2013 CONSULTATION DRAFT
METROPOLITAN WASTE & RESOURCE RECOVERY STRATEGIC PLAN

METROPOLITAN WASTE MANAGEMENT GROUP

State Government Victoria

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METROPOLITAN WASTE MANAGEMENT GROUP

State Government Victoria

CONTENTS

1 MINISTER'S FOREWORD

The *Consultation Draft Metropolitan Waste and Resource Recovery Strategic Plan 2013* is part of a suite of economic and environmental plans the Victorian government is developing to deliver integrated waste and resource recovery solutions to manage Melbourne's waste.

This draft is a road map for linking the Victorian Government's *Getting full value* policy goals with the delivery of waste and resource recovery services for Melbourne. It supports Sustainability Victoria's draft *Statewide Waste and Resource Recovery Infrastructure Plan* to provide a network of infrastructure and services needed to manage metropolitan Melbourne's municipal waste over the next 30 years.

This *Consultation Draft Metropolitan Waste and Resource Recovery Strategic Plan 2013* details a range of market-based actions and solutions needed to secure infrastructure investment in the waste disposal and resource recovery sector.

The draft underpins the Metropolitan Waste Management Group's work with stakeholders to build on the current *2009 Metropolitan Waste and Resource Recovery Strategic Plan*.

In its final form, the *Metropolitan Waste and Resource Recovery Strategic Plan* will shape Melbourne's future infrastructure and services. It will promote economic growth and productivity, support councils to provide best value services for rate payers and sustain an essential community service that protects our public health and the environment.

Your comments on the *Consultation Draft Metropolitan Waste and Resource Recovery Strategic Plan 2013* will help to shape the future of Victoria's waste and resource recovery infrastructure. I look forward to receiving your input.

Hon Ryan Smith MP
Minister for Environment and Climate Change

2 MWMG CHAIR'S WELCOME

It is with great pleasure that we release the *Consultation Draft Metropolitan Waste and Resource Recovery Strategic Plan 2013*. The revision of the Strategic Plan is timely as it provides a line of sight from the government's recently released Getting full value: the Victorian Waste and Resource Recovery Policy and the Draft *Statewide Waste and Resource Recovery Infrastructure Plan (SWRRIP)* for metropolitan local governments and their communities.

The Strategic Plan will direct the growth and shape of Melbourne's network of waste and resource recovery infrastructure and services. It will link the objectives set out in *Getting full value* and the infrastructure and service planning and delivery undertaken by councils.

In the four years the current Strategic Plan has been in operation it has guided the infrastructure investment and planning for MWMG, local government and industry. Following that plan, MWMG has built a sound reputation and strong record of leadership and implementation with local government and the waste management industry for the planning and the procurement of new waste services and infrastructure.

At the interface between state and local government, MWMG has delivered economies of scale in waste contracting and continued demonstrable advances in resource recovery. MWMG combines research and knowledge of best practice and new technologies with planning and the provision of customised infrastructure and education to meet policy directions.

The major focus of the current plan has been on establishing both short and long term solutions for local government's management of municipal waste. The revised Strategic Plan 2013 will retain this focus and direct the management of organics overflow contracts, the monitoring of the new North West organics contract and the procurement of processing facilities for organics in the South and East of the metropolitan area.

MWMG invites local government, members of the waste and recovery industry and the community to comment on the content and directions in the *Consultation Draft Metropolitan Waste and Resource Recovery Strategic Plan 2013*. Your input will enable MWMG to refine our priorities and work with our partners and stakeholders to directly and systematically manage the demand for municipal waste and resource recovery facilities and services across metropolitan Melbourne. Your comments will also ensure that new and emerging issues, risks and trends are identified and managed.

Les Wilmott
Chair
Metropolitan Waste Management Group

3 ABOUT THE 2013 REVIEW OF THE METROPOLITAN WASTE AND RESOURCE RECOVERY STRATEGIC PLAN

This section at a glance:

- The *Metropolitan Waste and Resource Recovery Strategic Plan* (Strategic Plan) is a plan for providing Melbourne with the infrastructure needed to manage solid waste over the next 30 years.
- The 2009 Strategic Plan is due for its four year review. The review will aligns with the Government's policy goals in *Getting full value* and statewide directions set out in Sustainability Victoria's draft *Statewide Waste and Resource Recovery Infrastructure Plan.*
- The purpose of this draft is to test proposals, ideas and information with stakeholders and the community through workshops and written submissions. This feedback will inform the final Strategic Plan.

3.1 The Metropolitan Waste and Resource Recovery Strategic Plan

The *Metropolitan Waste and Resource Recovery Strategic Plan 2009* (Strategic Plan) provides the Victorian Government, metropolitan councils and industry with a plan to provide the network of infrastructure and services needed to manage metropolitan Melbourne's municipal solid waste over the next 30 years.

The Strategic Plan is a statutory requirement under the *Environment Protection Act 1970* (the Act; see Appendix A for requirements) and takes effect when the Minister publishes a notice in the Government Gazette endorsing it.

The Strategic Plan's objectives are to:

- provide a long term vision for the management and reduction of waste in metropolitan Melbourne
- The 2009 Strategic Plan is due for its four year review. The review will align with the Government's policy goals in *Getting full value* and statewide directions set out in Sustainability Victoria's draft *Statewide Waste and Resource Recovery Infrastructure Plan.*

It has three parts:

- Part 1 – Metropolitan Plan which sets the strategic framework for the management of all solid waste in metropolitan Melbourne (excluding Prescribed Industrial Waste)
- Part 2 – Municipal Solid Waste Infrastructure Schedule which sets out a schedule of existing and required infrastructure for municipal solid waste
- Part 3 – Metropolitan Landfill Schedule which sets out a schedule that identifies the location and sequence for the filling and operation of landfill sites.

The Metropolitan Waste Management Group (MWMG) prepared the first Strategic Plan in 2009.

3.2 Why is the Strategic Plan being reviewed?

The Act requires a review of the Strategic Plan every four years. The 2013 review comes at a time of change, as the Victorian Government and its partners start working towards realising the vision, objectives and goals set out in *Getting full value: the Victorian Waste and Resource Recovery Policy (Getting full value)*, released in April 2013.

Getting full value sets out a road map for achieving a Victorian waste and resource recovery system that maximises the economic value of waste. It specifies that the Strategic Plan, *Statewide Waste and Resource Recovery Infrastructure Plan (SWRRIP)* and regional waste and resource recovery plans, are the principal planning tools for realising this aim.

Integrated planning is central to policy objectives and goals articulated in *Getting full value.* The Strategic Plan allows MWMG to articulate a path forward for councils and the waste and resource recovery industry towards *Getting full value.*

2009 Metropolitan Waste and Resource Recovery Strategic Plan highlights

MWMG's procurement model

MWMG developed and implemented a metropolitan-wide procurement model that enables councils and industry to procure cost effective, competitive, best practice waste management services and infrastructure. Independently reviewed and endorsed, the model ensures adequate resource recovery capacity is maintained.

Metropolitan Organics Plan

On behalf of 11 councils in the north and west of Melbourne, MWMG completed a competitive tendering process to provide organics processing services. MWMG is now conducting a similar process with eight councils in the southeast. These procurements address the state government's policy objectives of maximising resource recovery and providing opportunities for best practice, in vessel organics processing.

The collective procurement has provided cost savings for councils and resulted in substantial private investment. The metropolitan facilities currently being built in Hume and Wyndham will alone unlock around $30 million of industry investment in infrastructure and around $200 million in local government expenditure over a 15 year period. It will also generate up to 100 new jobs during construction and dozens more ongoing employment opportunities. MWMG also procured organics processing overflow capacity to meet future demand, ensuring organic waste continues to be diverted from landfill.

MWMG is developing a communications and community engagement program to support the council processing contracts and the successful operation of the new facilities. Assisting households to correctly use organics recycling services will ensure the quality of feedstock and maximise the market value of end products.

Planning amendments

MWMG was the lead portfolio agency in responses to statutory reviews of the Victorian Planning Provisions, the Green Wedge A Zone and the new Growth Area zone. This ensured waste and resource recovery infrastructure and service issues were addressed in land use planning provisions and policies and that goals and guidelines are included in strategic planning and decision making at both local and state levels. It will also help ensure that facilities have adequate buffers, which are essential to encourage private investment in infrastructure.

Funding

State government investment, through the Sustainability Fund, has been key to implementing the Strategic Plan. Current funding includes the $5.5m Metropolitan Local Government Waste and Resource Recovery Fund and the $3.3m Organics Fund.

Metropolitan-wide education

MWMG, SV and all 30 metropolitan councils implemented the Get it Right On Bin Night campaign to increase recycling rates in the metropolitan area. MWMG also provided technical support and education to local government officers delivering the Strategic Plan objectives, to help them make strategic decisions at a local level.

MWMG's infrastructure and service planning must:

- align with the vision, objectives and principles (Chapter three of *Getting full value*)
- promote compatibility between all material flows, infrastructure, transport, land use planning and markets for recovered materials
- plan for a connected system of 'hub and spoke' infrastructure and logistics
- promote infrastructure investment that is driven by the commercial pull from end product markets, as well as maximum flexibility that allows the market to adapt to changing waste volumes, compositions and flows over time
- respond to the needs and opportunities that are articulated in the *SWRRIP*
- include planning mechanisms that can secure and protect infrastructure precincts.

The 2013 review also comes at a time of change for the environment portfolio. Government recently released the findings from the Ministerial Advisory Committee on Waste and Resource Governance Reform. While the 2013 Strategic Plan needs to meet current statutory requirements set out under the *Environment Protection Act 1970*, MWMG also considers it important that the revised plan has regard to future planning reforms, including:

- The Strategic Plan being guided by the *Statewide Waste and Resource Recovery Infrastructure Plan*
- The Strategic Plan being reconfigured into the Waste and Resource Recovery Implementation Plan for metropolitan Melbourne
- MWMG facilitating and coordinating the management of all waste streams.

MWMG has reviewed the 2009 Strategic Plan against these new policy requirements. In practical terms, this has meant that MWMG's assessment of options for managing metropolitan Melbourne's projected volumes and mix of waste materials has:

- been done holistically, which is a very different approach to historical planning which has separated out planning for landfills and all other infrastructure
- considered waste flows that flow across the geographical boundary of the MWMG region
- placed a greater emphasis on planning for solid industrial waste – where councils can play an important role in helping to get the most value from these materials
- placed a great importance on ensuring infrastructure and services can support and develop the right conditions for strong resource recovery markets.

This draft focuses on infrastructure and services. Planning for waste minimisation and litter programs will occur as part of the Victorian Government's *Getting full value* implementation, the *Victorian Litter Strategy and A Cleaner Yarra River and Port Phillip Bay 2012-2014*.

Finally, the 2013 review has placed a greater emphasis on delivery and will include an implementation plan to guide municipal service and infrastructure provision.

Getting full value: the Victorian Waste and Resource Recovery Policy sets out a new vision for waste management in Victoria:

"Victoria has an integrated statewide waste management and resource recovery system that provides an essential community service by protecting the environment and public health, maximising the productive value of resources and minimising long term costs to households, industry and government."

3.3 Purpose of this consultation draft

The Strategic Plan will shape Melbourne's future infrastructure and services. It is critical that it fosters economic growth and productivity, supports councils to provide best value services and critically sustains an essential community service that protects our public health and environment.

The draft Strategic Plan has been informed by research and analysis undertaken by MWMG. While this document sets out MWMG's proposed Strategic Plan, it is not MWMG's final position. Instead, it is a consultation document to help MWMG work in partnership with stakeholders to finalise the final plan for metropolitan Melbourne's waste and resource recovery network.

The purpose of this consultation draft is to facilitate a conversation with local government, industry and community to:

- test the analysis and proposals in this document
- ensure the final Strategic Plan is informed by feedback and evidence from our partners who provide infrastructure and services and from residents and businesses who use these services
- test MWMG's new approach to planning, which aims to respond to the policy objectives and goals of *Getting full value*
- and finally, fulfil our statutory consultation obligations under the *Environment Protection Act 1970*.

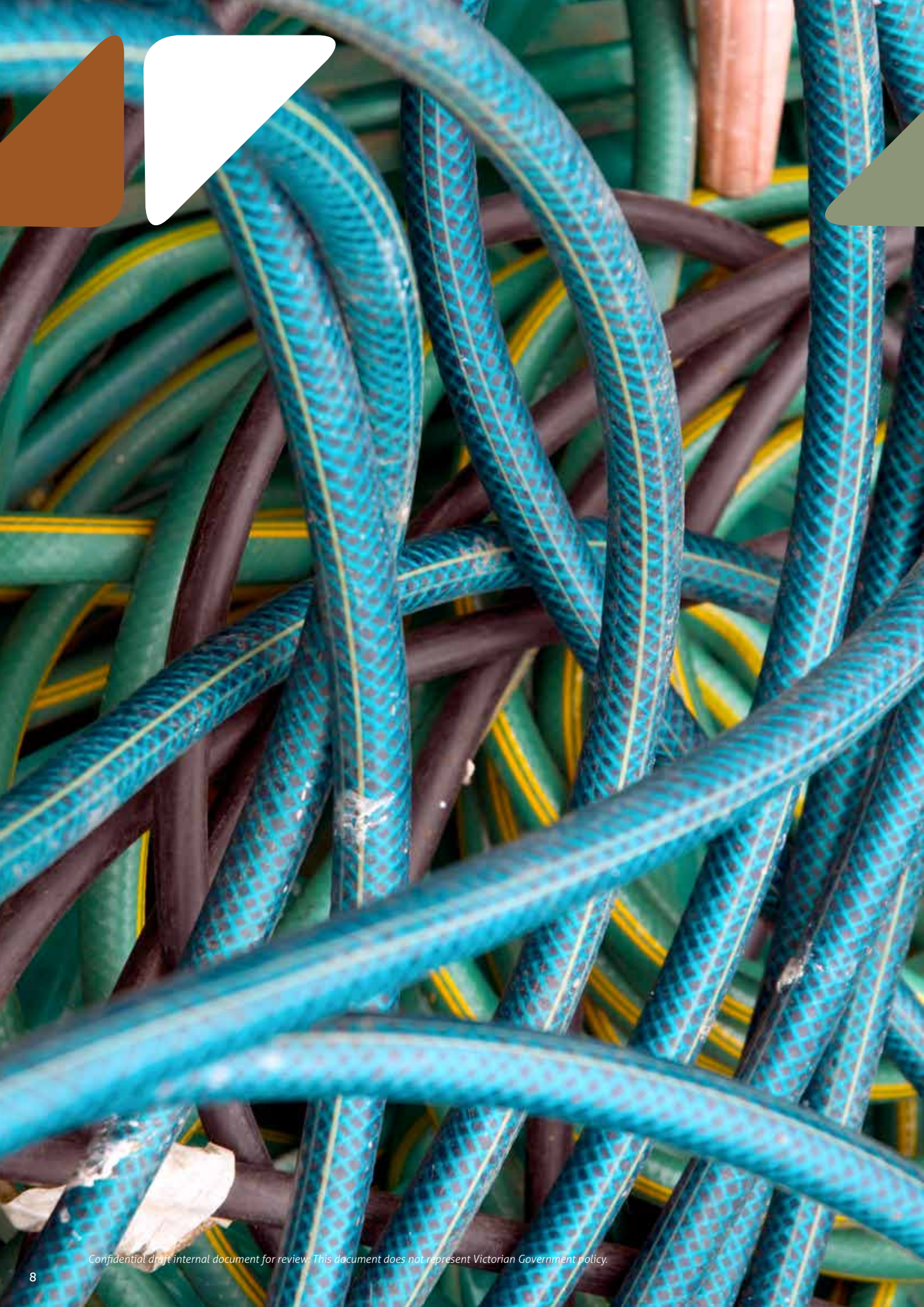
In reviewing this draft, MWMG encourages readers to read and review Sustainability Victoria's draft *Statewide Waste and Resource Recovery Infrastructure Plan*. This important document provides a statewide view and direction that sets the context for all metropolitan activities.

