



**CITY OF BERKELEY**

**2021 Illegal Dumping Pilot Project Final Report**

**Submitted March 31, 2022**

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**Executive summary**

Berkeley’s pilot project objective was to reduce the illegal dumping of mattresses and increase the recycling of mattresses in the city’s jurisdiction. In order to achieve these goals, Berkeley implemented a convenient curbside collection program for mattresses and educated property owners, residents, and UC Berkeley students about the available mattress disposal and recycling options. Curbside collection for 1-9 unit single and multifamily residential properties began on March 10, 2021. Data collection continued through March 9, 2022 to capture a full 12 months. During this timeframe, 1,334 mattresses were collected curbside and recycled through the pilot program. Illegally dumped mattresses in the city of Berkeley declined during the pilot by more than 32% compared to the previous year. Due to the popularity and success of the pilot program, the City is continuing this curbside collection program on an ongoing basis.

**Introduction**

Illegal dumping of mattresses is a significant issue in Berkeley. City crews pick up between 1,200-1,700 illegally dumped mattresses in Berkeley annually. Additionally, CalTrans picks up between 120-400 mattresses in the Berkeley area and along local highways annually during encampment and street cleanups. There is generally an increase in illegally dumped mattresses during the annual Cal Student Move Out in May/June.

Prior to this pilot program, Berkeley offered one free curbside bulky item collection per year for residents living in 1-4 unit properties. However, the City's ZW Division has only one rear-end loader (REL) garbage truck available for bulky item collection. This means any mattresses left out for bulky item collection were crushed in the REL truck along with all the other garbage and subsequently landfilled. Due to this operational limitation, we did not advertise the bulky item collection program as the best way to properly dispose of mattresses. Residents do also have the option of dropping off mattresses at the City's Transfer Station for recycling. However, many residents, especially students, do not have convenient or affordable access to transportation to haul their mattress to the Transfer Station.

Therefore, we chose to implement a pilot curbside collection program dedicated to mattresses to include 1-9 unit residences in order to make proper mattress disposal more convenient for Berkeley residents and property owners. We also implemented an education campaign to raise awareness about the pilot curbside mattress collection program and to promote other existing recycling alternatives. Due to the increase in illegally dumped mattresses around Cal Student Move Out, we targeted our outreach and education during this timeframe.

**Implementation plan**

* 1. Locations and reasoning:

The project targeted all 1-9 unit residents since that is the majority of residences in Berkeley and it was operationally feasible.

* 1. Project timeline:

The curbside collection started March 10, 2021 and data was collected through March 9, 2022.

* 1. Discuss strategies to reduce the number of illegally dumped mattresses:

Our strategy for this pilot program was two-fold:

1. Make proper mattress disposal easier for Berkeley residents and property owners by implementing a new pilot curbside mattress collection program to include 1-9 unit residences.

2. Implement an education campaign to raise awareness about the pilot curbside mattress collection program and promote other existing recycling alternatives. This included sending two educational mailers to all residents in 1-9 unit properties in Berkeley, providing information through our city website, and coordinating messaging with UC Berkeley staff and students. Due to the increase in illegally dumped mattresses around Cal Student Move Out, we targeted our education during this timeframe.

* 1. Assumptions:

During the prior year (March 10, 2020-March 9, 2021) timeframe, 1,372 illegally dumped mattresses were picked up by City crews in Berkeley. Additionally, CalTrans picked up 122 mattresses in the general Berkeley area during this timeframe. We predicted we would collect around 800 mattresses curbside through this pilot program with the goal of reducing illegally dumped mattresses.

**Findings**

* Number of units captured through the pilot: 1,334
* Number of units captured that were illegally dumped compared to the baseline year of illegal dumping data:

There was a year-over-year decrease of 432 mattresses illegally dumped in Berkeley picked up by City crews. There were also 64 fewer mattresses picked up by CalTrans during the pilot year compared to the previous year.

