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Equinox Ten Year Trend Analysis: *Waste*

2010 - 2020

**Prepared for
The Nonprofit Institute**



University of San Diego®
**SCHOOL OF LEADERSHIP
AND EDUCATION SCIENCES**

**By
Center for Sustainable Energy**



Center for
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The Nonprofit Institute is housed in the School of Leadership and Education Sciences at the University of San Diego. The Nonprofit Institute provides education, training and research to strengthen organizations that help meet critical community needs.



About Center for Sustainable Energy

The Center for Sustainable Energy (CSE) is a nonprofit energy program administration and advisory services organization. Their mission is to decarbonize and their vision is a future with sustainable, equitable and resilient transportation, buildings and communities.

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Waste Disposal in San Diego County

This report summarizes the plans and initiatives of the City and County of San Diego for reducing waste disposal and examines 10 years of data to analyze waste disposal trends over time. Various county and city-level estimates are provided for context.

Waste disposal trends and policies in San Diego County

Compared to other California counties, San Diego produces a significant amount of waste. It had the second-highest average waste disposed of the state’s 58 counties during 2008–18 at nearly 3.2 million tons. The county has also had the second-highest overall population over the 10-year period with an average of over 3.2 million people. Table 1 shows the top five counties with the highest waste disposal average between 2008 and 2018.

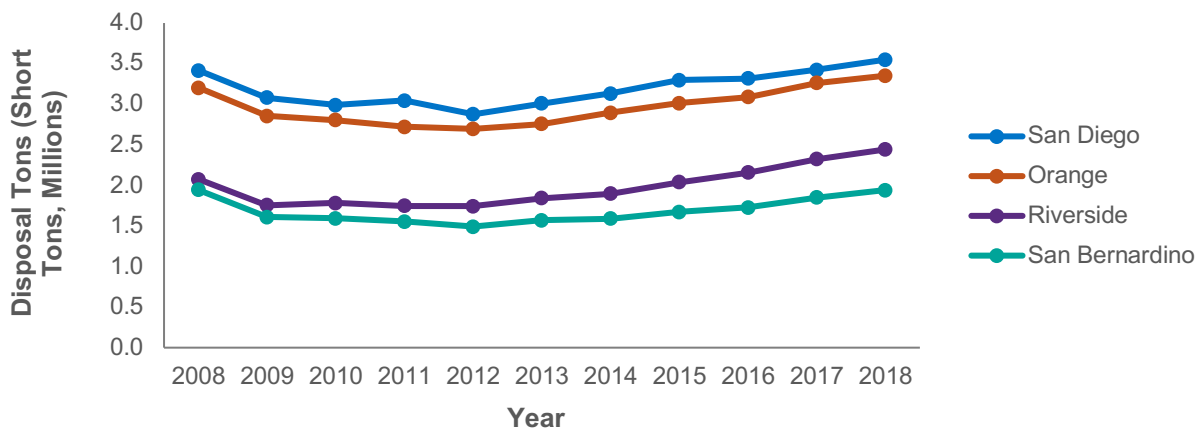
Table 1: Average Waste Disposal for 2008–2018, Top Five Counties

| County | Average Disposal Ton (2008 – 2018, Short Tons) | Average Population (2008 – 2018) |
|----------------|--|----------------------------------|
| Los Angeles | 9,026,448 | 10,063,511 |
| San Diego | 3,193,530 | 3,220,854 |
| Orange | 2,967,481 | 3,120,235 |
| Riverside | 1,982,498 | 2,296,654 |
| San Bernardino | 1,685,568 | 2,105,619 |

Data Sources: California Department of Finance, E-4 population estimates, 2010–2019; CalRecycle, Multi-year Countywide Origin Summary

The county’s annual amount of waste has been increasing between 1% and 5% since 2012. Figure 1 compares the waste disposal in San Diego County during 2008–18 with the other top five counties in California, with the exception of Los Angeles County.¹