Details on how you can be involved can be found at MWMG's website: **www.mwmg.vic.gov.au**.

3.4 Evaluating the Strategic Plan

MWMG will measure and report on performance in delivering key elements outlined in the implementation plans for the Infrastructure and Landfill Schedules of the Strategic Plan.

MWMG will use the indicators being developed as part of the implementation of *Getting full value* and will prepare an annual summary of achievements as part of MWMG's Annual Report.



Confidential draft internal document for review. This document does not represent Victorian Government policy.

PART 1: THE METROPOLITAN PLAN

Part 1:

- provides legislative and policy context that influences waste management and resource recovery infrastructure development, operation and decision making
- describes the current waste types and tonnages being generated and managed across Melbourne as well as the factors influencing future waste generation
- outlines opportunities for waste and resource recovery presented in the Statewide Resource Recovery Infrastructure Plan and identifies what this means for metropolitan Melbourne
- identifies infrastructure and service priorities for metropolitan Melbourne.

Confidential draft internal document for review: This document does not represent Victorian Government policy.

4 THE METROPOLITAN PLAN (PART 1)

This section at a glance:

- The Strategic Plan is a requirement under the *Environment Protection Act 1970*.
- Four legislative and policy areas affect waste and resource recovery infrastructure: environment protection, land use planning, transport and local government administration.

4.1 Purpose and functions

The Metropolitan Plan provides the strategy for growing and shaping Melbourne's network of waste and resource recovery infrastructure and services. It provides the link between the objectives set out in *Getting full value* and the infrastructure and service planning and delivery undertaken by councils. It details:

- objectives for Melbourne's waste and resource recovery system
- factors that will influence waste generation and the infrastructure and services needed to manage this waste
- strategic directions government and its partners will follow so that the objectives become a reality.

The Act also requires that the Metropolitan Plan:

- includes an analysis of long term trends for waste generation, management and reduction
- identifies future waste volumes and processing needs
- includes a strategic analysis of existing infrastructure and services for waste management and resource recovery of materials and energy
- identifies waste management and resource recovery options and provides an economic assessment of these options
- identifies programs for developing infrastructure and services.

This 2013 consultation draft Strategic Plan places detailed opportunities and requirements for services in Part 2 – The Municipal Solid Waste Infrastructure Schedule (as opposed to Part 1 – The Metropolitan Plan). This is because services allow the full productivity of infrastructure to be realised and MWMG considers that infrastructure requirements are best planned together with services.

4.2 Metropolitan Waste and Resource Recovery Strategic Plan objectives

The objectives for Melbourne's waste and resource recovery network of infrastructure and services are to:

- promote an integrated and efficient waste and resource recovery system capable of maximising the value of materials
- maintain and improve the best practice environmental management of all resource recovery and landfill infrastructure servicing Melbourne to protect the environment and public health
- foster investment in infrastructure and services that can manage the projected mix and volumes of waste materials for Melbourne, while supporting councils to procure best value services
- protect waste and resource recovery facilities by developing and using effective land use planning policies and controls

- minimise the use and development of landfills, as required under the *Waste Management Policy (Siting, Design and Management of Landfills)* to facilitate the long term role of landfills to receive treated, residual waste.

4.3 Legislative and policy framework

The four major legislative and policy areas that influence the development and operation of waste and resource recovery infrastructure are:

- environment protection (Section 4.3.1)
- land use planning (Section 4.3.2)
- transport (Section 4.3.3)
- local government administration (Section 4.3.4)

These settings describe the goals and outcomes that are to be realised through waste and resource recovery infrastructure and provide a range of market-based and regulatory tools that state and local governments can use to achieve these outcomes.

Australia's *National Waste Policy: Less Waste, More Resources* and the carbon pricing mechanism also influences waste and resource recovery infrastructure in Victoria (Section 5.3.5). As of September 2013 the federal government has signalled their intention to reform carbon pricing legislation.

4.3.1 Environment protection

The fundamental role of waste and resource recovery infrastructure and services is to protect public health and the environment from the risks of waste materials. Managing waste within the environment portfolio ensures that all decisions – from policy through to regulation and enforcement – minimise harm.

Environment Protection Act 1970

The *Environment Protection Act 1970* (the Act) is the primary legislation for waste management in Victoria. It establishes government waste agencies, defines their objectives, powers and functions and creates policy tools that are used to achieve objectives.

Provisions particularly relevant to the Strategic Plan include:

- the requirement to periodically prepare a Strategic Plan including detailed provisions for the Municipal Solid Waste Infrastructure Schedule and the Metropolitan Landfill Schedule
- the requirement for metropolitan councils to perform waste management in a consistent manner with the Strategic Plan and the requirement for any person involved in the generation, management or transport of waste within the metropolitan Melbourne region to be consistent with the Strategic Plan
- the provision for EPA Victoria to refuse applications for certain facilities if the Strategic Plan is not observed
- MWMG's power to facilitate and manage services and facilities for metropolitan councils
- restrictions and controls to prevent pollution
- the landfill levy, which is established to incentivise resource recovery and fund environment protection activities
- the *Waste Management Policy (Siting, Design and Management of Landfills)* 2004, established under section 16A(1) of the Act.

Getting full value: the Victorian Waste and Resource Recovery Policy

Getting full value aims to maximise waste resources and sets out how the government will position Victoria as a national leader in resource recovery. Significant reforms for infrastructure include:

- preparing a statewide waste and resource recovery infrastructure plan, which will work with the metropolitan and regional waste and resource recovery plans to shape a 'hub and spoke' network over time (refer to breakout box on next page)
- suite of actions to better integrate waste and resource recovery infrastructure planning with Victorian land use and transport planning
- allowing for a differential landfill levy – within 2014 to 2024 – to target strategic materials such as untreated organic materials in landfill.

Shaping a statewide waste and resource recovery system that maximises the economic value of waste

Chapter 6 of *Getting full value* sets out three strategic directions for waste and resource recovery.

1. **Undertake planning that promotes a cost effective, statewide network of infrastructure capable of moving waste to where the highest economic value can be achieved.**

The state government will work with councils and industry to plan for a connected system of 'hub and spoke' infrastructure and logistics, where:

- 'hubs' will be major facilities that process or contain significant quantities of waste, or provide specialised processing capacity for smaller quantities
- 'spokes' will be the sequence of activities that move materials from waste generators to and from hubs, for example, collection, transport and sorting.

Metropolitan and regional waste and resource recovery plans will respond to the statewide infrastructure plan, by identifying and assessing:

- initiatives to get the most value from existing council infrastructure and services
- new infrastructure needs and timing for their development
- possible precincts for infrastructure and the mechanisms to secure land through infrastructure/landfill schedules with contingency planning for emergency events.

2. **Align waste and resource recovery planning with land use and transport requirements under the Planning and Environment Act 1987 and Transport Integration Act 2010 to ensure that:**

- planning policies and strategies refer to and include provisions for critical waste and resource recovery infrastructure, including maintaining the separation distances needed to protect adjacent land uses
- targeted planning tools are deployed to secure statewide waste management and resource recovery priorities.

3. **Foster investment in a diversified portfolio of infrastructure that can manage the projected mix and volumes of waste materials. State and local governments will develop and use approaches that provide Victorians with cost effective access to waste and resource recovery services, including:**

- planning, coordination and facilitation of council procurement of waste management and resource recovery services
- a greater commercial discipline to infrastructure provision through budgeting and procurement processes.

Figure 1.1: From vision to delivery shows how *Getting full value* links to municipal waste and resource recovery infrastructure and service delivery.

Victorian Government Response to the Report of the Ministerial Advisory Committee on Waste and Resource Recovery Governance

On 8 August 2013, the Minister for Environment and Climate Change, the Hon. Ryan Smith MP released the Victorian Government's response to the report of the Ministerial Advisory Committee on Waste and Resource Recovery Governance (MAC).

The MAC was established on request of the minister to consult with the sector and provide recommendations on the institutional and governance arrangements to best deliver on the objectives of *Getting full value: the Victorian Waste and Resource Recovery Policy*.

The Victorian Government has accepted the majority of these recommendations and will work closely with local government, industry and across state government to implement these actions.

A number of the recommendations, when implemented, will shape future strategic plans, including the *Statewide Waste and Resource Recovery Infrastructure Plan (SWRRIP)* and metropolitan and regional Waste and Resource Recovery Implementation Plans (WRRIPs).

The government response notes that ministerial guidelines will establish detailed content requirements for strategic plans and establish processes for accountability, transparency and consultation.

The government response notes that the SWRRIP will:

- map long term trends in waste generation, population, waste infrastructure at a statewide scale over a 30 year time horizon
- integrate with regional WRRIPs as these are completed
- provide data to inform the infrastructure schedules within the metropolitan and regional WRRIPs.

The government response notes that metropolitan and regional WRRIPs will:

- connect waste and resources and infrastructure planning with budgets of local government and industry for delivering the objectives of *Getting full value*
- recognise the partnership between state and local government
- reflect the broad directions of the SWRRIP, but plan for delivery of infrastructure over a 5-10 year planning time horizon
- be developed through an integration process with Sustainability Victoria (with referral to EPA Victoria), to ensure that infrastructure schedules are coordinated and integrated with state objectives but reflect local and regional needs
- be referenced in the Victorian Planning Provisions (the *2009 Metropolitan Waste and Resource Recovery Strategic Plan* is referenced in the State Planning Policy Framework).

Other recommendations that will shape future Strategic Plans include:

- extending the MWMG boundary to cover the Mornington Peninsula Shire
- RWMGs and the MWMG taking responsibility for regional planning for all waste streams.

This draft strategic plan has considered waste flows into and out of Metropolitan Melbourne from all adjoining regions, and notes the options that government's response presents to the Mornington Peninsula Shire. This plan does not present waste projection data that includes the Mornington Peninsula Shire.

The draft SWRRIP has included data from the Mornington Peninsula region as part of the analysis. Because of this some of the data does not align between the draft SWRRIP and the draft Strategic Plan.

Statewide Waste and Resource Recovery Infrastructure Plan (SWRRIP)

The SWRRIP aims to guide future investment in waste management and resource recovery infrastructure that effectively manages the expected mix and volumes of waste, supports a viable resource recovery industry and reduces the amount of valuable materials going to landfill.

Sustainability Victoria is currently preparing the first draft SWRRIP and MWMG has collaborated to incorporate key elements of the draft into this 2013 draft Strategic Plan, namely:

- using Sustainability Victoria's statewide waste data sets and modelling to analyse Melbourne's long term trends for waste management and resource recovery
- using the goals, key opportunities and actions (chapters two and three) to guide development of the infrastructure and landfill schedule for Melbourne.

The draft SWRRIP and draft Strategic Plan are partner documents, and readers reviewing and commenting on this draft are encouraged to also read and provide feedback on the draft SWRRIP. MWMG has not independently reviewed the veracity of the strategic data sets and modeling and has relied upon the data provided by Sustainability Victoria.

4.3.2 Land use planning

Land use planning decisions play a major role in siting and operating waste and resource recovery facilities. Good planning decisions ensure that sites and facilities can safely and sustainably manage waste and maximise the opportunity for resource recovery while protecting public health and amenity.

Broad strategies identify existing facilities, proposed sites and the buffer distances that are needed to minimise adverse impacts on communities. These strategies are then implemented by planning authorities who use local planning policies, tools and controls to make decisions and to enforce them.

Urban design is also important for supporting Melbourne's waste and resource recovery system, because poorly designed streets and multi-unit dwellings can limit access to municipal kerbside services.

Planning and Environment Act 1986

The *Planning and Environment Act 1986* establishes a framework for planning the use, development and protection of land in Victoria to meet the present and long term interests of all Victorians. Land use is separated to minimise the risk of any potential adverse environmental, health and safety impacts.

State Planning Policy Framework

Victoria's State Planning Policy Framework seeks to ensure that all responsible authorities work to achieve the *Planning and Environment Act's* objectives, including policy integration and balancing conflicting objectives in favour of net community benefit and sustainable development.

It also requires municipal planning authorities to identify potential regional impacts when making decisions and to coordinate strategic planning with their neighbours and other public bodies to achieve sustainable development and efficient use of resources. This requirement is consistent with the objectives in the *Local Government Act 1989*.

Clause 19.03-5 of the framework incorporates a number of detailed controls relevant to waste and resource recovery, including for planning authorities to be consistent with the Strategic Plan.

Buffers and separation distances

The principal planning tools for managing the impacts of waste and resource recovery facilities are buffers and separation distances . Planning authorities also use these to manage other land uses that could encroach on facilities. The Victorian Planning Provisions reference buffer requirements that apply across the state.