* Data Analysis (include data collection timeframe)
1. **Illegally Dumped Mattresses in Berkeley**

|  |  |  |  |
| --- | --- | --- | --- |
| **Annual Comparison Timeframe** | **Illegally dumped mattresses picked up by City crews** | **Illegally dumped mattresses picked up by CalTrans**  | **Total City and Caltrans illegally dumped mattresses collected** |
| March 2017- March 2018 |  1,730  |  339  |  2,069  |
| March 2018- March 2019 |  1,470  |  399  |  1,869  |
| March 2019- March 2020\* |  1,270  |  244  |  1,514  |
| March 2020- March 2021 |  1,372  |  122  |  1,494  |
| **March 2021- March 2022 (Pilot Year Data Collection Timeframe)** | **940** |  **58**  | **998**  |

This data includes the number of illegally dumped mattresses picked up by City crews in Berkeley annually from 2017-2022. It includes year-over-year data in comparison with the Pilot Year data collection Timeframe (March 10, 2021-March 9, 2022). Data is also included for the number of mattresses picked up by CalTrans and dropped off at the Berkeley Transfer Station. Please note that CalTrans collects mattresses from Berkeley encampments and illegally dumped mattresses along highways and along CalTrans-owned corridors in Berkeley. Since they pick up mattresses along the highways, the mattresses dropped off at the Berkeley Transfer Station could potentially also include mattresses slightly outside Berkeley borders, but it is usually within the general area.

\*Effective July 1, 2019, California residents became eligible to drop off mattresses for free at the Berkeley Transfer Station as part of the statewide MRC onsite collection program initiated through contract with the City of Berkeley in 2019. This may have contributed to the lower number of illegally dumped mattresses in the 2019-2020 timeframe.

1. **Cal Student Move Out Illegal Dumping Comparison:**

|  |  |
| --- | --- |
| **Annual Comparison Cal Student Move Out Timeframe** | **Illegally dumped mattresses picked up by City Crews** |
| May 1, 2017- June 30, 2017 | 434 |
| May 1, 2018- June 30, 2018 | 449 |
| May 1, 2019- June 30, 2019 | 370 |
| May 1, 2020- June 30, 2020 | 457 |
| **May 1, 2021- June 30, 2021(Pilot Year)** | **208** |

This chart displays the year-over-year comparison of illegally dumped mattresses during the approximate Cal Move timeframe (May 1-June 30). We sent the first mailer at the end of April 2021 and student messaging was targeted in late April/early May. Data through June 30 is included because while Cal Move out is officially mid-May, some students move out in late May when their leases are up at the end of the month and it may take a few additional weeks for residents to report illegally dumped mattresses and for City crews to finish picking them all up.

1. **Total Mattresses Dropped off by the Public at the City’s Transfer Station:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Annual Comparison Timeframe** | **Mattresses dropped off at Transfer Station by public (residents and businesses, includes CalTrans)** **Berkeley Origin Only**  | **Mattresses dropped off at Transfer Station by public (residents and businesses)****Non-Berkeley Origin** | **Total # mattresses dropped off at Transfer Station by public (residents and businesses, includes CalTrans)** **Berkeley and Non-Berkeley Origin** |
| March 2017- March 2018 |  8,249  |  2,623  |  10,872  |
| March 2018- March 2019 |  9,507  |  2,946  |  12,453  |
| March 2019- March 2020 |  10,969  |  2,805  |  13,774  |
| March 2020- March 2021 |  10,216  |  2,567  |  12,783  |
| **March 2021- March 2022****(Pilot Year Data Collection Timeframe)** |  **10,081**  |  **2,899**  |  **12,980**  |

This data includes the total number of mattresses dropped off at the Transfer Station by members of the public. This includes residents and businesses, including Cal Trans. It includes both Berkeley origin mattresses and those generated in other jurisdictions. The first column includes mattresses that were reported as Berkeley origin. The second column is non-Berkeley origin. The third column includes the total of all mattresses dropped off (both Berkeley origin and non-Berkeley origin).