Figure 1: Waste Disposal by County with Top Five Average, 2008-2018

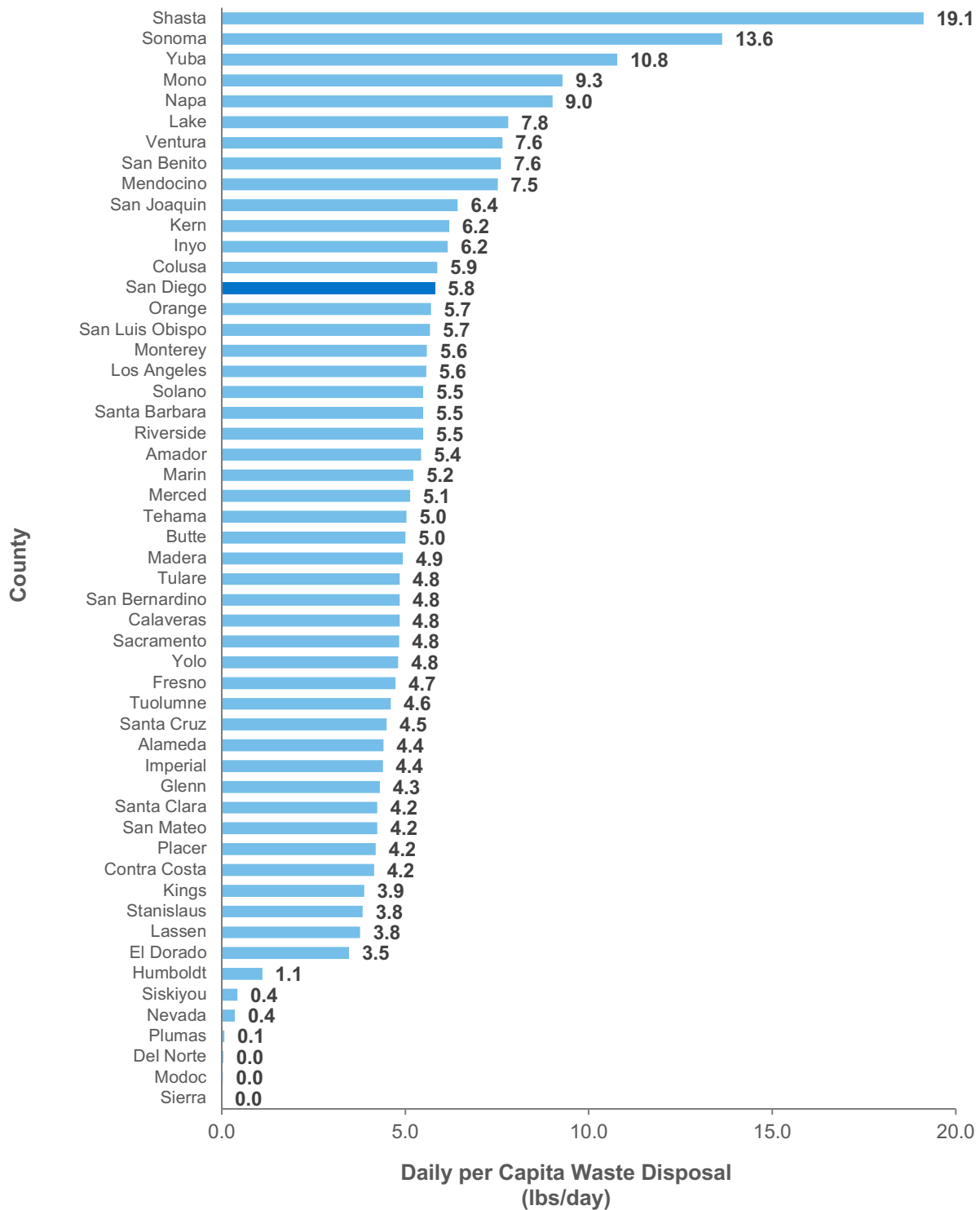


Data Sources: California Department of Finance, E-4 population estimates, 2010-2019; CalRecycle, Multi-year Countywide Origin Summary

¹ Because Los Angeles has such high waste disposal levels compared to the other top five counties, it is not depicted in Figure 1.

Out of California's 58 counties, San Diego had the 14th highest daily waste disposal per person in 2018 at 5.8 pounds. Figure 2 shows daily per capita disposal for all California counties.

