Updated October 2020

Recycling and Waste Management on the Central Coast

- Information Resource -

1coast

CLEANAWAY

Central Coast Council

CONTENTS

This booklet was produced in October 2020 by Cleanaway Waste Management Ltd on behalf of Central Coast Council. Further copies of this booklet can be downloaded from www.1coast.com.au
For further information please contact Cleanaway on:1300 1coast (1300 126 278)

INTRODUCTION

Waste, which is often referred to as rubbish, garbage, trash, junk, litter, refuse and stuff to be thrown away, is something we all produce as part of everyday living, but we don't normally think too much about it. Something becomes waste when we decide that it is unwanted and no longer has a use.

Each year we generate close to 275,000 tonnes of waste on the Central Coast. This consists of household, commercial, industrial, construction and demolition waste and recycling. What happens to this waste depends on where we live, what waste management and recycling systems we have in place and which bin we place it in.

WHERE DOES IT COME FROM?

Just under half of all waste generated on the Central Coast is generated in your homes. Householders generate food and garden material, recyclable products such as paper, plastics and steel packaging along with an assortment of other products which cannot be recycled like plastic wrappers and nappies. Although some of this can be recycled or composted, we should all try to reduce the amount of waste we create in the first place.

"Each year we generate close to 275,000 tonnes of waste on the Central Coast"

WHY IS IT A PROBLEM?

Up until 50 years ago, waste was not a significant problem. But with changing patterns of consumption came a massive increase in the amount of waste that had to be disposed of. Inexpensive, throw-away and single use products replaced long lasting items and convenience foods became the norm rather than the exception. For these reasons, waste has become a huge problem. We are not only producing more waste than we used to, but our population is also growing.

Waste materials are often made from valuable resources that can be reused or recycled. However, not all these items are recovered for recycling. By sending them to landfill as waste we are not only burying the valuable resources but also using up valuable landfill space.

WHAT IS THE SOLUTION?

We all have a responsibility to reduce our waste. By recycling household products, such as paper, plastic drink containers, and aluminium and steel cans we can reduce the waste going to landfill by about 20%. Avoiding waste by shopping for products with less packaging and re-using items where possible is another great way to reduce waste.

So by playing our part, we can achieve great results in waste reduction on the Central Coast.

That means less methane gases generated, more landfill space saved, reduced waste management costs to the householder, a saving of the Earth's resources and a cleaner environment for all.

"We can reduce the waste going to landfill by about 20%"

CENTRAL COAST RESIDENTIAL WASTE SERVICES

Cleanaway operates a domestic recycling and waste service for residents on the Central Coast on behalf of Central Coast Council.

For the majority of residents, this is a three bin system consisting of:

- One 240 litre yellow lid recycling bin collected fortnightly.
- One 240 litre green lid garden vegetation bin collected fortnightly.
- One 140 litre red lid bin for general waste collected weekly.

There are variations of these bins to suit the wide diversity of residential areas within the Central Coast region.

Properties located west of the Sydney to Newcastle M1 Motorway do not have a garden vegetation bin service and some Multi Unit Dwellings may share larger bulk bins for their waste and recycling.

For a small annual fee residents can also acquire additional recycling, garden vegetation or general waste bins or an upgrade to a larger red bin for general waste.

Some items which are too bulky, too heavy or too big to be collected in your bins can be collected as a bulk kerbside collection. Collections are for two cubic metres of waste (1 box trailer load) and most households are entitled to six on-call collections of household items or garden vegetation each year.

→ Watch video - Central Coasts Waste & Recycling Service

On the Central Coast there is an estimated:

136,000 properties with a weekly general waste collection.

134,000 properties with an alternating fortnightly recycling collection.

126,000 properties with an alternating fortnightly garden vegetation collection.

RECYCLING ON THE CENTRAL COAST

Recycling our waste on the Central Coast is easy and has become a daily activity which has real benefits for the environment. When you recycle, you help save important natural resources like minerals, trees, water and oil. You also save energy, conserve landfill space, decrease greenhouse gas emissions and reduce pollution. Recycling closes the resources loop ensuring valuable resources are not landfilled. Instead they are put back to good use, making much less impact on our environment in the remanufacturing process the second time around.

HOW MUCH IS RECYCLED ON THE CENTRAL COAST?

In 2019, we recycled 26,500 tonnes of materials through the yellow lid bin. This is equivalent to 77kg/person/year.

Recycling saved

- 66,850 cubic metres of landfill
- 13,623 tonnes of greenhouse gasses, the equivalent to removing 3,272 vehicles from the road
- 426,167 gigajoules of energy, enough to power 1,973 homes homes for a year
- 353,778 litres of water, equivalent to 141L Olympic swimming pools or annual water usage of 3,782 people.

What's in your yellow lidded recycling bin?

Tonnes collected in recycling bins (2019)

- Aluminium cans: 209 tonnes (0.72%)
- Glass: 10,778 tonnes (37.23%)
- Mixed paper: 12,833 tonnes (44.33%)
- Mixed plastic: 2,063 tonnes (7.13%)
- Steel cans: 664 tonnes (2.30%)
- Contamination: 2,398 tonnes (8.28%)

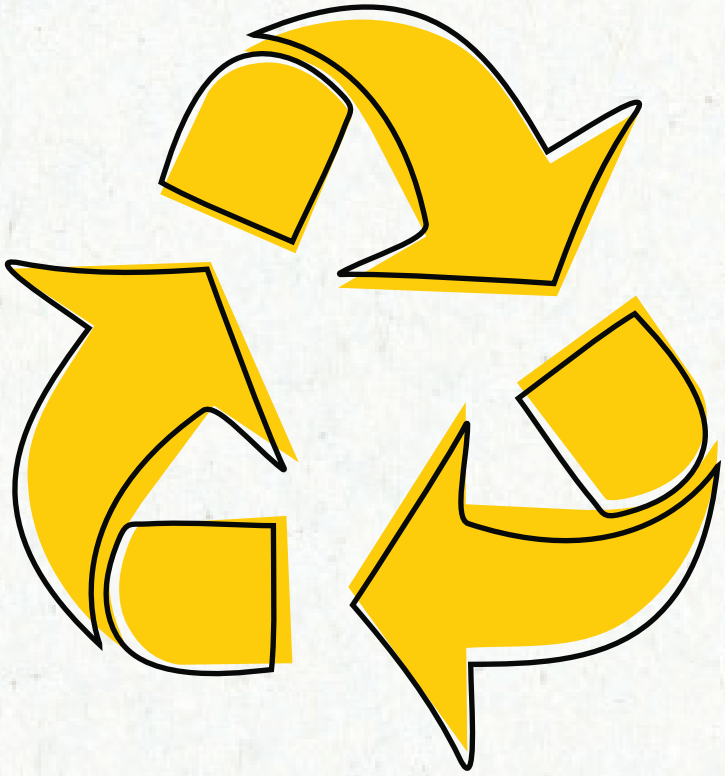
WHAT ARE WE PLACING IN OUR YELLOW LID RECYCLING BINS?

