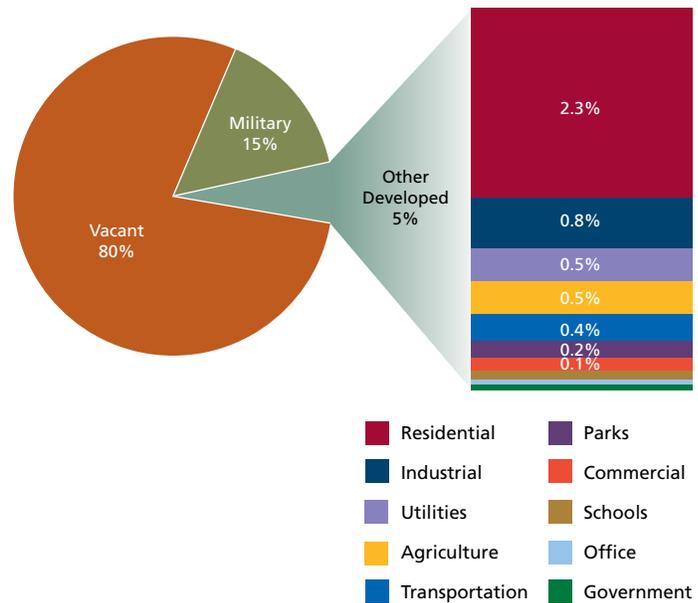
## Ranking by Population Growth County Comparison, 2012-2013

County (Major City)	State	Population as of July 1, 2013	Numeric Change	Percent Change	Ranking by Numeric Growth (2012-2013)	Ranking by Percent Change (2012-2013)
Maricopa (Phoenix)	AZ	4,009,412	68,800	1.7%	2	229
Los Angeles	CA	10,017,068	65,378	0.7%	3	718
San Diego	CA	3,211,252	35,114	1.1%	5	454
Clark (Las Vegas)	NV	2,027,868	30,209	1.5%	7	283
Orange (Santa Ana)	CA	3,114,363	29,008	0.9%	9	557
Riverside	CA	2,292,507	27,628	1.2%	10	409
Miami-Dade (Miami)	FL	2,617,176	24,466	0.9%	16	558
<b>San Bernardino</b>	<b>CA</b>	<b>2,088,371</b>	<b>10,918</b>	<b>0.5%</b>	<b>48</b>	<b>921</b>

Note: Ranking is among approximately 3,200 counties in the United States and runs from the largest to the smallest change.

Source: U.S. Census Bureau, Population Estimates Program ([www.census.gov/popest/](http://www.census.gov/popest/))

## San Bernardino County Land Uses



Source: San Bernardino Associated Governments, April 2014

## Population Density for San Bernardino County, San Bernardino Valley, and Peer and Neighboring Counties, 2013

County (Major City)	Persons per Square Mile
<b>San Bernardino</b>	<b>104</b>
Clark (Las Vegas)	256
Riverside	318
Maricopa (Phoenix)	436
San Diego	766
Miami-Dade (Miami)	1,345
Los Angeles	2,467
<b>San Bernardino Valley Region</b>	<b>2,977</b>
Orange (Santa Ana)	3,945

Note: San Bernardino Valley land area is from 2007 and population data are from 2012. The remaining geographies reflect land area data from 2000 and population data from 2013.

Sources: Analysis of data from the U.S. Census Bureau (Census 2000, 2012 American Community Survey 5-Year Estimates, and 2013 Population Estimates Program) and the San Bernardino County Land Use Department, 2007 General Plan

San Bernardino County's population growth has occurred at a moderate but fairly steady rate over the past 40 years:

- Average annual population growth in the 1970s was 3%.
- The annual growth rate jumped to 6% in the 1980s, dropped back to 2% in the 1990s and remained 2% in the 2000s.
- Since 2000, San Bernardino County's population has grown by approximately 21%.<sup>7</sup>
- Most recently (between 2012 and 2013), San Bernardino County's population grew 0.5% – slightly slower than growth in the state as a whole (0.9%).<sup>8</sup>

San Bernardino County's population is expected to reach about 2.75 million by 2035:

- Population growth is projected to continue at an average annual rate of between one and two percent, creating total growth of 36% between 2008 and 2035.
- This rate of growth is in the mid-range among counties in the Southern California Association of Governments (SCAG) region, with Imperial County projected to grow the fastest (69%) and Orange County the slowest (14%).<sup>9</sup>

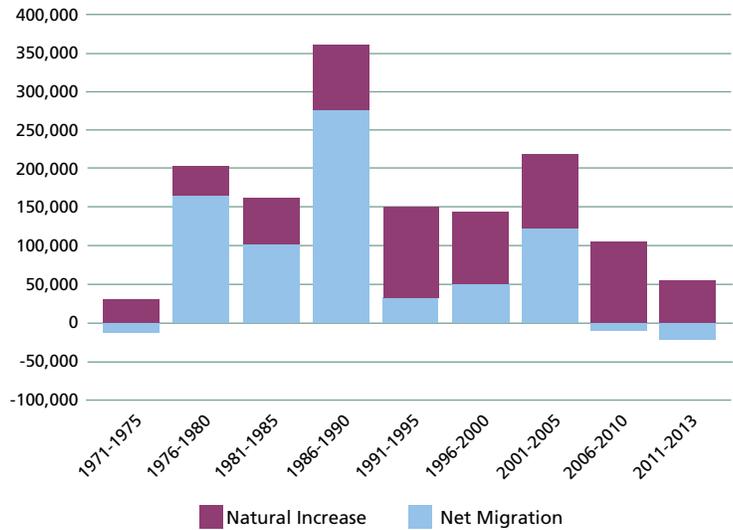
After previously gaining residents primarily through migration, San Bernardino County's growth since the early 1990s has come predominately from natural increase (births minus deaths):

- From 1975 through 2006, San Bernardino County had positive net migration, with more people moving into the area than out.
- However, between 2007 and 2010, the county lost population through migration, with an estimated loss of nearly 50,000 residents in these four years.
- Most recently, between 2011 and 2013, the county continued to experience negative net migration, losing approximately 18,000 residents.
- Domestic out-migration (moving out of the county to another location in the United States) has been the driver behind the loss since 2008, while international immigration (moving to the county from a foreign country) acted to reduce the net loss.
- The county added approximately 56,000 residents through natural increase between 2011 and 2013, which when combined with negative net migration, equals a total of nearly 38,000 new residents during this period.<sup>10</sup>

San Bernardino County is racially and ethnically diverse:

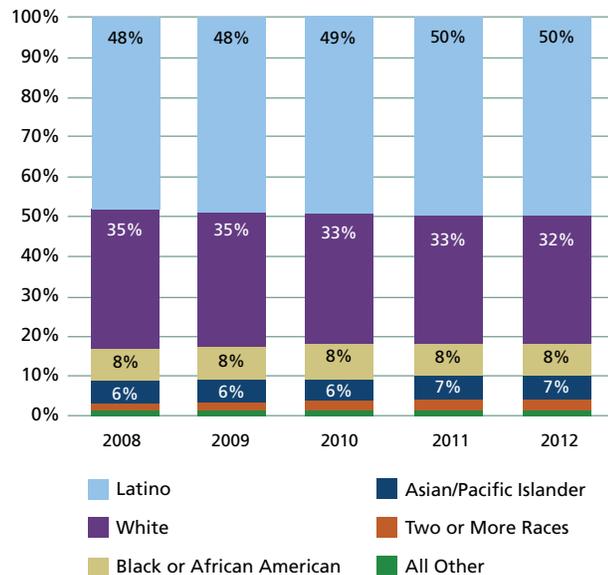
- Half (50%) of San Bernardino County residents are Latino, who may be of any race.
- Among the remaining non-Latino residents, 32% are White, 8% are Black or African American, 7% are Asian or Pacific Islander, and 3% report two or more races. Less than one percent of residents are American Indian/Alaska Native (0.6%).<sup>11</sup>

### Components of Population Change San Bernardino County, 1971-2013



Source: California Department of Finance, Table E-6, 1970-2013 ([www.dof.ca.gov/research/demographic/reports/view.php](http://www.dof.ca.gov/research/demographic/reports/view.php))

### Population by Race/Ethnicity San Bernardino County, 2008-2012



Note: "All Other" includes American Indian/Alaska Native and any other single race. Latino includes any race. All race calculations are non-Latino.

Source: U.S. Census Bureau, 2008-2012 American Community Survey 1-Year Estimates

#### Native Americans in San Bernardino County

Approximately 1% of the population in San Bernardino County is comprised of residents who are Native American alone and no other race (21,023 individuals as of 2012). An additional 14,998 residents self-identify as Native American and White, and 3,056 identify as Native American and Black or African American. The most common tribal identification is Mexican American Indian, followed by Navajo, Choctaw, Yaqui, and Sioux. Federally recognized tribes within the county include: the Chemehuevi Indian Tribe, the San Manuel Band of Mission Indians, and the Fort Mojave Indian Tribe.

Note: "Native American" includes the Census categories of American Indian and Alaska Native, both Latino and non-Latino. Tribal identification is for Native American alone and no other race.

Sources: U.S. Census Bureau, 2008-2012 American Community Survey, 5-Year Estimate, and Census 2010 SF-1, Tables QT-P7, QT-P4, P-3

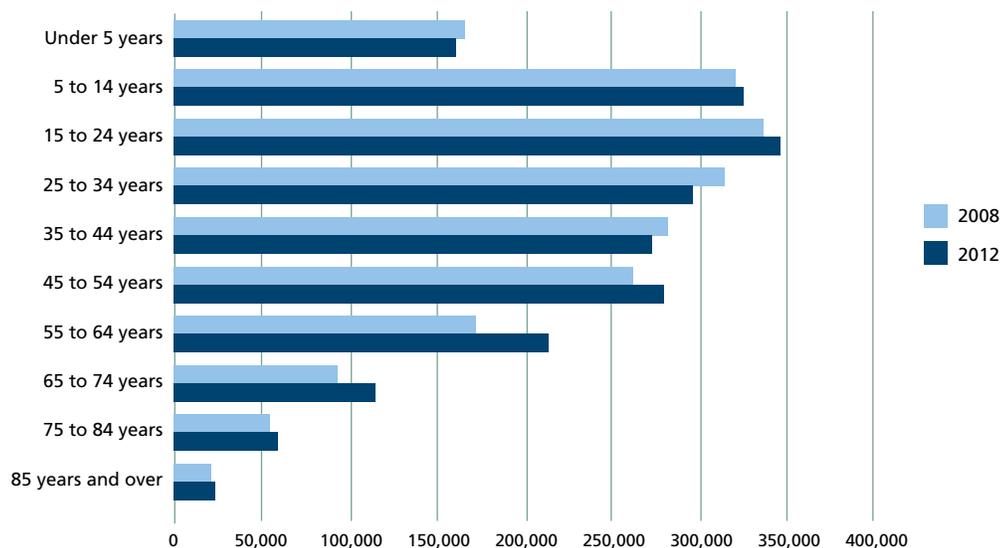
In 2012, 22% of the people living in San Bernardino County were foreign-born:

- By comparison, in 2000, 19% of the population was foreign-born.<sup>12</sup>
- The increase in the proportion of foreign-born residents follows legal immigration patterns.
- In the 1980s, the county was adding an average of 2,800 residents each year from legal immigration. This grew to an average of 4,700 in the 1990s. Since 2000, the county added an average of 8,000 new immigrants each year.<sup>13</sup>
- Among residents over the age of five, 42% speak a language other than English at home.
- Among these, 81% speak Spanish and 19% speak some other language.<sup>14</sup>
- As of March 2014, there were 2,746 bilingual county employees who provide interpretation services as a part of their job. This is equivalent to approximately 15% of all county employees and represents at least five different languages.<sup>15</sup>

San Bernardino County's population is relatively young:

- In 2012, the county's median age was 33, compared to 37 nationwide.
- As of 2012, 28% of the population was under age 18, while 10% was 65 years or older.
- Between 2008 and 2012, the county's population grew in all age groups except young children under age five and adults ages 25 to 44.<sup>16</sup>

**Population by Age**  
San Bernardino County, 2008 and 2012



Source: U.S. Census Bureau, 2008 and 2012 American Community Survey (<http://factfinder2.census.gov/>)

## HOUSING

Most homes in San Bernardino County are single-family, detached homes (71%):

- There were 704,540 housing units available to county residents in January 2013.
- As of January 2013, San Bernardino County had a housing vacancy rate of 12.5%, unchanged from the prior year.<sup>17</sup>
- A majority of occupied units are owner-occupied (60%) compared to renter-occupied (40%).
- The greatest proportion of homes was built in the 1980s (23%), followed by the 1970s (18%).<sup>18</sup>
- In the last 10 years, construction permits peaked in 2004 with 18,017 permits granted, followed by another 16,635 permits granted in 2005 and 13,324 in 2006.
- However, mirroring decreases elsewhere in the state, construction permits in San Bernardino County fell 76% between 2007 and 2012 (7,752 and 1,897 permits, respectively).
- Preliminary data for 2013 show an increase in housing permits granted at approximately 3,400 permits. This is more than double the 20-year low of 1,472 permits granted in 2011.<sup>19</sup>

In 2012, there were 600,688 households in the county:

- Families comprise 76% of the households in San Bernardino County, of which 69% are married-couple families and 31% are other families.
- 13% of households with children under 18 are led by a single parent (male or female).
- Overall, families with children under age 18 comprise 39% of all households.
- Non-family households made up of one individual, or two or more unrelated individuals, comprise 24% of all households in San Bernardino County.<sup>20</sup>
- At an average of 3.3 people per household, San Bernardino County has the fifth highest household size among California counties in 2012.
- In comparison, the average household size in California is 2.9 and the national average is 2.6.<sup>21</sup>

## EMPLOYMENT

### Labor Market Distribution and Growth

Labor market distribution analysis showcases San Bernardino County's niche as a logistics hub:

- In 2012, the largest labor markets in San Bernardino County were Trade, Transportation and Utilities (27% of total employment), Government (19%), Educational and Health Services (14%), Professional and Business Services (12%), Leisure and Hospitality (9%), Manufacturing (8%), Construction (4%) and Financial Activities (4%).<sup>22</sup>
- Employment within the category of Transportation and Warehousing (a sub-category of Trade, Transportation and Utilities) is more than twice as concentrated in San Bernardino County than in the United States as a whole (8% to 4%, respectively).<sup>23</sup>

The fastest growing sectors in the region are projected to be Construction and Health Care and Social Assistance:

- Employment in the construction industry is anticipated to grow by 3.9% between 2013 and 2016, followed by 3.7% growth in Health Care and Social Assistance.
- The sectors where analysts anticipate the region will have a competitive advantage are Health Care and Social Assistance, Transportation and Warehousing, Wholesale Trade, Retail Trade and Utilities.<sup>24</sup>

### Sector Scorecard

Riverside-San Bernardino, Current (2012/13) and Three-Year Forecast

	Current			Three-Year Forecast	
	Employment	Average Annual Wages	Employment Concentration	Average Annual Percent Growth	Local Competitiveness
Construction	63,293	\$50,325	1.19	3.9%	
Health Care and Social Assistance	149,790	\$46,003	0.87	3.7%	✓
Transportation and Warehousing	71,322	\$42,968	1.54	2.7%	✓
Arts, Entertainment, and Recreation	28,918	\$29,967	1.33	2.6%	
Wholesale Trade	53,635	\$50,595	1.04	2.2%	✓
Retail Trade	165,270	\$28,568	1.21	2.1%	✓
Utilities	9,888	\$84,898	1.35	1.5%	✓
Manufacturing	85,447	\$48,070	0.79	1.3%	

Note: Local competitiveness is an assessment of whether an industry has a regional competitive advantage compared to the nation in terms of generating employment – that is, an industry is outperforming the national average rate of growth or decline. Employment concentration measures whether employment in a particular sector is more or less concentrated than the national average (which is 1.0); values over 1.25 suggest a comparative advantage or specialization in a particular sector.

Source: JobsEQ from the report "The San Bernardino County Economy: Economic Trends and Forecasts, Quarter 1 - Quarter 3, 2013" by Chmura Economics & Analytics for the Workforce Investment Board of San Bernardino County. Current data are third quarter 2012 to third quarter 2013; Forecast data are three-year projections from third quarter 2013.

### Business Size

Small firms comprise the majority of San Bernardino County's economy, but large firms remained more stable during the downturn:

- Almost all of the businesses in the county have fewer than 100 employees (98%), and 67% of these have four or fewer employees.
- In terms of how employees are distributed among San Bernardino County businesses, in the third quarter of 2012, 56% of employees worked for businesses with fewer than 100 employees, 25% worked for businesses with 100-499 employees, and the remaining 19% worked for large businesses with 500 employees or more.
- Between 2008 and 2012, the number of firms with 0-99 employees shrank by 47% and the number of firms with 100-499 employees shrank 45%.
- There were 13% fewer firms with 500 employees or more since 2008, making this size of firm comparatively more stable.<sup>25</sup>

## ENDNOTES

- <sup>1</sup> California Employment Development Department, San Bernardino County Profile ([www.labormarketinfo.edd.ca.gov](http://www.labormarketinfo.edd.ca.gov))
- <sup>2</sup> San Bernardino County Land Use Department, 2007 General Plan ([www.sbcounty.gov](http://www.sbcounty.gov))
- <sup>3</sup> San Bernardino Associated Governments
- <sup>4</sup> U.S. Census Bureau (Census 2000, 2012 American Community Survey 5-Year Estimates, and 2013 Population Estimates Program) and the San Bernardino County Land Use Department, 2007 General Plan
- <sup>5</sup> San Bernardino County Land Use Department, 2007 General Plan ([www.sbcounty.gov](http://www.sbcounty.gov)); U.S. Census Bureau, 2012 American Community Survey 5-Year Estimates (<http://factfinder2.census.gov>). Valley Region includes Ontario Census County Division (CCD), San Bernardino CCD, and Yucaipa CCD.
- <sup>6</sup> U.S. Census Bureau, Population Estimates Program, 2013 Estimates by County ([www.census.gov/popest/index.html](http://www.census.gov/popest/index.html))
- <sup>7</sup> California Department of Finance, Tables E-1 and/or E-2
- <sup>8</sup> U.S. Census Bureau, Population Estimates Program, 2013 Estimates by County
- <sup>9</sup> The SCAG region includes the counties of: Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. Southern California Association of Governments, 2012 Regional Transportation Plan Growth Forecasts ([www.scag.ca.gov/forecast/index.htm](http://www.scag.ca.gov/forecast/index.htm))
- <sup>10</sup> California Department of Finance, Table E-6, 1970-2012
- <sup>11</sup> U.S. Census Bureau, 2012 American Community Survey, 1-Year
- <sup>12</sup> U.S. Census Bureau, 2012 American Community Survey (1-Year) and 2000 Census (SF 3)
- <sup>13</sup> California Department of Finance, Legal Immigration to California by County, 1984-2012 ([www.dof.ca.gov/research/demographic/reports/view.php](http://www.dof.ca.gov/research/demographic/reports/view.php))
- <sup>14</sup> U.S. Census Bureau, 2012 American Community Survey, 1-Year
- <sup>15</sup> San Bernardino County Human Resources
- <sup>16</sup> U.S. Census Bureau, 2008 and 2012 American Community Survey, 1-Year
- <sup>17</sup> California Department of Finance, Table E-5 State/County Pop and Housing Estimates ([www.dof.ca.gov/research/demographic/reports/view.php](http://www.dof.ca.gov/research/demographic/reports/view.php))
- <sup>18</sup> U.S. Census Bureau, 2012 American Community Survey, 1-Year
- <sup>19</sup> Housing and Urban Development Department (<http://socds.huduser.org/permits/index.html>).
- <sup>20</sup> U.S. Census Bureau, 2012 American Community Survey, 1-Year
- <sup>21</sup> U.S. Census Bureau, 2012 American Community Survey, 5-Year (Table B25010)
- <sup>22</sup> California Employment Development Department, Employment by Industry Data for San Bernardino County ([www.labormarketinfo.edd.ca.gov/LMID/Employment\\_by\\_Industry\\_Data.html](http://www.labormarketinfo.edd.ca.gov/LMID/Employment_by_Industry_Data.html))
- <sup>23</sup> U.S. Bureau of Labor Statistics ([www.bls.gov/cew/cewlq.htm](http://www.bls.gov/cew/cewlq.htm))
- <sup>24</sup> JobsEQ from the report "The San Bernardino County Economy: Economic Trends and Forecasts, Quarter 1 - Quarter 3, 2013" by Chmura Economics & Analytics for the Workforce Investment Board of San Bernardino County
- <sup>25</sup> Employment Development Department, Size of Business Data ([www.labormarketinfo.edd.ca.gov/?PAGEID=138](http://www.labormarketinfo.edd.ca.gov/?PAGEID=138))



**special feature**

# Achieving the Countywide Vision

Four years ago, the County of San Bernardino commissioned and published the first annual San Bernardino County Community Indicators Report, a data-driven summary on the status of the economy, health, education, public safety, environment, and quality of life in America's largest county.

Each of those elements are key to the Countywide Vision, a set of shared goals adopted by the Board of Supervisors, San Bernardino Associated Governments, and virtually all of the county's cities, towns and school districts in 2011 to help make San Bernardino County an attractive and prosperous place to live, work and play. Each element is dependent on all of the others. The economy will not prosper without a skilled and educated workforce graduating from our schools. Children cannot learn if they are not healthy and safe. Wellness and public safety depend on a healthy economy.

Since 2010, decision makers, business leaders, nonprofit organizations, community groups and citizens have used the Community Indicators Reports to determine the county's progress on the challenges it faces and to track the progress of the Countywide Vision. The yearly report helps promote advocacy for the county's needs and drives stronger collaborations to address them.

This year's report takes a look back at the data from the past four years to see how life in the county has changed. The unemployment rate has fallen and wages have increased. Housing values have risen as foreclosure rates have dropped. More students became eligible to attend colleges and universities. Fewer students dropped out of school. Citizens became more conscious of how much water they use and have tried to conserve. The public safety community dealt with new mandates to track and rehabilitate offenders, while juvenile arrests fell.

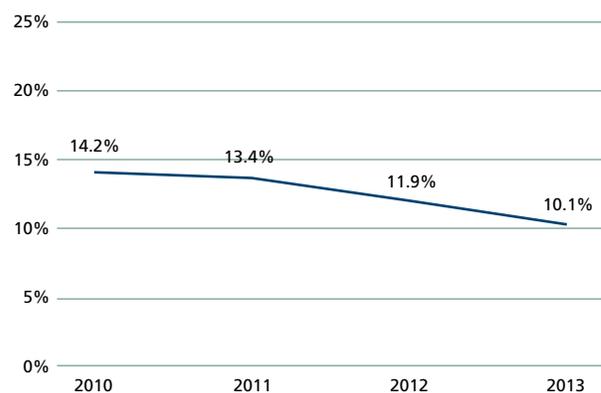
In 2014, there are positive signs of an economic and social recovery, but there is more work to do to improve San Bernardino County and realize the promise set forth in the Countywide Vision.

## ECONOMY

When the 2010 Community Indicators Report was published, San Bernardino County was in the midst of the Great Recession with an unemployment rate at 14.2%, significantly higher than the state and national rates.

An upturn in local wage and salary job growth began in 2011 and contributed to the slow decrease in the region's unemployment rate, according to Kelly Reenders, the County's Economic Development Agency Administrator. By 2013, the average annual unemployment rate dropped to 10.1% in San Bernardino County. As of March 2014, the unemployment rate was lower still, at 9.3%.

**Average Annual Unemployment Rate**  
San Bernardino County, 2010-2013



Source: California Employment Development Department ([www.labormarketinfo.edd.ca.gov/cgi/databrowsing/localareaprogsselection.asp?menuchoice=localareapro](http://www.labormarketinfo.edd.ca.gov/cgi/databrowsing/localareaprogsselection.asp?menuchoice=localareapro))

The logistics sector added more than 16,000 jobs since 2010 and the expansion of Internet trade brought businesses like Amazon's Fulfillment Center to the region. Availability of undeveloped land and proximity to the ports of Los Angeles and Long Beach make the Inland Empire the prime destination for manufacturing and logistics to locate.

Randall Lewis, executive vice president of the Lewis Group of Companies, a longtime real estate business leader in the Inland Empire, credits city and county officials for creating a business-friendly environment over the last four years.

"The Countywide Vision sends a powerful message to the business community that this is a county that is looking ahead to the future," Lewis said.

He pointed to city managers and planning directors who reached out to meet with the Building Industry Association to create strong relationships and come up with solutions on how to make doing business in the county easier.

"We discussed streamlining processes to drive down the cost of doing business, cutting red tape yet still maintaining the high quality standards that the county needs and deserves," said Lewis. He noted that the business-friendly attitude has given investors the confidence to do business in the county, which will pay dividends for the economy in the future.

"Investors have choices and one of their first choices is where they should invest capital," he said. "When you hear of a county that says, 'We want to work together,' you just naturally pay attention to that as opposed to a city or county where there is indifference."

The County's Workforce Investment Board focused on demand sectors, designing programs to address skills gaps and move the unemployed into well-paying jobs.

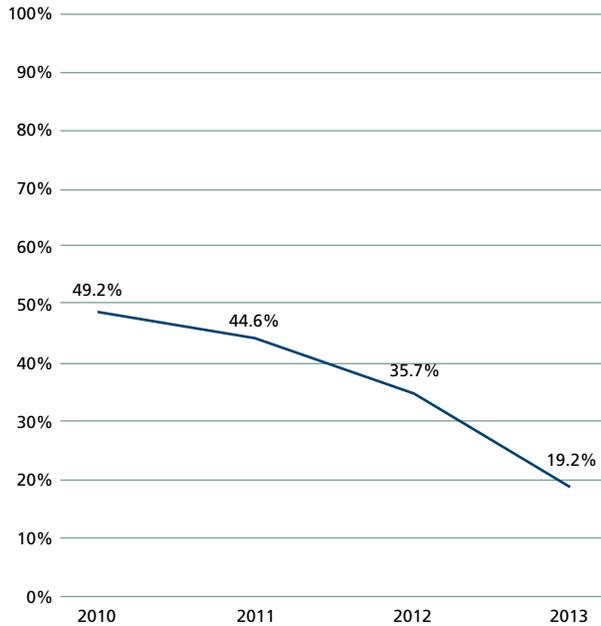
"By identifying skills gaps, providing training programs, exploring funding sources, and working with local educational institutions, the Workforce Investment Board has retained and created jobs for the region," Reenders said. "This approach has made the county attractive for many employers through its skilled workforce and desirable labor pool."



**HOUSING**

Over the four-year period from 2010 to 2013, home prices rose 30% and the number of underwater mortgages and foreclosures throughout the county began decreasing.

**Percentage of Mortgages Underwater**  
San Bernardino County, 2010-2013



Source: CoreLogic

While overall market conditions have improved, a deeper look at the numbers reveals that there are still problems in the county’s real estate market. The percentage of underwater mortgages has declined, but the increase in values is not uniform across the county. Communities including Fontana, Ontario, Colton, Rialto, Victorville, Hesperia, and Apple Valley all have high percentages of homes with negative equity. Many homeowners in these communities are underwater by hundreds of thousands of dollars and are unlikely to return to a positive equity position for many years.

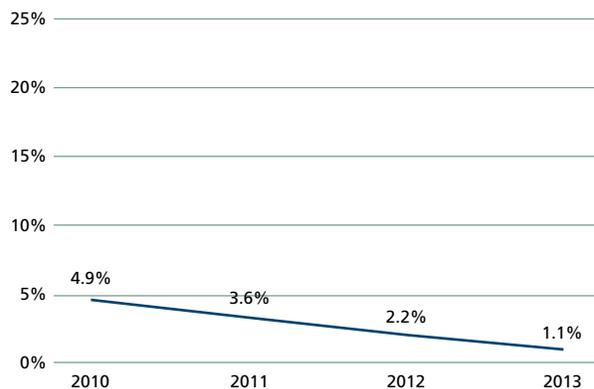
Even homeowners who have equity in their homes may still have unaffordable mortgages. “If these homeowners don’t have enough equity, are just barely in a positive position, or if their credit is less than perfect, they may not be able to refinance into an affordable mortgage,” said Dena Fuentes, director of the County’s Community Development and Housing Department.

Homeowners who cannot refinance or get a loan modification are more likely to end up in foreclosure, especially if their loan becomes unaffordable due to hardship such as a job loss or an illness or if the interest rate adjusts and their mortgage payment amount increases.

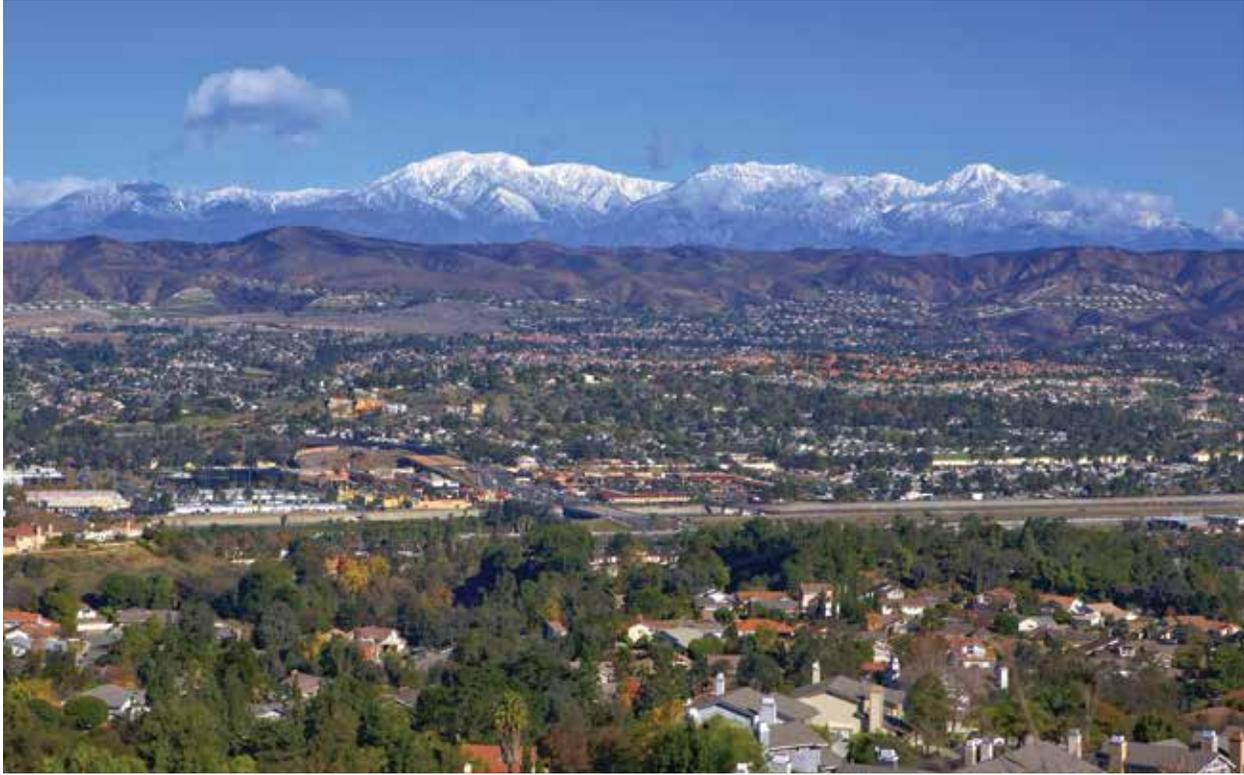
Foreclosure rates throughout the county declined over the four-year period, but Fuentes said that is due in part to lenders becoming less aggressive in foreclosing on delinquent homeowners and homeowners becoming aware of programs intended to help them prevent foreclosure.

“The County initiated a program to raise awareness of the existing state and federal programs since the programs have not been well-advertised. By marketing the legitimate assistance that is available to homeowners at no charge, we’ve been able to get homeowners connected to these programs or to work with the nonprofit, HUD-approved housing counseling agencies that help them get loan modifications or solutions,” Fuentes said.

**Percentage of Properties in Foreclosure**  
San Bernardino County, 2010-2013



Source: CoreLogic



The County joined with the cities of Ontario and Fontana to form a Joint Powers Authority (JPA) to assist homeowners, especially those who are underwater or otherwise still struggling, with alternatives to foreclosure.

The JPA's efforts resulted in a website, [www.saveyourhomesbcounty.org](http://www.saveyourhomesbcounty.org), which provides information and resources, including links to housing counselors and information on workshops and events throughout the county.

“We expect the programs to be able to offer affordable loan modifications to homeowners who may not qualify for other programs, or other alternatives that will allow them to sell their homes and lease them back for three to five years and purchase the home back in the future,” Fuentes said. “This last option allows residents time to repair their credit if needed and develop financial plans to make sure homeownership will be affordable for them in the future.”

Housing construction took a major hit during the Great Recession. Over an eight-year period, housing construction permits plummeted by 90%, from 18,017 permits in 2004 to 1,897 permits in 2012. Unemployment was the major factor in the decline of housing construction, according to Fuentes.

“Since construction is a major part of the Inland Empire economy, the drop in housing demand triggered price declines, and construction stopped,” she said. “Construction layoffs fed the drop in demand, since unemployed construction workers – along with all of the other unemployed due to the recession – either couldn't pay their mortgages or couldn't buy housing.”

The construction industry is starting to slowly recover, but until demand and the housing market return to “normal” it will be a slow process.

**EDUCATION**

A key element for economic recovery in this region is having a highly skilled and educated workforce to help make San Bernardino County attractive to business.

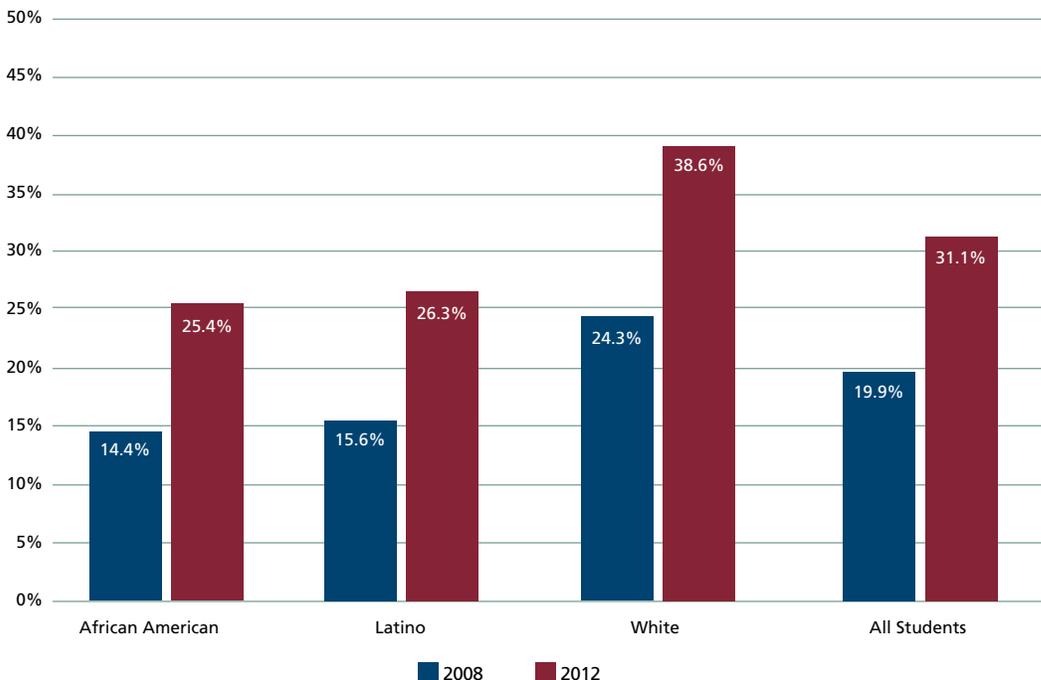


There are more than 20 colleges and universities within the Inland Empire that provide quality educational opportunities to our residents, ranging from from night study programs to doctoral degrees.

San Bernardino County Schools' Alliance for Education is a statewide model for project-based learning and promoting more rigor and relevance in the classroom. The program has been leading the charge to work with schools and districts in STEM (Science, Technology, Engineering, and Mathematics) and Linked Learning, which combines strong academics with real-world experience in a wide range of fields, such as engineering, arts and media, and biomedical and health sciences. The Alliance has hundreds of partners in business, labor, government, education, community and faith-based organizations.

*Students from Colton High School's new Health Education Academy of Learning (HEAL) programs visit Arrowhead Regional Medical Center to get a first-hand look at health care.*

**Percentage of Students Meeting UC/CSU Eligibility Requirements, by Race/Ethnicity**  
San Bernardino County, 2008 and 2012



Source: California Department of Education, DataQuest (<http://data1.cde.ca.gov/dataquest/>)

The innovative efforts appear to be working. When the first edition of the Community Indicators Report was published in 2010, only 20% of high school graduates were prepared for college. Now, more than a third of our high school graduates are eligible to attend California State University and University of California colleges.

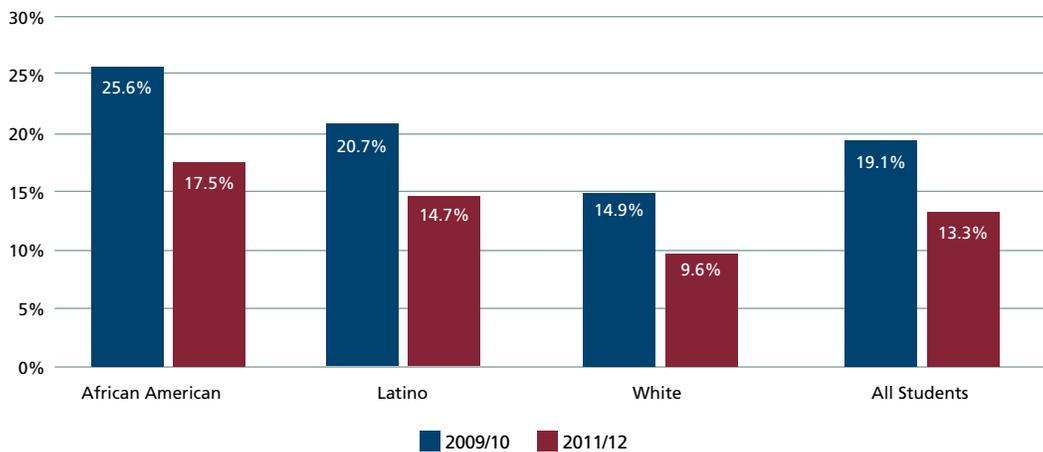
College readiness for Latino and African American high school graduates has improved significantly, with 26% of Latino students now eligible for college courses up from 15% in 2008. Only 14% of African-American high school graduates were college-ready in 2008, but that number jumped to 25% in 2013.

One successful County schools program that is helping student achievement is AVID (Advancement Via Individual Determination), which was designed for students who come from families with little to no college background. According to Dr. Gary S. Thomas, San Bernardino County Superintendent of Schools, “AVID does an amazing job preparing first-generation college students to succeed with their higher education goals.”

In the AVID 2013 graduating class, 87% of seniors had been accepted to at least one four-year college or university.

County schools also provided 11th grade students with the opportunity to take college entrance-like exams prior to their senior year in high school through the Early Assessment Program (EAP). EAP has increased the number of students who successfully enter college without taking remediation classes.

**Percentage of Students Dropping Out of School, by Race/Ethnicity**  
San Bernardino County, 2009/10 and 2011/12

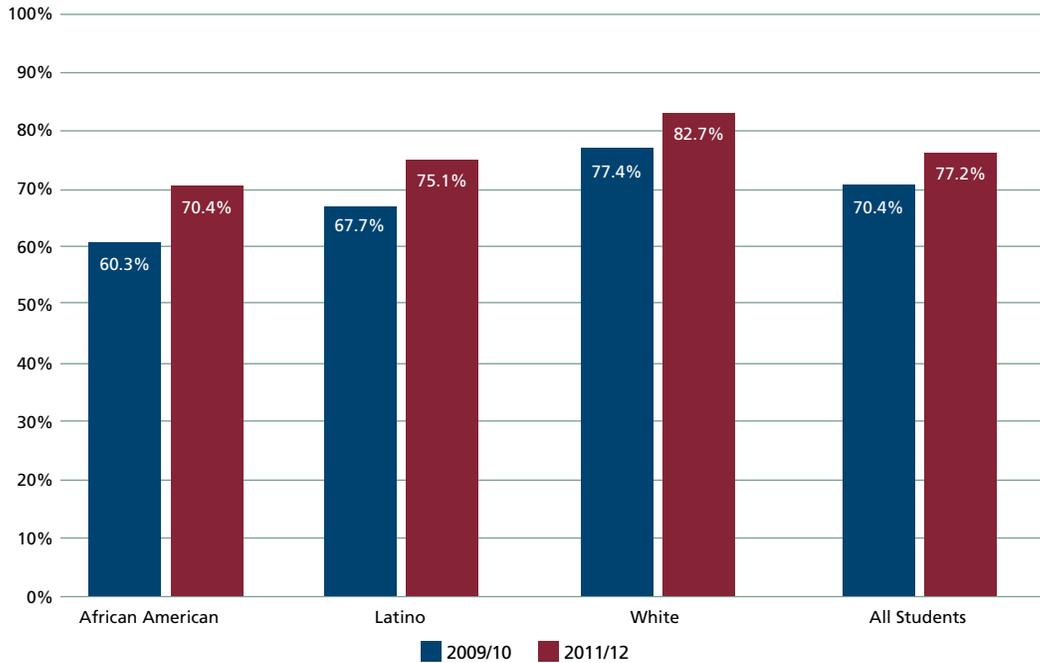


Source: California Department of Education, DataQuest (<http://data1.cde.ca.gov/dataquest/>)

In 2009, County Superintendent Dr. Gary S. Thomas issued a Call to Action to bring attention to the county’s high dropout and low graduation rates. The committee of representatives from business and labor, community and faith-based organizations, educators and parents who took part in the Call to Action examined data and best practices, which were shared with districts and superintendents countywide. One of those research-based, best practice programs is Positive Behavior and Intervention Systems (PBIS). The Silver Valley Unified School District adopted PBIS and saw a reduction in suspension rates at its school sites, from 20% to 6.2% over three years.

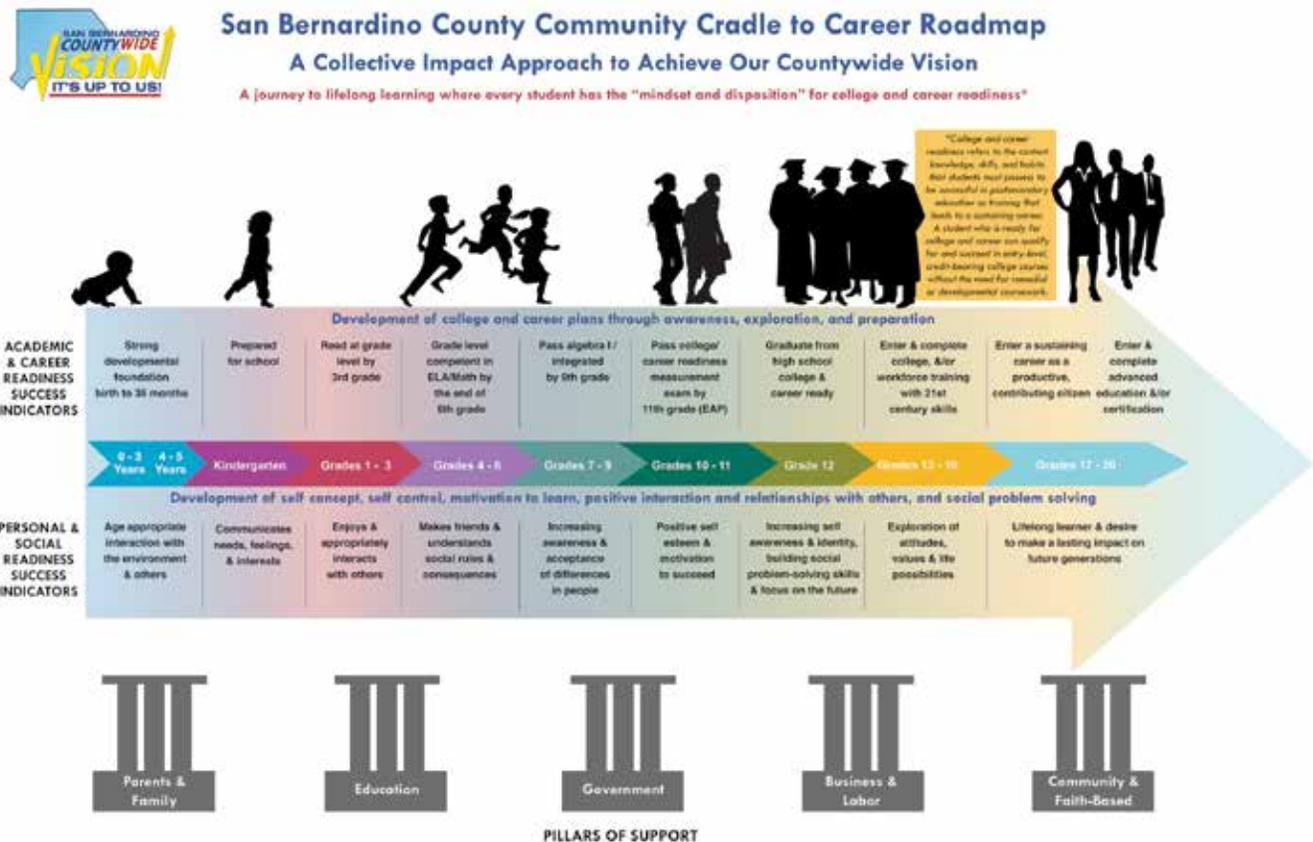
In the past three years, the county’s overall high school dropout rate has decreased by 30%, while graduation rates have increased nearly 10%.

**Graduation Rate, by Race/Ethnicity**  
San Bernardino County, 2009/10 and 2011/12



Source: California Department of Education, DataQuest (<http://data1.cde.ca.gov/dataquest/>)

Our collective impact approach to solving complex problems is critical to the overall success of our youth and quality of life in our region. In 2014, the Education Element Group developed a Cradle to Career Roadmap to identify key milestones for a child’s academic, personal, social and career readiness.



“We can’t know the spectrum of challenges students come to school with each day, but some of our students have personal and social needs that must be met before learning can ultimately take place,” Dr. Thomas said.

In the Cradle to Career Roadmap approach, families, educators, government, business, labor, and community-based organizations act as pillars of support for students from the time they are born until they complete advanced education programs or certification. This approach ensures students have the network of support for strong personal and social readiness so they can fully benefit from their academic program.

Beginning with the class of 2015, all San Bernardino City Unified School District students in the cities of San Bernardino and Highland will be guaranteed admission into California State University, San Bernardino if they fulfill basic requirements. Leaders from San Bernardino City Unified and Cal State San Bernardino reached an agreement in April 2014 to allow students admission at the university if they meet college entrance pre-requisites and stay on track with attendance and grades.

“It’s crucial that students are prepared to go to college when they graduate from high school,” said Cal State San Bernardino President Dr. Tomás D. Morales. “This agreement will make the path to college smoother for qualified students, and it is also beneficial once they arrive at our campus. Students will be able to start taking courses within their major sooner, and this also helps speed the time to reach graduation.”

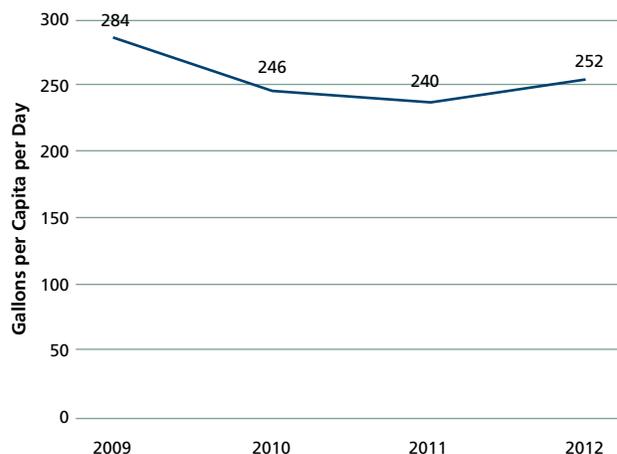
## ENVIRONMENT

All of the elements of a “complete county” which the Countywide Vision aims to achieve depend on a healthy environment and an ample supply of clean water. At the end of 2013, California witnessed a historic drought with Governor Jerry Brown declaring a state of emergency and urging the state to conserve water by 20%. The good news is water use was down in San Bernardino County over the four-year period. The average water consumption per capita per day was 252 gallons in 2012, down from a high of 284 gallons in 2009.

In San Bernardino County, the Mojave Water Agency (MWA) region encompasses 4,900 square miles in the arid Mojave Desert that annually receives less than six inches of rainfall. The agency has in place two primary strategies, including a groundwater recharge initiative and a conservation program. Since launching an aggressive water conservation program, the MWA has already surpassed the state-mandated 20% per capita reduction requirement for the year 2020. Since 2000, the MWA region has reduced its per capita water consumption by 30%.

MWA’s water conservation programs have achieved a significant reduction in water consumption by helping to promote a culture of conservation. One of the agency’s most successful programs is the Cash for Grass program that offers participants a

**Average Urban Water Consumption**  
Selected Water Agencies in San Bernardino County, 2009-2012



Source: “Analysis of data provided by Fontana Water Company; Santa Ana Watershed Project Authority; Cucamonga Valley Water District; Mojave Water Agency; City of Ontario Municipal Water Agency; City of San Bernardino Municipal Water Department; Victorville Water District; California Department of Finance, Table E-4



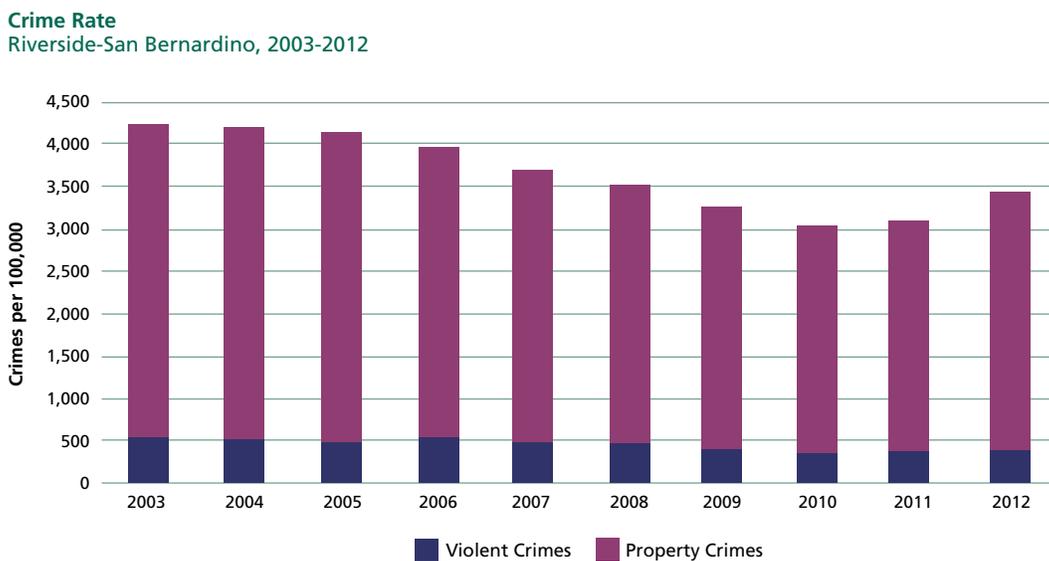
*Cash for Grass Program, before and after*

50 cent per square foot rebate for turf removed. Since 2008, the Cash for Grass program has resulted in the removal of more than 6.1 million square feet of turf.

“In addition to this program, the agency has promoted water-wise landscaping, efficient drip irrigation, and has cosponsored low-flow toilet replacement programs throughout the region,” said Kirby Brill, general manager of the Mojave Water Agency. “Looking to the future, the agency will launch another Cash for Grass program aimed at removing larger areas of turf at commercial, industrial, and institutional facilities.”

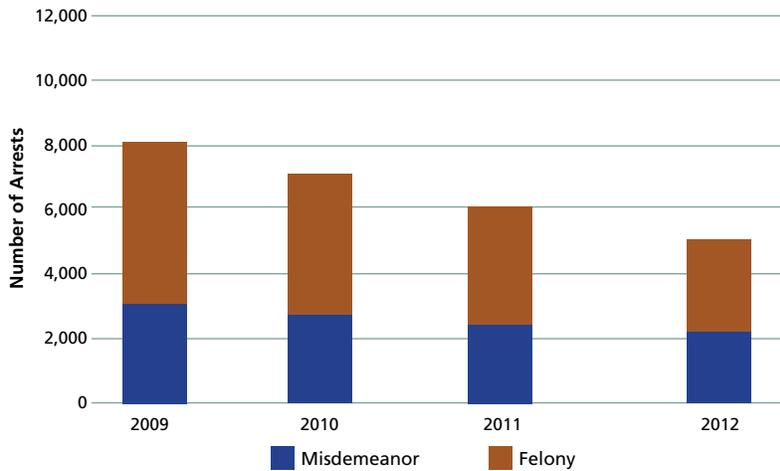
## **PUBLIC SAFETY**

Public safety is the lynchpin for education, the economy, housing, wellness, our county’s image, and our quality of life. In San Bernardino County, property and violent crime statistics continued to fluctuate over the four-year period, but the overall crime rate declined during the past 10 years with drops in domestic violence, homicides and juvenile arrests.



Source: Federal Bureau of Investigation, Uniform Crime Reporting Program ([www.fbi.gov/ucr/ucr.htm](http://www.fbi.gov/ucr/ucr.htm))

**Juvenile Arrests**  
San Bernardino County, 2009-2012



Source: San Bernardino County Probation Department, Research Unit

What causes decreases in crime statistics is always difficult to identify. However, the Sheriff's Department and the Probation Department continue to focus on alternative programs to help youth stay on the right path and redirect offenders to a healthier lifestyle.

These programs are geared toward juveniles who are on the verge of heading down the wrong path, such as alcohol abuse, drug use, gangs and violence, and who need positive reinforcement. The juvenile programs consist of the Police Activities League (PAL), The Self-discipline, Honor, Obedience, Character, and Knowledge (S.H.O.C.K.) program, and the Juvenile Intervention Program (JIP).

PAL programs offer teens community activities such as boxing, which teaches the benefits of physical fitness, discipline, and commitment. The program builds partnerships and relationships with deputies, and amateur and professional boxing coaches.



*Sheriff's Department J.I.P. program*

S.H.O.C.K. in Apple Valley is a 10-week juvenile intervention program. During the program the teens participate in classroom instruction and physical fitness activities. A mandatory component of the program is the Parent Project which equips parents and guardians with proven tools for effective parenting.

JIP was designed to show troubled teens the reality of incarceration. The program redirects negative behavior, provides partnership with law enforcement, the community and schools, increases understanding of the criminal justice system, and emphasizes the legal consequences of violating the law.

“Over the last couple years the Department has experienced an increase in children participating in the juvenile intervention programs,” said Sgt. Anthony Vega of the Sheriff's Public Affairs Division. “Feedback has revealed that many participants became productive members of society and parent evaluations report significant positive increases in teens' behaviors. We believe

these programs are helping to reduce crime by allowing teens to participate in productive after-school activities and by showing them the outcomes of negative lifestyle choices.”