Figure 2: Daily per Capita Waste Disposal by County, 2018



Data Sources: California Department of Finance, E-4 population estimates, 2010–2019; CalRecycle, Multi-year Countywide Origin Summary

California has passed numerous bills on waste management and disposal. In 1986, the California Beverage Container Recycling and Litter Reduction Act established refundable deposits on certain types of beverage containers (California Redemption Value).² Among the most significant bills for waste disposal reduction was the Integrated Waste Management Act of 1989 (Assembly Bill [AB] 939) that introduced waste diversion targets to all California jurisdictions. It requires jurisdictions to accomplish the following.³

1. Achieve 50% diversion of solid wastes by 2000 and each year after.
2. Submit an annual update to the California Department of Resources Recycling and Recovery (CalRecycle) for efficient diversion programs or be fined up to \$10,000 per day.
3. Develop the following:
 - a. A plan for achieving diversion goals (source reduction and recycling)
 - b. A plan for managing household hazardous waste
 - c. A document identifying nondisposal, material recovery facilities used to meet diversion goals

In 2011, the 50% diversion goal for California jurisdictions was replaced with Assembly Bill 341, which mandates that jurisdictions in California divert at least 75% of waste produced from disposal in landfills.⁴

The City and County of San Francisco has ambitious and aggressive waste diversion policies and educational campaigns. In 2002, it set up a 75% diversion goal for 2010 and in 2003 a zero-waste goal by 2020.⁵ Its 2009 Mandatory Recycling and Composting Ordinance requires all entities in the area to separate recyclables, compostable materials and trash destined for the landfill. A “Fantastic Three” program promoting the three-stream curbside pickup system was both educational and effective in diverting waste. Due of these policies, San Francisco was able to divert 80% of waste from the landfill in 2012 and has become a recognized leader in municipal waste diversion.⁶ The City of San Jose also has implemented successful waste strategies. In 2013, it opened the nation’s first commercial-scale dry fermentation digester and composting facility, offering recycling incentives and “pay-as-you-throw” incentives to commercial and residential properties.⁷

Waste disposal planning for the City of San Diego

Waste disposal compliance and tracking is measured at the jurisdiction level, which means that each city in San Diego County develops and manages regional waste tracking while the county government plans strategies for the unincorporated areas. In 2018, the City of San Diego had 1,420,572 people, which represented 42% of the county population. Since 2008, the city has disposed of over 16 million tons of waste, amounting to 46% of all waste disposed in the county during 2008-18.⁸ The city also has slightly higher per capita disposal rates compared to the

² <https://www.sandiego.gov/sites/default/files/legacy/environmental-services/pdf/recycling/ZWPlan.pdf>

³ Ibid.

⁴ <https://www.calrecycle.ca.gov/stateagency/requirements/lawsregs>

⁵ <https://www.epa.gov/transforming-waste-tool/zero-waste-case-study-san-francisco>

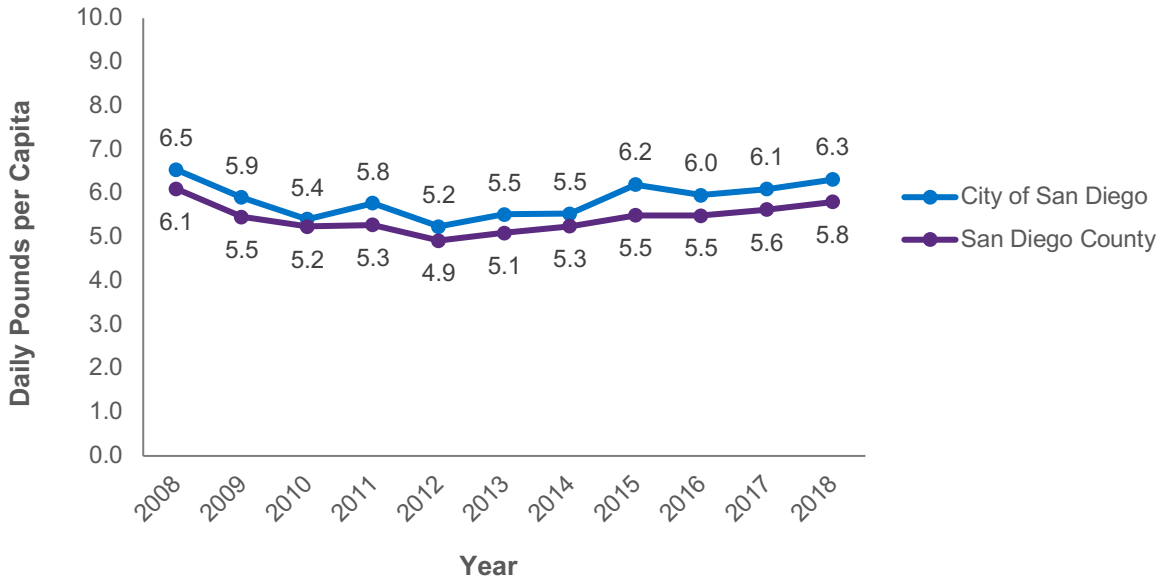
⁶ Ibid.