A typical Central Coast recycling bin would contain something very similar to this recycling bin infograph.

RECYCLING THE RIGHT WAY

There are two things to get right in order to recycle correctly. The first is to place as many items as possible that can be recycled through the kerbside system into your yellow lid bin. The second is to avoid placing any of the wrong items into the yellow lid bin, to minimise contamination. If we put the wrong products into our recycling bins these items along with some recyclables may be rejected and end up at landfill. This means that we're not only wasting valuable natural resources, we're also wasting landfill space.

WHAT IS RECYCLABLE?



PAPER & CARDBOARD

Including newspaper, magazines, junk mail, phone books, fresh milk and juice cartons, envelopes, cardboard boxes and packaging.

→ Watch video

PLASTIC

Including all disposable rigid plastic bottles and containers that contained an item used in the kitchen, bathroom or laundry, such as milk bottles, yoghurt containers, margarine tubs, shampoo and conditioner bottles, biscuit and rice cracker trays, take-away containers and laundry liquid bottles – including lids.

→ Watch video

GLASS

Including all brown, green and clear glass bottles and jars such as beer bottles, wine bottles, sauce jars, juice bottles and vitamin bottles – including lids.

→ Watch video

METAL

Including aluminium beverage cans, clean aluminium foil and trays, steel food cans such as baked beans, tuna and other tinned food, pet food cans, baby formula tins, coffee and milo tins, fly spray, hair spray, deodorant and air freshener spray cans.

→ Watch video

THE PROCESS OF SORTING RECYCLABLE MATERIALS

THE MATERIALS RECOVERY FACILITY (MRF)

A Materials Recovery Facility or MRF is a large factory where household recyclables are transported after collection. Once delivered to the MRF they are sorted into individual commodity streams, such as paper, steel and aluminium. After this process the products are mostly baled and transported to reprocessing plants.

All MRF's differ slightly in their operating process depending on how the recyclables are delivered (e.g. paper separated from cans, plastic, steel and glass, or all recyclables mixed together) and how new or advanced they are, but the basic principals are the same.

CENTRAL COAST MRF

The Somersby MRF was opened in 2008. The MRF is approximately 1.5 hectares in size, which is around the size of 2 football fields and is capable of processing 25 tonnes of recyclables, (about three truck loads) in an hour. The MRF uses a combination of manual, mechanical and automated sorting to separate recyclables into individual streams. When the Somersby MRF first opened it was the only MRF in Australia to use auto sort technology on three types of commodities, paper, plastics and glass.

The Cleanaway Central Coast Depot is also located at Somersby and is home to the Cleanaway Central Coast truck fleet. It is here that all of the vehicles are maintained, refuelled and parked when not in use.

HOW DOES THE MRF WORK?

DELIVERY: Each fortnight Cleanaway empties your 240 litre yellow lid recycling bin into a truck specially designed to collect recyclable materials. A mechanical lifting arm lifts your bin and empties its contents into the truck. Once the recycling collection run is finished, the truck delivers the material to the MRF. At the MRF, the truck passes over a weighbridge for accurate record keeping, before the recyclables are tipped onto the receival area conveyor belt.

PRE-SORT STATION: The conveyor belt transports the recyclables from the receival area up to the pre-sort station, where MRF employees called sorters remove large pieces of contamination by hand. Employees in the pre-sort station also recover large pieces of cardboard to improve the performance of the next step, mechanical screening.

DISC SCREENS: The recyclables then pass over a disc screen to be separated into three streams:

1. Plastic, steel and aluminium containers.
2. Paper and cardboard.
3. Glass bottles and jars.

The screens have rotating discs on them which allow containers to roll down onto a conveyor belt under the screen, whilst paper and cardboard to travel up to a different conveyor belt. Glass bottles and jars are broken and drop through onto another conveyor.

GLASS AUTO SORT: The broken glass travels on a conveyor belt and passes under a magnet which removes any metal bottle caps for recycling. The glass is then screened through a rotating trommel which separates the glass into two size fractions.

PAPER AUTO SORT: Back at the beginning of the MRF the paper and cardboard that have been separated by the disc screens travel past a paper auto sort machine which removes any plastics and metals that may have been incorrectly sent in this direction.

The paper auto sort uses near-infrared sensors and metal detectors to classify items that are not paper or cardboard, ejecting these with compressed air controlled by a computer. The paper and cardboard is then stored in a storage bunker prior to baling.

Recyclable plastics and metals recovered by the paper auto sort are returned by conveyor for further sorting.

STEEL CANS: The container stream passes underneath a strong magnet that separates any steel items.

ALUMINIUM CANS: The plastics and aluminium then pass over another screen to segregate aluminium cans. This reduced stream passes over an eddy current separator that automatically recovers the aluminium cans. Because aluminium cans do not contain iron like steel cans, a normal magnet cannot be used to separate them. A magnetic field is used to generate an electric current called an ‘eddy current’ in the aluminium. This current generates a secondary magnetic field in the aluminium that causes it to be pushed away from the other materials and separated.

PLASTIC AUTO SORT: The plastics then pass through a series of plastic auto sorts. These use near-infrared sensors, multiple coil metal

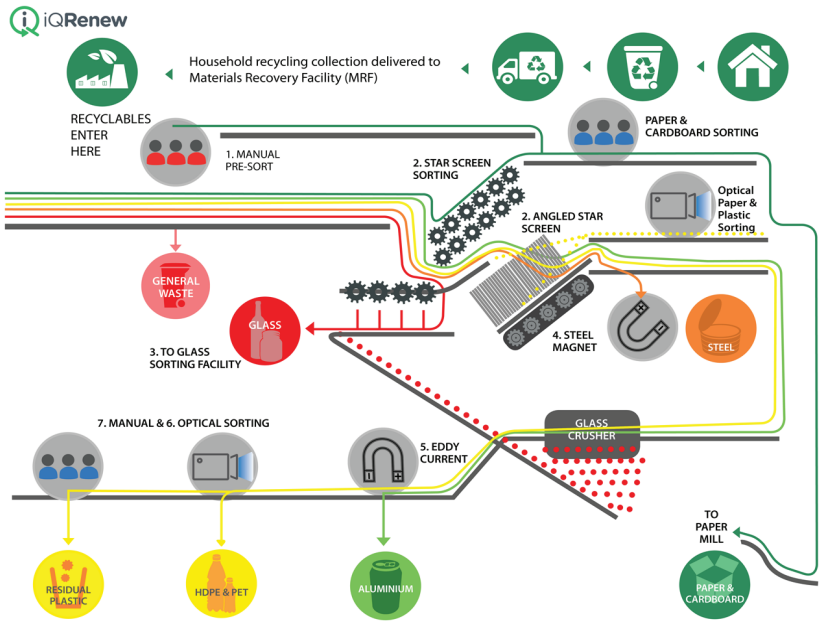
detectors and full spectrum colour sensors. The plastics auto sort produces three product streams; PET (Polyethylene Terephthalate) ; HDPE (High Density Polyethylene); and mixed plastics; ejecting these with compressed air controlled by computer.