*Probation offers services to offender*

INROADS, a program developed in collaboration with the Sheriff’s Department, Chaffey Joint Union High School District and the San Bernardino County Superintendent of Schools, is dedicated to the education of inmates. Inmates are enrolled in academic, vocational, and crisis intervention classes essential to facilitate their rehabilitation during incarceration and upon release. Some of the classes offered include anger management, living skills, and G.E.D. preparation. Vocational training includes automotive mechanic, employment readiness, and the Fire Camp Crew.

“The Department believes these programs provide opportunities for inmates to develop an improved sense of well-being and a better quality of life upon release,” Vega said. “Statistics from 2010 to 2012 reveal approximately 40% of the 1,115 inmates who completed the program did not re-offend.”

The Probation Department maintained a progressive approach in the community by visiting offenders in their homes and treatment programs to help ensure they don’t reoffend, said Chris Condon, Probation Division Director.

“We also have formed three Day Reporting Centers which act as one-stop shops, a virtual grocery store of services and resources for these offenders,” Condon said. “Working in concert with Public Health, Department of Behavioral Services, Workforce Development, and our GPS monitoring services, we are able to completely enmesh these offenders, and in some cases family members, with the services that they need to succeed.”

## **Going Forward**

.....

*Much of the progress of the last four years was made possible by collaboration and innovation. New ideas were formed to tackle long-term problems. Groups that do not always come together – such as business and schools – broke down silos and formed alliances to help reach a common goal. New programs were developed to hone in on an issue and meaningful data were collected in the Community Indicators Reports to monitor the results.*

*In the years to come, we expect more challenges but are determined to continue collaborating to solve problems and provide groundbreaking solutions to move forward on the economy, health, education, public safety, the environment and all elements essential to achieving the Countywide Vision in San Bernardino County.*

# economic and business climate

Since the publication of the first Community Indicators Report in 2010, San Bernardino County's employment and wages have steadily increased, countering the devastating effects of the Great Recession. Housing values are on the rise and foreclosures and underwater mortgages continue to decline. Despite rising home prices and remaining instability in the housing market, San Bernardino County remains the most affordable region to live in Southern California.

## *Protecting Residents' Homeownership*

*As part of its effort to reduce foreclosures and stabilize neighborhoods within the county, in 2012 the San Bernardino County Department of Community Development and Housing implemented a Homeownership Protection Program to inform homeowners of state and local foreclosure prevention resources. Through a dedicated website, email distribution and social media outreach, the program provides information on local foreclosure prevention events, financial coaching, home repair workshops, and homebuyer resources for residents.*

# Jobs and Salaries Continue to Grow in Key Industries

## Description of Indicator

This indicator shows employment and salaries in five industry clusters chosen to reflect the diversity of San Bernardino County employment, major economic drivers within the county, and important industry sectors for workforce development. Approximately 40% of all San Bernardino County jobs can be found in the five clusters described in this indicator. This indicator also shows unemployment rates.

## Why is it Important?

Employment change within specific clusters illustrates how San Bernardino County's economy is evolving. Tracking salary levels in these clusters shows whether these jobs can provide a wage high enough for workers to afford living in San Bernardino County.

## How is San Bernardino County Doing?

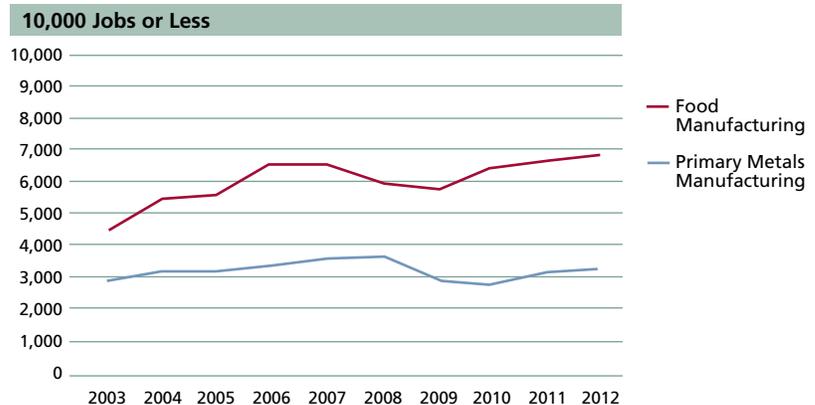
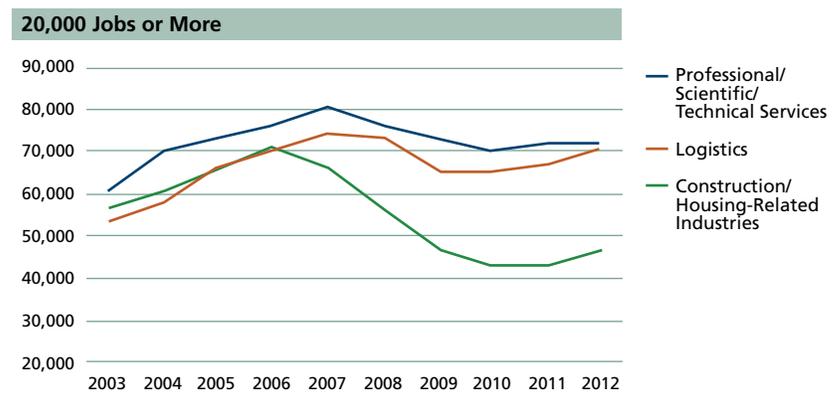
All five selected industry clusters experienced an increase in employment between 2011 and 2012:

- At 5% each, Primary Metals Manufacturing and Construction/Housing-Related Industries experienced the greatest growth from 2011 to 2012.
- Logistics saw 4% growth, while Food Manufacturing grew by 2% and Professional/Scientific/Technical Services increased slightly (0.5% growth).
- During the 10-year period from 2003 to 2012, Food Manufacturing employment increased 45%, Logistics employment grew 32%, Professional/Scientific/Technical Services employment increased 20%, and Primary Metals Manufacturing increased 12%.
- Construction/Housing-Related Industries has seen an overall 10-year decline of 17%.

Salaries in all the selected clusters are increasing:

- Between 2011 and 2012, average salaries in Construction/Housing-Related Industries and Professional/Scientific/Technical Services increased 9% and 4%, respectively, while Logistics average salaries increased by 3%, and Primary Metals Manufacturing and Food Manufacturing each showed average salary increases of 2%.
- During this same period, the cost of living increased 2%.<sup>1</sup>
- The minimum household income needed to purchase an existing single-family home priced at 85% of the San Bernardino County median is approximately \$23,590 (fourth quarter 2013). On average, salaries in the five clusters are higher than the minimum qualifying income.

Employment in Selected Industry Clusters  
San Bernardino County, 2003-2012



Source: Analysis of data from the California Employment Development Department

Average Annual Salaries in Selected Clusters  
San Bernardino County, 2011 and 2012

	2011	2012	Percent Change
Construction/Housing-Related Industries	\$45,538	\$49,709	9%
Professional/Scientific/Technical Services	\$36,941	\$38,368	4%
Logistics	\$44,545	\$45,691	3%
Primary Metals Manufacturing	\$59,689	\$61,174	2%
Food Manufacturing	\$44,441	\$45,291	2%

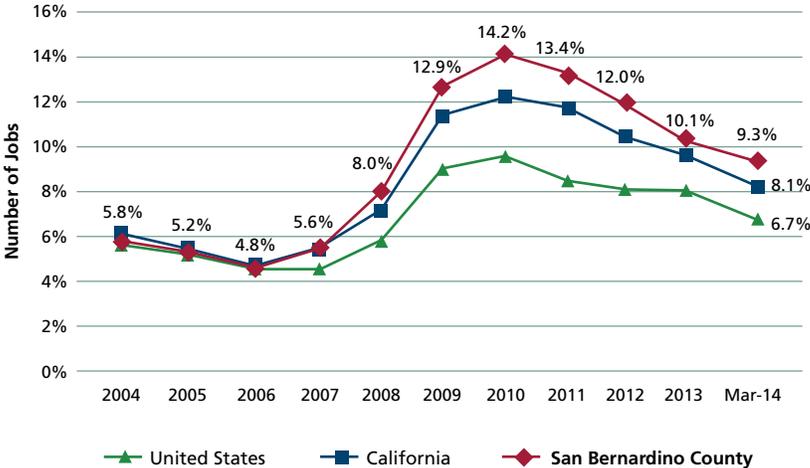
Source: Analysis of data from the California Employment Development Department

<sup>1</sup> U.S. Bureau of Labor Statistics, Consumer Price Index – All Urban Consumers; Los Angeles-Riverside-Orange County ([www.bls.gov/data/#prices](http://www.bls.gov/data/#prices))

Paralleling trends nationwide, San Bernardino County's unemployment rate improved in 2013 and continued falling into early 2014:

- During the 10-year period from 2004 to March 2014, the unemployment rate in San Bernardino County ranged from a low of 4.8% in 2006 to a high of 14.2% in 2010.
- From its high in 2010, the unemployment rate has steadily decreased and was 9.3% as of March 2014.
- San Bernardino County's unemployment rate was ranked 24th out of the 58 counties in California in March 2014, a position that has not changed substantially in recent years.
- San Bernardino County's unemployment rate has been higher than the state and nation since 2007.

**Unemployment Rate**  
San Bernardino County, California and United States, 2004-March 2014



Sources: U.S. Bureau of Labor Statistics ([www.bls.gov](http://www.bls.gov)); California Employment Development Department ([www.labormarketinfo.edd.ca.gov/LMID/Labor\\_Force\\_Unemployment\\_Data.html](http://www.labormarketinfo.edd.ca.gov/LMID/Labor_Force_Unemployment_Data.html))

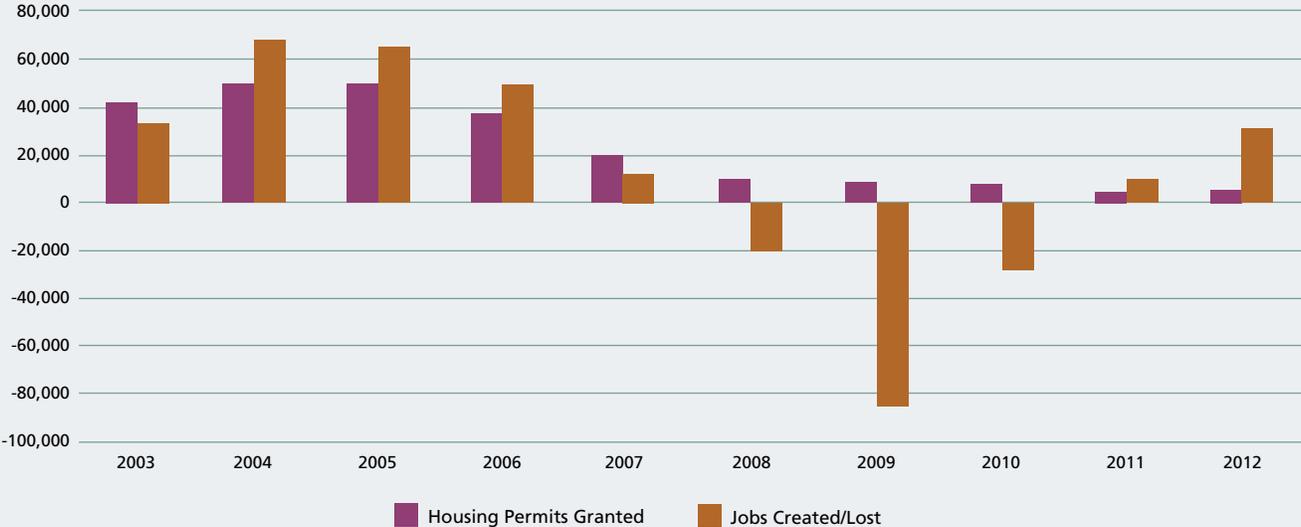
**Jobs-Housing Balance**

In 2012, the Riverside-San Bernardino metro area added 30,279 jobs while 5,949 new housing permits were granted:

- This is the second consecutive year where the number of jobs expanded rather than contracted.
- Since 2008, a cumulative total of 74,571 jobs have been lost in Riverside-San Bernardino, while 32,302 housing units were permitted.

When there is more housing available than the local labor market supports, the large number of residents residing in the county but working outside the county (or worse, losing a job outside the county) places a disproportionate burden on the communities in which those workers reside to provide social services and unemployment benefits (see Housing Market).

**Jobs Created/Lost and Housing Permits Granted**  
Riverside-San Bernardino, 2003-2012



Sources: United States Department of Housing and Urban Development (<http://socs.buduser.org/permits/index.html>) and United States Bureau of Labor Statistics

# Housing Indicators Showing Signs of Recovery

## Description of Indicator

This indicator tracks the median sale price of existing single-family homes and the type of sales for all residential real estate transactions. It also tracks the foreclosure rate, the number of housing permits granted, and the number of homes with underwater mortgages.

## Why is it Important?

Given San Bernardino County's location and relative housing affordability in Southern California, it has become a substantial supplier of housing and construction-related jobs, which are a key employment sector for the region (see Employment). As a result, the county's economy is acutely sensitive to changes in the housing market. Home sale prices are a key measure of the health of the community's housing market, as well as consumer confidence. Taken together, trends in home sale prices, foreclosure rates, the percent of homeowners "underwater" on their mortgages, and the number of housing permits granted signify the health of the county's housing market and the local economy.

## How is San Bernardino County Doing?

Between January 2013 and 2014, the median home sale price increased:

- The median sale price of existing single-family homes increased 23% from \$154,500 in 2013 to \$190,540 in 2014.
- However, mirroring a statewide trend, the overall median price of existing homes has declined in the past six years, falling 26% since January 2008 (one month into the Great Recession).

Foreclosures and short sales are decreasing:

- In December 2013, 1.1% of all residential properties in San Bernardino County were in some stage of foreclosure, lower than the prior year rate of 2.2%, but above the rate of 0.3% in December 2004.
- Also in December 2013, 18% of homes sold in San Bernardino County were either a short sale or Real Estate Owned (REO) sale, compared with 64% in December 2009.

## Median Sale Price of Existing Detached Homes San Bernardino County and California, January 2005-January 2014



Source: California Association of Realtors ([www.car.org](http://www.car.org))

## Median Price of Home by Type of Sale San Bernardino County, December 2013

Type of Sale	Price	Percent Price is Above or Below Total Sales Median
New Construction	\$ 406,000	85%
Resale	\$ 224,000	2%
Short Sale	\$ 168,750	-23%
REO	\$ 165,000	-25%
<b>Total Sales Median</b>	<b>\$ 220,000</b>	

Note: The table above presents all home sale data, including new and existing single family homes, as well as condominiums.

Source: CoreLogic

### Defining Terms

**Underwater Mortgage (Negative Equity):** The mortgage balance is more than the property is worth.

**Short Sale:** The property is sold for less than is owed on the mortgage loan to purchase it.

**Foreclosure:** The property used to secure a mortgage is sold to pay off that mortgage because the borrower has defaulted or failed to make timely loan payments.

**REO (Real Estate Owned):** The property failed to sell at a foreclosure auction and is now owned by a lender, most likely a bank.

## Percentage of Properties in Foreclosure San Bernardino County, December 2004-December 2013



Source: CoreLogic

- In comparison, prior to the Great Recession, in January 2007, 2% of homes sold were through a short sale or REO.
- Short sales and REOs typically sell for a lower price, driving down the median prices for houses in an area.

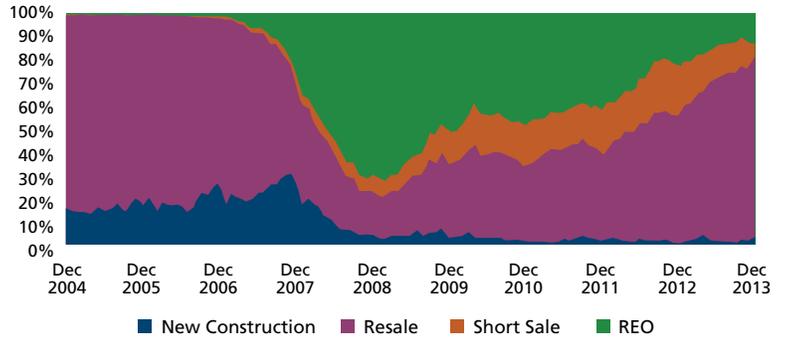
The number of permits granted per 1,000 Riverside-San Bernardino metro area residents is showing signs of increase:

- In 2011, there were 1.4 permits granted per 1,000 residents in Riverside-San Bernardino, similar to the California rate (1.6).
- This is 25% higher than the prior year, when there were 1.1 permits granted per 1,000 residents in Riverside-San Bernardino.
- Moreover, the number of permits granted per 1,000 residents has leveled off since 2009, suggesting a stabilization in the construction industry following the building bubble of the mid 2000's, which ended with the Great Recession.
- Overall, there were 5,949 permits granted in 2012 compared to 4,736 in 2011.<sup>1</sup>

The proportion of homes with an underwater mortgage has decreased:

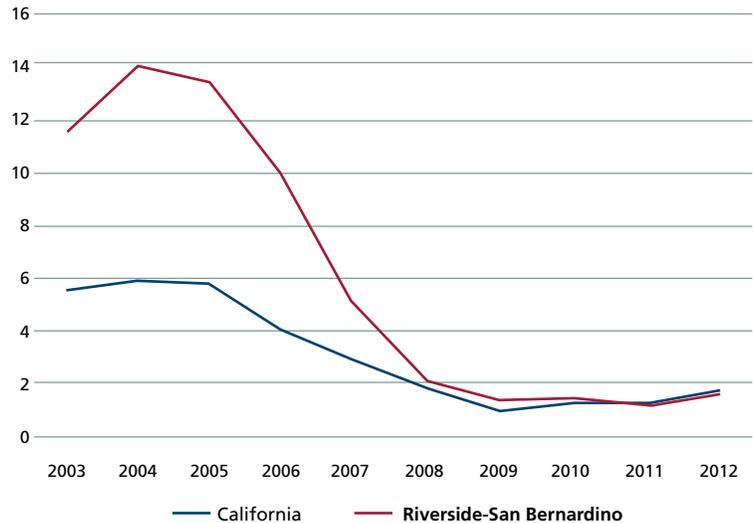
- In September 2013, 21% of homes carrying mortgages in San Bernardino County were underwater.
- This represents a significant improvement from September 2009, when 54% of mortgages were underwater.

**Homes Sold by Type of Sale**  
San Bernardino County, December 2004-December 2013



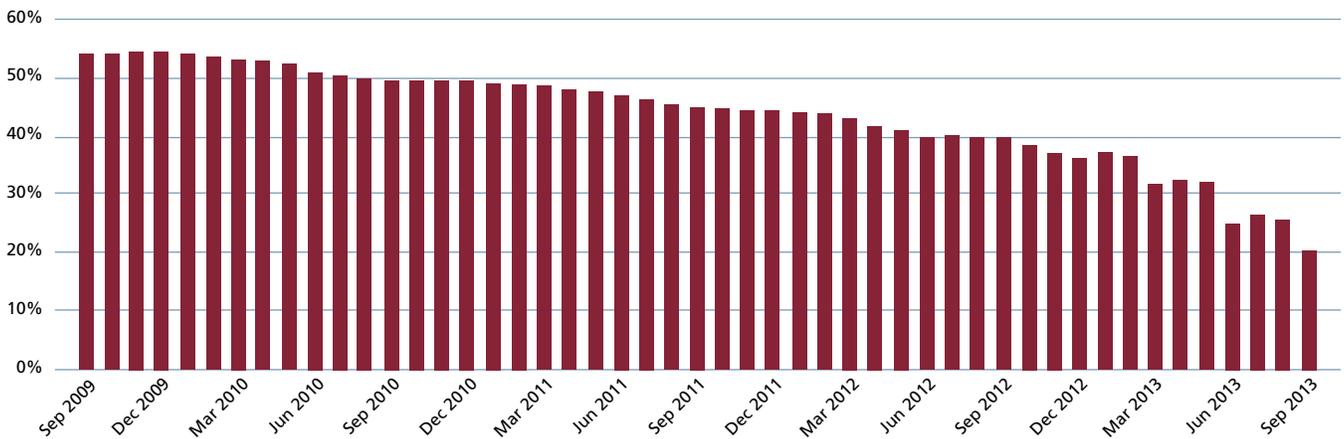
Source: CoreLogic

**Housing Permits Granted per 1,000 Residents**  
Riverside-San Bernardino and California, 2003-2012



Sources: United States Department of Housing and Urban Development (<http://socs.buduser.org/permits/index.html>), California Department of Finance Population Estimates

**Percent of Homes with Underwater Mortgages**  
San Bernardino County, September 2009-September 2013



Source: CoreLogic

<sup>1</sup>Number of permits presented in the 2012 San Bernardino Community Indicators Report were considered preliminary and have since been revised.

# Vacancy Rates Improve Significantly

## Description of Indicator

This indicator tracks rental prices and vacancy rates for office, retail and industrial real estate in the Riverside-San Bernardino metro area, compared to those in neighboring Los Angeles and Orange Counties. It also tracks the net absorption of industrial real estate, which is the largest share of the market space available in the region.<sup>1</sup>

## Why is it Important?

A key factor for businesses seeking office, retail or industrial real estate is the cost of rent. Relatively low rents may draw businesses to, or keep existing businesses in, Riverside-San Bernardino. Vacancy rates reflect the health of the market, as well as available space for business expansion. Lower vacancy rates can signal a need for investments in new facilities, while higher rates can mean reduced costs for businesses and opportunities for end-users. Increased net absorption indicates increased demand and can translate into higher asking rents. It also signals the market to add space, thus stimulating construction and related building activities.

## How is San Bernardino County Doing?

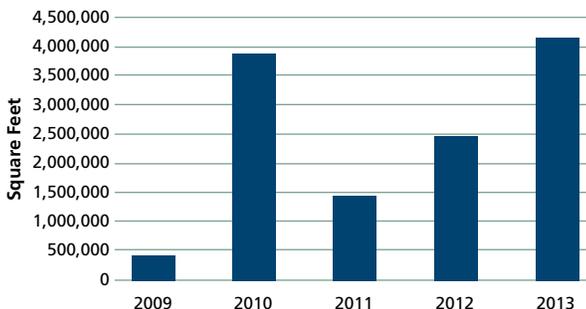
Vacancy data suggest that the region has an over-supply of office and retail real estate but an insufficient amount of industrial real estate:

- In the fourth quarter of 2013, vacancy rates for office, retail and industrial real estate were significantly higher in the Riverside-San Bernardino metro region than in neighboring counties.
- Industrial real estate, which accounts for 76% of total market share, had the lowest vacancy rate in the fourth quarter of 2013 (4.0%).
- Conversely, office real estate, which accounts for 4% of total commercial real estate in the area, had the highest vacancy rate (18.3%).
- Retail space, which accounts for 20% of market share, had a 10.1% vacancy rate.
- Since the fourth quarter of 2012, industrial vacancy rates dropped 39%, office vacancies declined by 14%, and retail fell 6%.
- Also signaling increased demand, there was a 69% increase in the net absorption of industrial real estate space between 2012 and 2013, and almost a ten-fold increase since 2009.

Across all categories of commercial real estate, rents in the Riverside-San Bernardino metro area are comparatively low:

- In the fourth quarter of 2013, commercial real estate in Los Angeles and Orange Counties was 33% more expensive, on average, than comparable space in the Riverside-San Bernardino metro area.
- Since the fourth quarter of 2009, Riverside-San Bernardino rents decreased across all categories. Office rents dropped by 15%, industrial rents fell by 11%, and retail rents decreased by 10%.

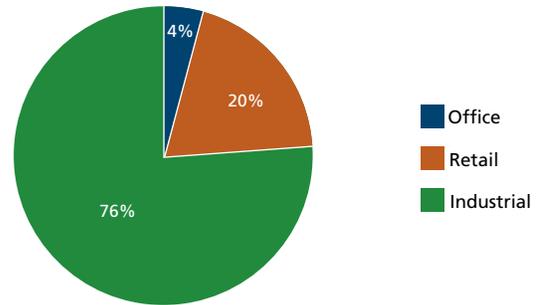
## Industrial Real Estate Net Absorption (in Square Feet) Riverside-San Bernardino, 2009-2013 (Fourth Quarters)



Source: CBRE

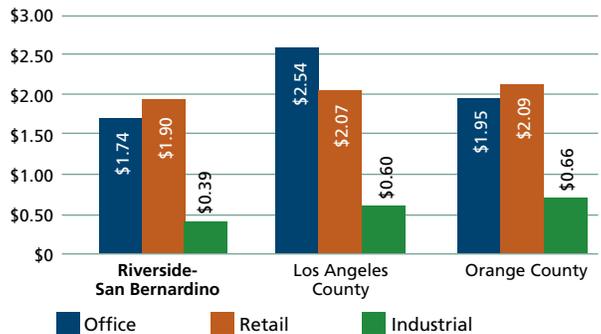
<sup>1</sup> Net absorption is the change in occupied square feet from one period to the next.

## Office, Retail and Industrial Real Estate Share of Market Riverside-San Bernardino, Fourth Quarter 2013



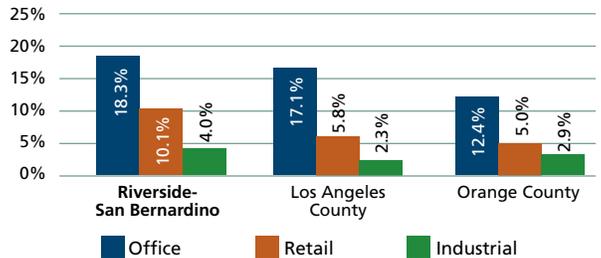
Source: CBRE

## Office, Retail and Industrial Real Estate Asking Rents Regional Comparison, Fourth Quarter 2013



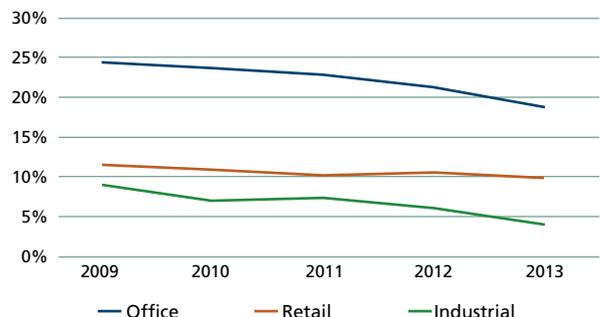
Source: CBRE

## Office, Retail and Industrial Real Estate Vacancy Rates Regional Comparison, Fourth Quarter 2013



Source: CBRE

## Office, Retail and Industrial Real Estate Vacancy Rates Riverside-San Bernardino, 2009-2013 (Fourth Quarters)



Source: CBRE

# Cost of Doing Business Improves Again

## Description of Indicator

This indicator measures the Riverside-San Bernardino metro area business climate through *Forbes Magazine's* "2013 Best Places for Business" regional rankings and Sperling's Best Places list. The *Forbes* ranking compares metropolitan areas using 12 metrics related to job growth, business and living costs, income growth, projected economic growth, educational attainment, cultural and recreational opportunities, number of highly ranked colleges, and net migration patterns. Also shown is projected future job growth based on Sperling's Best Places list, which calculates the projected change in job availability over the next 10 years based on migration patterns, economic growth, and other factors.

## Why is it Important?

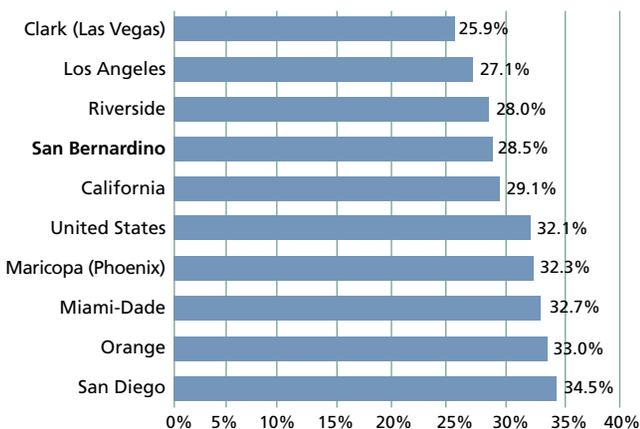
In an interconnected national economy, where entrepreneurs and businesses have choices about where to locate, a region's business climate – including opportunities for growth and few barriers to doing business – is critically important. Since businesses provide jobs, sales tax revenue, economic growth, and entrepreneurial opportunities, a strong business climate and growing job base is important for maintaining San Bernardino County's economic health and quality of life.

## How is San Bernardino County Doing?

The Riverside-San Bernardino metro area's business climate ranking did not change between 2012 and 2013:

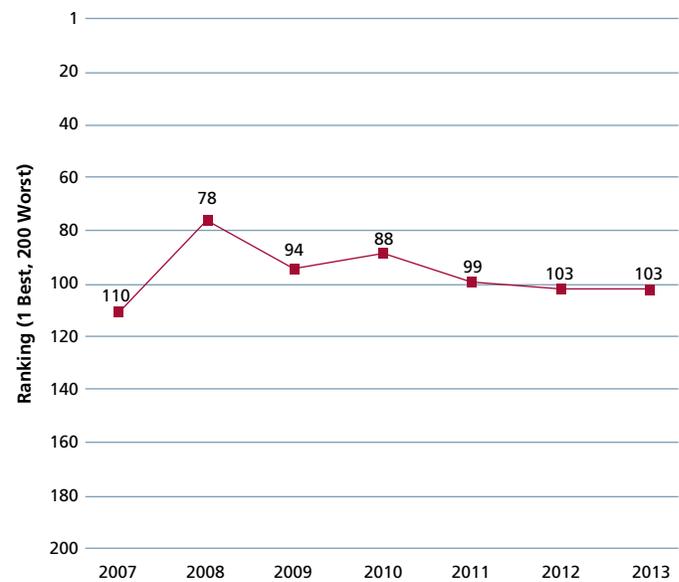
- Riverside-San Bernardino placed 103rd out of the 200 metro areas ranked for the second year in a row.
- Among neighboring California counties, Riverside-San Bernardino ranked above Los Angeles County but below San Diego and Orange Counties.
- Among out-of-state comparison regions, only Phoenix is ranked higher.
- However, Riverside-San Bernardino's rank for the Cost of Doing Business component has increased markedly in the past five years, from 80th to 49th – placing it in the top 25% of all metro areas compared.
- Sperling's Best Places projects future job growth in San Bernardino County to increase 28.5% over 10 years.

## Projected 10-Year Job Growth County Comparison, 2012-2022



Source: Sperling's Best Places ([www.bestplaces.com](http://www.bestplaces.com))

## Best Places for Business Ranking Riverside-San Bernardino, 2007-2013



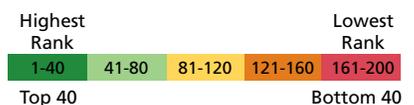
Source: *Forbes Magazine*, August 17, 2013 ([www.forbes.com/best-places-for-business/](http://www.forbes.com/best-places-for-business/))

## Best Places for Business Ranking Regional Comparison, 2009-2013

Regional Comparison, 2009-2013					
	2009	2010	2011	2012	2013
Phoenix	113	117	88	81	64
San Diego	104	89	64	75	78
Orange County	107	79	109	99	97
Riverside-San Bernardino	94	88	99	103	103
Los Angeles	180	120	114	123	134
Las Vegas	92	157	135	168	159
Miami	188	152	152	181	165

## Riverside-San Bernardino by Component, 2010-2013

	2010	2011	2012	2013
Cost of Doing Business	80	55	54	49
Educational Attainment	181	176	181	182
Job Growth Projected	102	180	189	189



Note: Ranking is out of 200: 1 is best, 200 is worst.

Source: *Forbes Magazine*, August 17, 2013 ([www.forbes.com/best-places-for-business/](http://www.forbes.com/best-places-for-business/))

# Real Household Income Declines for Fifth Consecutive Year

## Description of Indicator

This indicator tracks the change in inflation-adjusted median household income for San Bernardino County compared to the state and nation.<sup>1</sup> Household income includes the annual income of all members of a household ages 15 or older, whether related or unrelated. For the Riverside-San Bernardino metro area, median household income is also compared to cost of living. The cost of living index compares the prices of housing, consumer goods, and services in Riverside-San Bernardino relative to the national average.

## Why is it Important?

Compared to its Southern California neighbors, cost of living is low in the Riverside-San Bernardino metro area, but compared to the national average, the cost of living is 13% higher. As a result, real income growth is important to ensure residents have sufficient income to thrive in San Bernardino County and afford rising expenses.

## How is San Bernardino County Doing?

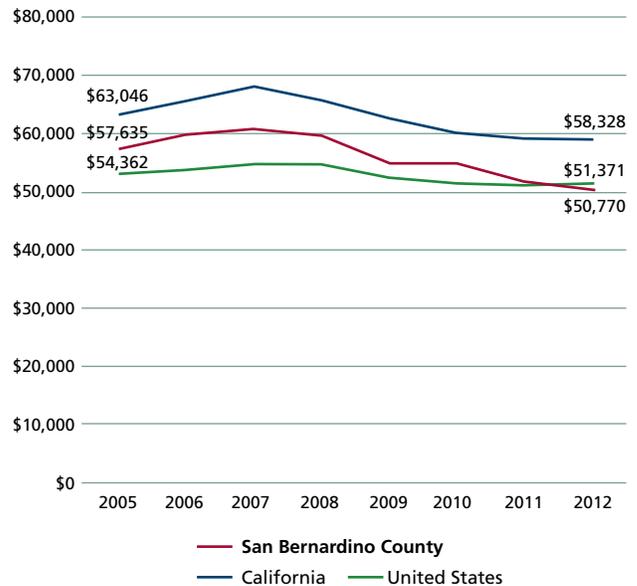
Similar to national trends, real household income declined for the fifth year in a row:

- In 2012, median household income in San Bernardino County was \$50,770, down 3% since 2011 and 12% since 2005.
- The inflation-adjusted decline is due to lackluster median income growth combined with a cumulative inflation rate of 18% between 2005 and 2012.
- San Bernardino County's median household income is now slightly below the national median (\$51,371) – a first within the period tracked.

The Riverside-San Bernardino metro area has the lowest cost of living in Southern California, but a higher cost of living than peer markets outside of California:

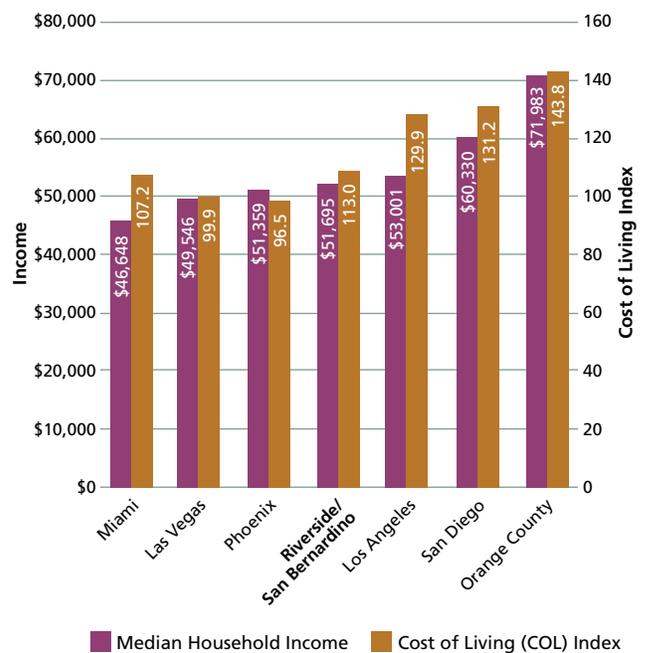
- With 100.0 being average, Riverside-San Bernardino measured 113.0 on the Cost of Living Index in 2013. This index value has not changed significantly in the past four years.
- When looking at income relative to cost of living in peer markets, Phoenix residents enjoy the most favorable ratio of income to cost of living, with lower than average cost of living and slightly above average median household income. The opposite is true in Los Angeles.
- Higher than average cost of living and average income in Riverside-San Bernardino translates to somewhat less discretionary income than areas where income and cost of living are more aligned.

Median Household Income (Inflation Adjusted to 2012 Dollars) San Bernardino County, California and United States, 2005-2012



Sources: U.S. Census Bureau, American Community Survey, 1-Year Estimates (2005-2012) U.S. Bureau of Labor Statistics, Inflation Calculator ([www.bls.gov/data/inflation\\_calculator.htm](http://www.bls.gov/data/inflation_calculator.htm))

Median Household Income Compared to Cost of Living Index Regional Comparison, 2012 (Income) or 2nd Quarter 2013 (COL)



Sources: U.S. Census Bureau, American Community Survey, 1-Year Estimates; Council for Community and Economic Research ([www.c2er.org](http://www.c2er.org))

<sup>1</sup> All income data in this indicator are inflation-adjusted to 2012 dollars, such that \$1,000 earned in 2000, for example, has the same buying power as \$1,333 in 2012. "Real" refers to income after adjusting for inflation.

# Affordability and Homeownership Show Modest Decline

## Description of Indicator

This indicator uses the California Association of Realtors First-Time Buyer Housing Affordability Index to measure the percentage of households that can afford the existing single-family detached home at the entry-level price of 85% of median in San Bernardino County. It also compares homeownership rates.

## Why is it Important?

An adequate supply of affordable housing promotes homeownership. Homeownership increases stability for families and communities, and can provide long-term financial benefits that renting cannot. Affordable housing encourages young workers to move to or remain in San Bernardino County and low relative housing prices can attract and retain businesses.

## How is San Bernardino County Doing?

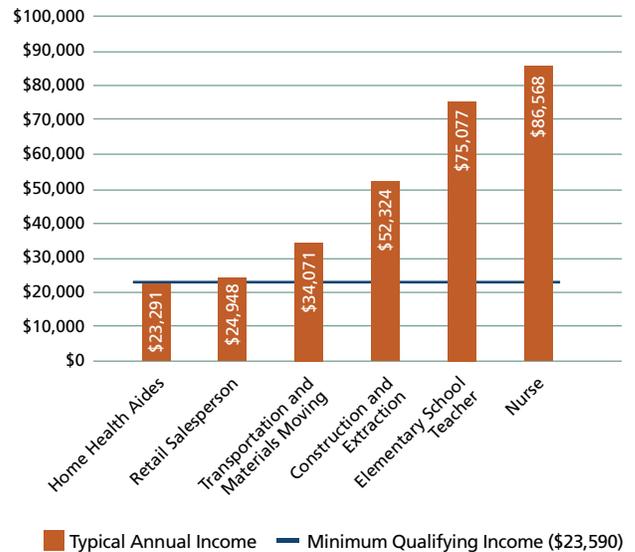
As the housing market recovers (see Housing Market), affordability declined, but San Bernardino County remains the most affordable county in Southern California:

- The minimum qualifying income needed to purchase an entry-level priced home (\$164,600) in San Bernardino County was approximately \$23,590 as of the fourth quarter of 2013, well below the California average minimum qualifying income of \$56,560 and the entry-level price of \$366,780.<sup>1</sup>
- More than three-quarters (79%) of households in San Bernardino County could afford such a home in the fourth quarter of 2013, down from 86% in 2012 and 88% in 2011.
- Looking at typical salaries in large or growing occupations, all of the selected fields earn more than the minimum qualifying income, except home health aides.
- San Bernardino County's affordability rate is higher than all other southern California counties compared, making the county attractive to buyers seeking less expensive housing, such as first-time homebuyers.

Mirroring the statewide trend, the homeownership rate in San Bernardino County has been falling since 2009:

- The rate of homeownership in San Bernardino County was 59.9% in 2012, down from 62.5% in 2011, 62.7% in 2010 and 63.8% in 2009.
- Still, San Bernardino County has the second highest homeownership rate in Southern California, below Riverside County (64.5%), but above Orange County (56.9%), San Diego County (53.1%) and Los Angeles (45.8%).
- This rate is also above the California average (54.0%) and Las Vegas (52.5%), but falls under the nationwide homeownership rate of 63.9%.

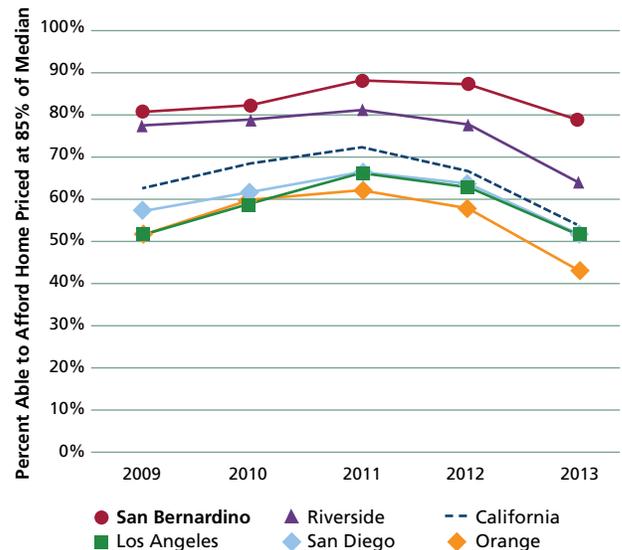
**Income Needed to Afford Home Priced at 85% of Median (\$164,600) Compared to Typical Salaries**  
San Bernardino County, 2013



Note: Wage data are from the first quarter of 2013 and home price and income needed data are from the fourth quarter of 2013.

Sources: California Employment Development Department, Occupational Employment Statistics ([www.labormarketinfo.eed.ca.gov/LMID/OES\\_Employment\\_and\\_Wages.html](http://www.labormarketinfo.eed.ca.gov/LMID/OES_Employment_and_Wages.html)); California Association of Realtors ([www.car.org](http://www.car.org))

**First-Time Buyer Housing Affordability Index**  
County Comparison, 2009-2013



Note: Data are from the fourth quarter of the years presented.

Source: California Association of Realtors ([www.car.org](http://www.car.org))

<sup>1</sup>The California Association of Realtors defines the parameters for the First-Time Buyer Housing Affordability Index: 10% down and a 1-year adjustable-rate mortgage, including points and fees, based on Freddie Mac's Primary Mortgage Market Survey.

# Median One-Bedroom Rent: \$882

## Description of Indicator

This indicator measures the housing wage – the hourly wage a resident would need to earn to be able to afford Fair Market Rent as defined by the U.S. Housing and Urban Development Department. For the Riverside-San Bernardino metro area, Fair Market Rent is the 50th percentile (or median) rent in the market.

## Why is it Important?

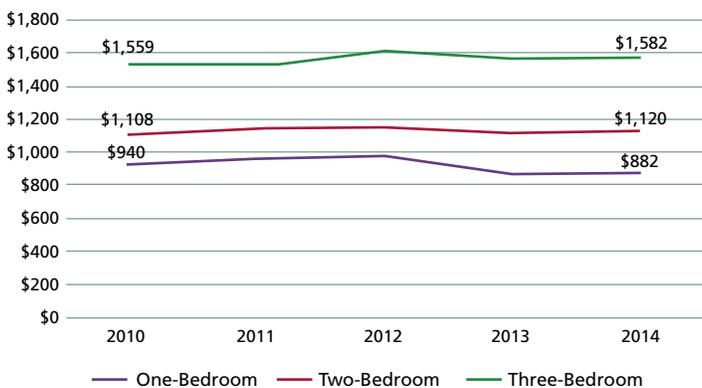
Lack of affordable rental housing can lead to crowding and household stress. Less affordable rental housing also restricts the ability of renters to save for a down payment on a home, limiting their ability to become homeowners. Ultimately, a shortage of affordable housing for renters can perpetuate and exacerbate a cycle of poverty.

## How is San Bernardino County Doing?

The Riverside-San Bernardino metro area's housing wage increased slightly:

- The hourly wage needed for a one-bedroom apartment rose less than 1% from \$16.90 in 2013 to \$16.96 in 2014. This housing wage is equivalent to an annual income of \$35,280.<sup>1</sup>
- The hourly wages needed to afford two- and three-bedroom apartments also increased less than 1% in one year.
- Over the past five years, one-bedroom rents fell 6% and two- and three-bedroom rents rose 1%.
- The Riverside-San Bernardino metro area has more affordable rental housing than all regions compared, except Phoenix and Las Vegas.
- However, median rent for a one-bedroom apartment (\$882) is still not affordable to many lower wage occupations, including home health aide and retail salesperson.
- Someone earning minimum wage can afford to pay \$416 a month in rent or would have to work 85 hours per week to afford median one-bedroom rent.
- In terms of the occupations projected to have the fastest rate of job growth between 2010 and 2020, fully 72% have a wage high enough to afford a one-bedroom unit.
- For occupations projected to have the most openings between 2010 and 2020, only 28% have an average hourly wage high enough to afford a one-bedroom unit.<sup>2</sup>

## Monthly Fair Market Rent Riverside-San Bernardino, 2010-2014

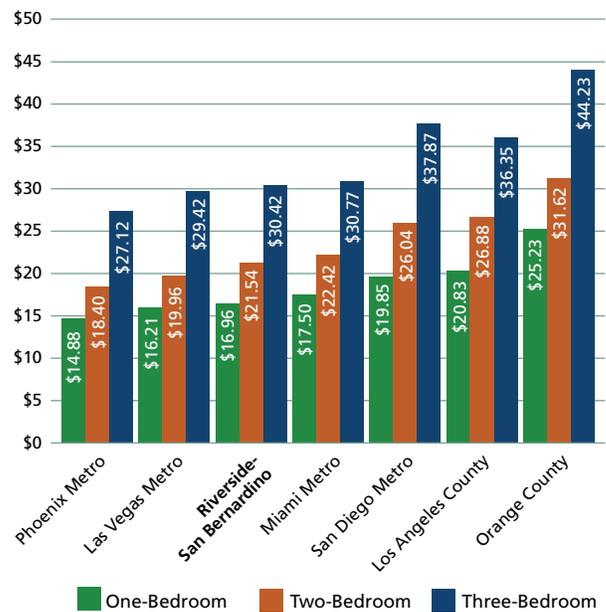


Source: Analysis of Housing and Urban Development 2014 Fair Markets Rents ([www.buduser.org/portal/datasets/fmr.html](http://www.buduser.org/portal/datasets/fmr.html)) using the methodology of the National Low Income Housing Coalition (<http://nlihc.org/oor>)

<sup>1</sup> Assumes 2,080 paid hours per year (52 weeks at 40 hours per week).

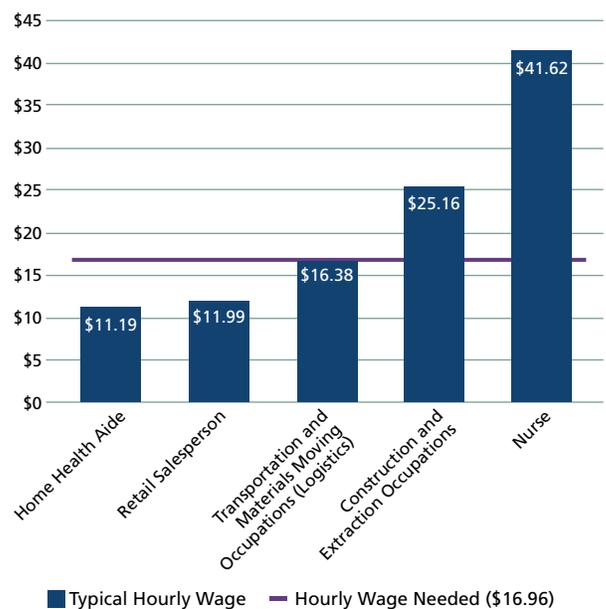
<sup>2</sup> California Employment Development Department, 2010-2020 Occupation Projections ([www.labormarketinfo.edd.ca.gov/LMID/Projections\\_of\\_Employment\\_by\\_Industry\\_and\\_Occupation.html](http://www.labormarketinfo.edd.ca.gov/LMID/Projections_of_Employment_by_Industry_and_Occupation.html))

## Hourly Wage Needed to Afford Fair Market Rent Regional Comparison, 2014



Source: Analysis of Housing and Urban Development 2014 Fair Markets Rents ([www.buduser.org/portal/datasets/fmr.html](http://www.buduser.org/portal/datasets/fmr.html)) using the methodology of the National Low Income Housing Coalition (<http://nlihc.org/oor>)

## Hourly Wage Needed to Afford a One-Bedroom Unit Compared to Typical Hourly Wages Riverside-San Bernardino, 2014



Note: Wage data are from first quarter 2013.

Sources: Analysis of Housing and Urban Development 2014 Fair Markets Rents ([www.buduser.org/portal/datasets/fmr.html](http://www.buduser.org/portal/datasets/fmr.html)) using the methodology of the National Low Income Housing Coalition (<http://nlihc.org/oor>); California Employment Development Department, Occupational Employment Statistics ([www.labormarketinfo.edd.ca.gov/LMID/OES\\_Employment\\_and\\_Wages.html](http://www.labormarketinfo.edd.ca.gov/LMID/OES_Employment_and_Wages.html))

# 16% of Commuters Carpool

## Description of Indicator

This indicator tracks average commute times, residents' primary mode of travel to work, and hours of delay on freeways in the region.

## Why is it Important?

Tracking commuter trends and transportation system demand helps gauge the ease with which residents, workers, and goods can move within the county. Traffic congestion adversely affects the efficient movement of goods, contributes to the expense of operating a car, and increases air pollution. Residents may choose to trade off longer commute times for affordable housing or other quality of life factors.

## How is San Bernardino County Doing?

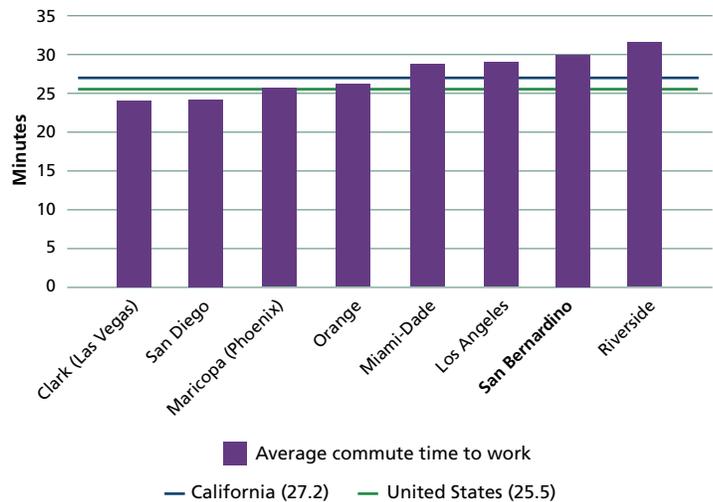
San Bernardino County daily commute times continue to hold steady at about half an hour:

- In 2012, the average commute time to work for San Bernardino County residents was 30.0 minutes, increasing by about a minute since 2009.
- San Bernardino County's average commute time is longer than both California (27.2 minutes) and the U.S. (25.5 minutes).
- In 2012, 75.8% of San Bernardino County commuters drove alone – fewer than all regions compared except Los Angeles County.
- At 15.6% of trips, carpooling is the second most common mode of travel to work and is higher than all regions compared.
- 3.7% of residents work at home, while 1.8% walk to work and another 1.8% use public transportation.
- Transit use is likely significantly impacted by the sheer size of the county, the distances between destinations within the county, and low-density land use, which may result in lengthy transit trips.

Caltrans calculates the cost of freeway delays:

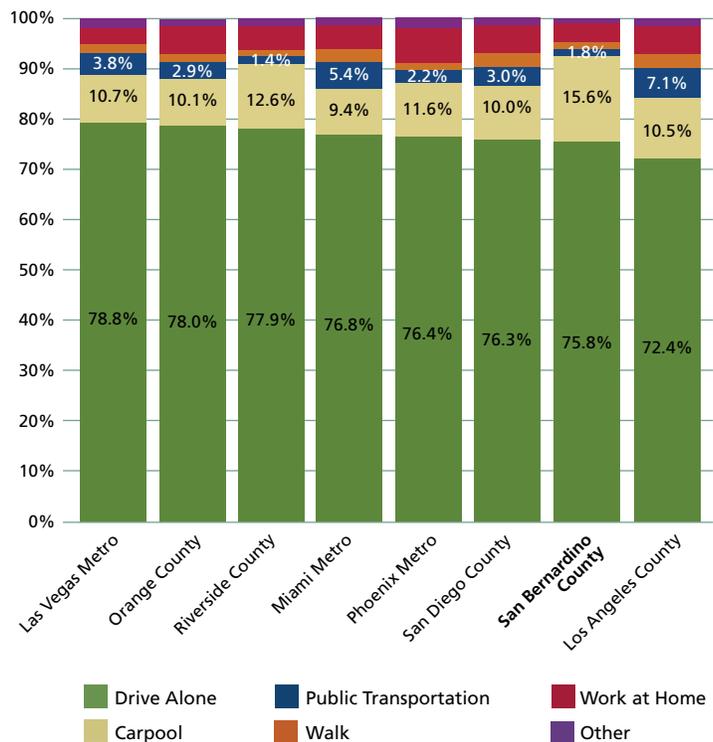
- In 2011, there were nearly two million annual hours of delay due to congestion on San Bernardino County freeways (1,956,833 hours). This is up from 1,919,526 annual hours of delay in 2010 and 1,341,000 hours in 2009.
- In addition, there were 3,254,617 annual hours of delay due to congestion in 2011 on Riverside County freeways, down from 3,550,075 annual hours of delay in 2010.
- The congestion-related delay in San Bernardino County resulted in the use of 3.4 million extra gallons of fuel and the release of 32,900 additional metric tons of carbon dioxide into the air, compared with what would have been emitted at free-flow speeds.
- In terms of productivity, the San Bernardino County delays equate to wage and salary losses of \$34 million a year or \$93,000 a day.

Average Commute Time to Work in Minutes  
County Comparison, 2012



Source: U.S. Census Bureau, 2010-2012 American Community Survey 3-Year Estimates (www.census.gov/acs)

Primary Mode of Travel to Work  
Regional Comparison, 2012



Source: U.S. Census Bureau, 2010-2012 American Community Survey 3-Year Estimates (www.census.gov/acs)

## Significant Investment but Declining Funds

San Bernardino Associated Governments (SANBAG) conducts transportation planning for the region. Their projected funding between 2008 and 2035 for transportation projects such as freeway improvements, rail, express bus, and local street and road projects, totals approximately \$450 billion. These funds come from several sources, including local (Measure I), state, federal, and other sources such as gas and sales taxes. While there is significant transportation construction happening today, the conclusion of Proposition 1B, along with a reduction in other state dollars, means that funding for future transportation projects is expected to decline.

# Bus Ridership Increases while Cost per Trip Drops

## Description of Indicator

This indicator measures ridership on the commuter rail system, as well as ridership and operating costs for San Bernardino County's bus systems. The bus systems serve San Bernardino Valley (Omnitrans), Victor Valley (Victor Valley Transit Authority), and rural areas (Barstow Area Transit, Needles Area Transit, Morongo Basin Transit Authority, and Mountain Areas Regional Transit Authority). Together, these transit agencies offer bus service coverage to over 90% of the county's population.

## Why is it Important?

The ability of residents and workers to move efficiently within San Bernardino County contributes to a high quality of life and a prosperous business climate. An effective public transit system is essential for individuals who cannot afford, are unable, or choose not to drive a car. Having both rail and bus service is important for meeting diverse transit needs, with rail serving mostly long-distance commuters and buses primarily serving local commuters.

