

2019-2022
HORNSBY
SHIRE COUNCIL

WASTE MATTERS
STRATEGY

DRAFT

WASTE MATTERS

INTERIM WASTE MANAGEMENT AND RESOURCE RECOVERY STRATEGY

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RESOURCES AND LINKS

OUR COMMUNITY HAS TOLD US THAT WASTE MATTERS



HORNSBY SHIRE COUNCIL AND OUR COMMUNITY HAVE DECIDED THAT WASTE MANAGEMENT IS A PRIORITY TO HELP CREATE A SUSTAINABLE FUTURE. OUR COMMUNITY HAS TOLD US THAT WASTE MATTERS.

There has never been a more important time for us to be focused on how we manage our community's waste. The waste sector is facing many challenges. The global recycling crisis is forcing countries to manage their recyclables within their own boundaries under a circular economy approach. Ever increasing plastics and packaging waste, and steadily increasing consumption levels see our society generating higher levels of waste.

All levels of government in Australia must play their part in addressing our society's waste problems. This ranges from the Federal Government responsible for national leadership and targeted national schemes, to the State Government setting waste policy and regulations - through to Local Governments that provide essential waste services to our residents, along with supporting education and engagement programs.

In Hornsby our current successes include diverting 44 percent of our waste from landfill, keeping our recycling system strong, composting our garden waste and launching a well-received Community Recycling Centre for problem household waste.

With 56 percent of our waste still going to landfill, there remain significant opportunities to better manage our community's waste. Compostable organics in our waste represent the largest landfill diversion opportunity available, while actively targeting materials including plastics, packaging, clothing, mattresses and examining the role of waste-to-energy for non-recyclable materials destined for landfill - will deliver tangible outcomes for our community.

Through supporting a new circular economy approach we will actively create markets and uses for our recycling in Australia. Purchasing recycled content where possible will drive markets and demand for these materials by closing the loop.

Sydney's waste infrastructure needs major renewal and expansion to match our desire to better manage our waste. Councils across the metropolitan area will need to work together and in partnership with the State Government and the private waste sector to meet the waste challenges we face as a community.

We need to monitor and respond to changing waste regulations that currently impact on Council's pathways to increase the recovery of organic materials in our waste going to landfill.

Our community is asking Council to help play a part in tackling these issues.

The current approaches to waste management are a solid local foundation to build further momentum to tackle our society's waste problems.

Our community must work together, and we must all play our part in making Waste Matter for a sustainable future.

**Cr Philip Ruddock
Mayor**

STRATEGY OVERVIEW

A WASTE STRATEGY IS A DISTILLATION OF COMMUNITY ASPIRATIONS, COUNCIL PRIORITIES, DETAILED ANALYSIS OF THE CURRENT WASTE CONTEXT AND AN UNDERSTANDING OF THE WASTE INDUSTRY'S TECHNOLOGY CAPABILITIES AND BEST PRACTICE.



TO ESTABLISH A LONG-TERM DIRECTION FOR WASTE MANAGEMENT - CHARTING THE STEPS FROM THE CURRENT SITUATION TOWARDS OUR DESIRED FUTURE OUTCOMES IS REQUIRED.

Strategy development

Developing the strategy has been an inclusive process involving:

- Formation of the Waste Working Group of community members and Councillors, supported by senior Council staff, to provide guidance on development of the new Waste Strategy.
- Review of current waste management performance to set the context for improved outcomes.
- Consultation with the community through pop-up stalls, more than 1900 online and telephone interviews and two community focus groups that allowed us to dive deep into what you told us.
- Consultation with the waste industry to ensure strategic directions would be in line with infrastructure and available services.
- Establishment of guiding principles, a vision, key objectives and priority areas to shape the strategy directions.
- Evaluation of options, costs and outcomes for collection and processing or treatment of our waste to improve resource recovery.
- Development of an Action Plan to guide delivery of the Waste Matters Strategy.

Community consultation

Community consultation revealed general satisfaction with current collection services and many opportunities for improved resource recovery.

You told us you want more information on where your waste goes; more education on how to use our waste services and how you can recycle more - particularly composting organics, reducing plastics and packaging and reusing clothing and other items.

You also want a focus on helping units and apartments to better manage their waste. You want Council to lobby State and Federal Governments on the growing problems with packaging and plastics. You want Council to do more to tackle illegal dumping and litter management within our community. This strategy aims to deliver on these community needs and expectations.

Our aim and guiding principles

We aim to deliver increased recycling, resource recovery and diversion of waste from landfill through the services we provide and our community engagement and education. This will be done in ways that are consistent with the **guiding principles of:**

- Applying the waste management hierarchy.
- Transition from a disposal based approach to a circular economy approach.
- Achieving step changes in resource recovery by targeting specific priority materials.
- Providing best fit Shire-wide waste services for our residents.
- Retaining a user pays philosophy for residents that have needs above the best fit service level.
- Delivering value for money outcomes for our community.
- To engage and educate our community on Waste Matters.

The Strategy

At a time when Council and the community are wanting to achieve higher resource recovery and landfill diversion outcomes to promote sustainability – there has never been more challenges and uncertainty facing the waste sector as a whole.

The strategy will ensure we keep our recycling strong in the face of the **'global recycling crisis'** brought about by China and other nations now not accepting the recycling of western countries.

Australia as a nation, with the cooperation of all tiers of government, must meet the challenges to transition into a circular economy approach. This will involve utilising our recyclable materials for onshore value-added manufacturing or reuse.

These challenges cannot be met by Local Government and their communities alone. It will require governments, manufacturers, the construction and infrastructure sector, researchers and efforts from many others to rise to these challenges.

This interim Waste Matters Strategy must also carefully navigate the current **regulatory changes** that have temporarily blocked Council's preferred pathway to improving the management of organic waste still going to landfill. The available waste processing plants, operated by the private waste sector, that accept the organic rich waste are currently landfilling their compost products due to recent regulatory changes.

OUR VISION IS TO CONTRIBUTE TO THE SUSTAINABILITY OF OUR SHIRE THROUGH BETTER WASTE MANAGEMENT PRACTICES.

OUR OBJECTIVES

1. TO PROVIDE EFFECTIVE, AFFORDABLE AND INNOVATIVE WASTE SERVICES TO REDUCE DOMESTIC WASTE DISPOSAL TO LANDFILL, INCREASE RESOURCE RECOVERY AND PROTECT THE ENVIRONMENT
2. TO RESPOND TO THE COMMUNITY'S EXPECTATIONS, NEEDS AND REQUIREMENTS WITHIN BUDGETARY CONSTRAINTS
3. TO ENGAGE AND EDUCATE OUR COMMUNITY ON WASTE MATTERS AND DESIRED BEHAVIOURAL CHANGES

We need to maintain a 'watching brief' on this regulatory situation and to re-evaluate our future directions as further work is undertaken by the EPA and as the waste industry has time to respond and adapt their technology and infrastructure our community rely upon.

Our waste snapshot

The Hornsby community generates around 66,500 tonnes of household waste a year that includes 31,600 tonnes residual waste (red bin), 11,300 tonnes recycling (yellow bin), 17,000 tonnes garden waste (green bin), 900 tonnes metals and 5,700 tonnes bulky clean up waste.

We currently recycle around 29,200 tonnes and send the remaining 37,300 tonnes of residual waste to landfill. This means Hornsby Shire is recovering 44 percent of our waste and diverting it from landfill. This is a similar landfill diversion rate to other Sydney metropolitan Council areas. However, there is more work to do to further recover more available resources from our waste and move towards the 70 percent resource recovery target.

Our services

Our current three bin collections service model has been proven to deliver the best value for money. Recycling in Hornsby is secure and delivering real diversion from landfill. Our contractor is the Australian market leader and has well developed domestic markets for recycled materials, only exporting what they cannot use on-shore, reducing their exposure to changes in global commodity markets.

Our garden waste is mulched and composted here in Sydney and sold back to residents, nurseries and landscaping companies. Our red bin waste is bulked into shipping containers and sent to Woodlawn Bioreactor Landfill near Tarago, NSW where any landfill gas produced is converted into green electricity. Our bulky clean up waste is landfilled in a dry landfill in Western Sydney.

The way forward

The Waste Matters Strategy considers and evaluates options for improving our resource recovery outcomes by targeting priority materials that will deliver the required "step change" increases to meet the 70 percent recovery target. The options identified and assessed, examined processing compostable organics, diverting our bulky waste into waste-to-energy processing and targeting other materials. The evaluation of options to determine the preferred approach and pathway going forward was based on assessing the resource recovery outcomes delivered, costs and the availability of services to Council and our community.

Council's preferred pathway is to maintain our current collection systems and processing our mixed red bin waste at an Alternative Waste Treatment (AWT) plant to compost all available residual organics, recover any remaining recyclables in our garbage and to divert any remaining residual waste, including bulky clean up waste, away from landfill and into waste-to-energy and achieving over 80 percent resource recovery or landfill diversion at the lowest cost impact on our community.

However, as Council was preparing this draft Waste Matters Strategy this preferred pathway has become temporarily blocked until regulations affecting the processing plants for mixed waste are resolved. As a result, Council has developed Waste Matters as an interim strategy. It is not the right time to lock in high cost long-term commitments for alternative waste treatment services. An active watching brief on regulations, available processing options and the state of the market is required.

While this will slow progress on improving our resource recovery rate, it is a prudent measure that will avoid significant missteps and will allow Council to pursue an optimal solution when the time is right.

WE HOPE THIS INTERIM WASTE MATTERS STRATEGY RESONATES WITH OUR COMMUNITY'S NEEDS, EXPECTATIONS AND ASPIRATIONS AND THAT THERE IS AN APPRECIATION BY OUR COMMUNITY OF THE CHALLENGES, BOTH GLOBALLY AND WITHIN NSW, CURRENTLY FACING THE WASTE MANAGEMENT SECTOR.

Key actions

The interim Waste Matters Strategy has many outcome driven actions that will allow Council and our community to get on and make some sound progress under this interim strategy approach.

Our core strategy actions will focus on:

- Diverting our bulky clean up waste that goes to landfill into waste-to-energy processing.
- Recycling mattresses from the bulky clean up collections.
- Promoting home composting and worm farming to reduce organics to landfill.
- Targeting the remaining 10-15 percent standard recyclables in the garbage stream through community education and engagement.
- Expanding problem wastes accepted at the Thornleigh Community Recycling Centre.
- Improving special event waste management practices.
- Developing initiatives to target packaging and single use plastics.
- Strengthening community engagement and education on broader waste issues and behavioural change.
- Examining opportunities for sustainable purchasing and buying recycled content.
- Tackling illegal dumping and litter management.
- Seeking improvements to major waste related infrastructure and services available to Northern and Metropolitan Sydney.

OUR WASTE SNAPSHOT

**RESOURCE
RECOVERY**
44 PERCENT RECOVERY

11,300
16,900
900

**WASTED
IN LANDFILL**
56 PERCENT WASTE TO LANDFILL

5,700
31,600

DOMESTIC WASTE GENERATION
66,500 TONNES

TOTAL RESOURCE RECOVERY
29,000 TONNES

TONNES **RECYCLING WASTE**

TONNES **GARDEN WASTE**

TONNES **METAL WASTE**

TONNES **BULKY CLEAN UP WASTE**

TONNES **RESIDUAL WASTE**

THE WAY FORWARD

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WHAT YOU TOLD US

79 PERCENT OF RESIDENTS SAID THEY ARE SUPPORTIVE OR VERY SUPPORTIVE OF COUNCIL INVESTING MORE RATE PAYER MONIES INTO IMPROVED RESOURCE RECOVERY TO DIVERT WASTE FROM LANDFILL FOR OUR COMMUNITY.

A comprehensive community engagement and consultation process was undertaken to identify community issues related to waste management.

The community consultation process included interactive public pop-up stalls, an online survey, phone surveys and focus groups to explore key issues in detail.

The main themes from what you told us included:

You are concerned at the amount of packaging and plastic waste being generated.

- You want Council to lobby State and Commonwealth Governments, and manufacturers and supermarkets for more action on packaging and plastics.
- You want a national recycling labelling system to help identify what to recycle.
- You want manufacturers and supermarkets to take responsibility for packaging and plastics.
- You want to recycle your soft plastics and you want Council to manage single use plastics and waste at Council special events.

You want more education on what waste services are available and how to use them, particularly for new residents to the Shire.

- You want to know what goes in what bin.
- You want to know what to do with specific items e.g. e-waste/mattresses.
- You want to know where your waste goes, what happens to it and to have confidence that recycling is really happening; you want more State Government provided Return and Earn drop off points within the Shire.

- You want more home composting and worm farming engagement for those interested and better solutions through kerbside collection systems to compost organic material for those that don't want to house compost. There is an interest in community gardens.

Residents strongly wanted to retain the current scheduled date bulky clean up collection service.