The last machine removes any remaining waste and also recovers any remaining paper from the plastics. The plastics and waste streams then pass another MRF employee, a quality sorter, who recovers any products which have been incorrectly sorted, to ensure product quality.

→ Watch video - MRF

BALING: The recovered plastics and metals are stored in bunkers to await baling. All recovered plastic, metals and paper products are baled through a single automated baler. All bales of sorted recyclables are stored within the MRF building to minimise weathering and eliminate windblown litter. Sorted glass is stored in enclosed silos attached to the outside of the main building.

Contamination materials from the MRF are stored in an enclosed waste compactor and taken to landfill.



WHAT HAPPENS NEXT IN THE RECYCLING PROCESS?

After recyclables have been sorted and baled they are transported to reprocessing centres both within Australia and overseas, where they are manufactured into new goods. Let's look at how some of our household products are actually recycled into new products!

PAPER & CARDBOARD

The main raw material used in making paper is wood pulp derived from wood chips. Making paper from raw materials often requires chemical pre-treatment to separate the fibres and make the pulp. Recycling paper allows a reduction of chemical use as the waste paper is simply mixed with water and blended into a thin slush of individual fibres.

Contaminants such as sticky tape, staples, paper clips and plastic windows are removed using sophisticated screening techniques. The slush then passes over a continuous mesh belt and the water in the pulp is drawn through the mesh, leaving the fibres behind where they bind together to form a web of wet paper. The damp paper then passes over a series of rollers to flatten and dry. As the paper emerges it is smoothed out and then wound onto huge spools before being cut into widths required for customers.

Recycled paper is commonly turned into packaging and industrial paper, printing and writing paper, tissues and toilet paper, newsprint, egg cartons and kitty litter.

ALUMINIUM CANS & FOIL

Aluminium is made from the ore bauxite, which consists mainly of aluminium oxides, iron oxides and clay. Recycling existing aluminium cans into new cans uses only 5% of the energy used in making cans from raw materials. This saves a significant amount of energy. About 7 tonnes of bauxite is mined to make 1 tonne of aluminium and thus recycling makes good economic and environmental sense. Recycling one aluminium can saves enough power to enable you to watch television for three hours!

RIGID PLASTIC BOTTLES & CONTAINERS

Plastics are made up of long chain molecules called polymers. Polymers are made when naturally occurring substances such as coal, natural gas and oil are transformed into other substances with completely different properties. The polymers are then made into resin pellets or powders, which are the raw material for plastic products.

The pellets or powders are heated to soften them; they are formed into a certain shape, and then cooled to retain the shape. To help identify different plastics, manufacturers stamp a Plastics Identification Code on their products.

It is added to new ingredients to make new bottles, carpet, clothing, wheelie bins and furniture.

STEEL CANS

Steel cans are made from iron ore, coke and limestone which are heated in a blast furnace until molten. The molten metal is cast into slabs and then rolled into coils. A thin layer of tin is applied with the end product being called “Tinplate”. The tin is applied by an electrolytic process and is used to prevent corrosion of the surface making Tinplate suitable to package food. Steel is 100% recyclable, which means its lifecycle is potentially continuous. During the recycling process the tin coating is removed from the cans in a de-tinning machine, which immerses the sheets in an alkaline bath and transmits an electro current through them. The steel is then heated to 1,700 degrees celsius and tipped into a Basic Oxygen Steel Unit to remove carbon.

Then the steel is mixed with other materials to make it the right consistency for new steel products. The steel is cooled into slabs and shaped into new steel products including car parts, construction steel and new steel cans.

GLASS BOTTLES & JARS

Glass is crushed and double washed to remove impurities. Crushed glass is turned into a sand substitute and used in the construction industry. A variety of glass sand particle sizing’s can be made from the recovered glass; from coarse to very fine micron sizes making it a suitable sand replacement in the production of concrete and asphalt, sand blasting and in storm-water filtration and reuse systems. It is also being used in soil enhancement projects and in designer wall and floor tiles as well as for making custom furniture.

RECYCLING PROCESS

1.TRUCK COLLECTS RECYCLING

2. DELIVERED TO MRF

3. SORTERS REMOVE CONTAMINATION

4. MACHINERY SORTS RECYCLING

5. RECYCLING IS BALED AND SENT TO NEW FACTORIES

6. RECYCLING IS TURNED INTO NEW ITEMS

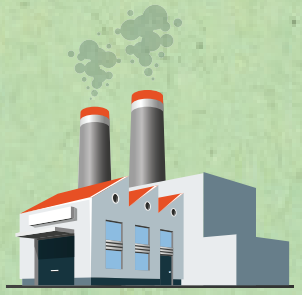
→ Watch video - Recycling Process

CLOSING THE LOOP

→ Watch video - Closing the loop on plastic

We buy and use paper products

We put paper in our recycling bin



The paper is sorted at the MRF and sent to a recycling factory

The paper is made into different products

Trees are cut down

When we recycle we save our natural resources

GARDEN VEGETATION

A garden vegetation bin is available to all properties east of the Sydney to Newcastle M1 Motorway, making it easier than ever to recycle garden vegetation on the Central Coast. Recycling garden vegetation has real benefits for the environment, the most obvious being the landfill space saved.

WHAT CAN BE RECYCLED IN THE GARDEN VEGETATION BIN?

- Grass clippings
- Leaves
- Twigs & branches
- Flowers
- Untreated timber (small pieces)
- Plants & small shrubs
- Weeds

HOW MUCH IS RECYCLED ON THE CENTRAL COAST?

The total amount of garden vegetation recycled in 2019 through the green lid bin was 37,717 tonnes. This equalled 110kg per person per year. Vegetation makes up 99% with 1% being contamination.

WHAT HAPPENS TO YOUR GARDEN VEGETATION?