## How is San Bernardino County Doing?

Overall ridership remained steady on the four commuter rail lines serving San Bernardino County:

- In 2012/13, ridership on all Metrolink lines serving San Bernardino County totaled 6.53 million riders, essentially the same as in 2011/12.
- While the Inland Empire-Orange County Line ridership grew 11%, the other three lines saw decreases in ridership between 1% and 5%, resulting in a cumulative increase of 0.02% in ridership on all four lines.
- Long-term ridership trends remain positive, with 22% growth over the past 10 years.

Bus ridership in San Bernardino County increased slightly:

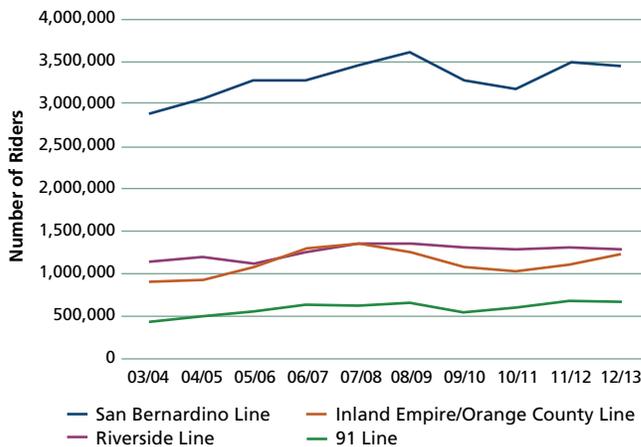
- In 2012/13, there were a total of 19,080,052 bus passenger boardings, an increase of 1.4% from the previous year.
- Total ridership increased for three of the six transit agencies serving San Bernardino County (Needles, Mountain Area Regional and Victor Valley), but decreased for the remaining three agencies (Barstow, Morongo Basin, and Omnitrans).

Per capita bus ridership increased for Omnitrans and Victor Valley Transit, while bus system operating costs decreased:

- Omnitrans had 10.7 boardings per capita in 2012 compared to 10.0 in 2011.
- Victor Valley Transit went from 4.7 boardings per capita in 2011 to 5.3 in 2012.
- Omnitrans cost per boarding dropped from \$3.77 per trip in 2011 to \$3.55 per trip in 2012.
- Victor Valley Transit decreased from \$4.15 per trip in 2011 to \$4.00 per trip in 2012.
- Among the regions compared, Las Vegas had the lowest cost per boarding and Riverside Transit Agency had the highest.

## Commuter Rail Ridership

San Bernardino Line, Riverside Line, Inland Empire/Orange County Line, and 91 Line, 2004-2013



Source: Southern California Regional Rail Authority (Metrolink)

## Bus System Boardings per Capita and Cost per Boarding Regional Comparison, 2012

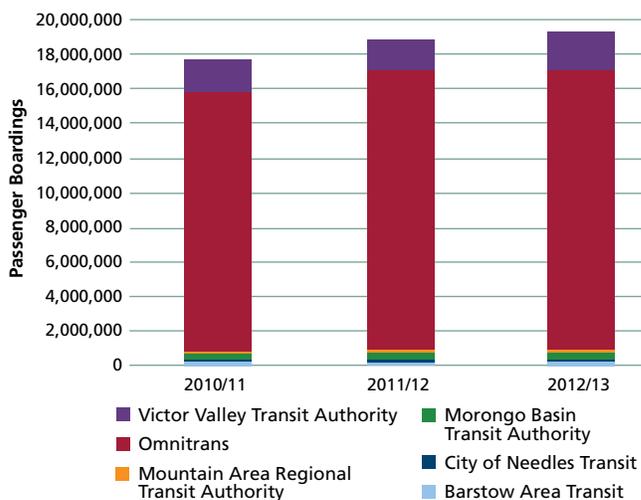
Transit Agency	Bus Boardings per Capita	Cost per Boarding
Los Angeles Metropolitan Transportation Authority	40.8	\$2.56
Regional Transportation Commission of Southern Nevada (Las Vegas)	31.7	\$2.08
Miami-Dade Transit	31.2	\$3.92
San Diego Metropolitan Transit System	26.4	\$2.58
Valley Metro (Phoenix)	22.5	\$3.78
Orange County Transportation Authority	17.4	\$3.57
<b>Omnitrans</b>	<b>10.7</b>	<b>\$3.55</b>
Sunline Transit Agency	10.5	\$4.03
<b>Victor Valley Transit Authority</b>	<b>5.3</b>	<b>\$4.00</b>
Riverside Transit Agency	4.7	\$4.32

Note: Boardings per capita are calculated using bus boardings and the service area population for the transit providers. Calculations do not include demand responsive service.

Source: National Transit Database ([www.ntdprogram.gov](http://www.ntdprogram.gov))

## Bus Ridership

San Bernardino County, 2011-2013



Source: San Bernardino Associated Governments

# education

The state of education in San Bernardino County has

improved since 2010. Four years ago, only 20% of county high school students were eligible to attend University of California and California State University campuses. Now, more than 30% of county students are college-ready. In 2010, nearly a quarter of our students dropped out of high school. Today, the dropout rate has fallen to 13%.

## *Alliance for Education Leads Collective Impact Efforts*

*With a collective impact initiative led by the San Bernardino County Board of Supervisors, San Bernardino County Superintendent of Schools, and California State University San Bernardino, large-scale change in educational attainment and advanced technical skills preparation will continue to evolve within the county. Prioritizing education is paramount to improving our county's economic vitality and remains a priority for County Schools' Alliance for Education, which is leading the efforts as the backbone organization for the Countywide Vision Education Element Group.*

# Proficiency Holds Steady, but Fewer Schools Meet Targets

## Description of Indicator

This indicator presents the results of the California Academic Performance Index (API), which summarizes progress toward achievement of academic improvement targets for K-12 public schools and districts, and the California Standards Test in English-Language Arts (ELA) and mathematics, which reports the proportion of students testing proficient or better.<sup>1</sup>

## Why is it Important?

Tracking academic performance enables school administrators and the public to evaluate if San Bernardino County schools are meeting state academic targets.

## How is San Bernardino County Doing?

Similar to trends seen statewide, API results slipped in 2013:

- 43% of San Bernardino County public schools showed API improvement, compared to 64% in 2012.
- 59% of San Bernardino County schools met or exceeded their API growth targets, compared to 71% in 2012.
- And the proportion of schools that had an API at or above the state target of 800 slipped in 2013, falling to 39% of schools, compared to 43% in 2012. However, this proportion is above the 38% of schools with scores over 800 in 2011 and 36% in 2010.<sup>2</sup>
- Overall, the number of school districts achieving the statewide target API score fell slightly, with 10 out of 33 districts achieving scores of 800 or better, down from 12 in 2012.

There was no change in proficiency rates between 2012 and 2013, but the long-term trend is positive:

- As in 2012, slightly over half (52%) of all San Bernardino County students were proficient or better in ELA in 2013, compared to 56% statewide.
- Similarly, 46% were proficient or better in math, compared to 51% statewide.
- Over the past 10 years, ELA proficiency in San Bernardino County improved by 23 percentage points and math proficiency improved by 17 percentage points.
- Among economically disadvantaged students, 44% and 41% were proficient or above in ELA and math, respectively. Students who were not economically disadvantaged were 67% and 56% proficient, respectively. The achievement gap between these two groups has grown slightly since 2004.<sup>3</sup>
- However, over the same period, the achievement gap between White and Latino students has narrowed by two points in ELA and three points in math.

## District Academic Performance Index Scores San Bernardino County, 2013

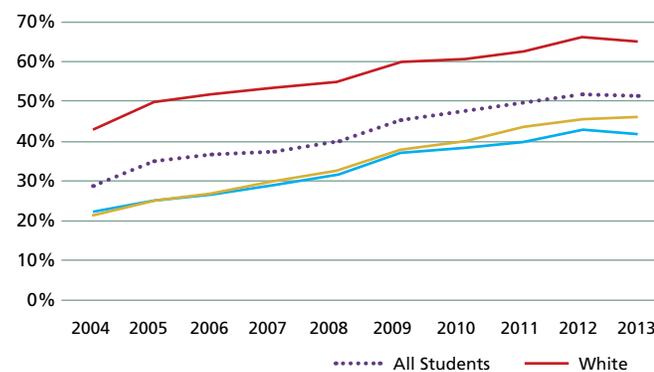
Elementary Districts	
Mt. Baldy	894
Etiwanda	890
Alta Loma	877
Central	841
Mountain View	819
Oro Grande	800
Cucamonga	796
Helendale	789
Victor	779
Ontario-Montclair	772
Adelanto	710
High School Districts	
Chaffey	777
Victor Valley	711
Unified Districts	
Upland	833
Redlands	832
Chino Valley	820
Silver Valley	815
Morongo	798
Snowline	798
Bear Valley	793
Yucaipa-Calimesa	793
Rim of the World	784
Apple Valley	777
Trona	773
Hesperia	759
Fontana	757
Barstow	756
Rialto	751
Colton	733
San Bernardino City	729
Lucerne Valley	725
Baker Valley	713
Needles	700

■ At or Above State API Target (800)  
■ Below State API Target

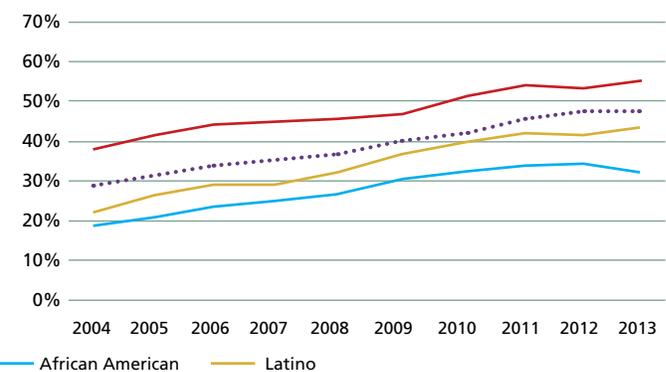
Source: California Department of Education, DataQuest (<http://data1.cde.ca.gov/dataquest/>)

## Percent of Students Proficient or Above by Race/Ethnicity San Bernardino County, 2004-2013

### English-Language Arts



### Mathematics



Source: San Bernardino County Superintendent of Schools

<sup>1</sup> The API ranges from a low of 200 to a high of 1000 and is calculated for each school based on the performance of individual pupils on several standardized tests. Each year, schools are given a state-identified API target for improvement.

<sup>2</sup> These calculations include both small schools serving fewer than 100 students and Alternative School Accountability Model schools, which include schools under the jurisdiction of a county board of education or a county superintendent of schools and alternative schools serving high-risk pupils, including continuation high schools and opportunity schools.

<sup>3</sup> A student is defined as economically disadvantaged if both parents have not received a high school diploma or if the student is eligible to participate in the free or reduced price school meal (FRPSM) program ([www.cde.ca.gov/ta/tg/sr/technicalrpts.asp](http://www.cde.ca.gov/ta/tg/sr/technicalrpts.asp)). See Family Income Security for the proportion of students eligible for the FRPSM program.

# Proportion of Adults with a College Degree Improves

## Description of Indicator

This indicator measures the proportion of residents over age 25 with a high school diploma or who passed the General Educational Development (GED) test, as well as the proportion of residents over age 25 with a Bachelor's degree or higher. It also measures the percentage of public high school students who drop out annually, in total and by race/ethnicity.

## Why is it Important?

A high school diploma or college degree opens many career opportunities that are closed to those without these achievements. The education level of residents is evidence of the quality and diversity of our labor pool – an important factor for businesses looking to locate or expand in the region.

## How is San Bernardino County Doing?

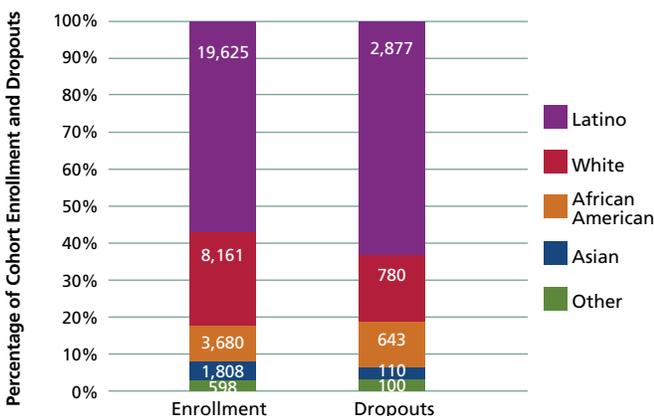
The proportion of college and high school graduates has gradually increased since 2000:

- Between 2000 and 2012, the proportion of residents over the age of 25 with a Bachelor's degree or higher rose from 16% to 19%.
- However, at 19%, San Bernardino County is below the state (31%), nation (29%), and all peers and neighboring regions compared for college graduates.
- Between 2000 and 2012, the proportion of residents over age 25 who are high school graduates rose from 74% to 78%.
- At 78%, San Bernardino County has the second lowest proportion of high school graduates among regions compared and falls below state and national averages (82% and 86%, respectively).

The class of 2011/12 had substantially fewer dropouts than the previous two years:

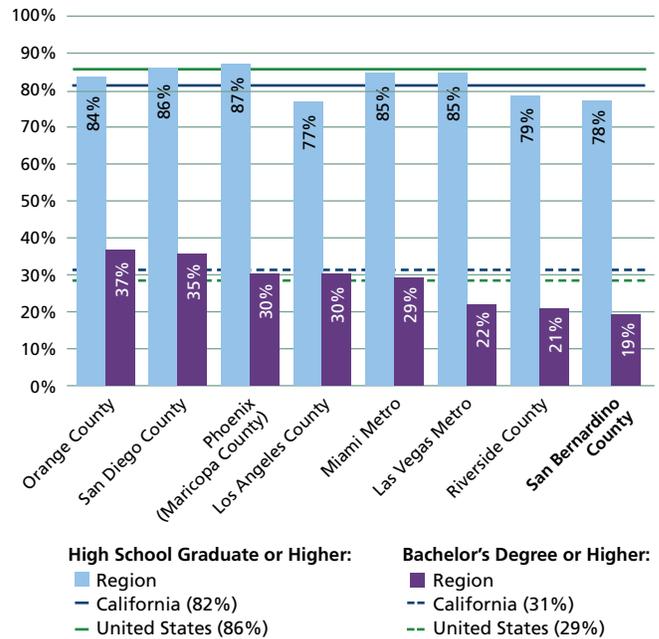
- 13.3% of the students in the class of 2011/12 dropped out before graduating, compared to 15.7% of the class of 2010/11 and 19.1% of the class of 2009/10.
- The 2011/12 dropout rate is nearly identical to the statewide dropout rate of 13.2%.
- Native American students had the highest dropout rate in 2011/12 and Asian students had the lowest.
- Compared to enrollment, the dropout population is disproportionately made up of Latino and African American youth.

## Enrollment Compared to Dropouts, by Race/Ethnicity San Bernardino County, 2011/12



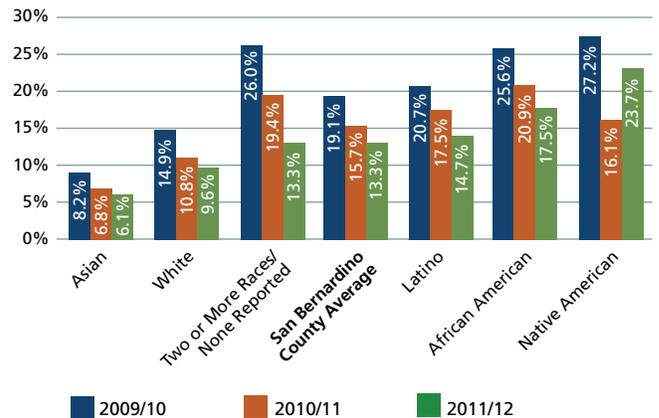
Note: "Other" includes Native American/Alaska Native, two or more races, or no race reported.  
Source: California Department of Education, DataQuest (<http://data1.cde.ca.gov/dataquest/>)

## Percentage Over Age 25 Earning High School Diploma/GED or Higher and Bachelor's Degree or Higher Regional Comparison, 2012



Source: U.S. Census Bureau, American Community Survey (<http://factfinder2.census.gov/>)

## Dropout Rate, by Race/Ethnicity San Bernardino County, 2009/10-2011/12



Source: California Department of Education, DataQuest (<http://data1.cde.ca.gov/dataquest/>)

### The Costs of Dropping Out

Dropouts have significantly higher rates of poverty, incarceration, teen pregnancy, early death, and unemployment (and lower earnings when employed). Over their working lives, the average high school dropout will contribute less in taxes than they will receive in benefits and correctional costs, resulting in a net fiscal burden on society.

Source: "Left Behind in America: The Nation's Dropout Crisis" and "The consequences of dropping out of high school," Center for Labor Market Studies, Northeastern University, 2009; Alliance for Excellent Education, Issue Brief, October 2007

# Percentage Taking SAT Increases

## Description of Indicator

This indicator measures the number of public high school graduates who have fulfilled minimum course requirements to be eligible for admission to University of California (UC) or California State University (CSU) campuses. It also includes the percentage of high school graduates taking the SAT and the percentage of students scoring 1500 or better on the SAT.

## Why is it Important?

A college education is important for many jobs and can lead to increased earning power, societal benefits, better health, and a stronger workforce. On average, earnings rise in step with education levels, resulting in benefits to the individual through increased personal income and discretionary spending, and to the community through increased tax receipts. Voter participation is associated with higher levels of education, as is participation in healthy behaviors such as exercise, volunteerism and active contribution to the community in which an individual lives. Finally, a college education supplies students with the varied skills needed to not only boost the local economy, but also to be prepared for the global economy, and provides a solid foundation for future academic and career pursuits.<sup>1</sup>

## How is San Bernardino County Doing?

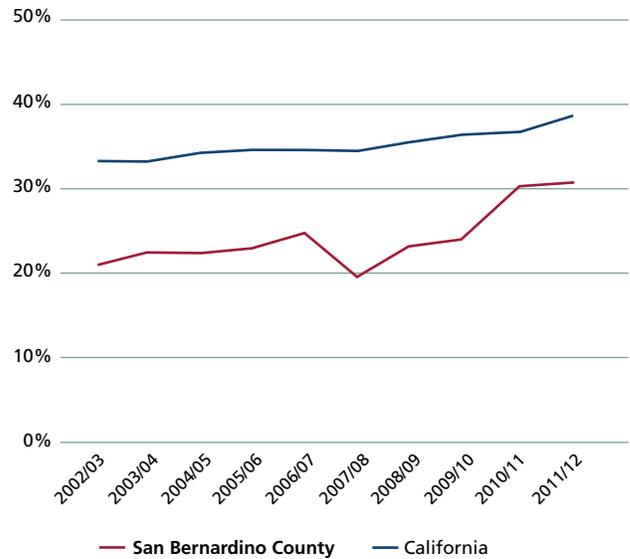
The UC/CSU eligibility rate improved significantly, reaching the highest level in nearly 20 years of tracking:

- 31% of San Bernardino County seniors graduating in 2011/12 did so having completed the necessary coursework to be eligible for a UC or CSU campus.
- This rate builds on the previous year's six point gain and is seven points higher than the previous 10-year average for UC/CSU eligibility.
- San Bernardino County's rate of eligibility remains lower than the statewide average of 38%.
- UC/CSU eligibility varies by race and ethnicity, with Asian students the most likely to be UC/CSU eligible and African American and Latino students the least likely.<sup>2</sup>

More students took the SAT in 2011/12, but scores dipped:

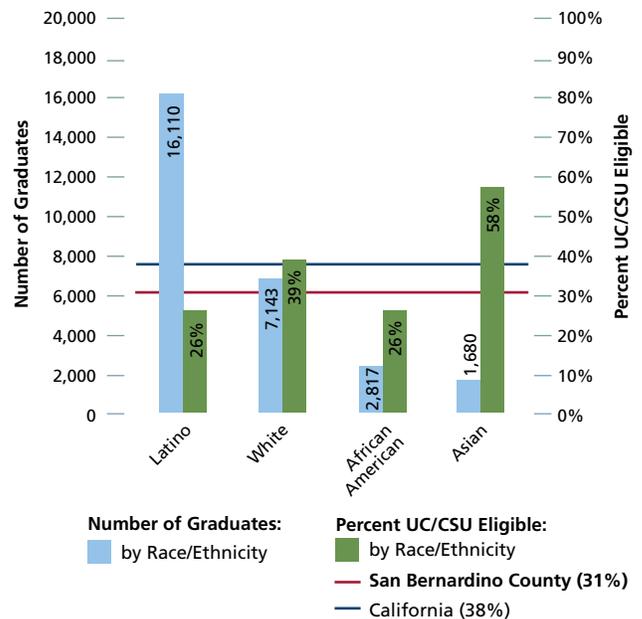
- Continuing an upward trajectory, 31% of San Bernardino County seniors took the SAT in 2011/12, up from 29% the previous year and 24% the year before that.
- However, as often occurs when the percentage tested goes up, student scores went down, with 36% of students scoring 1500 or better (out of 2400 possible points) in 2011/12, down from 48% the previous year and lower than the statewide average of 47% in 2011/12.
- At 1422, San Bernardino County's average SAT score is slightly above Riverside County's but lower than the California average and Southern California neighbors.

Percentage of High School Graduates Eligible for UC/CSU San Bernardino County and California, 2003-2012



Source: California Department of Education, DataQuest (<http://data1.cde.ca.gov/dataquest/>)

Percentage of High School Graduates Eligible for UC/CSU Compared to Number of Graduates, by Race/Ethnicity San Bernardino County, 2011/12



Source: California Department of Education, DataQuest (<http://data1.cde.ca.gov/dataquest/>)

## County Awarded Linked Learning Grant

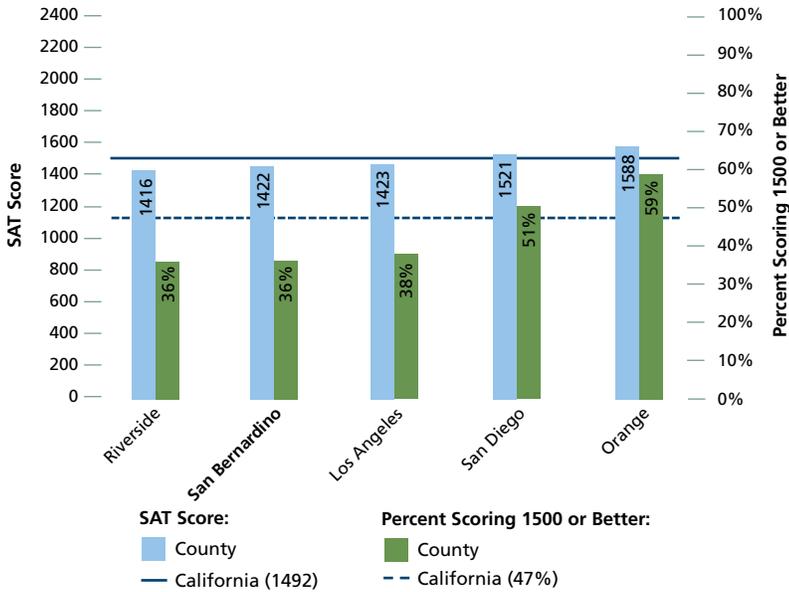
The San Bernardino County Superintendent of Schools' Alliance for Education, along with partners in Chino Valley, Colton Joint Unified, San Bernardino City Unified, Upland, and Yucaipa-Calimesa Joint Unified, successfully competed statewide for a James Irvine Foundation grant to pilot the Linked Learning program. The grant is being administered by The Community Foundation. Linked Learning prepares high school students for college and a career by integrating rigorous academics with career-based learning in school and in real-world professional workplaces. The program launched in 2013/14 with 12 career pathways for students to explore and link to their academics. The consortium plans to add an additional 18 pathways in the 2014/15 academic year.

Source: San Bernardino County Superintendent of Schools

<sup>1</sup> College Board, *Education Pays, Update 2005* ([www.collegeboard.com/prod\\_downloads/press/cost05/education\\_pays\\_05.pdf](http://www.collegeboard.com/prod_downloads/press/cost05/education_pays_05.pdf))

<sup>2</sup> "Asian" includes students identified as Asian, Pacific Islander and Filipino. "Other" includes students identified as Native American/Alaska Native, two or more races, or no race/ethnicity reported.

**Average SAT Scores and Percent Scoring 1500 or Better  
County Comparison, 2011/12**



Note: The highest score possible is 2400.  
Source: California Department of Education, DataQuest (<http://data1.cde.ca.gov/dataquest/>)

**AVID Update**

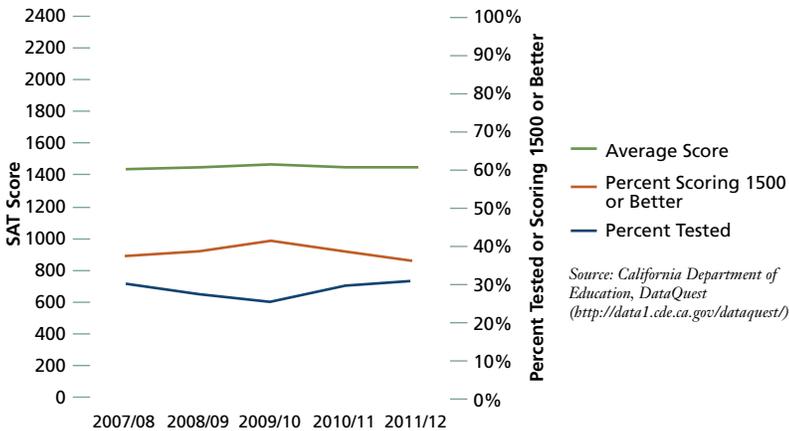
The Advancement Via Individual Determination (AVID) program targets students in the academic middle who have a willingness to work toward college acceptance. AVID empowers students to take charge of their education by setting goals, learning good study habits, and using proven reading and writing strategies to excel in their school work. AVID gives students the boost they need to complete high school and take the necessary coursework to become eligible for college. Typically, AVID students are the first in their families to attend college, and many are from low-income or minority families.

Since the California budget eliminated AVID funding in 2012/13, San Bernardino County, along with Riverside, Inyo and Mono counties (the "RIMS" region), have funded the program locally to keep it alive in the region. The RIMS region is one of only two regions in California able to sustain their AVID programs in the face of budget cuts.

In 2012/13, 18,663 students countywide participated in AVID. Of the 1,729 AVID seniors graduating in 2013, 100% graduated from high school, 97% successfully completed a-g courses (courses that count toward UC/CSU eligibility), 77% planned to attend a four-year college and another 21% planned to attend a two-year college, for a total college-going rate of 97%.

Source: San Bernardino County Superintendent of Schools

**SAT Trends: Average Score, Percent Tested, and Percent Scoring 1500 or Better  
San Bernardino County, 2008-2012**



Source: California Department of Education, DataQuest (<http://data1.cde.ca.gov/dataquest/>)

**EAP: Improving College Readiness**

The Inland Area Early Assessment Program (EAP) Collaborative is working to clear the way for more graduating seniors to attend college.

The EAP collaborative is comprised of California State University/San Bernardino, University of California/Riverside, Cal Poly Pomona, local community colleges, the San Bernardino and Riverside County offices of education, and local school districts.

The EAP assessment is designed to give high school students an early indication of college readiness in English language arts and math, and to avoid incoming college students' need for remediation. The ultimate goal of the EAP collaborative is to have this assessment used as a "common indicator" of college readiness for public universities and community colleges in the region. While taking the EAP assessment is not mandatory, making it so could improve high school graduation, college going, and college completion rates.

**Early Assessment Program 2013 Snapshot**

- 83% of San Bernardino County juniors took the English EAP assessment and 83% took the math EAP. Both rates are on par with the statewide rate of 83%.
- Of those taking the English EAP, 16% of San Bernardino County students were deemed college ready and 14% were conditionally ready (i.e., the student can take identified coursework in their senior year of high school that, following completion, will deem them college ready). Statewide, 23% of students were college ready in English and 15% were conditionally ready.
- Of those taking the Math EAP, 10% of San Bernardino County students were deemed college ready and 47% were conditionally ready. Statewide, 14% of students were college ready in math and 46% were conditionally ready.

Source: San Bernardino County Superintendent of Schools

# Placement Falls for Career-Tech Students

## Description of Indicator

This indicator aggregates and reports career technical education (CTE) data from the three Regional Occupational Programs (ROP) and five community college districts in San Bernardino County.

## Why is it Important?

Career technical education integrates academic and technical skills, supporting both educational goals and economic development. It offers students research-based, relevant curricula developed expressly for success in college and careers. For those reentering the workforce, changing careers, or needing on-the-job skill upgrades, CTE provides applicable skill-sets and increased career opportunities.

## How is San Bernardino County Doing?

ROP student placement rate fell slightly:

- Among the 14,000 high school seniors completing ROP education in 2012/13, 79% continued their education, found a job, or joined the military – a slight decline from a placement rate of 82% the prior year.
- The placement rate among the 2,000 adult ROP completers fell three points to 80%.
- Among students entering the job market, 24% of high school ROP students in 2012/13 found a job related to their course of study, compared to 76% of adults.
- More than two-thirds (69%) of high school students continued their education after completing their studies in 2012/13, compared to 39% of adults.

Community college CTE student placement fell:

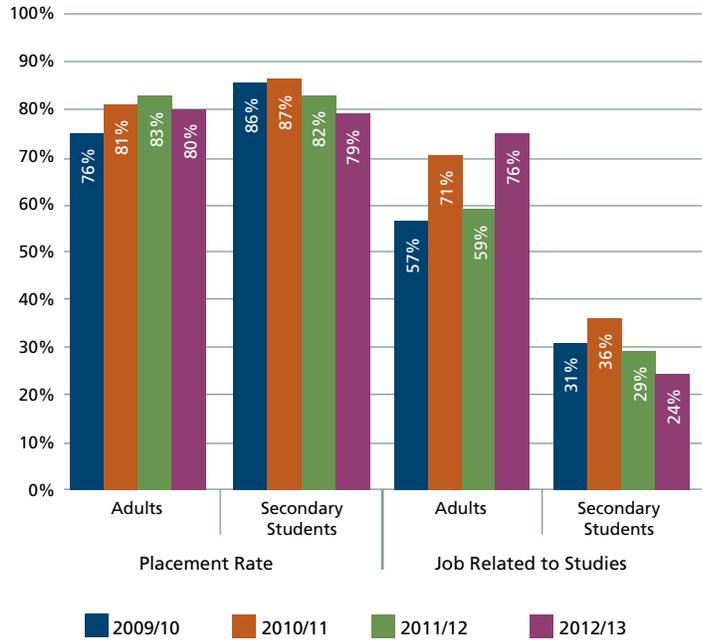
- Within a year of completing their course of study in 2011/12, 62% of graduates were placed (pursued further education, found a job, or joined the military), compared with 72% the prior year.
- This placement rate is lower than the statewide average of 66%.
- San Bernardino County community colleges awarded CTE students 3,413 industry-recognized credentials, certificates or degrees (or the student was “transfer ready”) in 2011/12. This represents a decline of 4% over the past five years. Statewide, completions have increased 15% over the same period.

### Private Trade Schools

In addition to public career education, two- and four-year private trade schools in San Bernardino County contributed 1,889 Associate’s degrees and 944 Bachelor’s degrees or higher in 2012/13 in a broad range of career education fields.

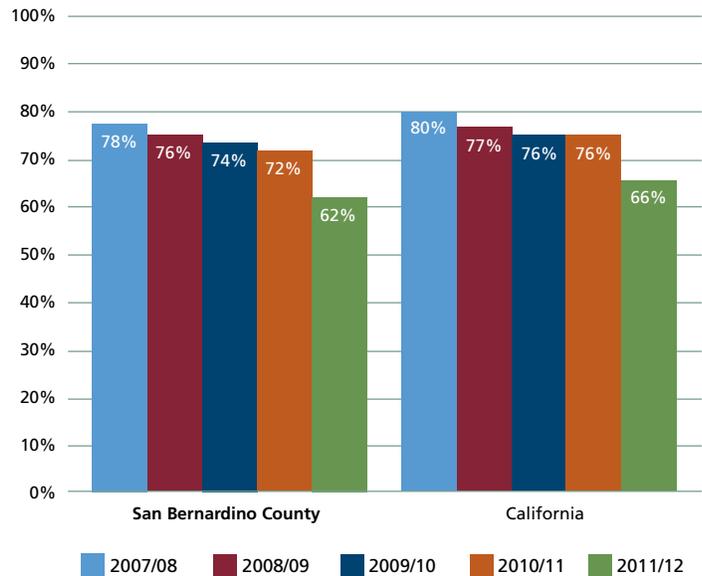
Source: National Center for Education Statistics (<http://nces.ed.gov>)

**Regional Occupational Programs Placement Rates and Relatedness to Course of Study**  
San Bernardino County, 2010-2013



Sources: San Bernardino County Superintendent of Schools, Baldy View and Colton-Redlands-Yucaipa Regional Occupational Programs

**Community College Placement Rates**  
San Bernardino County and California, 2008-2012



Note: Data have been updated by the source since presented in the 2013 Community Indicators Report.

Source: California Community Colleges, Chancellor’s Office (<https://misweb.ccco.edu/perkins/main.aspx>)

# Local Degrees Granted Outpace Job Openings

## Description of Indicator

This indicator tallies the degrees granted from public and private two- and four-year colleges and universities in Riverside County and San Bernardino County and compares that to the entry-level education needed for job openings projected annually in the region.

## Why is it Important?

The region boasts many institutions of higher learning, offering the full spectrum of academic and professional certifications and degrees. For the individual, a well-paying, satisfying job depends in large part on finding work that maximizes his or her skill-set. If residents cannot find a good match locally, they may be required to move or commute long distances. Additionally, an appropriately trained local labor force is important for existing businesses in the region, as well as those businesses looking to relocate or expand.

## How is San Bernardino County Doing?

Projections between 2010 and 2020, which take into account new jobs created and existing jobs vacated, indicate there will be an estimated 51,224 job openings in the Riverside-San Bernardino metro area annually:

- In terms of the entry-level education requirements, 39% of the projected annual job openings require less than a high school degree, 38% require a high school degree, and 4% require post-secondary Career Technical Education.
- 4% require an Associate's degree, 11% require a Bachelor's, 1% require a Master's, and 2% require a doctorate or professional degree.
- In addition to educational requirements, occupations are assessed for whether they require vocational training. A majority of job openings in the region do (76%). Most (71%) require some sort of on-the-job training, while 4% require an internship or residency and 1% require apprenticeship.

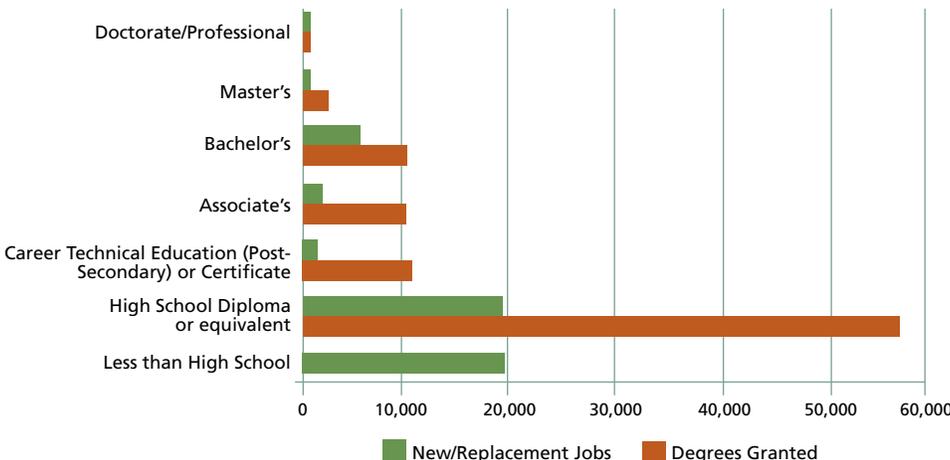
Annually, there are more degrees granted in all levels of secondary and post-secondary education in the Riverside-San Bernardino metro area than there are job openings projected to require those minimum levels of education:

- There is a close match between the number of job openings needing a doctorate or professional degree and the number of degrees granted at this level, and a relatively close match among Bachelor's degrees granted and job openings at this level.
- There are nearly five times as many degrees granted at the Associate's level and three times as many degrees granted at the Master's level as there are projected job openings assigned these minimum levels of education.
- The largest mismatch is at the post-secondary Career Technical Education or certificate level of education, with an excess supply of over six times the graduates per job at this level.
- The region has approximately three times as many high school graduates as there are jobs at this level.
- A high school diploma and certificates may be earned on the path to more advanced education or certification. As a result, these students may not enter the job market following graduation or certification.

### Education, Experience and Training Codes

The Bureau of Labor Statistics assigns education, experience and training codes to each occupation in the Standard Occupational Classification system. The education level assigned is considered the entry-level or minimum education level needed to fill a job, and the experience and training levels assigned are considered to be typical. For example, a Chief Executive's entry-level education requirement is a Bachelor's degree, but this job is also coded to require five or more years of experience. Teacher Assistants, on the other hand, are coded to require less than a high school degree, but require short-term on-the-job training. Since the jobs are coded at the minimum or typical qualifications required, it is likely that more educated, experienced or trained candidates fill many of these jobs, and that candidates with the minimum requirements may have difficulty competing.

## Projected (2010-2020) Average Annual Job Openings Compared to the Number of Degrees Granted in 2012/13 by Public High Schools and Public/Private Post-Secondary Educational Institutions in Riverside-San Bernardino



Note: High School degrees granted reflect graduates in 2011/12.

Sources: California State University, San Bernardino; University of La Verne (College of Law, Inland Empire Campus, High Desert/Victorville Campus); California Community Colleges Chancellor's Office (community college degrees); San Bernardino County Superintendent of Schools, Colton-Redlands-Yucaipa, Baldy View, and Riverside County Office of Education Regional Occupational Programs (adult participants only); National Center for Education Statistics (for degrees granted at University of California/Riverside, University of Redlands, Loma Linda University, California Baptist University, and other smaller private or public, 2- or 4-year colleges or universities); California Department of Education (high school graduates); and California Employment Development Department, 2010-2020 Occupational Employment Projections, Riverside-San Bernardino-Ontario Metropolitan Statistical Area ([www.labormarketinfo.edd.ca.gov/?pageid=145](http://www.labormarketinfo.edd.ca.gov/?pageid=145))

# STEM-Related Degrees Continue Upward Trend

## Description of Indicator

This indicator measures the number of degrees awarded in STEM disciplines (Science, Technology, Engineering and Mathematics) at colleges and universities in San Bernardino County, including Associate's, Bachelor's, and graduate degrees.<sup>1</sup>

## Why is it Important?

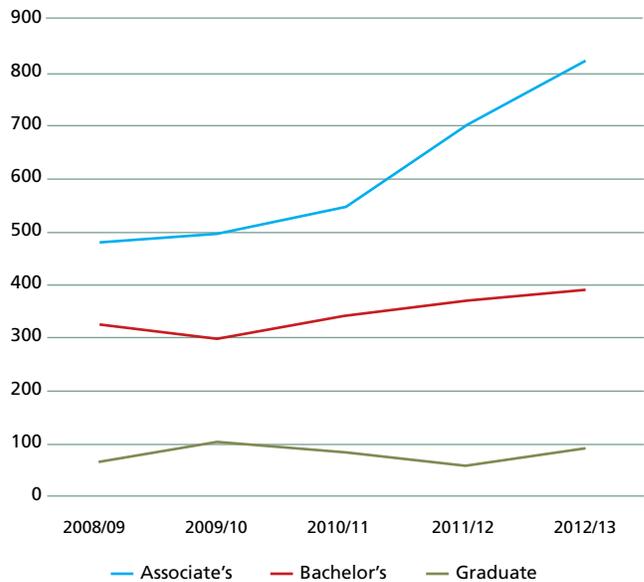
The technical and problem-solving skills learned through the STEM disciplines are critical in a knowledge- and computer-driven economy. A technically skilled pool of local graduates reduces the need for employers to recruit workers from outside the county and can attract new high-tech jobs.

## How is San Bernardino County Doing?

STEM-related degrees accounted for approximately 10% of the total number of degrees awarded in 2012/13 by public and private, two-year and four-year institutions in San Bernardino County:

- 830 STEM-related Associate's degrees were awarded in 2012/13, an increase of 79% over the past five years.
- The number of STEM-related Bachelor's degrees awarded (381 in 2012/13) has grown 13% over the past five years.
- The number of STEM-related graduate degrees granted increased 17% over the past five years, from 69 in 2008/09 to 89 in 2012/13.
- Overall, STEM-related Associate's, Bachelor's and graduate degrees granted have grown 49% since 2008/09.
- Since 2008/09, all STEM-related fields experienced growth in degrees granted.

STEM-Related Degrees Awarded by Type of Award  
San Bernardino County, 2009-2013

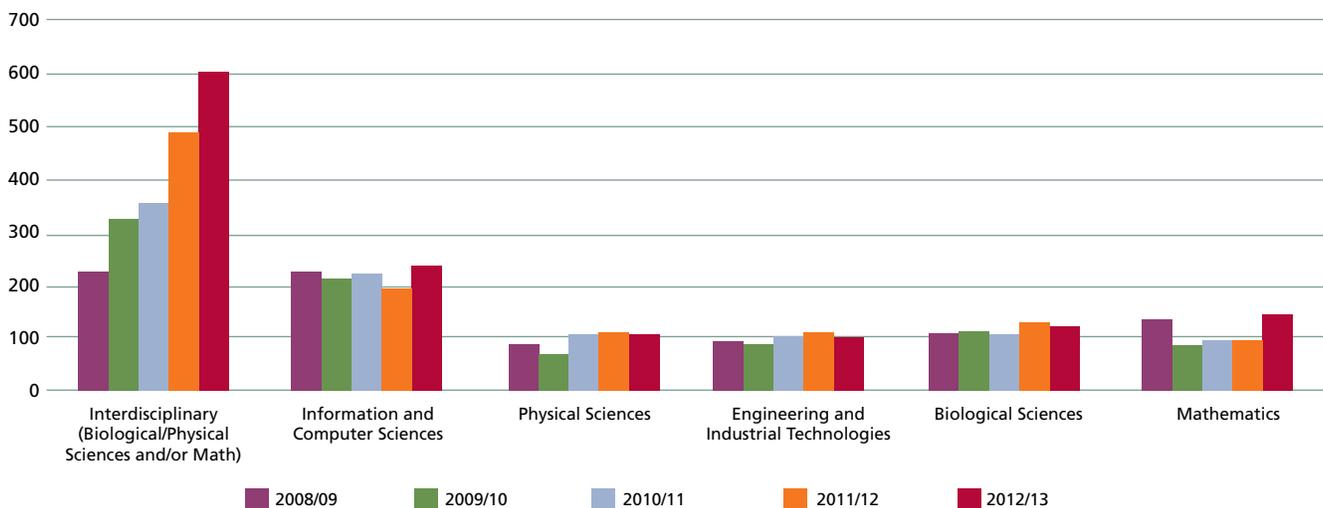


### Private Trade Schools

In addition to the degrees tallied in this indicator, private for-profit institutions in San Bernardino County granted 88 STEM-related Bachelor's degrees and 189 STEM-related Associate's degrees in 2012/13.

Source: National Center for Education Statistics (<http://nces.ed.gov>)

STEM-Related Degrees Awarded by Subject  
San Bernardino County, 2009-2013



Sources: California State University, San Bernardino (<http://ir.csusb.edu/>), California Community Colleges Chancellor's Office (<https://misweb.ccco.edu/mis/onlinestat/awards.cfm>), and National Center for Education Statistics (<http://nces.ed.gov/>)

<sup>1</sup> STEM-related degrees include the subjects of biological sciences (not including health sciences), physical sciences, mathematics, computer and information sciences, and engineering and industrial technologies. With the exception of the estimate for the total proportion of degrees granted in San Bernardino County that are STEM-related (10%), the data in this indicator do not include degrees granted by private for-profit trade schools due to lack of complete trend data at this time.

# community health and wellness

Wellness is key to achieving the Countywide Vision. The county cannot meet its educational, economic, and quality-of-life goals without good health in the community. However, progress has been slow. The percentage of mothers receiving prenatal care increased from 80.6% to 82% over the past five years. Childhood deaths are down, too. But high blood pressure is on the rise, and the county's high rate of childhood obesity remains constant.

## *Improving Health in San Bernardino County*

*In 2013, the County created the Community Vital Signs initiative, a community-driven effort to improve health and wellness. Community Vital Signs is tasked with providing analysis of the current health of the county and developing goals and priorities to help meet the wellness needs of our residents. Throughout the year, Community Vital Signs held workshops and community engagement meetings to obtain feedback on how to address some of the health crises in our community such as access to health care and education.*

# 37% of High School Dropouts are Uninsured

## Description of Indicator

This indicator provides detailed information about the proportion of San Bernardino County residents who are uninsured. It also shows the ratio of residents to primary care physicians, the percentage of people who have a usual place to go to when they are sick or in need of health advice, and the percentage of people who delayed or did not get medical care in the past 12 months.

## Why is it Important?

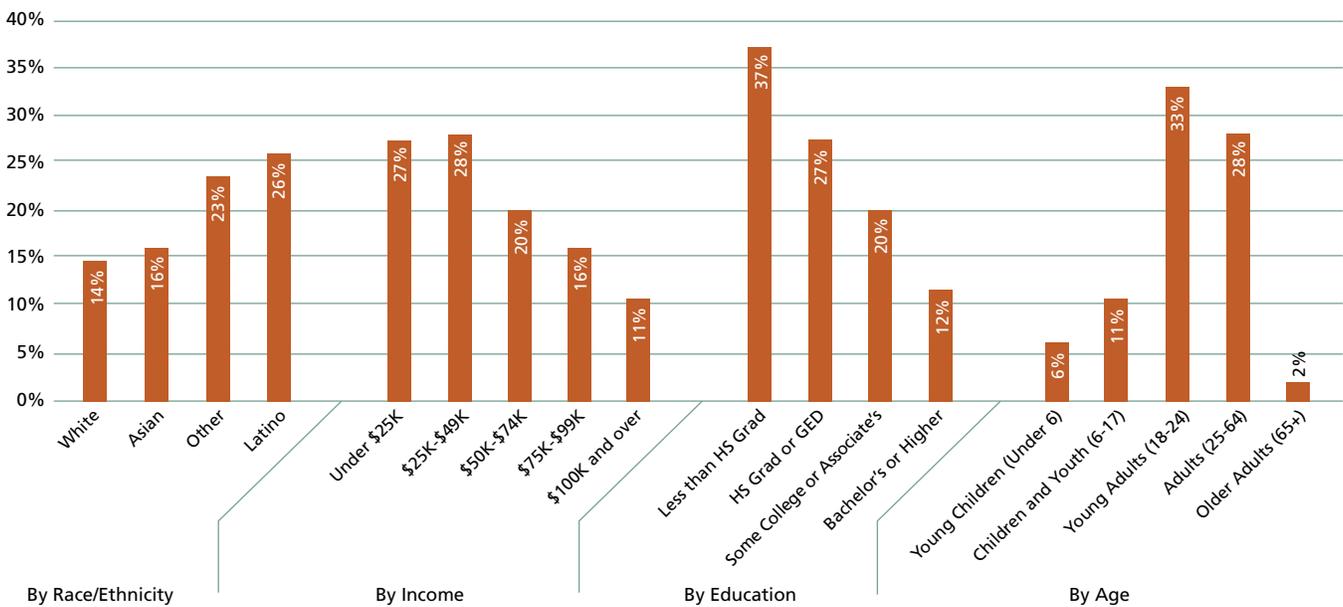
Individuals who have health insurance and a usual source of care are more likely to seek routine health care and take advantage of preventative health screening services than those without such coverage. The result is a healthier population and more cost-effective health care. Delaying or not receiving needed medical care may result in more serious illness, increased complications, and longer hospital stays. With the rollout of the Affordable Care Act (ACA), more people will have access to health care; however, a regional shortage of doctors, particularly primary care physicians, may restrict timely access to care.

## How is San Bernardino County Doing?

Estimates indicate that approximately one in five San Bernardino County residents are uninsured, a proportion that has not changed significantly over the past four years:

- In 2012, 20.6% of San Bernardino County residents were uninsured.
- This proportion is higher than the United States (14.8%) and California (17.9%) averages. It is in the mid-range compared to peers.
- At 33%, young adults were the age group most likely to be uninsured.
- Latino residents were the racial or ethnic group most likely to be uninsured (26%).
- When broken out by household income, those with incomes in the lower-middle range (\$25,000-\$49,000) were the most likely to be uninsured (28%).
- 37% of those with less than a high school diploma were uninsured.

**Uninsured by Race/Ethnicity, Income, Education and Age**  
San Bernardino County, 2012



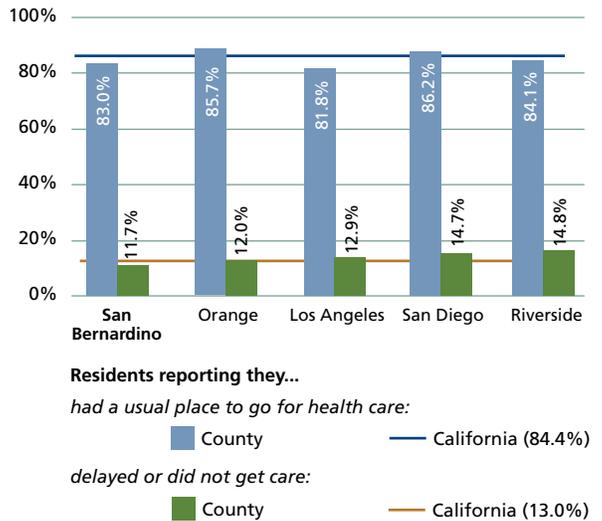
Note: Asian includes Native Hawaiian/Pacific Islander. White is non-Latino. Latino is of any race. Educational attainment data is for the population age 25 and over.

Source: U.S. Census Bureau, American Community Survey, 1-Year Estimates (<http://factfinder2.census.gov>)

Compared to neighboring counties, fewer San Bernardino County residents have a usual place to go for medical care:

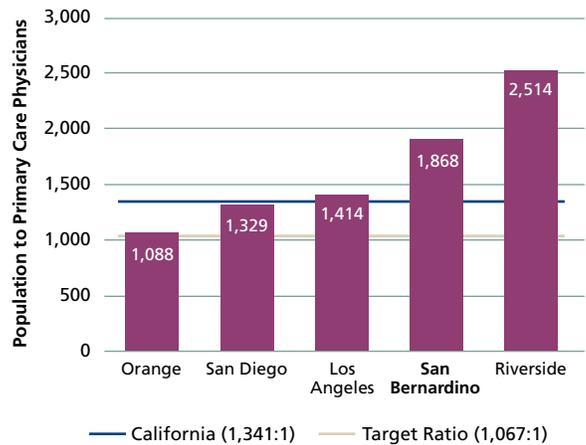
- According to the 2011-12 California Health Interview Survey (CHIS), 83.0% of people under age 65 had a usual place to go to when they were sick or needed health advice, a lower proportion than California and all neighboring counties compared except Los Angeles (81.8%).<sup>1</sup>
- However, 11.7% of San Bernardino County residents under age 65 delayed or did not get the medical care that they needed, lower than the state and all neighboring counties compared.
- This is an improvement since 2007, when 14.1% of San Bernardino County residents under age 65 had delayed or did not get needed medical care.
- There are 1,868 people for each primary care physician in San Bernardino County, higher than the state and all neighboring counties compared, except Riverside County. The national target ratio is 1,067 for each primary care physician.<sup>2</sup>

**Health Care Access (Under Age 65)**  
County Comparison, 2011-12



Source: California Health Interview Survey

**Number of Residents per Primary Care Physician**  
County Comparison, 2013



Source: County Health Rankings and Roadmaps ([www.countyhealthrankings.org](http://www.countyhealthrankings.org))

<sup>1</sup>The latest CHIS prevalence data reflect adults surveyed in 2011 and 2012 and are referred to as “2011-12” data; previous prevalence data were collected in a single year.

<sup>2</sup>Primary care physicians include practicing physicians under age 75 specializing in general practice medicine, family medicine, internal medicine or pediatrics.

# Early Prenatal Care Rate Remains Relatively Unchanged

## Description of Indicator

This indicator measures the percentage of live births to San Bernardino County women who began prenatal care during the first three months of pregnancy.

## Why is it Important?

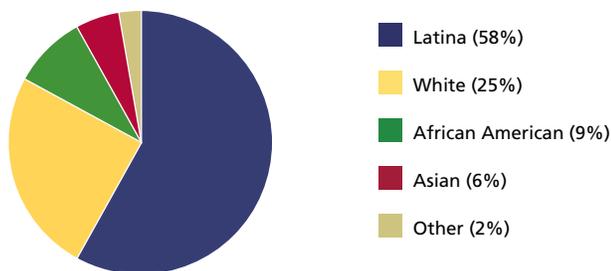
Increasing the number of women who receive early prenatal care (in the first trimester of pregnancy) can improve birth outcomes and lower health care costs by reducing the likelihood of complications during pregnancy and childbirth. Babies born to mothers who do not get prenatal care are three times more likely to have a low birth weight and five times more likely to die than those born to mothers who do get care. Early prenatal care allows women and their health care providers to identify and, when possible, to treat or correct health problems and health-compromising behaviors that can be particularly damaging during the initial stages of fetal development.<sup>1</sup> Late or no prenatal care substantially increases the likelihood an infant will require admission to a Neonatal Intensive Care Unit or require a longer stay in the hospital, at substantial personal and economic cost to the family and health care system.<sup>2</sup> Prenatal counseling related to breastfeeding provides healthcare providers and prenatal educators an opportunity to inform mothers of the benefits of breastfeeding.

## How is San Bernardino County Doing?

In 2012, early prenatal care rates decreased slightly:

- San Bernardino County's early prenatal care fell 0.1 percentage point to 82.0% in 2012.
- This is marginally higher than the statewide rate of 81.9%.
- San Bernardino County has achieved the national Healthy People 2020 objective of 77.9%, but its early prenatal care rate remains lower than all counties compared, except Los Angeles (81.2%).
- Asian mothers have the highest early prenatal care rate (83.0%), followed by White mothers (82.9%), and Latina mothers (82.6%).
- In 2012, levels of early prenatal care improved for Latina mothers and mothers of "other" race/ethnicity but declined for all other racial and ethnic groups in San Bernardino County.
- The majority of births are to Latina mothers (58%), followed by White mothers (25%), and African American mothers (9%).
- Over the past 10 years, the number of live births in San Bernardino County has remained stable, from 30,824 live births in 2003 to 30,691 in 2012.