Metropolitan Planning Strategy

In late 2013, the government is scheduled to release a 30-year Metropolitan Planning Strategy for Melbourne. Principle five of the Strategy consultation paper was environmental resilience, which noted that Melbourne will need to use resources more efficiently and produce less waste.

4.3.3 Transport

There are significant impacts from the waste and resource recovery sector on metropolitan Melbourne's roads by truck movements associated with collecting, transferring and disposing of waste, making transport an important consideration in developing Parts 2 and 3 of the Strategic Plan.

An optimum mix of transport and infrastructure is needed to support and grow Melbourne's waste and resource recovery industry, while managing and minimising the potential congestion costs for Melbourne.

Transport Integration Act 2010

The *Transport Integration Act 2010* provides for an integrated and sustainable transport system, that contributes to an inclusive, prosperous and environmentally responsible state.

The *Transport Integration Act 2010* requires a planning authority (under the Planning and Environment Act 1987) making a waste and resource recovery planning decision that is likely to have a significant impact on the transport system to have regard to the Act's vision, objectives and principles.

Victoria The Freight State

Victoria's long term freight and logistics plan was released in August 2013. It examines freight forecasts up to 2050 and uses them to model freight network scenarios that can inform decision-making about future projects. It addresses transport logistics for waste and resource recovery and particularly, how improved networks can lower the cost of waste transport. Minimising transport costs is essential because materials recovery is often a marginal, business proposition and lower costs will increase and stabilise markets.

4.3.4 Local government administration

The *Local Government Act 1989* provides councils with the powers and functions needed to provide good governance for their communities. The Act requires councils to provide *best value* services by using resources effectively and efficiently to best meet the needs of the local community.

4.3.5 National policy

National Waste Policy: Less Waste, More Resources

The *National Waste Policy* is a partnership between Commonwealth, state and territory governments that sets the direction for waste management and resource recovery through to 2020.

Product stewardship is a priority under the policy and will help to increase resource recovery rates. The first co-regulatory scheme – the National Television and Computer Recycling Scheme – uses some sites in Melbourne's network of transport stations to provide collection points. Future schemes are also likely to influence the planning and use of transfer stations and other waste and reprocessing infrastructure.

Carbon pricing mechanism

The Australian carbon pricing mechanism started on 1 July 2012 under the *Clean Energy Act 2011*. The mechanism applies to a landfill facility emitting more than 25,000 tonnes of carbon dioxide equivalent a year. The carbon price has contractual impacts for council procurement of services and for industry and council service providers. At this stage, it is not possible to quantify any impacts that the carbon price may be having on diverting waste away from Melbourne's landfills.

Container deposit legislation

The Ministerial Council of Environmental Ministers has been considering the container deposit legislation and are developing a response to introducing a national scheme. The Victorian Government will consider supporting the national scheme once it is created.

5 WASTE GENERATION & MANAGEMENT IN MELBOURNE

This section at a glance:

- describes the network of waste and resource recovery infrastructure and services serving Melbourne
- provides an analysis of metropolitan waste types and tonnages that short and long term infrastructure and service planning will need to respond to.

The amount of waste we produce is growing and the composition of this waste is changing. This growth increases environmental and health risks arising from waste. Providing the right mix of infrastructure and services to manage this growth will minimise risk, while increasing the opportunities to recover materials with economic value.

5.1 The metropolitan waste and resource recovery network

Melbourne's metropolitan waste and resource recovery network includes all the services and facilities used to collect, transport, sort, process, reuse, recycle and dispose of solid waste as illustrated in Figure 1.2. Table 1.1 shows the main types of facilities serving metropolitan Melbourne.

Figure 1.1 The Melbourne's waste and resource recovery network from *Getting Full Value*

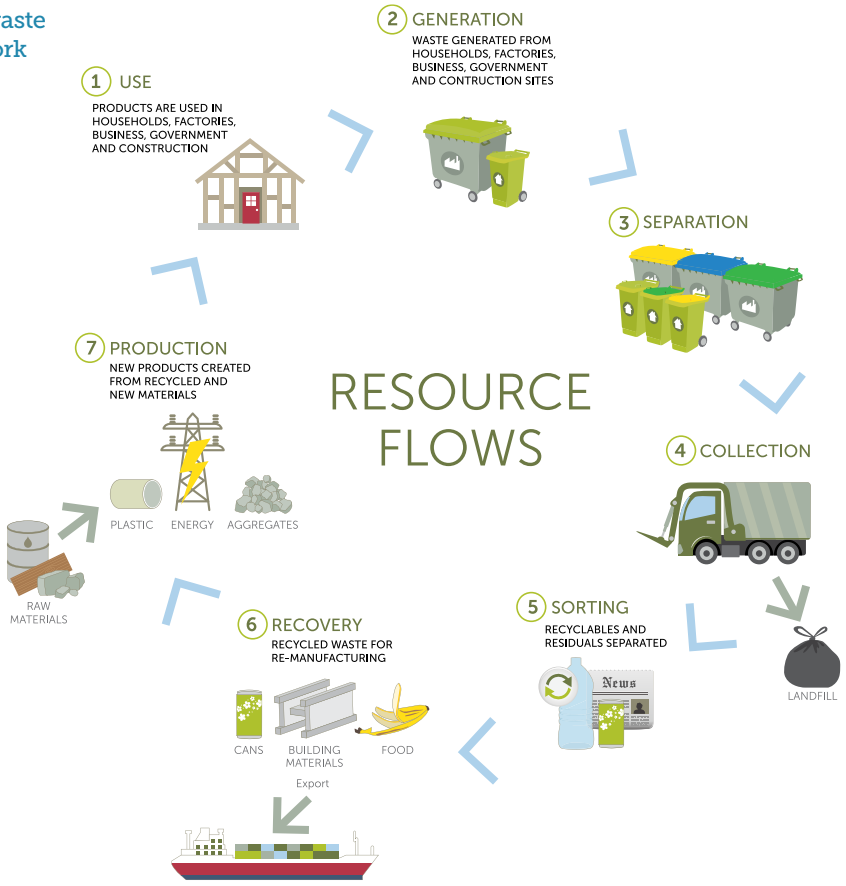


Table 1.1: Solid waste infrastructure in metropolitan Melbourne

Component	Characteristics	Number of facilities
Municipal kerbside collections	▶ publically funded collection services provided to residents by councils ▶ includes residual bin and a commingled recycling bin ▶ may include organics bin and periodic hard-waste collections ▶ sometimes extended to small and medium enterprises	Various
Commercial collections	▶ privately arranged and funded collection services for commercial and industrial waste generators ▶ sometimes used for high density residential units where layouts preclude use of municipal bins	Various
Transfer station / resource recovery centres/ drop off	▶ receives hard, organic and residual waste and commingled recyclables ▶ separates waste and sends it to materials recovery facilities (MRFs) or processing facilities, or for disposal to landfill ▶ accepts council and private collections and householder drop offs ▶ can be publicly or privately owned ▶ may include a resale centre ▶ recovery of material by charities	40
Charitable drop offs / donation bins	▶ residents can donate household goods, which are used to raise funds for organisations	1,365
Materials recovery facilities	▶ receive and segregate household and business commingled recyclables ▶ compact and bale, or consolidate, segregated materials and send to processing facilities ▶ may include a resale centre	7
Reprocessing facilities (excluding organics)	▶ receive segregated materials (metals, glass, plastics, paper, cardboard and other materials) from TS/RRCs and MRFs and solid industrial waste ▶ C&I and C&D waste comprises about half their throughput ▶ change the physical structure and properties of the materials to produce saleable end products	64
Organics transfer and processing facilities	▶ receive food and garden organic waste from households and industry ▶ biologically process the waste, producing carbon dioxide, heat and stabilised organic residues ▶ end products include renewable energy, organic fertilisers, soil conditioners, mulches and crop treatments	13
Landfills	▶ receive two types of waste: solid inert waste (which is non-hazardous solid waste, including municipal and industrial waste) and putrescible waste (which readily decomposes and includes food waste and organic waste from gardens)	15
Waste-to-energy facilities	▶ processing technologies that use waste as a feedstock for generating energy, which can be used for heat or for generating electricity	no major facilities

5.2 The waste and resource recovery industry

Victoria's waste and resource recovery industry is a significant component of the economy. It has an annual turn-over of $2 billion and is estimated to employ around 8,000 people[1]. The 2011-12 Inside Waste Report estimates that the value of Victoria's resource recovery sector is $524.4 million and that the sale of recovered materials is worth an additional $807.6 million.

Because Melbourne accounts for around 78% of all waste generated and managed in Victoria, Melbourne forms the core of these industries.

Table 1.2 identifies who is involved in waste. In accordance with the governance review set out in *Getting full value*, the allocation of roles and responsibilities within the Victorian government may change at some future date.

1 *Getting full value*, April 2013

Table 1.2: Waste and Resource Recovery industry participants

Agency	Roles and responsibilities
Department of Environment and Primary Industries (DEPI)	▶ provides policy planning, leadership, coordination and oversight of the environment portfolio ▶ works with other government departments (particularly the Department of Transport, Planning and Local Infrastructure the Department of Health, and the Department of State Development, Business and Innovation) to maximise investment and employment opportunities and to address the environmental and public health problems that waste poses ▶ approves the draft Metropolitan Plan (Part 1) and the draft Municipal Solid Waste Infrastructure Schedule (Part 2)
EPA Victoria (EPA)	▶ controls pollution by setting and enforcing environmental standards for business and industry to achieve clean air, healthy water, safe land and minimal disturbance by noise and odour ▶ administers the relevant sections of the *Environment Protection Act 1970* and subordinate regulations, as well as policy and guidelines for landfills (including setting standard licence conditions and best practice standards) ▶ assesses works approvals, licence applications, landfill rehabilitation requirements to ensure they comply with the landfill schedule and best practice standards for landfill design and construction ▶ approves the draft Part 1: Metropolitan Landfill Schedule.
Sustainability Victoria (SV)	▶ develops and implements strategies and programs to promote and facilitate the sustainable use of resources ▶ plans for statewide waste needs and is required to prepare the SWRRIP
Department of Transport, Planning and Local Infrastructure (DTPLI)	▶ responsible for transport, planning and local infrastructure including approving changes to planning schemes, controls and requirements

Table 1.2: Waste and Resource Recovery industry participants (cont)

Agency	Roles and responsibilities
Metropolitan Waste Management Group (MWMG)	▶ plans for Melbourne's waste infrastructure through developing and reviewing the Municipal Solid Waste Infrastructure Schedule (Part 2) and the Metropolitan Landfill Schedule (Part 3) ▶ coordinates and facilitates procurement by metropolitan councils of waste management and resource recovery infrastructure ▶ coordinates and supports community education undertaken with council ▶ helps councils to reduce waste, maximise resource recovery and reduce environmental harm
Regional Waste Management Groups (RWMGs)	▶ plans and coordinates the management of MSW for non-metropolitan councils through preparing Regional Waste Management Plans ▶ coordinates and supports community education ▶ helps councils to reduce waste, maximise resource recovery and reduce environmental harm
Local governments	▶ provides—either directly or through contractors—waste and recycling collections, transport, reprocessing and /or disposal to landfill services for their communities ▶ delivers a range of community education programs to maximise resource recovery and to empower residents to reduce waste and littering ▶ undertakes strategic land use planning, implements the State Planning Policy Framework and assesses development applications (including applications for waste and resource recovery facilities) under their planning schemes
Waste and resource recovery industry	▶ provides collection, transport, sorting and processing, trading and exporting, disposal and resource recovery infrastructure and services
Manufacturers	▶ produces waste and recyclables ▶ uses waste materials as raw inputs to production processes
Businesses, industry and government	▶ generates waste and recyclables as a consequence of providing goods and services
Individuals, households and not-for-profit organisations	▶ generates waste and recyclables as a consequence of consuming goods and services
Australian Government	▶ prepares and coordinates the National Waste Policy

5.3 Metropolitan waste types and tonnages: current and projected

The simplest challenge for Melbourne's waste and resource recovery network is waste generation. In 2010-11 around 12.8 million tonnes of waste was generated in Victoria and around 78% was generated and managed in Melbourne. This is an increase on the 2009 totals, when the first *Waste and Resource Recovery Strategic Plan* was released.

The 2009 *Waste and Resource Recovery Strategic Plan* presented waste generation and projections as the three 'waste sectors':

- municipal solid waste
- commercial and industrial waste
- construction and demolition waste.

Getting full value and the draft SWRRIP identify the need to move away from this sector approach, towards a materials stream approach, where waste generation and projections – and therefore planning and management – are based on waste materials.

This shift in thinking is more aligned with planning for waste and resource infrastructure that is based on *end markets*, where it is necessary to know about the potential quantity and quality of a feedstock. This approach also helps government and industry to aggregate material streams to achieve the economies of scale to support investment.

It will take some time to establish the data collections and management practices needed to support planning for material streams. For this reason, the 2013 consultation draft Strategic Plan presents waste data by sectors and streams.

5.3.1 What type of waste is generated and managed in Melbourne?

The historical approach to waste planning classifies waste into three sectors based on where the waste has been generated: municipal solid waste (MSW), commercial and industrial (C&I) and commercial and demolition (C&D) waste.

MSW is mostly generated by households, collected at the kerbside and at transfer stations/resource recovery centres (TS/RRCs). MSW also includes waste materials that are generated by council operations. Table 1.3 shows the materials that make up MSW.

Table 1.3: What's in municipal solid waste?

Component	Characteristics
Commingled recyclables	▶ includes plastic bottles, paper, glass and metal containers ▶ materials are all mixed together (i.e. commingled) ▶ usually need to be sorted after collection so they can be recycled (i.e. not source separated) ▶ collection is mostly from the household recycling bin ▶ some councils offer this service to small businesses
Garden organic waste	▶ includes grass clippings, tree prunings ▶ also includes the organic fraction of garden waste in the residual waste bin ▶ collection is from the household green bin or by drop offs at TS/RRCs
Food organic waste	▶ includes meat, fruit and vegetable scraps, out-of-date food ▶ collection is from households and industry (food processing waste)
Residual waste	▶ includes what remains after source separation of recyclable materials ▶ collection is from the household 'garbage' bin
Hard waste	▶ includes larger household waste not usually accepted in the residual waste bin (such as mattresses, household white goods, furniture, bric-a-brac, clothing and electrical appliances) ▶ collection is regular or on-demand pickups by councils and drop offs at TS/RRCs and/or charitable recyclers and donation bins

All other waste is generated by business and industry. Table 1.4 shows the common characteristics of C&I and C&D waste.

