environment

San Bernardino's air quality has remained unchanged for the past several years, with most days in the moderate range. More county residents properly dispose of household hazardous waste than the statewide average. Energy consumption is down, as is average per capita water usage, but reports of illegal dumping of pollutants into storm drains or waterways increased.

Working Group Prioritizes Clean Air Projects

The South Coast Air Quality Management District's 2010 Clean Community Plan (CCP) is designed to reduce exposure to air toxics through intensive local involvement, community outreach, and source-reduction projects. The City of San Bernardino was selected as one of only two CCP pilot sites. The selection brought with it investments in projects such as school facility air filtration upgrades, truck fleet conversions from diesel to electric, and a lawnmower exchange program. A CCP Pilot Program Working Group of local stakeholders is currently developing plans to address the most significant air quality risks in the area. At the top of their list is the Burlington Northern Santa Fe (BNSF) rail yard in San Bernardino, which has the dubious distinction of posing the highest health risk of all California rail yards according to a study by the California Air Resources Board. Success in the San Bernardino Pilot Program will lead to solutions other communities can emulate and build on.

Air Quality "Moderate" on Most Days

Description of Indicator

This indicator measures air quality in San Bernardino County and selected counties using the Air Quality Index (AQI).[1]

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?

While there were more "good" days in 2011, the county's median AQI score of 71 (equivalent to "moderate" air quality) has remained unchanged over four years:

- In 2011, most days were in the "moderate" range (160 days) followed by 90 days considered "unhealthy for sensitive groups" such as asthmatics (see Chronic Disease).
- There were 86 days in the "good" range, 27 days in the "unhealthy" range, and two days in the "very unhealthy" range.
- Most days the main pollutant was ozone (57%), followed by particulate matter smaller than 2.5 micrometers (32%).
- Among the eight regions compared, San Bernardino County has the 5th highest percentage of days with good air, with Miami experiencing the best air quality and Phoenix experiencing the worst.

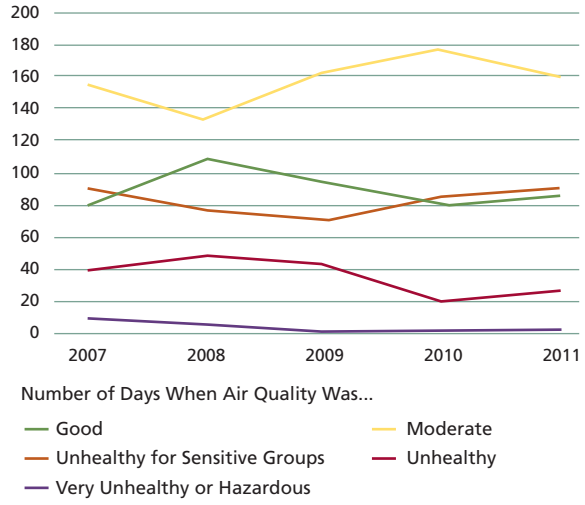
Air Quality Index

The Air Quality Index is calculated for 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

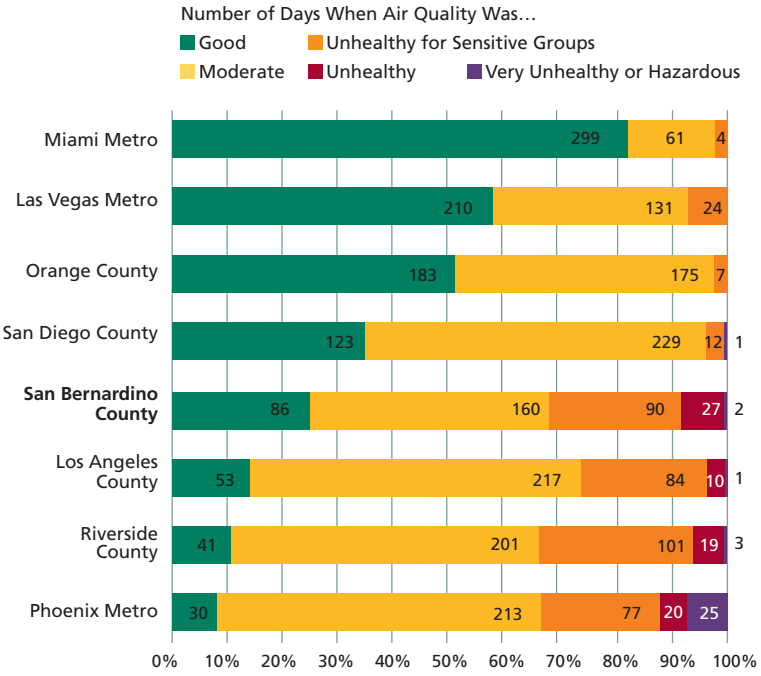
Source: U.S. Environmental Protection Agency (http://airnow.gov/)