Each fortnight, your 240 litre green lid garden vegetation bin is emptied by Cleanaway into a truck specially designed to collect this material. A mechanical lifting arm lifts your bin and empties its contents into the truck. Once the collection run is finished, the truck delivers the material to a commercial composting facility operated on behalf of Central Coast Council by Australian Native Landscapes (ANL) at Buttonderry and Woy Woy Waste Management Facilities at the green waste collection and sorting area.

HOW IS THE COMPOST MADE?

All material arriving at the sites is shredded into smaller pieces before it is mixed and composted in large windrows (long rows of compost) for 12 – 14 weeks. The windrows are turned at least five times to ensure they contain sufficient air and moisture to minimise odours and the production of methane. All materials spend at least three days in the centre of the windrow where the temperature exceeds 55 Degrees Celsius. This ensures that the weed seeds and plant diseases are destroyed and that beneficial bacteria continue to multiply and work at the fastest rate to breakdown material.

The material is then put through a screening machine to remove coarse matter and is then stockpiled. The finished compost is tested prior to sale to ensure it complies with stringent quality control standards to meet Australian Standards.

CONTAMINATION

It is essential that the incoming material is free of non-compostable "contaminants" such as plastics, glass and chemicals. These materials have to be removed by hand and may cause injuries to staff. Other materials unsuitable for composting include treated and painted timber, soil, rocks, nappies, building materials and food scraps.

The ANL Composting facility at Buttonderry has been operational since February 1998. The facility at Woy Woy has been operational since 2008.

A number of products are produced at the facilities, including mulches, organic fertilisers, landscape soils, potting mixes and top dressing, which are sold to various landscaping industries.

GARDEN VEGETATION PROCESS

1. TRUCK COLLECTS WASTE

2. DELIVERED TO ANL

3. GROUND GREEN WASTE

4. SORTED INTO ROWS

5. TROMELL REFINES WASTE

6. FINISHED PRODUCT

→ Watch video - Garden Vegetation Process

GENERAL WASTE

On a weekly basis, general waste bins are collected and taken directly to the landfill sites at Buttonderry and Woy Woy Waste Management Facilities. Here, the rubbish is tipped onto the site and managed through the landfill operations. Items from the general waste bins that are taken to landfill will stay there forever, there is no further sorting of these items.

WHAT CAN BE DISPOSED OF IN THE RED LID GENERAL WASTE BIN?

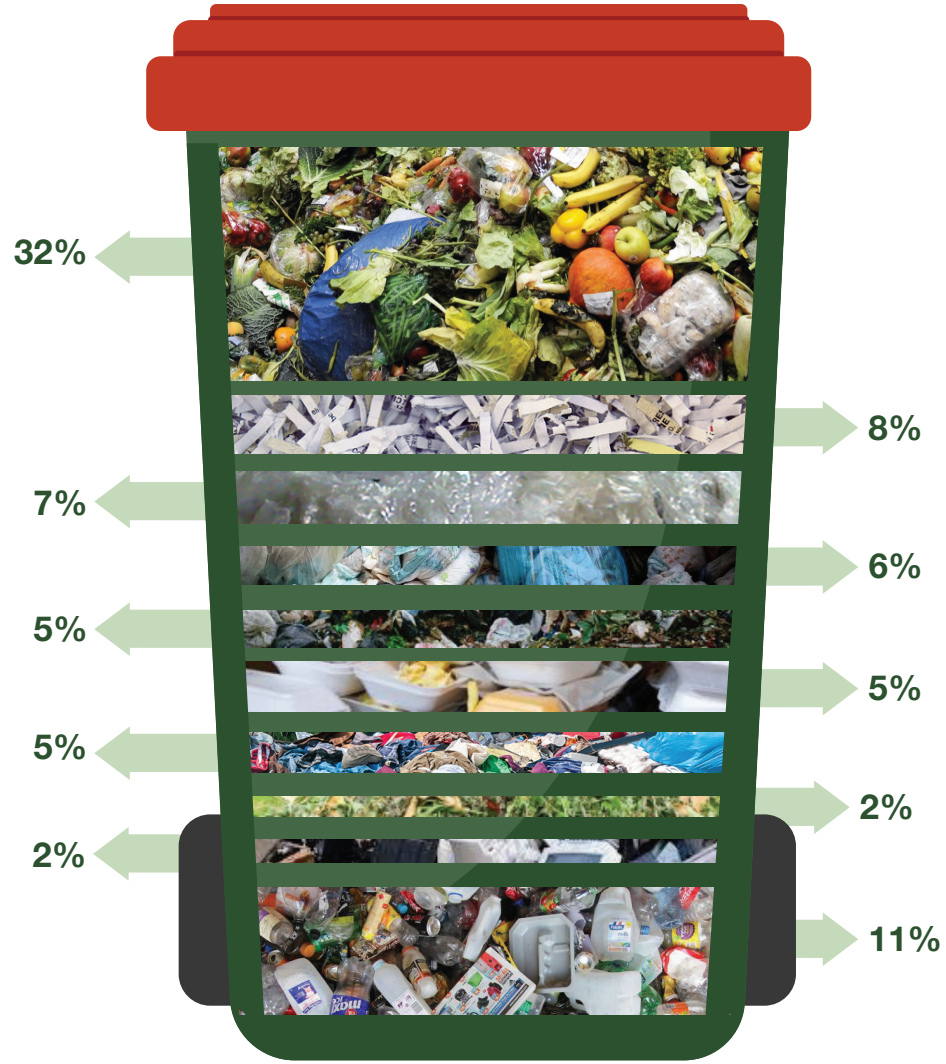
- Food scraps
- Plastic bags
- Plastic wrappers
- Disposable nappies
- Other garbage that cannot be recycled such as polystyrene foam, crockery, pyrex and drinking glasses

HOW MUCH IS DISPOSED ON THE CENTRAL COAST?

78,064 tonnes of total household waste was disposed of in 2019 through the red lid bin. This equalled 226kg/person/year.

- Food waste - 32%
- Non recyclable paper - 8%
- Soft plastics -7%
- Nappies - 6%
- Other putrescible waste - 5%
- Containerised food - 5%
- Textiles - 5%
- Garden organics - 2%
- Ewaste - 2%
- Recyclable items - 11%

What's in your red lidded general waste bin?



*Based on estimated population of 327,736 from 2016 census date.

WHAT IS A LANDFILL?

Modern landfills have existed for the last 60 years or more, but until recently were called tips or dumps. They were generally small tip sites, often little more than open dumping grounds on the outskirts of towns, which were owned and operated by local councils. Solid waste was thrown into these open pits (often old quarries, gravel pits, disused mines and marshlands). The sites were filled in a haphazard fashion and from time to time a layer of dirt was spread over the rubbish to reduce smells and vermin and to disguise the contents. Little attention was paid to the treatment of leachate (contaminated liquid coming out of the landfill as a result of garbage breaking down) and gases – by-products of the breakdown of waste.