## Live Births by Race and Ethnicity San Bernardino County, 2012

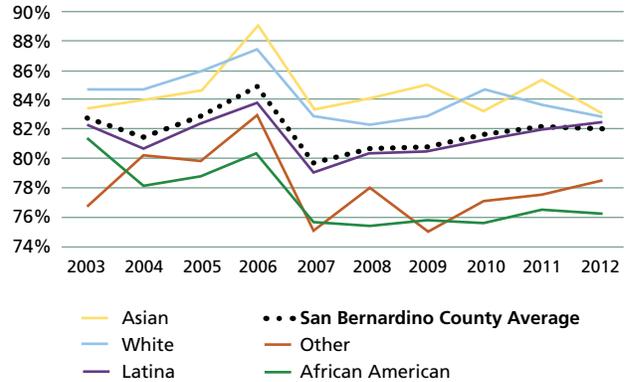


Source: California Department of Public Health ([www.apps.cdph.ca.gov/vsq/default.asp](http://www.apps.cdph.ca.gov/vsq/default.asp))

<sup>1</sup> Child Trends ([www.childtrends.org/?indicators=late-or-no-prenatal-care](http://www.childtrends.org/?indicators=late-or-no-prenatal-care))

<sup>2</sup> Saied B., Amini, Patrick AA., Catalano and Leon I. Mann, "Effect of Prenatal Care on Obstetrical Outcome", *Journal of Maternal-Fetal and Neonatal Medicine* 1996 5:3, 142-150.

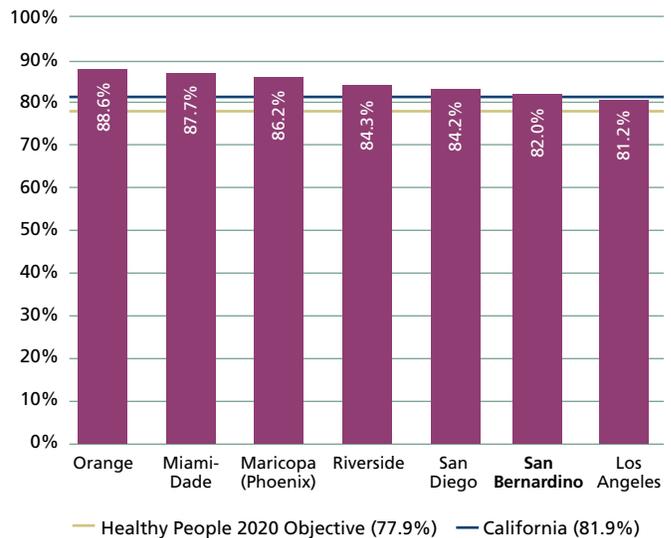
## Percentage of Mothers Receiving Early Prenatal Care, by Race and Ethnicity San Bernardino County, 2003-2012



Note: The ethnic category "Latina" includes any race; the racial categories "White," "Asian," and "African American" are all non-Latina. "Asian" includes Asian and Pacific Islander. "Other" includes the categories of two or more races and American Indian/Native Alaskan.

Source: California Department of Public Health ([www.apps.cdph.ca.gov/vsq/default.asp](http://www.apps.cdph.ca.gov/vsq/default.asp))

## Percentage of Mothers Receiving Early Prenatal Care County Comparison, 2012



Sources: California Department of Public Health ([www.apps.cdph.ca.gov/vsq/default.asp](http://www.apps.cdph.ca.gov/vsq/default.asp)); Arizona Department of Health Services ([www.azdhs.gov/plan/report/abs/index.htm](http://www.azdhs.gov/plan/report/abs/index.htm)); Florida Department of Health, Bureau of Vital Statistics ([www.floridacbars.com/charts/chart.aspx](http://www.floridacbars.com/charts/chart.aspx)).

### What is Healthy People 2020?

Healthy People 2020 is a national health promotion and disease prevention initiative that establishes national objectives to improve the health of all Americans, to eliminate disparities in health, and to increase the years and quality of healthy life.

## Rate of Child Deaths Remains Unchanged

### Description of Indicator

This indicator measures the leading causes of death for infants less than one year old and children ages one through four in San Bernardino County (shown as the raw number of deaths). The rates of death from all causes for children from birth through four years of age in San Bernardino County are also compared to other selected California counties (shown as the number of deaths per 100,000 children).

### Why is it Important?

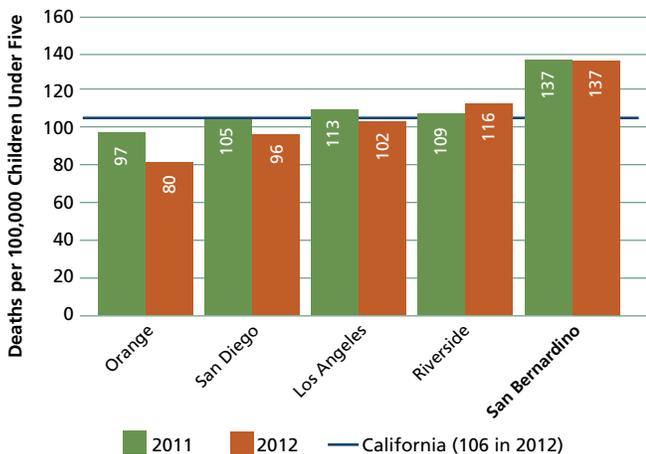
Awareness of the leading causes of death for children can lead to intervention strategies to help prevent mortality. Many of these deaths are preventable through preconception health care, early and ongoing prenatal care, and outreach to parents and caregivers.

### How is San Bernardino County Doing?

In 2012, the overall death rate for children under five years of age in San Bernardino County was unchanged:

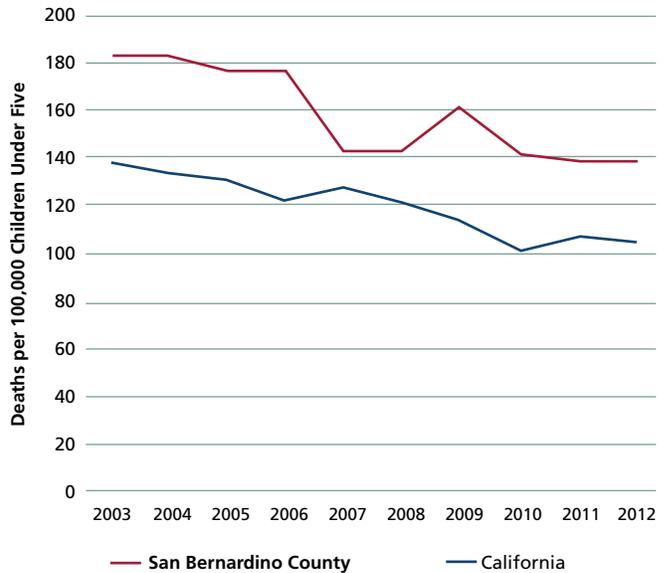
- The number of infant deaths did not change markedly, dropping from 180 in 2011 to 179 in 2012.
- Among children ages one through four, however, there was a 6% decrease in the number of deaths, from 35 deaths in 2011 to 33 deaths in 2012.
- At 137 deaths per 100,000 children under five, the overall death rate for children under five was unchanged between 2011 and 2012.
- The 10-year trend for San Bernardino County, as well as the state, is gradually downward.
- San Bernardino County has a consistently higher rate of death for children under five than the California average and all counties compared.
- Congenital defects (e.g., spina bifida) and chromosomal abnormalities (e.g., Down syndrome) topped the list of leading causes of infant deaths.
- Accidents and congenital defects and chromosomal abnormalities were the leading causes of death for young children (one to four years old).

### Death Rate Due to All Causes for Children Under Five County Comparison, 2011 and 2012



Source: California Department of Public Health, Center for Health Services, Vital Statistics Query System ([www.apps.cdph.ca.gov/vsq/default.asp](http://www.apps.cdph.ca.gov/vsq/default.asp))

### Death Rate Due to All Causes for Children Under Five San Bernardino County and California, 2003-2012



Source: California Department of Public Health, Center for Health Services, Vital Statistics Query System ([www.apps.cdph.ca.gov/vsq/default.asp](http://www.apps.cdph.ca.gov/vsq/default.asp))

### Leading Causes of Death for Infants and Young Children San Bernardino County, 2012\*

Cause of Death	Number of Deaths
<b>Infants (Under Age One)</b>	
Congenital Defects/Chromosomal Abnormalities	45
Maternal Pregnancy Complications Affecting Newborn	21
Prematurity/Low Birth Weight	20
Sudden Infant Death Syndrome	15
Respiratory Complications	9
Complications of Placenta, Cord & Membranes	8
Other Unspecified or Undefined Causes	8
Blood Infection	6
Cardiovascular Disorders	6
Bacterial Sepsis	5
All Other Causes	36
<b>TOTAL</b>	<b>179</b>
<b>Young Children (Ages 1-4)</b>	
Congenital Defects/Chromosomal Abnormalities	8
Accidents	
Motor Vehicle Related	5
Other	3
Infectious and Parasitic Diseases	5
Cancer	2
All other causes	10
<b>TOTAL</b>	<b>33</b>

\*2012 cause of death data are considered preliminary. Causes with fewer than five deaths for infants and fewer than two deaths for young children are included in "All other causes."

Source: County of San Bernardino, Department of Public Health

# One-Third of Students have Weight-Related Health Risks

## Description of Indicator

This indicator measures children’s weight status based on the California Department of Education (CDE) Physical Fitness Test, which evaluates the proportion of students in fifth, seventh and ninth grades with an unhealthy body composition (overweight or obese).<sup>1</sup> It also measures the weight status of adults using the California Health Interview Survey and the National Health Interview Survey.

## Why is it Important?

Overweight children are more likely to become overweight or obese adults. A sedentary lifestyle and being overweight are among the primary risk factors for many health problems and premature death. Maintaining a healthy body weight can have positive impacts on physical and mental health, as well as reduce health care costs.

## How is San Bernardino County Doing?

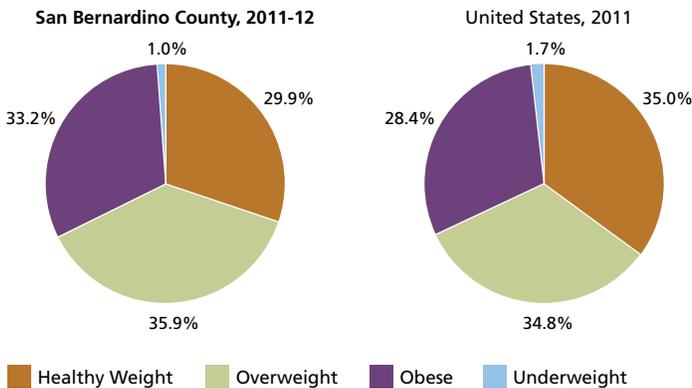
There was little change in student weight status in 2013:

- In 2013, an average of 45.9% of San Bernardino County students in the grades tested had an unhealthy body composition, compared to 43.9% statewide.
- This represents a slight decrease in San Bernardino County, from 46.1% in 2012.
- Of the San Bernardino County students with an unhealthy body composition in 2013, 32.4% were considered to be far outside the healthy range (“Needs Improvement – Health Risk”), while the remaining 13.5% were designated as “Needs Improvement.”
- San Bernardino City and Fontana school districts have the highest proportion of students with unhealthy body composition (53%).
- Silver Valley school district has the lowest proportion (30%).

More than two-thirds of San Bernardino County adults are overweight:

- In 2011-12, 35.9% of San Bernardino County adults were considered overweight and 33.2% obese. Less than one-third (29.9%) had a healthy body weight.
- In comparison 35.0% of adults nationwide had a healthy body weight.

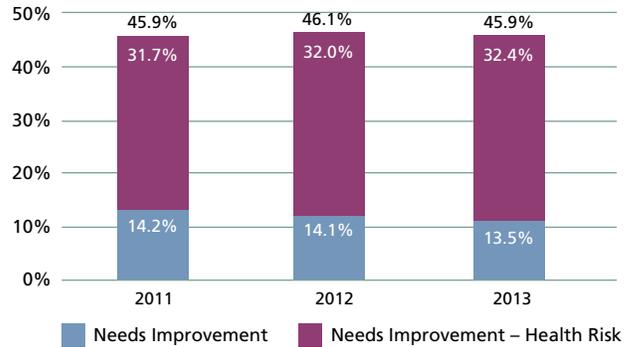
## Weight Status of Adults



Sources: University of California, Los Angeles, Center for Health Policy Research, California Health Interview Survey ([www.chis.ucla.edu](http://www.chis.ucla.edu)); Centers for Disease Control and Prevention, National Health Interview Survey ([www.cdc.gov/nchs/products/series/series10.htm](http://www.cdc.gov/nchs/products/series/series10.htm))

<sup>1</sup> Percentages may include a small number of underweight youth, typically less than 2%.

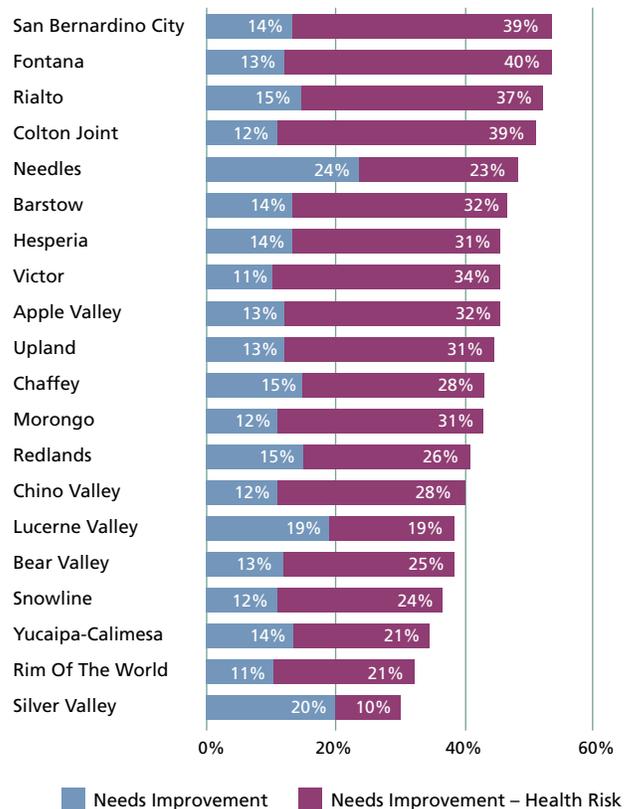
Percentage of Students with Unhealthy Body Composition San Bernardino County and California, 2011-2013



Note: Due to changes to the criteria, these data are not comparable to CDE Fitness Test data prior to 2011.

Source: California Department of Education Physical Fitness Test (<http://data1.cde.ca.gov/dataquest/>)

Percentage of Students with Unhealthy Body Composition, by School District San Bernardino County, 2013



Notes: Chaffey and Victor represent combined data of the high school districts and their feeder school districts. Chaffey includes Chaffey Joint Union High School District and the elementary districts of Alta Loma, Central, Cucamonga, Etiwanda, Mountain View, Mt. Baldy, and Ontario-Montclair. Victor includes Victor Valley Union High School District and the elementary schools Victor, Adelanto, Oro Grande and Helendale. However, in 2013, Victor Valley Union High School District did not submit Physical Fitness Test data to the state. Fewer than 50 students were tested in the Baker Valley and Trona school districts in 2013; therefore, the data are unstable and not presented.

Source: California Department of Education Physical Fitness Test (<http://data1.cde.ca.gov/dataquest/>)

# Rates of Chronic Diseases Rise

## Description of Indicator

This indicator reports asthma diagnoses for children and adults, diabetes diagnoses for adults, and the proportion of adults who have high blood pressure.

## Why is it Important?

Chronic diseases – including asthma, diabetes, and high blood pressure – are costly, yet largely preventable. Chronic illnesses contribute to approximately 70% of deaths in the United States each year and account for about 75% of the nation’s health-related costs.<sup>1</sup>

## How is San Bernardino County Doing?

In 2011-12, San Bernardino County had more asthma diagnoses than California and the neighboring counties compared:<sup>2</sup>

- 21.4% of children and 13.8% of adults in San Bernardino County have been diagnosed with asthma in their lifetimes. This marks a five-year increase of 33% for children but a 3% decrease for adults.
- San Bernardino County has the highest rate of children and adults with asthma among all regions compared.
- African Americans had the highest rate of asthma diagnosis (28.0%), followed by Whites (16.9%) and Latinos (11.9%).

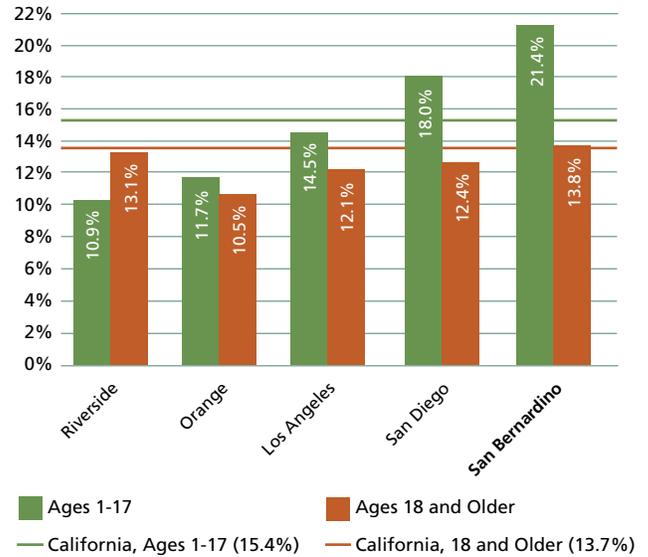
Diabetes rates are also on the rise:

- According to 2011-12 data, 10.6% of adults in San Bernardino County have been diagnosed with diabetes, the highest rate among counties compared and California.
- This marks a five-year increase of 15% since 2007 when 9.2% had a diabetes diagnosis.
- 83% of the adults with a diabetes diagnosis have Type II diabetes.
- San Bernardino County is ranked 58th out of 58 counties (the highest rate of deaths due to diabetes – see Health Status).

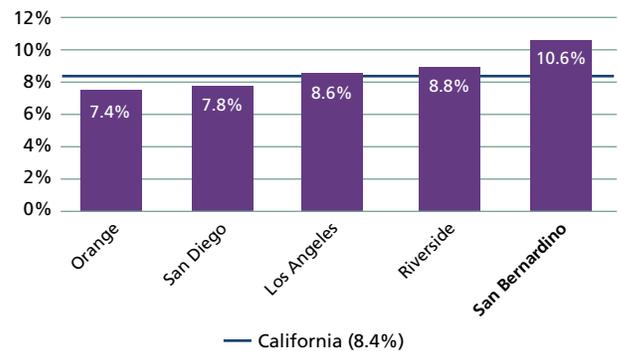
Almost one-third of adults have been diagnosed with high blood pressure:

- In 2011-12, 32.2% of adults in San Bernardino County had high blood pressure, higher than California and all counties compared.
- This marks a five-year increase of 15% since 2007 and 24% since 2001.
- Of adults diagnosed with high blood pressure, 68% are currently taking medications to control their high blood pressure.

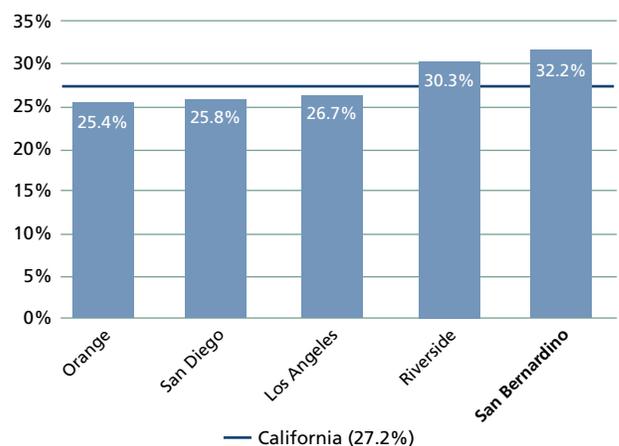
Percentage Ever Diagnosed with Asthma, by Age County Comparison, 2011-12



Percentage Ever Diagnosed with Diabetes County Comparison, 2011-12



Percentage Ever Diagnosed with High Blood Pressure County Comparison, 2011-12



Source: California Health Interview Survey

<sup>1</sup> Centers for Disease Control and Prevention ([www.cdc.gov/chronicdisease/overview/index.htm](http://www.cdc.gov/chronicdisease/overview/index.htm))

<sup>2</sup> The latest California Health Interview Survey (CHIS) prevalence data reflect adults surveyed in 2011 and 2012 and are referred to as “2011-12” data; previous CHIS prevalence data were collected in a single year.

# Gap Between Need and Care Continues to Narrow

## Description of Indicator

This indicator measures the number of poverty-level residents estimated to be in need of mental health services and the number of clients served by publicly-funded county mental health programs.

## Why is it Important?

Mental disorders are among the most common causes of disability. According to the National Institute of Mental Health (NIMH), in any given year, an estimated 13 million American adults (approximately 1 in 17) have a seriously debilitating mental illness. Mental health disorders are the leading cause of disability in the United States and Canada, accounting for 25% of all years of life lost to disability and premature mortality. Moreover, suicide is the 11th leading cause of death in the United States, accounting for the deaths of approximately 30,000 Americans each year.<sup>1</sup>

## How is San Bernardino County Doing?

Approximately 65,000 low-income residents of San Bernardino County were estimated to have a serious mental illness and need mental health services in 2012/13:

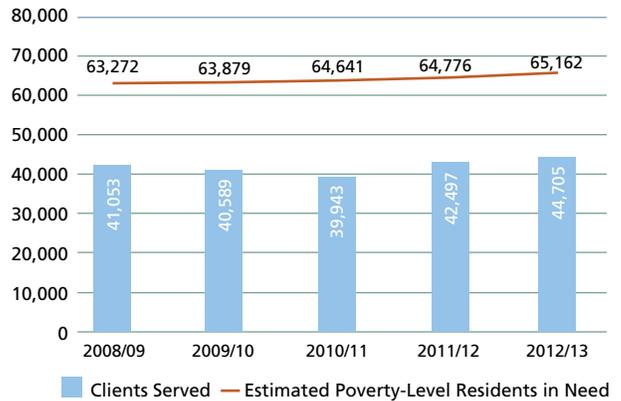
- An unduplicated count of 44,705 clients received public mental health services during 2012/13.
- In addition to public care, low-income residents may be using services provided by private health coverage or community nonprofit agencies, or they may not receive any care to meet their mental health needs.
- Due in part to increased funding, the gap between those in need and those receiving services is the lowest it has been since at least 2005/06 (the first year tracked in this report).
- Of the clients served during 2012/13, 36% were Latino, 36% were White, 17% were African American, 2% were Asian/Pacific Islander, 1% were Native American, and 8% were Other or unreported.
- Among clients receiving County services during 2012/13, more than a third (35% or a total of 15,678 clients) were children and youth ages 0-17.
- Approximately 12% of all clients were young adults between the ages of 18 and 24, while 42% were adults between ages 25 and 54, and 10% were 55 years or older.

### The Mental Health-Physical Health Connection

Mental health and physical health are closely connected. Mental illnesses, such as depression and anxiety, reduce one's ability to participate in health-promoting behaviors such as eating right, exercising, and minimizing use of alcohol and tobacco. In turn, problems with physical health, such as chronic diseases (see Chronic Disease), can have a serious impact on mental health and decrease a person's ability to participate in treatment and recovery. Mental health and substance abuse are also closely aligned (see Substance Abuse).

Source: Healthy People 2020 ([www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=28](http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=28))

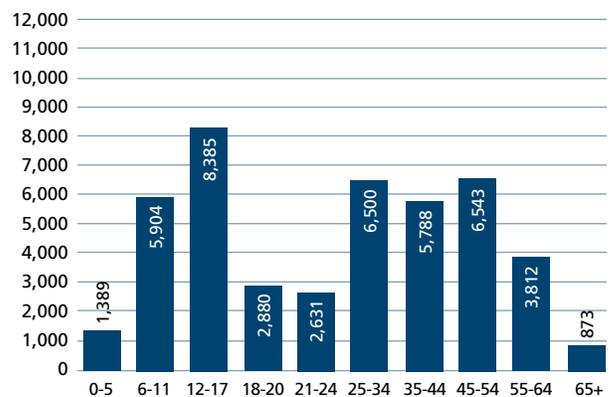
**Unduplicated Count of Clients Served by the Public Mental Health System and the Estimated Number of Poverty-Level Residents in Need of Mental Health Services**  
San Bernardino County, 2009-2013



Note: Residents in need is estimated based on 2007 California Department of Mental Health figures.

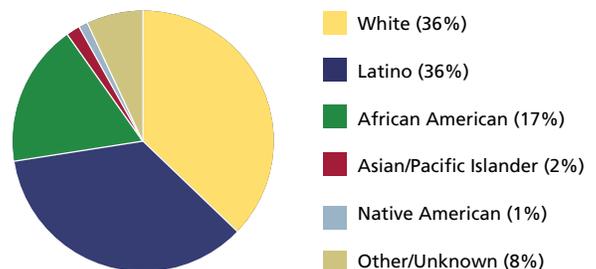
Sources: County of San Bernardino, Department of Behavioral Health, Client Services Information System; California Department of Mental Health, Persons in Need Tables ([www.dmh.ca.gov/Statistics\\_and\\_Data\\_Analysis/Total\\_Population\\_by\\_County.asp](http://www.dmh.ca.gov/Statistics_and_Data_Analysis/Total_Population_by_County.asp))

**Unduplicated Count of Clients Served by the Public Mental Health System, by Age**  
San Bernardino County, 2012/13



Source: County of San Bernardino, Department of Behavioral Health, Client Services Information System

**Unduplicated Count of Clients Receiving Public Mental Health Services, by Race/Ethnicity**  
San Bernardino County, 2012/13



Source: County of San Bernardino, Department of Behavioral Health, Client Services Information System

<sup>1</sup> Healthy People 2020 ([www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=28](http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=28))

# AOD Treatment Admissions Up; DUI Accidents Increase

## Description of Indicator

A variety of commonly used indicators are shown to help gauge the extent of alcohol and other drug (AOD) abuse. These include youth use of AOD, AOD-related deaths, admissions to treatment facilities, and serious (injury or fatal) alcohol-involved car collisions.

## Why is it Important?

A broad spectrum of public health and safety problems are directly linked to substance abuse, including addiction, traffic accidents, domestic violence, crime, unintended pregnancy, and serious conditions such as cancer, liver disease, HIV/AIDS, and birth defects. Youth who engage in underage drinking and substance abuse early are more likely to experience changes in brain development that may have life-long effects, including problems with memory and normal growth and development. Youth who start drinking before age 15 are five times more likely to develop alcohol dependence or abuse later in life than those who begin drinking at or after age 21.<sup>1</sup>

## How is San Bernardino County Doing?

More residents received AOD treatment in 2012/13:

- In the past year (2012/13), AOD-related admissions to county treatment facilities rose slightly (4%), but since 2008/09 admissions fell 23%, from a total of 6,750 admissions to 6,244 admissions.
- 20% of clients receiving AOD services also received county mental health services in 2012/13, while 44% have received mental health services in their lifetimes.<sup>2</sup>

There were more alcohol-involved accidents in 2012 than the previous year:

- In 2012, 12% of serious collisions in San Bernardino County involved alcohol, compared to 11% of collisions statewide.
- Between 2011 and 2012, alcohol-involved collisions rose 5% compared to no change statewide. However, since 2008, alcohol-involved collisions have fallen both in San Bernardino County (16%) and statewide (17%).

The drug-induced death rate has improved, while the rate of death for diseases associated with alcohol abuse has worsened:

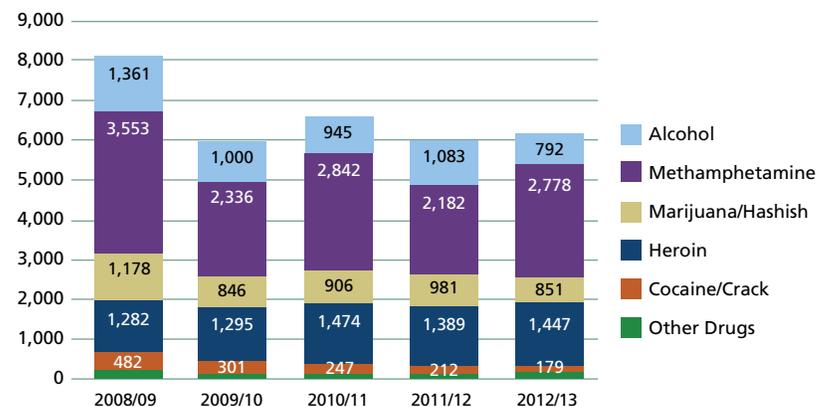
- San Bernardino County has fewer drug-induced deaths per capita than the statewide average.
- Deaths caused by chronic liver disease and cirrhosis, which are often associated with substance abuse, have worsened over the past five years and remain above the statewide average.<sup>3</sup>

### Youth Perception of Drinking

Nearly a quarter (22%) of youth in San Bernardino County reported in 2011/12 that occasionally getting drunk is okay as long as it does not interfere with academics, work or other responsibilities. The County of San Bernardino, Department of Behavioral Health engages in prevention activities that seek to educate youth on the dangers of alcohol use and binge drinking on development and social functioning.

Source: County of San Bernardino, Alcohol and Other Drugs Workgroup, Underage Attitude and Perception Survey

### Alcohol- and Drug-Related Admissions to County-Funded Treatment Services San Bernardino County, 2009-2013



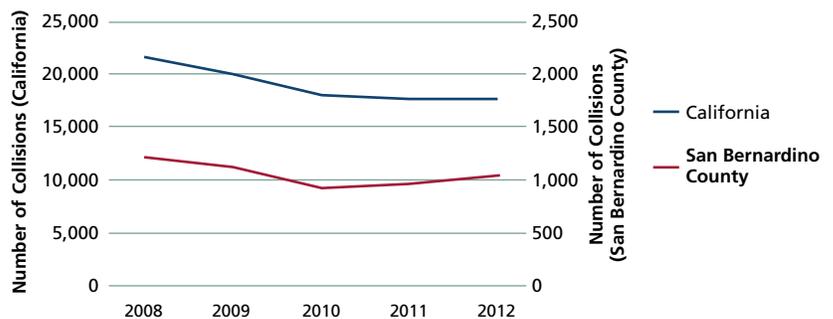
Source: County of San Bernardino, Department of Behavioral Health, CalOMS Dataset

### The Mental Health/Substance Abuse Connection

The relationship between mental health and substance dependence is often interconnected. More than 8.9 million people nationally are reported to have both mental health and substance abuse co-occurring disorders. When treated concurrently, treatments are found to be more effective. Treating the whole person improves wellbeing by leading to reductions in addiction relapse, reemergence of psychiatric symptoms, and utilization of crises intervention services.

Source: County of San Bernardino, Department of Behavioral Health

### Alcohol-Involved Serious Collisions San Bernardino County and California, 2008-2012



Note: Data have been revised since previously reported.

Source: California Highway Patrol (<http://iswitr.chp.ca.gov/Reports/jsp/OTSReports.jsp>).

<sup>1</sup> Centers for Disease Control and Prevention ([www.cdc.gov/alcohol/fact-sheets/underage-drinking.htm](http://www.cdc.gov/alcohol/fact-sheets/underage-drinking.htm))

<sup>2</sup> San Bernardino County CalOMS dataset

<sup>3</sup> See the Health Status indicator for more information on deaths due to substance abuse and other causes.

# Death Rates for Most Major Causes Continue to Decline

## Description of Indicator

This indicator reports mortality rates (age-adjusted deaths per 100,000 people) for common health status indicators and progress toward Healthy People 2020 objectives.<sup>1</sup>

## Why is it Important?

Comparing county data to statewide averages and national health objectives raises awareness of public health issues that are more or less pronounced in San Bernardino County. This information helps the development and prioritization of public health initiatives.

## How is San Bernardino County Doing?

The county achieved the national objectives for six out of 14 commonly measured causes of death:

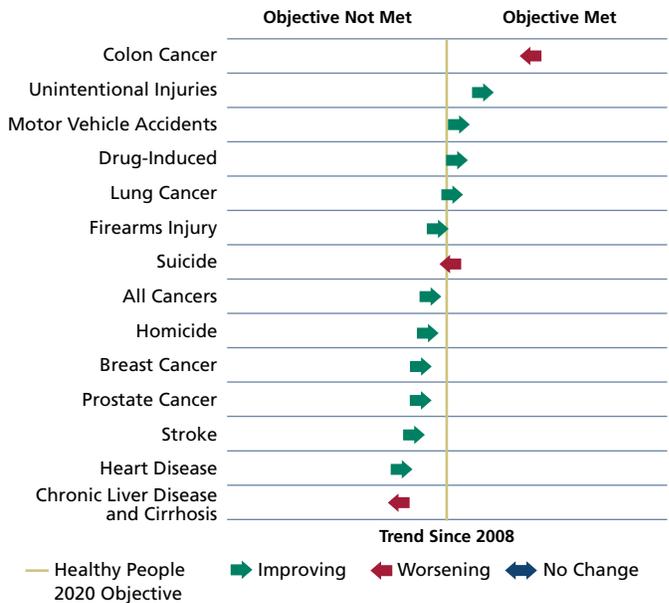
- In 2012, San Bernardino County met the Healthy People 2020 national objectives for the categories of colon cancer, unintentional injuries, motor vehicle accidents, drug-induced deaths, lung cancer, and firearm injuries.
- Death rates for all major causes, except colon cancer, diabetes, chronic liver disease/cirrhosis, and suicide have decreased over the past five years.
- The rates that have decreased the most over the past five years are influenza/pneumonia (38%) and motor vehicle deaths (31%).
- The county's death rates are higher than the state average for all causes compared except for unintentional injuries, drug-induced deaths, influenza/pneumonia, and Alzheimer's disease.

### Health Outcomes Rank Improving

The *County Health Rankings and Roadmaps*, published by the University of Wisconsin Population Health Institute and the Robert Wood Johnson Foundation, helps counties understand the influences on residents' health and longevity. San Bernardino County's ranking improved from 44th out of 56 California counties in 2013 to 40th in 2014 for overall Health Outcomes.

Source: *County Health Rankings and Roadmaps* ([www.countyhealthrankings.org](http://www.countyhealthrankings.org))

## Age-Adjusted Death Rates: Progress Toward 2020 Goals San Bernardino County, 2012



Note: Deaths due to Diabetes, Chronic Lower Respiratory Disease, Alzheimer's, and Influenza or Pneumonia do not have a Healthy People 2020 objective and are not included in this chart. Counties with varying age compositions can have widely disparate death rates because the risk of dying is mostly a function of age. To enable county comparisons, age-adjusted death rates, which control for this variability, are used rather than crude death rates.

Source: *California Department of Public Health, County Health Status Profiles* ([www.cdph.ca.gov/programs/ohir/Pages/CHSP.aspx](http://www.cdph.ca.gov/programs/ohir/Pages/CHSP.aspx))

## San Bernardino County Age-Adjusted Death Rate Ranking and Comparison to California Average, 2012

Rank	Cause of Death	Comparison to California Average
6	Unintentional Injuries	Better than California Average
12	Drug-Induced	Better than California Average
19	Influenza or Pneumonia	Better than California Average
20	Suicide	Same as California Average
26	Firearms Injury	Worse than California Average
27	Alzheimer's Disease	Better than California Average
27	Motor Vehicle Accidents	Worse than California Average
35	Lung Cancer	Worse than California Average
36	Stroke	Worse than California Average
36	Chronic Liver Disease and Cirrhosis	Worse than California Average
39	Homicide	Worse than California Average
43	All Cancers	Worse than California Average
49	Chronic Lower Respiratory Disease	Worse than California Average
50	Breast Cancer	Worse than California Average
50	Prostate Cancer	Worse than California Average
51	Heart Disease	Worse than California Average
54	Colon Cancer	Worse than California Average
58	Diabetes	Worse than California Average

Note: Ordered by San Bernardino County's rank among California counties (one is best, 58 is worst).

Source: *California Department of Public Health, County Health Status Profiles* ([www.cdph.ca.gov/programs/ohir/Pages/CHSP.aspx](http://www.cdph.ca.gov/programs/ohir/Pages/CHSP.aspx))

<sup>1</sup> See Prenatal Care for an explanation of Healthy People 2020. Data for causes of death reflect three-year averages (e.g., 2012 data is the average of 2010, 2011, and 2012).

# CalFresh and Medi-Cal Enrollment Rising

## Description of Indicator

This indicator measures San Bernardino County families' progress toward self-sufficiency and economic stability by tracking enrollment in core public assistance programs and the proportion of children living in low-income families, as measured by the number of children eligible for free or reduced-price school meals and by Census poverty data.

## Why is it Important?

The challenges associated with poverty make it hard for low-income families to obtain and maintain employment. These challenges include stress, strained family relationships, substandard housing, lower educational attainment, limited employment skills, unaffordable childcare, and transportation difficulties. Economic stability can have lasting and measurable benefits for both parents and children.

## How is San Bernardino County Doing?

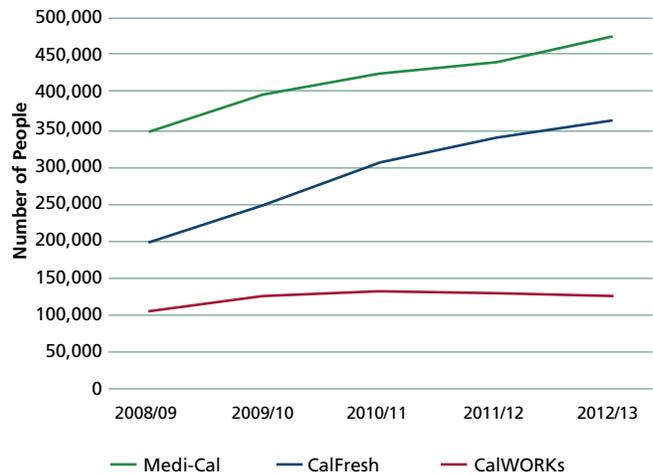
Public assistance enrollment trends varied:

- In 2013, the number of people enrolled in CalFresh (362,271) rose 7% in one year, while CalWORKs cash assistance enrollment fell slightly (-2%) to 125,374 recipients.
- Medi-Cal participation rose 8% to 470,453 participants.
- San Bernardino County is home to 4.8% of California's households; however, a disproportionate 7.4% of the 1.28 million California households receiving cash public assistance or CalFresh reside in San Bernardino County.<sup>1</sup>

Family poverty continues to grow:

- In 2012/13, 68.4% of K-12 public school students lived in families with incomes low enough to qualify for free or reduced price school meals, up slightly from 67.3% in 2011/12.
- A child is eligible if his or her family's income is below 185% of the poverty level (e.g., \$43,600 for a family of four in 2013).<sup>2</sup>
- Over the past 10 years, the number of eligible students has grown 27% in San Bernardino County, compared to 14% statewide. This rise is despite a 5% decline in student enrollment in San Bernardino County and a 4% decline in enrollment statewide over the same period.
- At 23.0%, nearly one-quarter of San Bernardino County families with children under age 18 live in poverty, a five-year increase of seven percentage points.<sup>1</sup>
- Fully 28.3% of all San Bernardino County children live in poverty while 17.3% of adults live in poverty.<sup>1</sup>
- The poverty level is roughly \$23,500 for a family of four.<sup>2,3</sup>

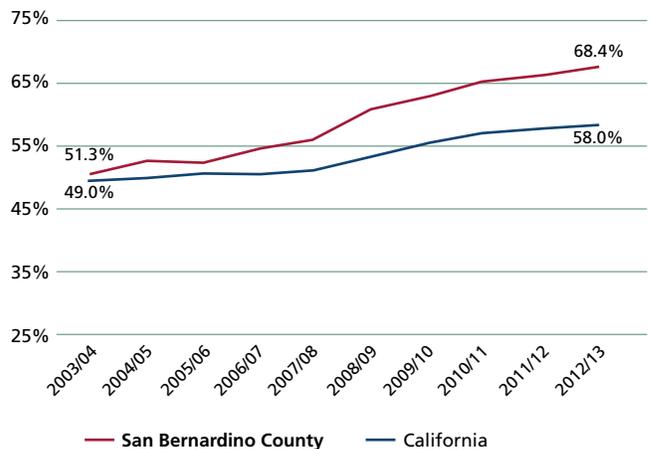
Enrollment in Major Public Assistance Programs San Bernardino County, 2009-2013



Note: CalFresh and Medi-Cal counts include all persons who receive Medi-Cal and CalFresh – both those who receive CalWORKs and those who do not.

Source: San Bernardino County Human Services

Children Eligible for Free or Reduced-Price School Meals San Bernardino County and California, 2004-2013



Source: California Department of Education, DataQuest (<http://data1.cde.ca.gov/dataquest/>)

## Program Descriptions

Most programs require income and asset limitations, as well as citizenship or permanent legal resident status. Other eligibility factors may apply such as county or state residency, age, or time in the program (time-limits).

**CalWORKs** provides cash benefits for the care of low-income children.

**CalFresh** (formerly Food Stamps) provides low-income households with assistance for the purchase of food.

**Medi-Cal** is a no-cost health care program for certain low-income populations. With full implementation of the Affordable Care Act, adults earning less than 138% Federal Poverty Level (FPL) are income eligible for Medi-Cal. Children under 18 who live in families earning below 250% FPL will be income eligible for Medi-Cal.

<sup>1</sup> American Community Survey, 2012 ([factfinder2.census.gov](http://factfinder2.census.gov))

<sup>2</sup> Health and Human Services Federal Poverty Guidelines 2013 (<http://aspe.hhs.gov/poverty/13poverty.cfm>)

<sup>3</sup> U.S. Census Bureau Poverty Thresholds 2013 ([www.census.gov/hhes/www/poverty/data/threshld/index.html](http://www.census.gov/hhes/www/poverty/data/threshld/index.html))

# Instability Grows for San Bernardino County Students

## Description of Indicator

This indicator measures San Bernardino County families' progress toward housing stability by tracking the availability of rental assistance and public housing, and the number of public school students who are homeless or lack stable housing arrangements.<sup>1</sup>

## Why is it Important?

Increasing rent or mortgage costs, foreclosure, loss of a job, or simply not having enough money to afford the high upfront costs of renting or buying are challenges that can force many families into living conditions they would not choose otherwise. Living doubled- or tripled-up due to economic constraints can place stress on personal relationships, housing stock, public services and infrastructure. When shared housing is not an option, the result can be homelessness.

## How is San Bernardino County Doing?

Due to high demand and low supply, most residents seeking a rent subsidy from their local Housing Authority will wait many years before the opportunity arises:

- As of March 2014, there were 14,938 households waiting for rental assistance.
- A monthly average of approximately 9,016 households currently receive assistance.
- The supply of rental assistance remains limited because housing authorities have not had the opportunity to apply to the federal government for additional housing vouchers since 2003. Funding cuts to the program further exacerbate the low supply.
- Demand is also higher than it appears because housing voucher waiting lists are closed to new applicants – sometimes for many years – until a Housing Authority has substantially worked through their list. If waiting lists were always open or recently opened, the waiting lists would be longer.
- In addition to rental assistance, demand for affordable public housing is 14 times higher than available supply.

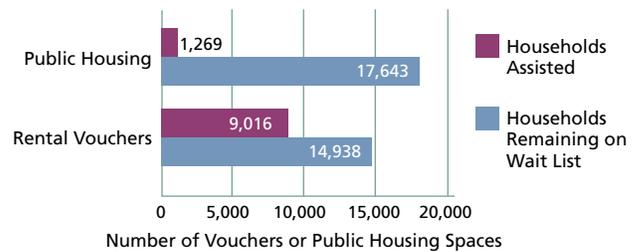
Housing instability continues to grow for school-age children:

- In the 2012/13 school year, 30,122 San Bernardino County students, mostly in K-12, were identified as homeless or lacking stable housing, representing 8.1% of total enrollment.
- Among students identified as homeless or lacking stable housing, 91% are living doubled- or tripled-up in a home, 5% live in shelters, 3% live unsheltered in cars, parks or campgrounds, and 2% live in motels.
- These figures represent an increase of 10% from the previous year and 88% over five years.
- On a per enrollment basis, San Bernardino County has more students who are homeless or lack stable housing than the California average and the Southern California counties compared.

### High Rents Contribute to Long Waiting Lists

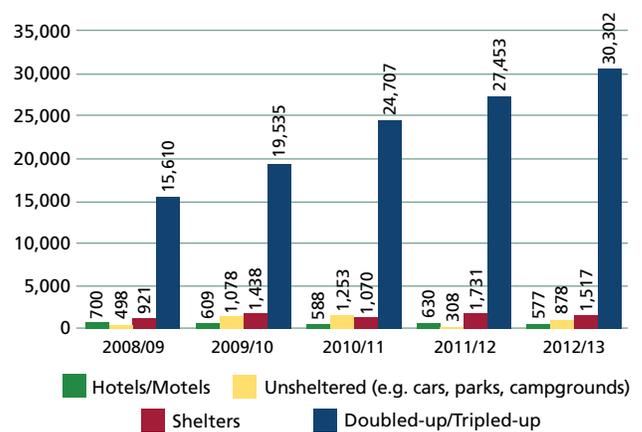
As detailed in the Rental Affordability indicator in the Economic and Business Climate section, rental costs in San Bernardino County are high, relative to the costs of owning a home. The current hourly wage needed to afford a one-bedroom apartment in San Bernardino County is \$16.96, whereas the minimum qualifying income to purchase a home priced at 85% of median (\$164,600), assuming 10% down, is equivalent to an hourly wage of \$11.34.

Supply and Demand of Rental Vouchers and Public Housing San Bernardino County, 2013



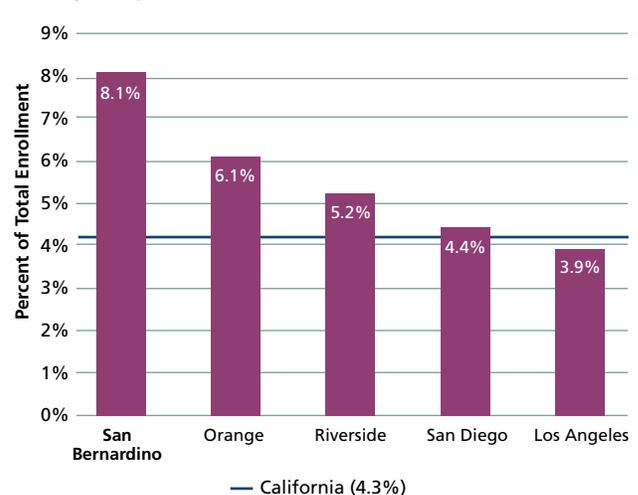
Sources: Housing Authority of the County of San Bernardino, Needles Housing Authority, and Upland Housing Authority

Primary Nighttime Residence of School-Age Students Identified as Homeless or Lacking Stable Housing San Bernardino County, 2009-2013



Source: California Department of Education, according to information provided by school districts on their Local Education Agency Reporting Form Title 1, Part A and Homeless Education Consolidated Application

Percentage of School-Age Students Identified as Homeless or Lacking Stable Housing County Comparison, 2012/13



Source: California Department of Education, according to information provided by school districts on their Local Education Agency Reporting Form Title 1, Part A and Homeless Education Consolidated Application

<sup>1</sup> Rental assistance and public housing data are for the three Housing Authorities serving San Bernardino County: Housing Authority of the County of San Bernardino, the Upland Housing Authority, and the Needles Housing Authority.

# More Children in Foster Care Placed with Relatives

## Description of Indicator

This indicator tracks confirmed child abuse and neglect reports (substantiated allegations), the number of children entering foster care, and the percentage of children maintaining their family connections while in foster care.

## Why is it Important?

Foster care placement is often the final act to protect children from abuse and neglect after attempts have been made to stabilize their families. In order to lessen the trauma associated with being removed from their parents, the goal is to place children with people who are familiar to them, such as relatives, extended family members and/or their siblings whenever possible. These placements not only promote emotional well-being, they also maintain family connections and the cultural and familial rituals to which the children are accustomed.

## How is San Bernardino County Doing?

Child abuse and neglect reports for San Bernardino County have increased for two consecutive years:

- In 2013, San Bernardino had 8.3 substantiated child abuse and neglect allegations per 1,000 children, which is in the middle among neighboring counties compared.
- Between 2012 and 2013, there was a 6% increase in the number of substantiated child abuse and neglect reports; however, over the past 10 years, reports fell 15%.

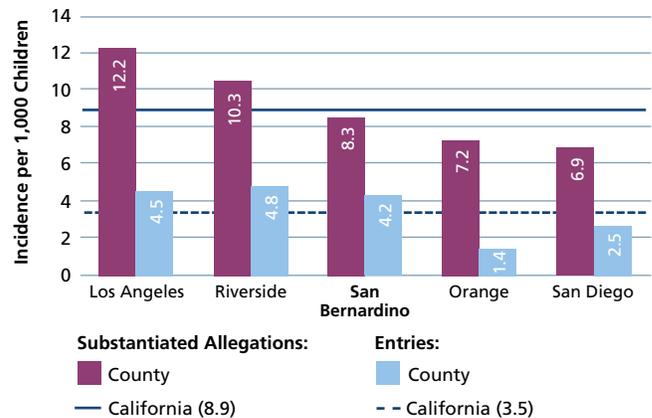
More children are entering the foster care system:

- The number of children entering foster care increased 13% between 2012 and 2013 – marking a 3% increase in the 10-year period between 2004 and 2013.
- At 4.2 per 1,000 children, San Bernardino County's rate of children entering foster care is lower than that of Los Angeles County (4.5) and Riverside County (4.8) but greater than the statewide average of 3.5 per 1,000 children and other counties compared.
- 51% of substantiated allegations in San Bernardino County resulted in foster care placement, a higher proportion than the state and all counties compared.

A larger percentage of children are being placed with relatives:

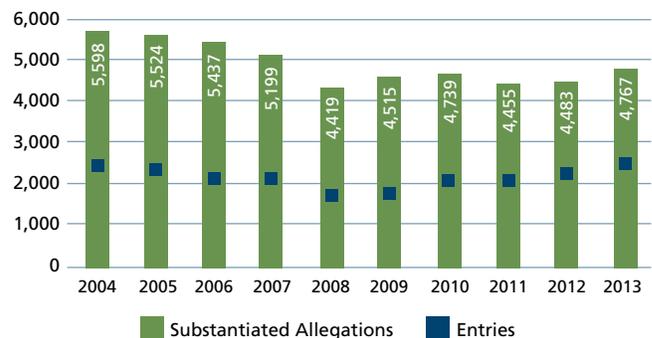
- As of January 2014, 37.6% of the children in foster care were placed with relatives, compared with 35.1% in 2013.
- At 37.6%, this rate of relative care placement is below the statewide average of 39.4%, but the trend is toward more children placed in relative care.
- Compared to the state as a whole, San Bernardino County places children with their siblings at a higher rate. In San Bernardino County, 78.7% of the children in foster care were placed with some of their siblings and 56.3% of the children were placed with all siblings (compared with statewide placement rates of 72.0% and 51.9%, respectively).

Substantiated Allegations and Entries to Foster Care County Comparison, 2013



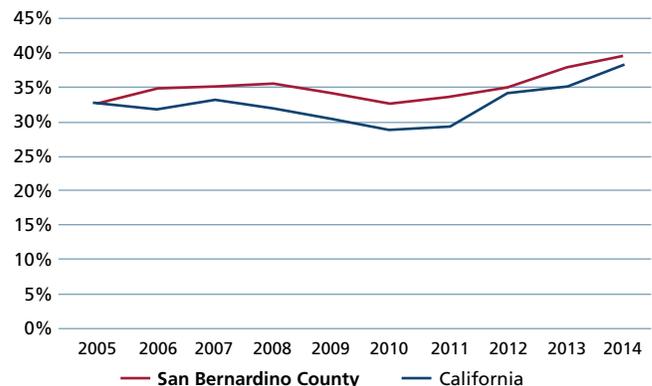
Source: University of California Berkeley, Center for Social Services Research, Child Welfare Research Center ([http://cssr.berkeley.edu/uch\\_cildwelfare/default.aspx](http://cssr.berkeley.edu/uch_cildwelfare/default.aspx))

Substantiated Allegations and Entries to Foster Care San Bernardino County, 2004-2013



Source: University of California Berkeley, Center for Social Services Research, Child Welfare Research Center ([http://cssr.berkeley.edu/uch\\_cildwelfare/default.aspx](http://cssr.berkeley.edu/uch_cildwelfare/default.aspx))

Percentage of Foster Youth Placed with Relatives San Bernardino County and California, 2005-2014



Source: University of California Berkeley, Center for Social Services Research, Child Welfare Research Center ([http://cssr.berkeley.edu/uch\\_cildwelfare/default.aspx](http://cssr.berkeley.edu/uch_cildwelfare/default.aspx))

## Helping San Bernardino County's Children Achieve Permanency

On average, children in foster care for less than 24 months tend to achieve higher rates of permanency, with 41.9% of San Bernardino County children exiting to adoption, guardianship or reunification. This is slightly higher than the statewide average of 41.3%. Of children in care for 24 months or longer, 27.6% of the children in San Bernardino County exit to adoption, guardianship or reunification, which is greater than the statewide average of 24.1%. Among the five Southern California counties compared, San Bernardino County ranks third highest for children in care 24 months or longer exiting to permanency and second highest for children in care less than 24 months exiting to permanency.



# public safety

Crime is down over the last decade, including recent decreases in juvenile arrests, homicides, and gang-related crime. The long-term impact of Prison Realignment in California remains to be seen. San Bernardino County probation officers are newly responsible for supervising certain classifications of offenders being released from state prison, or who previously would have been sentenced to state prison. Initial results show reductions in returns to custody (recidivism) for these lower-level offenders.

## *Local Programs Focus on Education and Resources*

*The San Bernardino County Probation Department is implementing dynamic new strategies for rehabilitation, and providing resources to combat recidivism. Three Adult Day Reporting Centers offer an array of educational and treatment resources, while field supervision officers provide the suppression efforts that deter re-offense.*

# Juvenile Arrests Drop 45% in Five Years

## Description of Indicator

This indicator tracks juvenile arrests and crime rate trends. Crimes included are violent felonies (homicide, forcible rape, robbery, and aggravated assault) and property felonies (burglary, motor vehicle theft, and larceny-theft). Also tracked is the initial impact of Realignment (AB109).

## Why is it Important?

Crime impacts both real and perceived safety. It can also negatively affect investment in a community if a neighborhood is considered unsafe.

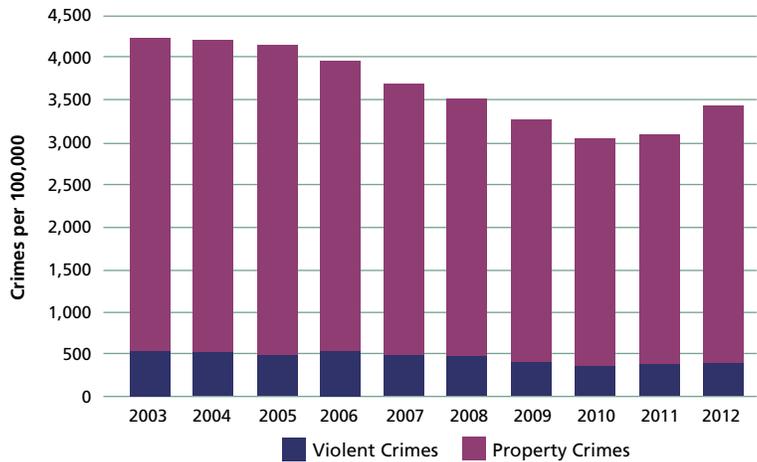
## How is San Bernardino County Doing?