Air Quality Index
San Bernardino County, 2007-2011



Source: U.S. Environmental Protection Agency, Air Data (www.epa.gov/airdata/)

Air Quality Index
Regional Comparison, 2011



Source: U.S. Environmental Protection Agency, Air Data (www.epa.gov/airdata/)

[1] Due to a combination of stricter air quality standards and differing calculation methodologies between the former and current databases, these data are not comparable to data presented previously.

Connecting the Dots

Air Quality is directly affected by the use of **Transit.**

High Level of Resident Participation in Proper HHW Disposal

Description of Indicator

This indicator measures the tons of commercial and residential solid waste generated in San Bernardino County destined for disposal in County landfills, as well as waste destined for 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?

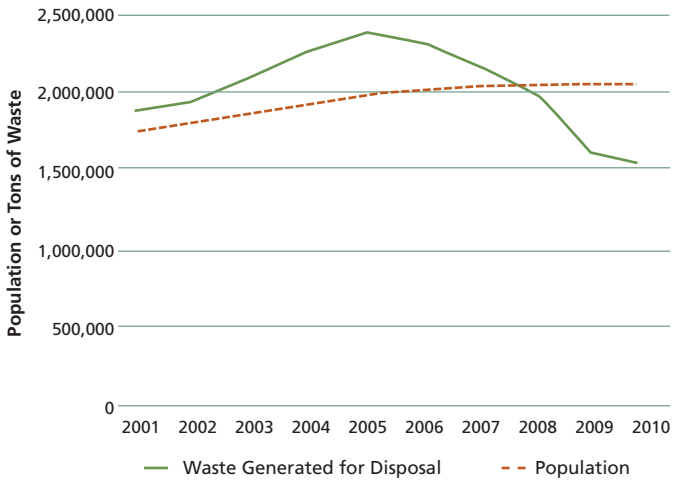
Reducing solid waste production and diverting recyclables and green waste extends the life of landfills, decreases the need for costly alternatives, and reduces environmental impact. Since 2000, all jurisdictions in California are required by law to divert 50% of waste away from landfills through source 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" – produced by nearly all households and many businesses, and containing hazardous chemicals or metals that can harm the environment, such as electronics, thermostats, batteries, and fluorescent tubes – accounts for more and more of HHW collected and increases the cost of collection.

How is San Bernardino County Doing?

Solid waste and household hazardous waste disposal is down:

- Waste disposed in landfills dropped for the fifth consecutive year, falling 4% between 2009 and 2010.
- After peaking in 2005, solid waste disposal declined 34% between 2005 and 2010, and 12% over the past 10 years.
- Meanwhile, San Bernardino County's population grew an estimated 19% over the past 10 years, suggesting that economic factors, not population, are primarily responsible for the decline in disposal.
- Preliminary 2010 waste diversion data indicates that 23 out of 25 jurisdictions (24 cities and the County of San Bernardino) met both their population-based and employment-based disposal rate targets.[1]
- The number of people who bring HHW to regional collection centers fell in 2010/11 but the participation rate remains high.
- San Bernardino County has a higher HHW participation rate (9.1% of households) than the statewide average (8.0%).[2]

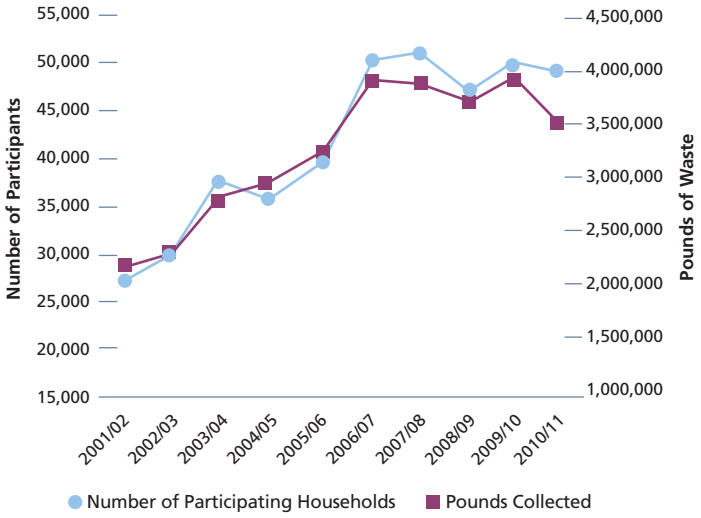
Solid Waste Generated for Disposal Compared to Population Growth
San Bernardino County, 2001-2010