- Residents living in 5 storey and high rise unit complexes also wanted access to a bulky clean up service from Council.
- Property managers at unit complexes wanted green waste bins for garden maintenance waste.
- Residents from units and apartments want more education and engagement on how to recycle right.

You want more opportunities provided for reusing, repairing and repurposing waste so it isn't landfilled.

- You want Council to promote reusable alternatives to single use items such as plastic bags, straws and coffee cups.

You want Council to do more on illegal dumping and litter management, including imposing fines where possible.

- 79 percent of residents said they are supportive or very supportive of Council investing more rate payer monies into improved resource recovery to divert waste from landfill for our community.

Want to know more?

Want to know more about what our community told us check out the full Waste Matters Strategy – Community Engagement and Consultation Report on Council's website at:

<http://wastematters.hornsby.nsw.gov.au/>

**YOU ARE CONCERNED
AT THE AMOUNT OF
PACKAGING AND PLASTIC
WASTE BEING GENERATED**

**WASTE
MATTERS**



**YOU WANT MORE OPPORTUNITIES
PROVIDED FOR REUSING,
REPAIRING AND REPURPOSING
WASTE SO IT ISN'T LANDFILLED**



**YOU WANT MORE HOME
COMPOSTING AND WORM
FARMING ENGAGEMENT**

**YOU WANT TO
RECYCLE RIGHT**

**YOU WANT MANUFACTURERS
AND SUPERMARKETS TO
TAKE RESPONSIBILITY FOR
PACKAGING AND PLASTICS**

**YOU WANT COUNCIL
TO DO MORE ON
ILLEGAL DUMPING**



**YOU WANT TO KNOW
WHAT GOES IN WHAT BIN**

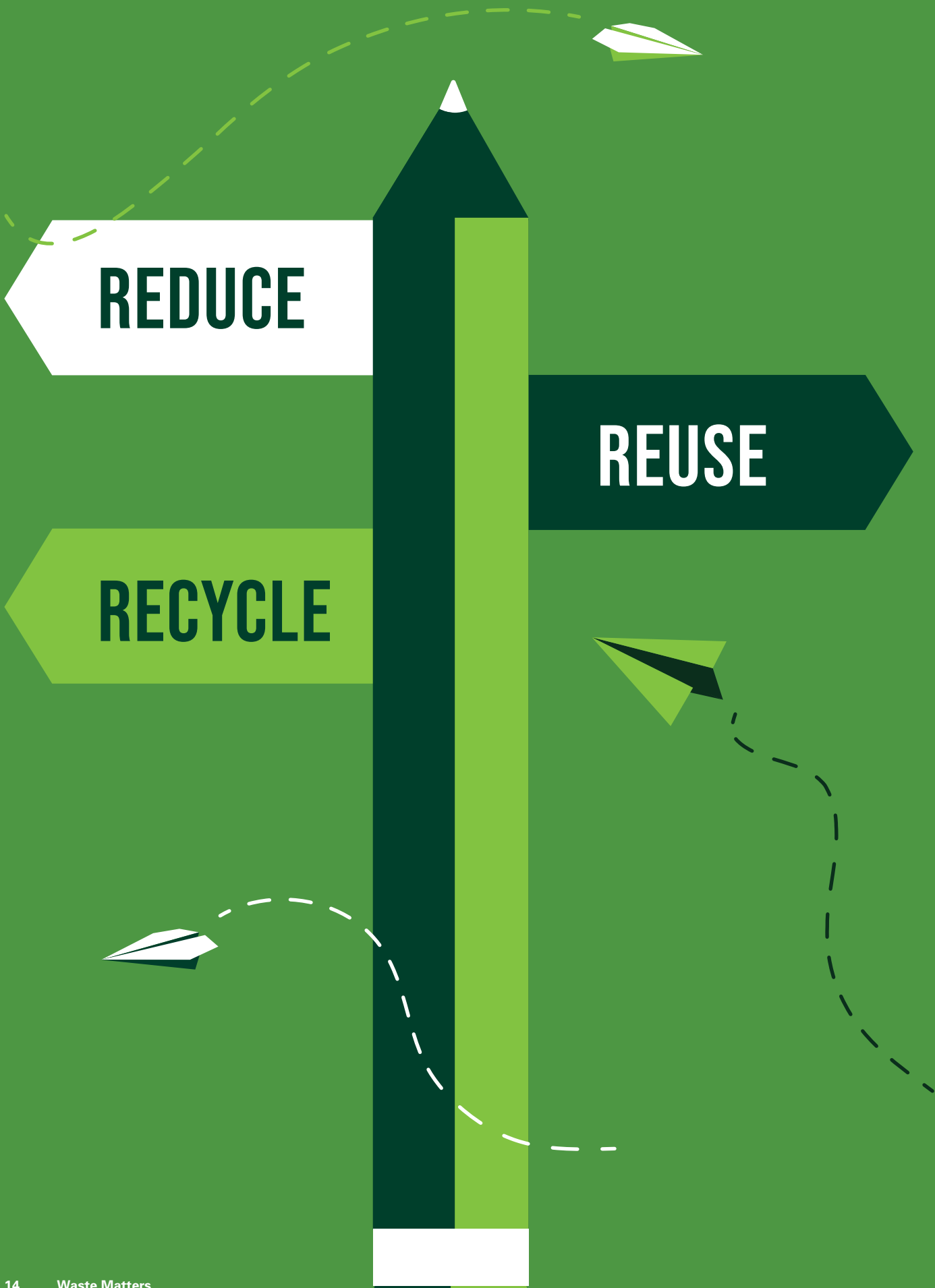
**YOU WANT MORE EDUCATION
ON WHAT WASTE SERVICES
ARE AVAILABLE AND HOW
TO USE THEM**

**YOU WANT
COMPOSTING**



**WASTE
MATTERS**

**WASTE
MATTERS**



REDUCE

REUSE

RECYCLE



OUR VISION TO CONTRIBUTE TO THE SUSTAINABILITY OF OUR SHIRE THROUGH BETTER WASTE MANAGEMENT PRACTICES

OBJECTIVES



1.

TO PROVIDE EFFECTIVE, AFFORDABLE AND INNOVATIVE WASTE SERVICES TO REDUCE DOMESTIC WASTE DISPOSAL TO LANDFILL, INCREASE RESOURCE RECOVERY AND PROTECT THE ENVIRONMENT

2.

TO RESPOND TO THE COMMUNITY'S EXPECTATIONS, NEEDS AND REQUIREMENTS WITHIN BUDGETARY CONSTRAINTS

3.

TO ENGAGE AND EDUCATE OUR COMMUNITY ON WASTE MATTERS AND DESIRED BEHAVIOURAL CHANGES



THE STRATEGY FRAMEWORK

OPTIMISE AND ENHANCE WASTE SERVICES TO THE COMMUNITY

A

GOALS

1. Increase diversion of organic waste from landfill.
2. Explore targeted enhancement to collection and drop-off services.
3. Maximise resource recovery levels from all waste streams.

KEY ACTIONS

- Education on how to effectively use available waste services.
- Ensure kerbside recycling services remain viable and strong in the face of global recycling crisis.
- Monitor alternative processing options for organic waste recycling.
- Explore options to divert bulky waste into waste-to-energy processing.
- Ban accepting e-waste in bulky clean up service and promote drop off at Thornleigh CRC.
- Consider expanding bulky clean up services for 5 storey units and apartments.
- Consider options to recycle mattresses.
- Monitor alternative processing options to recover organics and recyclables from public place bins.
- Investigate expanding problem household waste materials accepted at the Thornleigh CRC.
- Seek expansion to the Return and Earn network for container returns by State Government.
- Seek EPA Annual chemical cleanout service within the Shire.
- Investigate annual e-waste drop off event for rural residents.

EMPOWER RESIDENTS TO INCREASE AVOIDANCE, REUSE AND RECYCLING

B

GOALS

1. Increase community engagement and education to support desired behavioural changes.
2. Build the capacity of residents to avoid waste and build a reuse culture.
3. Improve waste management and resource recovery outcomes in multi-unit dwellings.
4. Reduce illegal dumping and littering.

KEY ACTIONS

- Use multiple communication channels and programs to promote desired waste management behaviours in our community.
- Develop initiatives to promote the reuse, repair and repurposing of household items.
- Deliver a targeted units and apartments waste reduction program.
- Support home composting and worm farming.
- Develop a program to help the community reduce plastics consumption and recycle plastics.
- Provide and promote tenant information packs for renters and new property owners.
- Promote our local waste champions and help give them a voice to encourage others.
- Deter illegal dumping and littering through an integrated approach of infrastructure, education and compliance.

SUPPORT SCHOOLS, BUSINESSES, COMMUNITY ORGANISATIONS AND COUNCIL TO IMPROVE WASTE MANAGEMENT

C

GOALS

1. Promote improved waste management for local businesses and schools.
2. Improve waste management at special events.
3. Support local community organisations championing waste messages.
4. Support the circular economy, sustainable procurement and buying recycled content.

KEY ACTIONS

- Promote improved waste management and increased uptake of recycling at businesses and schools.
- Encourage businesses to use the NSW EPA's free BinTrim waste audit program.
- Support local community organisations promoting waste messages such as home composting and community gardens.
- Develop special events waste management guidelines and promote better event waste management.
- Review Council's sustainable procurement policy to support the purchase of products and materials with recycled content.
- Ensure Council buildings, operations and activities have best practice waste management.
- Develop a Council single use plastics policy.

LEADERSHIP, ADVOCACY AND REGIONAL COLLABORATION

D

GOALS

1. Encourage development of overarching national and state policies that facilitate optimised waste management outcomes.
2. Support development of regional initiatives that coordinate and strengthen collective responses.
3. Participate in key state-wide and regional industry and education networks.

KEY ACTIONS

- Lobbying and advocacy for policy, regulatory and other reforms to enable whole-of-system action on challenging waste problems including the circular economy, responding to the Global Recycling Crisis, regulatory impacts on waste processing options and packaging issues.
- Lobby the NSW Government to return waste levy funds to support local resource recovery programs.
- Actively participate in regional Local Government forums to identify and implement regional solutions for North Sydney communities.
- Actively explore opportunities to secure improved waste infrastructure and services for the North Sydney Region.

STRATEGY PROGRAMS

The following strategy program areas will be progressively developed and implemented over the strategy period. The program area details, provided below, will guide Council in the implementation of the Waste Matters Strategy.

Community education and engagement

- Provide information on how to use kerbside and other services to residents through a variety of mediums and communication channels.
- Deliver an ongoing dedicated 'Recycle Right – Be a Good Sort' campaign for residents to ensure the community is effectively separating recyclables at their source, minimising contamination in the yellow lid bin and minimising any recyclables in the red lid bin.
- Develop (or source) a 'what is recyclable?' web tool to assist residents to get familiar with what is and isn't recyclable.
- Provide residents with feedback on bin performance through bin tagging, stickers, mail outs or letter box notices.
- Undertake regular Waste Matters or themed community engagement pop-up stalls and mobile displays across the Shire.
- Run ongoing waste facility tours to the Materials Recycling Facility (Recycling Factory), green waste composting and other relevant waste management facilities.
- Undertake targeted education campaigns for Culturally and Linguistically Diverse Communities (CALD) on waste management.
- Provide a detailed Waste Services Booklet to households every 2-3 years.
- Maintain Council's website with up to date waste management information.
- Increase social media usage and push or pay to play campaigns to get to target/specific groups.
- Run regular Facebook Waste Matters Q&A sessions.
- Provide the community with educational video content on waste management through social media and Council's website.
- Promote, encourage and support local Waste Matters leaders, influencers and champions and tell their story to the community through video interviews, case studies etc.
- Run online waste management challenges targeting specific waste items, actions or areas within the Shire.
- Establish a Waste Matters email communication network with residents to disseminate relevant information.
- Promote an ongoing conversation with the community on Waste Matters and regularly inform the community what programs and initiatives Council is undertaking.
- Provide waste management information packs to real estate agents for new tenants and home owners.
- Run face to face presentations, talks and workshops on waste management issues for the community.
- Develop a Smart Shopping Program to assist and support residents to avoid waste in the first place.
- To have collection trucks with updatable side panels for delivery of waste management communication messaging.



Recycle Right



Home and community composting and worm farming

- Continue the I Dig Compost and worm farming online tutorial system on Council's web site and half price compost bins and worm farm vouchers for Shire residents who complete the tutorial.
- Run ongoing face to face compost and worm farming workshops at select demonstration sites across the Shire for residents and local businesses interested in minimising food waste to landfill.
- Assist multi-unit complexes and managed communities such as nursing homes, retirement villages and group accommodation to establish on-site compost and worm farm systems for their food waste.
- Seek NSW EPA Grant funding to undertake projects that promote food waste diversion from landfill.
- Encourage, train and support community groups such as community gardens, gardening groups and the like to run their own composting and worm farming workshops.
- Supply subsidised kitchen food waste separation caddy bins, compost bins and worm farm systems to Shire residents.
- Promote and encourage the use of online websites or apps that support the community to share and access available composting and worm farm systems.
- Investigate the feasibility of establishing a worm breeding farm and the sale of worms to local residents.
- Promote, celebrate and run activities during International Compost Week.