The overall crime rate in the Riverside-San Bernardino metro area increased for the second year in a row:

- The violent crime rate increased by 4% between 2011 and 2012, while property crimes increased 7% during the same one-year period.
- Because property crimes account for the majority of crime, the overall crime rate increased nearly 7% between 2011 and 2012.
- However, over the past 10 years, reported crime in the Riverside-San Bernardino metro area dropped 20%, or an average of 2.4% per year.
- Riverside-San Bernardino ranks in the middle among neighboring and peer regions compared, and has a higher crime rate than the nation and the state.
- There was a 15% drop in the number of homicide victims in Riverside-San Bernardino between 2008 and 2012, falling from 209 victims in 2008 to 178 in 2012.

## Crime Rate

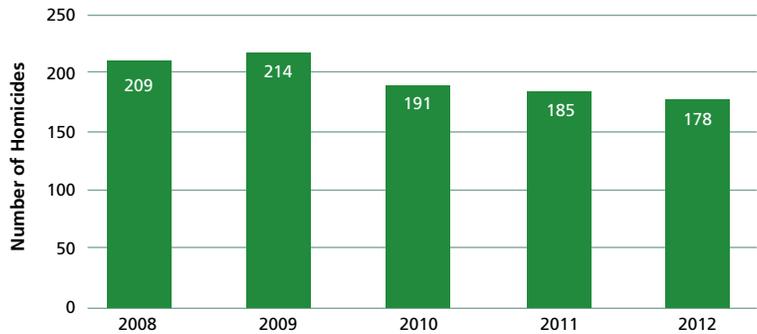
Riverside-San Bernardino, 2003-2012



Source: Federal Bureau of Investigation, Uniform Crime Reporting Program ([www.fbi.gov/ucr/ucr.htm](http://www.fbi.gov/ucr/ucr.htm))

## Victims of Homicide

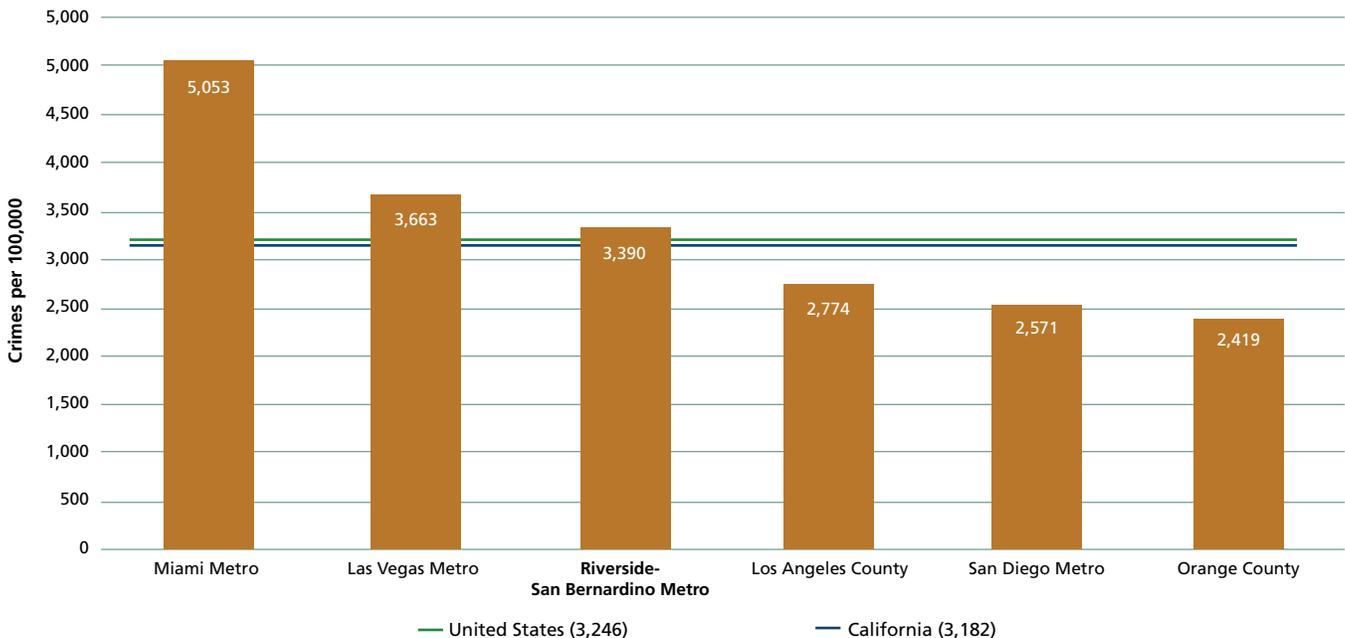
Riverside-San Bernardino, 2008-2012



Source: Federal Bureau of Investigation, Uniform Crime Reporting Program ([www.fbi.gov/ucr/ucr.htm](http://www.fbi.gov/ucr/ucr.htm))

## Crime Rate

Regional Comparison, 2012

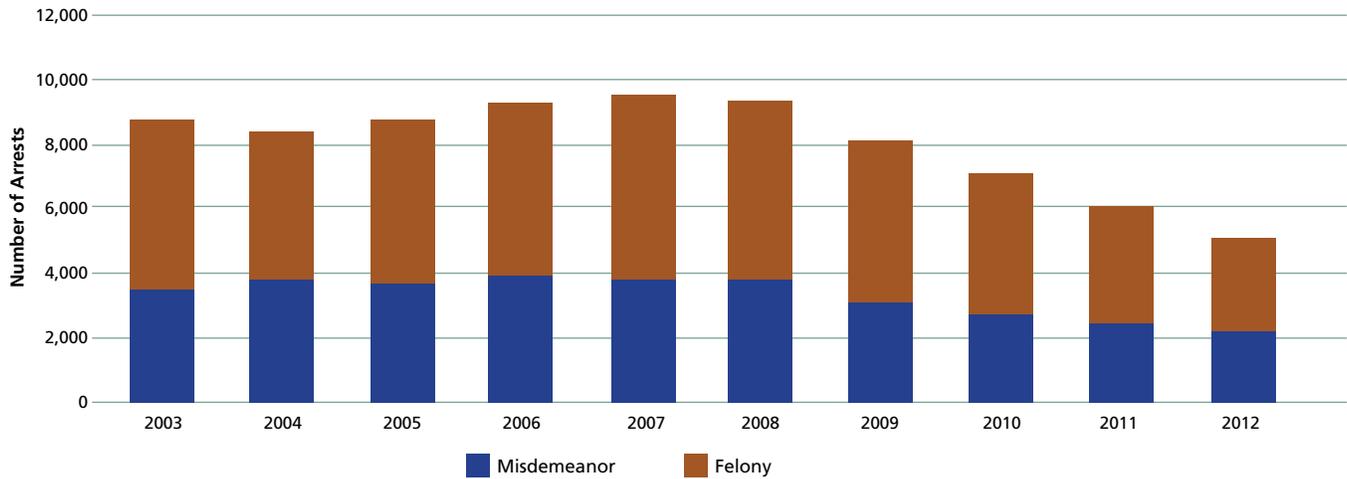


Source: Federal Bureau of Investigation, Uniform Crime Reporting Program ([www.fbi.gov/ucr/ucr.htm](http://www.fbi.gov/ucr/ucr.htm))

Juvenile arrests are down:<sup>1</sup>

- During the five-year period between 2008 and 2012, juvenile arrests in San Bernardino County dropped 45%, or an average of 14% each year.
- 42% of the juvenile arrests in 2012 were for misdemeanor charges.

**Juvenile Arrests**  
San Bernardino County, 2003-2012



Source: San Bernardino County Probation Department, Research Unit

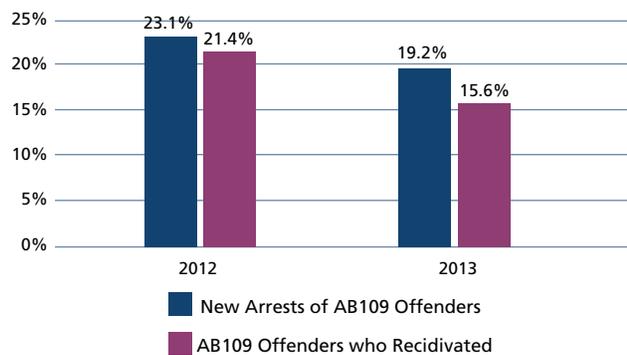
**Tracking Realignment in San Bernardino County**

In October 2011, Realignment legislation (Assembly Bill 109) went into effect. The goal of this legislation is to close the “revolving door” of low-level inmates cycling in and out of California’s state prisons by transferring responsibility to county governments for managing, supervising and treating certain felony offenders (referred to as AB109 offenders) who previously had been eligible for state prison and parole services. Prior to Realignment, the State Department of Corrections had an overall return to custody rate of 82.5% in San Bernardino County for the offender population that is now being supervised by the County Probation Department.

Initial data suggest that realignment has been effective in decreasing the overall return to custody (recidivism) rate:

- By December 2013, arrests for AB109 offenders decreased dramatically to 36.5% – and even lower (19.2%) when excluding technical violation arrests (technical violation arrests include circumstances that violate the terms of release, but do not constitute a new criminal violation of the law).
- Further, by December 2013, the rate of recidivism was 15.6%.

**Percentage of AB109 Offenders with New (Non-technical) Arrests and Percent Recidivating**  
San Bernardino County, 2012 and 2013



Source: San Bernardino County Probation Department

<sup>1</sup>Due to a change in the data source, the data presented are not comparable to the data presented in the 2013 San Bernardino County Community Indicators Report.

# Fewer Gang-Related Crime Filings

## Description of Indicator

This indicator measures gang-related crime filings, and the numbers of gangs and gang members as identified by law enforcement.<sup>1</sup>

## Why is it Important?

This indicator can help the community gauge the extent and nature of gang-related crime. It can aid policymakers in determining the effectiveness of programs to combat gang-related crime and the level of funding needed to support these programs.

## How is San Bernardino County Doing?

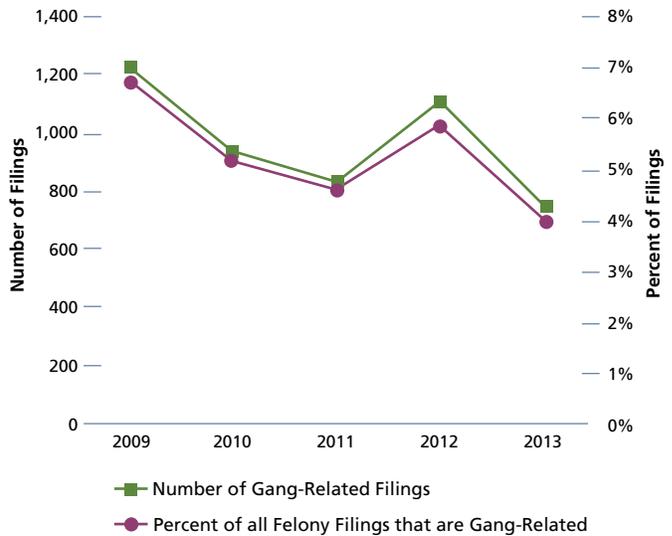
Gang-related filings are down:

- There were a total of 730 gang-related filings in 2013, a 34% decrease from 1,106 filings in 2012.
- In 2013, 29 of the filings against gang-related defendants were for homicide. This reflects a decrease in gang-related homicide filings from 40 in 2012 and 32 in 2011.
- In 2013, 29% of all homicide filings and 4% of all felony filings were gang-related.

In 2013, gang membership decreased:

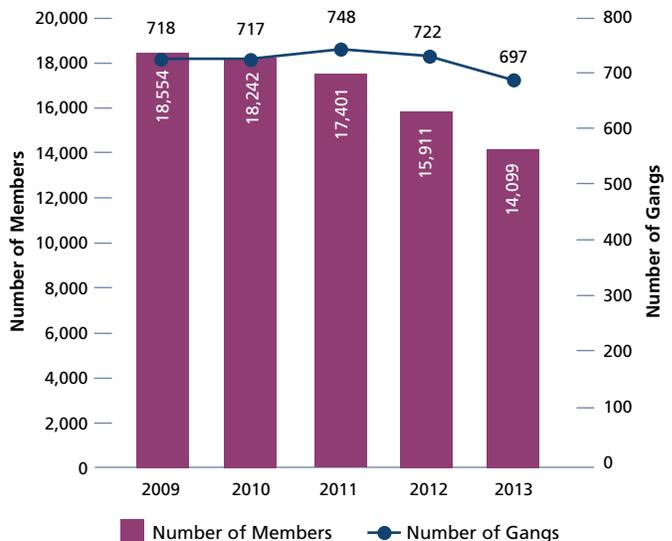
- There were 697 known gangs in San Bernardino County in 2013, below the five-year average of 720 gangs.
- The number of gang members has fallen 24% from 2009 to 2013.

**Gang-Related Filings**  
San Bernardino County, 2009-2013



Source: San Bernardino County District Attorney

**Gangs and Gang Membership**  
San Bernardino County, 2009-2013



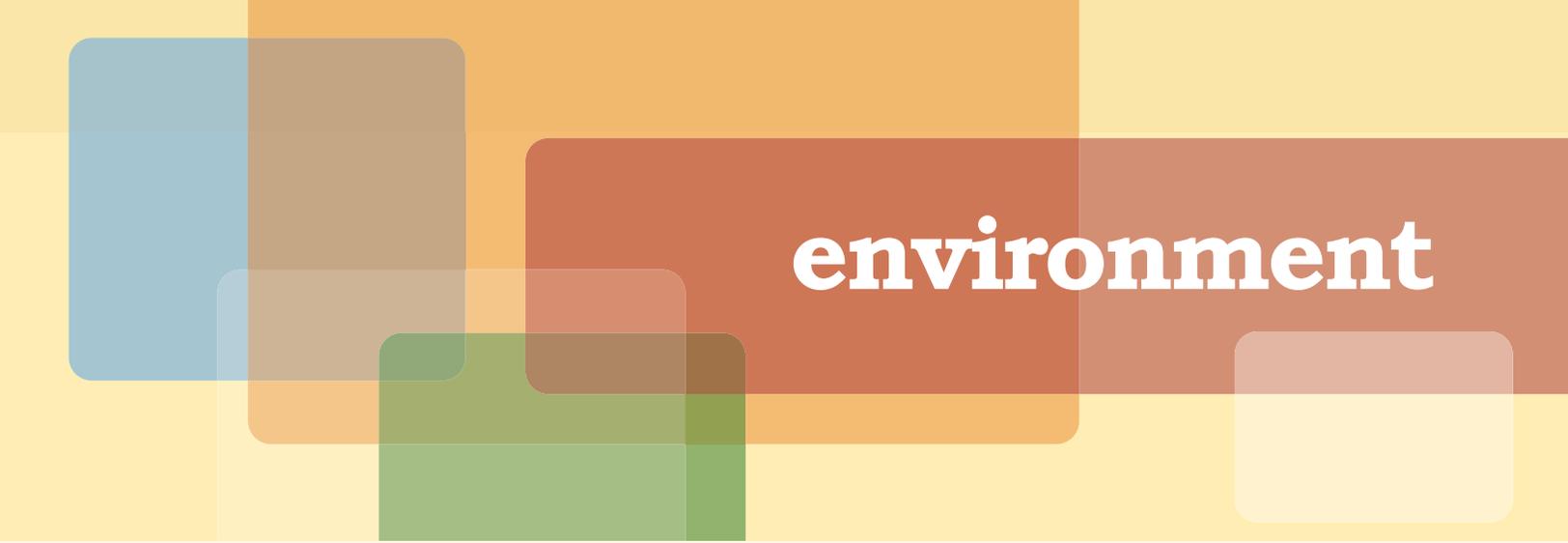
Source: San Bernardino County Sheriff's Department

### Working Together to Reduce Gang Violence

In an effort to address the root causes of youth joining gangs, the San Bernardino County Sheriff's Department collaborates with several organizations and initiatives countywide. Their goal is to reduce truancy, provide quality mentorship, and shrink the number of youth who join gangs. Participating programs include:

- *Let's End Truancy* – the District Attorney's program to identify the reasons for truancy and work with students and families to increase regular school attendance.
- *County School Attendance Review Board* – law enforcement staff and educators who meet monthly to review cases of extreme truancy, and to investigate best practices in dealing with the issue.
- *Child Welfare & Attendance/Safe Schools Unit* of San Bernardino County Schools – coordinates all the crime-fighting, truancy-fighting, and safety-related efforts of those involved in the local schools.
- *Pastors on Premises* – an informal network of local clergy who provide father figures and mentoring while walking campuses during school hours.
- *County Mentoring Network* – an umbrella group to help facilitate the efforts of all local mentors.
- *Gangs & Drugs Task Force* – an alliance of county stakeholders, primarily law enforcement staff and educators, who meet monthly to discuss solutions to local gang and drug concerns.
- *CleanSWEEP* – the Sheriff's school safety program that battles crime on campus at approximately 100 schools around the county by putting the tool of juvenile citation in the hands of specially trained administrators.

<sup>1</sup> A filing is a charging document filed with the superior court clerk by a prosecuting attorney alleging that a person committed or attempted to commit a crime.



# environment

The historic drought in California brought water conservation to the forefront again in San Bernardino County. The upside is water conservation efforts appear to be working with a 13% drop in water consumption throughout our communities. Additionally, our air quality has improved substantially in the past 30 years, but the county faces new challenges with the influx of industry and trucking and its impact on air quality. Programs to increase natural gas and electric trucks within fleets in the region are making a difference.

## *Incentives Help to Curb Water Use*

*The Mojave Water Agency in San Bernardino County's arid High Desert has achieved a 30% drop in per capita water consumption since 2000 with innovative programs such as "Cash for Grass," which has resulted in the elimination of more than 6.1 million square feet of turf. The agency plans a follow-up program targeting larger areas of turf at commercial, industrial, and institutional facilities.*

# Residential Installations Add Significant Solar Capacity

## Description of Indicator

This indicator assesses the percentage of electricity generated from renewable sources by San Bernardino County's electricity retailers.<sup>1</sup> It also measures grid-connected residential solar installations completed through the California Solar Initiative (CSI).

## Why is it Important?

Generating energy from domestic, renewable sources reduces a community's impact on the environment. It also addresses resource supply challenges from nonrenewable sources and contributes to national security. Increasing the proportion of electricity from carbon-neutral sources in San Bernardino County's energy portfolio may help the county meet statewide greenhouse gas reduction goals and improve air quality.

## How is San Bernardino County Doing?

In 2012, the percentage of electricity generated from renewable sources declined slightly for two out of the three utilities serving San Bernardino County that purchase or produce renewables:<sup>2</sup>

- Southern California Edison, which provides most of San Bernardino County's electricity, supplied 20% from renewable energy sources, down slightly from 21% in 2011.
- Colton Public Utility provided 5% renewable energy in 2012, down from 7% in 2011, but the utility has agreements in place or forthcoming to ensure compliance with renewable energy standards by 2017.
- For the past three years, 20% of Bear Valley Electric Service's portfolio was sourced to renewables.
- The 2012 California average was 20% renewable energy sources, while the U.S. average lagged behind at 11%.

San Bernardino County is among the top producers in the state of solar energy from residential installations:

- Solar installations by San Bernardino County residents added nearly 17,000 kilowatts to the electricity grid in 2013.
- At 805 kilowatts per 100,000 residents, San Bernardino County added more kilowatts of electricity from residential solar installations in 2013 than all California counties except Riverside County.

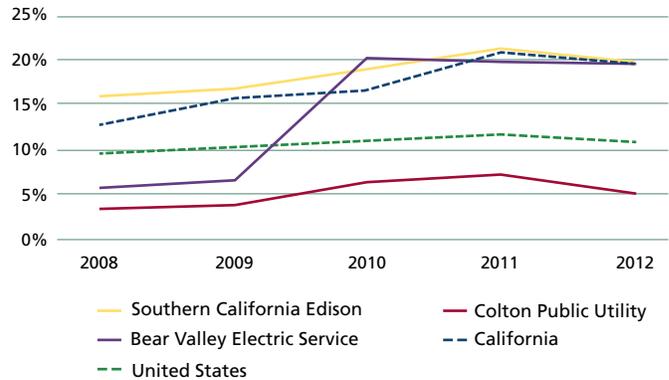
## Completed Grid-Connected Residential Solar Installations County Comparison, 2013

Region	Kilowatts per 100,000 Residents
Riverside	1,384
<b>San Bernardino</b>	<b>805</b>
San Diego	497
California	477
Orange	451
Los Angeles	289

Note: Figures represent kilowatts completed in 2013, not cumulative solar capacity.

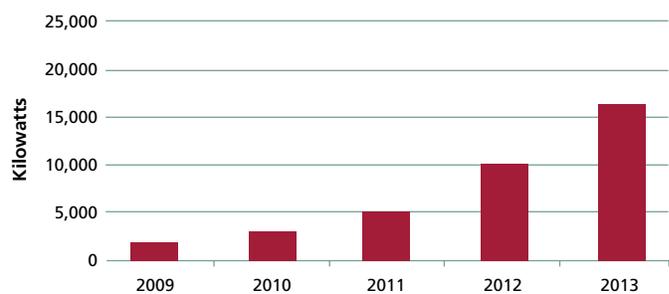
Sources: California Solar Statistics ([www.californiasolarstatistics.ca.gov](http://www.californiasolarstatistics.ca.gov)); California Department of Finance, Table E-2, July 2013 ([www.dof.ca.gov/research/demographic/reports/view.php](http://www.dof.ca.gov/research/demographic/reports/view.php))

## Electricity Generated from Renewable Sources San Bernardino County Utilities, California, and United States, 2008-2012



Sources: Bear Valley Electric Service; Colton Public Utility; Needles Public Utility Authority; Rancho Cucamonga Municipal Utility; Southern California Edison; Victorville Municipal Utilities; California Public Utilities Commission ([www.cpuc.ca.gov](http://www.cpuc.ca.gov)); U.S. Energy Information Administration ([www.eia.gov/renewable/data.cfm#summary](http://www.eia.gov/renewable/data.cfm#summary))

## Grid-Connected Residential Solar Installations Completed Annually San Bernardino County, 2009-2013



Source: California Solar Statistics ([www.californiasolarstatistics.ca.gov](http://www.californiasolarstatistics.ca.gov))

## Renewables Portfolio Standard

California's Renewables Portfolio Standard (RPS) program requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33% of total procurement by 2020. Intermediate targets are 20% between 2011-2013 and 25% from 2014-2016. Eligible renewable sources include geothermal, biomass and waste, wind, small hydroelectric, and solar. Non-eligible sources, such as large hydroelectric projects and customer-owned generation (e.g., rooftop solar panels), do not count toward the 33%.

Source: California Public Utilities Commission ([www.cpuc.ca.gov/PUC/energy/Renewables/overview.htm](http://www.cpuc.ca.gov/PUC/energy/Renewables/overview.htm))

## Residents Look to HERO to Help Fund Solar Power

In October 2013, the Home Energy Renovation Opportunity (HERO) Program began in San Bernardino County. HERO is a financing program that allows homeowners to make solar power, energy efficiency and water conservation improvements to their home with no upfront costs. The amount of the loan is paid back over time through an assessment on the homeowner's property tax bill. As of April 2, 2014, 273 residential solar projects have been installed over the life of the program, representing 1.7 megawatts of capacity.

Source: San Bernardino Associated Governments (SANBAG)

<sup>1</sup> Percentages provided include physical energy and Renewable Energy Certificates ([www.epa.gov/greenpower/gpmarket/rec.htm](http://www.epa.gov/greenpower/gpmarket/rec.htm)).

<sup>2</sup> Victorville Municipal Service (industrial and commercial customers only), Rancho Cucamonga Municipal Utility, and Needles Public Utility Authority currently do not have renewable energy specified in their portfolios.

# Air Quality Improves

## Description of Indicator

This indicator uses the Air Quality Index (AQI) to measure air quality in San Bernardino County, neighboring California counties and peer regions outside of California.

## Why is it Important?

Poor air quality can aggravate the symptoms of heart and lung ailments, including asthma. It can also cause irritation and illness among the healthy population. Long-term exposure increases the risks of lung cancer, cardiovascular disease, and many other health conditions. Poor air quality can also put children's lung development at risk.

## How is San Bernardino County Doing?

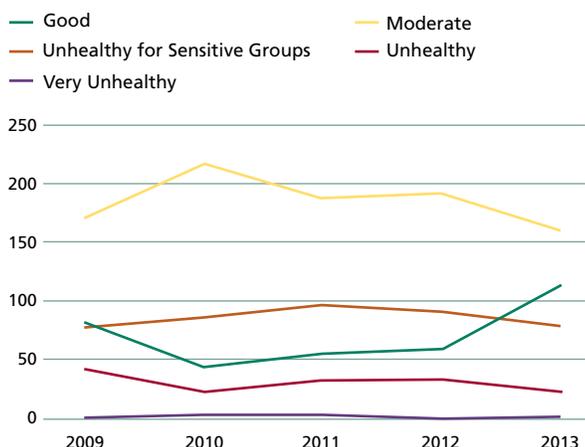
According to preliminary 2013 air quality data, San Bernardino County had more days of good air than the previous year:

- In 2013, 108 days had “good” air quality, compared to 57 “good” days in 2012.
- Most days (158) had “moderate” air quality.
- 79 days were considered “unhealthy for sensitive groups,” such as asthmatics (see Chronic Disease).
- 19 days were “unhealthy” and one day was “very unhealthy.”
- Air quality has improved substantially in the past 30 years, from a median AQI value of 119 in 1984 compared to the 2013 median of 69.<sup>1</sup>
- Compared to air quality in neighboring and peer regions, San Bernardino County falls in the middle, with Los Angeles County having the fewest days of good air and Miami having the most.

## Air Quality Index

### San Bernardino County, 2009-2013

Number of Days When Air Quality Was...



Note: These data, accessed April 17, 2014, are not comparable to data presented in the 2013 Community Indicators Report. The 2014 report uses a different data source which includes the two air basins in San Bernardino County.

Source: U.S. Environmental Protection Agency, Air Data ([www.epa.gov/airdata/ad\\_rep\\_aqi.html](http://www.epa.gov/airdata/ad_rep_aqi.html))

<sup>1</sup> U.S. Environmental Protection Agency, Air Data ([www.epa.gov/airdata](http://www.epa.gov/airdata))

## Air Quality Index

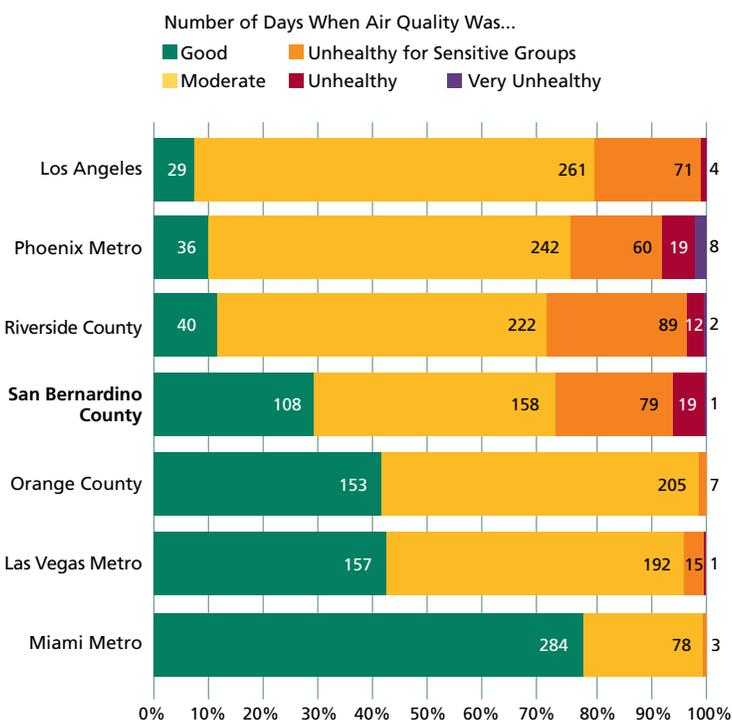
The Air Quality Index is calculated for ground-level ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide. The number 100 corresponds to the national air quality standard for the pollutant.

AQI Values	Health Categories
0 - 50	Good
51 - 100	Moderate
101 - 150	Unhealthy for Sensitive Groups
151 - 200	Unhealthy
201 - 300	Very Unhealthy
301 - 500	Hazardous

Source: U.S. Environmental Protection Agency (<http://airnow.gov/>)

## Air Quality Index

### Regional Comparison, 2013



Note: These data are based on hourly monitor data to assess air quality, resulting in more days of unhealthy air than data that is used by air quality management districts for regulatory compliance, which uses 24-hour monitor values. The 2013 data were accessed April 17, 2014 and are considered preliminary.

Source: U.S. Environmental Protection Agency, Air Data ([www.epa.gov/airdata/ad\\_rep\\_aqi.html](http://www.epa.gov/airdata/ad_rep_aqi.html))

## Clean Air Transportation on the Rise

Natural gas and electric vehicles – ranging from passenger vehicles to transit and school buses, and even heavy-duty trucks – are now traveling the roads and highways of the Inland Empire on a daily basis. Companies like A-Z Bus in Colton and Agility Fuel Systems in Fontana are part of a growing “clean air” transportation industry, improving air quality while saving money on fuel and maintenance costs. Alternative fuel infrastructure is growing quickly in the region to meet the demands of this expanding fuel-diverse industry, with natural gas stations at venues such as Ontario Airport and the San Bernardino County fleet yard. Electric infrastructure is soon to appear at local malls and is already in use at UPS’s San Bernardino facility which operates 40 zero-emission electric trucks.

## Solid Waste Disposal Declines

### Description of Indicator

This indicator measures the tons of commercial and residential solid waste generated in San Bernardino County and destined for disposal in County and out-of-County landfills. It also measures the pounds of household hazardous waste (such as oil, paint, and batteries) collected and the number of annual participants in the Household Hazardous Waste (HHW) program.

### Why is it Important?

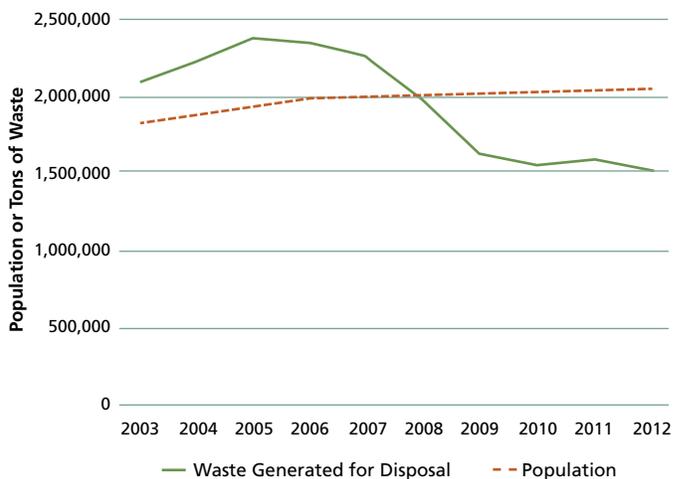
Reducing solid waste production and diverting recyclables and green waste extends the life of landfills, decreases the need for costly alternatives, and reduces environmental impact. Since 2000, all jurisdictions in California are required by law to divert 50% of waste away from landfills through source reduction, recycling, and green waste composting. Collection of household hazardous waste helps protect the environment and public health by reducing illegal and improper HHW disposal. “Universal waste” – such as electronics, thermostats, batteries, and fluorescent tubes – is produced by nearly all households and businesses, and contains hazardous chemicals or metals that can harm the environment. This type of waste accounts for an increasing proportion of HHW collected and raises the cost of collection.

### How is San Bernardino County Doing?

Solid waste disposal remains below the 10-year average:

- In 2012, waste generated and disposed by San Bernardino County residents fell slightly, from 1.6 million tons of waste in 2011 to 1.5 million tons in 2012.
- Waste disposal remains down 36% since the peak in 2005, and down 29% over the past 10 years.
- Meanwhile, San Bernardino County’s population grew an estimated 12% since 2003, suggesting that in the face of population growth, economic factors and diversion programs are driving the decline.
- Preliminary 2012 waste diversion data indicate that all 25 jurisdictions (24 cities and the County of San Bernardino) met both their population-based and employment-based disposal rate targets.<sup>1</sup>
- The number of households bringing HHW to regional collection centers fell slightly in 2012/13 as did the number of pounds collected. Each participating household contributed an average of 69 pounds of HHW.

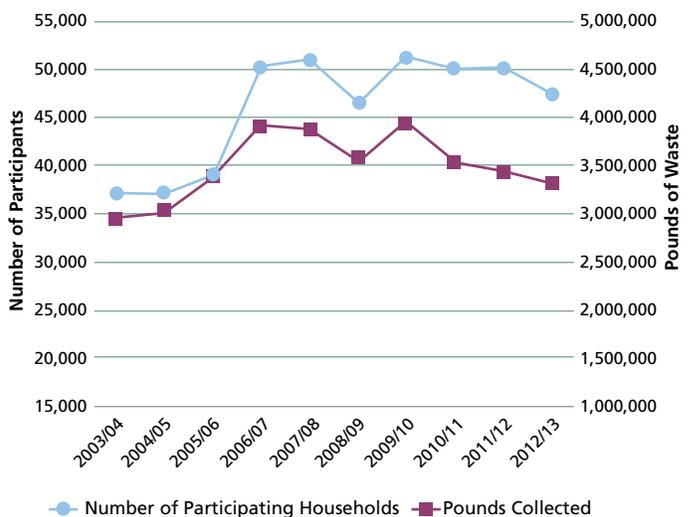
Solid Waste Generated for Disposal Compared to Population Growth San Bernardino County, 2003-2012



Note: Solid waste generated for disposal includes cities and unincorporated areas.

Sources: San Bernardino County Department of Public Works; California Department of Finance, Table E-2 ([www.dof.ca.gov](http://www.dof.ca.gov))

Household Hazardous Waste San Bernardino County, 2004-2013



Note: Chart includes San Bernardino County unincorporated areas and all cities except Fontana.

Source: San Bernardino County Fire Department

<sup>1</sup> CalRecycle, Countywide, Regionwide, and Statewide Jurisdiction Diversion/Disposal Progress Report ([www.calrecycle.ca.gov/LGCentral/Reports/jurisdiction/diversiondisposal.aspx](http://www.calrecycle.ca.gov/LGCentral/Reports/jurisdiction/diversiondisposal.aspx))

# Illegal Dumping Reports Decrease Again

## Description of Indicator

This indicator measures stormwater quality management in the Santa Ana River and Mojave River watersheds by tracking reports of illegal discharges of pollutants (such as paint or motor oil) into surface waterways and storm drains. Also measured are enforcement actions and facility inspections.

## Why is it Important?

Stormwater pollution refers to urban water runoff that picks up pollutants as it flows through the storm drain system – a network of channels, gutters and pipes that collects rain and snowmelt. Eventually, the untreated water empties directly into local rivers and lakes. Pollutants in stormwater runoff, such as litter, pet waste, motor oil, anti-freeze, pesticides, fertilizers, and toxic household chemicals, can have serious implications. They can contaminate local drinking water supplies and have detrimental impacts on the local environment and wildlife. Trash and debris accumulated in catch basins may create foul odors and attract pests. Flooding may also occur due to blocked storm drains during heavy rain events. Effective stormwater management reduces pollution, blocked drains and flooding.

## How is San Bernardino County Doing?

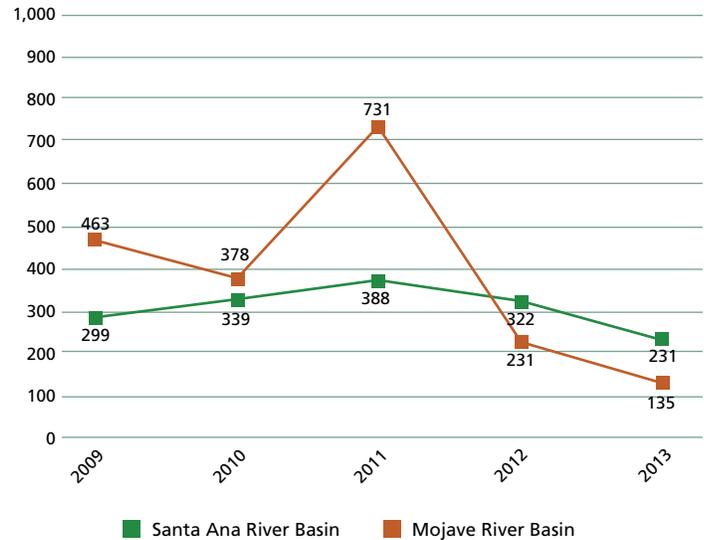
Both watersheds reported fewer illegal discharge, dumping and spill events:

- There were 231 illegal discharge reports in 2013 in the Santa Ana River watershed.
- While the number of reports varies from year-to-year, this year marks a 14% decline in reports since 2004.
- In the Mojave River watershed, there were 135 illegal discharge reports in 2012 – the lowest number of reports since tracking began in 2008.
- Of the illicit discharges in the two watersheds, a combined total of 201 illegal discharges required enforcement action, such as a notice of violation or fines. This equates to 55% of all illegal discharges reported.
- In the Santa Ana River basin, San Bernardino Areawide Stormwater Program members conducted 4,780 inspections of industrial and commercial facilities and construction sites. Of this total, 1,790 inspections (37%) resulted in deficiencies.
- In the Mojave River basin, Mojave River Watershed Group members conducted 132 inspections of active construction sites. Of this total, four inspections (3%) resulted in the site having to take corrective action.

### What Factors Contribute to Illegal Discharge Reporting?

Increases in reports of illegal discharges can be attributed to population growth and greater public awareness that leads to more incident reporting, while decreases can be attributed to fewer severe weather events leading to debris blockage and improved public compliance with posted signs and laws related to dumping.

**Stormwater Quality: Illegal Discharge, Dumping and Spill Events in the Santa Ana and Mojave River Basins (San Bernardino County portions), 2009-2013**



Note: Data for Mojave River Basin are not available prior to 2008. The high number of reports in the Mojave River Basin in 2008 is due in part to an unusually large number of debris reports.

Source: San Bernardino County Flood Control District Stormwater Program, Annual Report; Mojave River Watershed Group Small MS4 General Permit Annual Report

### The ABCs of NPDES MS4

Polluted stormwater runoff can be washed into Municipal Separate Storm Sewer Systems (MS4s, or commonly known as storm drains). Owners of storm drains – such as a state, county, city, or other public entity – must obtain a National Pollutant Discharge Elimination System (NPDES) permit to develop and implement programs to help prevent harmful pollutants from being washed into local bodies of water. In San Bernardino County, public entities work together under two separate MS4 permits. The *San Bernardino Areawide Stormwater Program* – consisting of the County, Flood Control District, and all 16 cities in the area (Big Bear Lake, Chino, Chino Hills, Colton, Fontana, Grand Terrace, Highland, Loma Linda, Montclair, Ontario, Rancho Cucamonga, Redlands, Rialto, San Bernardino, Upland, and Yucaipa) – works to protect the Santa Ana River watershed. The *Mojave River Watershed Group* – consisting of the County and the three cities in this basin (Apple Valley, Hesperia, and Victorville) – works to protect the Mojave River watershed. The public entities within each group work cooperatively to comply with complex regulations that require extensive multi-agency collaboration and numerous initiatives to effectively reduce pollutants from urban runoff.

# 13% Decline in Water Consumption Over the Past Five Years

## Description of Indicator

This indicator measures average urban (residential and commercial) water consumption in gallons per capita per day from a selection of water agencies serving San Bernardino County.<sup>1</sup>

## Why is it Important?

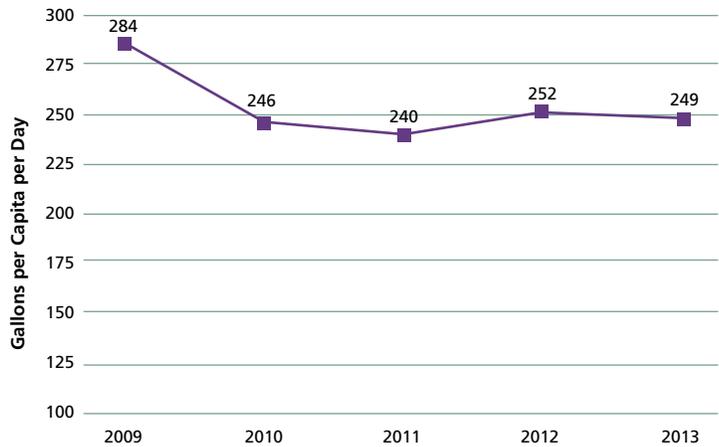
Given San Bernardino County's arid climate, effective water management is essential to ensure that the county has an ample water supply now and in the future. Conservation is also now law. In November 2009, the state legislature passed SB X7-7 requiring an approximate 20% reduction in per capita usage by 2020.

## How is San Bernardino County Doing?

In 2013, average water consumption fell slightly:

- The average water consumption per person was 249 gallons a day for the agencies sampled.<sup>2</sup>
- Per capita water consumption varied from a high of 433 gallons per capita per day (GPCPD) to 136 GPCPD, depending on the agency.
- Part of the large variation can be explained by higher GPCPD figures in areas with high levels of tourism, since visitor population estimates are not included in the daily per capita water consumption calculation.
- Since 2009, when SB X7-7 was enacted, per capita water usage among the sampled San Bernardino County water agencies has decreased 13%.
- Compared to neighboring counties, San Bernardino County's average of 249 gallons per capita per day in 2013 is higher than Orange County at 172 GPCPD in 2012 and Riverside County at 241 GPCPD in 2012.<sup>3</sup>

Average Urban Water Consumption in Gallons per Capita per Day for Selected Water Agencies Serving San Bernardino County, 2009-2013



Note: Due to variation in the water agencies providing data, these summary water demand statistics are not comparable to data presented in previous Community Indicators reports.

Sources: Water demand and service population data is provided by Mojave Water Agency (which includes Mojave Basin Area, State Water Project Deliveries, and Morongo Basin Area), Twentynine Palms Water District, Inland Empire Utilities Agency (which includes the Cucamonga Valley Water District, Fontana Water Company, and the City of Ontario), City of Big Bear Lake Department of Water and Power, City of San Bernardino Valley Municipal Water Department. Acre-foot to gallons conversion data is from Minco ([www.minco.com/tools/unit-calculator.aspx](http://www.minco.com/tools/unit-calculator.aspx))

<sup>1</sup> Due to the many independent water agencies serving San Bernardino County, a countywide water consumption figure is not available. Data were provided by a sampling of agencies serving the larger geographic or population centers in the county.

<sup>2</sup> Together, the water agencies sampled in San Bernardino County serve approximately 1,252,000 residents, or 60% of the total county population.

<sup>3</sup> The figure for Orange County encompasses the entire county; the figure for Riverside County reflects a sample of five agencies serving approximately 45% of the total population.

# community life

San Bernardino County remains one of the most affordable places to live in Southern California, with ready access to mountain resorts, regional parks and desert getaways. The county boasts some of the region's most prestigious universities and schools, along with plentiful resources to assist residents with employment and human services. Still, many residents struggle. While the population of veterans in the county is declining, the number of applications for federal benefits handled by the County's Department of Veterans Affairs rose 128% in the past 10 years. About a quarter of veterans returning from Iraq and Afghanistan suffer from mental health conditions that often coexist with traumatic brain injuries.

## *Helping Veterans Maximize their Skills in Civilian Service*

*San Bernardino County Department of Veterans Affairs generated more than \$53 million dollars in federal benefit payments last year for our veterans and is exploring ways veterans can put to good use the skills and resiliency honed in military service into serving our community.*

# Employment Resource Centers Serve Over 50,000 Residents

## Description of Indicator

This indicator summarizes amenities available to residents including airports, hospitals, college and career institutions, employment resource centers, family resources, and recreational lands and facilities.

## Why is it Important?

San Bernardino County's community amenities contribute to a high quality of life. The county's natural environment and vast open space offers residents a variety of opportunities for entertainment, exercise and relaxation. This, in turn, contributes to a strong sense of place and affords many residents a rural lifestyle. Access to airports provides ease of travel and supports the region's economic vitality. The availability of medical facilities and resources for families with young children plays an important role in the health of the populace, while college and career training institutions and employment resource centers contribute to an educated workforce and higher standard of living. Additionally, many of these community attributes provide job opportunities for the county's residents.

## How is San Bernardino County Doing?

### Airports

The trends of increasing freight traffic and declining passenger traffic continued at Ontario International Airport in 2013:

- Seven passenger airlines and six freight carriers operate out of Ontario International Airport.
- The amount of freight transported at Ontario International increased slightly, rising 1% in 2013 to 460,535 tons. This represents the fourth consecutive year of increases in freight traffic, which is up 18% since 2009.
- In contrast, passenger volume in 2013 declined 8% to 3,969,974 passengers. This is on top of a 5% decrease in passenger traffic the previous year.
- Passenger traffic at Ontario International Airport has declined 45% since the peak in 2005 of over 7.2 million passengers.

Additional airport resources serve area residents:

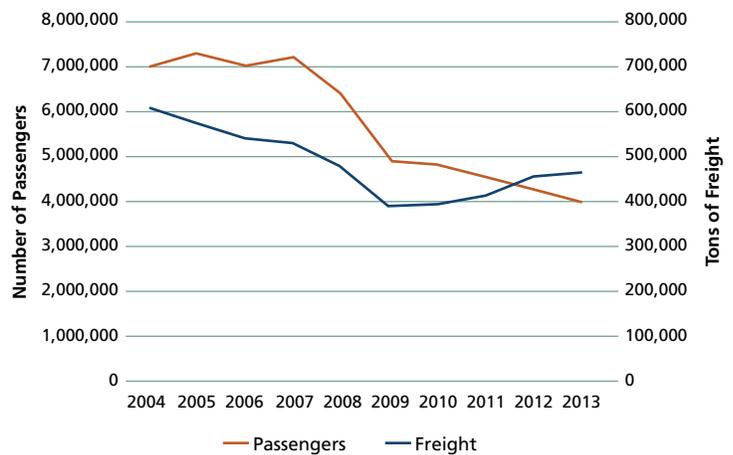
- The San Bernardino International Airport has over 25,000 annual flight operations comprised mainly of charter, corporate, and general aviation users.
- Six County-owned airports are located strategically throughout the county (Apple Valley Airport, Baker Airport, Barstow-Daggett Airport, Chino Airport, Needles Airport, and Twentynine Palms Airport).

### Hospitals and Medical Facilities

There are 26 hospitals serving residents and visitors to San Bernardino County:

- Two of the hospitals are trauma centers, including Loma Linda University Medical Center (Level I trauma center) and Arrowhead Regional Medical Center (Level II trauma center).<sup>1</sup>
- Arrowhead Regional Medical Center (ARMC) operates three community Family Health Centers for primary care, and a regional Burn Center serving San Bernardino, Riverside, Inyo and Mono counties.

Volume of Passengers and Freight  
Ontario International Airport, 2004-2013



Note: Freight totals include U.S. mail.

Source: Los Angeles World Airports ([www.lawa.org](http://www.lawa.org))

### San Bernardino County is Baby-Friendly!

San Bernardino County is home to 10 Baby-Friendly hospitals, more than any other county in California. Baby-Friendly hospitals promote breastfeeding over formula feeding, and couplet care (keeping parents and infants together at all times from birth through discharge to promote bonding). First 5 San Bernardino was the organization that initially championed this cause, funding the effort to support San Bernardino County hospitals in becoming certified as Baby-Friendly.

<sup>1</sup> Level I Trauma Centers provide the highest level of surgical care to trauma patients, and have formal research and education programs related to trauma care. Level II Centers participate in an inclusive system of trauma care, working collaboratively with Level I Centers to provide trauma care and supplement the clinical expertise of a Level I institution.

**Universities, Colleges, and Career Training**

San Bernardino County offers residents many opportunities for college and career training, serving the educational needs of the county and developing a strong workforce:

- Within San Bernardino County there are multiple universities and colleges, including University of Redlands, California State University/San Bernardino, Loma Linda University, and University of La Verne College of Law.
- Community Colleges in the county include Barstow, Chaffey, Copper Mountain, Crafton Hills, Palo Verde Community College/Needles Campus, San Bernardino Valley, and Victor Valley.
- In addition, there are numerous private career and technical educational institutions that offer certificates and degrees.
- The indicators Career Preparation, Educational-Occupational Match, and STEM-Related Degrees (within the Education section) assess key aspects of post-secondary education in the region and how this supports the local economy.

**Employment Resource Centers**

Employment Resource Centers offer a range of free services aimed at helping county residents enter the workforce, including career counseling, job searches, skill and aptitude assessments, and occupational training:

- San Bernardino County’s Workforce Investment Board (WIB) operates three Employment Resource Centers located in the East Valley (San Bernardino), West End (Rancho Cucamonga), and High Desert.
- In 2013, the Employment Resource Centers served a total of 51,423 residents.
- Of the residents served, 19,334 accessed services at the East Valley Center, 16,221 at the West End Center, and 15,868 at the High Desert Center.

Employment Resource Centers also benefit business customers through customized recruitment services and easy access to a large pool of pre-screened job applicants:

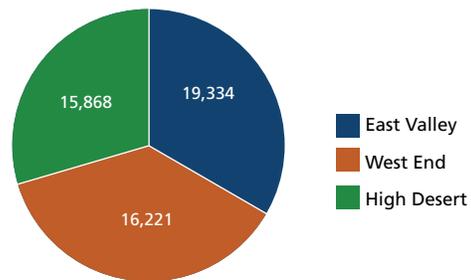
- In 2013, 10,567 job listings were posted to the Workforce Investment Network.
- Over 8,114 services were provided to employers including 16 business workshops and 116 job fairs or recruitment events.
- In 2013, the WIB executed 110 on-the-job training contracts, which provided on-site employee training programs for local businesses.

**Recreational Facilities**

The county is known for its many recreational facilities, which offer both warm and cold weather activities:

- San Bernardino County is home to the Mojave National Preserve along with portions of Joshua Tree National Park and Death Valley National Park.
- San Bernardino National Forest offers year-round outdoor opportunities with nearly 677,000 acres of open space spanning San Bernardino and Riverside counties. A portion of Angeles National Forest also lies within the county boundaries.
- There are more than 100 diverse outdoor recreational opportunities, including regional and local parks, golf courses, numerous fairs, and a silver mining ghost town.
- Multiple arts venues include performing arts and concert facilities, along with major museums, such as the Robert and Frances Fullerton Museum of Art, the San Bernardino County Museum, and the Planes of Fame Air Museum.
- San Bernardino County also has three professional minor league baseball teams: the Rancho Cucamonga Quakes, the Inland Empire 66ers, and the High Desert Mavericks.
- The Auto Club Speedway in Fontana offers world-class NASCAR and Indy car races, and the Glen Helen Raceway in Devore offers international motorcross racing.

**Residents Served at Employment Resource Centers**  
San Bernardino County, 2013



Source: County of San Bernardino, Workforce Investment Board

**San Bernardino County Regional Parks**

Regional Park	Acres
Big Morongo Canyon Preserve	177
Calico Ghost Town	480
Cucamonga-Guasti	112
Glen Helen	1,340
Lake Gregory	150
Moabi	1,027
Mojave Narrows	840
Mojave River Forks	1,100
Prado	2,280
Santa Ana River Trail	17*
Yucaipa Regional Park	1,161
<b>Total</b>	<b>8,684</b>

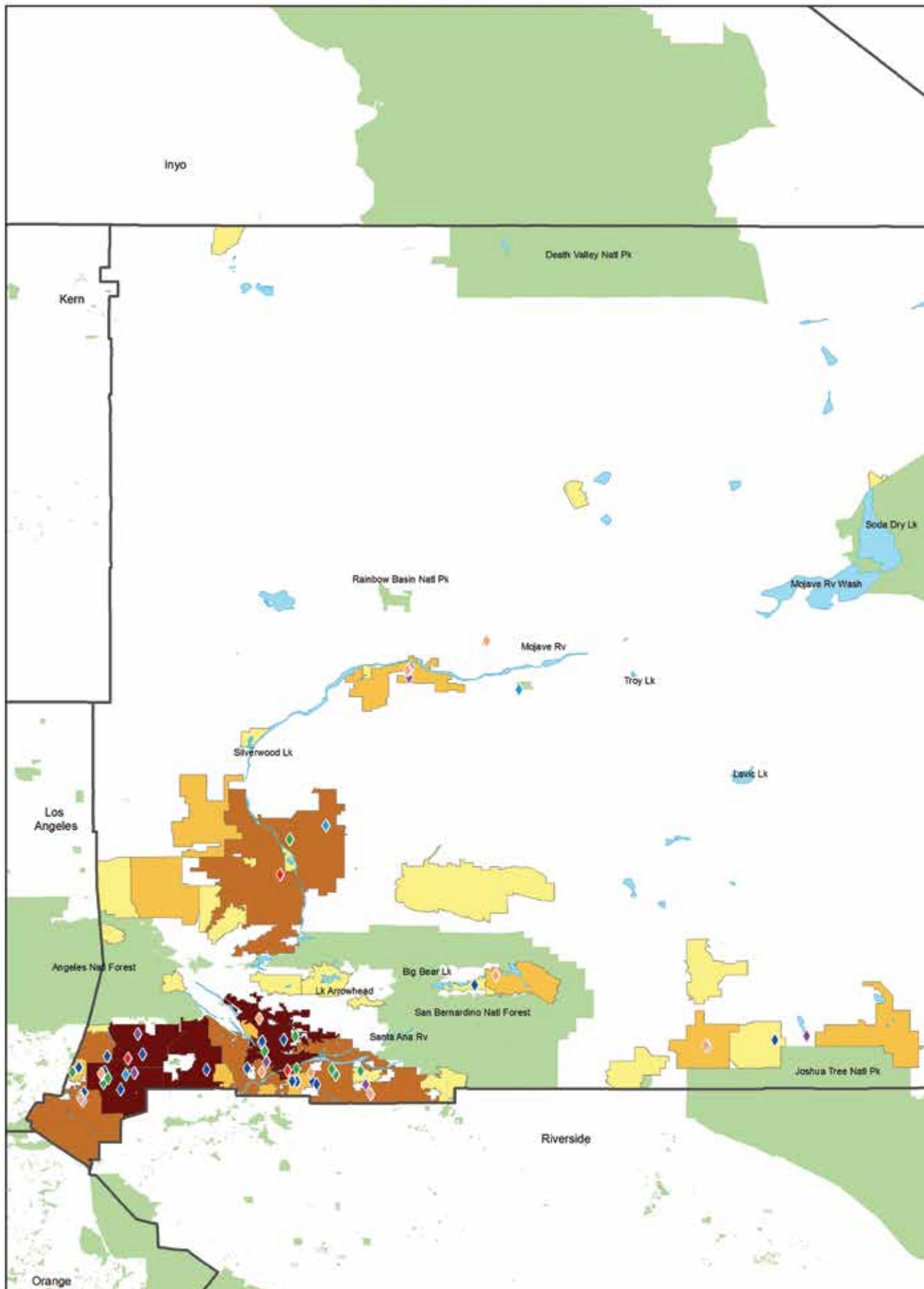
\*Not included in total acreage.