**Economic Analysis (cost per unit to implement the program, annual cost, etc.)**

* Total Program Cost: $128,978.93
	+ Total Labor Cost: $113,516.26
	+ Outreach Material (printing/postage for 2 mailers) Cost: $15,462.67
* Number of Units Collected: 1,334
* Cost per unit for collection only: $57 per unit

Includes only the 791 hours the laborers spent collecting the mattresses and delivering them to the Transfer Station.

* Cost per unit for customer service/collection only: $63 per unit

Includes both the 791 hours the laborers spent collecting mattresses and the 107 hours spent by customer service receiving requests and scheduling the work orders.

* Total cost per unit to implement the program: $97 per unit

Includes all the staff time spent implementing the pilot program including program implementation/management and the outreach material and postage costs. All labor costs are detailed in the chart below by job title.

|  |  |  |  |
| --- | --- | --- | --- |
| **Job Title** | **Hours**  | **Hourly Rate** | **Total Cost** |
| Customer Service Manager | 3 |  $ 140.20  |  $ 420.60  |
| Customer Service Representative | 107.37 |  $ 81.53  |  $ 8,753.88  |
| Customer Service Supervisor | 25 |  $ 90.88  |  $ 2,272.00  |
| Laborer | 698.36 |  $ 94.93  |  $ 66,295.31  |
| Laborer (skilled) | 92.5 |  $ 100.46  |  $ 9,292.55  |
| Public Works Maintenance Superintendent | 12 |  $ 146.96  |  $ 1,763.52  |
| Public Works Supervisor | 25 |  $ 121.11  |  $ 3,027.75  |
| Zero Waste Assistant Management Analyst | 6 |  $ 91.33  |  $ 547.98  |
| Zero Waste Field Representative | 32.49 |  $ 86.20  |  $ 2,800.64  |
| Zero Waste Recycling Program Manager | 133 |  $ 137.91  |  $ 18,342.03  |
| **TOTAL** | **1134.72** |  |  **$ 113,516.26**  |

**Summary of Problems and Solutions**

* + - 1. Problem: We originally implemented a 5-day pickup window to give our illegal dumping crews time to pick up the mattress because they didn’t have sufficient staff to dedicate one full day to mattress collection. We found this leads to blight, sidewalk hazards, and repeat customer complaints. One blind resident called in multiple times due to mattresses blocking sidewalk access. Mattresses sitting out for multiple days tend to accumulate other mattresses or illegally dumped debris. There is also an increased likelihood the mattresses will get wet due to rain or fall over onto the sidewalk or public right-of-way.

Solution: We switched to one designated mattress pickup day per week (Thursdays). This is an improved system. Most mattresses are picked up same day. We tell residents to call in on Monday to report a missed pickup if their mattress still hasn’t been picked up.

* + - 1. Problem: There were initial staff concerns about residents requesting too many pickups (i.e. abuse of the curbside collection program) and overwhelming our operational capacity.
			2. Solution: We established the following collection limits:
* Limit 2 pickups per property per year
* Limit of 2 mattresses or boxsprings per pickup for single-family residential.
* Limit of 4 mattresses or box springs per pickup for multifamily.

We discovered it was not a problem in practice. Only one property requested more than 2 pickups in the year. Only seven properties set out more than four mattresses.

* + - 1. Problem: residents were worried their neighbors might think they were illegally dumping their mattresses if they were sitting out for multiple days prior to pickup.

Solution: We posted a downloadable tag to the webpage and encouraged residents to affix it to their mattress with the scheduled collection date or to make their own sign to indicate that collection has been scheduled.

* + - 1. Problem: Issue with mattresses being too wet/heavy if left out on rainy days

Solution: We added messaging to website to ask residents to try to avoid scheduling a pickup if heavy rain is forecast that week. We let them know their pickup may need to be rescheduled due to inclement weather. It hasn’t been a huge issue due to lack of rain.

* + - 1. Problem: Issue with tenants trying to request pickup vs. Property manager/owner

Solution: We specified on the website that only the property owner/authorized account holder can call in to request a pickup. However, in an effort to be accommodating, we would still schedule a pickup if a tenant called in.