C&I waste is all solid waste that is produced by an entity that manufactures and/or provides goods and services excluding the construction industry. These entities include small to medium enterprises, large industrial manufacturers, state government operations and community service providers. C&I can also include residential waste that is collected by private, commercial providers. These private residential collections are usually from public housing and high-density dwellings.

C&D waste is all solid waste collected from construction and demolition activities.

Table 1.4: What's in solid industrial waste?

Component	Characteristics
Commercial and industrial (C&I) waste	▶ includes food and garden organic waste, paper, cardboard, glass, plastics, metal and residual waste (that is, the same types of waste that comprise MSW) ▶ generated by offices, factories, manufacturers, small-to-medium enterprises and educational institutions and public sector agencies ▶ is often source-separated, if the enterprise generates enough of a particular type of waste to warrant a dedicated bin, for example: ▶ supermarkets, retail outlets, offices, printers and education facilities (cardboard and paper) ▶ accommodation and hospitality industries (glass) ▶ food processing, agriculture, accommodation and hospitality industries (food organic waste) ▶ collection is by mobile garbage bins, front-lift bins, roll-on-roll-off skips and compacters provided by private service providers and councils
Construction and demolition (C&D) waste	▶ includes concrete, bricks, asphalt, metal, timber, plastics, plasterboard, rock and excavation stone and soil and sand ▶ generated by demolition work and commercial and residential construction (including fit-outs, extensions and renovations) ▶ most commercial construction demolition waste is source-separated although mechanised commercial demolition does result in some mixed loads (e.g. timber, plasterboard and plastic) ▶ most residential construction demolition waste is collected as mixed loads by private contractors; sometimes particular materials are recovered for reuse before demolition, but that is more expensive than mechanised demolition

Table 1.5: Sustainability Victoria's material stream classification

Material		Predominant source sectors
Organic	Food waste	▶ MSW, C&I
	Garden waste	▶ MSW, C&I
	Wood / timber	▶ C&I, C&D
	Textiles	▶ MSW, C&I
	Other organic[2]	▶ C&I
Commingled recyclables	Paper/cardboard	▶ MSW, C&I
	Glass	▶ MSW
	Plastics[3]	▶ MSW, C&I, C&D
	Metals	▶ MSW, C&I, C&D
Concrete/bricks/asphalt		▶ C&D
Tyres		▶ C&I
Other (including electrical and electronic waste, household goods, materials from office refurbishments, plasterboard)		▶ MSW, C&I, C&D

2 Includes agricultural wastes.
3 Does not include flexible plastics

Sustainability Victoria has developed a material stream classification system to replace the MSW, C&I and C&D sector approach. This classification system, set out in Table 1.5, is used in the draft SWRRIP and this draft Strategic Plan.

5.3.2 Waste managed in metropolitan Melbourne: tonnages in 2010-11

Approximately 10 million tonnes of waste is managed within metropolitan Melbourne. Figure 1.2 shows the recovery and disposal split across the MSW, C&I and C&D sectors.

Figure 1.2: Waste managed in metropolitan Melbourne by sector

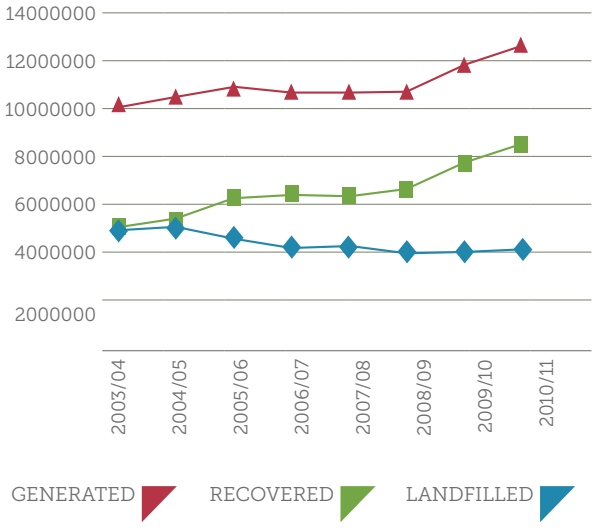
Source: Metropolitan Waste and Resource Recovery Projection Model, 2013

The construction and demolition sector has the highest recovery rate because the heavy weight of construction waste attracts significant disposal costs, making resource recovery a commercially sound alternative.

Figure 1.3 shows Victorian waste generation, recovery and landfilling trends, which are also applicable for metropolitan Melbourne. It shows that:

- resource recovery industries are growing steadily in line with the increase in waste generation
- landfills are and will remain for some time, an important component of the metropolitan waste management and resource recovery network

Figure 1.3: Waste generated in Victoria



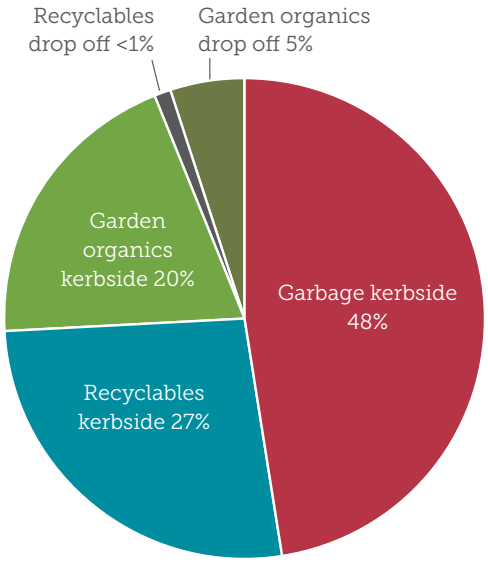
Source: SV Regional Waste and Resource Recovery Projection Model 2013 v 1.1

Municipal Solid Waste

In 2013-11, Victoria generated 3.4 million tonnes[4] of MSW and of this 2.5 tonnes (or 73%) was managed within metropolitan Melbourne.

The majority of MSW is collected by municipal kerbside collection services – about 94% of household waste is collected from the kerbside, while the remaining 6% is dropped off at TS/RRCs.

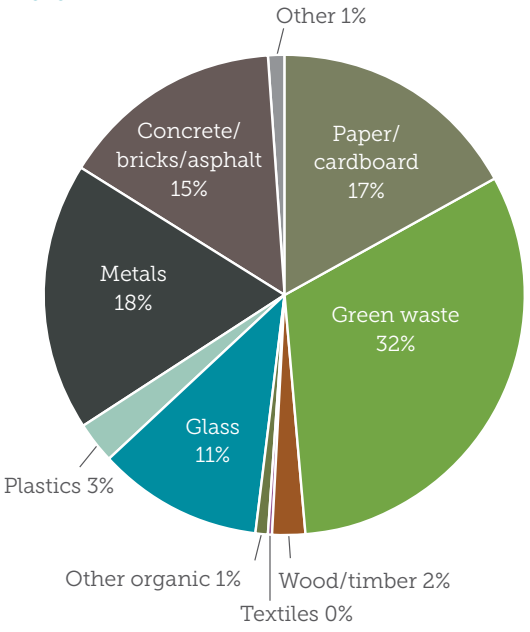
Figure 1.4 showing how metropolitan MSW is collected



Source: Victorian Local Government Survey 2010-11.
Data does not include tonnages from council operations.

Breaking down metropolitan MSW further, in 2010-11 1.09 million tonnes were recovered, which make up 16% of the total amount of waste that is recovered in Melbourne. Figure 1.5 shows the breakdown of the major material categories recovered.

Figure 1.5: Metropolitan MSW recovery by materials 2010-11

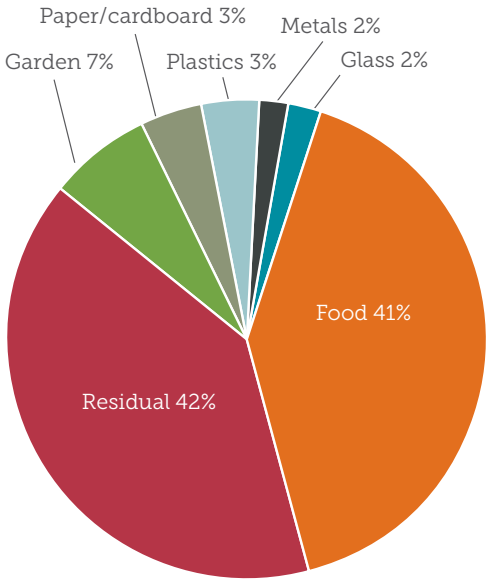


Source: Metropolitan Waste and Resource Recovery Projection Model, 2013

4 Victorian Local Government Survey 2010-11.

Of the remaining 1.38 million tonnes that went to landfill, 0.81 million tonnes (58%) was material that had the potential to be recovered (See Figure 1.6 – all materials *except* residual and food can be recovered for existing markets).

Figure 1.6: Breakdown of the composition of the MSW kerbside residual waste bin



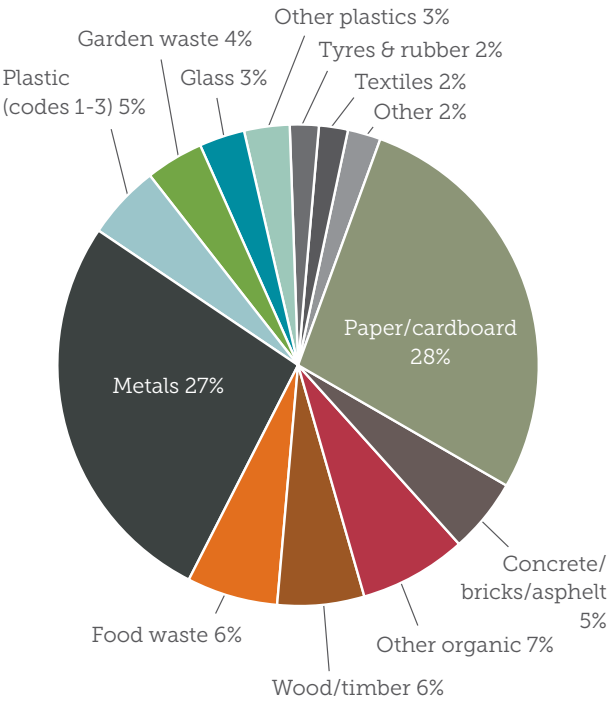
Source: Adapted from Get it Right on Bin Night Waste and Recycling Audits of Six Councils – EC Sustainable

Commercial and Industrial Waste

The Victorian C&I sector generated over 4.2 million tonnes of waste in 2010–11 and 3.1 million tonnes (73%) was managed in Melbourne. C&I waste accounts for 33% of all waste generated in Victoria.

Figure 1.7 provides a breakdown of C&I waste by material stream in Victoria (which is also applicable for metropolitan Melbourne). It shows that paper/cardboard and metal waste is generated the most, at 28% and 27% respectively.

Figure 1.7: C&I waste managed, by material stream, Victoria, 2010–11[5]



Source: SV Regional Waste and Resource Recovery Projection Model 2013 v 1.1

Waste recovery for the C&I sector

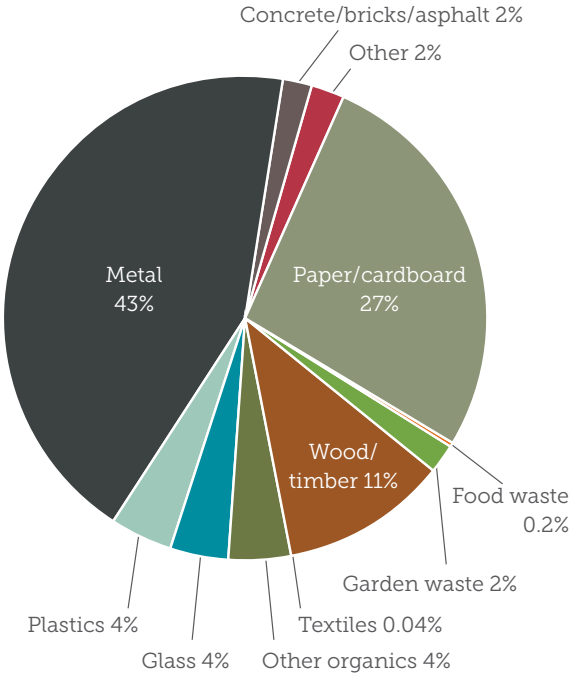
The Victorian C&I sector recovered just over 2.7 million tonnes of waste in 2010–11, which is equal to a recovery rate of 63%.[6]

Figure 1.8 shows the different materials that were recovered. Metal and paper/cardboard has the highest recovery rate, reflecting the large quantities available for recycling and strong recovery markets.

5 Waste managed = Waste recovered plus waste to landfill. Landfill data is from EPA landfill levy receipts (unpublished). Recovered data is from VRIAS (revised) 2010-11 (unpublished at the time of this plan).

6 SV Regional Waste and Resource Recovery Projection Model 2013 v 1.1

Figure 1.8: C&I waste recovery by material category in metropolitan Melbourne – 2010-11



Source: Metropolitan Waste and Resource Recovery Projection Model, 2013

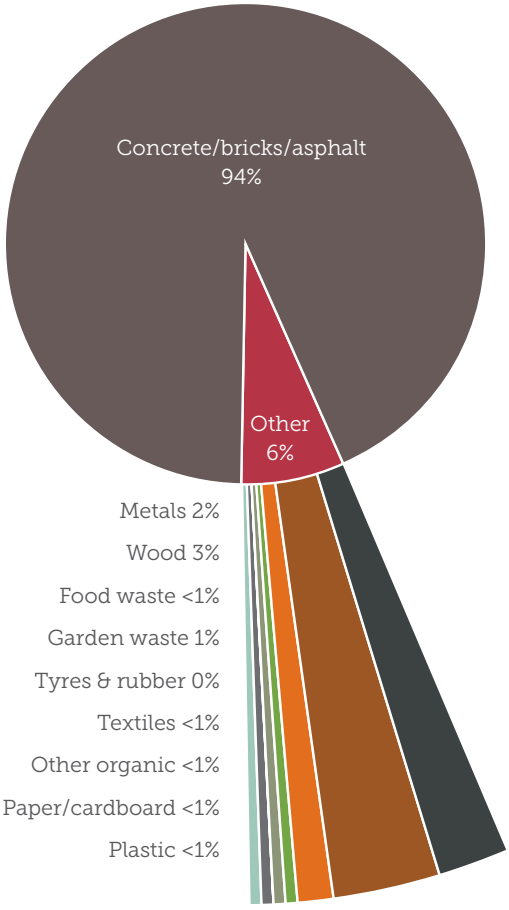
Construction and Demolition Waste

In 2010–11, the Victorian C&D sector generated around 5.1 million tonnes of waste and just under 4.4 million tonnes of this (86%) was managed in Melbourne.