REDUCE, REUSE, RECYCLE



**BRING
YOUR OWN
COFFEE CUP**

**PACK YOUR LUNCH
AND STORE YOUR
FOOD IN REUSABLE
CONTAINERS**



**CARRY A
REUSABLE
WATER
BOTTLE**



**SAY NO TO
PLASTIC BAGS
AND BRING YOUR
OWN REUSABLE
SHOPPING BAG**

**SAY NO TO
DISPOSABLE
STRAWS
AND CUTLERY**



**INVESTIGATE THE
FEASIBILITY OF
ESTABLISHING
A NETWORK
OF RE-USABLE
DRINK BOTTLE
REFILL STATIONS**



**BUY LOOSE
FRUIT AND VEG**

**PROMOTE THE REDUCTION
OF UNNECESSARY
PLASTIC PACKAGING**

**PROMOTE SMART
SHOPPING PRACTICES**



PROMOTE PLASTIC AVOIDANCE STRATEGIES SUCH AS REUSABLE SHOPPING BAGS, BUYING IN BULK, BUYING REFILLABLE PRODUCTS AND TAKING YOUR OWN CONTAINERS WHERE POSSIBLE.

Reducing the use of plastics

- Promote smart shopping practices for residents to avoid buying non-recyclable plastics, plastics in general, particularly avoidable or over packaged items.
- Undertake lobbying and advocacy actions to State and Federal Governments, and retailers and supermarkets to:
 - Regulate the national packaging industry and imported goods packaging
 - Promote the reduction of unnecessary plastic packaging
 - Ban all single use plastic bags and promote reusable bags
 - Restrict the use of non-recyclable plastic materials in packaging and product manufacturing
 - Encourage the provision of soft plastic takeback systems.
- Encourage retailers, cafes, pubs, restaurants etc to stop using plastic bags and straws.
- Continue to promote soft plastic drop-off at Thornleigh Community Recycling Centre and local supermarkets offering take back services.
- Promote the purchase and use of products containing recycled plastic content.
- Investigate the feasibility of establishing a network of re-usable drink bottle refill stations and public water bubblers to assist minimise the need to purchase bottled water.
- Encourage Sydney Materials Recycling Facility (MRF-recycling factory) service providers and the NSW EPA to investigate allowing soft plastics, placed in specially fluorescent coloured bags, into the yellow lid recycling system for mass kerbside recycling within our community.



INVESTIGATE ESTABLISHING A LOCAL REUSE, REPAIR AND REFURBISHMENT SERVICES DIRECTORY WHERE LOCALS AND BUSINESSES REGISTER TO PROVIDE SERVICES TO OTHERS.



Household problem wastes

- Continue to operate the Thornleigh Community Recycling Centre (CRC) for problem waste recycling including:
 - Motor oils/paints
 - E-waste, mobile phones, printer cartridges
 - Fluoro-light tubes/globes, household batteries, car batteries
 - Gas bottles, fire extinguishers, aerosol cans, soft plastics and cardboard.
- Investigate the feasibility of accepting other items such as clothing, polystyrene/styrofoam and other electrical items.
- Investigate the feasibility of opening the CRC for extended hours on weekends and late night shopping to improve access for working families.

Reuse of household items

- Promote Council's Second Hand Saturday Garage Sale program and online services such as Gumtree, eBay and Freecycle, to encourage residents to take responsibility for their reusable items that could be on-sold or given away, rather than putting them in the bulky waste collection service where they are not reused and end up in landfill or energy from waste as a lost opportunity.
- Promote residents to consider product design and repairability when buying products.
- Encourage residents to repair and repurpose household items rather than presenting them for collection within the bulky waste collections.
- Investigate establishing a local Reuse, Repair and Refurbishment Services Directory where locals and businesses register to provide services to others.
- Continue to support The Bower Repair, Repurpose and Reuse Centre in Marrickville and continue contract arrangements to allow Hornsby Shire residents free drop-off or collection of repairable or repurposable items.
- Investigate establishing a local weekend reuse market place within the Shire.
- Explore local opportunities for not for profit groups, such as Men's Shed, to accept, repair or repurpose household items from residents.
- Investigate the feasibility of establishing a "Freebie" flagpole stake (made from recyclable soft plastics) for Shire residents use when placing reusable give away items out within their property boundary for scavengers and reuse prospectors.
- Promote existing charity and non-not for profit clothing bins and second hand/reusable items drop-off or pick-up service providers within the Shire.
- Establish a community clothing swap event twice a year (spring/autumn) in the Hornsby Mall.
- Establish a clothing reuse and recycling drop off point within the Thornleigh Community Recycling Centre.



Explore local opportunities for repairing and repurposing household items



Improve recycling in high rise buildings

Multi-unit dwellings (MUD) program

- Provide recycling separation caddies to units and apartments to assist with in dwelling source separation.
- All Shire Real Estate Agents to provide new tenants or owners information packs on Council's Waste Services.
- Waste component to Council's Welcome Basket including tenant information package; gift items such as ½ price worm farm voucher with free kitchen food waste separation caddy bin; reusable coffee keep cups; reusable drink bottles; reusable shopping bags.
- Installation of instructional and education signage at bin rooms and on-floor cupboards and via bin stickers, when a new building certificate of occupancy is issued.
- Offer of free information sessions to be held in the evenings for new unit and apartment complexes within three months of occupancy and for identified problem complexes for complex residents, property managers and service providers.
- Bin inspection program/collection driver reports for unit and apartment complexes to identify complexes needing education and engagement services.
- Letter box drop unit complex residents where high levels of contamination in recycling bins or high residual recyclables in waste bin.
- Install temporary bin compound and bin room signs informing unit residents when high levels of contamination in recycling bins or high residual recyclables in waste bin.
- Positive report back systems for unit and apartment complexes where bin inspections identify good performance (e.g. notices in letter boxes; on Body Corporate and Strata notice boards).
- Undertake targeted culturally and linguistically diverse community education initiatives including signage, web, social media (pay to play campaigns).
- Develop short instructional video clips to assist unit and apartment complexes to effectively use waste services.
- Undertake street patrols to identify illegally dumped or early presentation of bulky waste around MUD areas and carry out education and enforcement initiatives.
- For High Rise MUDs, work with property managers to ensure they have adequate commercial waste service arrangements for bulky waste removal to deter bulky clean up service misuse.

POSITIVE REPORT BACK SYSTEMS FOR UNIT AND APARTMENT COMPLEXES WHERE BIN INSPECTIONS IDENTIFY GOOD PERFORMANCE.

Helping our schools

- Deliver interactive and structured school presentations, talks and workshops on recycling, composting, worm farming, smart shopping and other waste matters.
- Offer schools access to available Council commercial waste, recycling and green waste collection services.
- Promote anti-littering behaviours in and around schools.
- Promote special events within schools in the Shire such as National Recycling Week, International Compost Week, Tidy Tuesdays, Waste Free Wednesdays and Nude Food Fridays.
- Seek NSW EPA grant funding for the development and implementation of a Waste Wise Schools Program based on intense engagement and support of local school communities to actively change the way they manage waste within their school community in a participatory environment.

The program would include:

- Schools signing up to commitments of the program under an MOU.
- Forming a waste committee or working group; teacher and Waste Warrior training.
- Provision of resources; in school waste auditing, data collection and reporting.
- Developing waste management action plans; upgrading source separation and collection systems.
- Establishing on site organics composting and worm farming systems or alternative organics collection and processing service arrangements.
- Examining purchasing practices; general school community education and involvement on waste matters.

DELIVER INTERACTIVE AND STRUCTURED SCHOOL PRESENTATIONS, TALKS AND WORKSHOPS ON RECYCLING, COMPOSTING, WORM FARMING, SMART SHOPPING AND OTHER WASTE MATTERS.



Illegal dumping prevention and management

- Educate the community on what illegal dumping is, the main types of illegal dumping in our Shire and Council's prevention and management program.
- Promote an ongoing 'Report Illegal Dumping Campaign' with reporting through Council's Waste Hotline and online RID System.
- Increase regulatory and enforcement actions targeting illegal dumping.
- Undertake an ongoing awareness campaign on the penalties for illegal dumping.
- Identify, monitor and map illegal dumping hot spots within the Shire.
- Increase surveillance at identified hot spots.
- Erect temporary illegal dumping signage at identified hot spots.
- Restrict vehicle access to identified hot spots through works such as installing gates, fencing or using rock or telephone pole barriers.
- Promptly clean-up illegal dumping incidents so the site doesn't attract further dumping.
- Collect and report illegal dumping incident data and costs to the community.
- Increase community awareness on bulky waste collection service compliance requirements.



Create an anti-littering culture

Litter prevention and management

- Undertake anti-littering community education and awareness campaigns to promote a community 'norm' that littering is unacceptable through activities including pop-up stalls, street pavement stickers, public signage, school visits and attending community events.
- Promote 'It's a dirty look' – 'Every bit of litter gets noticed and so will you' campaign within our Shire relating to the felt perception of those public eyes that see and judge us littering with a dirty look and the dirty look we leave behind that deteriorates the look and feel of our public places.
- Support the NSW Government's EPA litter prevention campaigns.
- Install, maintain and service public litter bins to provide the community with ways to properly dispose of litter, including cigarette butt bins.
- Encourage the community to be responsible and take their waste with them when there are no public litter bins.
- Encouraging the community to report littering from vehicles through the NSW EPA online reporting enforcement program.
- On-the-spot fines by Council Rangers for littering and enforcement investigations and actions for reported littering incidents (e.g. building sites, truck stops).
- Require event organisers to provide waste management infrastructure and services and undertake post event clean-up activities as standard event approval conditions.
- Identify littering hot spots and cooperatively implement preventative strategies in partnership with local businesses (e.g. fast food chains and service stations).
- Undertake litter collection and cleansing activities around our public spaces to ensure they are maintained in a clean and tidy manner, sending the message that littering does not belong in our community.
- Use litter survey data (KABC National Litter Index and NSW Litter Report) to monitor the level of littering within the Shire.
- Support Clean-up Australia Day and other local community groups that undertake clean-up activities.
- Seek NSW EPA Waste Less Recycle More grant funding for litter reduction initiatives.



Recover organics and recyclables from public place bins

- Investigate AWT processing options for public garbage bin waste to recover both standard recyclables and food organics for composting.
- Continue to keep a 'watching brief' on public place recycling system trials and performance outcomes, that currently indicate high contamination rates resulting in materials collected not being suitable for acceptance at Materials Recycling Facilities (MRFs or recycling factories) where the recyclables are sent for processing.
- Communicate to our community why we do not have public place recycling systems due to the high contamination rates and high cost to implement an in-effective system that doesn't achieve its intended outcomes.

Special events waste management

- Develop and implement Hornsby Shire Council Special Events Waste Management Guidelines that assist event organisers to plan and run Waste Wise Events and set minimum requirements for events run by Council and external organisations on Council land that require approval.
- Provide support and advisory services to event organisers that are planning major events and are required to submit Event Management Plans for Council referral and approval.
- Require event organisers to provide either a two bin garbage and recycling or a three bin garbage, recycling and compostable waste management collection and processing system and a back of house recycling systems for bulk cardboard and or compostable food waste.
- Encourage event goer awareness and education activities prior to, during and post the event.
Provide event organisers with:
 - Special event waste management collections and processing service provider details to facilitate best practice waste management.
 - Recyclable and biodegradable packaging supplier details to facilitate best practice waste management.
- Require event stall holders and suppliers to provide recyclable, biodegradable and waste wise products, packaging and food service packaging.
- Provide event stall holders and food service providers with financial incentives or discounts on event access fees if they provide waste wise packaging and food service packaging.
- Encourage event organisers and stall holders to avoid non-recyclable single use packaging and products, unnecessary plastic packaging, plastic bags, plastic straws and non-recyclable plastic packaging.
- Investigate Council investing in a number of portable water refill and bubbler stations it can provide to event organisers for re-usable water bottle refill stations.
- Require event organisers to conduct a full litter clean-up of the area and a final clearance inspection from a Council Officer as part of the event consent conditions.
- Develop and promote best practice special events waste management case studies for major events held in the Shire.

Return and earn

- Promote Return and Earn take back locations within the Shire and encourage residents to cash in their container CDS value.
- Continue to encourage the NSW Government's Return and Earn service provider Tomra to establish further drop-off locations within the Shire.
- Lobby the NSW Government to increase the number of Return and Earn Reverse Vending Machines (the larger automated drop-off sites) within the Shire.