Over the past 30 to 40 years, these practices have given way to more responsible landfill management, incorporating the use of daily soil cover, waste compaction, surface water controls, leachate collection and environmental monitoring.

HOW ARE LANDFILLS MANAGED?

A modern waste disposal facility is highly engineered and constantly monitored throughout its operative life and for many years following closure. The location, construction, operation and closure of a landfill are carefully managed processes involving local and State Government departments, geologists and hydrologists.

CONSTRUCTION: The first stage in landfill construction is to excavate an area or landfill cell. The excavated material is stored for use as cover once land filling is started. The next step is to design and construct a liner system for each landfill cell to prevent leachate from entering the groundwater or natural drainage systems. Many older landfills have a 1 metre thick clay liner only. With technology developments, many newer landfill cells use several layers to protect the groundwater from landfill leachate. Layers may include a synthetic clay liner; HDPE plastic; a filter protection layer; a drainage layer and a protection layer.

A series of pipes is installed above the liner to collect the leachate at the bottom of the landfill. The leachate is then piped to a storage pond for further treatment and/or discharge to sewer. In some cases, pipes are installed underneath the liner to collect groundwater and prevent it from entering the landfill. A drainage system is installed to collect and divert stormwater run-off into sediment ponds, where the sediment-laden water is settled and tested before being discharged to the environment.

Bunds or embankments are built and trees and shrubs planted to make the site visually attractive and assist in reducing noise. High fencing ensures litter control.
Many modern landfills also have gas collection systems to collect methane gas emitting from the waste.

OPERATION: Incoming vehicles are weighed on a weighbridge and charged according to weight and waste type. Large vehicles empty their contents at the tip face and in many cases, smaller vehicles are directed to a transfer area, which provides an opportunity to separate wastes in a clean and safe area.

The waste arriving at the tip face is compacted to reduce volume and at the end of each day is covered with either a layer of soil 150mm thick, or at some landfills a roll-out tarpaulin is used when possible (not during high winds) to keep rodents to a minimum and to reduce the smell. Many waste management facilities also offer a range of recycling and reprocessing opportunities for materials including metal, concrete and bricks, timber, e-waste, mattresses and batteries to further conserve landfill space and virgin natural resources.

CLOSURE: Once a landfill reaches the end of its life, in other words no more space is available to deposit waste materials, it is closed and capped with a layer of compacted clay. Top-soil is added and the area is planted with grass or other cover material to stabilize the site and improve its appearance. Ongoing leachate, gas and stormwater monitoring is conducted for many years after closure.

Once deemed safe, closed landfills are frequently used as active recreational areas such as playing fields after post-closure monitoring and maintenance are completed. On the Central Coast there are many playing fields that were once landfills including Hylton Moore Park, Adcock Park, James Browne Oval and Pat Morley Oval.

→ Watch video - Central Coasts Landfill

WHERE ARE LANDFILLS LOCATED ON THE CENTRAL COAST?

Central Coast Council owns and operates two active waste management facilities containing landfills on the Central Coast. Woy Woy and Buttonderry Waste Management Facilities are both licenced as Class 1 Solid Waste Disposal Facilities and can accept domestic, council, construction and demolition waste as well as some types of industrial waste for landfilling.

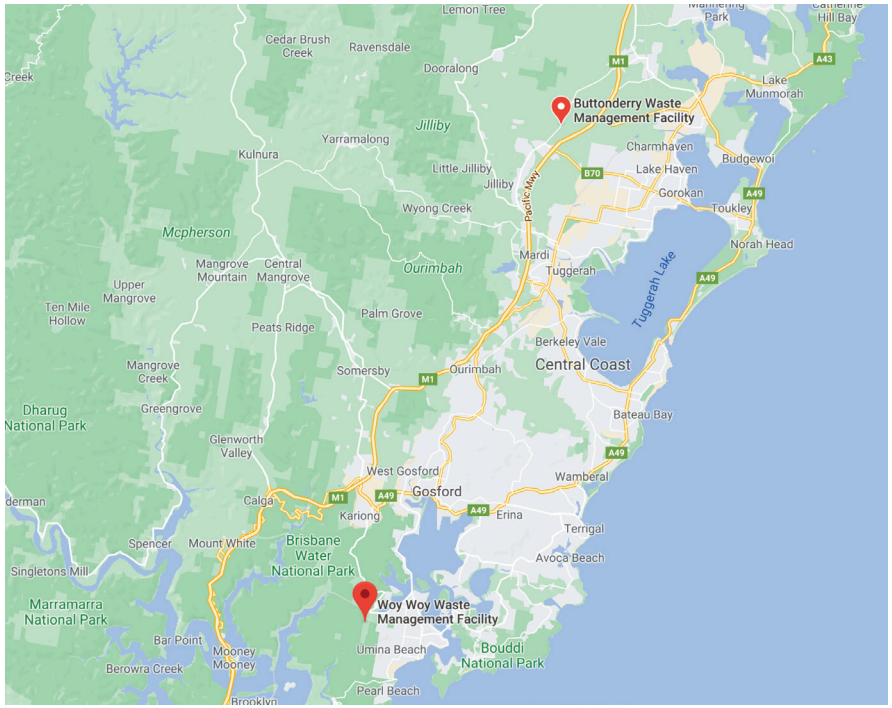
Woy Woy Waste Management Facility occupies 50 hectares and began operations in 1974, whilst the much newer Buttonderry Waste Management Facility was constructed in 1990 and covers 270 hectares. Central Coast Council also owns Kincumber Transfer Station, which was operational as a landfill from 1977 until 2009 and occupies 18 hectares.

Environmental monitoring programs are carried out at all sites monitoring landfill operations and checking groundwater, surface water, leachate, surface gas and sub-surface gas to ensure no harm comes to the environment from the landfill. Council is following best practice by going above and beyond legislative requirements under the Protection of the Environment Operations Act – providing daily, weekly and monthly monitoring of environmental compliance. Buttonderry Waste Management Facility was awarded the National Landfill Excellence Award in 2013.

A recycling drop off area is set up at all of council's waste management facilities for residents and businesses to recycle a range of materials including scrap metal, e-waste, mattresses, gas cylinders, motor oil, car batteries and excess household recycling from the yellow lid bin.