⁷ <https://www.epa.gov/transforming-waste-tool/zero-waste-case-study-san-jose>

⁸ This statistic was calculated using Calrecycle Multiyear Countywide Origin Summary reports between 2008 and 2018. The Disposal Tons for the City of San Diego between 2008 and 2018 was divided by the sum of all San Diego County Jurisdictions.

whole county. Figure 3 shows daily waste disposal per capita between the city and the county region.

Figure 3: Daily Waste Disposal per Capita – The City of San Diego vs. San Diego County



Data Sources: California Department of Finance, E-4 population estimates, 2010–2019; CalRecycle, Multi-year Countywide Origin Summary

Both the city and county have similar daily per capita trends, with an overall declining trend between 2008 and 2012 followed by a gradual increase from 2012 onward. Overall, the city had a higher average annual daily per capita rate at 5.9 pounds compared to a rate of 5.4 pounds for the county. This analysis is focused on the City of San Diego because it represents such a significant portion of the waste disposed out of the 18 municipalities in San Diego County.

The city has enacted programs, adopted ordinances and developed zero-waste plans to achieve waste diversion goals. In 1992, the San Diego City Council created the Miramar Landfill General Plan. The plan specified the development of multiple waste management facilities, including a household hazardous waste facility, materials recovery facility, resource recovery facility and similar services.⁹

To meet diversion goals set by AB 939, preserve capacity at the Miramar Landfill and maintain momentum generated by recycling programs, the city enacted the City Recycling Ordinance (CRO) in 2008. It came at a time when the Miramar Landfill was expected to close between 2011 and 2013. However, studies had shown that 37% of waste in the city at the time was paper or compostable and could be diverted.¹⁰ The ordinance mandated that all entities providing recycling collection services to separate recyclable materials from other disposed material and required the processing of recyclable materials from single-family and multifamily homes, commercial buildings and special events. Also in 2008, the Construction and Demolition (C&D) Debris Deposit Ordinance was enacted with similar provisions as the CRO. At that time, 25% of waste generated and delivered for disposal at Miramar Landfill was construction and

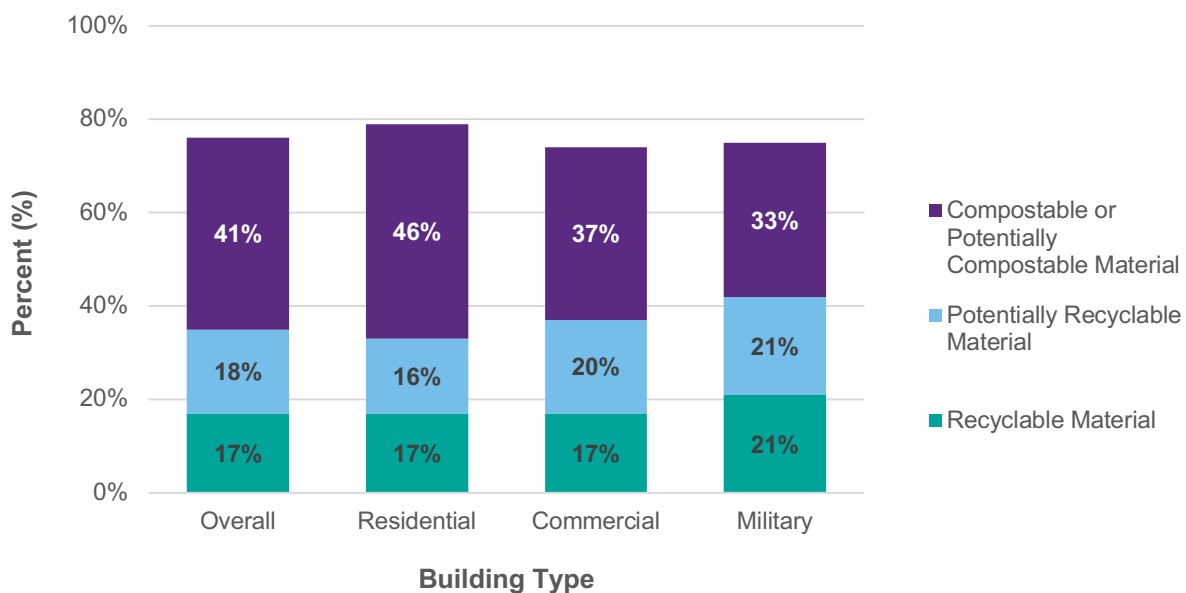
⁹ <https://www.sandiego.gov/sites/default/files/legacy/environmental-services/pdf/recycling/ZWPlan.pdf>