Community gardens and demonstration sites

- Council to promote and support the establishment of community gardens on Council lands and within multi-unit or high-density developments.
- Assist in the development of demonstration sites and facilities for composting and worm farming at established community gardens.
- Support and resource volunteers and community garden members to facilitate composting and worm farming workshops.

Engaging with the arts community

- Continue to partner with Hornsby Art Society to run Remagine Art from Waste competition and exhibition promoting a change in the way we think and relate to waste.
- Develop a new digital media competition for video and graphic design content with an annual waste theme and promote winning entries through web and social media to engage with the community.
- Explore opportunities to establish waste management themed art murals across the Shire at suitable locations.

NSW GOVERNMENT TO UNDERTAKE IMPROVED WASTE AND RESOURCE RECOVERY INFRASTRUCTURE PLANNING.

Lobbying and advocacy

Federal Government lobbying and advocacy for:

- National packaging regulations developed to minimise unnecessary packaging and use of non-recyclable plastics and materials in packaging that cannot be recycled or remanufactured in Australia.
- National recycling identification labelling system to be developed with Material Recycling Facilities and State and Local Governments.
- Mandate recycled content standards in packaging and products to assist in developing national markets for recyclable products.
- Broader coverage of industry based Product Stewardship Scheme extended producer responsibility take back systems for items such as mattresses, all electrical items and soft plastics.

State Government lobbying and advocacy for:

- NSW Government to return Waste Levy funds from domestic waste collected and managed by Councils to facilitate the progress of resource recovery.
- NSW Government to undertake improved waste and resource recovery infrastructure planning and to stimulate and enhance infrastructure development to address current market failures with commercial providers establishing essential waste infrastructure.
- NSW Government to increase Return and Earn Reverse Vending Machines in Hornsby Shire.
- NSW Government to ban all single use plastic bags, including thicker micron plastic bags.



Facilitate a whole-of-system approach to recycling.

Regional collaboration and coordination

- Actively participate and cooperate in North Sydney Region of Councils organisation to identify, investigate and implement beneficial waste management initiatives for the Shire and member Councils.
- To assist in the planning and implementation of the North Sydney Region of Councils' Waste Management Strategy.
- To actively investigate and pursue opportunities to strengthen waste management infrastructure and services for North Sydney Region residents and communities.
- To jointly undertake strengthened lobbying and advocacy actions with the Federal and NSW Governments on waste management issues.

Sustainable procurement policy

Review Council's Sustainable Procurement Policy to promote the purchase of goods, materials and services that contain recycled content and adequately consider effective waste minimisation strategies.

Hornsby Council to investigate using:

- Crushed glass sand and aggregates in construction projects.
- Asphalt in roadworks and resealing programs containing recycled plastics, tyres and glass.
- Outdoor furniture, play equipment and bollards made from recycled plastics.

Data management and reporting

- Provide an annual landfill diversion and resource recovery community report on Council's web site.
- Undertake periodic composition audits of kerbside waste, recycling, garden and bulky waste streams.

Strategy review

This Interim Waste Matters Strategy 2019-2022 will be reviewed in 2022 or as required depending on the status of Council's 'watching brief' on a preferred pathway to process compostable organics.

KEY DRIVERS

| | |
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| HORNSBY'S NEED TO CHANGE | 34 |
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WHY WASTE MATTERS

We all create waste at home, work and at play. When we throw items away, we not only add to landfill but lose the value embedded in the materials, create demand to extract more finite natural resources from our planet and sacrifice jobs that would be created if the waste was recycled and processed. Waste is not simply a product we no longer want, it is a design flaw in the economy that is filled with unintended social and environmental consequences.

Waste management services are one of Hornsby Shire Council's primary responsibilities. They are one of the most significant financial commitments Council makes on behalf of the community, securing long-term contracts for services that touch all residents and every street in the Shire. Ensuring services are fit for purpose and value for money is critical.

But this does not equate to the cheapest service option – cost and value for money are not the same thing. This waste strategy defines what is fit-for-purpose for the Hornsby community based on a deeper analysis that embraces community aspirations, trends in waste technology and regulation, and a long-term view of risk, impact and opportunity.

Waste management costs, particularly for landfilling waste that delivers little benefits, are unavoidably continuing to increase and it is important that environmental, social and economic benefits are gained along the way or our community has wasted an opportunity.

One of the key risks we currently face is changing regulations.

Global flows of recycled commodities were upended in 2018 when China imposed sweeping restrictions on imports of mixed recyclables.

What is perhaps less well known is that last year the NSW environmental regulations governing Sydney's key technology alternative to landfill were also overturned, raising serious questions about where Council can now turn to make a step change in our landfill performance.

In terms of impacts, waste has many direct and indirect impacts on the sustainability of our lifestyle and environment. Perhaps the biggest is its contribution to climate change. When we landfill high organics content wastes such as food scraps, green waste and other compostable materials in our waste they degrade into methane, a potent greenhouse gas.

In fact, landfills are Australia's seventh largest source of greenhouse gases after the major contributors of energy generation, transport, industrial processes and agriculture. Last year the waste sector generated more than 12 million tonnes of carbon dioxide equivalent (CO₂e), 2.2 percent of national greenhouse emissions¹. Influencing the community's waste outcomes is one of the primary ways that Council can respond to climate change.

Waste also impacts locally. Illegal dumping and litter spoil the look and feel of our public spaces; problem wastes such as old electronics, mobile phones and paints clutter our homes; and unwanted mattresses pose a visual and safety issue on our streets.

If we can develop pathways to recover so-called wastes and transform them into secondary resources with additional life, we not only clean our community and protect the environment but create employment and social benefits that exceed those from simple landfill disposal.

The recycling industry estimates 9.2 jobs are generated for every 10,000 tonnes recycled in Australia, while import replacement helps our balance of trade and builds local resilience.

The time for local Australian solutions to local problems is upon us. Waste Matters and we can no longer continue with business as usual.

WE MUST TRANSITION FROM A DISPOSAL BASED APPROACH TO A RESOURCE RECOVERY APPROACH, TO CREATE A SUSTAINABLE FUTURE.

¹ Quarterly Update of Australia's National Greenhouse Gas Inventory: December 2018

WE NEED TO CREATE A NEW CIRCULAR
ECONOMY FOR OUR RESOURCES.



OVER 37,000
TONNES
OF WASTED
RESOURCES
TO LANDFILL

HORNSBY'S NEED TO CHANGE

THE HORNSBY COMMUNITY CURRENTLY SENDS 56% OF ITS MUNICIPAL DOMESTIC WASTE TO LANDFILL, WITH THE REST RECYCLED OR CONVERTED TO COMPOST.

There are a number of important waste related key drivers for change facing our community including:

- Unavoidable increasing waste management costs driven by government policy and regulations
- It's smarter to ensure we select waste management pathways that deliver benefits as costs increase
- Our planet's resources are finite and we must start circulating resources rather than simply using and disposing them
- Community expectations are strengthening for improved resource recovery outcomes
- Community and Government acceptance of new landfill sites is problematic
- Landfilling waste has avoidable environmental impacts
- There are environmental, social and economic benefits for our community in transitioning away from a disposal based approach to a resource recovery approach.

The Hornsby Community

To choose and navigate the pathway ahead of us, we need to take stock of our current waste status and assess our future needs.

The Hornsby community currently sends 56 percent of its municipal domestic waste to landfill, with the rest recycled or converted to compost. This performance is consistent with other Sydney Councils, but well short of the 2021 target set by the NSW Government – and short of where you told us you would like it to be.

The Sydney region is having to respond to increasing patterns of urban densification. The Shire's predominant free standing houses are distributed across our mix of urban and rural areas, but Hornsby is not immune to Sydney's growth trends.

The fastest growing class of households are unit, apartment and townhouse developments, and waste services will need to cater to the characteristics of these high-density buildings – where it is anticipated 25-40 percent of our residents will be increasingly living over the decades to come.

Waste in transition

The management of waste and resources in Australia, and developed countries globally, is in transition. In the past we focused primarily on providing safe and cost effective removal of waste and minimising environmental harm from landfills that served us well.

Landfills were large and conveniently located; domestic manufacturing provided profitable markets for clean recycled materials; and China and other emerging countries were happy to remanufacture our mixed recyclables to support their booming economies.

We happily backloaded the empty shipping containers that were heading empty back to China after delivering new products, and thought nothing more of it. It was a system that worked for its time. However, that balance can no longer be maintained. Each of those three pillars has proved unsustainable.

An unforeseen impact of the decline in domestic manufacturing in recent decades has seen a reduction in local demand for recycled materials. In response, we leaned ever more heavily on China and others, particularly for mixed recyclables from kerbside collection, but in January 2018 China effectively closed its doors to a material it now considers a waste. Other countries are now following in its footsteps.

Our landfill pillar is also decidedly unsteady, with waste disposal and also alternative waste processing capacity in Sydney dangerously near its limit. At the turn of the century, Sydney had six key landfills for mixed, degradable waste from households and businesses, with a total capacity to receive 20 million tonnes over their life. While Sydney's boom has seen degradable waste grow to more than 2 million tonnes a year, five landfills have closed in the last 20 years and one very large landfill opened, creating a system-wide disposal capacity of 1.75 million tonnes a year.

We were managing the gap through three alternative waste processing facilities developed over the last 15 years. They took in red bin waste and separated any remaining recyclables in the garbage and composted the organics for agriculture, mine site or forestry rehabilitation uses, diverting up to 70 percent from landfill.



Landfill is a waste

Those plants are currently sending all their outputs straight to landfill due to recent unexpected regulatory changes by the NSW Government that closed the markets for the lower grade compost – called Mixed Waste Organic Outputs or MWO.

The NSW Government and the private waste sector are working together to address these regulatory issues in a time of great uncertainty.

These alternative waste treatment facilities that cost upwards of \$100 million to establish are at serious risk of closure, taking with them Sydney’s only current alternatives to landfilling mixed waste.

All Sydney Councils either already using or planning to use these alternative waste processing facilities are currently dealing with significant uncertainty regarding the way forward to managing our communities waste. These issues are not unique to Hornsby alone.

Further information on the MWO situation can be found at the EPA’s website².

Never waste a crisis

The global recycling crisis brought on by the China Sword Policy has sparked a fundamental rethink in the way developed economies manage their recyclables.

The key response has been pursuit of a circular economy, redesigning products, packaging and developing local loops for materials to keep them in productive use rather than a one-pass single use model where materials are mined, manufactured and used for a single life before disposal. The circular economy is about closing the loop, slowing the loop by redesigning short life products and reducing the loop by local sharing, repairing and reuse.

Circular economy thinking has infused the overarching National Waste Strategy 2018 and informed the National Packaging Targets that set goals for the recyclability and, critically, the minimum recycled content in all packaging types by 2025. Achieving them will require a significant investment in technology and a shift to circular thinking.

The NSW Government’s Circular Economy Statement sets the high level direction in this state and establishes the context for a 20-year NSW Waste Strategy to be introduced in 2020.

Led by the Environment Protection Authority and Infrastructure NSW, it promises to reset the vision from waste management to resource management, where we seek to optimise the productive life of materials.

The EPA’s current regulatory shift, that is playing out as this Strategy is being developed has impacted on uses for lower grade composts from mixed waste processing facilities, is anticipated to stimulate private sector investment and technology upgrades to improve the products these facilities output and to allow higher order beneficial reuses of the materials where possible.

These global and local challenges have pushed waste into the foreground, shining a light not just on the management of waste flows but on how wasteful we are as a community. Food and organic waste, single use plastic bags, bottled water and other single use plastic material, coffee cups and our wasteful lifestyles are now popular topics of public and media attention.

Our waste behaviours are now open for discussion – and a focus for our own Waste Matters Strategy.

² <https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/resource-recovery-framework/mixed-waste-organic-material-is-no-longer-in-use>

THE CIRCULAR ECONOMY IS ABOUT CLOSING THE LOOP, SLOWING THE LOOP – BY REDESIGNING SHORT LIFE PRODUCTS...





...AND REDUCING THE LOOP BY LOCAL SHARING, REPAIRING AND REUSE.

THE GLOBAL RECYCLING CRISIS BROUGHT ON BY THE CHINA SWORD POLICY HAS SPARKED A FUNDAMENTAL RETHINK IN THE WAY DEVELOPED ECONOMIES MANAGE THEIR RECYCLABLES.

SPHERES OF INFLUENCE

Responsibility for shaping the context and direction of waste management in Australia is shared between all levels of government. This collective framework of responsibilities cascades from the Federal, through to the states and on to regional Council groups and Local Government.

The Local Government's traditional role in waste management has centred on international treaties related to hazardous wastes and a small number of national programs, including climate change responses and product stewardship schemes for targeted products including electronic waste. However, this role is rapidly evolving as waste management becomes more important to our nation.

