

## 事例01 オレゴン大学の場合




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食堂の食物残渣を堆肥化して野菜を育てる Urban Farm



## 事例02 スタンフォード大学の場合



STANFORD UNIVERSITY  
BUILDINGS & GROUNDS MAINTENANCE  
a department of LAND, BUILDINGS & REAL ESTATE

PSSI/Stanford Recycling  
BGM Home

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Recycling & Waste - Information For

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Stanford Hospital & Clinics

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Recycling Bins, Dumpsters and Roll-Off Debris Boxes

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**Food Composting Collection**

Recycling & Compost Collection Bins

Waste Reduction & Recycling Program

Flyers & Labels

Frequently Asked Questions

Recycling Drop Off Center

Street Sweeping

About PSSI

### Requirements for Food and Compostable Material Collection and Composting

**Why Collect and Compost Food Waste?**  
Americans throw away 474.5 pounds of food waste per person per year. In 2000, food scraps Here at Stanford, we estimate food waste to equal about 16% of solid waste stream. Once collected, the material is taken to a compost facility off-campus and made into a new soil product.

**Benefits of Composting Food Waste**  
There are many benefits to composting food waste including making a valuable soil product the landfill, helping to meet waste reduction goals, and sustaining local recycling infrastructures. It greenhouse gas that is 23 times more efficient than carbon dioxide at trapping heat in the earth.

**Solid Waste Hierarchy**  
The hierarchy that we follow when dealing with excess food is to first to reduce the amount of food waste, then we have tried to reduce and reuse the food waste then we compost the food waste.

**Challenges**  
Our compost facility has zero tolerance for contamination in the food waste - meaning we cannot accept non-compostable material; rather it is hauled directly to the compost facility. Therefore, we have several challenges:

**Requirements for Food/Compost Collection from Behind the Counter**

- Agree to source separate out compostable items from trash (see list).
- Agree to train staff and volunteers on the food waste and recycling program.
- Agree to develop announcements, signage, and other educational material to educate staff, and other educational material to educate staff,
- Agree to assign staff or volunteers to monitor bins.

**Requirements for Food/Compost Collection from Front of Counter**

- Agree to purchase only BPI certified compostable serviceware (Biodegradable Products Institute).
- Agree to replace all single-use and/or disposal items with a reusable, recyclable, or compostable item.
- Agree to have equal number of compost and garbage bins and place them next to each other.
- Agree to develop announcements, signage, and other educational material to educate staff, and other educational material to educate staff,
- Agree to assign staff or volunteers to monitor bins.

Click here for [food waste specifications](#).

**Ordering Services**  
Outdoor food waste collection dumpster and carts are provided by PSSI. Interior bins are the responsibility of the building.

For more information, please contact Julie Muir at PSSI at (650) 321-4236 or [juliem@pssi.stanford.edu](mailto:juliem@pssi.stanford.edu)

### Solid Waste and Recycling Specifications for New and Remodeled Buildings on the Stanford University Campus

#### Food and Compostable Material Collection and Composting



##### General

Food and compostable material are collected separately from garbage, corrugated cardboard, paper, and bottles and cans. Once collected, the material is taken to a compost facility off-campus and made into a new soil product.

Food and compostable material are defined as food scraps, fruits, vegetables, meat, fish, bones, coffee grounds, teas bags, plants, flowers, leaves, tree trimmings, sawdust, soiled paper and napkins, pizza boxes/donut boxes, and **compostable serviceware** that are certified by Biodegradable Products Institute (<http://bpiworld.org/BPI-Public/Approved.html>). Food waste does not include metal, glass, plastic, foil, cans, Styrofoam, diapers, kitty litter or pet waste, ash, rock, stone, liquid waste, chemicals, including bleach, detergents, and degreasers, batteries or non-compostable serviceware.

Stanford University began food and organic waste collection in January 2003 and currently collects food scraps from dining halls, restaurants, cafes, and special events on campus.



##### Service

- **Large facilities** collect food waste in a 2 to 4 cubic yard frontloader dumpster. The weight and volume of food waste determines collection bin size.
- **Smaller facilities** use one or more 35, 65, or 95 gallon plastic wheeled cart which has 2 wheels and a lid that can flip back.
- PSSI can service these bins twice a week Monday through Friday.
- Food waste is collected by self-supplied bins inside the kitchen, emptied into PSSI supplied bins on the loading dock or outside, and then washed as necessary.
- PSSI supplied bins are washed twice a month.