¹⁰ <https://docs.sandiego.gov/municode/MuniCodeChapter06/Ch06Art06Division07.pdf>

demolition debris.¹¹ The C&D ordinance mandated that certain building and/or demolition project applicants must provide a refundable deposit to ensure diversion of at least 50% of the C&D debris generated by the project.¹² Both the CRO and C&D ordinances have been successful in diverting waste from landfills. The CRO sparked a 90% increase in the volume of recycling service to commercial and multifamily homes during 2008–12, and the C&D ordinance had an average recycling rate of 71%.¹³

Further, the City of San Diego conducted a waste characterization study between 2012 and 2013 to evaluate the types and amount of waste being disposed.¹⁴ The goal was to further develop and enhance recycling programs and policies. The study found that more than 76% of the city's overall waste was recoverable. The following chart illustrates the percentage of recoverable waste by building type.

Figure 4: Percentage of Recoverable Waste by Building and Material Type



Data Source: City of San Diego Waste Characterization Study (2012–2013) Final Report

Food waste was the most prevalent disposed material, accounting for 189,761 tons (15%) of the waste analyzed for this study. This trend was similar for single-family and multifamily homes and commercial properties.

In 2015, the City of San Diego created a Zero Waste Plan, which aims to divert 75% of waste by 2020, 90% of waste by 2035 and 100% of waste by 2040.¹⁵ To accomplish these goals, the city planned to promote local policies, ordinances and state-level legislation that encourages manufacturers, waste producers and consumers to take responsibility for waste. The plan also identifies challenges to increasing diversion rates, which included lack of infrastructure and funding to process organic material as defined by Assembly Bill 1826 (2014), as well as special

¹¹ <https://docs.sandiego.gov/municode/MuniCodeChapter06/Ch06Art06Division06.pdf>

¹² <https://www.sandiego.gov/sites/default/files/legacy/environmental-services/pdf/recycling/ZWPlan.pdf>

¹³ Ibid.