The primary powerbrokers in waste management are the state and territory governments. In NSW the Environment Protection Authority (EPA) provides the strategic direction, regulation and compliance function, heavily influencing the operating environment for waste and strongly defining the opportunities and constraints. The State Government has actively driven waste pricing through the Waste Levy to promote resource recovery over landfill disposal using economic policy levers.

Local Government operates within this state context to provide essential waste services to the community, whether by direct operations or commercial contracts. Councils are in many cases active members of voluntary regional groups of Councils, which facilitate collaboration, resource sharing and lobbying of State and Federal Governments, such as a fairer share of waste levy revenues collected by the NSW Government on every tonne of waste landfilled.

Table 1: Waste governance – The roles and responsibilities of Federal, State, Regional and Local Government.

| GOVERNMENT LEVEL | RESPONSIBILITY |
|-----------------------------|---|
| FEDERAL | National Waste Policy 2018 |
| | National Packaging Covenant |
| | Development of the 2025 National Packaging Targets |
| | National Food Waste Strategy |
| | National Television and Computer Recycling Scheme |
| STATE | Protection of the Environment Operations (POEO) Act and associated regulations to govern waste operations |
| | NSW Waste Avoidance and Resource Recovery (WARR) Act, Strategy and 2020 targets |
| | Energy from Waste Policy Statement |
| | NSW Circular Economy Policy Statement |
| | Return and Earn container deposit scheme |
| REGIONAL GROUPS OF COUNCILS | Local Governments may choose to join an urban Regional Organisation of Councils (ROCs) or non-urban Voluntary Waste Management Group (VWMGs) |
| | The Shire is a member of the Northern Sydney Regional Organisation of Councils (NSROC), which has developed the Northern Sydney Regional Waste Strategy 2014-21 and receives funding from the NSW Government for coordinated, voluntary programs at regional scale. |
| LOCAL | Local Councils are at the coal face of waste management as responsible for collection, treatment and disposal of municipal waste including kerbside, Council-generated and dumped/littered waste. |
| | Councils are encouraged to meet state targets (with some state funding for waste programs), however individual Council appetite to meet these targets is usually a function of the politics and priorities of each Council. |
| | The shire's level of influence is on local waste-related matters, and moving on more complex issues requires lobbying of other levels of government. |

THE EFFECTIVE CLOSURE OF THE CHINA TRADE FOR ACCEPTING RECYCLABLES HAS CREATED PRESSURE FOR THE FEDERAL GOVERNMENT TO PROVIDE GREATER NATIONAL LEADERSHIP.

IT PROMISES A MORE HARMONISED APPROACH TO WASTE ISSUES AND THE PROMOTING OF CIRCULAR ECONOMY THINKING, WHICH WORKS ALONG THE SUPPLY CHAIN TO SHAPE PRODUCT DESIGN, USE, SECOND LIFE AND, AT THE END OF ITS USEFUL LIFE, RECYCLING OR ENERGY RECOVERY.

The Rising National Waste Agenda

The 2019 federal election for the first time ever saw major political parties make policy commitments around waste, including the \$167 million Australian Recycling Investment plan by the re-elected government.

The recently elected Federal Government has also appointed an Assistant Minister for Waste Reduction and Environment Management demonstrating the rising importance of waste management in Australia.

The largely mothballed 2009 National Waste Policy was redrafted last year and National Packaging Targets were unveiled with ambitious 2025 goals for recycling and recycled content, while the recent National Food Waste Strategy is Australia's response to the UN Sustainable Development Goal to halve food waste by 2030.

GUIDING PRINCIPLES

Seven basic principles have been adopted that help shape the form and nature of the strategy and the services and initiatives that will support delivery of the strategy.

These guiding principles are:

1. Applying the **waste management hierarchy**
2. Transition from a disposal based approach to a **circular economy approach**
3. Achieving **step changes** in resource recovery by targeting specific priority materials
4. Providing **best fit** Shire-wide waste services for our residents
5. Retaining a **user pays philosophy** for residents that have needs above the best fit service level
6. Delivering **value for money** outcomes for our community
7. To **engage and educate** our community on Waste Matters.

Planning for waste management does not occur in a vacuum. It is guided by both well-established principles and emerging thinking as the challenges evolve. The waste hierarchy and the circular economy model are compatible frameworks that underpin the strategy.

Circular economy

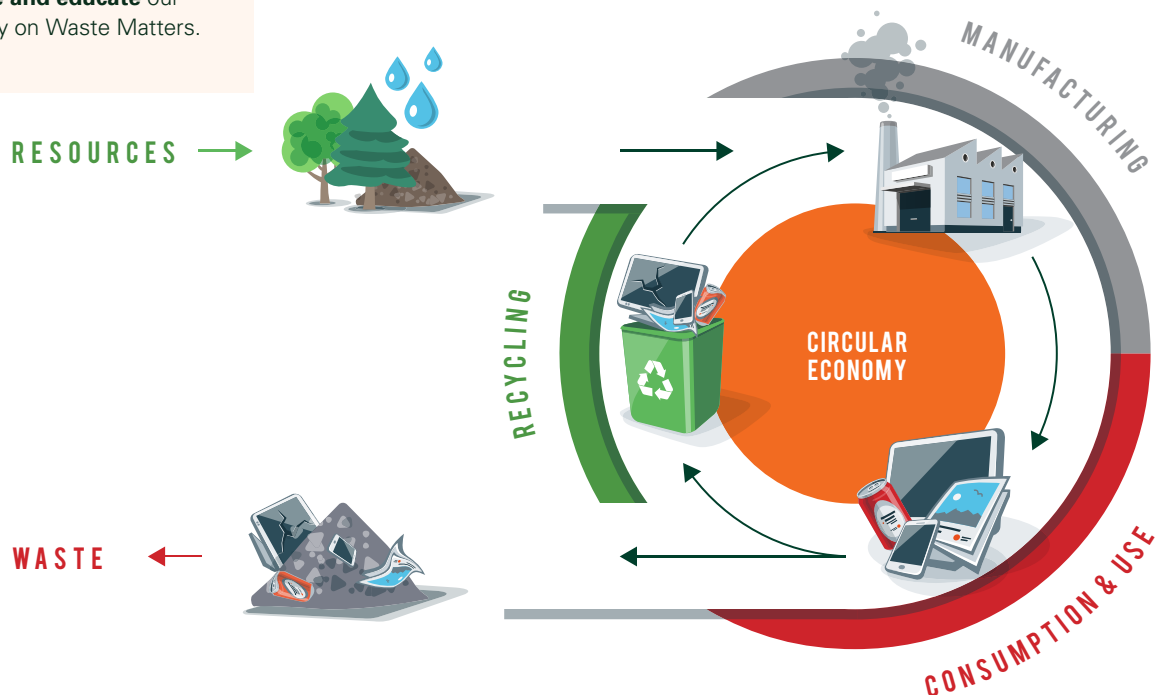
The circular economy model illustrates the actions and relationships that deliver the outcomes under the waste hierarchy.

It conceives the supply chain as a network of pathways designed to circulate materials within their highest order uses, minimising waste and environmental impact. In general, the earlier in the circle the more effective the intervention, with 90 percent of the lifecycle impact of many products determined at the design stage.

There are many ways in which the community can help with the circular economy:

- Manufacturers can design for disassembly and use virgin and secondary materials.
- Retailers are open to sell second hand and refashioned items, or adopt different business models.
- Consumers, including businesses and Council, buy products with recycled content and select the optimal recovery pathway for unwanted items.
- Council optimises resource and energy recovery through the services delivered to the community.

THE CIRCULAR ECONOMY MODEL



WASTE HIERARCHY

MOST PREFERABLE

Avoid waste where possible

Avoiding waste reduces the impact at every point in the new product supply chain.

AVOID/REDUCE

HSC INFLUENCE

Hornsby Shire Council

can influence waste avoidance/reduction through purchasing, advocacy and education.

Extend the life of a product

Reuse, such as reusable cups and bags and buying second hand, extends the life of a product.

REUSE

Hornsby Shire Council

can influence reuse through advocacy and education.

Recycling

Recycling (and composting) retains the basic integrity of the recycled material to create a new product.

RECYCLE

Hornsby Shire Council

can influence the community to recycle and **control** the destination.

Convert to clean energy

Products and materials with no higher order uses can be converted to clean energy.

RECOVER ENERGY

Hornsby Shire Council

can control the destination of collected waste material.

Reduce volume

Products and materials with no energy potential can be treated to reduce volume or hazard.

TREAT

Landfill

Landfill is an essential backstop, but should be the option of last resort.

DISPOSE

Waste Hierarchy

The waste hierarchy is the core conceptual framework that underpins waste policy and strategy. It establishes the priorities in managing waste, based on environmental impact and broader sustainability principles, promoting efficient use of resources and reduction of disposal to landfill.

These differing levels of control and the mechanisms for change identify where Council has the greatest influence and shape the type of actions that are considered.

LEAST PREFERABLE

MEET THE COMMUNITY

THE SHIRE HAS A STEADILY GROWING POPULATION OF APPROXIMATELY 154,490 PEOPLE, INCLUDING A SIGNIFICANT PORTION OF CULTURALLY AND LINGUISTICALLY DIVERSE RESIDENTS 31 PERCENT.

IT IS EXPECTED THAT THE POPULATION WILL EXPERIENCE A 16 PERCENT INCREASE BETWEEN 2019 AND 2036, WHICH EQUATES TO 1,500 ADDITIONAL RESIDENTS PER YEAR.

Located on Sydney's northern fringe, Hornsby is one of the largest Local Government areas in the greater Sydney region, characterised by two thirds bushland that gives the area its 'Bushland Shire' title and residents that are passionate about the environment.

The Shire expands over 455km², incorporating areas of natural bushland and semi-rural farmlands to the north/ west, whilst the southern portion of the Shire is typical metropolitan urban area, forming part of Sydney's northern suburbs. The Hawkesbury River and its many tributaries provide even more residential diversity for the waterfront communities in the north of the Shire.

The Shire has a steadily growing population of approximately 154,490 people, including a significant portion of culturally and linguistically diverse residents (31 percent). The population grew 12 percent in the 12 years from 2007 to 2019, with large increases in the latter years, and is expected to increase by 16 percent in the 17 years from 2019 to 2036, equivalent to 1,500 residents per year.

There are currently around 51,000 residential premises within the Shire, comprised predominately of stand-alone houses (76 percent), and a fast-growing mix of low-rise apartments (16 percent) and high-rise apartments (8 percent).

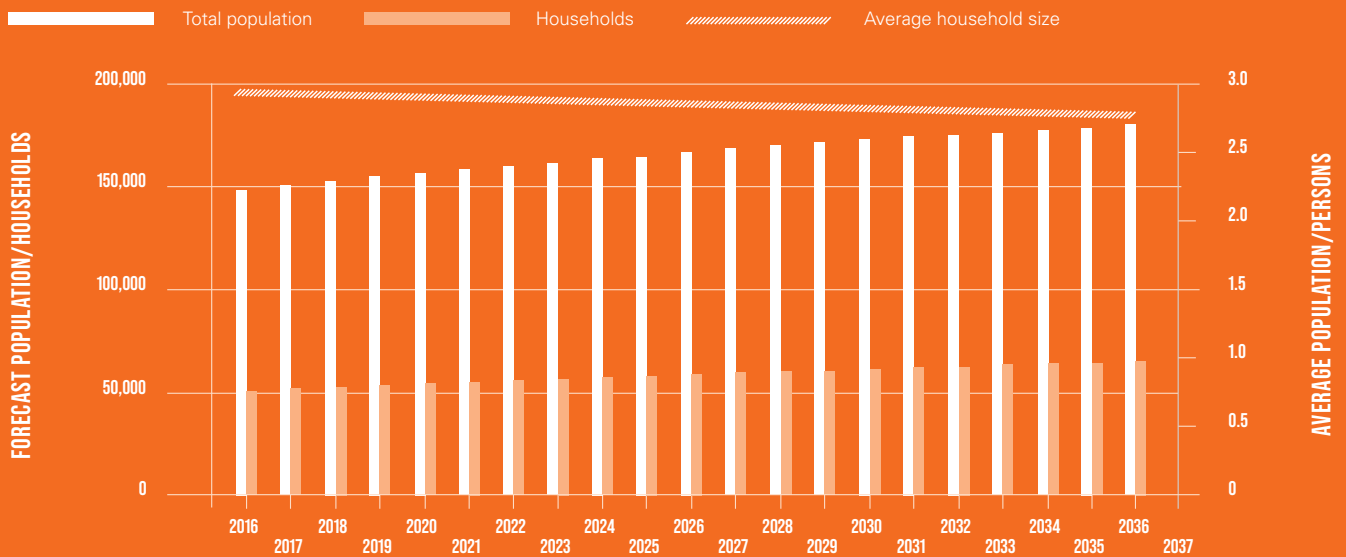
In line with the steadily growing population, it is anticipated that dwelling numbers will grow by 870 per year by 2036. Anecdotal occupancy trends point to a transient community stemming from the rail corridor, with large numbers of residents re-locating dwellings within the Shire every five-years or so.