##### Specifications

- No matter the size, the dumpster will be at least six feet wide and need two feet on each side for clearance.
- A six cubic yard dumpster has a footprint of approximately 6x6 feet with an additional two feet on each side for clearance.
- Since food waste is very heavy, all dumpsters must be set up for drive-at service only.



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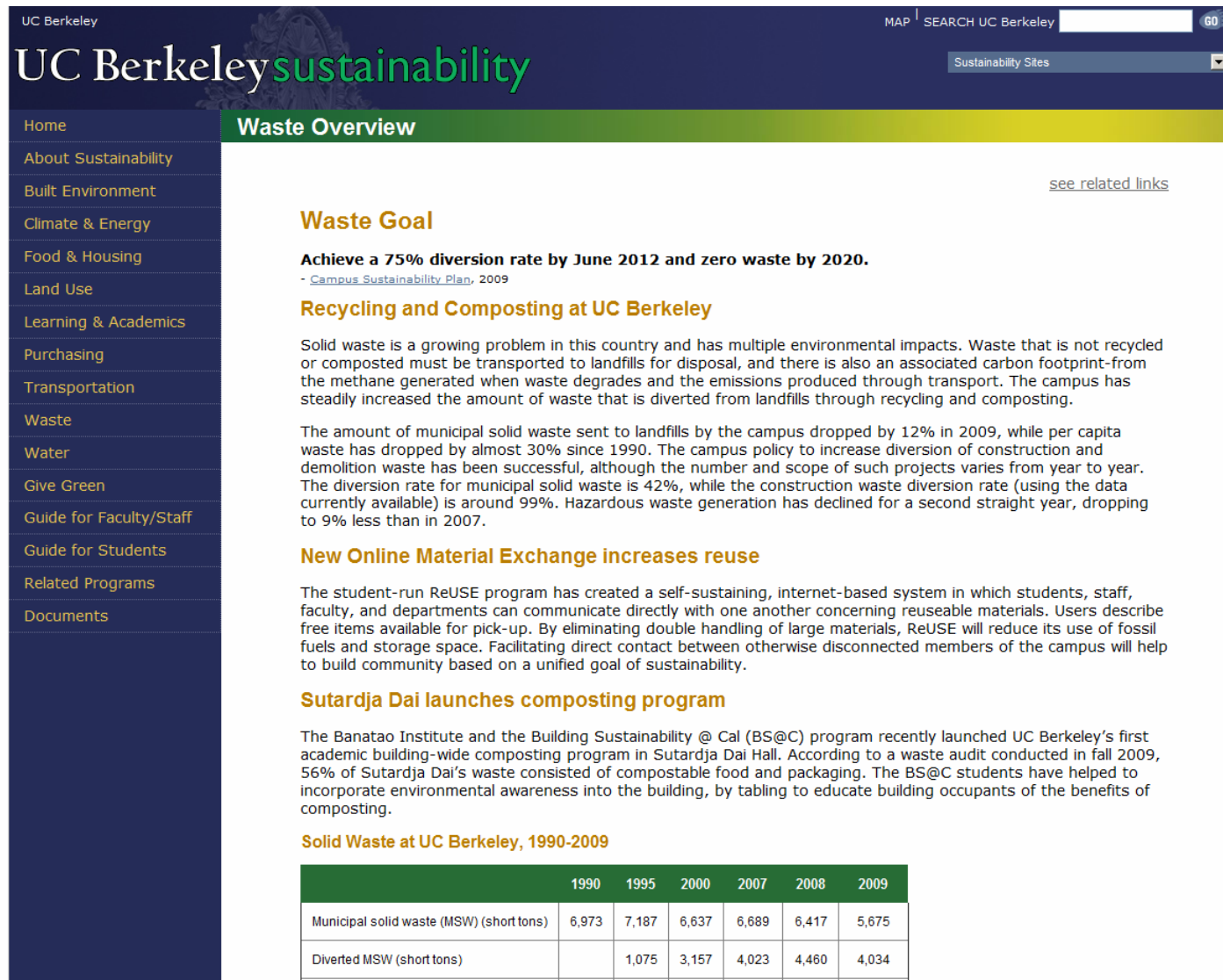
### Recycling & Compost Collection Bins

Slim Jim Bin	The approximate dimensions are 25 inches tall by 10 inches wide by 20.5 inches deep.	
Gray 38 Gallon Cart	The approximate dimensions are 42 inches tall by 19 inches wide by 22 inches deep.	
Gray 64 Gallon Cart	The approximate dimensions are 42 inches tall by 22.5 inches wide by 29 inches deep.	
Gray 96 Gallon Cart	The approximate dimensions are 46 inches tall by 26.5 inches wide by 33 inches deep.	