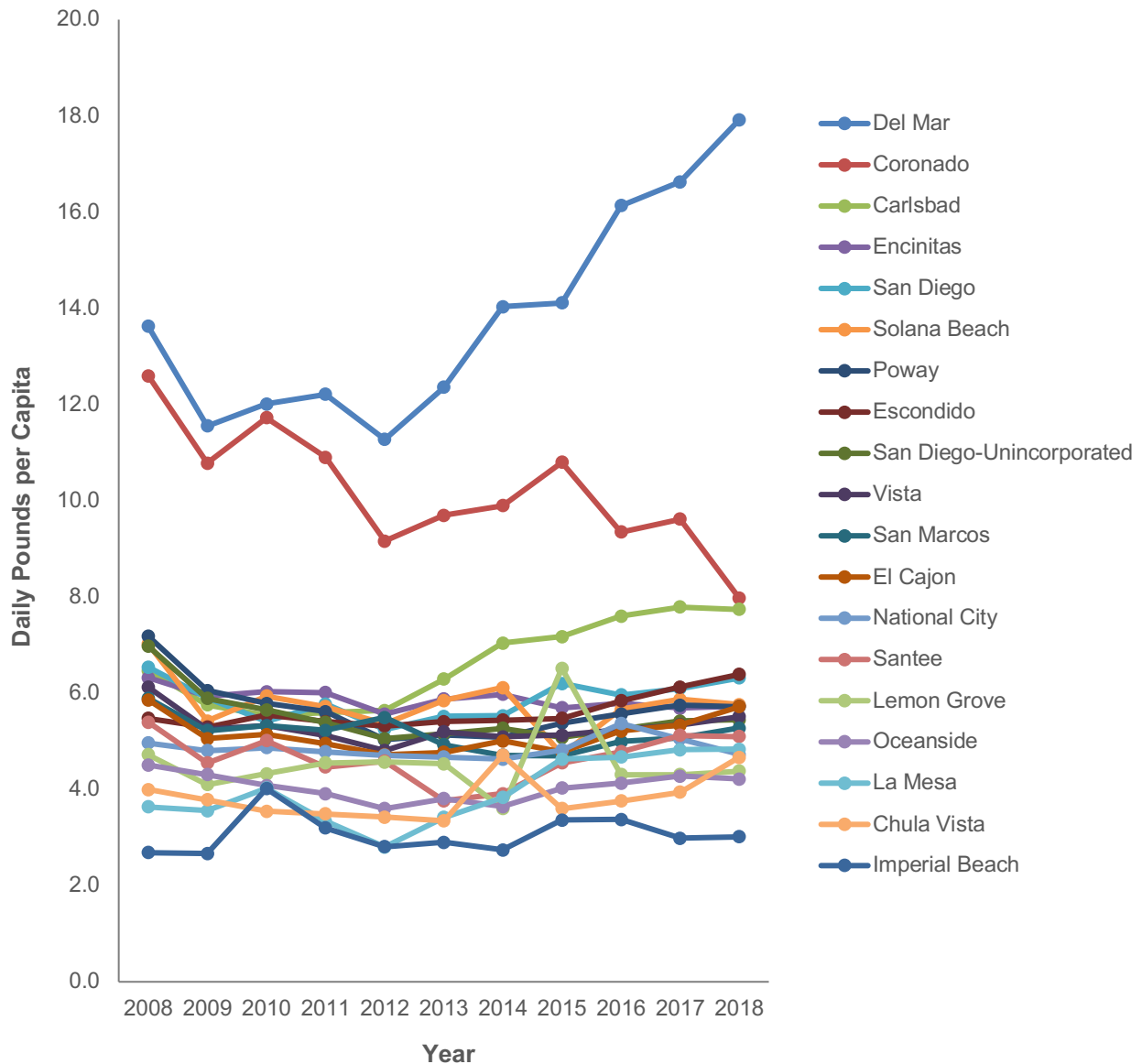
¹⁴ <https://www.sandiego.gov/sites/default/files/legacy/environmental-services/pdf/recycling/CompOverall.pdf>

¹⁵ <https://www.sandiego.gov/sites/default/files/legacy/environmental-services/pdf/recycling/ZWPlan.pdf>

materials like needles, batteries, lightbulbs and pharmaceuticals.¹⁶ To help address these challenges the city spurred development of waste infrastructure vis-à-vis facility development in the private sector, allowed for fibrous yard trimmings to be processed at the Miramar Greenery, modified permitting requirements and increased requirements to the CRO and C&D ordinances.

The ordinances and programs adopted by the City of San Diego have helped extend the life of the Miramar Landfill, which was originally set to close in 1995 and has increased diversion rates from 52% in 2004 to 66%.¹⁷

Figure 5: Daily Waste Disposal per Capita - San Diego Jurisdictions



Data Sources: California Department of Finance, E-4 population estimates, 2010–2019; CalRecycle, Multi-year Countywide Origin Summary

¹⁶ Ibid.

¹⁷ <https://www.sandiego.gov/environmental-services/miramar#Facts>

As shown in Figure 5, daily per capita disposal fluctuated for all jurisdictions during 2008–18. Del Mar,¹⁸ Coronado and Carlsbad had the highest per capita disposal in San Diego County, reaching 17.9, 8 and 7.7 pounds per day per capita, respectively. Although Del Mar and Coronado had some of the highest daily pounds per capita disposal amounts, both cities combined represent less than 5% of waste disposed of in the county. Imperial Beach had the lowest per capita disposal in 2018 with 3 pounds per day per person.