Expected lifespan of current landfill sites:

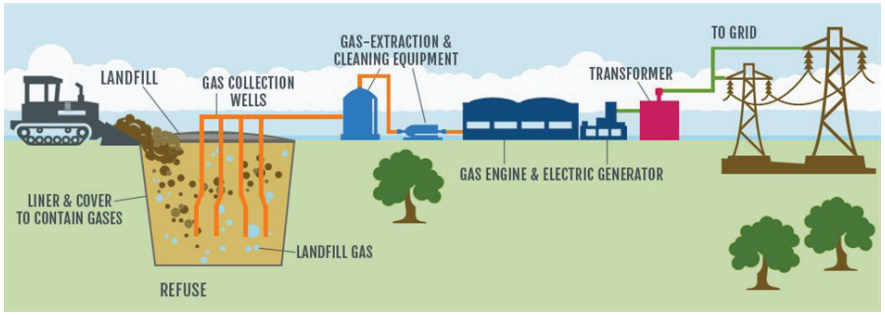
With the introduction of resource recovery and recycling programs and as landfill contours are redefined, it is estimated that Woy Woy Waste Management Facility will continue to operate until approximately 2035 and Buttonderry Waste Management Facility could be operational for approximately the next 30 years in the current area with potential for further expansion within the site.



METHANE GAS EXTRACTION: Landfill gas forms when organic waste breaks down. It comprises around 50% methane and 50% carbon dioxide. Methane has a global warming potential 21 times that of carbon dioxide. Central Coast Council has developed landfill gas extraction and electricity generation facilities at Woy Woy and Buttonderry Waste Management Facilities and Kincumber Transfer Station.

METHANE CAPTURE: Methane is extracted from the landfills via a network of wells. Each well comprises a series of pipes inserted into older areas of the landfill or is laid in new areas (termed “lifts”) during filling operations. The pipes are slotted to allow capture and transport of methane to the power generation facility.

POWER GENERATION: Methane supplied to the power plant by the collection system passes through a condenser, blower and filter to remove contaminants (such as liquids and particulate matter). The refined gas is then burnt in a generator to create electricity, which supplies power to the electricity grid via a transformer.



BENEFITS:	
Buttonderry Waste Management Facility	Two 1.1 MW generators currently annually generate around 18,000 MWh’s of electricity delivering to the grid the equivalent power needs of around 3,200 homes and the abatement of 114,000 tonnes of CO2 equivalent.
Woy Woy Waste Management Facility	A 1.1 MW generator annually generates around 7,200 MWh’s of electricity delivering to the grid the equivalent power needs of around 1,200 homes and the abatement of 34,000 tonnes of CO2 equivalent.
Kincumber Transfer Station	A 1.1 MW generator annually generates around 1,900 MWh’s of electricity delivering to the grid the equivalent power needs of around 320 homes and the abatement of 12,000 tonnes of CO2 equivalent.

GENERAL WASTE PROCESS

1.TRUCK COLLECTS GENERAL WASTE

2. DELIVERED TO WASTE MANAGEMENT FACILITY

3. TIPPED AT LANDFILL SITE

4. WASTE IS COMPACTED

5. WASTE IS BURIED

6. GAS IS CAPTURED AND CONVERTED TO ELECTRICITY

→ Watch video - General Waste Process

ALTERNATIVE WASTE TECHNOLOGIES

In recent years, alternatives to landfills have become the focus of industry, government and community groups. AWTs are described as “alternative” because they provide a more sustainable solution than waste disposal methods such as landfill, landfill bioreactors and incineration.

The NSW Government commissioned an inquiry into these types of alternative waste technologies. These can be broadly defined into the three categories;

- Mechanical-Biological processing to separate fractions for compost-like production and resource recovery.
- Biological treatment in a liquid reactor to produce bio-gas for energy and soil conditioning products.
- Thermal treatment to reduce the volume and toxicity of residual waste, and generate energy.

WASTE MINIMISATION

WHY REDUCE WASTE?

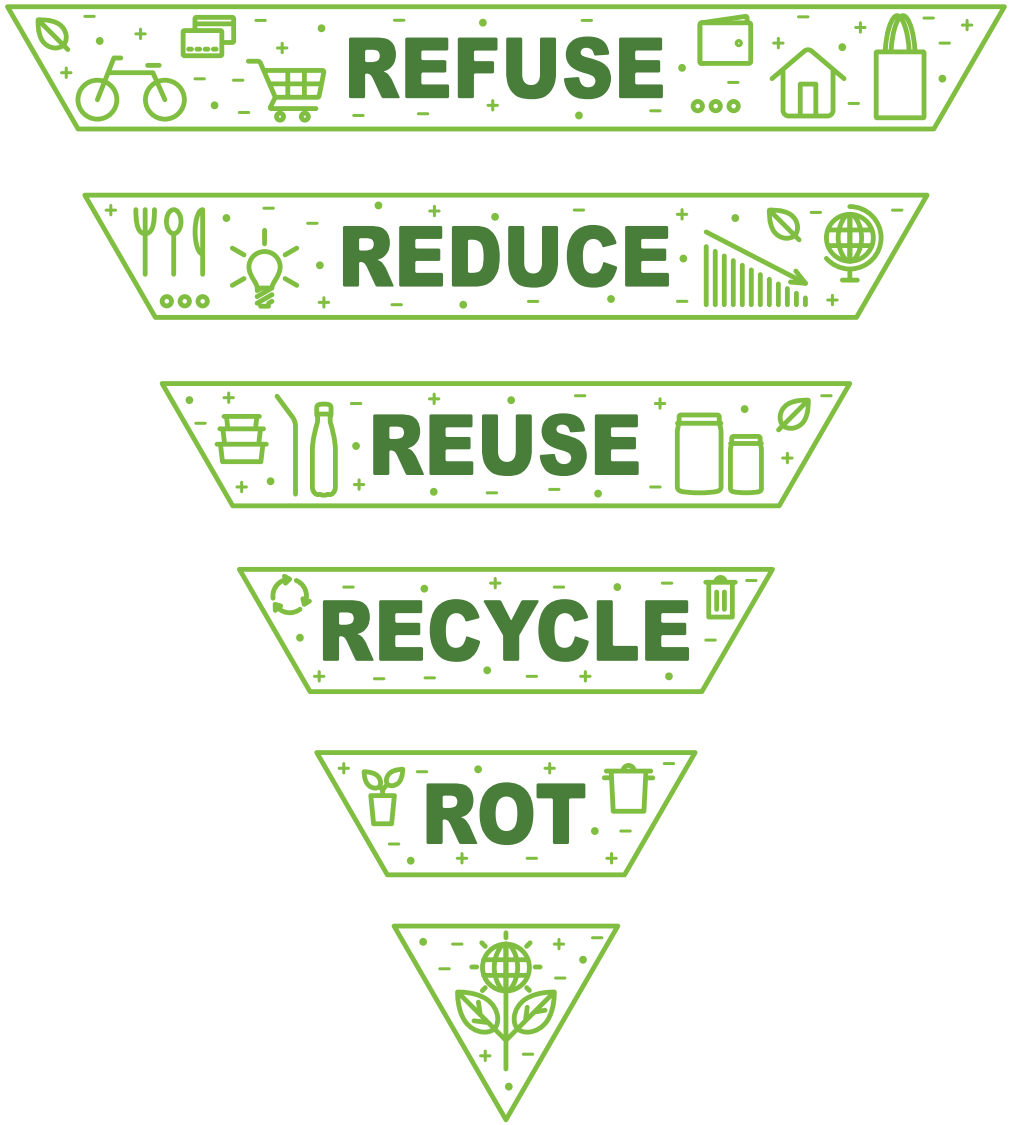
Did you know that on a per person basis, Australia is one of the highest producers of garbage in the world?