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)

Household Hazardous Waste
San Bernardino County, 2002-2011



Note: Data includes San Bernardino County unincorporated areas and all the cities except Fontana.

Source: San Bernardino County Department of Public Works

[1] CalRecycle, Countywide, Regionwide, and Statewide Jurisdiction Diversion/Disposal Progress Report (www.calrecycle.ca.gov/LGCentral/Reports/jurisdiction/diversiondisposal.aspx)
[2] CalRecycle (www.calrecycle.ca.gov/HomeHazWaste/reporting/Form303/default.htm), 2009/10; U.S. Census Bureau, American Community Survey, 2008-2010 Three-Year Estimates (http://factfinder.census.gov/)

Connecting the Dots

Programs to reduce **Solid Waste and Household Hazardous Waste** are one type of **Community Amenity.**

23% of Illegal Dumping Incidents Required Citations

Description of Indicator

This indicator measures one aspect of stormwater quality management by tracking reports of illegal discharges of pollutants (such as paint or motor oil) into surface waterways and storm drains.

Why is it Important?

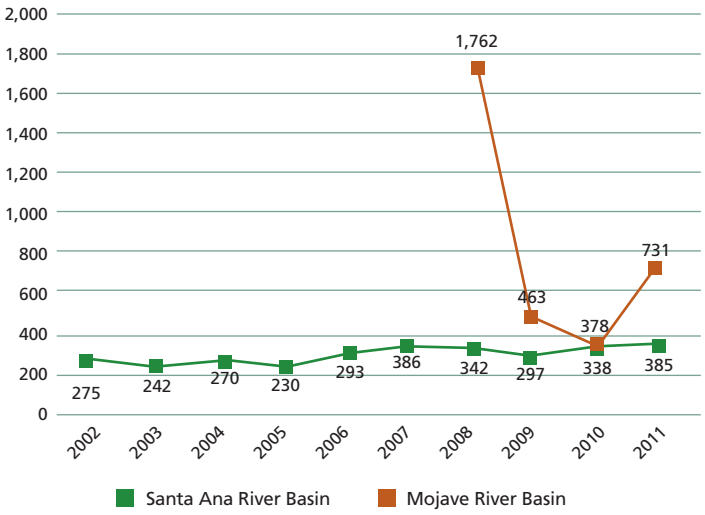
Stormwater pollution refers to urban water runoff that picks up pollutants as it flows through the storm drain system – a network of channels, gutters and pipes that collects rain and snowmelt. Eventually, the water empties – untreated – directly into local rivers and lakes. Pollutants in stormwater 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, clog the storm drain system, and attract rats and cockroaches. Flooding may also occur due to blocked storm drains during heavy rain events.

How is San Bernardino County Doing?

More illegal discharge, dumping and spill events were reported in 2011:

- There were 385 illegal discharge reports in 2011 in the Santa Ana River Basin.[1]
- While the number of reports varies anually, there has been an average increase of about 12 reports a year since 2002.
- In the Mojave River Basin, there were 731 illegal discharge reports in 2011. This is more than reported in 2010 (378) but fewer than reported in 2008 (1,762).[2]
- A response and attempt to clean up the discharge, dump or spill follows each report. In 2011, 83% of reported discharges in the Mojave River Basin were resolved.
- Approximately 23% of the incidents in the Santa Ana River and Mojave River basins required enforcement action such as violation notices or assessment of clean up costs.
- Increases in reports of illegal discharges are likely due to several factors including population growth, greater public awareness that leads to increased incident reporting, and improved tracking of public complaints.