The majority of residences are situated along the Northern corridor which forms part of the Greater Sydney transport network, and although there are around 14,000 registered businesses in the Shire, creating 50,943 local jobs, a large portion of the working population leave the region daily for employment outside of the Shire, with the majority travelling by train and car.



Fagan Park Carrs Bush playground

OUR COMMUNITY SNAPSHOT



Gender

MALE
49%

FEMALE
51%

Speak a second language at home

YES 31%

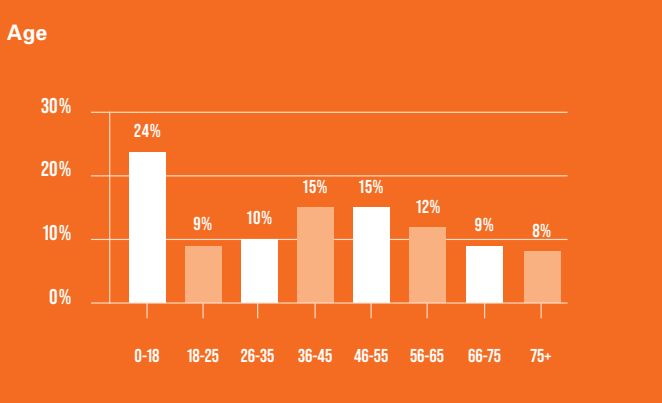
NO 69%

Ratepayer status

OWNER OCCUPIED
73%

RENTING
20%

OTHER TENURE TYPE
7%



Preferred communication

- COUNCIL WEBSITE 70%
- LETTER BOX DROP 70%
- EMAIL 62%
- NEWSPAPER 50%
- ON WASTE COLLECTION VEHICLES 46%
- SOCIAL MEDIA 42%
- TELEVISION 38%
- RADIO 35%

Employment status

FULL TIME EMPLOYMENT
62%

PART TIME EMPLOYMENT
32%

LOOKING FOR EMPLOYMENT
6%

Dwelling data

8,000 LOW RISE APARTMENTS
16%

4,000 HIGH RISE APARTMENTS
8%

39,000 STAND ALONE
76%





**WASTE IS NOT SIMPLY
A PRODUCT WE NO
LONGER WANT,
IT IS A DESIGN FLAW
IN THE ECONOMY
THAT IS FILLED WITH
UNINTENDED SOCIAL
AND ENVIRONMENTAL
CONSEQUENCES.**

OUR WASTE CONTEXT

| | |
|------------------------|----|
| CURRENT SERVICES | 47 |
| CURRENT PERFORMANCE | 49 |
| CURRENT COMPOSITION | 50 |
| OUR RECOVERY POTENTIAL | 54 |

CURRENT SERVICES

COUNCIL PROVIDES WASTE MANAGEMENT SERVICES TO ALL RESIDENCES, WITH THE SERVICE CONFIGURATION TAILORED TO THE TYPE OF DWELLING.

Municipal Solid Waste (MSW)

The current suite of contracts for collection services, garden waste composting and landfill disposal are due to expire at various times between 2021-23. The lead times to plan, develop and publicly tender waste contracts are lengthy.

This interim Waste Matters Strategy will guide the way for future waste services and the procurement of replacement contracts. Taking new contracts to the market, where the commercial waste sector provides outsourced services, is an opportunity to improve the services and outcomes Council provides to the community.

Non-Council waste streams

While Council provides waste collection services to some small businesses and schools, most commercial waste is managed directly by the business or organisation waste generator engaging the services of the commercial waste sector and does not fall within Council responsibilities. Similarly, construction and demolition waste is the responsibility of the builder and not considered in this strategy.

Single house, townhouses and terrace houses (own bins)

- One 140L red lid garbage bin, collected weekly.
- One 240L yellow lid recycling bin, collected fortnightly.
- One 240L green lid garden organics bin, collected fortnightly.
- Scheduled date bulky clean up waste collection, two per year.



Low rise apartments – townhouses, terrace houses and 3-storey apartments (shared bins)

- 240L red lid garbage bins, collected twice a week.
- 240L yellow lid recycling bins, collected weekly.
- Scheduled date bulky clean up waste collection, twelve per year.



High rise apartments – 5-storey and above apartments (shared bins)

- 240L, 660L or 1100L garbage bins, collected up to three times a week.
- 240L yellow lid recycling bins, collected twice a week.



PER HOUSEHOLD/WEEK



11,300
TONNES

VISY SMITHFIELD MRF



16,900
TONNES

KIMBRIKI OUTDOOR
COMPOSTING



31,600
TONNES

CLYDE TRANSFER STATION
BULKING/RAIL TRANSFER TO
WOODLAWN BIOREACTOR LANDFILL

CURRENT PERFORMANCE

A TYPICAL HOUSEHOLD GENERATES 23.6 KG OF WASTE PER WEEK, EXCLUDING BULKY WASTE. MORE THAN HALF OF THIS IS MIXED WASTE FROM THE RED LID BIN, WITH GARDEN ORGANICS SLIGHTLY OUTWEIGHING RECYCLABLES.

Municipal waste is primarily a factor of population; the more people the more waste. However, the amount of waste generated per capita does vary based on economic activity, consumer behaviour, community demographics, policy settings and the dynamics of the waste industry, including cost.

Overall waste flows

Across all our waste and recycling services, residents generated 66,394 tonnes of waste in 2018-19 of which 56 percent (37,240 tonnes) was sent to landfill and 44 percent (29,154 tonnes) recovered.

This is broadly on par with other Sydney metropolitan Councils, who had a recovery rate of 46 percent in 2015, but well short of the 70 percent by 2021 target set by the State Government in 2014.

At the household

A typical household generates 23.6 kg of waste per week, excluding bulky waste. More than half of this is mixed waste from the red lid bin, with garden organics slightly outweighing recyclables.

The Shire's current landfill diversion

A closer look at the disposal and recovery streams reveals:

Landfilled

- 31,580 tonnes of red bin waste.
- 5,660 tonnes of bulky clean up waste.

Recovered

- 11,294 tonnes of recyclables.
- 16,936 tonnes of garden organics.
- 924 tonnes of metals.

**5,700
TONNES**

**BULKY CLEAN UP WASTE
VEOLIA GREENACRE
TRANSFER STATION/
HORSLEY PARK LANDFILL**

CURRENT COMPOSITION

TO REACH THE STATE DIVERSION TARGET OF 70 PERCENT BY 2021-22, AN ADDITIONAL 17,543 TONNES WILL NEED TO BE DIVERTED FROM THE EXISTING 37,240 TONNES WE CURRENTLY LANDFILL. THIS MEANS WE NEED TO HALVE OUR CURRENT WASTE TO LANDFILL QUANTITIES.

To understand the resource recovery and landfill diversion opportunities, we took a closer look at our waste streams, particularly waste going to landfill. Analysis of the mixed waste, recycling and bulky waste streams revealed potential opportunities and areas for improvement.

Yellow bin

Data from our Recycling Contractor shows that our yellow top recycling bins contain, 54 percent paper and cardboard, 28 percent glass, 7 percent plastics (including PET, HDPE and mixed plastics) <1 percent aluminium, <4 percent steel cans, <7 percent non-recyclable contamination.

Our more detailed yellow bin audit results indicated that units and apartments have a higher contamination rate in their recycling bins than houses, at 14 percent and 10 percent respectively. The main contaminants are bagged domestic waste, recycling in plastic bags, soft plastics, non-recyclable plastic household items (e.g. toys) and textiles.

We need to ensure we minimise the contamination in our recycling bins with non-recyclable items to keep our recycling system strong. Further education and support to assist our community is required.

Red bin

With our red bin waste contributing 31,580 tonnes to landfill, understanding what's in the red bin and the opportunities to divert materials into recycling is important.

There is around 10-15 percent of standard recyclables still in our household garbage, with units and apartments having slightly higher levels than houses.

With improved community awareness through increased education efforts we should be able to move these standard recyclables from our red bins across into the yellow bin system, potentially diverting up to 3,000 tonnes.

There is around 30-40 percent food waste in our red bins and another 20-25 percent of other compostable materials, meaning that there is on average around 55 percent of total compostable material available. If we targeted just the 30-40 percent food waste in a Food Organics Garden Organics FOGO collections (placing food waste in your green bin) – where the latest research indicates only a 50 percent recovery success rate of the available food waste – a possible 5,000 to 6,000 tonnes of food waste could be diverted for composting. This translates to a maximum increase of only 10 percent on top of our community's current 44 percent resource recovery rate.

However, if we targeted the full 55 percent of total compostable organics in our red bins by sending the material directly to a mixed waste (red bin) Alternative Waste Treatment (AWT) processing facility then between 55-75 percent recovery rate of this material can be achieved depending on the technology selected.

These AWT processing facilities compost all the available total compostable organics, separates out any remaining recyclables and may also divert other suitable materials to waste-to-energy processing – that means between 17,000-23,000 tonnes of material could be diverted from landfill – increasing the community's current 44 percent resource recovery rate to above 70 percent.



WHAT'S IN YOUR RED BIN



CURRENT COMPOSITION

WE NEED TO BAN E-WASTE IN OUR BULKY CLEAN UP COLLECTION SERVICES AND ENCOURAGE RESIDENTS TO DELIVER THIS PROBLEM WASTE TO COUNCIL'S THORNLEIGH COMMUNITY RECYCLING CENTRE.

Bulky clean up

To understand the opportunities in the 5,660 tonnes of bulky clean up waste stream, we drew on data from comparable Sydney Councils to develop a typical bulky waste profile.

It shows that a very significant 94 percent of the bulky waste stream has recovery potential, which presents a high value target for further investigation.

We need to ban accepting E-waste in our bulky clean up collection services and encourage residents to deliver this problem waste to Council's Thornleigh Community Recycling Centre.

Diverting your bulky clean up waste to a resource recovery transfer station where metals, wood and mattresses are first recovered for recycling and then sending the remaining material to a waste-to-energy processing plant can achieve around a 90 percent landfill diversion rate.

This approach could divert over 5,000 tonnes from landfill which translates to around 8-10 percent increase in our community's 44 percent resource recovery rate.



Bulky waste left on the road side



WHAT'S IN YOUR BULKY WASTE



WASTE-TO-ENERGY 76%



METALS 7%



MATTRESSES 5%



ELECTRONIC WASTE 6%



INERT MATERIAL 6%

OUR RECOVERY POTENTIAL



THERE ARE CLEAR OPPORTUNITIES FOR IMPROVED RESOURCE RECOVERY BY TARGETING A NUMBER OF PRIORITY WASTE MATERIALS OR ITEMS.

If our community is to increase our current 44 percent resource recovery rate towards or above the 70 percent target, we must invest in further community education and engagement and most importantly examine how we are processing and treating our waste – rather than just landfilling it.

The costs and effectiveness of these opportunities are further assessed and evaluated in the 'Options identification and evaluation' section – Scenario Evaluation on page 46.



Home composting system

Table 2: Recovery potential of the mixed waste and bulky waste stream

| WASTE STREAM | RECOVERY POTENTIAL | |
|-----------------------------|----------------------|--|
| RED BIN WASTE | Standard recyclables | Diverting 10-15 percent standard recyclables still in our red bin, into the yellow bin, through better community awareness and education |
| | Food organics | Target 30-40 percent food in red bin by introducing a FOGO collection Achieves 10 percent increase to resource recovery rate |
| | Total organics | Target 55 percent total compostable organics in red bin by sending to a mixed waste AWT processing plant/residual sent for waste-to-energy achieves >30 percent increase to resource recovery rate |
| BULKY CLEAN UP WASTE | Metals | Recovery of bulky collection metals at a resource recovery transfer station |
| | E-waste | Ban E-waste acceptance in bulky collections and promote Thornleigh Community Recycling Centre E-waste drop off service |
| | Mattresses | Divert mattresses collected in bulky collections for recycling |
| | Waste-to-energy | High energy content materials, including timber, furniture, textiles and plastics, are feedstock for a waste-to-energy processing facility |

INDUSTRY ISSUES

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WHAT THE WASTE INDUSTRY TOLD US

THE NSW GOVERNMENT IS CURRENTLY DEVELOPING A NEW 20 YEAR WASTE STRATEGY THAT WILL SHAPE STATE WASTE POLICY, TARGETS AND ALSO IMPACT ON THE REGULATORY ENVIRONMENT AND FUTURE DIRECTIONS OF CRITICALLY NEEDED WASTE INFRASTRUCTURE.