Thirteen jurisdictions had lower disposal amounts in 2018 compared with 2008. Disposal rates increased the most between 2017 and 2018—only seven jurisdictions had smaller rates in 2018 when compared to 2017 numbers. The percentage change for jurisdictions with higher per capita disposal in 2018 when compared to 2017 ranged between 0.3% and 18%, and nine jurisdictions increased by less than 5%. Overall, daily per capita waste disposal for the entire county decreased by 5%.

Are San Diego County jurisdictions meeting CalRecycle disposal targets?

The California Integrated Waste Management Act (AB 939) of 1989 made all cities, counties and approved solid waste management facilities responsible for planning and implementing programs to divert 25% of solid waste by 1995 and 50% by 2000 and each year after. To make goal measurement simple, quick and precise, Senate Bill 1016 implemented a simplified measure of performance based on disposal rate indicators that only rely on population and facility-reported disposal instead of diversion rates.

The per capita disposal rate is one of several factors that help determine compliance with AB 939 and allows CalRecycle and jurisdictions to focus on implementing successful diversion programs.¹⁹ While disposal rate targets may not completely indicate compliance, they can show how well San Diego County jurisdictions are meeting their targets.

CalRecycle currently sets population and employment waste disposal targets. CalRecycle per capita disposal targets are based on a 50% diversion requirement derived from 2003 through 2006 per capita estimates.²⁰

The following heat maps show how well each jurisdiction stayed within its per population and per employment targets. Target amounts for 2016–18 have not yet been approved by CalRecycle staff for meeting waste diversion requirements but provide a preliminary picture into how well cities are staying within the 50% diversion goal.²¹

¹⁸ Waste disposal estimates for Del Mar may be lower than presented due to the city being associated with ZIP code 92014 because the geographical boundary of Del Mar is much smaller than the postal code area.

¹⁹ <https://www2.calrecycle.ca.gov/LGCentral/DiversionProgram/JurisdictionDiversionPost2006>

²⁰ <https://calrecycle.ca.gov/LGCentral/Basics/PerCapitaDsp/#Jurisdiction>

²¹ <https://www2.calrecycle.ca.gov/LGCentral/AnnualReporting/DiversionDisposal>

Figure 6: Percentage of Population Waste Disposal Cap Reached

| Jurisdiction | Year | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|
| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| Escondido | 90% | 90% | 95% | 93% | 92% | 93% | 93% | 95% | 100% | 105% | 108% |
| Lemon Grove | 98% | 87% | 94% | 98% | 98% | 85% | 85% | 85% | 94% | 94% | 94% |
| Carlsbad | 77% | 69% | 67% | 68% | 68% | 77% | 86% | 87% | 92% | 94% | 93% |
| Chula Vista | 79% | 75% | 68% | 68% | 66% | 66% | 91% | 70% | 70% | 75% | 89% |
| Del Mar | 62% | 52% | 60% | 60% | 56% | 62% | 71% | 71% | 82% | 85% | 89% |
| Vista | 92% | 78% | 83% | 80% | 75% | 82% | 80% | 82% | 83% | 82% | 85% |
| San Diego-Unincorporated | 99% | 84% | 85% | 81% | 75% | 76% | 76% | 76% | 78% | 79% | 81% |
| Santee | 78% | 66% | 78% | 69% | 72% | 60% | 62% | 71% | 74% | 80% | 80% |
| La Mesa | 58% | 58% | 66% | 55% | 45% | 56% | 69% | 76% | 76% | 77% | 77% |
| El Cajon | 80% | 69% | 70% | 68% | 65% | 66% | 69% | 66% | 72% | 72% | 77% |
| Encinitas | 79% | 73% | 80% | 81% | 75% | 80% | 81% | 77% | 79% | 77% | 76% |
| Imperial Beach | 63% | 63% | 78% | 80% | 70% | 73% | 70% | 85% | 83% | 73% | 75% |
| Coronado | 95% | 83% | 99% | 92% | 77% | 83% | 84% | 96% | 76% | 71% | 74% |
| San Diego | 75% | 68% | 65% | 70% | 64% | 68% | 68% | 75% | 71% | 74% | 73% |
| National City | 74% | 72% | 71% | 70% | 70% | 70% | 68% | 71% | 78% | 74% | 68% |
| Oceanside | 67% | 63% | 65% | 63% | 59% | 62% | 59% | 65% | 67% | 68% | 67% |
| Poway | 78% | 66% | 67% | 66% | 59% | 60% | 60% | 64% | 65% | 67% | 66% |
| Solana Beach | 75% | 58% | 67% | 65% | 62% | 69% | 71% | 66% | 65% | 66% | 65% |
| San Marcos | 66% | 60% | 61% | 60% | 63% | 58% | 55% | 55% | 57% | 58% | 61% |