Stormwater Quality: Illegal Discharge, Dumping and Spill Events in the Santa Ana and Mojave River Basins (San Bernardino County portions), 2002-2011



Note: Data have been revised since previously reported. Data for Mojave River Basin is 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

Forest First: Agencies Collaborate to Protect Water Quality

Recognizing the critical link between forest lands and water quality, the Santa Ana Watershed Project Authority and the San Bernardino National Forest signed an agreement in 2012 launching the Forest First Program. Fully 90% of the precipitation in the Santa Ana River watershed falls within U.S. Forest Service lands, therefore the quality of the forests has a significant impact on the quality of the water downstream. Forest First projects include thinning forests to more natural levels to reduce the likelihood of devastating fires, restoring marsh habitats which serve to slow down and filter stormwater, controlling invasive plants and replanting with native plants which consume less water and control erosion better, and improving dirt roadways in the forests (it is estimated that one mile of roadway improvement could eliminate 10 tons of sediment annually from flowing into the Santa Ana River basin). Together, these programs will improve the quality of stormwater, increase the ability to recharge groundwater, and reduce flood control costs.

Source: Ruth Villalbos, RBF Consulting, presentation to the Santa Ana Watershed Project Authority "One Water, One Watershed" 2012 Conference

MRWG Illicit Discharge and Elimination Program

The Mojave River Watershed Group (MRWG) acts decisively to protect the Mojave River from pollutants by monitoring storm drains, responding to all identified illegal spills, and conducting extensive public outreach and education efforts. MRWG has developed a storm drain map detailing "level of threat" zones. This map assists in tracking spills and prioritizing high-risk areas. In addition to maintaining and inspecting the storm drain system and monitoring high-risk areas, the MRWG operates a hotline number (1-800-Cleanup) and a website reporting system. "No dumping" signage throughout the watershed reminds the public of the importance of keeping their waterways clean, and provides information on how to report illegal dumping. Because the waterways can be affected by improperly disposed household hazardous waste (HHW) and debris, the MRWG also participates in the County's HHW and oil recycling program and hosts community clean-up days.

Source: Mojave River Watershed Group, Annual Reports, 2005/06, 2006/07 and 2010/11

[1] Watershed protection in the Santa Ana River Basin is collectively managed by the cities of Big Bear Lake, Chino, Chino Hills, Colton, Fontana, Grand Terrace, Highland, Loma Linda, Montclair, Ontario, Rancho Cucamonga, Redlands, Rialto, San Bernardino, Upland, and Yucaipa, the San Bernardino County Flood Control District, and the County of San Bernardino for the unincorporated areas within the San Ana River Basin.

[2] Watershed protection in the Mojave River Basin is collectively managed by the cities of Apple Valley, Hesperia, Victorville, and the County San Bernardino County for the unincorporated areas within the Mojave River Basin.

Connecting the Dots

Stormwater Quality is improved through proper disposal of **Solid Waste and Household Hazardous Waste.**

County is on its Way to Meeting 20% Reduction Law

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.[1]

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 now also 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 2011, average water consumption continued to decline:

- The average water consumption per person was 186 gallons a day for the six agencies sampled.
- Per capita water consumption varied from a high of 246 gallons per capita per day (GPCPD) to 98 GPCPD, depending on the agency.
- The average rate is higher than neighboring Orange County, which posted a countywide average GPCPD of 162 in 2010/11, and lower than Riverside County at 245 GPCPD in 2011.2
- Since 2009, when SB X7-7 was enacted, per capita water usage among the sampled San Bernardino County water agencies has fallen 14%.
- Together, the six water agencies sampled serve approximately 1,290,000 residents, or 63% of the total county population.

Average Urban Water Consumption in Gallons per Capita per Day for Selected Water Agencies Serving San Bernardino County, 2007-2011

Sources: 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, and Victorville Water District; California Department of Finance, Table E-4

[1] Due to the many independent water agencies serving San Bernardino County, a countywide water consumption figure is not available. Data were sought from a sampling of agencies serving the larger geographic or population centers in the county.

[2] The figure for Orange County encompasses the entire county; the figure for Riverside County reflects a sample of six agencies serving 45% of the total population.

Connecting the Dots

Water Consumption varies by **Industry Cluster** and by the employment the industry supports.

Electricity and Natural Gas Use Decline Significantly

Description of Indicator

This indicator measures total and per capita energy consumption in San Bernardino County including electricity, natural gas, and vehicle fuel use.