The huge amount of rubbish we produce has multiple effects on the environment.

For example:

- We are depleting natural, often non-renewable resources at an unsustainable rate.
- We use excessive amounts of energy to transport and dispose of rubbish.
- We are impacting on the environment by extracting resources through mining, harvesting and land filling.

We are the ultimate consumers. Packaging fills our garbage bins weekly – in fact, 4.5 million tonnes of packaging waste is produced annually in Australia, with 2.5 million tonnes being recycled.



HOW DO I REDUCE MY WASTE?

Reducing waste is easy if you follow the waste hierarchy. The waste hierarchy is the core guide used globally to prioritise approaches to waste management based on environmental impacts and sustainability.

REFUSE: The easiest way to prevent waste is not to acquire it in the first place. So before buying something new, ask yourself: Do I really need it? Can I borrow it? Is it a good quality item and expected to last? How long will I use it for?

- Avoid disposable or single use items and use reusable alternatives instead.
- Look for products with little packaging, or packaging that can be recycled.
- If you find advertising material goes straight in your bin, get a 'no junk mail' sign for your letterbox.

REDUCE: Reducing waste can simply mean changing the way we shop and live so there is less waste to get rid of.
You could try:

- Meal planning, checking your pantry, fridge and freezer and writing a shopping list before buying food to make sure you do not need to throw away spoiled or out of date produce.

- Ensure you are storing food correctly to avoid it spoiling.
- Buy in bulk where possible to reduce packaging.
- Take a bag, box or basket with you when you go shopping.
- Use online guides to try to repair items instead of replacing them with new items.
- Make ‘nude food’ lunches for your family. Use reusable containers and lunchboxes to make lunch without any waste.

REUSE: Reusing a product means that you don’t have to buy a new item for the same purpose, so you save the energy and resources that would go into making the new product. By re-using we are also reducing the amount of waste we send to landfill.

- Look for products in re-usable or refillable packaging.
- Buy second-hand products where practical.
- Re-use empty glass jars for storage.
- Re-use plastic drink containers.
- Re-use plastic bags in the house.
- Re-use envelopes and use both sides of paper.
- Use a reusable coffee cup
- Use reusable cloth shopping and produce bags
- Use reusable cloth nappies
- Try Rechargeable batteries
- Look for refillable ink cartridges

RECYCLE: Recycling means that products are returned to a factory for reprocessing into a new product. Make sure you take part in your council’s kerbside recycling scheme and put only those items in the bin that are accepted as part of the system.
An important point to consider is to buy recycled products so we can “close the recycling loop”. That is, we need to create a demand for recycled goods.

- Choose products made from recycled materials.
- Ask retailers to stock products made of and packaged in recycled materials.
- Setting up a compost bin or worm farm is a great way of recycling your fruit and vegetable peelings.
- If you have an item that cannot be recycled through the yellow lid bin, research disposal options to see if drop off recycling programs are available.
- Recycle your plastic shopping bags and wrappers at your local supermarket in the designated soft plastics bins.
- Take old mobile phones, light globes and batteries to Council Libraries for recycling.

ROT: The least favoured option. The waste you cannot reuse or recycle will be sent to landfill.

COMPOSTING TO RECYCLE ORGANICS

Composting, the biological breakdown of organic matter, is nature's own recycling system. Decomposition is as old as the soil itself. By breaking down plant and other organic material into its original nutrient form we can return valuable nourishment to the soil.

WHY COMPOST?

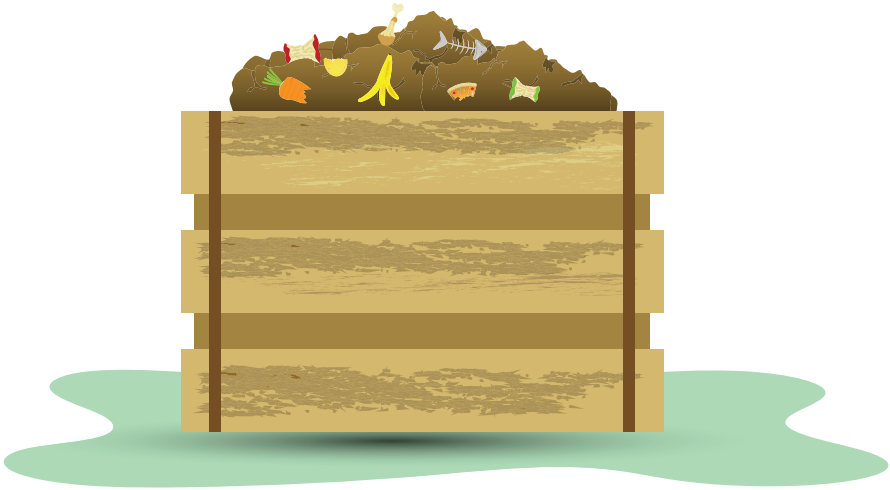
Australians throw away close to 3 million tonnes of food waste per annum, which is approximately 145 kilograms per person each year. The decomposition of organic matter such as food waste in landfill is a major contributor to the generation of the highly damaging greenhouse gas methane.

About 38% of our general waste bin consists of food. So, in terms of overall waste reduction, composting is possibly the most important single action for every one of us to consider.

While Central Coast Council offers most residents a garden organics collection service, residents should still consider composting their food organics at home.

Some other good reasons to compost include:

- Compost returns nutrients to the soil and improves soil structure and aeration.
- Brings life back to the soil.
- Improves drainage in heavy clay soils and water retention in sandy soils.



SHOULD I USE A COMPOST BIN OR WORM FARM?

The decision of whether to compost your organics or let the worms do the work depends on a number of factors, including personal preference; the number of people in the household; the nature of your organics; and the size of your yard.

A compost bin or heap will accept all food scraps as well as grass clippings and shredded prunings. You can make great compost within 6 to 8 weeks and re-use it on your own gardens.