Concrete, brick, rubble, asphalt, rock and masonry waste are generated from commercial and civil construction sites, providing both large and heavy homogenous streams of materials.

Figure 1.9 provides a breakdown of C&D waste by material stream in Victoria (which is also applicable for metropolitan Melbourne).

Figure 1.9: C&D waste managed, by material stream, Victoria, 2010–11[7]



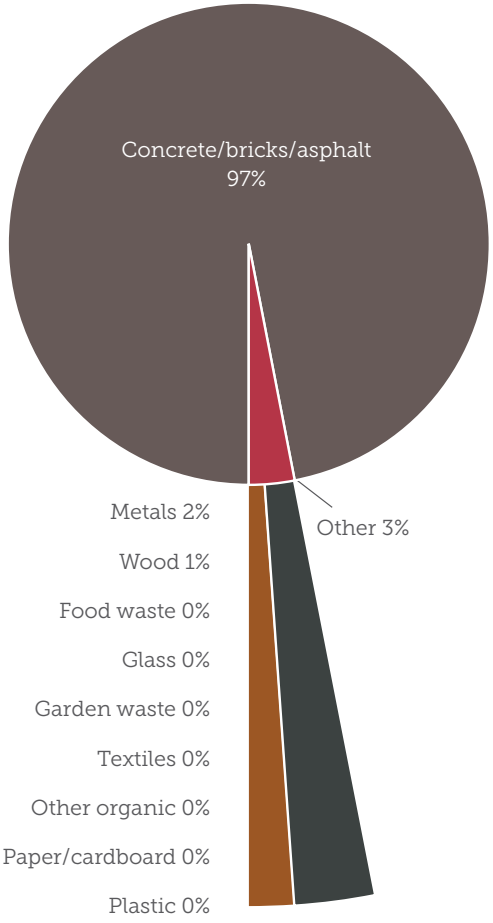
Source: SV Regional Waste and Resource Recovery Projection Model 2013 v 1.1

7 Waste managed = Waste recovered plus waste to landfill. Landfill data is from EPA landfill levy receipts (unpublished). Recovered data is from VRIAS (revised) 2010-11 (unpublished at the time of this plan).

Waste recovered by the C&D sector

Analysis of the current situation for metropolitan Melbourne shows that the C&D sector continues to successfully recycle a significant quantity of material, particularly from large projects. This success has mainly been driven by the relatively low cost of reprocessing compared to the landfilling costs for these materials. Figure 1.10 shows the recovery of concrete, bricks and asphalt makes up the bulk of recovered C&D material at 97%.

Figure 1.10: Total C&D waste recovered by material stream for metropolitan Melbourne, 2010-11



Source: Metropolitan Waste and Resource Recovery Projection Model, 2013

5.4 What waste will Melbourne need to manage in the future?

The amount of waste managed in Melbourne is expected to increase by an average of about 1.5% per year and may approach 17 million tonnes by 2041-42. Additional infrastructure and service capacity will be needed over this time to manage these tonnages.

This section discusses the main drivers of waste generation and presents projection data on the anticipated tonnages and mix of waste materials Melbourne will need to manage in the future.

5.4.1 Factors influencing waste generation

Melbourne's population is expected to grow steadily over the next thirty years. Figure 1.11 shows that Melbourne's population is projected to grow by around 2 million people by 2041-42. This 1.5% p.a[8] growth rate will also drive a growth in the amount of waste we generate.

The greatest population change in Melbourne is expected to be in the municipalities with designated growth areas: Cardinia, Casey, Hume, Melton, Whittlesea and Wyndham. Melbourne's established suburbs will also experience population growth, with the strongest change in the inner areas.[9]

Technological advancements and changing consumption patterns are also anticipated to influence waste volumes and type (e.g., increased consumption of electronic goods with short life spans).

8 Australian Bureau of Statistics Census Data - 2011

9 Victorian in Future 2012, Population household projections 2011-2031 for Victoria and it's regions. Department of Planning and Community Development

Finally, changing waste flows across Victoria are also anticipated to increase the amount of waste that is managed in metropolitan Melbourne. The draft SWRRIP identifies cross-regional flows of waste coming into and out of Melbourne and includes the following significant flows:

Into Melbourne

- Large amounts of MSW residual waste: 50% of Geelong City's waste to Werribee landfill; Macedon Ranges to Sunbury landfill, Moorabool to Werribee landfill and Baw Baw to Sita Hallam
- an estimated 80,000 annual tonnes of commingled recyclables to metropolitan material recovery facilities
- residual waste from three TS/RRCs going to metropolitan Melbourne: Macedon Ranges to Sunbury landfill; Colac and Geelong to Werribee landfill (no tonnages provided).

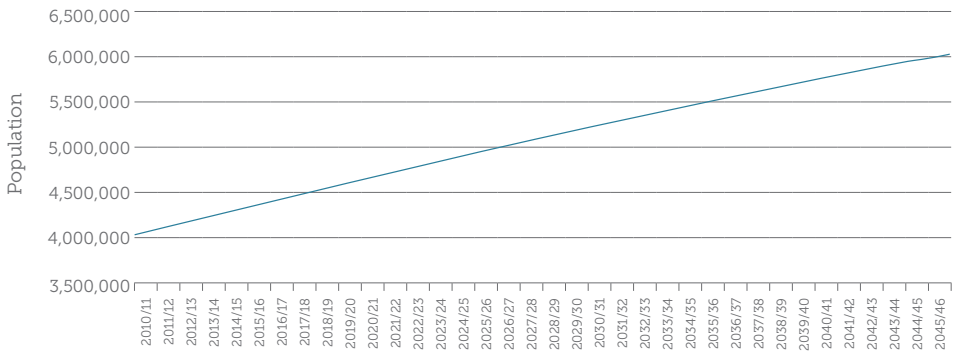
Out of Melbourne

- an estimated 67,000 annual tonnes of MSW organic waste to Barro Quarries at Point Wilson
- an estimated 52,000 annual tonnes of organic waste to Dutson Downs.
- an estimated +300,000 annual tonnes of solid inert waste to Maddingley Brown Coal Bacchus Marsh

The draft SWRRIP also identifies that the Calder, Barwon and Mornington Peninsula regions will face a significant loss of landfilling airspace in the short term. The draft Strategic Plan has assessed the impact of this waste flowing into Melbourne (see Part 3: Metropolitan Landfill Schedule).

Projected population growth for regional Victoria may also increase the amount of waste that is managed in Melbourne. The three largest regional municipalities – Ballarat, Greater Bendigo and Greater Geelong – are expected to account for almost 40% of all regional growth.

Figure 1.11: Metropolitan Melbourne projected population growth



Source: ABS Census data - 2011

5.4.2 Projection of future waste quantities

MWMG developed a projection model[10] based on Sustainability Victoria's Waste and Resource Recovery Projection Model for the State,[11] which projects the quantities of waste generated until 2041-42. The first five years of Sustainability Victoria's projections are taken from an EPA model designed to estimate quantities of waste to landfill over that timeframe. As stated in 5.4, MWMG projects waste to grow at a rate of 1.6% per annum.

The primary data underpinning the models are the annual tonnes of waste landfilled and recovered and government projections of population and economic activity. In summary, the models assess the past relationship between the total waste generated and the other variables, then estimates future waste generation assuming these relationships hold into the future[12].

The models also estimate future recovery rates. For the first five years, based on the EPA model, recovery rates are estimated using recorded trends and the general outlook for recycling.13 After five years, it is conservatively assumed that recovery rates will remain constant.

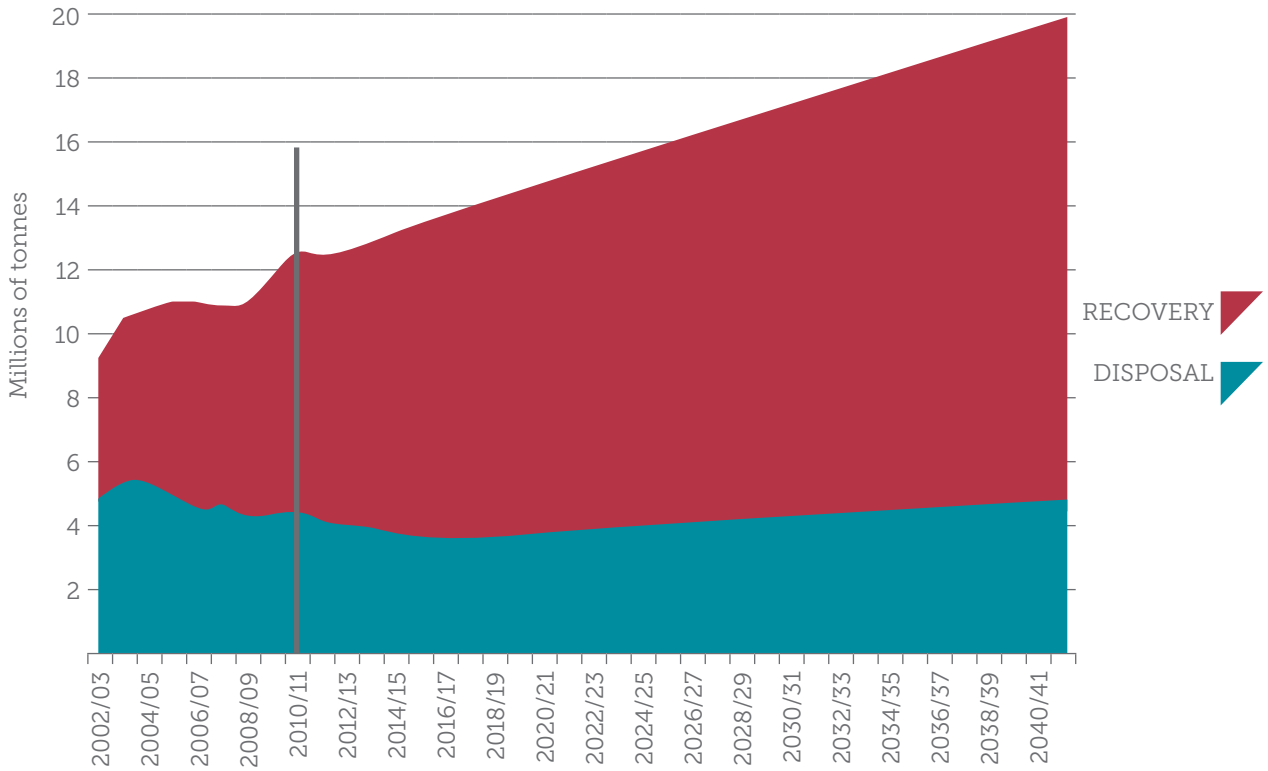
While the assumptions underpinning the metropolitan projection model are considered reasonable, waste projections are highly uncertain and the results should be taken only as best estimates. For example, anecdotal evidence since the model settings were established indicates that levels of demolition activity have declined significantly from the levels recorded in recent years. The uncertainty of the projections increases when they are disaggregated by waste stream and waste material category.

The model projections update when new annual waste data is entered. Government agencies will monitor the projections as new data becomes available.

Victorian trends and data for waste management are shown in Figure 1.12.

Further information about the models and the data assumptions can be found in the *SWIRRP*.

Figure 1.12: Historical and projected quantities of waste generated in Victoria, 2002-03 to 2041-42



Source: SV Regional Waste and Resource Recovery Projection Model 2013 v 1.1

10 MWMG Metropolitan Waste and Resource Recovery Projection Model 2013

11 SV Regional Waste and Resource Recovery Projection Model 2013 v 1.1

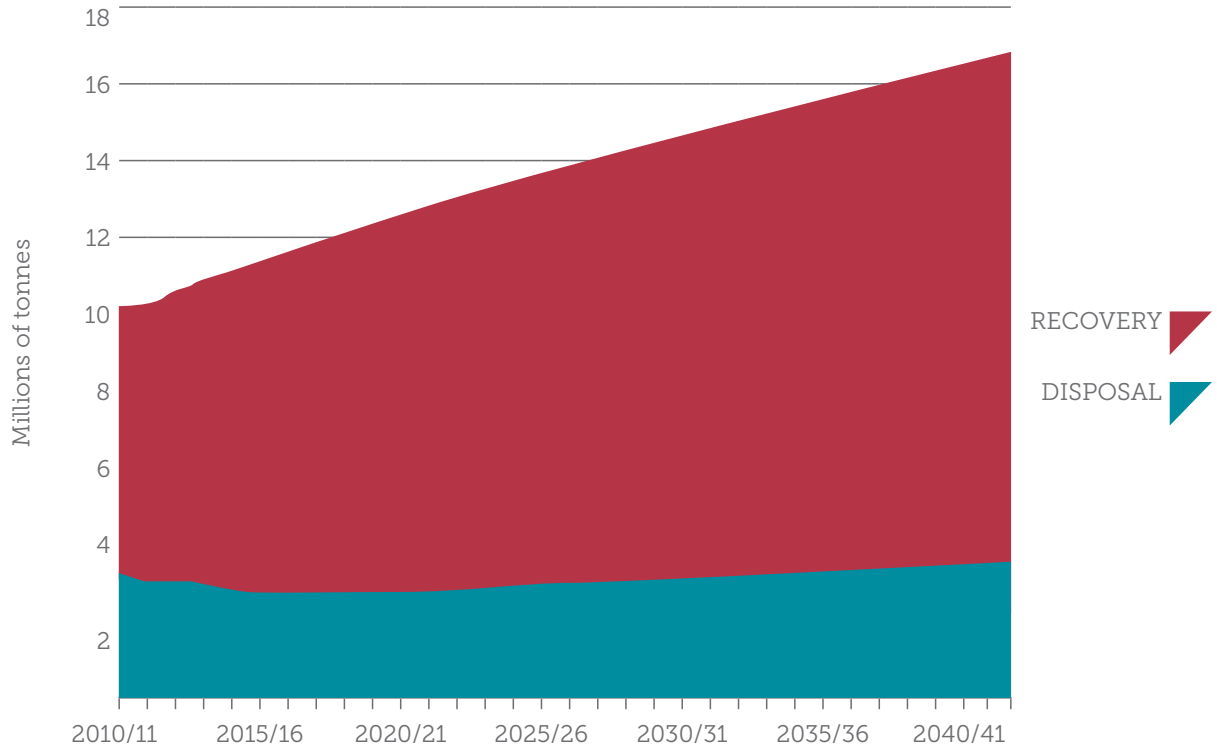
12 The five-year EPA model projects MSW quantities based on the relationship with population, and projects C&I and C&D quantities based on the relationship with economic activity. The longer-term SV model projects all waste based on the relationship with population because credible projections of economic growth are not available over this longer timeframe.