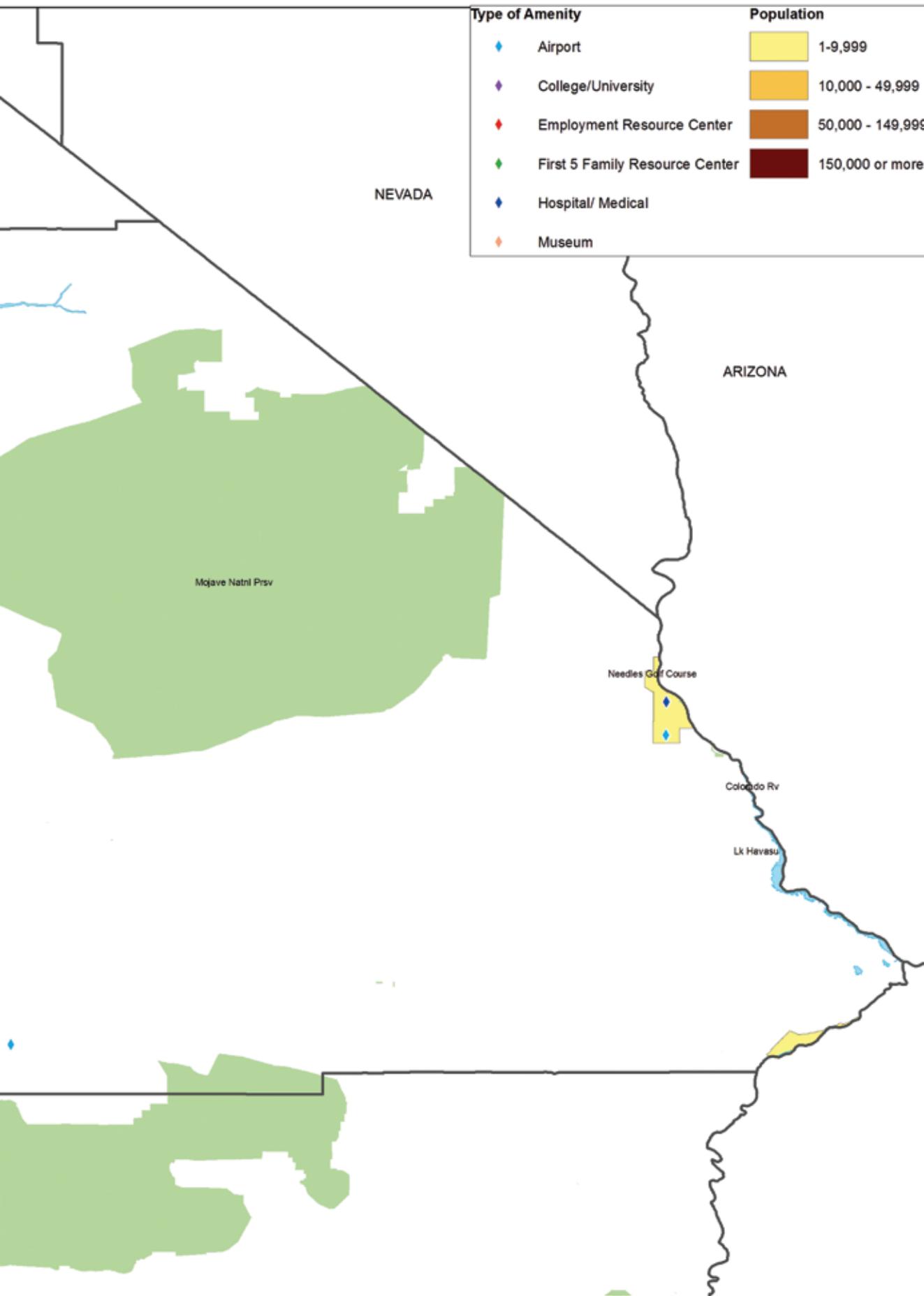
Source: San Bernardino County Regional Parks Department

**Plenty of Wide Open Spaces**

There are 2.5 million acres of recreational land in San Bernardino County and six acres of parkland per 1,000 residents – twice the California rate. Three out of every four residents live within one mile of a local park and within five miles of a regional, state or national park.

Source: Creating Countywide Vision, Vision Elements, 2010





**Resources for Young Children and Families**

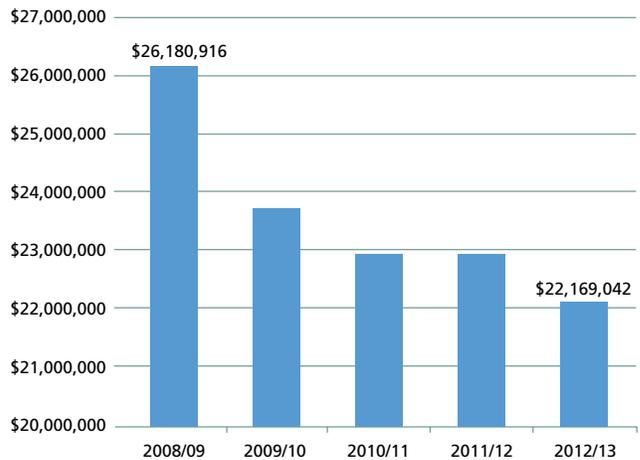
First 5 San Bernardino continues to invest in programs for children under six and their families, despite declining Proposition 10 revenues:

- In 2013, First 5 San Bernardino invested in 35 preschool sites throughout San Bernardino County, serving over 1,300 children.
- First 5 San Bernardino also funded 13 Family Resource Centers which provided 14,816 families with direct services, referrals, and case management in 2013. Families utilizing resource centers had a variety of needs ranging from basic needs to crisis stabilization.
- Also in 2013, through a countywide dental program, 9,081 children received a dental screening with many receiving follow up dental treatment.
- 6,763 children also received a developmental screening for early detection of potential delays and, if needed, early intervention services.
- In addition to these programs, First 5 San Bernardino invests in programs providing asthma intervention, early developmental and behavioral screening and intervention, health care access and insurance, and parent education.
- First 5 San Bernardino’s tobacco tax revenues decreased 15% in five years from \$26,180,916 in 2008/09 to \$22,169,042 in 2012/13.

**First 5 San Bernardino: Investing in Health and Early Development**

Proposition 10 was passed by California voters in 1998, approving a tax on tobacco products for the purpose of improving young children’s health and development. The statewide initiative, also known as “First 5,” celebrates its 15 year anniversary in 2014. Proposition 10 funds are distributed to counties throughout California based on each county’s number of live births. First 5 San Bernardino, which receives a portion of Proposition 10 funds, invests in a wide variety of programs for children under six and their families, including early care and education, family support services, and health programs.

**Proposition 10 Funding**  
San Bernardino County, 2009-2013



Source: First 5 San Bernardino

# Applications for Federal Benefits Remain Steady at 32,000

## Description of Indicator

This indicator reports the percentage of veterans living in San Bernardino County compared to neighboring and peer regions. It also tracks trends in client demand and County staff caseloads, and federal benefit dollars obtained by the San Bernardino County Department of Veterans Affairs (County VA).

## Why is it Important?

Veterans from all eras reside in San Bernardino County, with needs ranging from aging and adult services to children's services, and from transitional assistance to public health. Strengthening support networks for soldiers and their families may reduce the long-term individual and societal impacts of war. Financial benefits obtained for veterans results in local spending, job creation, and tax revenue.

## How is San Bernardino County Doing?

Similar to trends elsewhere, the number of veterans living in San Bernardino County is declining:<sup>1</sup>

- In 2013, approximately 5.3% of San Bernardino County's population was comprised of veterans.
- The veteran population went from 115,646 in 2010 to 111,221 in 2013, and is projected to decline further in the future.
- While the overall veteran population is declining, the number of veterans returning home from active duty is increasing.

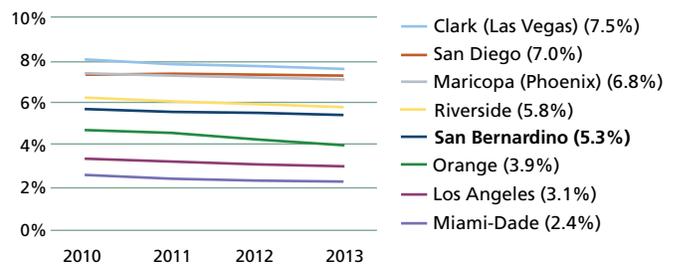
Demand for veterans' services is increasing:

- Between 2004 and 2013, there was a 128% increase in the number of completed applications for federal benefits.<sup>2</sup> During the same period, the County VA caseload grew by 67%.
- Reasons for increased demand include more soldiers returning home from Iraq and Afghanistan, an increase in the number of aging Korean and Vietnam veterans who are seeking more health services and benefits, and the changing economy and job market.
- In the past year, however, the County VA caseload dropped significantly due to administrative actions, such as closing old and inactive cases. This resulted in active case files decreasing from 829 case files for each staff member in 2012 to 554 case files in 2013.

During 2012/13, the County VA obtained significant benefits for veterans:

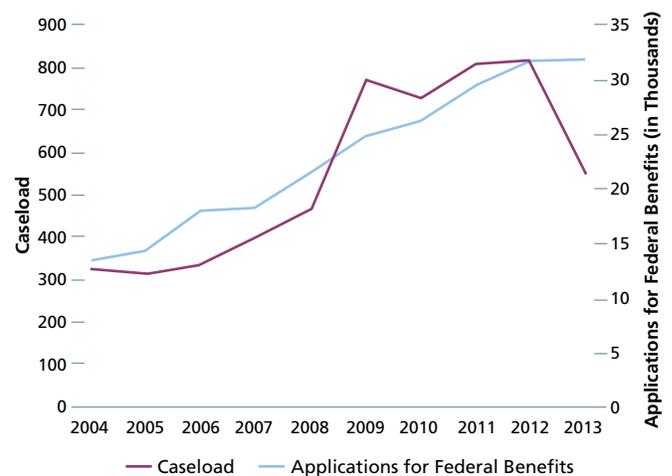
- The combined annual value of federal monthly payments and one-time benefits obtained by the County of San Bernardino for veterans was \$53,326,918, a 67% increase from the previous year.
- This \$53.3 million in new federal dollars was generated at a net cost to the County of just over \$1.4 million (\$1,404,876).

Percent of Population Comprised of Veterans  
County Comparison, 2010-2013



Sources: National Center for Veterans Analysis and Statistics, VetPop2011 County-Level Veteran Population by State, 2010-2040 ([www.va.gov/vetdata/Veteran\\_Population.asp](http://www.va.gov/vetdata/Veteran_Population.asp)); U.S. Census Bureau ([www.census.gov/popest/data/counties/totals/2013/CO-EST2013-alldata.html](http://www.census.gov/popest/data/counties/totals/2013/CO-EST2013-alldata.html))

Department of Veterans Affairs Caseload and Applications for Federal Benefits  
San Bernardino County, 2004-2013



Source: San Bernardino County Department of Veterans Affairs

### Supporting Vets in San Bernardino County

Veterans often report that the more traditional approaches to treatment for post-traumatic stress disorder, such as medication and group and individual therapy, are not bringing the level of healing and recovery they need to resume a "normal" life. San Bernardino County supports alternative and complementary forms of treatment, including equine-assisted learning and therapy, therapeutic art and music programs, and urban agriculture or green collar job opportunities (such as aquaponics, hydroponics, community gardening, composting, and beekeeping). These activities provide "safe zones" for veterans to be together so they can fully recover and re-assimilate back into civilian life. One example is a partnership between the San Bernardino County Department of Veterans Affairs and community groups, veteran volunteers, and other County departments to create an aquaponics education/demonstration project at the San Bernardino County Museum. Funding is being secured for similar projects in Bloomington, Apple Valley, and Barstow.

### Veteran Services Closes Old and Inactive Cases

In 2012/13, the San Bernardino County Department of Veterans Affairs reduced its caseload by 33% by implementing measures to close many old and inactive cases. Supporting this effort, the federal Veterans Administration handed down decisions on a large number of claims in the county, which allowed those cases to be closed.

<sup>1</sup> Prior San Bernardino County Community Indicators Reports used 2000-2030 veteran population projections, whereas this report uses new 2010-2040 projections. Population data presented in this report are not comparable to prior Indicators Reports.

<sup>2</sup> Applications for federal support include monetary benefits, medical/mental health services, educational assistance, vocational rehabilitation and other services.

# Nonprofit Businesses Decrease while Revenues Grow

## Description of Indicator

This indicator assesses San Bernardino County's nonprofit business sector, including the number of organizations and per capita revenues and assets.<sup>1</sup> It also tracks federal and foundation grants awarded to the county, and the contribution of the nonprofit sector to the local economy.

## Why is it Important?

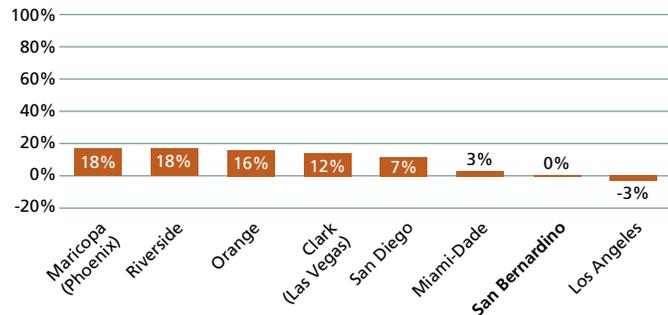
A well-funded, stable nonprofit sector is integral to a healthy and stable community. Foundations and federal grants can provide critical funding for community services and charitable organizations, helping to bridge the gap between government programs and local needs. The nonprofit sector is also a valuable contributor to the local economy, providing jobs, purchasing goods and services from a variety of local businesses, and contributing to local, state and federal taxes.

## How is San Bernardino County Doing?

The number of nonprofit businesses in San Bernardino County decreased in 2013:

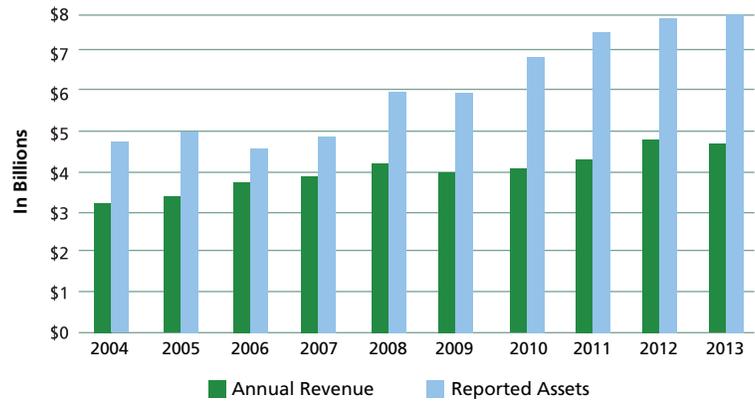
- There were 5,191 registered nonprofit organizations in San Bernardino County in 2013, down 7% from 2012 when 5,602 nonprofits were registered in the county.
- However, the 10-year trend in the number of San Bernardino County nonprofit organizations has remained stable (0% growth).
- San Bernardino County has 2.5 nonprofit organizations per thousand residents, which is lower than all regions compared except Riverside County and Las Vegas.
- The largest category of nonprofit organizations in San Bernardino County in 2013 was Religion at 26%, followed by Human Services (24%), Public/Societal Benefit (16%), and Education (15%).

Number of Nonprofit Businesses, 10-Year Growth Rate County Comparison, 2004-2013



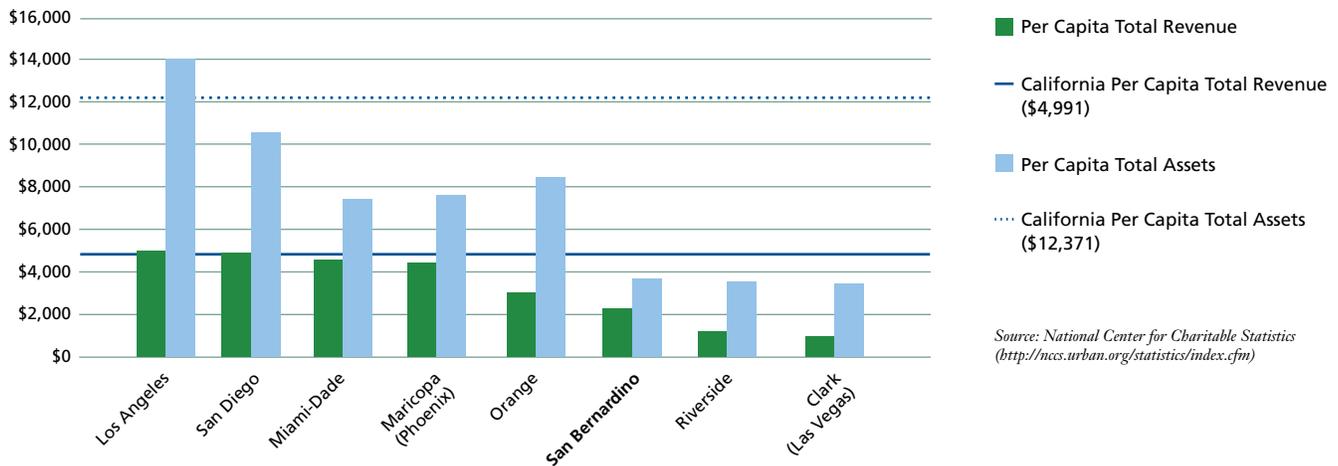
Source: National Center for Charitable Statistics (<http://nccsweb.urban.org/tablewiz/bmf.php>)

Revenue and Asset Growth San Bernardino County, 2004-2013



Source: National Center for Charitable Statistics (<http://nccsweb.urban.org/tablewiz/bmf.php>)

Per Capita Total Revenue and Assets County Comparison, 2013



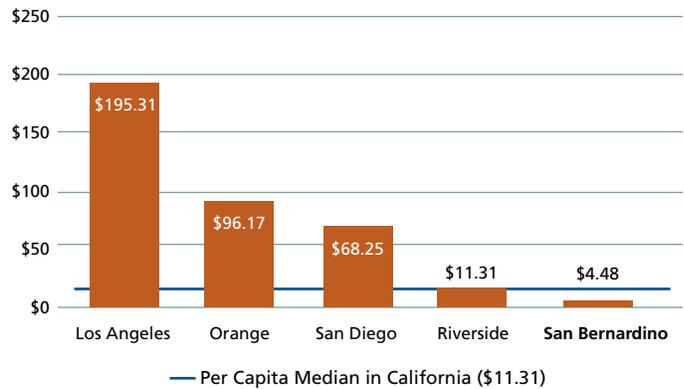
Source: National Center for Charitable Statistics (<http://nccs.urban.org/statistics/index.cfm>)

<sup>1</sup>Nonprofits include public charities, private foundations, and other 501(c)(3) nonprofit organizations.

Despite robust revenue and asset growth, San Bernardino County nonprofit businesses have less funding available than comparison regions:

- Reported revenues for San Bernardino County nonprofits increased 43% in the 10-year period between 2004 and 2013, while total assets increased 71% during the same period.
- This surpasses California, for which nonprofit revenues increased 20% while assets increased 39% during the same 10-year period.
- However, San Bernardino County has less revenue and assets per capita than California and all peer counties compared, except Riverside and Las Vegas.
- 35% of the nonprofits in San Bernardino County have revenues over \$50,000, lower than all other regions compared and California.
- Private foundations located in San Bernardino County awarded contributions, grants and gifts totaling \$4.48 per capita. This is less than half the median figure for all California counties of \$11.31 per capita.

Per Capita Contributions, Grants, and Gifts Paid  
County Comparison, 2011



Source: Analysis from The Urban Institute, National Center for Charitable Statistics. NCCS Core File (<http://nccsweb.urban.org/tablewiz/pf.php>)

### Responding to Disparities in San Bernardino County

In recent years, there has been a decrease in the number of nonprofit businesses in San Bernardino County, while revenues and assets continue to increase. On one hand, these data suggest that nonprofits in the county are becoming more efficient. However, other data indicate that San Bernardino nonprofits have low per capita revenue and assets and low per capita foundation contributions when compared to neighboring and peer counties. In addition, the historic absence of foundation grant support represents a lost opportunity of potentially \$236 million per year for the county.<sup>2</sup>

In response to the challenge of securing grants in the county, the County of San Bernardino in partnership with The Community Foundation, the Inland Empire United Way, and community stakeholders, have come together to find creative strategies to build the nonprofit capacity in the county. The County of San Bernardino and The Community Foundation have partnered on two projects including:



- **Give Big San Bernardino County:** Give BIG San Bernardino County is a 24-hour online web-a-thon that took place on May 8, 2014, with a goal of raising \$300,000 for local nonprofits and inspiring donors to become longtime philanthropists. Through the Give BIG campaign, nonprofits throughout the county learned new skills in marketing, donor cultivation, and how to use social media for fundraising to build their capacity. A total of 261 nonprofits registered with the goal of raising \$300,000 during the one-day event. The campaign raised over \$600,000 including \$550,814 in contributions, as well as over \$55,000 of in-kind support.
- **Grant Development Initiative (GDI):** The GDI seeks to significantly increase grant funding and support to San Bernardino County educational, health, government and nonprofit organizations by improving the coordination, communication, and collaboration between these entities in the development and submission of grant proposals to private and public foundations, as well as corporate, state, and federal funders. The goal of the GDI is to address this circumstance and “potential opportunity” for the county - especially at a time of economic difficulties and redevelopment funding losses. This project takes a comprehensive approach to identifying barriers between grant development professionals within these entities in their pursuit of funds. Ultimately, the GDI will create a systemic approach whereby these individuals, government, and nonprofits can work collaboratively in the development and submission of grant proposals.

Additionally, the County of San Bernardino and Inland Empire United Way (on behalf of the Funders Alliance) have partnered with The California Endowment on the following project:

- **Expanding Nonprofit Excellence in the Inland Empire:** This project aims to better position nonprofit businesses in the Inland Empire to attract investment and more effectively meet human service needs within the region. Throughout 2014, 20 organizations will receive coaching from the Center for Nonprofit Management to develop a Strategic Expansion Plan to help guide future organizational growth. The Funders Alliance of San Bernardino and Riverside Counties will also conduct a strategic advocacy campaign to funders outside the region to increase their understanding of the Inland Empire, and attract additional investment and new dollars for the region’s nonprofits.

<sup>2</sup>The James Irvine Foundation: The Inland Empire Nonprofit Sector: A Growing Region Faces the Challenges of Capacity, 2009.

## The San Bernardino County Community Advisory Group and Project Team would like to acknowledge the following agencies for providing data and information to support the development of the report:

Alliance for Excellent Education  
Arizona Department of Health Services  
Arrowhead Regional Medical Center  
Baldy View Regional Occupational Programs  
Bear Valley Electric Service  
California Association of Realtors  
California Community Colleges Chancellor's Office  
California Department of Education  
California Department of Finance, Demographic Research Unit  
California Department of Justice, Criminal Justice Statistics Center  
California Department of Mental Health  
California Department of Public Health  
California Department of Transportation (Caltrans)  
California Employment Development Department  
California Health Interview Survey  
California Highway Patrol  
California Public Utilities Commission  
California Solar Statistics  
California State Association of Counties  
California State University, San Bernardino  
CalRecycle  
CBRE  
Center for Health Policy Research at University of California,  
Los Angeles  
Centers for Disease Control and Prevention  
Child Welfare Research Center at University of California, Berkeley  
Child Trends  
Chmura Economics and Analytics  
City of Big Bear Lake Department of Water and Power  
City of San Bernardino Valley Municipal Water Department  
College Board  
Colton Public Utility  
Colton-Redlands-Yucaipa Regional Occupational Programs  
CoreLogic  
Council for Community and Economic Research  
County Health Rankings and Roadmaps  
County of San Bernardino Department of Airports  
County of San Bernardino Department of Behavioral Health  
County of San Bernardino Department of Human Services  
County of San Bernardino Department of Public Health  
County of San Bernardino Department of Public Works  
County of San Bernardino Department of Veterans Affairs  
County of San Bernardino Economic Development Agency  
County of San Bernardino Human Resources  
County of San Bernardino Land Use Services Department  
County of San Bernardino Probation Department  
County of San Bernardino Regional Parks Department  
County of San Bernardino Workforce Investment Board  
Federal Bureau of Investigation  
First 5 San Bernardino  
Florida Department of Health  
*Forbes Magazine*  
Healthy People 2020  
Healthy San Bernardino County

Housing Authority of the County of San Bernardino  
Inland Empire Utilities Agency  
JobsEQ  
Journal of Maternal-Fetal and Neonatal Medicine  
Los Angeles World Airports  
Minco  
Mojave River Watershed Group  
Mojave Water Agency  
National Center for Charitable Statistics  
National Center for Education Statistics  
National Center for Veterans Analysis and Statistics  
National Health Interview Survey  
National Low Income Housing Coalition  
National Transit Database  
Needles Housing Authority  
Needles Public Utility  
Northeastern University, Center for Labor Market Studies  
Rancho Cucamonga Municipal Utility  
Riverside County Department of Education  
San Bernardino Associated Governments  
San Bernardino County District Attorney  
San Bernardino County Fire Department  
San Bernardino County Flood Control District  
Stormwater Program  
San Bernardino County Sheriff's Department  
San Bernardino County Superintendent of Schools  
San Bernardino International Airport  
South Coast Air Quality Management District  
Southern California Association of Governments  
Southern California Edison  
Southern California Regional Rail Authority  
Sperling's Best Places  
The James Irvine Foundation  
The Urban Institute  
Twentynine Palms Water District  
U.S. Bureau of Labor Statistics  
U.S. Census Bureau  
U.S. Department of Health and Human Services  
U.S. Department of Housing and Urban Development  
U.S. Energy Information Administration  
U.S. Environmental Protection Agency  
University of La Verne  
Upland Housing Authority  
Victorville Municipal Utilities Service

### **Project Team:**

Dr. Jonathan Lorenzo Yorba, President and CEO,  
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Lisa Burke, Burke Consulting (Project Manager)  
Mark Mendoza, AdGyld Design  
Kari Parsons, Parsons Consulting, Inc.  
Limor Zimskind, Limor Consulting

The San Bernardino County Community Indicators Report would not be possible without the efforts of the San Bernardino County Community Advisory Group and supporting organizations:

Arrowhead Regional Medical Center  
([www.arrowheadmedcenter.org](http://www.arrowheadmedcenter.org))

Bank of America ([www.bankofamerica.com](http://www.bankofamerica.com))

First 5 San Bernardino ([www.first5sanbernardino.org](http://www.first5sanbernardino.org))

Loma Linda University ([www.lomalindahealth.org](http://www.lomalindahealth.org))

San Bernardino Associated Governments (<http://sanbag.ca.gov>)

San Bernardino County Administrative Office  
([www.sbcounty.gov/cao](http://www.sbcounty.gov/cao))

San Bernardino County Board of Supervisors  
([www.sbcounty.gov/bos](http://www.sbcounty.gov/bos))

San Bernardino County Department of Behavioral Health  
([www.sbcounty.gov/dbh](http://www.sbcounty.gov/dbh))

San Bernardino County Department of Public Health  
([www.sbcounty.gov/dph](http://www.sbcounty.gov/dph))

San Bernardino County Department of Public Works  
([www.sbcounty.gov/dpw](http://www.sbcounty.gov/dpw))

San Bernardino County Department of Veterans Affairs  
(<http://hss.sbcounty.gov/va>)

San Bernardino County Economic Development Agency  
([www.sbcountyadvantage.com](http://www.sbcountyadvantage.com))

San Bernardino County Human Services (<http://hss.sbcounty.gov/hss>)

San Bernardino County Probation Department  
([www.sbcounty.gov/probation](http://www.sbcounty.gov/probation))

San Bernardino County Sheriff-Coroner Department  
([www.co.san-bernardino.ca.us/sheriff](http://www.co.san-bernardino.ca.us/sheriff))

San Bernardino County Superintendent of Schools  
([www.sbcss.k12.ca.us](http://www.sbcss.k12.ca.us))

San Bernardino County Workforce Investment Board  
([www.sbcountyadvantage.com](http://www.sbcountyadvantage.com))

Santa Ana Watershed Project Authority ([www.sawpa.org](http://www.sawpa.org))

South Coast Air Quality Management District ([www.aqmd.gov](http://www.aqmd.gov))

The Community Foundation ([www.thecommunityfoundation.net](http://www.thecommunityfoundation.net))





Tel: 951.241.7777 Fax: 951.684.1911  
[www.thecommunityfoundation.net](http://www.thecommunityfoundation.net)

A publication of The Community Foundation

The Community Foundation's mission is "Strengthening Inland Southern California through Philanthropy." This is accomplished by raising, stewarding and distributing community assets by awarding grants to nonprofit organizations, and by working toward our vision of "A vibrant, generous and just region – with unlimited opportunities." The foundation focuses on building permanent endowments to ensure that The Community Foundation is *Here for Good*.

In 2013, The Community Foundation raised \$16 million in new gifts, distributed \$7.5 million in grants and scholarships, and managed and invested funds that total nearly \$80 million in assets.

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**RESOLUTION NO. 2014-4-3**

**RESOLUTION OF THE BOARD OF DIRECTORS OF THE  
INLAND EMPIRE UTILITIES AGENCY\*, SAN  
BERNARDINO COUNTY, CALIFORNIA CALLING FOR  
EXTRARODINARY WATER USE EFFICIENCY EFFORTS  
TO EXTEND REGIONAL WATER SUPPLIES FOR  
INLAND EMPIRE RESIDENTS AND BUSINESSES.**

**WHEREAS**, the Inland Empire Utilities Agency (“Agency”) is a California Special District, created to serve as the water wholesale agency for seven cities, serving approximately 830,000 people, in southwestern San Bernardino County; and

**WHEREAS**, the Agency relies on imported water from Northern California provided through the Metropolitan Water District of Southern California (“MWD”) to meet approximately 30% of its supply demand; with the balance of the service area’s demand being met by local groundwater via the Chino Basin and surface water, and through local water recycling and water use efficiency; and

**WHEREAS**, the state of California is experiencing extraordinary dry year conditions, with 2014 projected to become the driest year ever recorded; and

**WHEREAS**, now in its third consecutive year of drought, the state of California’s annual precipitation levels are inadequate to fill the state’s key reservoirs; and

**WHEREAS**, on January 17, 2014, Governor Edmund G. Brown Jr. declared a State of Emergency due to drought conditions and has asked for a voluntary 20 percent water use reduction by everyone in California; and

**WHEREAS**, on January 31, 2014, the California Department of Water Resources (DWR) officially reduced the State Water Project (SWP) allocation to zero percent; and

**WHEREAS**, on February 11, 2014, the Metropolitan Water District of Southern California adopted a second stage “Water Supply Alert”, and is calling upon its member agencies, cities and communities to implement extraordinary conservation measures to extend regional water supplies;

**WHEREAS**, over the past 20 years, the Inland Empire Utilities Agency has invested more than \$275 million in the region to enhance groundwater recharge, infrastructure improvements, recycled water, and water use efficiency programs; and

**WHEREAS**, the cities and agencies providing service within the Agency’s boundaries have worked to develop water-management strategies and to implement comprehensive water use efficiency programs to help meet service area demand; and

**WHEREAS**, increasing conservation efforts and applying water wise habits today will help the region meet its water needs now and in the future; and

**WHEREAS**, the Agency and its member agencies are increasing their public messaging to improve awareness of the serious statewide drought and the need for everyone to do their part to implement extraordinary conservation measures to reduce water use and protect existing regional supplies; and

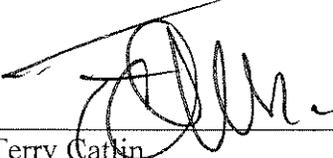
**WHEREAS**, there are numerous resources and programs to assist us in our region-wide water use efficiency efforts, including rebates for water saving devices and information on water-saving strategies at [www.ieua.org](http://www.ieua.org), and [www.bewaterwise.com](http://www.bewaterwise.com).

**NOW, THEREFORE BE IT RESOLVED BY** the Board of Directors of the Inland Empire Utilities Agency does hereby urge every member agency, public agency, resident and business to take the necessary actions to reduce their water usage by 20 percent through enhanced water use efficiency measures; and

**BE IT FURTHER RESOLVED**, that the Inland Empire Utilities Agency will coordinate with its member agencies, cities and communities to develop a unified regional message and significantly accelerate its outreach efforts in order to communicate the urgent need to conserve water to Inland Empire public officials, residents and businesses; and

**BE IT FURTHER RESOLVED**, that the Inland Empire Utilities Agency requests all local water agencies, cities, and public agencies to immediately activate and enforce existing conservation and drought ordinances in their jurisdictions and call upon everyone reduce their water use by 20 percent.

**ADOPTED** this 16<sup>th</sup> day of April, 2014.

  
\_\_\_\_\_  
Terry Catlin  
President of the Inland Empire  
Utilities Agency\* and of the  
Board of Directors thereof

ATTEST:

  
\_\_\_\_\_  
Steven J. Elie  
Secretary/Treasurer of the Inland Empire  
Utilities Agency\* and of the  
Board of Directors thereof

\*A Municipal Water District





---

Date: April 16, 2014

To: The Honorable Board of Directors

Through: Public, Legislative Affairs, and Water Resources Committee (04/09/14)

From: P. Joseph Grindstaff  
General Manager

Submitted by: Rebecca Long  
Manager of External Affairs

Subject: Adoption of Resolution No. 2014-4-3, Calling for Enhanced Water Use Efficiency Efforts to Extend Regional Water Supplies for Inland Empire Residents and Businesses

---

### **RECOMMENDATION**

It is recommended the Board of Directors adopt Resolution No. 2014-4-3, calling for enhanced water use efficiency efforts to extend regional water supplies for Inland Empire residents and businesses.

### **BACKGROUND**

California's current drought is now in its third year, with 2014 projected to become the driest year on record. On January 17, 2014, Governor Edmund G. Brown Jr. declared a Drought State of Emergency and urged Californians to voluntarily reduce water use by 20 percent, and initiated a greatly expanded water conservation public awareness campaign under the Save Our Water Program.

On January 31, 2014, the California Department of Water Resources officially reduced the State Water Project allocation to zero percent of contract amounts. The Agency receives approximately 30% of its annual water supply from the State Water Project through Metropolitan Water District of Southern California (MWD).

To preserve the regional storage reserves, the Agency is working closely with MWD and our member agencies to monitor water supplies and accelerate outreach efforts to communicate the need for additional water use efficiency efforts.

The Agency and its member agencies offer a variety of water use efficiency programs and rebates to assist residents, businesses, and institutions in reducing their water use. Residents are encouraged to consider removing a portion of their lawn and replacing that area with climate appropriate plants that require very little water, installing high efficiency sprinkler nozzles and weather based irrigation controllers that give plants and lawns the appropriate amount of water, as well as checking for and promptly repairing leaks inside and outside the home.

Recent Agency actions include the following:

- On January 27, 2014, staff convened an initial kick-off meeting with member agencies to begin updating the Agency's 2010 Water Use Efficiency Business Plan.
- On February 18, 2014, staff organized a Drought Task Force Committee meeting with member agencies and Western Municipal Water District to discuss current and future drought response plans, outreach goals, initiatives, and regional branding/messaging tactics.
- On March 17, 2014, staff participated in SAWPA's OWOW Integration Workshop on water use efficiency region-wide watershed program planning efforts.
- Staff is serving on MWD's Program Advisory Committee to strategize on how to utilize the additional \$20 million that was approved by MWD's Board for enhanced water use efficiency programming.
- The Agency increased water saving drought ads in local papers (averaged two additional ads per month): Daily Bulletin and Foothills Reader
- Staff updated and revised the Agency's website to focus on the drought alert on home page; addition of drought information page under "Use Water Wisely" tab which includes updated drought news, water saving tips, links to resources, etc.
- Staff increased social networking messaging on the Agency's Facebook page to include drought information and water saving tips.
- Staff incorporated drought information and activities into all community presentations (i.e. City Councils, Chambers, Educators)

**Programming:**

- Staff ordered approximately 10,000 brochures to be distributed throughout the service area for residents and businesses. Materials include climate appropriate plant guides, restaurant tent cards for ordering "water-on-request", and information on water saving devices.
- The Agency, along with its member agencies have scheduled and are conducting 18 residential landscape workshops covering a variety of landscaping topics over the next three months.
- In February 2013, the Agency through MWD's So-Cal Water Smart Rebate Program launched a commercial, institutional, and industrial turf removal program.
- Other new initiatives recently added to the suite of regional rebates includes: rain barrels, soil moisture sensor systems, and financial incentives for retrofitting fitness centers with high-efficiency toilets and urinals.

Adoption of Resolution No. 2014-4-3, Calling for Enhanced Water Use Efficiency Efforts to  
Extend Regional Water Supplies for Inland Empire Residents and Business

April 16, 2014

Page 3

- In response to the drought conditions, staff has increased the project scope of the Agency's Landscape Transformation Program for residential turf removal.
- Staff is participating in the Inland Empire Garden Friendly Program and working with member agencies on outreach for spring Home Depot climate appropriate plant sales.
- Staff is working with members of the Inland Empire Garden Friendly team to build a database that will hold over 1,000 different climate appropriate plant species.
- The Agency is hosting its annual Earth Day event on April 16-17, 2014 to educate students and the public on using water efficiently and ways to reduce use.

**PRIOR BOARD ACTION**

None.

**IMPACT ON BUDGET**

None.

Attachment: Resolution 2014-4-3

**Immediate Actions to Cut Water Use**  
***Examples of Practical and Common-Sense  
Water Use Efficiency Best Practices***

- Repair indoor and outdoor leaks quickly
- Wash only full loads in the dishwasher and washing machine
- Eliminate inefficient landscape irrigation, such as runoff and overspray
- Turn off landscape irrigation systems during rain events
- Irrigate landscaping only between the hours of 9:00 p.m. and 7:00 a.m.
- Install a weather based irrigation controller
- Use organic mulch around plants to reduce evaporation
- Use hoses with automatic shut-off valves for watering areas that aren't on an automated irrigation system
- Wash cars, trailers, boats and other types of mobile equipment at a commercial carwash equipped with a water recycling system
- Wash paved areas for health and safety purposes only with the use of a waterbroom or water-efficient pressure washer
- Restaurants serve and refill water only upon request
- Hotels offering guests the option of not laundering their linens and towels daily
- Using recycled or non-potable water for construction activities whenever possible

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**RESOLUTION NO. \_\_\_\_\_**  
OF THE BOARD OF DIRECTORS OF  
THE MUNICIPAL WATER DISTRICT OF ORANGE COUNTY  
CALLING FOR ENHANCED WATER USE EFFICIENCY EFFORTS TO  
EXTEND REGIONAL WATER SUPPLIES  
FOR ORANGE COUNTY RESIDENTS AND BUSINESSES.

**Whereas**, Orange County depends on imported water from Northern California and the Colorado River to meet approximately half of its supply demand; with the balance of the county's demand being met by local groundwater via a large basin under north and central Orange County, smaller basins in south Orange County, and through local water recycling and water use efficiency; and

**Whereas**, the state of California is experiencing record dry year conditions, with 2014 projected to become the driest year on record; and

**Whereas**, now in its third consecutive year of a drought, the State of California's annual precipitation levels are inadequate to fill the state's key reservoirs; and

**Whereas**, effective January 17, 2014, Governor Edmund G. Brown, Jr. declared a statewide state of emergency due to drought conditions

**Whereas**, on January 31, 2014, the state of California's second snow survey reported statewide snowpack at 12% of normal levels and the California Department of Water Resources (DWR) officially reduced the State Water Project (SWP) Table A Allocation to zero percent of contract amounts; and

**Whereas**, the National Weather Service's most recent *Three-Month Outlook* for California forecasts above normal temperatures and below normal precipitation throughout the entire state; and

**Whereas**, the Colorado River Basin drought has stretched into a 14<sup>th</sup> year, continuing to negatively impact storage levels on the river's two main reservoirs; and

**Whereas**, over the past 20 years, southern California rate payers have invested more than \$15 billion in regional storage, infrastructure improvements, local resources and water use efficiency programs that are now serving to sustain supplies during this historic dry period; and

**Whereas**, Metropolitan Water District of Southern California (Metropolitan) has indicated that its water storage reserves, committed to meeting regional drought demands, remain relatively healthy at nearly 2.4 million acre-feet and, as such, does not intend to institute mandatory water reductions within its service area for 2014; and

**Whereas**, Metropolitan has declared a Water Supply Alert calling for all cities, counties, member agencies and retails water agencies to implement extraordinary water use efficiency measures, adopt and implement local drought ordinances to preserve regional storage reserves; and

**Whereas**, the cities and water agencies serving Orange County's population of 3.1 million have done an outstanding job working together to develop water-management strategies and implement comprehensive water use efficiency programs to help ensure a reliable supply of high-quality water to meet countywide demand; and

**Whereas**, many cities and water agencies serving Orange County have also invested and continue to invest in research and technology to develop new sources of water such as water recycling and desalination to meet demands; and

**Whereas**, Municipal Water District of Orange County and its member agencies are increasing their public messaging to create a heightened awareness of the state's water supply conditions; and

**Whereas**, increasing and applying efficient water use habits today is the responsible thing to do and will help ensure Orange County has enough water to maintain our quality of life and thriving economy; and

**Whereas**, there are numerous resources and programs to assist us in our countywide water use efficiency efforts, including rebates for water saving devices and information on water-saving strategies at [www.bewaterwise.com](http://www.bewaterwise.com), and [www.mwdoc.com](http://www.mwdoc.com),

**Now, therefore, be it resolved that the** Municipal Water District of Orange County the regional imported water provider do hereby encourage every Orange County water agency, resident and business to take the necessary actions to reduce their water usage through enhanced water use efficiency measures in an effort to extend stored water supplies and prepare for a prolonged drought; and

**Be it further resolved** that the Municipal Water District of Orange County will coordinate with Metropolitan and its member agencies to develop a unified regional message and significant accelerate its outreach efforts in order to communicate the need for additional water use efficiency efforts to Orange County public officials, residents and businesses; and

**Be it further resolved**, that the Municipal Water District of Orange County encourage all local water agencies, cities, and the County of Orange to join in this call for enhancing water use efficiency efforts through the adoption of appropriate resolutions or ordinances in their jurisdictions.

Said Resolution was adopted on February \_\_, 2014, by the following roll call vote:

AYES:	Directors
NOES:	Directors
ABSENT:	None
ABSTAIN:	None

I HEREBY CERTIFY the foregoing is a full, true and correct copy of Resolution No. \_\_\_\_ adopted by the Board of Directors of Municipal Water District of Orange County at its meeting held on February \_\_, 2014.

---

Maribeth Goldsby, Secretary  
Municipal Water District of Orange County

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**RESOLUTION NO. 1016****RESOLUTION OF THE BOARD OF DIRECTORS OF THE  
SAN BERNARDINO VALLEY MUNICIPAL WATER  
DISTRICT ADOPTING A WATER CONSERVATION PLAN  
TO IMPROVE WATER SUPPLY RELIABILITY**

**WHEREAS**, the State of California is entering its third year of drought conditions in the watersheds that supply imported water to Valley District's service area; and

**WHEREAS**, the Biological Opinions for the Delta Smelt and Salmonids significantly restrict the ability of the State Water Project to deliver water to its Contractors, (over 500,000 acre-feet in 2013 alone) including Valley District; and

**WHEREAS**, the California Department of Water Resources has announced a 2014 allocation of 0% of State Water Project contracted amounts; and

**WHEREAS**, on January 17, 2014, Governor Brown declared a Drought State of Emergency for the entire State and called for immediate implementation of additional water conservation strategies to reduce water usage by 20%; and

**WHEREAS**, long term water supply reliability solutions to endangered species impacts and droughts will take multiple years to complete; and

**WHEREAS**, Valley District wishes to cooperate with retail water purveyors within their service area in efforts to maintain a reliable water supply for members of the public through the adoption of aggressive water conservation programs; and

**WHEREAS**, the development and implementation of a water conservation plan is an integral component of Valley District's more general effort to provide a reliable, safe and affordable water supply to the residents of the San Bernardino Valley, now and in the future.

**NOW, THEREFORE, BE IT RESOLVED:**

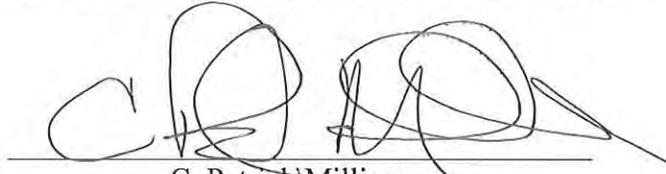
1. It is the policy of Valley District to strongly encourage water conservation programs throughout its service area, including, as may be appropriate, funding all or a portion of those programs.
2. The District encourages retail water agencies to adopt tiered, or other economic based, water rate structures that effectively reduce water demand by providing incentives for the efficient use of water.
3. The District commits to continue and accelerate water conservation programs in collaboration with its retail water agencies, including a Weather Based Irrigation Controller incentive program and the Inland Empire Garden Friendly plant program.

4. The District, in cooperation with the Basin Technical Advisory Committee and the Water Supply Contingency Workgroup, will continue to provide leadership in the development of innovative water conservation public information programs.

5. The District will continue to facilitate and, as appropriate, fund outside and intra-basin water storage programs like the proposed Bunker Hill Conjunctive Use Project, again in cooperation with its retail water agencies.

**ADOPTED** this 4<sup>th</sup> day of March, 2014.

San Bernardino Valley Municipal Water District

A handwritten signature in black ink, appearing to read 'C. Patrick Milligan', written over a horizontal line.

C. Patrick Milligan  
President

ATTEST:

A handwritten signature in blue ink, appearing to read 'Ed Killgore', written over a horizontal line.

Ed Killgore  
Secretary

**RESOLUTION NO. 950****RESOLUTION OF THE BOARD OF DIRECTORS OF THE  
SAN BERNARDINO VALLEY MUNICIPAL WATER  
DISTRICT ADOPTING A WATER CONSERVATION  
STRATEGY TO IMPROVE WATER SUPPLY RELIABILITY**

**WHEREAS**, the State of California is entering its third year of dry conditions in the watersheds that supply imported water to Valley District's service area; and

**WHEREAS**, the recently released Biological Opinion for the Delta Smelt significantly restricts the ability of the State Water Project to deliver water to its Contractors, including Valley District; and

**WHEREAS**, the Department of Water Resources has announced an 2009 initial allocation of just 15% deliveries of State Water Project contracted amounts with an indication that this allocation could go lower; and

**WHEREAS**, Governor Schwarzenegger proclaimed by Executive Order the need for immediate implementation of additional water conservation strategies; and

**WHEREAS**, long term water supply reliability solutions to endangered species impacts and droughts will take multiple years to complete; and

**WHEREAS**, Valley District wishes to cooperate with retail water purveyors within their service area in efforts to maintain a reliable water supply for members of the public through the adoption of aggressive water conservation programs; and

**WHEREAS**, the implementation of a water conservation strategy will assist the District in fulfilling its obligation to replenish the San Bernardino Basin Area, as required by the *Western Judgment*; and

**WHEREAS**, the development and implementation of a water conservation strategy is an integral component of Valley District's more general effort to provide a reliable, safe and affordable water supply to the residents of the San Bernardino Valley, now and in the future.

**NOW, THEREFORE, BE IT RESOLVED:**

1. It is the policy of Valley District to strongly encourage water conservation programs throughout its service area, including, as may be appropriate, funding all or a portion of those programs.
2. The District encourages retail water agencies to adopt tiered water rate structures that effectively reduce water demand by providing economic incentives for the efficient use of water.

3. The District commits to continue and accelerate water conservation programs in collaboration with its retail water agencies, including a Weather Based Irrigation Controller incentive program and the development of a Water Conservation Demonstration Garden. The District will meet, as needed, with retail water agencies located within its service area to plan and implement additional cost-effective water conservation programs.

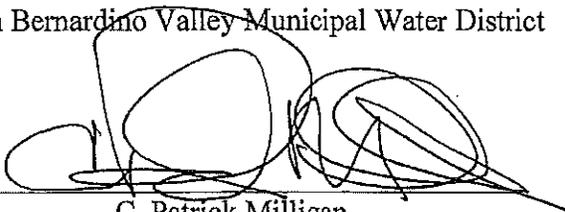
4. The District, in cooperation with the Water Resources Institute, will continue to provide leadership in the development of a landscape irrigation model ordinance in compliance with AB1881 that reflects the unique conditions of the San Bernardino Valley and that can win widespread acceptance from local land-use authorities and the public.

5. The District will continue to facilitate and, as appropriate, fund region-wide water conservation public information campaigns, again in cooperation with its retail water agencies. These public information campaigns will be consistent with the public service announcements aired by the Department of Water Resources and the Metropolitan Water District of Southern California.

6. The District supports the Flexible Framework for Water Conservation currently being developed by the SAWPA agencies and encourages our retail water agencies to support legislation based on concepts therein.

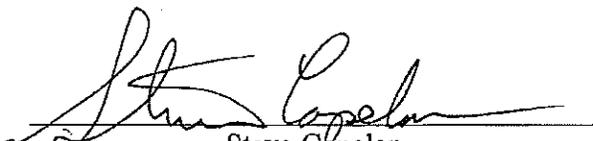
**ADOPTED** this 18<sup>th</sup> day of February, 2009.

San Bernardino Valley Municipal Water District



C. Patrick Milligan  
President

ATTEST:



Steve Copelan  
Secretary

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**Board of Directors**

**President**  
Philip E. Paule

April 16, 2014

**Vice President**  
Randy A. Record

Joseph J. Kuebler, CPA  
David J. Slawson  
Ronald W. Sullivan

**General Manager**  
Paul D. Jones II, P.E.

**Treasurer**  
Joseph J. Kuebler, CPA

**Director of The  
Metropolitan Water  
District of So. Calif.**  
Randy A. Record

**Board Secretary and  
Assistant to the  
General Manager**  
Rosemarie V. Howard

**Legal Counsel**  
Lemieux & O'Neill

TO: Board of Directors

FROM: General Manager

SUBJECT: Approve and Authorize the Implementation of "Stage 2: Supply Alert" of the Water Shortage Contingency Plan as Detailed in Article 10 of Title 5 of the Administrative Code and Adopt a Resolution of the Board of Directors of Eastern Municipal Water District Urging Heightened Water Conservation by Customers in Response to the Drought

**RECOMMENDATION**

The following proposal was presented to the Board Planning Committee on April 15, 2014, and received its full concurrence. It is recommended that the Board:

1. Approve and authorize the implementation of "Stage 2: Supply Alert" of the Water Shortage Contingency Plan as detailed in Article 10 of Title 5 of the Administrative Code; and
2. Adopt a resolution to urge heightened water conservation by customers in response to the statewide drought.

Concur:

Paul D. Jones II, P.E.  
General Manager

Submitted by:

Charles J. Bachmann  
Assistant General Manager  
Planning, Engineering, and Construction

Directors: All  
Divisions: All

## **BACKGROUND**

Following one of the driest years on record in California, Governor Brown officially declared the state in a drought emergency on January 17, 2014. This action sets the stage for expedited state and federal efforts to provide assistance to communities and farms most affected by the drought conditions.

In the executive order declaring the drought, the Governor also asked all Californians to voluntarily reduce water usage by twenty percent. A statewide drought task force has also been established to review all aspects of the drought and provide recommendations to the Governor on possible tools and solutions.

Reservoirs along the State Water Project (SWP) are at record low-levels with many reservoirs at forty percent of capacity or less. Due to the drought and court mandated pumping restrictions in the Sacramento-San Joaquin River Delta, the California Department of Water Resources has announced that of the approximately 4 million acre-feet of SWP water that southern and central California are contracted to receive, SWP allocations will be at zero-percent allocation – never before has a zero percent allocation been declared.

Seventeen rural communities, mostly in central California, have been identified by the Department of Public Health as being between 60 and 100 days away from running out of water. This dire situation has led many farmers to abandon their crops and fallowing land in order to conserve water and reduce costs.

Southern Californians have made great progress on reducing water usage over the last several years in response to both state mandates and diminishing water allocations from the SWP. Southern California water suppliers have also invested heavily in storage, local water supply projects, diversified water portfolios, and conservation. While this alone will not shield Southern California from drought impacts, it has allowed the region to be better positioned to manage the early stages of water shortages. However, recognizing that snowpack and rainfall are at historical lows and dry conditions cause higher water demand, EMWD is taking a number of measures to prepare for the possibility of extended drought conditions. Such actions have included two prior Board of Directors workshops on EMWD's existing measures to address drought conditions, continued investments in projects to enhance local water supply, and enhanced drought messaging to EMWD's wholesale and retail customers.

Based on the statewide water supply conditions, staff is recommending the Board implement "Stage 2: Supply Alert" of the Water Shortage Contingency Plan as detailed in Title 5, Article 10 of the Administrative Code. At this stage, efforts will be focused on a voluntary reduction of water demand. Messaging will encourage customers to reduce their water demand by 20 percent. Customers can reduce their demand by following the water use efficiency requirements listed in Exhibit A and Title 5, Article 6 of the Administrative Code.

Immediately following the implementation of Stage 2 and the adoption of the resolution, staff will conduct extensive outreach to notify customers of the change. Immediate outreach will include a new website banner on [www.emwd.org](http://www.emwd.org), preparation and distribution of a press release, as well as Stage 2 notification, a call for a 20 percent reduction and information in the May Special Edition customer newsletter, e-blasts, e-bill messages, printed bill messages starting in May, social media, and information on the 'on-hold' phone message. Staff will reach out to sub-agencies and local government through letters, presentations, and public comments. Outreach

will also encourage customers to participate in rebate incentives, residential audits, and other available conservation programs.

In support of the implementation of Stage 2 of the Water Shortage Contingency Plan and the statewide effort to reduce demand by 20 percent, staff is also recommending the adoption of a resolution to urge heightened water conservation by customers in response to the statewide drought.

This project supports the District's Strategic Plan Objective "Water Use Efficiency: Promote efficient use of water resources through the implementation of industry-leading programs and practices combined with customer education and awareness."

EL:sgc

Attachments: Exhibit A – Water Use Efficiency Requirements  
Exhibit B – Resolution  
Exhibit C – Presentation

Finance 

Purchasing/Contracts 

Author: Elizabeth Lovsted

Implement Stage 2 of Water Shortage Contingency Plan Ltr 041614.docx

## Exhibit A

# Water Use Efficiency Requirements

To reduce demand up to 25% the following water use efficiency restrictions apply:

1. Hosing down driveways and other hard surfaces, is prohibited except for health or sanitary reasons and then only by use of a hand-held bucket or similar container, a handheld hose equipped with a positive self-closing water shut-off device or a low-volume, high-pressure cleaning machine equipped to recycle any water used.
2. Repair faucets, toilets, pipes and other potential sources of water leaks within forty-eight hours of occurrence.
3. Irrigate landscape only between 9:00 p.m. and 6:00 a.m. This provision does not apply when:
  - a. manually watering;
  - b. during the establishment period of a new landscape;
  - c. temperatures are predicted to fall below freezing;
  - d. for very short periods of time for the express purpose of adjusting or repairing an irrigation system.
4. Watering or irrigating of any lawn, landscape or other vegetated area with potable water using a landscape irrigation system or watering device that is not continuously attended is prohibited unless it is limited to no more than 15 minutes watering per day per station. This 15 minute limitation can be extended for:
  - a. Landscape irrigation systems that exclusively use very low flow drip irrigation systems when no emitter produces more than two (2) gallons of water per hour.
  - b. Weather based controllers or stream rotor sprinklers that meet 70% efficiency.
  - c. Run-off or over watering is not permitted in any case.
5. Adjust and operate all landscape irrigation systems in a manner, which will maximize irrigation efficiency and avoid over watering or watering of hardscape and the resulting runoff.
6. Watering or irrigating any lawn, landscape or other vegetated area that causes or allows excessive water flow or runoff onto an adjoining sidewalk, driveway, street, alley, gutter or ditch is prohibited.
7. Do not use decorative fountains unless they are equipped with a recycling system.
8. Allowing water to run while washing vehicles is prohibited. Use a bucket or similar container and/or a handheld hose equipped with a positive self-closing water shut-off device to avoid run off into gutters, streets or alleys.