A worm farm is fun to set up and provides a wonderful educational tool. Small-scale home worm farms will take your fruit and vegetable left-overs and turn them into a rich soil-like substance called castings.

COMPOSTING

SET UP: You can build your own compost bin or use one of the many different plastic bins available, such as a stand-alone, a tumbler, an in-ground or even an indoor bokashi bin. These can be found at most garden and hardware outlets and Central Coast Council often offer them at a discount or for free along with tutorials or workshops. The ideal location for compost has good drainage and is well shaded in summer.

WHAT TO COMPOST: Anything that was once plant or animal can be composted. The greens (products full of nitrogen) include leaves, grass, chicken manure, food scraps, coffee grounds, tea bags, paper towels, hair, fur, fish bones, blood and bone and seaweed. The browns (products full of carbon) include dried leaves, sawdust, wood shavings, hay, vacuum cleaner dust, shredded paper, newspaper and egg shells. HINT: Avoid placing meat, bread or dairy products in your compost until you are confident and experienced.

LAYERING: To build the compost, start with a thick layer (15cm) of twigs or coarse mulch at the base for drainage.
Then follow the easy A, B, C formula to build a heap layer upon layer.
A. Thin layer of kitchen organics and green garden organics.
B. Cover with a layer of brown garden organics ensuring no food waste is left exposed.
C. Moisten well. Then repeat A, B, C.

MAINTAINING YOUR COMPOST: It is important to add air to the compost so it doesn't smell. This can be done by occasionally turning it with a garden fork or by placing garden stakes or pipes through the heap to allow air in. In just 8 weeks your compost should be ready to use!

USE OF FINISHED COMPOST: Finished compost is dark in colour and has an earthy smell. Compost can be used on the garden as mulch and soil. Water can also be added to the compost, which provides a rich fertilizer for houseplants and young seedlings.

WORM FARMING

SET UP: You can buy a commercial worm farm which can be found at most garden and hardware outlets and Central Coast Council often offer them at a discount or for free along with tutorials or workshops. Alternatively, you can build one with boxes (including polystyrene fruit boxes) or make a worm bed in your garden. Typical dimensions for a worm box are 30 cm deep, 60 cm wide and 90 cm long. The top two boxes must have holes for drainage and the top box should have a lid to protect the worms against heat and drying winds. The bottom box will catch the liquid "worm wee" which is a great fertiliser!

Worms don't like to get too hot, so make sure your worm farm or bed is in a well shaded spot.

Line the bin with a combination of finished compost, leaves and paper as bedding. The bedding should be torn or shredded so that the worms can move around easily and the bedding material should be soaked in water before it is added to the box.

Now add the worms: between one and two thousand worms is a good number to start with. Then start adding your kitchen waste regularly in small amounts.

COLLECTING WORM FOOD: Worms like to eat food wastes like vegetable and fruit peelings, pulp from the juicer, tea bags, crushed egg shells and bread. They also like small amounts of soiled paper and cardboard (such as shredded egg cartons). Worms least favourite foods include dairy products, butter & cheese, meat, fish, fat and bones; very oily foods and citrus, onion and garlic.

HARVESTING WORMS: Harvest the worm castings/compost (vermicompost) by moving it all to one side of the bin; add fresh bedding to the empty side. Many of the worms will migrate to the fresh bedding in a few days. The valuable worm castings can then be taken out and used.

GLOSSARY

AWT FACILITY – Alternative Waste Technology Facility offers a more sustainable solution to waste disposal than landfills. AWT's use technology that diverts waste away from landfills, recovers more resources from the waste stream and minimises the impact on the environment. AWT's can include mechanical separation methods, biological processes, thermal technologies and mechanical biological treatment.

CLASS 1 LANDFILL – accepts all waste types except certain hazardous materials.

COMPOSTING – the biological breakdown of organic matter.

CONTAMINATION – material, which may spoil the recyclable or compostable material and result in it being sent to landfill.

DECOMPOSE – to break down over time.

GARDEN ORGANICS – vegetation from your garden, such as lawn clippings, pruning's, weeds.

HAZARDOUS MATERIAL – harmful or poisonous material (eg. paints, chemicals, solvents).

HDPE – High Density Polyethylene is a recyclable hard to semi-flexible plastic often used to make 2 litre milk bottles.

LANDFILL – An area of land used as a disposal site for waste material (also referred to as a tip).

LEACHATE – liquid waste that seeps through a landfill.

MATERIALS RECOVERY FACILITY (MRF) – A facility that receives unsorted recyclables from household recycling collection services. At the MRF, recyclables are sorted and compressed into bales and contamination is removed.

NON-RENEWABLE RESOURCES – Resources or substances available in only limited quantities, which once used cannot be replaced or renewed. Also know as finite resources.

ORGANIC – Anything that is or was part of an organism that can break down or decompose naturally. Anything that was once living such as grass, leaves, food.

PET – Polyethylene Terephthalate is a recyclable clear and tough plastic often used to make soft drink bottles.

RECYCLABLE – A material or item that, depending on individual circumstances, can be reprocessed to provide raw material for new products.

RENEWABLE RESOURCES – Resources, which can be renewed or replaced when consumed (solar energy).

UNSUSTAINABLE – not able to be continued indefinitely.

WASTE – often referred to as rubbish, garbage, trash, junk, litter, refuse and stuff to be thrown away and is something we all produce as part of everyday living.

WASTE MANAGEMENT FACILITY – An area of land used to manage waste in an integrated manner, including land filling, composting, recycling and processing of construction and demolition wastes.

LINKS FOR FURTHER INFORMATION

Below is a list of web sites that may be useful to obtain information on general waste management issues:

Central Coast Waste & Recycling Services: www.1coast.com.au

Central Coast Council: www.centralcoast.nsw.gov.au

Cleanaway: www.cleanaway.com.au

NSW Department of Environment Energy and Science: www.environment.nsw.gov.au

Waste Management & Resource Recovery Association Australia: www.wmrr.asn.au

Keep Australia Beautiful NSW: www.kabnsw.org.au

Planet Ark: www.planetark.com

Recycling Near You: www.recyclingnearyou.com.au

National Recycling Week: www.recyclingnearyou.com.au/nationalrecyclingweek

Cartridges for Planet Ark: www.planetark.org/programs/cartridges-4-planet-ark

Clean Up Australia: www.cleanup.org.au

Visy Recycling: www.visy.com.au/recycling

The Australian Council of Recyclers: www.acor.org.au

IQ Renew: www.iqrenew.com

Australian Native Landscapes: www.anlscape.com.au

For further information please contact Cleanaway on 1300 1coast (1300 126 278) or visit www.1coast.com.au

1coast

CLEANAWAY
Making a sustainable future possible

Central Coast Council