5.4.3 Estimates of future waste to be managed in Melbourne

The model projects that Melbourne will need to manage a 1.6% average annual increase in waste generation between now and 2041-42 (see Figure 1.13), resulting in a 66% increase in waste quantities. Breaking these tonnages down, it projects that:

- recovery tonnages will increase by an average of 2.1% each year
- landfilling tonnages will decrease by an average of 0.3% each year.

Figure 1.13: Projected waste to be managed in Melbourne to 2041–42



Source: Metropolitan Waste and Resource Recovery Projection Model, 2013

Projections of MSW, C&I and C&D waste to be managed

As shown in Figure 1.14, the model projects that by 2041-42:

- MSW waste to be managed in the metropolitan region will increase by around 17% or an average of 0.5% per annum
- C&I waste to be managed in the metropolitan region will increase by around 76% or an average of 1.8% per annum
- C&D waste to be managed in the metropolitan region will increase by around 88% or an average of 2.1% per annum.

The projected increase in the quantity of C&I and C&D waste is much greater than that projected for MSW, consistent with recent trends.

This total tonnage can be broken down further into projected quantities recovered and landfilled by source sector.

Projections of MSW, C&I and C&D waste to be recovered

Figure 1.15 shows the projected quantities of waste recovered by sector and suggests that:

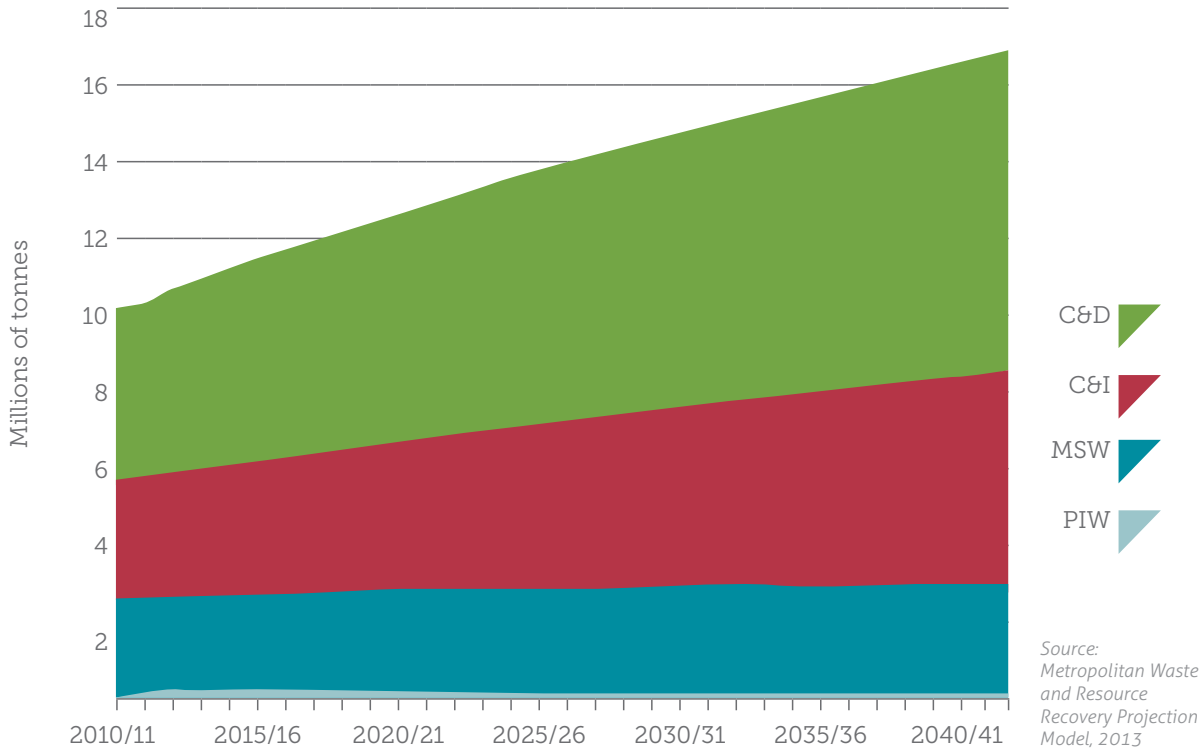
- MSW recovery in the metropolitan region will increase by around 48% or an average of 1.3% per annum
- C&I recovery in the metropolitan region will increase by around 104% or an average of 2.3% per annum
- C&D recovery in the metropolitan region will increase by around 100% or an average of 2.3% per annum.

Projections of MSW, C&I and C&D waste to be landfilled

Figure 1.16 shows projected waste to landfill and suggests that:

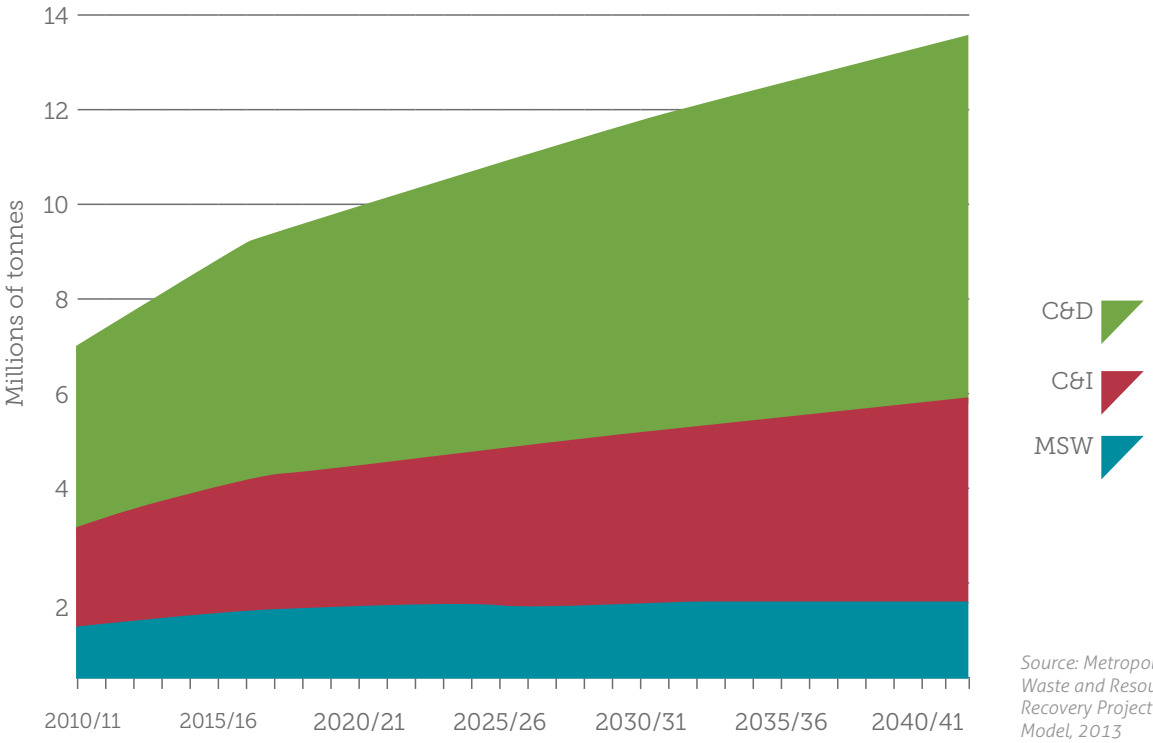
- MSW disposal in the metropolitan region will decrease by around 7% or an average of 0.2% per annum
- C&I disposal in the metropolitan region will increase by around 21% or an average of 0.6% per annum
- C&D disposal in the metropolitan region will increase by around 21% or an average of 0.6% per annum
- The 'dip and rise' pattern of the projected landfill quantities arises because the model projects recovery rates for the first five years based on recorded trends since 2002/02 and the general outlook for recycling, but then conservatively assumes no further change in resource recovery rates from 2015/16. As waste generation is projected to increase, this results in a consistent upward trend in recovery and landfill tonnages up to 2040/41.

Figure 1.14: Projected waste to be managed in Melbourne by generating sector to 2041–42



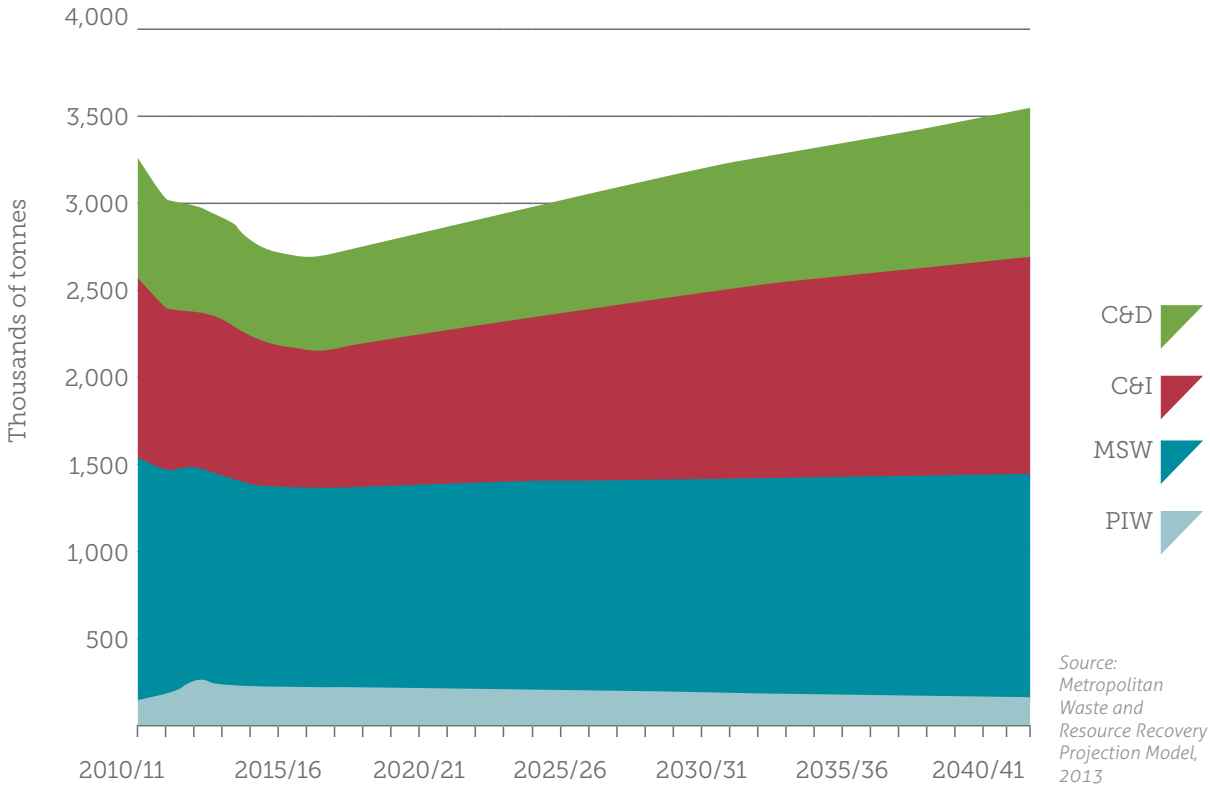
Source: Metropolitan Waste and Resource Recovery Projection Model, 2013

Figure 1.15: Projected waste to be recovered in Melbourne by generating sector to 2041–42



Source: Metropolitan Waste and Resource Recovery Projection Model, 2013

Figure 1.16: Projected waste to be landfilled in Melbourne by generating sector 2041-42



Source: Metropolitan Waste and Resource Recovery Projection Model, 2013

6 OTHER INFLUENCES

This section at a glance:

- Many factors influence the growth and performance of waste and resource recovery operations in Melbourne. These can present both challenges and opportunities that need to be managed.

There are a number of other factors – in addition to waste generation - that are expected to influence the growth and performance of waste and resource recovery operations in Melbourne.

This section provides a strategic overview of these influences – both challenges and opportunities.

(Note: Part 2: The Municipal Solid Waste Infrastructure Schedule and Part 3: The Metropolitan Landfill Schedule provides a detailed analysis of infrastructure and landfilling – current capacity and future needs.)

6.1 Industry consolidation

Over the past ten years the waste and resource recovery industry and infrastructure network has consolidated, which has resulted in competitive economies of scale. In 2012, the top four Australian waste and resource recovery firms accounted for an estimated 31.6% of total industry revenue; the eight largest firms are estimated to account for around 40% (IBISWorld 2012, Industry Report Q9634).

Metropolitan local government service provision has mirrored these national consolidation patterns, most notably with landfilling. Historically municipal councils invested in and operated small landfills that served the local community. Better knowledge and understanding about the risks of landfilling has resulted in robust regulatory requirements that require higher standards for siting, design, operation and rehabilitation of landfills. Moving from many small landfills to fewer, larger regional landfills has enabled financially secure facilities that can meet regulatory requirements. Today, the majority of metropolitan landfills are privately owned and operated.

Materials Reprocessing Facilities have also consolidated, with aggregated quantities of commingled recyclables driving investment in fewer, but larger best practice facilities that can achieve maximum value from materials. This has also reduced recycling service costs for councils by $17 per tonne from 2006-07 to 2010-11.[13]

MWMG in partnership with metropolitan councils is also leading the consolidation of organics processing through cluster procurement groups for regional organics facilities. The 2009 Strategic Plan listed council clusters as a future direction for infrastructure, positioning this approach as a flexible way of securing the waste volumes needed to invest in best practice technology.