Water Use Efficiency Requirements, cont.

9. When installing new landscaping, plant low-water demand trees and plants. New turf shall only be installed for functional purposes.
10. Watering during rain is prohibited.
11. Reduce watering or irrigating of lawn, landscape or other vegetated areas with sprinklers by one day a week.
12. All leaks, breaks, or other malfunctions in the water user's plumbing or distribution system repaired within 72 hours.
13. Refrain from filling or re-filling of ornamental lakes or ponds.

**RESOLUTION NO. 2014-050**

**A RESOLUTION OF THE BOARD OF DIRECTORS OF  
EASTERN MUNICIPAL WATER DISTRICT URGING  
HEIGHTENED WATER CONSERVATION BY  
CUSTOMERS IN RESPONSE TO THE DROUGHT**

**WHEREAS**, California is experiencing one of the most severe droughts on record; and

**WHEREAS**, the 2014 water year has been one of the driest in decades and follows two consecutive dry years throughout the state; and

**WHEREAS**, even after recent rain and snowfall, the state's major reservoirs remain well below average levels for the date and the statewide snowpack is less than a third of normal, with little time remaining to recover in 2014; many areas of the state will face water shortages this year; and

**WHEREAS**, the State Water Project has announced an initial allocation of zero for its customers in 2014 while the federal Central Valley Project has announced the lowest-ever allocations for its contractors, creating a real possibility that 25 million Californians and more than a million acres of farmland will receive no water from the projects this year; and

**WHEREAS**, Governor Brown declared a drought state of emergency on January 17, 2014, and called on all Californians to do their part to reduce their water use; and

**WHEREAS**, through local water supply conditions vary around the state, California is nevertheless in a statewide drought, and it is critical that all residents do what they can to use water wisely to maximize supplies and protect water reserves in case next year is dry, too; and

**WHEREAS**, Eastern Municipal Water District has made significant investments in local programs to improve water supply reliability, including an aggressive budget based tiered water rate structure, other water use efficiency measures, water recycling, and groundwater desalination; and

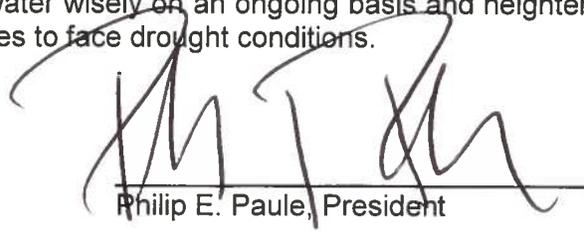
**WHEREAS**, through these methods, Eastern Municipal Water District has already reduced customer water demand from nearly 230 gallons per capita per day to 155 gallons per capita per day; and

**WHEREAS**, Eastern Municipal Water District is now implementing Stage 2 of its Water Shortage Contingency Plan, calling for a 20 percent reduction in water demand and urging customers to reduce demand by following certain water use efficiency requirements; and

**WHEREAS**, if the drought continues and the current stage of response is not adequate to reduce demand, Eastern Municipal Water District will implement subsequent stages of its Water Shortage Contingency Plan; and progress from voluntary to mandatory conservation with enforcement.

**NOW, THEREFORE, THE BOARD OF DIRECTORS OF EASTERN MUNICIPAL WATER DISTRICT DOES HEREBY** recognize that California is in a statewide drought and there is a critical need for all Californians to use water wisely on an ongoing basis and heighten their conservation efforts now as the state continues to face drought conditions.

DATED: April 16, 2014.



Philip E. Paule, President

I hereby certify that the foregoing is a full, true, and correct copy of the Resolution adopted by the Board of Directors of the Eastern Municipal Water District at its meeting held on April 16, 2014.

ATTEST:



Rosemarie V. Howard, Secretary

(SEAL)

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RESOLUTION 2859

A RESOLUTION OF THE BOARD OF DIRECTORS  
OF WESTERN MUNICIPAL WATER DISTRICT IN  
SUPPORT OF THE CALIFORNIA GOVERNOR'S  
DROUGHT DECLARATION AND CALL FOR  
VOLUNTARY REDUCTION OF WATER USE

WHEREAS, on January 17, California Governor Jerry Brown called for an Emergency Drought Declaration; and,

WHEREAS, on February 11, the Metropolitan Water District of Southern California - of which Western is a member agency - issued a Water Supply Alert noting that a zero allocation of State Water Project water from the Northern Sierra Nevadas and Bay-Delta is projected to Southern California; and,

WHEREAS, the State of California is in its third year of drought; and,

WHEREAS, the Colorado River is in its 14<sup>th</sup> year of drought; and,

WHEREAS, Western Municipal Water District will work with its 23,000 residential customers for a voluntary 20 percent water use reduction and encourages all agencies and cities within its general service area to reduce water use; and,

WHEREAS, Western readily and thankfully acknowledges the efforts of its customers not only in water reduction efforts through water budgets, but also noting the contribution to water supply storage solutions borne from the burden of significant rate increases due to statewide water supply challenges and subsequent cost escalations; and,

WHEREAS, the District will continue to work with its customers and regional partners to enhance and develop water efficiency programs that help customers reduce water use as well as continue to develop local water rights and storage, desalting and recycling projects to secure local water supplies; and,

WHEREAS, Western Municipal Water District is partnering with its service area agencies as well as other water entities in

the Inland Empire to deliver strategic drought outreach information to residents.

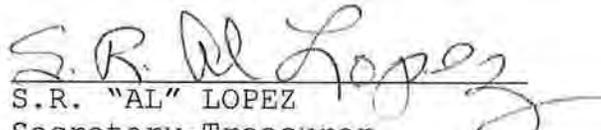
NOW THEREFORE, BE IT RESOLVED by the Board of Directors of Western Municipal Water District a call for a 20 percent voluntary reduction of water use by its customers in support of Governor Brown's Drought Declaration.

ADOPTED, this 2nd day of April 2014.

  
BRENDA DENNSTEDT  
President

April 2, 2014

I HEREBY CERTIFY that the foregoing is a full, true and correct copy of Resolution 2859 adopted by the Board of Directors of Western Municipal Water District of Riverside County at its regular meeting held April 2, 2014.

  
S.R. "AL" LOPEZ  
Secretary-Treasurer

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# **BTAC: DRAFT TACTICAL PLAN DROUGHT/CONSERVATION OUTREACH**

Wednesday, May 14, 2014

PRESENTED BY:



CV STRATEGIES

The logo features the text "CV STRATEGIES" in a sans-serif font. The "CV" is in a dark red color, while "STRATEGIES" is in a dark grey. The text is centered horizontally and partially overlaid by a stylized graphic consisting of three thin lines (one red, one gold, and one dark green) that intersect at a central black dot. The lines extend outwards in various directions, creating a dynamic, abstract shape.

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## PROJECT BACKGROUND

In January 2014, Governor Brown's drought emergency declaration effectively changed the climate for water supply and conservation communication throughout the state.

For the water industry, often an invisible service that receives little attention in the minds of ratepayers, this new climate presents a tremendous opportunity. Headlines have focused on water supply as they rarely have in the past. Communities throughout the Inland Empire recognize the importance of reducing water waste, and have an appetite for information that defines and encourages their participation in solving the water supply crisis.

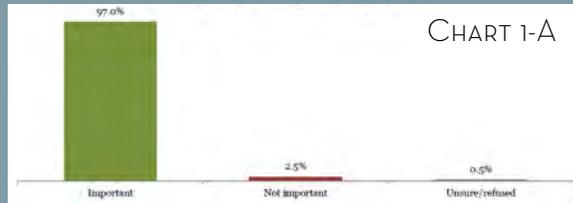
The challenge: currently, the public receives few direct calls to action that encourage behavior change, has little idea about where to find conservation ideas and resources, and is generally unclear about where their water behaviors can change to best effect.

Seeking to leverage this opportunity, in February 2014, the Basin Technical Advisory Committee commissioned a regional water conservation outreach effort that would unify disparate agency messaging, pool agency resources to maximize message reach, and educate and inform water users throughout the region.

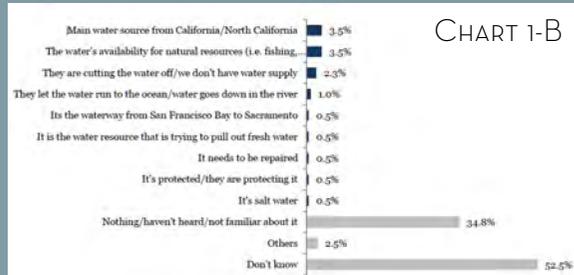
A regional conservation survey was commissioned, designed and executed to test attitudes, knowledge and appetite for change. Data from this survey, along with multi-agency workshops, extensive assessments of existing agency outreach efforts and materials, and an evaluation of regional earned media, advertising, event, and partnership landscape, contributed to the development of this plan.

## SURVEY RESULTS

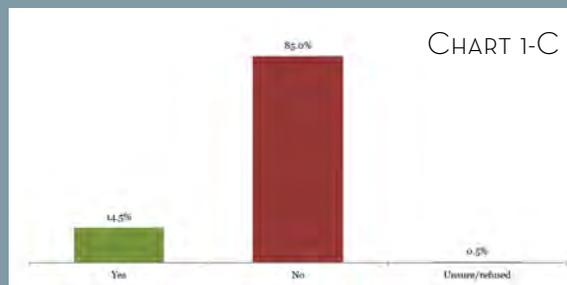
**Question:** “Would you say that conserving water is very important, somewhat important, not very important or not at all important?”



**Question:** “Please tell me what you know about the Bay Delta? If you haven’t heard of it or don’t know, just say so.”



**Question:** “Have you heard of the ‘Inland Empire Garden Friendly program?’”



## SURVEY FINDINGS SUMMARY

From Tuesday, March 4 through Thursday, March 6, 2014, Probolsky Research conducted a telephone survey within Riverside and San Bernardino Counties Riverside and San Bernardino Counties (minus Riverside Supervisorial District 4 and Desert Hot Springs, Idyllwild and Anza, San Bernardino County Supervisorial Districts 1 and 2).

Our research revealed a region that differs in many significant ways from the rest of California, not only a manner that reflects the distinctly different water supply challenges of the Inland Empire, but also in terms of awareness of and prioritization of water conservation issues as well as awareness and understanding of the nature and impact of non-regional water issues and programs (such as the Bay Delta). These differences highlight the need to incorporate regionally specific and relevant research and messaging programs that speak to the unique needs, challenges, goals and opinions of the region.

### Water May Not Be Top of Mind, But Residents Understand its Importance

While water isn’t the most important issue respondents felt face their community (these being reserved for “jobs and the economy” and “public safety”, an overwhelming number say that conserving water as important. 97% say conserving water is important. (See chart 1-A, at left.) Moreover, nearly the same proportion indicates that they translate awareness into action, with 94.0% responding that they regularly try to conserve water.

However, these remarkably high proportions don’t necessarily translate into awareness of key water issues as well as awareness and adoption of available – and effective – water reduction programs and behaviors. There is nearly zero knowledge of the Bay Delta, much less the Delta’s impact on the BTAC region. (See chart 1-B, at left.) 85% have never heard of the Inland Empire Garden Friendly Program. (See chart 1-C, at left.)

This is further evidenced by (A) a fundamental misunderstanding of where most home water use occurs and (B) the naturally resultant misunderstanding of where the greatest opportunity for home water conservation lies. 67.5% falsely believe that most of their home water usage is inside the home and most water saving behaviors are focused on the inside of homes rather than the outside. (See charts 2-A and 2-B, at right.)

Ultimately, these key discoveries from our research revealed a populace that is acutely aware of the importance of water conservation to their region and their personal lives, but also are unaware of key California water issues that affect them (such as the Delta) AND they fundamentally misunderstand where the opportunities lie for the greatest water conservation around their own homes. Fortunately, it is clear that while the region obviously has a long way to go to achieve appropriate conservation awareness and efficient water conservation behavior, the regional populace both appreciates the magnitude of importance of water conservation, but is also receptive to education.

This latter point of receptivity was evince in a variety of ways throughout the survey, but is perhaps best illustrated by the region’s receptivity to the Bay Delta Conservation Plan, once a simple explanation has been provided to them. 74.3% support the Bay Delta Conservation Plan.

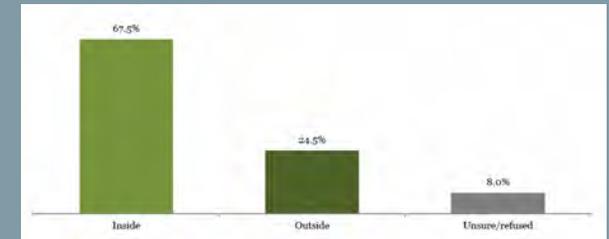
Fully 79.3% of respondents felt they could do more to conserve water, and 58.8% believed that their local water agency could do more to help them do so. (See chart 2-C, at right.)

It’s one thing to understand that there is a deep and widespread misunderstanding of the most effective regional water conservation tactics, as well as to reveal an audience highly receptive to educational information designed to close that gap...the next question is to determine the best message vehicles to deliver regional educational information.

## SURVEY RESULTS

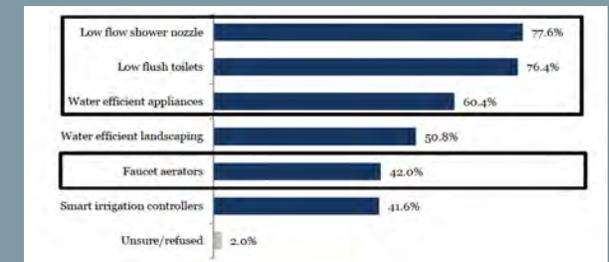
Question: “Which of the following steps toward water saving do you have or do you do at your home?”

CHART 2-A



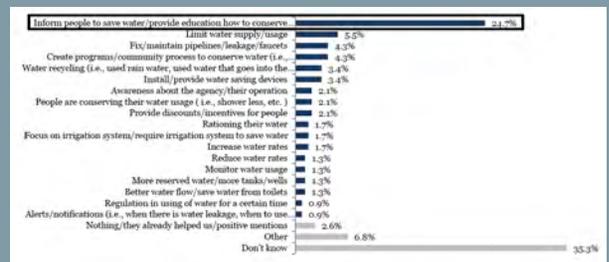
Question: “Which of the following steps toward water saving do you have or do you do at your home?”

CHART 2-B



Question: “What is the best way for water agencies to help residents conserve water?”

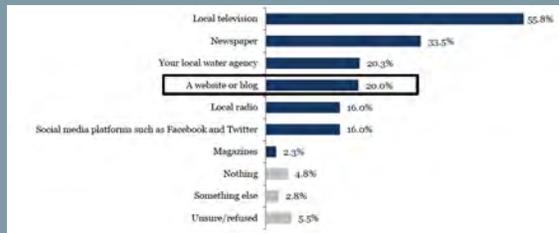
CHART 2-C



## SURVEY RESULTS

Question: "What are your top two sources for news and information about water and water-related issues?"

CHART 3-A



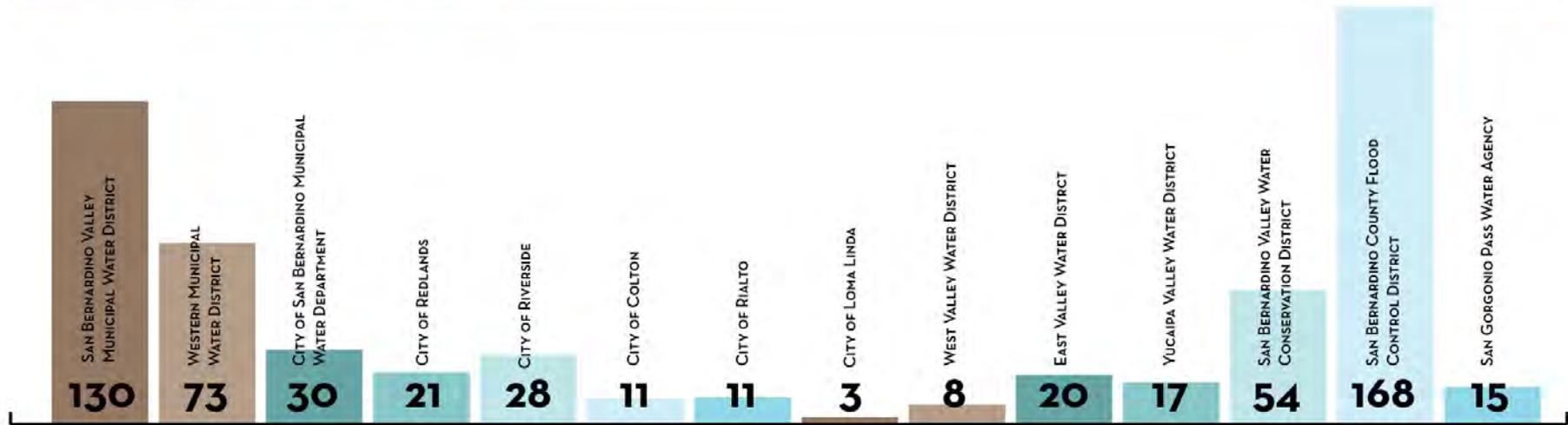
While it is no great surprise that local TV (in particular, Channel 7) and newspapers (especially the Press Enterprise) are top regional news sources, it is encouraging that high proportions of respondents consider their local water agencies AND online resources as key information vehicles. This indicates a comparatively low cost opportunity to effectively engage and educate the region

A total of 400 surveys were collected. A survey of this size yields a margin of error of +/-4.8% with a 95% degree of confidence. Interviews were conducted with voters on both landline and cell phones and were offered in English and Spanish languages.

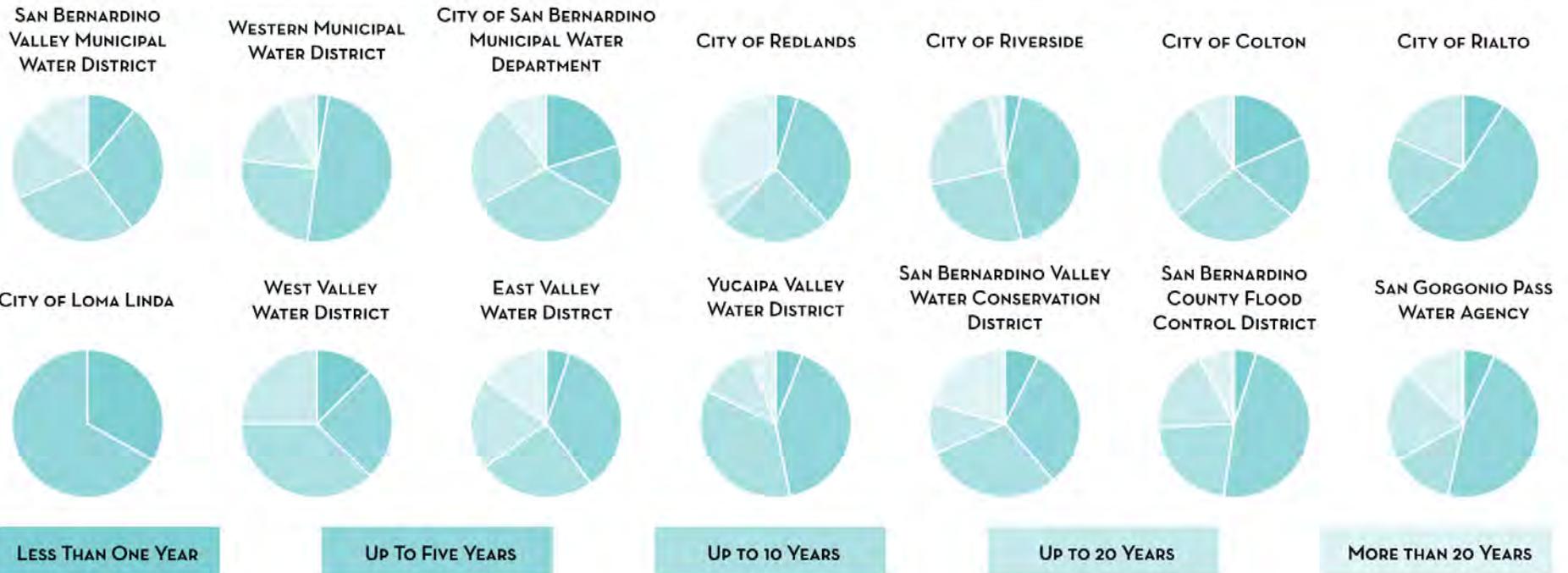


# GEOGRAPHICAL ANALYSIS

## SURVEY PARTICIPATION BY SERVICE AREA



## LENGTH OF TIME IN SERVICE AREA



## STRATEGIC OUTREACH PLAN

Building the fundamentals of the Strategic Outreach Plan for a Regional Conservation Outreach Program for the Inland Empire required considerable review of dozens of individual and organizational stakeholder relationships and communications protocols, materials, work plans, reports, etc. The multitude of components led to the draft development of the communications strategy for the BTAC Water Conservation Sub-Committee.

In order to achieve success, it is critical to understand the unique audiences and associated research, and then build on those elements to determine the best way to reach them. It goes above and beyond simple information. It takes a blend of science and human behavior study to find a truly effective communications methodology. The key is creating a community of understanding, and then incentivizing the audience to participate and take action.

### PLANNING APPROACH:

1. Goal Identification – Goals must be measurable and attainable, and must have inherent ways to evaluate the effectiveness of message delivery.
2. Target Audience Determination – For messages and outreach to be the most effective, the campaign must address each unique vertical audience and not produce a “one size fits all” approach.
3. Audience Research – Research is critical and maximizes ROI because what drives consumer decision-making may be different than what is anticipated or assumed.
4. Development of Outreach Strategies – The key to increasing participation in a campaign is to gain an understanding of audiences and their motivations, and then use this understanding to inspire people to take action.
5. Plan Implementation – A plan is critical to the success of the effort, focusing and prioritizing resources, ensuring consistency, and creating a roadmap to long-term success.
6. Measurements and Evaluation – Evaluating public outreach efforts frequently enables performance tracking on all deliverables, and a continuously refined approach that builds momentum and yields lasting results.
7. All efforts must be planned and executed in coordination with Metropolitan Water District and any other regional outreach efforts to maximize benefits.

## PROJECT GOALS

- Present consistent message to customers and audiences
- Coordinate multi-agency efforts
- Demonstrate commitment to regional collaboration
- Promote BTAC as a regional authority on water conservation
- Leverage unprecedented focus and interest in water supply issues
- Promote existing tools and resources
- Change attitudes and behaviors to foster efficient water ethic
- Educate community about their role in the solution
- Celebrate the region's achievements: storage and advanced planning
- Communicate the possibility of prolonged drought
- Promote the delta fix
- Explain what local agencies are doing to increase reliability
- Allow for personalization of materials



## PLANNING DETERMINATIONS:

To maximize the financial resources among the participating agencies, the Regional Conservation Outreach Plan should focus on the following:

1. No-Charge/Free Communications
  - a. Public service announcements generated through local broadcast and cable affiliates
  - b. Online and print announcements and calendar listings available through local and regional press outlets
  - c. Messages must meet the standard of raising awareness, or changing attitudes and/or behaviors
  - d. Announcements are typically reserved for social issues
  - e. Media outlets do not charge for these opportunities, however the competition in the marketplace is generally high
2. Earned Media, also referred to as "Unpaid Media"
  - a. Publicity gained through promotional efforts other than advertising
  - b. Capitalizes on editorial influence
  - c. Generally considered the most trusted source of information
  - d. Most likely communication channel to generate consumer call to action
3. Social Media
  - a. Publicity gained through grassroots online efforts
  - b. People create and exchange information in virtual networks
  - c. Depends on mobile technologies and advanced communication paths
  - d. Reputations and brands are built through a highly interactive platform
4. Advertising
  - a. Paid, impersonal one-way marketing
  - b. Sponsors are identified
  - c. Drives consumer behavior
  - d. Intention is to persuade through fee for service approach
5. Special Events
  - a. Promotional venture to increase public awareness
  - b. Useful for informing large and small groups
  - c. Draws value added attention from the media
  - d. Campaign becomes critical community partner and good neighbor
6. Existing Agency Communication Resources
  - a. Capitalize on organic agency meeting participation
  - b. Train district spokespeople to communicate message
  - c. Customizable campaign elements available for each agency
  - d. Leverage current budget concepts and spending approaches

## THE BOTTOM LINE

1. The campaign must reflect the uniqueness of the Inland Empire and focus on outdoor conservation measures.
2. A robust branding campaign allows tools to be used effectively and consistently across wide range of delivery vehicles.
3. Key messages must not only garner attention but also offer clear call to action directives.
4. Social media, online, billboards, and some targeted print advertising are key tools to maximize consumer engagement.
5. Earned media is critical way to leverage campaign strategies.
6. Although research indicates its value, TV is cost prohibitive for this effort.
7. Special events and face-to-face communication offer the biggest opportunity to drive program effectiveness.
8. Costs reflected in the budget are a blend of considerations including agency spending tolerance and advertising value metrics.
9. Advertising budget is scalable based on use of agencies' paid media opportunities.
10. Existing communication methodologies within each agency are extremely useful and powerful messaging resources.

## KEY MESSAGES

The drought is severe. It is time to take this issue seriously.

It is easier than you think to use less water.

The cost of inaction always exceeds the cost of acting now.

In our region, most water is used outdoors.

Beautiful landscapes can thrive using less water.

Water is not a renewable resource.

Saving water is the right thing to do.

The drought is not a short-term problem. The solution needs to be a change in lifestyle.

Future supply depends upon protecting the resource now.

While there is enough water to get us through the current year, we need to ensure sufficient future supply.

Agencies are working hard to increase conservation, but public participation is key.

Local agencies are working together.

Even if rates go up, using less water is always better.

Due to increased energy costs, water rates are going up no matter what.

Smart planning is an investment in future reliability.

BDCP is critical to future water supply reliability.

## MESSAGE DELIVERY STRATEGY

In order to achieve widespread campaign awareness that maintains a reasonable budget, CV Strategies recommends that the agencies employ diverse advertising, event participation and media outreach all aimed at driving engagement with the campaign website.

**Advertising outlets should include** - free and no cost media opportunities, web, billboards, radio, social media and targeted print advertising. Additional recommended vehicles include: movie theater previews and bus advertising. CV Strategies does not recommend using television advertising, as it is cost prohibitive. As the call to action to conserve applies to all residents, this broad approach will yield increased web visits.

**Event participation** - through presence via booths and/or signage – is a strong tactic to engage local residents, increase visibility and reinforce branding. Event presence should be scaled depending on audience size and demographics. CV Strategies also recommends leveraging existing agency event participation to further campaign awareness and drive web traffic.

**Social media outreach** - supplemented with social media ad buys (page promotions), is an effective way to saturate the local market across demographics. Facebook is the ideal platform with occasional video content integrated. Twitter should be leveraged as well, streamlined with Facebook posts to maximize reach while keeping costs low. These vehicles will allow people to quickly and easily access the campaign hub – the website.

**Earned media** - will allow this campaign not only to reach more people, but also to reach them in a more meaningful way. News coverage will give the campaign credibility and authority. The approach will include print, television and radio outlets and their websites. Existing agency relationships with local beat reporters should be leveraged and campaign URL should consistently be given to the media to provide to the public.

**Area of Focus** - advertising and events will attempt to reach all participating agencies with a focus on the Inland Empire core and Valley District service area.

This multi-faceted approach will drive more Inland Empire residents to think about their water use, and use the website as a resource to change their behavior. The website is an ideal tool for agencies and their customers alike – it provides clear proof-of-performance data, which can impact campaign and ongoing outreach decisions.



# BTAC: WATER CONSERVATION SUB-COMMITTEE 2014

## GOLD - Drought and Conservation Outreach: Draft Tactical Plan (updated: 5/14/14)

KEY: DEVELOPMENT IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
Create draft look and thematic concepts for review												
Develop logo and tagline options												
Determine selections in collaboration with team												
Develop style guide, templates and branding elements												
Deploy brand												

**CREATIVE SERVICES (DESIGN, FACILITATION AND PRODUCTION)**      115 HOURS      \$15,000

ALLOW FOR PERSONALIZATION OF MATERIALS  
LEVERAGE UNPRECEDENTED FOCUS AND INTEREST IN WATER SUPPLY ISSUES

Collateral												
Advertisements												
Photography												
Videography												
Signage												
Web elements												
Presentations												

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KEY: DEVELOPMENT IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
Premium items				DEVELOPMENT								
Educational materials				DEVELOPMENT								
Electronic messaging				DEVELOPMENT								
Other outreach materials				DEVELOPMENT								

**WEB TOOLS & ENHANCEMENT  
(FOLLOWING REVIEW)**      100 HOURS      \$750

**PROMOTE EXISTING TOOLS AND RESOURCES  
EDUCATE COMMUNITY ABOUT THEIR ROLE IN THE SOLUTION**

Identify and secure web domain			DEVELOPMENT		IMPLEMENTATION							
Create interactive user engagement tools			DEVELOPMENT		IMPLEMENTATION							
Build agency locator tool			DEVELOPMENT		IMPLEMENTATION							
Incorporate new brand into site			DEVELOPMENT		IMPLEMENTATION							
Conservation games			DEVELOPMENT		IMPLEMENTATION							
Interactive educational exercises and contests			DEVELOPMENT		IMPLEMENTATION							
Efficient water use savings guide			DEVELOPMENT		IMPLEMENTATION							
Regional water supply management efforts			DEVELOPMENT		IMPLEMENTATION							

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KEY:  DEVELOPMENT  IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
BDCP messaging			DEVELOPMENT	IMPLEMENTATION								
Information about local projects			DEVELOPMENT	IMPLEMENTATION								
Customer contact information capture			DEVELOPMENT	IMPLEMENTATION								
Agency specific social media incorporation			DEVELOPMENT	IMPLEMENTATION								
Water wise glossary and image gallery			DEVELOPMENT	IMPLEMENTATION								

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KEY:  DEVELOPMENT  IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
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### PHASE 2 - CAMPAIGN IMPLEMENTATION

<b>OUTREACH CAMPAIGN DEPLOYMENT</b>	<b>250 HOURS</b>	<b>\$45,000</b>
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PRESENT CONSISTENT MESSAGE TO CUSTOMERS AND AUDIENCES.  
PROMOTE EXISTING TOOLS AND RESOURCES.

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
<b>CAMPAIGN LAUNCH EVENT</b>										
Identify location										
Determine participants and responsibilities										
Event logistics prep										
Advertisement										
Media outreach (press release, story pitch)										
<b>MEDIA EVENTS</b>										
Select opportunities										
Determine best media partners										
Identify agency participants										
Media outreach (press release, story pitch)										

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KEY: DEVELOPMENT IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
<b>BRANDED PRESENCE AT MAJOR REGIONAL EVENTS</b>												
Prioritize as per event calendar with agency input												
Seek opportunities inclusive of all service areas												
Identify agency participants												
Prepare tailored materials targeted for event												
Advertisement												
Media outreach (press release, story pitch)												
<b>BRANDED PRESENCE AT COMMUNITY EVENTS</b>												
Prioritize as per event calendar with agency input												
Seek opportunities inclusive of all service areas												
Identify agency participants												
Prepare tailored materials targeted for event												
Advertisement												

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KEY:  DEVELOPMENT  IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
Media outreach (press release, story pitch)												
<b>CAMPAIGN SPECIFIC EVENTS</b>												
Develop and facilitate two unique events with broad agency input												
Seek opportunities inclusive of all service areas												
Identify agency participants												
Prepare tailored materials targeted for event												
Advertisement												
Media outreach (press release, story pitch)												
<b>NEW AND EXISTING TOURS</b>												
Identify and leverage existing tours with water supply angle												
If necessary, create unique, multiagency tour												
Seek opportunities inclusive of all service areas												
Identify agency participants												

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INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
Prepare tailored materials targeted for event												
Media outreach (press release, story pitch)												
<b>PARTNERSHIP FACILITATION</b>												
Prioritize key partnership targets												
Prepare partnership solicitation materials												
Facilitate communication with select targets												
Leverage partnerships at events, in all media, and in collateral materials												
Media outreach (press release, story pitch)												
<b>SOCIAL MEDIA CAMPAIGN</b>												
Create dynamic, regularly updated social media suite												
Build social media guidelines and protocol												
Identify social media authors and participants												
Leverage all events and other outreach on social media vehicles												

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KEY: DEVELOPMENT IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
<b>SMARTPHONE APP</b>												
Determine necessary tools and features												
Develop app												
Media outreach (press release, story pitch) to highlight app launch												
<b>YOUTH AND EDUCATION OUTREACH</b>												
Build opportunities list with agencies												
Determine priorities list												
Adapt existing materials												
Identify and address additional regional program needs												
Build interactive tools												
Participate in and coordinate regional youth outreach												
Media outreach (press release, story pitch)												
<b>BUILD AND EXECUTE STRATEGIC SPONSORSHIP PROGRAM</b>												

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INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
Prioritize key partnership targets												
Prepare partnership solicitation materials												
Facilitate communication with select targets												
Leverage partnerships at events, in all media, and in collateral materials												
Media outreach (press release, story pitch)												
<b>DEVELOP AND IMPLEMENT RELEVANT CONTESTS</b>												
<b>STAKEHOLDER PRESENTATIONS</b>												
Develop targeted outreach "road show" for stakeholder presentations												
Present actively, frequently and inclusively to wide-ranging audiences												
<b>LEVERAGE EXISTING AGENCY COLLATERAL EFFORTS</b>												
<b>TRACK ATTENDANCE AND ENGAGEMENT AS PROOF OF PERFORMANCE METRIC</b>												
<b>EARNED MEDIA LANDSCAPE</b>	<b>100 HOURS</b>	<b>\$2,500</b>	<b>EDUCATE COMMUNITY ABOUT THEIR ROLE IN THE SOLUTION. LEVERAGE UNPRECEDENTED FOCUS AND INTEREST IN WATER SUPPLY ISSUES.</b>									
Press releases												

# BTAC: WATER CONSERVATION SUB-COMMITTEE 2014

## GOLD - Drought and Conservation Outreach: Draft Tactical Plan (updated: 5/14/14)

KEY: DEVELOPMENT IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
Reporter meetings/roundtables/editorial board				DEVELOPMENT	IMPLEMENTATION							
Op-Eds/letters to the editor				DEVELOPMENT	IMPLEMENTATION							
Crisis mitigation				DEVELOPMENT	IMPLEMENTATION							
Community postings				DEVELOPMENT	IMPLEMENTATION							
Media monitoring				DEVELOPMENT	IMPLEMENTATION							
Press conferences				DEVELOPMENT	IMPLEMENTATION							
Collaborative statewide and national dialogue participation				DEVELOPMENT	IMPLEMENTATION							
Earned media facilitation of all events				DEVELOPMENT	IMPLEMENTATION							

**ADVERTISEMENTS (NEGOTIATION AND FACILITATION) (SEE ATTACHED MEDIA PLAN)**    40 HOURS    \$177,300

**CHANGE ATTITUDES AND BEHAVIORS TO FOSTER EFFICIENT WATER ETHIC. DEMONSTRATE COMMITMENT TO REGIONAL COLLABORATION.**

Television				DEVELOPMENT	IMPLEMENTATION							
Radio				DEVELOPMENT	IMPLEMENTATION							
Billboards				DEVELOPMENT	IMPLEMENTATION							
Transit				DEVELOPMENT	IMPLEMENTATION							

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KEY: DEVELOPMENT IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
Digital Advertising												
Spokesperson												
Print												
Miscellaneous: (table tents, movie screens, etc.)												
Coordinate to support all events and presentations												

	TIME	MATERIALS
<b>PHASE 2 ESTIMATED BUDGET</b>	\$118,125	\$241,050
	675 HOURS @ (\$175/HR.)	

# BTAC ADVERTISING & MEDIA SCHEDULE

## GOLD - Six Months of Hard Costs Included

AD OPTIONS	OUTLET	DESCRIPTION	TIMEFRAME	NOTES	TOTAL
<b>CAMPAIGN LAUNCH EVENT</b>	Regional Event	Coordinate launch event, facilities, media	June	Location and details: TBD	<b>\$10,000</b>
<b>PRINT</b>	SB Sun/Redlands Daily Facts/Inland Valley Daily Bulletin	1/8 page ad: (4x/ mo. on Sundays)	July-Dec	Minimum 6 month commitment Artwork deadline: June 1st	<b>\$19,800</b>
	Highland Community News	1/4 page ad: Highland and Yucaipa papers. 35,000 circulated (4x/mo.)	July-Dec	Minimum 6 month commitment Artwork deadline: June 1st	<b>\$10,680</b>
	The Voice	1/3 page ad: 10,000 circulated weekly (4x/mo.)	July-Dec	Minimum 6 month commitment Artwork deadline: June 1st	<b>\$14,148</b>
	Press-Enterprise	1/4 page ad: Non-Main News Sections, (2x/mo.)	July-Dec	Minimum 6 month commitment Artwork deadline: June 1st	<b>\$9,564</b>
	Inland Empire Magazine	1/2 page ad: 235,000 readers per issue	July-Dec	Minimum 6 month commitment Artwork deadline: June 1st	<b>\$4,770</b>
<b>RADIO</b>	KGGI 99.1FM	:15 spot, 6:00am-10:00am, Mon-Fri (6x/mo.), Includes website banner ads	July-Dec	Ads will run 2 weeks on, 1 week off. Digital exposure: 17,500 impressions/mo. Artwork deadline: June 20th, Radio script deadline: May 20th	<b>\$7,000</b>
<b>PUBLIC SERVICE ANNOUNCEMENTS</b>	Radio	KGGI 99.1 - Top 40 KFRG 95.1 - Country KOLA 99.9 - Classic Hits KRQB 96.1 - Spanish KCAL 96.7 - Rock KFI 640AM - Talk	July-Dec	Ad runs/length TBD based upon negotiation	<b>No Cost</b>
	Television	Public Access Channel ABC 7 FOX 11 KPXN-TV KRCA-TV KVCR	July-Dec	Ad runs/length TBD based upon negotiation	<b>No Cost</b>
	Print	SB Sun/Redlands DF/IV Daily Bulletin Highland Community News The Voice Press-Enterprise Inland Empire Magazine	July-Dec	Editorial/Press Releases Editorial deadline: May 20th	<b>No Cost</b>
<b>BILLBOARDS</b>	Lamar Advertising	Billboard #1: 3 mo. run Billboard #2: 3 mo. run	July-Sept Oct-Dec	Artwork deadline: June 1st	<b>\$24,000</b>
<b>THEATER ADS</b>	NCM Media Networks	:15 ad shown on 14 screens at Regal San Bernardino 14. Ad displayed on lobby TV in Regal San Bernardino, and Victoria Gardens theater lobbies.	July-Dec	Commercial production included in rate (277,780 impressions/6 mo.) LEN TV commercials: 653,359 impressions/6 mo.	<b>\$4,061</b>
	Screen Vision	:15 ad shown on 14 screens at Redlands Krikorian.	July-Dec	Commercial production included in rate (520,000 impressions/6 mo.)	<b>\$3,726</b>

## BTAC ADVERTISING & MEDIA SCHEDULE

GOLD - Six Months of Hard Costs Included

AD OPTIONS	OUTLET	DESCRIPTION	TIMEFRAME	NOTES	TOTAL
<b>TRANSIT</b>	Lamar Advertising	Bus advertisement, 6 busses running in San Bernardino	July-Sept	552,638 impressions/mo. Artwork deadline: June 15th	<b>\$3,801</b>
<b>DIGITAL ADVERTISING</b>	Facebook	Social Media	July-Dec	Promoted posts	<b>\$2,000</b>
	Twitter	Social Media	July-Dec	Pomoted tweets	<b>\$2,000</b>
	Yahoo!	Search page results headliner (42,000 impressions/mo.)	July-Dec	Included in SB Sun print bundle Artwork deadline: June 20th	<b>No Cost</b>
	Google	Recommended ad shares, pay per click (70,000 impressions/mo.)	July-Dec	Ad comes up in various places on web and mobile devices. Artwork deadline: June 20th	<b>\$1,800</b>
	ABC 7	Digital Package: Headline and rectangular banner (50,000 impressions/mo.)	July-Sept	Artwork deadline: June 20th	<b>\$1,050</b>
	FOX News 11	Digital Package: Headline and rectangular banner (70,000 impressions/mo.)	Oct-Dec	Artwork deadline: June 20th	<b>\$900</b>
	Press-Enterprise	Digital Package: 300x250 Banner (20,000 impressions)	July-Dec	Included in print bundle Artwork deadline: June 20th	<b>No Cost</b>
	Inland Empire Magazine	Digital Package: Headline banner (16,700 impressions)	July-Dec	Included in print bundle Artwork deadline: June 20th	<b>No Cost</b>
<b>SPOKESPERSON</b>	Events/Video	Campaign spokesperson to appear at events and videos	July-Dec	Talent fee includes the following: (4) TV PSA, (4) Radio PSA, (4-8) Media Interviews, (8) In-person Appearances, (1-2) Keynotes	<b>\$25,000</b>
<b>MOBILE ADVERTISING</b>	Mobile Application	Water Conservation Mobile Smartphone App	July-Dec	Interactive application with tips for water-saving methods and reporting water waste	<b>\$9,000</b>
<b>LOCAL EVENTS</b>	Booths/Promo	Various local event participation and advertising	July-Dec	See regional events list	<b>\$12,000</b>
<b>FOLLOW UP SURVEY</b>	Probolsky	Post-campaign survey to identify campaign success	December		<b>\$12,000</b>
<b>CAMPAIGN TOTAL:</b>					<b>\$177,300</b>

# BTAC: WATER CONSERVATION SUB-COMMITTEE 2014

## SILVER - Drought and Conservation Outreach: Draft Tactical Plan (updated: 5/14/14)

KEY:  DEVELOPMENT  IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
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### PHASE 2 - TOOL DEVELOPMENT

<b>TACTICAL PLAN FINALIZATION</b>	<b>15 HOURS</b>	<b>\$250</b>
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**EXPLAIN WHAT LOCAL AGENCIES ARE DOING TO INCREASE RELIABILITY  
COORDINATE MULTI-AGENCY EFFORTS**

Refine key messages												
Align plan with latest news and goals												
Incorporate survey and focus group findings												
Align plan with scope and content of branding elements												
Align plan with media strategy												

<b>BRANDING &amp; CAMPAIGN DEVELOPMENT</b>	<b>55 HOURS</b>	<b>\$250</b>
--	-----------------	--------------

**PROMOTE BTAC AS A REGIONAL AUTHORITY ON WATER CONSERVATION  
PRESENT CONSISTENT MESSAGE TO CUSTOMERS AND AUDIENCES**

Comprehensive message development												
Define specific goals for you-save-water.com enhancement/rebrand												
Cobranding considerations												
Build brand deployment program												
Identify and prioritize deployment vehicle options												

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INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
Create draft look and thematic concepts for review			DEVELOPMENT	DEVELOPMENT								
Develop logo and tagline options			DEVELOPMENT	DEVELOPMENT								
Determine selections in collaboration with team			DEVELOPMENT	DEVELOPMENT								
Develop style guide, templates and branding elements			DEVELOPMENT	DEVELOPMENT								
Deploy brand					IMPLEMENTATION							

**CREATIVE SERVICES (DESIGN, FACILITATION AND PRODUCTION)**      115 HOURS      \$15,000

ALLOW FOR PERSONALIZATION OF MATERIALS  
LEVERAGE UNPRECEDENTED FOCUS AND INTEREST IN WATER SUPPLY ISSUES

Collateral	IMPLEMENTATION
Advertisements	IMPLEMENTATION
Photography	IMPLEMENTATION
Videography	IMPLEMENTATION
Signage	IMPLEMENTATION
Web elements	IMPLEMENTATION
Presentations	IMPLEMENTATION

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Premium items												
Educational materials												
Electronic messaging												
Other outreach materials												

**WEB TOOLS & ENHANCEMENT (FOLLOWING REVIEW)**      100 HOURS      \$750

**PROMOTE EXISTING TOOLS AND RESOURCES  
EDUCATE COMMUNITY ABOUT THEIR ROLE IN THE SOLUTION**

Identify and secure web domain													
Create interactive user engagement tools													
Build agency locator tool													
Incorporate new brand into site													
Conservation games													
Interactive educational exercises and contests													
Efficient water use savings guide													
Regional water supply management efforts													

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BDCP messaging			DEVELOPMENT	IMPLEMENTATION								
Information about local projects			DEVELOPMENT	IMPLEMENTATION								
Customer contact information capture			DEVELOPMENT	IMPLEMENTATION								
Agency specific social media incorporation			DEVELOPMENT	IMPLEMENTATION								
Water wise glossary and image gallery			DEVELOPMENT	IMPLEMENTATION								

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KEY:  DEVELOPMENT  IMPLEMENTATION

INITIATIVE                      TIME      MATERIALS                      APR    MAY    JUN    JUL    AUG    SEP    OCT    NOV    DEC                      Post

### PHASE 2 - CAMPAIGN IMPLEMENTATION

**OUTREACH CAMPAIGN DEPLOYMENT**      235 HOURS      \$38,000

PRESENT CONSISTENT MESSAGE TO CUSTOMERS AND AUDIENCES.  
PROMOTE EXISTING TOOLS AND RESOURCES.

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
<b>CAMPAIGN LAUNCH EVENT</b>												
Identify location				DEVELOPMENT		IMPLEMENTATION						
Determine participants and responsibilities				DEVELOPMENT		IMPLEMENTATION						
Event logistics prep				DEVELOPMENT		IMPLEMENTATION						
Advertisement				DEVELOPMENT		IMPLEMENTATION						
Media outreach (press release, story pitch)				DEVELOPMENT		IMPLEMENTATION						
<b>MEDIA EVENTS</b>												
Select opportunities				DEVELOPMENT		IMPLEMENTATION						
Determine best media partners				DEVELOPMENT		IMPLEMENTATION						
Identify agency participants				DEVELOPMENT		IMPLEMENTATION						
Media outreach (press release, story pitch)								IMPLEMENTATION			IMPLEMENTATION	

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KEY: DEVELOPMENT IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
<b>BRANDED PRESENCE AT MAJOR REGIONAL EVENTS</b>												
Prioritize as per event calendar with agency input												
Seek opportunities inclusive of all service areas												
Identify agency participants												
Prepare tailored materials targeted for event												
Advertisement												
Media outreach (press release, story pitch)												
<b>BRANDED PRESENCE AT COMMUNITY EVENTS</b>												
Prioritize as per event calendar with agency input												
Seek opportunities inclusive of all service areas												
Identify agency participants												
Prepare tailored materials targeted for event												
Advertisement												

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KEY:  DEVELOPMENT  IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
Media outreach (press release, story pitch)												
<b>CAMPAIGN SPECIFIC EVENTS</b>												
Develop and facilitate two unique events with broad agency input												
Seek opportunities inclusive of all service areas												
Identify agency participants												
Prepare tailored materials targeted for event												
Advertisement												
Media outreach (press release, story pitch)												
<b>NEW AND EXISTING TOURS</b>												
Identify and leverage existing tours with water supply angle												
If necessary, create unique, multiagency tour												
Seek opportunities inclusive of all service areas												
Identify agency participants												

# BTAC: WATER CONSERVATION SUB-COMMITTEE 2014

## SILVER - Drought and Conservation Outreach: Draft Tactical Plan (updated: 5/14/14)

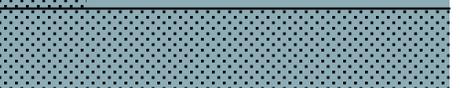
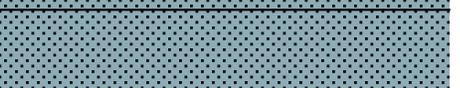
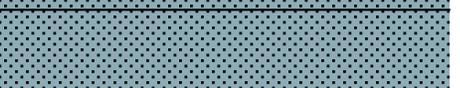
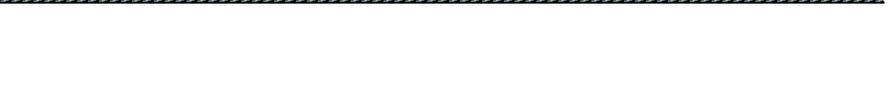
KEY: DEVELOPMENT IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
Prepare tailored materials targeted for event				DEVELOPMENT	IMPLEMENTATION							
Media outreach (press release, story pitch)							IMPLEMENTATION	IMPLEMENTATION	IMPLEMENTATION	IMPLEMENTATION	IMPLEMENTATION	IMPLEMENTATION
<b>PARTNERSHIP FACILITATION</b>				DEVELOPMENT	DEVELOPMENT	DEVELOPMENT	DEVELOPMENT	IMPLEMENTATION				
Prioritize key partnership targets				DEVELOPMENT	DEVELOPMENT	DEVELOPMENT	DEVELOPMENT	IMPLEMENTATION				
Prepare partnership solicitation materials				DEVELOPMENT	DEVELOPMENT	DEVELOPMENT	DEVELOPMENT	IMPLEMENTATION				
Facilitate communication with select targets				DEVELOPMENT	DEVELOPMENT	DEVELOPMENT	DEVELOPMENT	IMPLEMENTATION				
Leverage partnerships at events, in all media, and in collateral materials								IMPLEMENTATION	IMPLEMENTATION	IMPLEMENTATION	IMPLEMENTATION	IMPLEMENTATION
Media outreach (press release, story pitch)								IMPLEMENTATION	IMPLEMENTATION	IMPLEMENTATION	IMPLEMENTATION	IMPLEMENTATION
<b>SOCIAL MEDIA CAMPAIGN</b>				DEVELOPMENT	DEVELOPMENT	DEVELOPMENT	DEVELOPMENT	IMPLEMENTATION	IMPLEMENTATION	IMPLEMENTATION	IMPLEMENTATION	IMPLEMENTATION
Create dynamic, regularly updated social media suite				DEVELOPMENT	DEVELOPMENT	DEVELOPMENT	DEVELOPMENT	IMPLEMENTATION				
Build social media guidelines and protocol				DEVELOPMENT	DEVELOPMENT	DEVELOPMENT	DEVELOPMENT	IMPLEMENTATION				
Identify social media authors and participants				DEVELOPMENT	DEVELOPMENT	DEVELOPMENT	DEVELOPMENT	IMPLEMENTATION				
Leverage all events and other outreach on social media vehicles								IMPLEMENTATION	IMPLEMENTATION	IMPLEMENTATION	IMPLEMENTATION	IMPLEMENTATION

# BTAC: WATER CONSERVATION SUB-COMMITTEE 2014

## SILVER - Drought and Conservation Outreach: Draft Tactical Plan (updated: 5/14/14)

KEY:  DEVELOPMENT  IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
<b>SMARTPHONE APP</b>												
Determine necessary tools and features												
Develop app												
Media outreach (press release, story pitch) to highlight app launch												
<b>YOUTH AND EDUCATION OUTREACH</b>												
Build opportunities list with agencies												
Determine priorities list												
Adapt existing materials												
Identify and address additional regional program needs												
Build interactive tools												
Participate in and coordinate regional youth outreach												
Media outreach (press release, story pitch)												
<b>BUILD AND EXECUTE STRATEGIC SPONSORSHIP PROGRAM</b>												

# BTAC: WATER CONSERVATION SUB-COMMITTEE 2014

## SILVER - Drought and Conservation Outreach: Draft Tactical Plan (updated: 5/14/14)

KEY:  DEVELOPMENT  IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
Prioritize key partnership targets												
Prepare partnership solicitation materials												
Facilitate communication with select targets												
Leverage partnerships at events, in all media, and in collateral materials												
Media outreach (press release, story pitch)												
<b>DEVELOP AND IMPLEMENT RELEVANT CONTESTS</b>												
<b>STAKEHOLDER PRESENTATIONS</b>												
Develop targeted outreach "road show" for stakeholder presentations												
Present actively, frequently and inclusively to wide-ranging audiences												
<b>LEVERAGE EXISTING AGENCY COLLATERAL EFFORTS</b>												
<b>TRACK ATTENDANCE AND ENGAGEMENT AS PROOF OF PERFORMANCE METRIC</b>												
<b>EARNED MEDIA LANDSCAPE</b>	<b>100 HOURS</b>	<b>\$2,500</b>	<b>EDUCATE COMMUNITY ABOUT THEIR ROLE IN THE SOLUTION. LEVERAGE UNPRECEDENTED FOCUS AND INTEREST IN WATER SUPPLY ISSUES.</b>									
Press releases												

# BTAC: WATER CONSERVATION SUB-COMMITTEE 2014

## SILVER - Drought and Conservation Outreach: Draft Tactical Plan (updated: 5/14/14)

KEY: DEVELOPMENT IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
Reporter meetings/roundtables/editorial board				DEVELOPMENT	IMPLEMENTATION							
Op-Eds/letters to the editor				DEVELOPMENT	IMPLEMENTATION							
Crisis mitigation				DEVELOPMENT	IMPLEMENTATION							
Community postings				DEVELOPMENT	IMPLEMENTATION							
Media monitoring				DEVELOPMENT	IMPLEMENTATION							
Press conferences				DEVELOPMENT	IMPLEMENTATION							
Collaborative statewide and national dialogue participation				DEVELOPMENT	IMPLEMENTATION							
Earned media facilitation of all events				DEVELOPMENT	IMPLEMENTATION							

**ADVERTISEMENTS (NEGOTIATION AND FACILITATION) (SEE ATTACHED MEDIA PLAN)**    40 HOURS    \$143,300

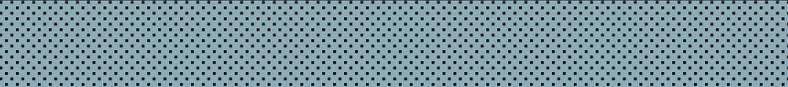
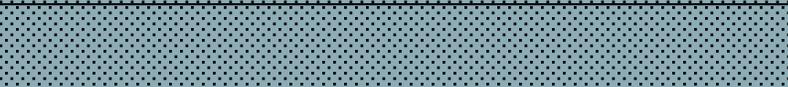
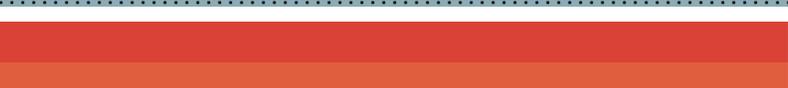
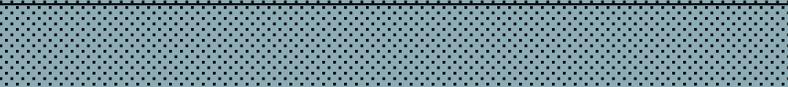
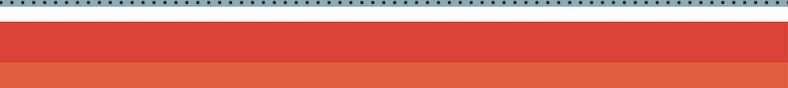
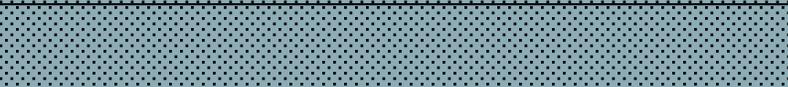
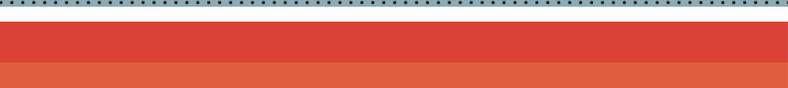
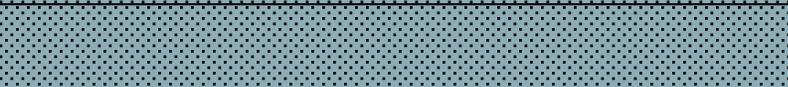
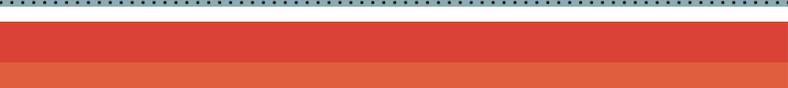
**CHANGE ATTITUDES AND BEHAVIORS TO FOSTER EFFICIENT WATER ETHIC. DEMONSTRATE COMMITMENT TO REGIONAL COLLABORATION.**

Television				DEVELOPMENT	IMPLEMENTATION							
Radio				DEVELOPMENT	IMPLEMENTATION							
Billboards				DEVELOPMENT	IMPLEMENTATION							
Transit				DEVELOPMENT	IMPLEMENTATION							

# BTAC: WATER CONSERVATION SUB-COMMITTEE 2014

## SILVER - Drought and Conservation Outreach: Draft Tactical Plan (updated: 5/14/14)

KEY:  DEVELOPMENT  IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
Digital Advertising												
Print												
Miscellaneous: (table tents, movie screens, etc.)												
Coordinate to support all events and presentations												

	TIME	MATERIALS
PHASE 2 ESTIMATED BUDGET	\$115,500	\$209,050
	660 HOURS @ (\$175/HR.)	