* + - 1. Problem: Discrepancy in number of mattresses reported picked up curbside vs. number actually delivered to Transfer Station by City crews. 1,334 mattresses picked up curbside by this pilot program were recorded as delivered to the Transfer Station for recycling. This number is lower than the 1,499 mattresses that were reported as picked up by the curbside collection crews. We think this discrepancy is due to the following factors:

1. Drivers don’t always accurately indicate the number picked up curbside on each work order. For example: if a resident called in to request pickup for four mattresses, the driver might have checked “completed” on the work order even if the resident only actually put out two mattresses for pickup.

2. Drivers may occasionally forget to report the source of mattresses when dropping them off at the Transfer Station. The same crews pick up illegally dumped mattresses as the pilot program mattresses, so if the driver forgot to specify that the mattresses were picked up curbside as part of the pilot program with the designated pilot program code, the mattresses would automatically be coded at the Scalehouse as illegally dumped. This means it is very possible some mattresses were incorrectly coded as illegally dumped even though they were actually part of the pilot program. This means the 1,334 number of pilot program curbside-collected mattresses is a conservative estimate. It is likely a little higher and the number of illegally dumped mattresses is likely a little lower. We used the data as it was reported at the Scalehouse since we couldn’t be certain of the reason for the discrepancy.

Solution: This issue is tough to fully rectify as it caused by human error and by drivers rushing to finish their work. We had multiple meetings with supervisors to ask them to remind drivers to make sure they were accurately reporting the information when picking up mattresses curbside and remembering to code the mattresses correctly when dropping them off at the Scalehouse. One possible solution would be to have a staff person dedicated to checking driver work orders when they are submitted to verify the number reported is accurate and cross checking with the mattresses coded as delivered to the Transfer Station by pulling Scalehouse reports on a daily basis. We did not have staff available for this purpose during the pilot program. There could also be technological solutions. We are still paper-based at this point. Also, this was more of an issue when drivers were picking up mattresses over a five-day timeframe. Now that we switched to one dedicated mattress pickup day for curbside pickups it makes it easier to track the separate programs and identify discrepancies.

1. **Exhibits**
	* + 1. City of Berkeley Outreach/Education Examples
				1. Created dedicated mattress recycling webpage on City of Berkeley website: <https://www.cityofberkeley.info/mattress/>
				2. Mailed mattress postcards to 33,709 property owners and tenant tenants in all 1-9 unit properties in Berkeley on April 30 (see attached)
				3. Mailed a folded newsletter in November with mattress info included on one panel. (See relevant panel attached).
				4. Mailed Cal Move Out postcards (included mattress program info) to 11,311 property owners within 1 mile radius of Cal campus on April 30. This was not specifically part of the pilot program or paid for by the pilot program; we added one sentence about the mattress curbside pickup information to a mailer we usually send out during Cal Move Out about illegal dumping generally.
				5. Coordinated with Public Information Officer and Neighborhood Services to:

Post [mattress press release](https://www.cityofberkeley.info/City_Manager/Press_Releases/2021/2021-05-10_Got_an_unwanted_mattress_or_box_spring.aspx) May 10

Post [Cal Move Out press release](https://www.cityofberkeley.info/City_Manager/Press_Releases/2021/2021-05-11_Keep_Berkeley_clean_during_CAL_move_out.aspx) (with mattress info highlighted) May 11

* + - 1. UC Berkeley Coordination
				1. Met with UC Berkeley staff, students, and City partners on 3/17 and 4/14
				2. Ongoing coordination with staff/students to develop student messaging
				3. Cal sent campus-wide [email](https://docs.google.com/document/d/1GL5dK00lTSCLSnDkeZgSSasrpHk3QVPPRgFop8IvQcE/edit) to students May 3
				4. Coordinated messaging with the Berkeley Property Owners Association (BPOA). BPOA sent a newsletter [article](https://docs.google.com/document/d/1JJM7gN__wIIk_4g_PAU1JSyLtJ76DRMOaMV9l5t1reM/edit) to their members in early May.
			2. See project photos attached.
1. **Reference list** of any sources that were used at any point in the case study project
	* + 1. N/A