Why is it Important?

Energy prices and supplies impact the cost of doing business as well as business stability. Additionally, the three main contributors to greenhouse gas (GHG) emissions – electricity, natural gas, and vehicle fuels – are together responsible for over 80% of GHG emissions. Because energy consumption is driven up by population and business growth, tracking per capita usage helps determine the extent of efficiency and conservation on energy use. Improved energy efficiency saves residents and businesses money, reduces dependency on fossil fuels, and lessens the environmental impact of carbon emissions.

How is San Bernardino County Doing?

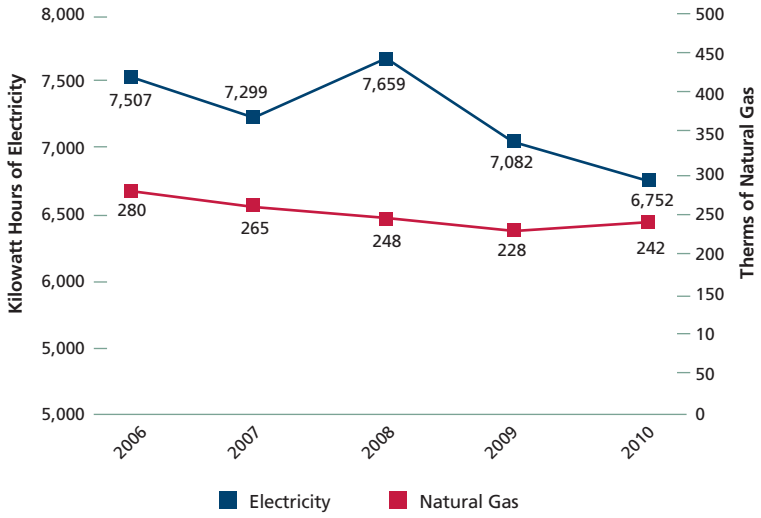
Total energy consumption in San Bernardino County declined over the past five years:

- Between 2006 and 2010, total electricity consumption decreased 7%, from 14,840 million kilowatt hours to 13,765 million kilowatt hours. This equates to a per capita decline of 10%.
- Despite increasing in 2010, since 2006 natural gas consumption decreased 11% from 553 million therms to 493 million therms, equivalent to a drop of 14% on a per capita basis.
- Between 2005 and 2011, total vehicle fuel consumption (gasoline and diesel) decreased 4% from a total of 1.26 billion gallons in 2005 to 1.20 billion gallons in 2011.
- On a per capita basis, vehicle fuel consumption declined 10% from 646 gallons per person in 2005 to 584 gallons per person in 2011.

Many Factors Influence Energy Consumption

Energy consumption is influenced by a range of factors including the economy, fuel prices, discretionary income, and weather conditions in a given year. Conservation and technological advances in efficiency also contribute to reductions in energy consumption.

Per Capita Electricity and Natural Gas Consumption
San Bernardino County, 2006-2010



Sources: California Energy Commission Energy Consumption Data Management System (http://ecdms.energy.ca.gov/elecbycounty.aspx); California Department of Finance Population Estimates

Tackling GHG Emissions

The jurisdictions in San Bernardino County face a demanding challenge to meet the GHG reduction targets established by the State of California through the requirements of AB 32 and SB 375. In response to these initiatives, San Bernardino Associated Governments (SANBAG) and its local jurisdiction partners are seeking to reduce GHG emissions associated with regional activities, beginning with the "San Bernardino County Greenhouse Gas Inventory and Reduction Plan." The effort will develop the following:

- A baseline year (2008) GHG emissions inventory for each of the participating cities;
- A future year (2020) GHG emissions forecast for each of the cities;
- A tool for each city to develop a municipal inventory (i.e., emissions due only to the city's municipal operations) and municipal reduction plan;
- Regional and local (single municipality) GHG reduction measures for the following sectors: building energy, water, transportation, off-road equipment, waste, and stationary fuel combustion; and
- Greenhouse gas reduction plans for each jurisdiction, meeting jurisdiction identified reduction goals.

The County of San Bernardino has completed a similar plan, and 20 cities are jointly participating in the SANBAG effort. By working collaboratively on these goals, the cities aim to more effectively address emissions from activities that are affected or influenced by the region as a whole.

Connecting the Dots

Energy Consumption is driven by the economy, as is **Water Consumption.**