This direction, along with MWMG's statutory function of facilitating group procurement and council's best value approach to service delivery, has underpinned the first cluster procurement for the new north west regional organics processing facility – a $30 million facility that is expected to start receiving municipal organic waste in September 2013. This approach has also provided industry with secure feedstocks over a long term contract – an essential requirement for commercially sustainable operations.

The higher level of municipal organics processing is in stark contrast to the supply of commercial and industrial organic waste, where the quality and quantity of feedstock is often too unreliable to secure infrastructure investment.

13 Victorian Local Government Data Survey 2006-07 to 2010-11.

6.2 Markets for recovered materials and end products

Strong markets for recovered resources are essential for driving new infrastructure investment and for maximising the productivity of existing infrastructure.

Markets for metals, paper, cardboard and plastics are relatively strong, as evidenced by the diversion rates outlined in section 5.3.2. In contrast, markets for products manufactured from organic waste are still relatively small, posing a risk for the financial sustainability of existing and new organics facilities. Sustainability Victoria is currently preparing an organics market development strategy, which will identify market barriers and failures and put forward initiatives for addressing these barriers.

Future council investment in organics processing will need to be aligned with the state organics market development strategy to support the sustainable growth of these markets in Victoria. Failure to align collection and processing investment will risk the stockpiling of materials and processed products.

Waste to energy facilities of a scale that could process significant volumes of Melbourne's organic or residual waste have not proceeded to date. The main reasons for this are the high capital investment and operating costs compared to landfills and to the energy product not likely to achieve prices that could deliver a commercial payback period comparable to more conventional energy facilities. *Getting full value* confirms that the Victorian Government supports these investments where economic, environmental and public health benefits can be realised.

It may be possible to initiate industry growth in these products through municipal procurement clusters for organics and residual waste processing.

6.3 Landfill capacity in the south east

Melbourne's landfill market has operated as two separate catchments for the past two decades. The south east catchment, made up of seven landfills, mainly receives waste generated in the south east – that is, east of the Yarra River. Similarly the north west catchment, made up of eight landfills, mostly receives waste generated west of the Yarra River. This has mainly been attributed to the costs and complexities of transporting waste across Melbourne and the relatively abundant supply of landfill in both the north west and south east of Melbourne.

In recent years the landfill capacity in the south east has diminished and this may cause the breakdown of the two catchments, significantly changing the flow of waste materials across Melbourne.

Part 3 – The Metropolitan Landfill Schedule – identifies that several landfills in Melbourne's south east will progressively close over the next five years. These facilities currently process around 1.2 million tonnes annually. While the north west has a long term supply of landfill airspace that could accommodate this waste, transport considerations need to be fully understood in order to identify the optimal mix of infrastructure needed to manage this tonnage.

Traditional infrastructure planning would seek to replace this south east loss with additional landfill/s, most likely in the south east catchment. However, to meet MWMG's infrastructure planning obligations articulated in the *Waste Management Policy (Siting, Design and Management of Landfills)* and *Getting full value,* decision making needs to promote integrated waste and resource recovery management. MWMG and government more broadly, will seek to:

- recognise that waste activities are best management as one integrated statewide system
- consider potential impacts on connecting systems, such as land use planning, transport and economic development
- coordinate decision making between all levels of government
- work with councils – currently landfilling in the south east – to identify infrastructure options that achieve best value services for local communities.

The need to plan and act to replace this landfill airspace is a major opportunity to work with councils and industry in order to test Victoria's waste and resource recovery market and identify the full range of infrastructure options available to process this tonnage in the long term.

The ultimate infrastructure solution to manage this 1.2 million tonnes per annum will significantly influence how Melbourne's waste and resource recovery system operates over the next twenty years.

6.4 Land use planning

The need to define sites and buffers for existing and future facilities is an enormous challenge. When facilities are not protected by planning strategies, policies and tools encroachment by incompatible land uses can occur. This puts the community at risk of odour, amenity and other adverse impacts and also puts the commercial viability of the facility at risk, as close proximity to sensitive land use may make it difficult for the operator to meet all regulatory requirements.

Ensuring that the urban design supports kerbside recovery from multi-unit dwellings is also a major challenge. While pilot studies indicate that these developments can successfully accommodate kerbside collection services, the planning system is not yet consistently achieving this outcome for new developments. This is reducing the tonnage of commingled recyclables available to the market.

Getting full value includes a number of land use planning actions. Local government has identified that state government support is needed to increase the awareness and capacity of planning officers to implement and use the planning tools needed to protect facilities and to ensure new high density developments can access kerbside residual and recycling collections.

6.5 Policy and regulatory tools

Governments use a range of policy and regulatory tools to achieve policy objectives and address market failures.

Table 1.6 identifies the policy tools likely to have a significant affect on Melbourne's network of waste and resource recovery infrastructure

6.5.1 Economic assessment of options

MWMG's final assessment of preferred infrastructure options and landfilling needs will be informed by economic assessment.

MWMG will conduct this study while the draft strategic plan is out for consultation in 2013. The results of the study will be incorporated into the final plan.

Table 1.6: Policy tools and waste and resource recovery influences

Tool	Influence
Landfill levy ▶ Diverts waste from landfill, sending a signal that Government is committed to resource recovery options by making them more cost competitive with landfills ▶ July 2014 levy will continue for a further 10 years to provide certainty for industry ▶ The exception is to allow a differential rate for strategic materials, such as organics	▶ A differential rate for organics will increase the commercial competitiveness of organics reprocessing.
Environmental regulation ▶ Licensing and enforcement to ensure environmental and public health risks are minimised ▶ Includes EPA guidelines for Best Practice Environmental Management: Siting, Design, Operation and Rehabilitation of Landfills	▶ Full compliance with regulation will continue landfill consolidation trends. ▶ Implementing all *Getting full value* actions under *Strategic Direction 7.1*, "Minimise the environmental and public health impacts of waste and resource recovery facilities" will provide greater certainty for industry considering investment in new technologies
Contingency planning for emergency events ▶ *Getting full value* requires the Strategic Plan to include contingency planning for emergency events	▶ Natural disasters can produce significant volumes of waste—with varying degrees of contamination—that will need urgent disposal to landfill, or treatment. ▶ The immediate need to safely manage large quantities of waste arising from emergency events is expected to preclude recycling. ▶ This can accelerate the expected filling of landfills, which may require the Metropolitan Landfill Schedule to be revised.
Carbon price ▶ Introduced by the Australian Government, started at $23.00 per tonne of CO2-e on 1 July 2012 and will rise to $25.40 in 2014-15 ▶ From 1 July 2015, price will be set by the market	▶ This signal may divert organics from landfilling. ▶ The price operators and customers pay is dependent on commercial arrangements, there is high degree of uncertainty when trying to forecast waste volumes to landfill or recovery based on price. ▶ The recently elected federal government have expressed their intent to repeal this tool.
Product Stewardship ▶ First national scheme commenced on 1 July 2012. ▶ It aims to recycle 80% of all television and computer waste by the time it is fully implemented in 2022.	▶ This will divert these products from landfill. ▶ TS/RRCs may need to be upgraded to comply with collection and storage requirements.

7 DRAFT STATEWIDE WASTE & RESOURCE RECOVERY INFRASTRUCTURE PLAN

This section at a glance:

- The draft SWRRIP provides a statewide context and direction for infrastructure and service provision. The 2013 Draft Strategic Plan needs to respond to this direction, while also supporting local needs.
- MWMG encourages all readers to review the draft SWRRIP.

The draft SWRRIP provides a statewide context and direction for infrastructure and service provision. The 2013 Draft Strategic Plan needs to work with this statewide direction so that metropolitan infrastructure and service delivery can respond to statewide opportunities, while also supporting local needs.

Table 7 includes SWRRIP opportunities that are significant for metropolitan planning and sets out how these opportunities will shape the infrastructure and landfill schedules. (MWMG encourages all readers to review the draft SWRRIP.)

What does the draft SWRRIP aim to achieve?

The SWRRIP's vision is to "Provide Victoria with the roadmap to guide future investment in waste management and resource recovery infrastructure that effectively manages the expected mix and volumes of waste, supports a viable resource recovery industry and reduces the amount of valuable waste going to landfill".

To achieve this, four goals are listed:

1. Facilitate efficient markets by consolidating material streams, to establish economies of scale to attract industry investment.
2. Maximise the recovery of valuable resources from waste streams
3. Support *Getting full value* action to facilitate the long term purpose of landfills to be for receiving treated residual waste
4. Provide industry, local government, metropolitan and regional waste management groups and other government agencies with the information and guidance to inform planning at the state, regional and local levels.

Table 1.7: SWRRIP goals and opportunities for metropolitan waste and resource recovery services and infrastructure

SWRRIP opportunity	What this means for metropolitan infrastructure
Develop markets for products made from recycled materials	▶ evidence of existing or likely markets is a requirement of infrastructure investment
Improve waste consolidation through municipal procurements	▶ MWMG continues to facilitate municipal cluster procurements for organic and other priority infrastructure and services
Protect suitable land for waste and resource recovery activities	▶ strengthened site assessment methodology needed to identify appropriate sites ▶ development and use of land use planning policy, tools and controls to identify and protect sites and buffer distances
Encourage best practice management of recovery infrastructure	▶ MWMG and council planning and investment to preference best environmental practice for infrastructure

Table 1.7: SWRRIP goals and opportunities for metropolitan waste and resource recovery services and infrastructure (continued)

SWRRIP opportunity	What this means for metropolitan infrastructure
Transfer stations/resource recovery centres ▶ new or upgraded facilities ▶ rationalise number of facilities where there appears to be over servicing	▶ work with councils to increase the efficiency of metropolitan transfer stations , increase resource recovery, while ensuring local facilities can be readily accessed by residents
Reprocessing infrastructure and increase investor confidence by: ▶ providing data and information ▶ facilitate consolidation of materials ▶ land use planning that provides land for waste and recovery facilities	▶ MWMG continues to facilitate municipal cluster procurements for organic and other priority infrastructure and services ▶ development of land use planning policy, tool and controls to identify and protect sites and buffer distances
Paper, cardboard, glass and plastic: ▶ include householder education in contracts with service providers	▶ build on going household education into MWMG facilitated procurements ▶ develop standard education contract clauses for municipal kerbside contracts to ensure education is embedded in waste services ▶ support councils to move to standardised bin lids at contract changeover ▶ partner with Sustainability Victoria and local government to deliver statewide education campaigns
Organics: ▶ use MSW food and green organics as base load feedstock for recovery, supplement with C&I organic waste ▶ most opportunities to process organics in metropolitan areas will be in vessel / controlled environment facilities ▶ combine household food waste with household garden organics for in vessel composting ▶ source separated food waste (involving new collection systems)	▶ include the option to accept C&I organics in future MSW organic facility procurements ▶ include best practice environment and land use planning regulatory outcomes in contract design, allowing industry to select best technology that can meet these outcomes ▶ In partnership with local government and industry participants in MSW organic contracts, provide for limited inclusion of food waste in kerbside collections and closely monitor results (noting that while having potential, mixing food with garden organics presents many unknowns, such as contamination rates, efficient reduction in contamination and processing performance) ▶ MWMG and inner councils will explore feasibility of a processing facility that can treat the residual waste bin
Residual waste – reduce the amount being generated by: ▶ educate households and business to source separate waste and to reduce contamination in recycling / organic bins ▶ improve the sorting capabilities of TS/RRCs	▶ develop standard education contract clauses for municipal kerbside contracts ▶ partner with Sustainability Victoria and local government to deliver statewide education campaigns ▶ work with councils to increase the efficiency metropolitan transfer stations , increase resource recovery, while ensuring local facilities can be readily accessed by residents
Landfills: ▶ develop options for managing residual waste in Bendigo, Anglesea, Mornington Peninsula and south east Melbourne following landfill closures ▶ joint procurement by groups of councils, potentially with major industries of solutions	▶ use an integrated approach, as set out in *Getting full value* to explore all options for replacing landfill capacity in the south east

8 INFRASTRUCTURE AND SERVICE PRIORITIES FOR METROPOLITAN MELBOURNE

This section at a glance:

- Five infrastructure and service priorities have been identified for metropolitan Melbourne.

8.1 Aligning infrastructure investment with market development

Market driven resource recovery - where the pull of markets for materials and end products shapes infrastructure planning and investment - is the principal reform set out in *Getting full value*.

Aligning future infrastructure need against this reform is a critical precondition for infrastructure, because long term commercial viability rests on the availability of strong markets for recovered materials.

All infrastructure and service planning, procurement and investment will need to:

- ensure there are existing and/or emerging markets for the recovered materials
- support statewide market development strategies, including the need to remedy market failures and barriers through infrastructure supply
- ensure procurements and contracting:
  - clearly identifies the service, environmental and public health outcomes that are to be achieved
  - allows industry participants to determine the most suitable technologies for achieving these outcomes.

8.2 Land use planning and siting facilities

Getting full value commits the state government to working in partnership with local government to better align land use planning with waste and resource recovery planning. Protecting suitable land for waste and resource recovery activities is also a major opportunity put forward in the draft SWRRIP.

Local government and industry are committed to strengthening siting and land use planning however, they require the support of State Government to coordinate their collective efforts. This is essential for developing a clear and consistent suite of tools that can be readily deployed by professional planners across Melbourne.

8.3 Immediacy of south east waste recovery and disposal needs

Melbourne's south east has an immediate waste recovery and disposal need and challenge: planning and delivery of new infrastructure to replace the Clayton landfills that are expected to close over the next five years.

The loss of an annual disposal capacity of around 1.2 million tonnes, combined with continued population growth and business and community demand for south east services will require options that can manage at least 1 million tonnes annually.

There are a range of resource recovery and landfilling options that can fill this need and MWMG will act quickly to:

- test the market through an Expression of Interest process
- identify preferred options that maximise environmental, public health and economic outcomes, strengthen industry and reduce long term costs to households and businesses.

8.4 Expanding the capacity of Melbourne's transfer station / resource recovery centre network

In the future, Melbourne's network of transfer stations and resource recovery centres (TS/RRCs) will need to:

- accommodate growing and diverse mix of waste materials
- maximise recovery of valuable resources
- promote efficient movement of waste throughout the metropolitan area
- include strategically located facilities that improve markets by consolidating material streams to establish economies of scale that attract investment
- continue to provide residents and businesses with convenient drop off points.

There is an immediate need to establish a strategic TS/RRC in Melbourne's inner south east.