## BTAC ADVERTISING & MEDIA SCHEDULE

### SILVER - Six Months of Hard Costs Included

AD OPTIONS	OUTLET	DESCRIPTION	TIMEFRAME	NOTES	TOTAL
<b>CAMPAIGN LAUNCH EVENT</b>	Local Event	Coordinate launch event, facilities, media	June	Location and details: TBD	<b>\$10,000</b>
<b>PRINT</b>	SB Sun/Redlands Daily Facts/Inland Valley Daily Bulletin	1/8 page ad: (4x/ mo. on Sundays)	July-Dec	Minimum 6 month commitment Artwork deadline: June 1st	<b>\$19,800</b>
	Highland Community News	1/4 page ad: Highland and Yucaipa papers. 35,000 circulated (4x/mo.)	July-Dec	Minimum 6 month commitment Artwork deadline: June 1st	<b>\$10,680</b>
	The Voice	1/3 page ad: 10,000 circulated weekly (4x/mo.)	July-Dec	Minimum 6 month commitment Artwork deadline: June 1st	<b>\$14,148</b>
	Press-Enterprise	1/4 page ad: Non-Main News Sections, (2x/mo.)	July-Dec	Minimum 6 month commitment Artwork deadline: June 1st	<b>\$9,564</b>
	Inland Empire Magazine	1/2 page ad: 235,000 readers per issue	July-Dec	Minimum 6 month commitment Artwork deadline: June 1st	<b>\$4,770</b>
<b>RADIO</b>	KGGI 99.1FM	:15 spot, 6:00am-10:00am, Mon-Fri (6x/mo.), Includes website banner ads	July-Dec	Ads will run 2 weeks on, 1 week off. Digital exposure: 17,500 impressions/mo. Artwork deadline: June 20th, Radio script deadline: May 20th	<b>\$7,000</b>
<b>PUBLIC SERVICE ANNOUNCEMENTS</b>	Radio	KGGI 99.1 - Top 40 KFRG 95.1 - Country KOLA 99.9 - Classic Hits KRQB 96.1 - Spanish KCAL 96.7 - Rock KFI 640AM - Talk	July-Dec	Ad runs/length TBD based upon negotiation	<b>No Cost</b>
	Television	Public Access Channel ABC 7 FOX 11 KPXN-TV KRCA-TV KVCR	July-Dec	Ad runs/length TBD based upon negotiation	<b>No Cost</b>
	Print	SB Sun/Redlands DF/IV Daily Bulletin Highland Community News The Voice Press-Enterprise Inland Empire Magazine	July-Dec	Editorial/Press Releases Editorial deadline: May 20th	<b>No Cost</b>
<b>BILLBOARDS</b>	Lamar Advertising	Billboard #1: 3 mo. run Billboard #2: 3 mo. run	July-Sept Oct-Dec	Artwork deadline: June 1st	<b>\$24,000</b>
<b>THEATER ADS</b>	NCM Media Networks	:15 ad shown on 14 screens at Regal San Bernardino 14. Ad will display on lobby TV in Regal San Bernardino, and Victoria Gardens theater lobbies.	July-Dec	Commercial production included in rate (277,780 impressions/6 mo.) LEN TV commercials: 653,359 impressions/6 mo.	<b>\$4,061</b>
	Screen Vision	:15 ad shown on 14 screens at Redlands Krikorian	July-Dec	Commercial production included in rate (520,000 impressions/6 mo.)	<b>\$3,726</b>

## BTAC ADVERTISING & MEDIA SCHEDULE

### SILVER - Six Months of Hard Costs Included

AD OPTIONS	OUTLET	DESCRIPTION	TIMEFRAME	NOTES	TOTAL
<b>TRANSIT</b>	Lamar Advertising	Bus advertisement, 6 busses running in San Bernardino	July-Sept	552,638 impressions/mo. Artwork deadline: June 15th	<b>\$3,801</b>
<b>DIGITAL ADVERTISING</b>	Facebook	Social Media	July-Dec	Promoted posts	<b>\$2,000</b>
	Twitter	Social Media	July-Dec	Promoted tweets	<b>\$2,000</b>
	Yahoo!	Search page results headliner (42,000 impressions/mo.)	July-Dec	Included in SB Sun print bundle Artwork deadline: June 20th	<b>No Cost</b>
	Google	Recommended ad shares, pay per click (70,000 impressions/mo.)	July-Dec	Ad comes up in various places on web and mobile devices. Artwork deadline: June 20th	<b>\$1,800</b>
	ABC 7	Digital Package: Headline and rectangular banner (50,000 impressions/mo.)	July-Sept	Artwork deadline: June 20th	<b>\$1,050</b>
	FOX News 11	Digital Package: Headline and rectangular banner (70,000 impressions/mo.)	Oct-Dec	Artwork deadline: June 20th	<b>\$900</b>
	Press-Enterprise	Digital Package: 300x250 Banner (20,000 impressions)	July-Dec	Included in print bundle Artwork deadline: June 20th	<b>No Cost</b>
	Inland Empire Magazine	Digital Package: Headline banner (16,700 impressions)	July-Dec	Included in print bundle Artwork deadline: June 20th	<b>No Cost</b>
<b>MOBILE ADVERTISING</b>	Mobile Application	Water Conservation Mobile Smartphone App	July-Dec	Interactive application with tips for water-saving methods and reporting water waste	<b>\$9,000</b>
<b>LOCAL EVENTS</b>	Booths/Promo	Various local event participation and advertising	July-Dec	See regional events list.	<b>\$12,000</b>
<b>FOLLOW UP SURVEY</b>	Probolsky	Post-campaign survey to identify campaign success	December		<b>\$12,000</b>

**Campaign Total: \$152,300**

# BTAC: WATER CONSERVATION SUB-COMMITTEE 2014

## BRONZE - Drought and Conservation Outreach: Draft Tactical Plan (updated: 5/14/14)

KEY:  DEVELOPMENT  IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
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### PHASE 2 - TOOL DEVELOPMENT

<b>TACTICAL PLAN FINALIZATION</b>	<b>15 HOURS</b>	<b>\$250</b>
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**EXPLAIN WHAT LOCAL AGENCIES ARE DOING TO INCREASE RELIABILITY  
COORDINATE MULTI-AGENCY EFFORTS**

Refine key messages												
Align plan with latest news and goals												
Incorporate survey and focus group findings												
Align plan with scope and content of branding elements												
Align plan with media strategy												

<b>BRANDING &amp; CAMPAIGN DEVELOPMENT</b>	<b>55 HOURS</b>	<b>\$250</b>
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**PROMOTE BTAC AS A REGIONAL AUTHORITY ON WATER CONSERVATION  
PRESENT CONSISTENT MESSAGE TO CUSTOMERS AND AUDIENCES**

Comprehensive message development												
Define specific goals for you-save-water.com enhancement/rebrand												
Cobranding considerations												
Build brand deployment program												
Identify and prioritize deployment vehicle options												

# BTAC: WATER CONSERVATION SUB-COMMITTEE 2014

## BRONZE - Drought and Conservation Outreach: Draft Tactical Plan (updated: 5/14/14)

KEY:  DEVELOPMENT  IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
Create draft look and thematic concepts for review			DEVELOPMENT									
Develop logo and tagline options			DEVELOPMENT									
Determine selections in collaboration with team			DEVELOPMENT									
Develop style guide, templates and branding elements			DEVELOPMENT									
Deploy brand					IMPLEMENTATION							

**CREATIVE SERVICES (DESIGN, FACILITATION AND PRODUCTION)**      115 HOURS      \$15,000

ALLOW FOR PERSONALIZATION OF MATERIALS  
LEVERAGE UNPRECEDENTED FOCUS AND INTEREST IN WATER SUPPLY ISSUES

Collateral	IMPLEMENTATION											
Advertisements	IMPLEMENTATION											
Photography	IMPLEMENTATION											
Videography	IMPLEMENTATION											
Signage	IMPLEMENTATION											
Web elements	IMPLEMENTATION											
Presentations	IMPLEMENTATION											

# BTAC: WATER CONSERVATION SUB-COMMITTEE 2014

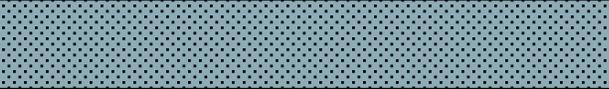
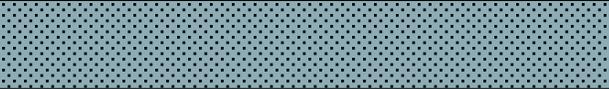
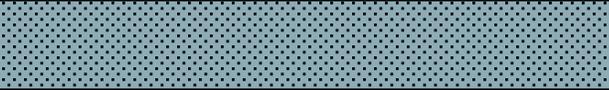
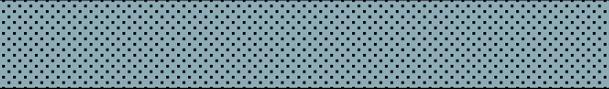
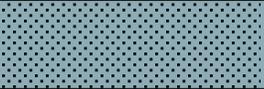
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KEY:  DEVELOPMENT  IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
Premium items												
Electronic messaging												
Other outreach materials												

**WEB TOOLS & ENHANCEMENT  
(FOLLOWING REVIEW)**      100 Hours      \$750

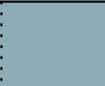
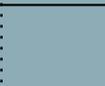
PROMOTE EXISTING TOOLS AND RESOURCES  
EDUCATE COMMUNITY ABOUT THEIR ROLE IN THE SOLUTION

Identify and secure web domain												
Create interactive user engagement tools												
Build agency locator tool												
Incorporate new brand into site												
Conservation games												
Interactive educational exercises and contests												
Efficient water use savings guide												
Regional water supply management efforts												
BDCP messaging												

# BTAC: WATER CONSERVATION SUB-COMMITTEE 2014

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INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
Information about local projects												
Customer contact information capture												
Agency specific social media incorporation												
Water wise glossary and image gallery												

# BTAC: WATER CONSERVATION SUB-COMMITTEE 2014

## BRONZE - Drought and Conservation Outreach: Draft Tactical Plan (updated: 5/14/14)

KEY:  DEVELOPMENT  IMPLEMENTATION

INITIATIVE                      TIME      MATERIALS                      APR    MAY    JUN    JUL    AUG    SEP    OCT    NOV    DEC                      Post

### PHASE 2 - CAMPAIGN IMPLEMENTATION

**OUTREACH CAMPAIGN DEPLOYMENT**      170 HOURS      \$38,000

PRESENT CONSISTENT MESSAGE TO CUSTOMERS AND AUDIENCES.  
PROMOTE EXISTING TOOLS AND RESOURCES.

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
<b>MEDIA EVENTS</b>												
Select opportunities				DEVELOPMENT	IMPLEMENTATION							
Determine best media partners				DEVELOPMENT	IMPLEMENTATION							
Identify agency participants				DEVELOPMENT	IMPLEMENTATION							
Media outreach (press release, story pitch)								IMPLEMENTATION			IMPLEMENTATION	IMPLEMENTATION
<b>BRANDED PRESENCE AT MAJOR REGIONAL EVENTS</b>												
Prioritize as per event calendar with agency input				DEVELOPMENT	IMPLEMENTATION							
Seek opportunities inclusive of all service areas				DEVELOPMENT	IMPLEMENTATION							
Identify agency participants				DEVELOPMENT	IMPLEMENTATION							
Prepare tailored materials targeted for event				DEVELOPMENT	IMPLEMENTATION							
Advertisement				DEVELOPMENT	IMPLEMENTATION							

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KEY: DEVELOPMENT IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
Media outreach (press release, story pitch)												
<b>BRANDED PRESENCE AT COMMUNITY EVENTS</b>												
Prioritize as per event calendar with agency input												
Seek opportunities inclusive of all service areas												
Identify agency participants												
Prepare tailored materials targeted for event												
Advertisement												
Media outreach (press release, story pitch)												
<b>CAMPAIGN SPECIFIC EVENTS</b>												
Develop and facilitate two unique events with broad agency input												
Seek opportunities inclusive of all service areas												
Identify agency participants												
Prepare tailored materials targeted for event												

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KEY: DEVELOPMENT IMPLEMENTATION

INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
Advertisement												
Media outreach (press release, story pitch)												
<b>NEW AND EXISTING TOURS</b>												
Identify and leverage existing tours with water supply angle												
If necessary, create unique, multiagency tour												
Seek opportunities inclusive of all service areas												
Identify agency participants												
Prepare tailored materials targeted for event												
Media outreach (press release, story pitch)												
<b>PARTNERSHIP FACILITATION</b>												
Prioritize key partnership targets												
Prepare partnership solicitation materials												
Facilitate communication with select targets												

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INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
Leverage partnerships at events, in all media, and in collateral materials												
Media outreach (press release, story pitch)												
<b>SOCIAL MEDIA CAMPAIGN</b>												
Create dynamic, regularly updated social media suite												
Build social media guidelines and protocol												
Identify social media authors and participants												
Leverage all events and other outreach on social media vehicles												
<b>BUILD AND EXECUTE STRATEGIC SPONSORSHIP PROGRAM</b>												
Prioritize key partnership targets												
Prepare partnership solicitation materials												
Facilitate communication with select targets												
Leverage partnerships at events, in all media, and in collateral materials												
Media outreach (press release, story pitch)												

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INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
<b>DEVELOP AND IMPLEMENT RELEVANT CONTESTS</b>												
<b>STAKEHOLDER PRESENTATIONS</b>												
Develop targeted outreach "road show" for stakeholder presentations												
Present actively, frequently and inclusively to wide-ranging audiences												
<b>LEVERAGE EXISTING AGENCY COLLATERAL EFFORTS</b>												
<b>TRACK ATTENDANCE AND ENGAGEMENT AS PROOF OF PERFORMANCE METRIC</b>												
<b>EARNED MEDIA LANDSCAPE</b>	<b>100 HOURS</b>	<b>\$2,500</b>	<b>EDUCATE COMMUNITY ABOUT THEIR ROLE IN THE SOLUTION. LEVERAGE UNPRECEDENTED FOCUS AND INTEREST IN WATER SUPPLY ISSUES.</b>									
Press releases												
Reporter meetings/roundtables/editorial board												
Op-Eds/letters to the editor												
Crisis mitigation												
Community postings												
Media monitoring												

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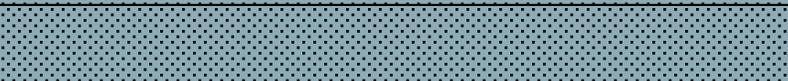
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INITIATIVE	TIME	MATERIALS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Post
Press conferences												
Collaborative statewide and national dialogue participation												
Earned media facilitation of all events												

**ADVERTISEMENTS (NEGOTIATION AND FACILITATION) (SEE ATTACHED MEDIA PLAN)** 30 HOURS \$90,712

**CHANGE ATTITUDES AND BEHAVIORS TO FOSTER EFFICIENT WATER ETHIC. DEMONSTRATE COMMITMENT TO REGIONAL COLLABORATION.**

Print												
Web												
Coordinate to support all events and presentations												

	TIME	MATERIALS
<b>PHASE 2 ESTIMATED BUDGET</b>	\$102,375	\$147,462
	585 HOURS @ (\$175/HR.)	

## BTAC ADVERTISING & MEDIA SCHEDULE

### BRONZE - Six Months of Hard Costs Included

AD OPTIONS	OUTLET	DESCRIPTION	TIMEFRAME	NOTES	TOTAL
<b>PRINT</b>	SB Sun/Redlands Daily Facts/Inland Valley Daily Bulletin	1/8 page ad: (4x/ mo. on Sundays)	July-Dec	Minimum 6 month commitment Artwork deadline: June 1st	<b>\$19,800</b>
	Highland Community News	1/4 page ad: Highland and Yucaipa papers. 35,000 circulated (4x/mo.)	July-Dec	Minimum 6 month commitment Artwork deadline: June 1st	<b>\$10,680</b>
	The Voice	1/3 page ad: 10,000 circulated weekly (4x/mo.)	July-Dec	Minimum 6 month commitment Artwork deadline: June 1st	<b>\$14,148</b>
	Press-Enterprise	1/4 page ad: Non-Main News Sections, (2x/mo.)	July-Dec	Minimum 6 month commitment Artwork deadline: June 1st	<b>\$9,564</b>
	Inland Empire Magazine	1/2 page ad: 235,000 readers per issue	July-Dec	Minimum 6 month commitment Artwork deadline: June 1st	<b>\$4,770</b>
<b>PUBLIC SERVICE ANNOUNCEMENTS</b>	Radio	KGGI 99.1 - Top 40 KFRG 95.1 - Country KOLA 99.9 - Classic Hits KRQB 96.1 - Spanish KCAL 96.7 - Rock KFI 640AM - Talk	July-Dec	Ad runs/length TBD based upon negotiation	<b>No Cost</b>
	Television	Public Access Channel ABC 7 FOX 11 KPXN-TV KRCA-TV KVCR	July-Dec	Ad runs/length TBD based upon negotiation	<b>No Cost</b>
	Print	SB Sun/Redlands DF/IV Daily Bulletin Highland Community News The Voice Press-Enterprise Inland Empire Magazine	July-Dec	Editorial/Press Releases Editorial deadline: May 20th	<b>No Cost</b>
<b>DIGITAL ADVERTISING</b>	Facebook	Social Media	July-Dec	Promoted posts	<b>\$2,000</b>
	Twitter	Social Media	July-Dec	Promoted tweets	<b>\$2,000</b>
	Yahoo!	Search page results headliner (42,000 impressions/mo.)	July-Dec	Included in SB Sun print bundle Artwork deadline: June 20th	<b>No Cost</b>
	Google	Recommended ad shares, pay per click (70,000 impressions/mo.)	July-Dec	Ad comes up in various places on web and mobile devices. Artwork deadline: June 20th	<b>\$1,800</b>
	ABC 7	Digital Package: Headline and rectangular banner (50,000 impressions/mo.)	July-Sept	Artwork deadline: June 20th	<b>\$1,050</b>
	FOX News 11	Digital Package: Headline and rectangular banner (70,000 impressions/mo.)	Oct-Dec	Artwork deadline: June 20th	<b>\$900</b>
	Press-Enterprise	Digital Package: 300x250 Banner (20,000 impressions)	July-Dec	Included in print bundle Artwork deadline: June 20th	<b>No Cost</b>
	Inland Empire Magazine	Digital Package: Headline banner (16,700 impressions)	July-Dec	Included in print bundle Artwork deadline: June 20th	<b>No Cost</b>
<b>LOCAL EVENTS</b>	Booths/Promo	Various local event participation and advertising	July-Dec	See regional events list.	<b>\$12,000</b>
<b>FOLLOW UP SURVEY</b>	Probolsky	Post-campaign survey to identify campaign success	December		<b>\$12,000</b>

**Campaign Total: \$90,712**

\* SBVMWD SERVICE AREA

NAME	LOCATION	DATE	WEBSITE	ABOUT	VENDING COST
* CINCO DE MAYO 5K FUN RUN/ WALK FOR SIGHT	Rialto City Hall	5/3/14	<a href="http://laraces.com/race/57471">http://laraces.com/race/57471</a>	5k Run, hand out waters, raise awareness	\$350
* INLAND EMPIRE PREMIER THEATRE	San Bernardino	5/3/14	<a href="http://www.californiatheatre.net/Home.html">http://www.californiatheatre.net/Home.html</a>	Musicals, plays, festivals	\$1,000
INLAND EMPIRE GARDEN FRIENDLY PLANT SALES	Moreno Valley, Rancho Cucamonga	5/3/14		Home Depot	NO COST
FIRST SUNDAYS	6 different locations in Riverside	5/4/14	<a href="https://www.riversideca.gov/museum/firstsundays.asp">https://www.riversideca.gov/museum/firstsundays.asp</a>	Free family programs/activities for children and teens	NO COST
TWENTY14 PET WALK	Lake Elsinore; Heald Ave & Riley St.	5/10/14	<a href="http://www.lake-elsinore.org/index.aspx?page=18&amp;recordid=2839">http://www.lake-elsinore.org/index.aspx?page=18&amp;recordid=2839</a>	Pet Vendors, Free event (9:30 - 10:30 am)	\$300
CACTUS AND SUCCULENT SHOW	Riverside	5/16-17/14		Landscapes Southern California Style	NO COST
RIVERSIDE HOME AND GARDEN SHOW	Riverside Convention Center	5/16 - 18/14	<a href="http://festivalnet.com/39771/Riverside-California/Home-and-Garden-Shows/Riverside-Home-Garden-Show">http://festivalnet.com/39771/Riverside-California/Home-and-Garden-Shows/Riverside-Home-Garden-Show</a>	High attendance, Food Booths	\$3,000
INLAND EMPIRE GARDEN FRIENDLY PLANT SALES	Riverside	5/17/14		Home Depot	NO COST
HONOR OUR HEROES 5K WALK AND VEHICLE SHOW	Riverside	5/17/14	<a href="http://www.local.com/events/event/EO-001-066847571-9/honor-our-heroes-5k-walk-and-motorcycle-car-and-vintage-plane-show.aspx">http://www.local.com/events/event/EO-001-066847571-9/honor-our-heroes-5k-walk-and-motorcycle-car-and-vintage-plane-show.aspx</a>	Vendors, March, Performances	\$300
PATHFINDER FAIR	Riverside	5/18/14	<a href="https://www.eventbrite.com/e/fair-2014-tickets-9659153789">https://www.eventbrite.com/e/fair-2014-tickets-9659153789</a>	Demonstrations, participations, booths	\$50 refundable
* NATIONAL ORANGE SHOW FAIR	San Bernardino	5/22 - 26/14	<a href="http://nosevents.com">http://nosevents.com</a>	Art, Music	\$1,500
WEST COAST THUNDER MEMORIAL DAY BIKE RUN	Riverside	5/26/14	<a href="http://www.westcoastthunder.com">http://www.westcoastthunder.com</a>	Big sponsors, vendors, media	10 x 10 - \$175; 10 x 20 - \$375
* INLAND EMPIRE 66ERS GAMES	66ers Stadium	May	<a href="http://www.milb.com/schedule/index.jsp?sid=t401&amp;m=8&amp;y=2014">http://www.milb.com/schedule/index.jsp?sid=t401&amp;m=8&amp;y=2014</a>	15 Home games in May	Sponsorship opportunities
* INLAND EMPIRE GARDEN FRIENDLY PLANT SALES	Perris, South San Bernardino	5/31/14		Home Depot	NO COST
NHRA NATIONAL OPEN + JUNIOR DRAG RACING	Fontana - Auto Club Speedway	5/30 - 6/1	<a href="http://www.autoclubspeedway.com/Tickets-Events/Events/Auto-Club-Dragway/NHRA-National-Open.aspx">http://www.autoclubspeedway.com/Tickets-Events/Events/Auto-Club-Dragway/NHRA-National-Open.aspx</a>		\$350

# REGIONAL EVENT CALENDAR

June 2014

\* SBVMWD SERVICE AREA

NAME	LOCATION	DATE	WEBSITE	ABOUT	VENDING COST
<b>NHRA NATIONAL OPEN + JUNIOR DRAG RACING</b>	Fontana - Auto Club Speedway	6/1/14	<a href="http://www.autoclubspeedway.com/Tickets-Events/Events/Auto-Club-Dragway/NHRA-National-Open.aspx">http://www.autoclubspeedway.com/Tickets-Events/Events/Auto-Club-Dragway/NHRA-National-Open.aspx</a>		<b>\$350</b>
<b>* INLAND EMPIRE GARDEN FRIENDLY PLANT SALES</b>	S. San Bernardino, Moreno Valley	6/2/14		Home Depot	<b>NO COST</b>
<b>59TH ANNUAL FONTANA DAYS RUN</b>	Fontana	6/7/14	<a href="http://www.active.com/fontana-ca/running/races/59th-annual-fontana-days-run-2014">http://www.active.com/fontana-ca/running/races/59th-annual-fontana-days-run-2014</a>	Large families, Dash, run	<b>\$150</b>
<b>* INLAND EMPIRE GARDEN FRIENDLY PLANT SALES</b>	Redlands	6/7/14		Home Depot	<b>NO COST</b>
<b>* 29TH ANNUAL CLASSIC CAR SHOW</b>	San Bernardino	6/13/14	<a href="http://californiacarshows.org">http://californiacarshows.org</a>	Car Show	<b>\$250</b>
<b>SUMMER SPLASH: LOST AT SEA</b>	The Grove Community Church, Riverside	6/23/14	<a href="http://riversideca.gov/calendar/item.aspx?id=7159">http://riversideca.gov/calendar/item.aspx?id=7159</a>	Youth Program, Free event, 1200+ children over Inland Empire	<b>NO COST</b>
<b>* TINMAN TRIATHLON</b>	CSUSB	6/29/14	<a href="http://www.rotarytinman.org/">http://www.rotarytinman.org/</a>	5K run, marathon	<b>Range from \$100 - \$5,000 Details on vendor application</b>
<b>* COLTON MOVIES IN THE PARK</b>	Colton - Various Locations @ 8:30pm	June - Aug	<a href="http://www.ci.colton.ca.us/DocumentCenter/View/1175">http://www.ci.colton.ca.us/DocumentCenter/View/1175</a>		<b>NO COST</b>
<b>* REDLANDS BOWL SUMMER CONCERT</b>	Redlands	June - Aug	<a href="http://redlandsbowl.org">http://redlandsbowl.org</a>	Music Festivals	<b>\$1,500</b>
<b>* INLAND EMPIRE 66ERS GAMES</b>	66ers Stadium	June	<a href="http://www.milb.com/schedule/index.jsp?sid=t401&amp;m=8&amp;y=2014">http://www.milb.com/schedule/index.jsp?sid=t401&amp;m=8&amp;y=2014</a>	13 Home games in June	<b>Sponsorship opportunities</b>

# REGIONAL EVENT CALENDAR

July 2014

\* SBVMWD SERVICE AREA

NAME	LOCATION	DATE	WEBSITE	ABOUT	VENDING COST
* ROCKSTAR MAYHEM MUSIC FESTIVAL	San Bernardino	Jul-14	<a href="http://rockstarmayhemfest.com">http://rockstarmayhemfest.com</a>	Bands, large groups, age ranges	<b>\$750</b>
DISCOVERY DAYS	Riverside Metropolitan Museum	Jul-14	<a href="http://riversideca.gov/calendar/item.aspx?id=6757">http://riversideca.gov/calendar/item.aspx?id=6757</a>	Free Event, 1:30p-4:30p, showing kids nature and science	<b>\$100</b>
* COLTON MOVIES IN THE PARK	Colton - Various Locations @ 8:30pm	Jun - Aug	<a href="http://www.ci.colton.ca.us/DocumentCenter/View/1175">http://www.ci.colton.ca.us/DocumentCenter/View/1175</a>		<b>NO COST</b>
* REDLANDS BOWL SUMMER CONCERT	Redlands	Jun - Aug	<a href="http://redlandsbowl.org">http://redlandsbowl.org</a>	Music Festivals	<b>\$1,500</b>
* INLAND EMPIRE 66ERS GAMES	66ers Stadium	Jul	<a href="http://www.milb.com/schedule/index.jsp?sid=t401&amp;m=8&amp;y=2014">http://www.milb.com/schedule/index.jsp?sid=t401&amp;m=8&amp;y=2014</a>	12 Home games in July	<b>Sponsorship opportunities</b>

# REGIONAL EVENT CALENDAR

August 2014

\* SBVMWD SERVICE AREA

NAME	LOCATION	DATE	WEBSITE	ABOUT	VENDING COST
* COLTON MOVIES IN THE PARK	Colton	Jun - Aug	<a href="http://www.ci.colton.ca.us/DocumentCenter/View/1175">http://www.ci.colton.ca.us/DocumentCenter/View/1175</a>	Various Locations @ 8:30pm	<b>NO COST</b>
* SUMMER GROOVE MUSIC FESTIVAL	CSUSB	Aug-14	<a href="https://www.eventbrite.com/e/the-smash-summer-groove-music-festival-tickets-10338646169">https://www.eventbrite.com/e/the-smash-summer-groove-music-festival-tickets-10338646169</a>	Music Festival, food vendors	<b>\$1,500</b>
INDYCAR 500 CHAMPIONSHPS	Fontana - Autoclub speedway	Aug-14	<a href="http://www.autoclubspeedway.com/Tickets-Events/Events/INDYCAR-Weekend.aspx">http://www.autoclubspeedway.com/Tickets-Events/Events/INDYCAR-Weekend.aspx</a>		<b>\$750</b>
* REDLANDS BOWL SUMMER CONCERT	Redlands	Jun - Aug	<a href="http://redlandsbowl.org">http://redlandsbowl.org</a>	Music Festivals	<b>\$1,500</b>
* INLAND EMPIRE 66ERS GAMES	66ers Stadium	Aug	<a href="http://www.milb.com/schedule/index.jsp?sid=t401&amp;m=8&amp;y=2014">http://www.milb.com/schedule/index.jsp?sid=t401&amp;m=8&amp;y=2014</a>	16 Home games in August	<b>Sponsorship opportunities</b>

# REGIONAL EVENT CALENDAR

September 2014

\* SBVMWD SERVICE AREA

NAME	LOCATION	DATE	WEBSITE	ABOUT	VENDING COST
<b>GIVE CANCER THE BOOT GALA</b>	Riverside - Rancheros Equestrian Center	Sep-14	<a href="http://riversideca.gov/calendar/item.aspx?id=7079">http://riversideca.gov/calendar/item.aspx?id=7079</a>	Entertainment, festival event. (6p-9p)	<b>\$500</b>
<b>DOGGIE POOL-OOZA</b>	Cucamonga Guasti	Sep-14			<b>NO COST</b>
<b>THE PINK RUNWAY 2014!</b>	Riverside Convention Center	Sep-14	<a href="http://riversideca.gov/calendar/item.aspx?id=6420">http://riversideca.gov/calendar/item.aspx?id=6420</a>	Non-profit, fashion show and educational seminar for survivors. (1-6pm)	<b>\$300</b>

\* SBVMWD SERVICE AREA

NAME	LOCATION	DATE	WEBSITE	ABOUT	VENDING COST
<b>RIVERSIDE GREEK FEST</b>	St. Andrew Church, Riverside	Oct-14	<a href="http://riversidegreekfest.com/attractions/vendor-booths">http://riversidegreekfest.com/attractions/vendor-booths</a>	Authentic Food, Live Music, Art & Culture Exhibit, Kids Activities (3 - 10pm)	<b>\$200</b>
<b>* DO OR DYE 5K COLOR RUN</b>	Yucaipa	Oct-14	<a href="http://doordye5k.com/register/">http://doordye5k.com/register/</a>	5k run, marathon	<b>\$500</b>
<b>FIFTY &amp; BETTER HEALTH FAIR</b>	Janet Goeske Foundation, Riverside	Oct-14	<a href="http://riversideca.gov/calendar/item.aspx?id=6378">http://riversideca.gov/calendar/item.aspx?id=6378</a>	Health and Wellness for 50+ seniors, Free event, health screenings, flu shots, 3k walk (8am - 2pm)	<b>NO COST</b>
<b>* RENDEZVIOUS BACK TO ROUTE 66</b>	66ers Stadium	Oct-10 - 11	<a href="http://rendezvoustoroute66.com">http://rendezvoustoroute66.com</a>	Car Show	<b>\$1,500</b>
<b>RIVERSIDE TRIATHLON</b>	Bobby Bonds Park, Riverside	Oct-14	<a href="http://riversidetriathlon.com/">http://riversidetriathlon.com/</a>	Benefit of Riverside Police Foundation, promoting youth programs. Vendors Allowed.	<b>\$300</b>
<b>FAMILY FUN NIGHT "SPOOKTACULAR"</b>	Rancho Cucamonga	Oct-14	<a href="http://www.marbleskidsmuseum.org/ffnspooktacular2013">http://www.marbleskidsmuseum.org/ffnspooktacular2013</a>	At Marbles Kids Museum, Families	<b>NO COST</b>

# REGIONAL EVENT CALENDAR

December 2014

\* SBVMWD SERVICE AREA

NAME	LOCATION	DATE	WEBSITE	ABOUT	VENDING COST
<b>FAMILY FUN NIGHT: WINTER WONDERLAND</b>	Rancho Cucamonga	Dec-14	<a href="http://www.cityofrc.us/cityhall/cs/hs/events.asp">http://www.cityofrc.us/cityhall/cs/hs/events.asp</a>	Family Resource Center	<b>NO COST</b>
<b>* HOLIDAY MOVIE AT 66ERS STADIUM</b>	San Bernardino	Dec-14	<a href="http://www.milb.com/index.jsp?sid=t401">http://www.milb.com/index.jsp?sid=t401</a>		<b>\$50</b>
<b>* CHILDRENS CHRISTMAS PARADE</b>	San Bernardino	TBA	<a href="http://SanBernardino.org/to_do/annual_events.html">SanBernardino.org/to_do/annual_events.html</a>	YMCA East Valley	<b>\$100</b>
<b>CYCLING CONNECTION BICYCLE CLUB</b>	Rancho Cucamonga	Dec-14	<a href="http://cyclingconnection.org">cyclingconnection.org</a>	Physical Activity	<b>\$100</b>

## FARMER'S MARKETS

\$50 per Vendor Display

\* SBVMWD SERVICE AREA

DAY	NAME	TIME
SUNDAYS	Claremont Village	8am - 1pm
	Loma Linda (Barton)	8am-12pm
	Riverside (Galleria)	8:30am-12pm
MONDAYS	* Grand Terrace	5pm - 9pm
TUESDAYS	* San Bernardino (Highland)	6pm-9pm
WEDNESDAYS	* San Bernardino (Court)	9:30am-1:30pm
THURSDAYS	La Verne	5:30pm-9pm
	Rancho Cucamonga (Aspen)	3pm-7pm
	* Redlands (State St.)	6pm-9pm
	Upland	5pm-9pm
FRIDAYS	Fontana	10am - 2pm
	Rancho Cucamonga (Victoria's)	10am-2pm
	Riverside (Arlington)	8:30am-12pm
	Riverside (La Sierra) [E.O.Friday]	10am-2pm
	* Yucaipa	6pm-9pm
SATURDAYS	* Colton	8:30am - 12:30pm
	Pomona (Thomas Plaza)	5pm-9pm
	Pomona Valley	7:30am-11:30am
	* Redlands (Redlands Blvd)	8am-11am
	Riverside (Downtown)	8am-1pm



### **BUDGET MEMORANDUM**

Phase I of the campaign, including agency research and survey findings, has allowed CV Strategies to make informed, strategic recommendations on the necessary scope and budget of Phase II.

To achieve the desired results, CV Strategies recommends a widespread and dynamic campaign. Phase II spans through December and incorporates: a final tactical plan, a campaign brand, outreach materials and events, enhanced web resources, advertising and earned media.

Launching a new brand across the Inland Empire is introducing a diverse, fragmented community to something unfamiliar. A compelling brand will be key to catching and keeping attention. The brand must be unique, recognizable, and have a call to action. In order for the brand to thrive, it must be highly visible.

A robust advertising, events, earned and social media strategy will ensure brand recognition, and ultimately campaign success. The advertising buy, and event participation and presence remain scalable for cost constraints, however the campaign hinges on these investments.

#### **PHASE II INVESTMENT OPTIONS:**

##### GOLD PLAN

Professional Services: \$118,125

Hard Costs: \$241,050

##### SILVER PLAN

Professional Services: \$115,500

Hard Costs: \$209,050

##### BRONZE PLAN

Professional Services: \$102,375

Hard Costs: \$147,462

**Erin Gilhuly**  
President, CV Strategies

## BTAC PLAN COST BREAKDOWN GOLD PLAN

PLAN PHASE	DESCRIPTION	ESTIMATED COST	ESTIMATED HOURS	TOTAL
<b>MATERIALS</b>	Tactical Plan Finalization	\$250		<b>\$63,750</b>
	Branding & Campaign Development	\$250		
	Creative Services	\$15,000		
	Web Tools & Enhancement	\$750		
	Outreach Campaign Deployment	\$45,000		
	Earned Media Landscape	\$2,500		
<b>PROFESSIONAL SERVICES</b>	Erin Gilhuly, President (\$200/hr.)		186	<b>\$118,125</b>
	Vice President/Account Exec. (\$175/hr.)		244	
	Design Staff (\$165/hr.)		190	
	Media Buyer (\$125/hr.)		55	
<b>ADVERTISING</b>	Campaign Launch Event	\$10,000		<b>\$177,300</b>
	Print	\$58,962		
	Radio	\$7,000		
	Public Service Announcements	\$0		
	Billboards	\$24,000		
	Theater Advertising	\$7,787		
	Transit	\$3,801		
	Digital Advertising	\$7,750		
	Spokesperson	\$25,000		
	Mobile App	\$9,000		
	Local Events	\$12,000		
	Follow Up Survey	\$12,000		
<b>PLAN TOTAL</b>				<b>\$359,175</b>

## BTAC PLAN COST BREAKDOWN SILVER PLAN

PLAN PHASE	DESCRIPTION	ESTIMATED COST	ESTIMATED HOURS	TOTAL
<b>MATERIALS</b>	Tactical Plan Finalization	\$250		<b>\$56,750</b>
	Branding & Campaign Development	\$250		
	Creative Services	\$15,000		
	Web Tools & Enhancement	\$750		
	Outreach Campaign Deployment	\$38,000		
	Earned Media Landscape	\$2,500		
<b>PROFESSIONAL SERVICES</b>	Erin Gilhuly, President (\$200/hr.)		180	<b>\$115,500</b>
	Vice President/Account Exec. (\$175/hr.)		242	
	Design Staff (\$165/hr.)		185	
	Media Buyer (\$125/hr.)		53	
<b>ADVERTISING</b>	Campaign Launch Event	\$10,000		<b>\$152,300</b>
	Print	\$58,962		
	Radio	\$7,000		
	Public Service Announcements	\$0		
	Billboards	\$24,000		
	Theater Advertising	\$7,787		
	Transit	\$3,801		
	Digital Advertising	\$7,750		
	Mobile App	\$9,000		
	Local Events	\$12,000		
	Follow Up Survey	\$12,000		
<b>PLAN TOTAL</b>				<b>\$324,550</b>

## BTAC PLAN COST BREAKDOWN BRONZE PLAN

PLAN PHASE	DESCRIPTION	ESTIMATED COST	ESTIMATED HOURS	TOTAL
<b>MATERIALS</b>	Tactical Plan Finalization	\$250		<b>\$56,750</b>
	Branding & Campaign Development	\$250		
	Creative Services	\$15,000		
	Web Tools & Enhancement	\$750		
	Outreach Campaign Deployment	\$38,000		
	Earned Media Landscape	\$2,500		
<b>SERVICES</b>	Erin Gilhuly, President (\$200/hr.)		158	<b>\$102,375</b>
	Vice President/Account Exec. (\$175/hr.)		216	
	Design Staff (\$165/hr.)		165	
	Media Buyer (\$125/hr.)		46	
<b>ADVERTISING</b>	Print	\$58,962		<b>\$90,712</b>
	Public Service Announcements	\$0		
	Digital Advertising	\$7,750		
	Local Events	\$12,000		
	Follow Up Survey	\$12,000		
<b>PLAN TOTAL</b>				<b>\$249,837</b>

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## Agencies ask consumers to cut water usage by 20%

By Canan Tasci, Inland Valley Daily Bulletin  
Tuesday, February 4, 2014

DailyBulletin.com

Inland Valley Daily Bulletin (<http://www.dailybulletin.com>)

### Agencies ask consumers to cut water usage by 20%

Inland Empire water officials are urging people to be water wise to help combat the recent statewide [drought emergency](#) that has been declared by Gov. Jerry Brown.

In 2009, the state set an interim goal of saving 10 percent of residential water consumption by 2015, along with a mandate of saving 20 percent by 2020, said Douglas Headrick, general manager of San Bernardino Valley Municipal Water District.

But now that California is experiencing its driest season in years, Inland Empire water officials are urging their customers now to cut their consumption by 20 percent

The agencies are calling for the voluntary cutback to offset the loss of water from the State Water Project, which is used to supplement local water supplies, Headrick said in a Water Supply Contingency Work Group news release.

The group manages delivery, storage and sharing of water supply in the western portion of San Bernardino County.

“Droughts in California are not anything new,” Headrick said. “Part of the reason why big parts of Southern California are going to be able to meet demand again this year with conservation is because we plan for droughts. We use the ground water basin to store water when it’s wet both here, locally and in Kern County knowing that there are going to be years like this.

“But again,” he added, “I don’t think anyone anticipated a year this dry but a drought is a drought.”

To help encourage conservation, water agencies serving communities from Yucaipa to northern Fontana created the website [You-Save-Water.com](http://You-Save-Water.com) where customers can find rebates and conservation tips.

The idea is to have one site where water customers can go regardless who serves them, said Bob Tincher, manager of the water resources for the San Bernardino Valley District Municipal Water District.

“California set a goal to save 20 percent by 2020, and these things that we’re asking people to do as part of their life are not just because of the drought,” Tincher said. “We really want to encourage them to save more water, because we want to use water more efficiently which basically stretches every drop further as we go into the future.”

Saving up to 10 gallons of water is as easy as turning off the faucet while brushing your teeth, and a household can save 45 gallons of water by washing full loads of clothing, Tincher said.

“The simplest way to save water is not to walk away from it while it’s running,” he said.

Other tips include not over-irrigating outdoor landscaping and to consider a drip irrigation for planters.

“The less water that we need really helps us make it through droughts and make it into the future as the demand increases,” Tinchler said. “So it’s not something people do only during the drought, but from this point forward.”

But if people don’t save, the agency always has the option to mandate the 20 percent conservation, as water officials in [Sacramento](#) have already done, Headrick said.

“The message is if the people don’t save, the possibility of rationing becomes more real. And that’s the bottom line,” he said. “It’s a zero-sum game. If you waste water, there is less water available, but I think, that if you provide the right kind of incentives, people for the most part want to do the right thing.”

**URL:**

<http://www.dailybulletin.com/environment-and-nature/20140204/agencies-ask-consumers-to-cut-wat>

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**BIG BEAR CITY COMMUNITY SERVICES DISTRICT  
REGULAR BOARD MEETING MINUTES  
FEBRUARY 3, 2014**

**CALL TO ORDER**

The Big Bear City Community Services District Board of Directors held a regular meeting on Monday, February 3, 2014 at 5:30 p.m. at 139 East Big Bear Boulevard, Big Bear City, California 92314 and by teleconference at Indian Waters RV Resort, 47202 Jackson Street, Indio, CA 92201.

President Oxandaboure called the meeting to order at 5:30 p.m. President Oxandaboure presented an invocation and Director Terry led the Pledge of Allegiance.

**BOARD MEMBERS PRESENT**

John Green, Karyn Oxandaboure, Paul Terry, and Larry Walsh were present. Jeff Newsome was present via teleconference.

**BOARD MEMBERS ABSENT**

No Board Members were absent.

**OTHERS PRESENT**

MEMBERS OF THE PUBLIC who signed in included: Lauren Blanchard, Ed Stanik, Bob and Sandi Ybarra, and Al Ziegler.

DISTRICT EMPLOYEES included: Jerry Griffith, Water Superintendent; Brian Harris, Solid Waste Foreman; Rob Hopkins, General Manager; Donna Horn, Administrative Department Manager; Andy Keller, Sewer Foreman; Emiliano Orabuena, Solid Waste Collection Specialist; Agnes Roberts, Financial Analyst; Shari Strain, Finance Officer; Jeff Willis, Fire Chief; Jon Zamorano, Solid Waste Superintendent; Nathan Zamorano, Sewer Superintendent; and Mary Reeves, Human Resources Manager/Secretary of the Board.

**AGENDA APPROVAL**

**MOTION**

Upon motion by Director Green, seconded by Director Terry, and carried by the following vote:

AYES:	GREEN, NEWSOME, OXANDABOURE, TERRY, WALSH
NOES:	NONE
ABSENT:	NONE
ABSTAINS:	NONE

The Board approved the agenda as presented.

## PRESENTATIONS

### A. Proposal to Re-establish Paradise Park Property Agreement

Big Bear Valley Recreation and Park District General Manager Reese Troublefield presented a proposal to re-open discussions on the lease of Big Bear City Community Services District owned property to the Big Bear Valley Recreation and Park District for construction of a park. He explained that the lease of 5.4 acres on Paradise Way that the two agencies had previously negotiated a lease, but that the lease expired in 2012 due to a lack of funding. The presentation at this meeting was informational, but Mr. Troublefield asked that the Board consider the proposal at a future Board meeting. The Board agreed to place the Paradise Park lease on the agenda at a later meeting for discussion.

## INFORMATION ITEMS

Several Board members announced upcoming meetings of other local agencies. President Oxandaboure announced that the next regular Board meeting, scheduled for February 17, 2014, fell on a District Holiday and would be adjourned.

## CONSENT CALENDAR

The Board reviewed the items on the consent calendar. Director Terry asked that Item B., the Sewer Main Line Extension and Sewer Facilities Construction Agreement for Tract 18806, be removed from the consent calendar for discussion.

## MOTION

Upon motion by Director Walsh, seconded by Director Terry, and carried by the following vote:

AYES:	GREEN, NEWSOME, OXANDABOURE, TERRY, WALSH
NOES:	NONE
ABSENT:	NONE
ABSTAINS:	NONE

The Board approved the following consent item as presented:

### A. Minutes of the Regular Meeting of January 20, 2014

## REQUESTS FOR CONTINUANCE

There were no requests for continuance.

## ITEMS REMOVED FROM THE CONSENT CALENDAR FOR DISCUSSION

Director Terry asked that Item B., the Sewer Main Line Extension and Sewer Facilities Construction Agreement for Tract 18806, be removed from the consent calendar for discussion. Staff reported that upon review from the California Joint Powers Insurance Authority,

Addendum 3 had been added to the agreement after the Board packets were distributed. Finance Officer Shari Strain also indicated that there had been minor grammar and formatting revisions. The updated agreement, which was dated February 3, 2014, was available for the Board and the public at the meeting.

### **MOTION**

Upon motion by Director Green, seconded by Director Newsome, and carried by the following vote:

AYES:	GREEN, NEWSOME, OXANDABOURE, TERRY, WALSH
NOES:	NONE
ABSENT:	NONE
ABSTAINS:	NONE

The Board approved the following consent item as presented:

- B. Sewer Main Line Extension And Sewer Facilities Construction Agreement for Tract 18806

### **COMMITTEE & BOARD MEMBER REPORTS**

The Board Members briefly reported on District related activities that each attended since the last scheduled Board meeting.

- A. Finance Committee Meeting of January 30, 2014

Director Walsh reported that the Finance Committee had met on January 30, 2014 to review the Fiscal Year 2013/14 Mid-year Budget Adjustments. Staff was directed to put this item on the next meeting's agenda for discussion by the whole Board.

### **SUPERVISOR REPORTS**

There were no supervisor reports.

### **UNFINISHED BUSINESS**

- A. District Investments - Discussion and possible action

Finance Officer Shari Strain reported that at the January 6, 2014 board meeting, staff was authorized to invest \$120,000 in five certificates of deposit (\$600,000 total) with maturities from one year to five years with Union Bank CDPlus pending confirmation that all monies invested would be fully insured. At the January 20, 2014 board meeting, she indicated that she had confirmed that all the monies invested would be fully insured and presented the current CDPlus interest rates. The Board directed staff to bring back a plan to maximize the interest earnings by possibly eliminating using the lower earning CDs. Shari presented the current rates and the possible interest earnings by eliminating the CD with a 1-year maturity date. The Board indicated that it would like to see additional options to increase interest earnings.

**NEW BUSINESS/ADOPTION AGENDA/DISCUSSION/NOTICED HEARINGS**

A. Governor Brown Drought Emergency Declaration - Discussion and possible action

General Manager Rob Hopkins reported that Governor Jerry Brown’s Office declared a drought emergency on January 17, 2014. He reported that the Governor’s declaration directs municipalities to prepare to implement their conservation plans and that drought controls be implemented immediately. For the Big Bear City Community Services District, the official Stage 1 water restriction “trigger” is ground water level of 21 feet or lower. Currently, the ground water level is at 17 feet, above the recognized trigger point for Stage 1 restrictions. Implementation of Stage 1 Water Restrictions must be authorized through Board action, whether at the stated “trigger” levels or due to other exigent circumstances. Mr. Hopkins asked the Board to approve the implementation of Stage 1 water restrictions based on the Governor’s drought emergency declaration.

**MOTION**

Upon motion by Director Walsh, seconded by Director Green, and carried by the following vote:

AYES:	GREEN, NEWSOME, OXANDABOURE, TERRY, WALSH
NOES:	NONE
ABSENT:	NONE
ABSTAINS:	NONE

The Board authorized the General Manager to implement Stage 1 Water Restrictions and notify the CSD residents of said restrictions at the current water table level, per the Declaration of Drought Emergency put forth by the Offices of Governor Jerry Brown on January 17, 2014.

**NON-AGENDA PUBLIC TESTIMONY**

Public comments on various District-related subjects were heard. Staff was directed to put an item on the agenda to discuss a water education/advertising campaign.

**DIRECTOR’S CLOSING COMMENTS/ANNOUNCEMENT OF COMING EVENTS**

Several Board Members thanked staff, the public, and the press for their participation in the meeting.

**CLOSED SESSION**

President Oxandaboure announced the following closed session item and read it into the record:

- A. PUBLIC EMPLOYEE PERFORMANCE EVALUATION (Government Code Section 54957)  
Title: General Manager

At 6:55 p.m., the Board entered into closed session.

**REPORT FROM CLOSED SESSION**

At 7:35 p.m., the Board reconvened to open session and President Oxandaboure reported on the closed session item.

- A. PUBLIC EMPLOYEE PERFORMANCE EVALUATION (Government Code Section 54957)  
Title: General Manager

President Oxandaboure reported that no reportable action had taken place.

**ADJOURNMENT**

By consensus of the Board, the meeting was adjourned at 7:37 p.m.

  
\_\_\_\_\_  
Mary T. Reeves  
Secretary of the Board

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**RESOLUTION NO. 2014-4-2**  
**A RESOLUTION OF THE BOARD OF DIRECTORS OF THE**  
**CUCAMONGA VALLEY WATER DISTRICT URGING CONTINUED**  
**OUTREACH EFFORTS ON WATER USE EFFICIENCY WITH**  
**CUSTOMERS IN RESPONSE TO THE STATEWIDE DROUGHT**

**WHEREAS**, California is experiencing one of the most severe droughts on record and many areas will face water shortages this year, and

**WHEREAS**, the 2014 water year has been one of the driest in decades and follows two consecutive dry years throughout the state, and

**WHEREAS**, even after recent rain and snowfall, the state's major reservoirs remain well below average levels for the date and the statewide snowpack is less than a third of normal, with little time remaining to recover in 2014, and

**WHEREAS**, the State Water Project has announced an initial allocation of zero for its customers in 2014 while the federal Central Valley Project has announced the lowest-ever allocations for its contractors, creating a real possibility that 25 million Californians and more than a million acres of farmland will receive no water from the projects this year, and

**WHEREAS**, Governor Brown declared a drought state of emergency on January 17, 2014, and called on all Californians to do their part to reduce their water use, and

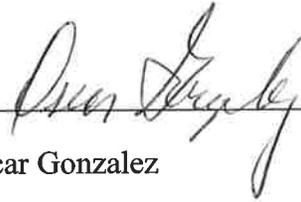
**WHEREAS**, though local water supply conditions vary around the state, California is nevertheless in a statewide drought, and it is critical that all residents do what they can to use water wisely to maximize supplies and protect water reserves in case next year is dry, too, and

**WHEREAS**, Cucamonga Valley Water District has made significant investments in local programs to improve water supply reliability, including the development of recycled water, improvements to local groundwater basins, increased educational efforts on water use efficiency and other advanced planning efforts to diversify our water supplies, and will continue to do so.

**NOW, THEREFORE, BE IT RESOLVED**, that the Board of Directors of the Cucamonga Valley Water District recognizes that California is in a statewide drought and there is a critical need for all Californians to use water efficiently on an ongoing basis as the state continues to face drought conditions, and

**BE IT FURTHER RESOLVED**, that the Board of Directors thanks its customers for their ongoing water efficiency efforts and asks them to continue their efforts wherever possible at this time in response to the drought.

**PASSED, APPROVED AND ADOPTED** this 22<sup>nd</sup> day of April 2014.



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Oscar Gonzalez

President, Board of Directors

ATTEST:



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Martin E. Zvirbulis

Secretary, Board of Directors

STATE OF CALIFORNIA )  
COUNTY OF SAN BERNARDINO ) ss.

I, **MARTIN E. ZVIRBULIS**, Secretary of the Board of Directors of Cucamonga Valley Water District, do hereby certify that the foregoing **Resolution No. 2014-4-2** was adopted by the Board of Directors of said District at a regular board meeting held on **April 22, 2014**. A recorded vote of the Board is as follows:

AYES: Directors CETINA, CURATALO, GONZALEZ, REED, TIEGS

NOES: Directors NONE

ABSENT: Directors NONE

  
MARTIN E. ZVIRBULIS, SECRETARY  
Cucamonga Valley Water District  
and the Board of Directors thereof

(SEAL)