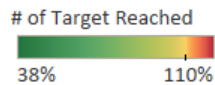
% of Target Reached

Data Sources: CalRecycle, Countywide Diversion / Disposal Progress Report, 2008–2018

All jurisdictions, except the City of Escondido, have stayed within the 50% per capita targets for population waste disposal. Escondido was the only jurisdiction to exceed the target allocation and has either reached or exceeded targets since 2016. Though there have been some slight fluctuations over the years for each jurisdiction, disposal rates overall are getting closer to the 50% per capita targets. Twelve jurisdictions saw either no change, or a decrease, when compared to 2008 disposal rates. Over half of San Diego County’s jurisdictions had consistent or lower disposal rates in 2018 compared to 2017.

Figure 7: Percentage of Employment Waste Disposal Cap Reached

| Jurisdiction | Year | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|
| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| Escondido | 90% | 100% | 118% | 107% | 106% | 108% | 106% | 103% | 108% | 108% | 106% |
| Lemon Grove | 103% | 96% | 112% | 112% | 112% | 102% | 95% | 88% | 96% | 96% | 93% |
| Carlsbad | 78% | 74% | 76% | 73% | 73% | 83% | 89% | 87% | 89% | 89% | 86% |
| Vista | 86% | 80% | 90% | 83% | 79% | 85% | 81% | 80% | 81% | 82% | 85% |
| Chula Vista | 76% | 76% | 76% | 69% | 67% | 65% | 87% | 64% | 66% | 69% | 81% |
| San Diego-Unincorporated | 102% | 94% | 125% | 90% | 83% | 84% | 81% | 80% | 81% | 80% | 79% |
| Del Mar | 54% | 47% | 54% | 52% | 54% | 43% | 67% | 65% | 78% | 75% | 78% |
| La Mesa | 54% | 58% | 76% | 57% | 49% | 60% | 71% | 78% | 79% | 79% | 78% |
| Encinitas | 79% | 79% | 92% | 85% | 77% | 87% | 84% | 77% | 79% | 79% | 78% |
| El Cajon | 73% | 67% | 78% | 71% | 71% | 72% | 73% | 65% | 71% | 71% | 74% |
| Santee | 81% | 74% | 91% | 79% | 80% | 65% | 61% | 68% | 67% | 69% | 68% |
| San Diego | 72% | 68% | 70% | 70% | 63% | 66% | 66% | 72% | 68% | 69% | 68% |
| San Marcos | 74% | 69% | 80% | 71% | 74% | 68% | 66% | 64% | 65% | 65% | 67% |
| Imperial Beach | 60% | 62% | 81% | 76% | 68% | 61% | 55% | 73% | 72% | 63% | 62% |
| National City | 67% | 71% | 77% | 70% | 68% | 67% | 62% | 62% | 68% | 64% | 59% |
| Solana Beach | 69% | 58% | 71% | 63% | 58% | 62% | 63% | 59% | 57% | 58% | 58% |
| Oceanside | 66% | 66% | 71% | 65% | 60% | 62% | 57% | 62% | 60% | 59% | 57% |
| Poway | 73% | 66% | 65% | 56% | 49% | 49% | 45% | 48% | 49% | 52% | 53% |
| Coronado | 71% | 64% | 89% | 77% | 66% | 55% | 49% | 62% | 46% | 41% | 38% |



Data Sources: CalRecycle, Countywide Diversion / Disposal Progress Report, 2008–2018

Unlike the population waste disposal trends, employment disposal rates exceeded 50% disposal maximums for Escondido, Lemon Grove and San Diego’s unincorporated areas. More jurisdictions had lower per employment disposal rates over time compared to population disposal rates. Compared to 2018, 10 jurisdictions were at or below 2017 rates. The City of San Diego has remained within the 50% diversion targets for both population and employment estimates, fluctuating between 64% and 75% over the last decade.