Two of the key stakeholders in determining our future waste directions are the NSW Government and the commercial waste industry who either set critical policy and regulations, or own the infrastructure and operate the services that collect, recover and dispose of our waste.

Our opportunities are shaped by both the NSW Government's legislation, policy and strategy, and the waste industry's ability, technology, service availability and their willingness to invest.

As part of developing the Strategy, Council talked with the broader waste industry to understand the services on offer and to alert the industry to the services Council is seeking.

We also visited and inspected a range of waste facilities to see the materials they accepted, how they process and recover the waste, and to examine each facility's performance. This is what we saw, heard and learnt.

Mixed waste to landfill – Red bin

There are two landfills for disposal of kerbside collected mixed waste – Lucas Heights Landfill in southern Sydney and the Woodlawn Bioreactor Landfill 250km south of Sydney near Goulburn. It is expected that landfill capacity will become limited in the next 5-10 years unless new landfill facilities are planned, approved and built. Developing new landfill sites is a complex, lengthy and costly process and there are concerns about future landfill capacity for Sydney over the next decade.

Comingled recyclables – Yellow bin

There is one substantial provider and a limited number of smaller providers in the Sydney market for mixed or comingled recyclables from the yellow bin. There is adequate industry capacity to receive, sort, process and send Hornsby Shire's recyclables for value added manufacturing.

Despite the well publicised pressures on kerbside recycling following China's import restrictions, Council's comingled recycling contract with Visy is secure – Visy has more developed onshore national markets associated with Visy's packaging manufacturing businesses reducing its exposure to global developments and reducing export needs.

Other smaller providers who bale and export recyclables are exposed to higher risk. The tonnages of recyclables in our yellow bin is expected to decline due to recyclables that are eligible for Container Deposit Scheme refunds being diverted to the State Government's Return and Earn program.

Garden organics – Green bin

There are several competitive providers in the market receiving garden organics and processing it into compost and other soil enhancing products. There is sufficient processing capacity to receive Hornsby Shire's garden organics.

The garden waste composters process the material at outdoor licence regulated sites and the material they receive from Councils has low contamination rates which produces high quality compost for residents, nurseries, landscapers, along with construction and agricultural uses with little restriction.

NSW GOVERNMENT'S 20 YEAR WASTE STRATEGY

The NSW Government is currently developing a new 20 Year Waste Strategy that will shape state waste policy, targets and also impact on the regulatory environment and future directions of critically needed waste infrastructure that will drive resource recovery outcomes.

North Sydney Region of Councils (NSROC) and its member councils are currently making representations and getting involved in the Strategy development process.

NSW councils are currently strongly lobbying the State Government for the return of more Waste Levy funds, charged on every tonne of waste that goes to landfill, to be returned to Local Government services and programs that directly engage and serve our communities.





Home composting system

Food and garden organics – FOGO bin

This is the waste stream that would be created if Council introduced a weekly combined food and garden organics (FOGO) collection service, with resident's garbage or red bin only being collected fortnightly.

FOGO collection is limited in the Sydney metropolitan area, mostly due to the higher presence of units and apartments not being able to receive FOGO services.

Non-metro regional Council areas have had success implementing FOGO services, however recent EPA research shows that only about 50 percent of available food waste is captured in the FOGO bin, with the rest remaining in the garbage stream.

There are also concerns regarding plastics contamination in the food waste stream that can then contaminate clean garden waste. Recent audits show that the FOGO waste has on average 2.6 percent contamination with plastics by weight, however this plastic is light weight compared to food/garden waste and visually the compost product remains contaminated with plastics – which is problematic for future land application.

There are only two providers in Sydney that operate fully enclosed indoor composting plants required to manage these more degradable wastes and convert them to high-grade composts. One operator appears to have sufficient spare capacity to receive and process Hornsby Shire's food and garden organics, whereas the other provider's facility is at licence capacity.

Organic rich mixed waste (red bin) to AWT processing

Red bin waste contains around 55 percent total compostable materials that are suitable for composting treatment in an Alternative Waste Treatment (AWT) facility that is licence regulated and has fully enclosed indoor composting.

The AWT also extracts any remaining standard recyclables and may also divert high calorific residual waste (e.g. non-recyclable plastics) into waste-to-energy processing.

The recovery rate from an AWT plant varies between 55 percent to 75 percent depending on the technology and plants can cost in the order of \$100 million, a substantial investment for commercial waste industry operators.

There are three AWT facilities available to the Sydney market operated by two providers, both of which appear to have capacity to receive Hornsby Shire's organic rich mixed waste.

However, as discussed in the following section, MWOO regulatory changes in 2018 impacted the allowable end markets for MWOO – Mixed Waste Organic Outputs (compost) from these facilities, introducing a significant risk that they will be forced to close if regulatory certainty is not restored.

These plants continue to process organic rich mixed waste from Councils they have contracts with, however the compost product is currently being disposed of to landfill until further work to resolve the regulatory situation is finalised.

THERE NEEDS TO BE A MAJOR FOCUS ON WASTE INFRASTRUCTURE FOR THE SYDNEY METROPOLITAN AREA THAT WILL REQUIRE THE JOINT COOPERATION OF COUNCILS ON A REGIONAL BASIS.

Organic depleted mixed waste (fortnightly red bin/FOGO)

This is the waste stream remaining in the red bin if Council introduced a FOGO collection service. The red bin mixed waste becomes organic depleted as 50 percent of the available 30 percent food waste in the red bin is transferred to the FOGO bin – nevertheless, the red bin still contains significant compostable organics worth targeting for resource recovery.

This organic depleted mixed waste can be sent to an AWT facility for composting, recovery of standard recyclables and may also divert high calorific residual waste (e.g. non-recyclable plastics) into waste-to-energy processing.

There is currently only one provider in Sydney capable of receiving and processing this stream, but it is uncertain how long that facility will remain operational given the present regulatory changes. The only other alternative is landfill disposal. It is worth noting here that if Hornsby introduced FOGO, then recovering any remaining organics still remaining in the red bin may be highly problematic or unachievable, which may then lock our community in to a lower resource recovery rate of around 54 percent.

Bulky waste

A new facility has recently opened in western Sydney to receive bulky waste from the kerbside and convert it to an energy source. The facility produces a specific dry fuel that is used in cement manufacturing and potentially major power plants, replacing coal or natural gas.

The facility is at more than half its permitted capacity and it is expected the remainder will be taken-up rapidly. Council is already in discussion with the waste industry to seek opportunities for Hornsby's bulky clean up waste.

Mattresses

One item of bulky waste that cannot go to waste-to-energy production is mattresses, which require specific processing to deconstruct and recover materials including steel springs, wood, foam and textiles for further processing by others.

Mattresses can be recovered and diverted from the resource recovery transfer station where bulky clean up waste is initially sorted. There is a limited number of specialist providers in the mattress recycling market and mattress recycling comes at an increased cost.

Metals

There are around 1,000 tonnes of metals collected with bulky clean up waste each year. Currently a separate metals truck follows the bulky clean up collection vehicles and collects the metals separately.

In an effort to reduce trucks on Sydney's roads, it is planned to collect metals with the bulky clean up material and recover metals at both the resource recovery transfer station and or the waste-to-energy processing facility. Markets for scrap metals remain buoyant and there are a number of providers willing to receive and process scrap metals, provided contamination levels are well managed.



Waste Working Group

In summary

The waste industry told Council that there are some significant issues with waste infrastructure, regulations and markets for recovered products or commodities facing facility operators.

Due to the current regulatory uncertainty there is industry concern for future investment in waste infrastructure. It is an unprecedented and difficult time to lock in and pursue a preferred processing option to target compostable organics in our waste.

There needs to be a major focus on waste infrastructure for the Sydney metropolitan area that will require the joint cooperation of Councils on a regional basis.

The future directions of the NSW Government's 20 Year Waste Strategy will also be important for setting future directions for waste management.

Council will maintain a 'watching brief' over this short-term interim Strategy as a valid response.

OPTIONS IDENTIFICATION AND EVALUATION

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OUR OPTIONS

TO RIGOROUSLY COMPARE THE VARIOUS OPTIONS TO IMPROVE RESOURCE RECOVERY, FIVE FUTURE WASTE SERVICE SCENARIOS WERE DEFINED, MODELLED AND TESTED.

After considering what the community and waste industry told us we identified and evaluated a range of options for our waste services to residents with the objective of improving resource recovery and landfill diversion.

The below section explains the options identified, examines the resource recovery outcomes achieved and the costs of implementing each option. Based on this evaluation a preferred pathway for going forward was selected. However due to regulatory changes that occurred as this strategy was being developed, a prudent 'watching brief' approach has been chosen at this point in time.

The Strategy presents as much information as possible to our community in an effort to transparently communicate the rationale for this approach.

Scenario identification

To rigorously compare the various options to improve resource recovery, five future waste service scenarios were defined, modelled and tested to identify the costs and outcomes that each might deliver. Four relate to processing compostable organics currently in the mixed waste stream and the fifth investigates the costs and outcomes of processing our bulky waste. They are outlined in Table 3.

Table 3: Alternative waste scenarios

| ALTERNATIVE SCENARIOS | | |
|-----------------------|---|---|
| 1 | BUSINESS AS USUAL – BAU | This is the baseline position representing Business As Usual (BAU) based on the existing collection, processing and disposal approaches. However, with contract renewals due between 2021-23, adjusted pricing has been used to reflect the likely costs once replacement contracts are in place. |
| 2 | FOOD AND GARDEN ORGANICS PROCESSING – FOGO | In this scenario, residents in single houses, townhouses and terrace houses with their own kerbside bins, receive a FOGO collection service and their food and garden waste is processed in a facility dedicated to FOGO composting. FOGO is collected weekly and garbage fortnightly. Units and apartments do not receive a FOGO service – with their food waste continuing to go to landfill. |
| 3 | MIXED WASTE PROCESSING – AWT | In this scenario, the mixed (red bin) waste from all houses, units and apartments is sent to an Alternative Waste Treatment (AWT) facility to recover the total compostable organics, any remaining standard recyclables and may also divert high calorific residual waste for waste-to-energy markets. There is no change to the kerbside collection services. |
| 4 | DUAL LINE PROCESSING | a) FOGO + AWT – In this combined scenario, residents in single houses, townhouses and terrace houses receive a FOGO service as in Scenario 2, while the mixed waste from residents in units and apartments will be sent to an AWT facility as in Scenario 3. This is known as Dual Line AWT processing. The organic depleted mixed waste from residents with a FOGO service goes to landfill. |
| | | b) FOGO + 2 AWTs – In this scenario, collection and processing would be the same as in Scenario 4(a), but with the addition of processing the organic depleted mixed waste from single houses, townhouses and terrace houses to recover the food waste and other compostable organics not recovered through FOGO services. This option is often called triple processing. |
| 5 | PROCESSING OF BULKY WASTE AND MATTRESS RECYCLING | In this scenario, independent of the above options, bulky clean up waste is sent to waste-to-energy processing and mattresses are diverted for deconstruction and recycling. |



**TURNING WASTE INTO
RESOURCES FOR A
SUSTAINABLE FUTURE
WILL NEED EVERYONE'S
PARTICIPATION.**

OUTCOMES, COST AND BENEFITS

THE FIVE SCENARIOS WERE MODELLED IN TERMS OF IMPROVEMENT IN THE AMOUNT OF WASTE DIVERTED FROM LANDFILL AND THE FINANCIAL IMPACT PER HOUSEHOLD TO IMPLEMENT.

The five scenarios were modelled in terms of improvement in the amount of waste diverted from landfill and the financial impact per household to implement. Sending bulky clean up waste to waste-to-energy processing was also modelled and is discussed separately as a stand-alone option.

All options improve landfill diversion compared to business as usual, however only mixed waste AWT processing (Scenario 3) achieves the NSW diversion target of 70 percent.

The BAU scenario

The BAU scenario to maintain our current services approach will come at an increased annual cost of \$35 per household due to rising contract costs compared to today's contract costs. If we keep our current services our costs will increase with no gained benefits or improved resource recovery outcomes.