HOKKAIDO UNIVERSITY

## 事例03 UCバークレー校の場合



UC Berkeley

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UC Berkeley **sustainability**

Sustainability Sites

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Waste

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Guide for Students

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### Waste Overview

[see related links](#)

#### Waste Goal

**Achieve a 75% diversion rate by June 2012 and zero waste by 2020.**  
- [Campus Sustainability Plan](#), 2009

#### Recycling and Composting at UC Berkeley

Solid waste is a growing problem in this country and has multiple environmental impacts. Waste that is not recycled or composted must be transported to landfills for disposal, and there is also an associated carbon footprint-from the methane generated when waste degrades and the emissions produced through transport. The campus has steadily increased the amount of waste that is diverted from landfills through recycling and composting.

The amount of municipal solid waste sent to landfills by the campus dropped by 12% in 2009, while per capita waste has dropped by almost 30% since 1990. The campus policy to increase diversion of construction and demolition waste has been successful, although the number and scope of such projects varies from year to year. The diversion rate for municipal solid waste is 42%, while the construction waste diversion rate (using the data currently available) is around 99%. Hazardous waste generation has declined for a second straight year, dropping to 9% less than in 2007.

#### New Online Material Exchange increases reuse

The student-run ReUSE program has created a self-sustaining, internet-based system in which students, staff, faculty, and departments can communicate directly with one another concerning reuseable materials. Users describe free items available for pick-up. By eliminating double handling of large materials, ReUSE will reduce its use of fossil fuels and storage space. Facilitating direct contact between otherwise disconnected members of the campus will help to build community based on a unified goal of sustainability.

#### Sutardja Dai launches composting program

The Banatao Institute and the Building Sustainability @ Cal (BS@C) program recently launched UC Berkeley's first academic building-wide composting program in Sutardja Dai Hall. According to a waste audit conducted in fall 2009, 56% of Sutardja Dai's waste consisted of compostable food and packaging. The BS@C students have helped to incorporate environmental awareness into the building, by tabling to educate building occupants of the benefits of composting.

#### Solid Waste at UC Berkeley, 1990-2009

	1990	1995	2000	2007	2008	2009
Municipal solid waste (MSW) (short tons)	6,973	7,187	6,637	6,689	6,417	5,675
Diverted MSW (short tons)		1,075	3,157	4,023	4,460	4,034



## 事例03 UCバークレー校の場合

composting.

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Diverted MSW (short tons)		1,075	3,157	4,023	4,460	4,034
- Recycled MSW		1,075	2,374	2,629	2,778	2,567
- Composting			783	1,394	1,682	1,467
MSW diversion rate (%)		13%	32%	38%	41%	42%
Construction waste (short tons)				10	0	1,589
Diverted construction waste (short tons)			0	4,038	93	168,526
Construction diversion rate (%)				99.8%	100%	99.1%
Hazardous waste (tons)		801	341	152	138.5	n/a

Waste data is from Campus Recycling & Refuse Services.

**Municipal solid waste:** All waste sent to a landfill, excluding construction, demolition, and hazardous waste.

**Diverted MSW:** Includes recycled, reused, and source-reduced MSW and composting.

**MSW diversion rate:** The percentage of all MSW that was diverted from a landfill, on a calendar year basis.

**Construction waste/Diverted construction waste:** Waste sent to a landfill/diverted from a landfill from construction and demolition sources. Waste from some construction projects may not be included. Not reported or not reported separately until 2007.

**Construction diversion rate:** The percentage of construction waste that was diverted from a landfill, on a calendar year basis. Not previously reported separately. This includes waste from some general campus operations of a C&D type.

**Hazardous Waste:** Variations in hazardous waste due to construction projects; 2009 data is not yet available. Source: Hazardous Waste Source Reduction and Management Reviews.

Source: [2010 Sustainability Report](#) (August 2010)

### [Learn More](#) about campus waste goals and strategies.

#### CAMPUS WASTE RESOURCES

- [Campus Recycling and Refuse Services](#): Provides recycling and refuse services for campus and manages over 35 tons of solid waste that moves through the campus daily.
- [Cal's Overstock & Surplus](#) is responsible for the appropriate disposal of surplus UC Berkeley Campus property. They generate additional revenue for the University by repackaging and (in some cases) the refurbishing of property.





## 事例04 ポートランド州立大学の場合



Portland State UNIVERSITY

FUTURE STUDENTS CURRENT STUDENTS FACULTY + STAFF

Institute for Sustainable Solutions

Institute Research Education Practice Commun

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Congratulations to the selected project

Solutions NEXT EXIT

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Portland State UNIVERSITY

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sustainability

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PACIFIC *Naturals* Sustainable

PACIFIC *Naturals* Local

PACIFIC *Naturals* Organic

working with many outside partners to lay the pathway toward a sustainable and desirable future.

LOCATIONS MEAL PLANS GIFTS & CATERING SUSTAINABILITY FRESH & HEALTHY CONTACT US

LOGIN / CREATE ACCOUNT

CART

sustainability/ PSU Dining Services - Green Efforts

PSU Dining Services - Green Efforts

**Our Commitment to Sustainability**

Food is a part of our daily lives. What we eat, how it gets to us, the ways in which it is grown, produced, and/or processed - all of these things have far-reaching effects on our society, our health and our environment.

According to the Intergovernmental Panel on Climate Change, agriculture is responsible for 13.5% of greenhouse gas emissions worldwide. With the decreasing global supply and rising cost of fossil fuels, the dining industry has both the responsibility and power to greatly contribute to the reversal of climate change.

PSU Dining Services, the university's official dining services provider, has made strides towards ensuring more sustainable dining operations at Portland State University. Throughout our dining locations, our environmental stewardship efforts continue to evolve and expand, particularly in the areas of sustainable food, waste reduction and recycling, responsible procurement, and energy and water conservation.

We call our environmental stewardship efforts "Green Thread" because they weave through all our actions.

**Composting Organic Materials**

Last school year, we diverted 109 tons of food waste from the landfill through our composting efforts in the dining hall at the Ondine and in the Smith Center.

**Supporting Sustainable Agriculture**

In support of sustainable agriculture, PSU Dining purchases some products that are certified by the Food Alliance, a non-profit organization that certifies farms and ranches and food handlers (including packers, processors and distributors) for sustainable agricultural and business practices. We also emphasize purchasing locally grown and seasonally available produce. In 2007, the Ondine purchased 10,565 pounds of produce from farms located in Oregon and Washington.

All of our milk comes from Sunshine Dairy, a dairy that sources its milk from local