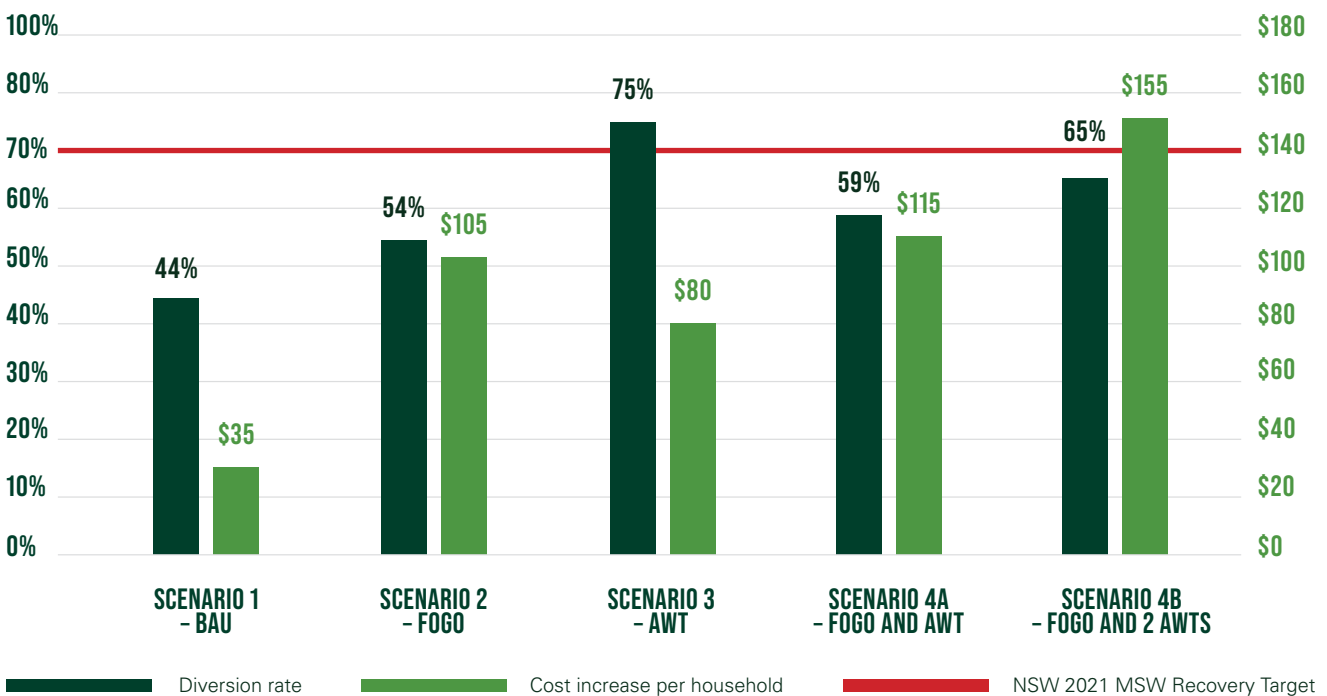
FOGO options – scenarios 2 and 4

Food organics and garden organics (FOGO) co-collection and FOGO combination options increase annual household costs by between \$105 to \$155. FOGO alone – where single houses, townhouses and terrace houses place food waste in their green bins – only lifts our resource recovery rate by 10 percent, to a total 54 percent.

FOGO strengthened with additional processing of organic rich mixed waste from units and apartment achieves 59 percent resource recovery rate, while the additional processing of organic depleted mixed waste from houses (with a FOGO service) recovers 65 percent of resources.

All of these FOGO options fall well short of the NSW 70 percent landfill diversion target.

Figure 1: Recovery outcome/cost per household





Sorting recyclables improves resource recovery

Mixed waste AWT – Scenario 3

Mixed waste AWT processing has the lowest annual cost impact on our community, an \$80 increase per household, and provides the highest resource recovery outcome at 75 percent, meeting the NSW target.

This option appears to deliver the best value for money result for the Hornsby community going forward under the Strategy. It also provides the greatest equity as the service is provided to both houses and units and apartments, composting their organic waste.

Bulky waste – scenario 5

Sending bulky clean up waste to a waste-to-energy processor and recycling mattresses achieves a landfill diversion of over 5,000 tonnes, achieving a 10 percent increase in resource recovery at a Council budget cost of \$400,000 per year or around \$10 per household per year.

Council annual budget

Table 4 summarises Council’s annual budget cost to implement each scenario, the annual cost impact per household required to fund these options and the landfill diversion/resource recovery outcomes achieved for our community’s investment. The cost to implement Scenario 5 or processing bulky clean up waste is presented separately.

Table 4: The overall and annual household cost impact of each scenario

| SCENARIO/ OPTION | | ANNUAL BUDGET IMPACT | ANNUAL COST PER HOUSEHOLD | LANDFILL DIVERSION/ RESOURCE RECOVERY |
|---------------------|--|-------------------------|----------------------------------|--|
| 1 | BUSINESS AS USUAL | \$2 million | \$35 | 44% |
| 2 | FOOD AND GARDEN (FOGO) | \$5.1 million | \$105 | 54% |
| 3 | MIXED WASTE PROCESSING* | \$4 million | \$80 | 75% |
| 4 | a) FOGO AND SINGLE AWT | \$5.6 million | \$115 | 59% |
| | b) FOGO AND 2 AWTs | \$7.5 million | \$155 | 65% |
| 5 | BULKY WASTE-TO-ENERGY /MATTRESS RECYCLING | \$400,000 | Adds \$10 to any option above | Adds 10% to any option above |

* Pathway temporarily blocked

MIXED WASTE AWT VS FOGO

With the biggest step change increase in resource recovery, after yellow bin recycling and green bin garden waste composting, being to target food waste and other compostable materials in our waste to landfill stream – the question is what is the best approach and why?

Some 43 NSW Councils have now successfully implemented FOGO services for their residents, however all of these are regional and rural Councils, with only one Council in Sydney metropolitan area going down this path.

There are around 15 Sydney Councils currently utilising the services of mixed waste AWT processing plants to process food and other compostable waste from the red bin mixed waste stream. Here are some of the reasons and factors that have led to the evolution of this trend between metro Sydney and regional areas.

ADVANTAGES

| MIXED WASTE AWT | | FOGO | |
|---|---|--|--|
| <ul style="list-style-type: none"> Targets all compostable organics in red bin (Av.55 percent red bin contents). Can be provided to all residents (houses, units and apartments). Achieves highest resource recovery outcome above 70 percent. Lowest cost impact on residents. | <ul style="list-style-type: none"> Uses current collection system Protects high quality/low cost of green bin garden waste. compost by not contaminating with plastics from FOGO. Can also target remaining recyclables in red bin. Can also target remaining high calorific fraction in red bin for waste-to-energy. | <ul style="list-style-type: none"> Targets food waste by separation at the source (Av. 30 percent red bin contents). Service provided to houses, townhouses and terraces with kerbside bins (units and apartments excluded). Achieves 54 percent resource recovery outcome. | <ul style="list-style-type: none"> Produces a cleaner higher grade compost with stronger markets than mixed waste AWT. Residents understand garden and food waste is compostable. Fortnightly green bins become FOGO bin collected weekly/red bin garbage become fortnightly collected. |
| <ul style="list-style-type: none"> Current regulatory issues for AWT composted product with restricted markets. Lower grade compost produced. Concerns regarding chemical and physical contaminants from red bin. Future of mixed waste AWT plants uncertain due to current regulatory changes. | | <ul style="list-style-type: none"> Only provided to residents in houses, with units and apartments excluded (i.e. 24 percent of HSC residents miss out). Separated food waste is often contaminated by plastics from kitchen food caddy liners, plastic wrapping/bags around food and other plastics. Contaminates clean garden waste compost stream that is working well. Compost produced has plastic contamination. | <ul style="list-style-type: none"> Red bin garbage becomes a fortnightly collection. may leave many residents dissatisfied/unaccepting of the service. FOGO significantly drags up current cost of composting garden waste (i.e. 15,000 tonnes garden waste. @Av. \$100/tonne versus adding 5-6,000 tonnes food and increasing processing cost for all tonnes to average \$180-\$220/t). |

DISADVANTAGES

ADOPTING A 'WATCHING BRIEF'

The scenario modelling provides clear preferences among the options. However, Council has also considered the achievability of each scenario in the current environment and has identified significant risks for all the major options.

Mixed waste AWT

In 2018, the NSW Environment Protection Authority (EPA) announced a major regulatory change to the allowable markets for lower grade compost from mixed waste AWT facilities, creating a major challenge for both the operators of these facilities and their current and potential Local Government clients.

The main markets had been agriculture, mining rehabilitation and forestry. The ban in effect plugs the pathway for use of these products, reversing over 15 years of regulations which permitted their application to land. While the EPA was still considering potential mining and forestry uses, as of mid-2019, the decision has fundamentally altered the costs and certainty for these facilities.

Waste-to-energy

Under the Waste Hierarchy recovering energy from waste is preferred over landfilling waste as it provides environmental benefits. The residual waste going to landfill, after our community's bulky waste has been pre-processed through a resource recovery facility to extract recyclables, may be suitable to process into an engineered fuel for cement kilns and power stations replacing coal, fossil fuels and natural gas usage. Council will investigate opportunities to send non-recyclable residual waste destined for landfill into waste-to-energy processing or uses.

FOGO processing

A FOGO service has been implemented by more than 43 Councils in NSW in the last decade. However, all are regional and rural Councils, with the partial exception of Penrith, which offers a FOGO service to single houses only. There are good reasons the uptake has been so skewed away from metropolitan Councils:

- People living in units and apartments cannot effectively participate in the FOGO service under the commonly used service arrangements as there is typically insufficient room for additional bins, little to no garden waste to mix food with, likely odour issues with FOGO bins in bin cupboards on each floor and there is a high risk of plastics contamination, which is a critical issue for FOGO composts. Effectively, 24 percent of the Hornsby Shire community would be excluded.
- A recent audit of NSW Councils found people using FOGO services rarely divert more than 50 percent of the available food organics from the mixed waste bin into the FOGO bin, reducing the recovery rate.
- The 45 percent non-FOGO waste and uncaptured food waste remaining in the red lid bin is most likely to be disposed to landfill, together with the waste from units and apartments, meaning there remains considerable organic waste still going to landfill under FOGO.
- Garden organics will no longer be processed in an open air composting system, but rather processed with the food organics in a fully enclosed composting facility costing two times the current expense per tonne.



The take away

While the analysis identifies a clear preferred pathway – mixed waste AWT processing for our Sydney metropolitan community – Council considers that neither option is currently suitable.

Both are long-term commitments of at least 10 years and represent a significant commitment in capital and operational expenditure.

A precautionary approach, therefore, advises avoidance of both the current regulatory uncertainty around AWT and the significant implementation issues and risks of introducing FOGO in a metropolitan setting.

As a result, a wait-and-see approach has been adopted within this Strategy, coupled with active monitoring of the regulatory, industry and technology context.

Our focus will be on the actions outlined in this Interim Strategy.

RESOURCES AND LINKS

Local initiatives and services

Local waste and recycling service information:

www.hornsby.nsw.gov.au/property/waste

Thornleigh Community

Recycling Centre:

www.hornsby.nsw.gov.au/property/waste/recycling-community-recycling-centre

Waste Education:

www.hornsby.nsw.gov.au/community/services/school-education-programs/waste-and-recycling

NSROC Waste Management Strategy:

<https://nsroc.com.au/waste-management>

State initiatives and programs

Love Food Hate Waste program:

www.lovefoodhatewaste.nsw.gov.au

Sustainable events:

www.lgnsw.org.au/events-training/event-sustainability

NSW EPA Circulate program

and BinTrim (business audit) program:

www.epa.nsw.gov.au/your-environment/recycling-and-reuse/business-government-recycling

NSW OEH Sustainability

Advantage program:

www.environment.nsw.gov.au/sustainabilityadvantage

National initiatives and services

Recycling Near You:

<https://recyclingnearyou.com.au/>

Planet Ark business recycling tool:

<https://businessrecycling.com.au/>

Plastic free July:

www.plasticfreejuly.org/

Buy Nothing New Month:

www.buynothingnew.com.au/

War on Waste television series:

www.abc.net.au/tv/programs/war-on-waste/

Litter and illegal dumping

RIDonline (Report Illegal Dumping):

<https://ridonline.epa.nsw.gov.au/#/home>

Keep Australia Beautiful NSW:

www.kabnsw.org.au/

Clean Up Australia Day:

www.cleanup.org.au/

Education

Getting started with

Sustainability in schools:

sustainabilityinschools.edu.au/

Sustainable schools NSW:

www.sustainable.schools.nsw.gov.au/

Cool Australia learning resources:

www.coolaustralia.org/

Schools Recycle Right challenge:

<https://schoolsrecycle.planetark.org/>

'Waste Not' film and educational tools (for schools and adult education):

www.wastenot.org.au/

Circular economy

Ellen MacArthur circular

economy foundation:

www.ellenmacarthurfoundation.org/

European Union 2018 circular

economy package:

<http://ec.europa.eu/environment/circular-economy/>

NSW EPA Circular Economy

discussion paper:

www.epa.nsw.gov.au/publications/recyclereuse/18p1061-too-good-to-waste-circular-economy-discussion-paper



**THERE HAS NEVER BEEN
A MORE IMPORTANT TIME
FOR US TO BE FOCUSED
ON HOW WE MANAGE OUR
COMMUNITY'S WASTE.**



**2019-2022
HORNSBY
SHIRE COUNCIL**

**DRAFT WASTE
MATTERS STRATEGY**