FOOD ALLIANCE CERTIFIED

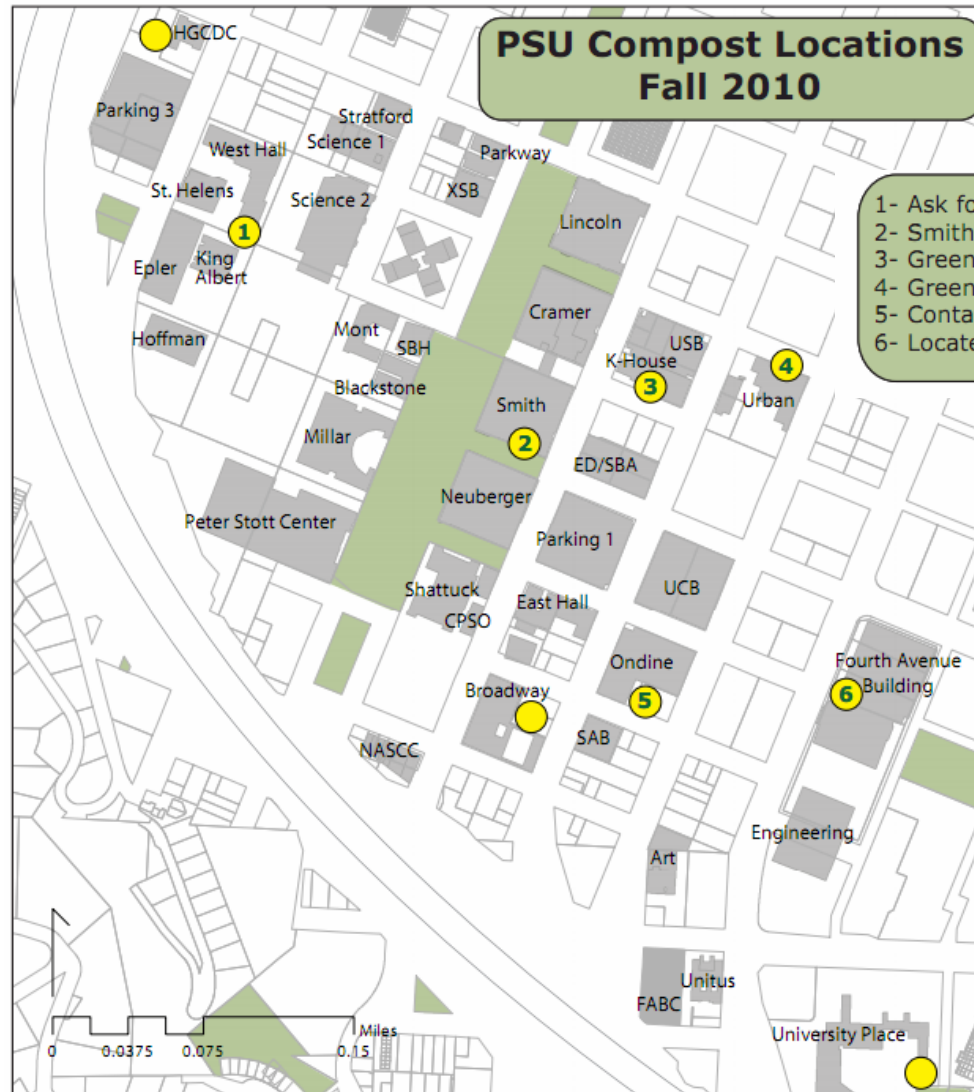
ARAMARK

VANGUARD

[Read a recent article from Vanguard newspaper regarding Ondine zero-waste](#)



## 事例04 ポートランド州立大学の場合



- 1- Ask for the key to the green roll cart at Meetro Cafe
- 2- Smith loading dock accessible by elevator or garage door with code
- 3- Green roll cart located in alleyway on Montgomery St. next to USB
- 4- Green roll cart located in loading dock on Mill St.
- 5- Contact Debbie Peck, Victor's Dining Hall manager @ 5-4563
- 6- Located in the trash/recycling area on 4th Ave.





流通 | 2011年8月12日(金) 14:07

## コープさっぽろが七飯町にバイオガス実験プラント建設、牛糞と生ゴミ使用し地域循環再生エネルギーモデル構築へ



コープさっぽろと酪農学園大学は12日、七飯町にバイオガスの実験プラントを建設すると発表した。コープさっぽろの函館地区店舗から出る生ゴミと大沼周辺の酪農家から集めた牛糞を原料にするもので、得られるバイオガスをエネルギー源として使い、副産物の液肥を有機肥料として酪農家の牧草育成や野菜農家に供給する。NEDO(新エネルギー・産業技術総合開発機構)の補助を受けた事業で、地域循環型再生エネルギーシステムとして完成させ、コープさっぽろは2年後には道内6ヵ所で商業プラントを設置したい考え。(写真は記者会見する大見理事長＝左と干場教授＝中央)

実験プラントは、七飯町の土地約4800㎡をJR北海道から賃借して今年9月から建設、来年3月に完成させる。投資額は5億円でNEDOが3分の2、コープさっぽろが残り3分の1を負担する。

原料となる食品残渣は、コープさっぽろが函館で展開している11店舗と子会社を通じて資本参加している魚長20店舗から集め、牛糞はコープさっぽろと取引のある「大沼牛ブランド」の牛を飼育している酪農家から集める。

発酵槽では摂氏37度程度と牛の胃袋内と同じ温度でメタン発酵、60%のバイオガスと40%の二酸化炭素を発生させバイオガスのみを精製して純度を高める。初の取り組みとして、発酵槽にコープさっぽろが生成して使っているバイオディーゼル(BDF)の副産物であるグリセリンを加える方式を採用。

メタン発酵時にグリセリンを投入することによってバイオガスの発生量が格段に多くなるという。

また、バイオガス発生過程で出てくる硫化水素は、発電機やボイラーを腐食させる原因になるが、純酸素を加える生物脱硫で硫化水素の発生を抑える試みも取り入れる。

得られるバイオガスは、当面実験プラントのエネルギーとして利用、プラントが本格稼働を始めた段階でコープさっぽろ店舗の照明や冷蔵・冷凍用として電気になるエネルギー源として利用していく。

平成23年8月12日 北海道経済ニュースサイトより



HOKKAIDO UNIVERSITY