8.5 Continued council cluster procurement of organic facilities

MWMG will continue to work with local government and industry to deliver a commercially sustainable network of facilities capable of processing organic material from both the municipal and commercial sectors.

Confidential draft internal document for review. This document does not represent Victorian Government policy.

PART 2: THE MUNICIPAL SOLID WASTE INFRASTRUCTURE SCHEDULE

Part 2:

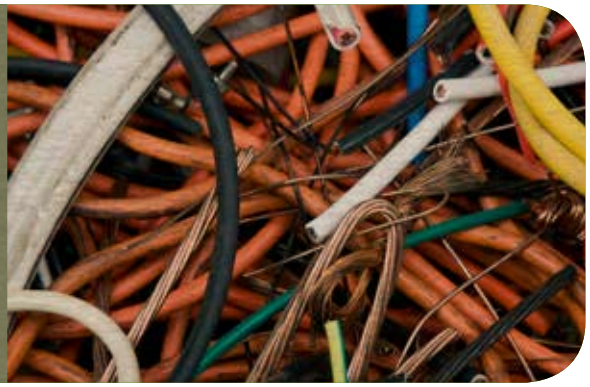
- The Municipal Solid Waste Infrastructure Schedule sets out a schedule of existing and required infrastructure for municipal solid waste.

Confidential draft internal document for review: This document does not represent Victorian Government policy.

10 THE MSW INFRASTRUCTURE SCHEDULE (PART 2)

This section at a glance:

- The *Environment Protection Act 1970* sets out the requirements for the MSW Infrastructure Schedule.
- The principal policy reform shaping the schedule is to support market driven resource recovery as set out in *Getting full value*.



10.1 Purpose and functions

The Municipal Solid Waste (MSW) Infrastructure Schedule (the Infrastructure Schedule) provides a mechanism for planning and implementing MSW resource recovery infrastructure and services across metropolitan Melbourne. In doing so, it provides a strategy and implementation plan for how resource recovery infrastructure and services can achieve the draft Strategic Plan objectives, which are to:

- promote an integrated and efficient waste and resource recovery system capable of maximising the value of materials
- Maintain and improve the best practice environmental management of all resource recovery and landfill infrastructure services in Melbourne
- foster investment in infrastructure and services that can manage the projected mix and volumes of waste materials for Melbourne, while supporting councils to procure best value services
- protect waste and resource recovery facilities by developing and using effective land use planning policies and controls.

The *Environment Protection Act 1970* requires that the Infrastructure Schedule must:

- include an assessment of the need, priorities and general preferred location for municipal facilities (other than landfill)
- contain a detailed description of existing municipal waste and resource recovery infrastructure
- identify the type, timeframe and general location of new municipal waste and resource recovery infrastructure.

The draft Strategic Plan places opportunities and requirements for services into the MSW Infrastructure Schedule to allow the full productivity of infrastructure to be realised.

10.2 Roles and responsibilities

Metropolitan Plan (Part 1) details the roles and responsibilities for resource recovery infrastructure and services.

10.3 MSW infrastructure legislative and policy context

The Infrastructure Schedule responds to the direction provided for waste and resource recovery in *Getting full value* and the draft *Statewide Waste and Resource Recovery Infrastructure Plan (SWRRIP)*.

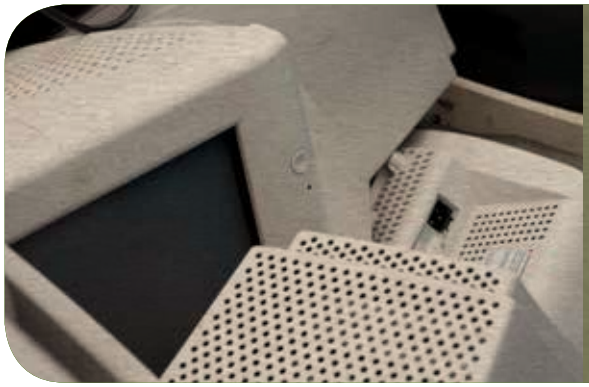
The Metropolitan Plan (Part 1) provides a detailed narrative on the policy and legislative framework for waste and resource recovery infrastructure.[1]

A principal policy reform set out in *Getting full value* is market driven resource recovery, where demand for materials and end products should influence infrastructure planning and investment. Aligning the revised Infrastructure Schedule with this reform is a critical precondition that can recover materials beyond the more accessible recycling opportunities already in place.

Integrating recovery infrastructure with land use planning is also a significant policy reform that the draft SWRRIP and draft Strategic Plan together must implement.

1 See Section 5.2 'The waste and resource recovery industry'

11 RESOURCE RECOVERY IN METROPOLITAN MELBOURNE



This section at a glance:

- Describes the network of resource recovery serving metropolitan Melbourne.
- Identifies the projected mix and volume of materials available for recovery.

11.1 Infrastructure

Resource recovery infrastructure makes an important contribution to Melbourne's liveability by maximising the productive use of resources. This helps lessen our reliance on landfills and reduces the negative impacts of existing landfills on communities and the environment.

The Metropolitan Plan (Part 1) identifies the range of resource recovery facilities in metropolitan Melbourne.[2]

Table 2.1 below shows the type and number of solid waste management infrastructure servicing metropolitan Melbourne, located inside and outside of the metropolitan area. Figure 2.1 (on the following page) shows the location of this infrastructure.

The facilities mapped in Figure 2.1 were based on the best information available at the time of writing. For a more detailed explanation of metropolitan resource recovery infrastructure, refer to the draft SWRRIP.

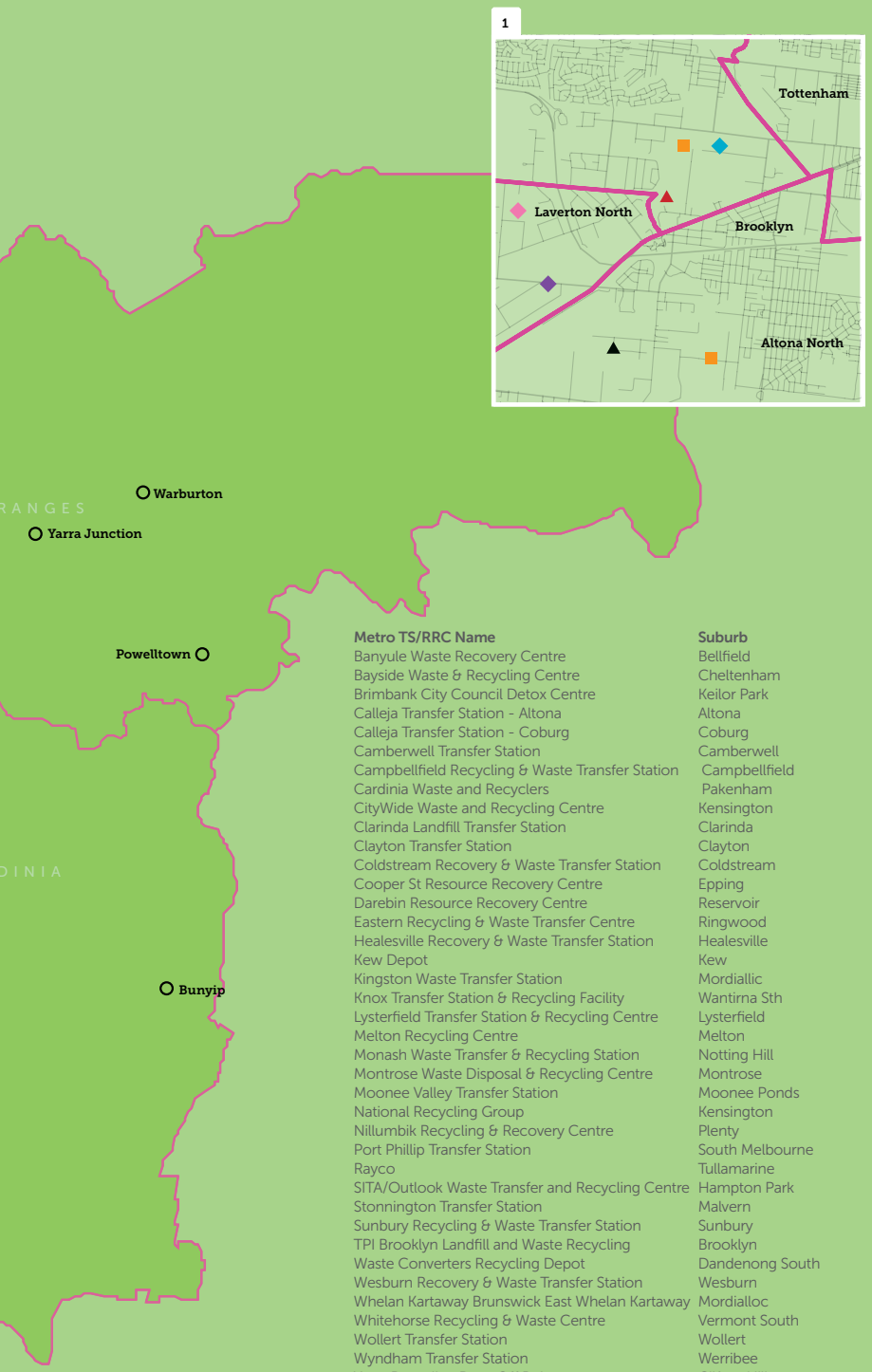
2 See Section 5.1 'The metropolitan waste and resource recovery network'

Table 2.1: Solid waste infrastructure servicing metropolitan Melbourne

Infrastructure type	Main waste stream by type	Metro. location		Non-metro. location	
		Publicly owned	Privately owned	Publicly owned	Privately owned
Transfer stations / resource recovery centres / drop off facilities	▶ MSW, C&I, C&D(1)	23	11	5	1
	▶ C&I, C&D(2)	-	7	-	1
Materials recovery facilities	▶ MSW, C&I	-	7	-	-
Organics transfer facilities	▶ MSW	2	4	-	-
Organics processing facilities	▶ MSW, C&I	-	7	-	4
Reprocessing facilities	▶ industrial waste	-	64	-	-

Notes
1. Small vehicle / trailer loads of C&I and C&D only, with no asbestos.
2. Commercial loads only of C&I and C&D only, with no asbestos.

Figure 2.1: Resource recovery infrastructure in Melbourne



Metro TS/RRC Name	Suburb
Banyule Waste Recovery Centre	Bellfield
Bayside Waste & Recycling Centre	Cheltenham
Brimbank City Council Detox Centre	Keilor Park
Calleja Transfer Station - Altona	Altona
Calleja Transfer Station - Coburg	Coburg
Camberwell Transfer Station	Camberwell
Campbellfield Recycling & Waste Transfer Station	Campbellfield
Cardinia Waste and Recyclers	Pakenham
CityWide Waste and Recycling Centre	Kensington
Clarinda Landfill Transfer Station	Clarinda
Clayton Transfer Station	Clayton
Coldstream Recovery & Waste Transfer Station	Coldstream
Cooper St Resource Recovery Centre	Epping
Darebin Resource Recovery Centre	Reservoir
Eastern Recycling & Waste Transfer Centre	Ringwood
Healesville Recovery & Waste Transfer Station	Healesville
Kew Depot	Kew
Kingston Waste Transfer Station	Mordiallic
Knox Transfer Station & Recycling Facility	Wantirna Sth
Lysterfield Transfer Station & Recycling Centre	Lysterfield
Melton Recycling Centre	Melton
Monash Waste Transfer & Recycling Station	Notting Hill
Montrose Waste Disposal & Recycling Centre	Montrose
Moonee Valley Transfer Station	Moonee Ponds
National Recycling Group	Kensington
Nillumbik Recycling & Recovery Centre	Plenty
Port Phillip Transfer Station	South Melbourne
Rayco	Tullamarine
SITA/Outlook Waste Transfer and Recycling Centre	Hampton Park
Stonnington Transfer Station	Malvern
Sunbury Recycling & Waste Transfer Station	Sunbury
TPI Brooklyn Landfill and Waste Recycling	Brooklyn
Waste Converters Recycling Depot	Dandenong South
Wesburn Recovery & Waste Transfer Station	Wesburn
Whelan Kartaway Brunswick East Whelan Kartaway	Mordialloc
Whitehorse Recycling & Waste Centre	Vermont South
Wollert Transfer Station	Wollert
Wyndham Transfer Station	Werribee
Yarra Recycling Drop Off Point	Clifton Hill

Non-Metro TS/RRC Name	Suburb
Kinglake Transfer Station	Kinglake
Maddingly Brown Coal	Baccus March
Mornington Resource Recovery Centre	Mornington
Rye Resource Recovery Centre	Rye
Tyabb Resource Recovery Centre	Tyabb
Vin Bins	Dromana
Wallan Transfer Station	Wallan

Metro Organics Processing Facility Name	Suburb
Bark King	Kilsyth
Enviromix	Dingley
Village Pingro - Boral Western Landfill	Truganina
SITA	Epping
Veolia (operational late 2013)	Bulla
Veolia	Dandenong
Waste Converters & Commercial Sands	Dandenong Sth

Non-Metro Organics Processing Facility Name	Suburb
Gippsland Water SORF	Dutson Downs
Pomonal	Warrnambool
Biomix	Stanhope
Calleja	Bacchus Marsh

Metro Organics Transfer Facility Name	Suburb
Biogro	Dandenong
Coldstream Recovery & Waste Transfer Station	Coldstream
Garden State Mulching Services	Wantirna South
Knox Transfer Station & Recycling Facility	Wantirna Sth
SITA - Brooklyn	Brooklyn
TPI Clayton - Fraser Rd	Clayton South

Metro Material Recovery Facility Name	Suburb
Polytrade Material Recovery Facility (Dandenong)	Dandenong
Polytrade Material Recovery Facility (Darebin)	Coburg
Polytrade Material Recovery Facility (Hallam)	Hallam
SKM Recycling Material Recovery Facility	Coolaroo
VISY - Banyule	Heidelberg
VISY - Laverton	Laverton
VISY - Springvale	Springvale

Metro Material Recovery Transfer Facility Name	Suburb
SKM Recycling Materials Recovery Facility	Laverton North

11.2 The projected mix and volume of materials available for recovery

In 2010-11, around 6.9 million tonnes of material waste was recovered in Melbourne. Of this, 1.1 million tonnes was recovered from MSW (15.4%) which is a reliable source of feedstock and therefore strategically important for infrastructure investment decisions.

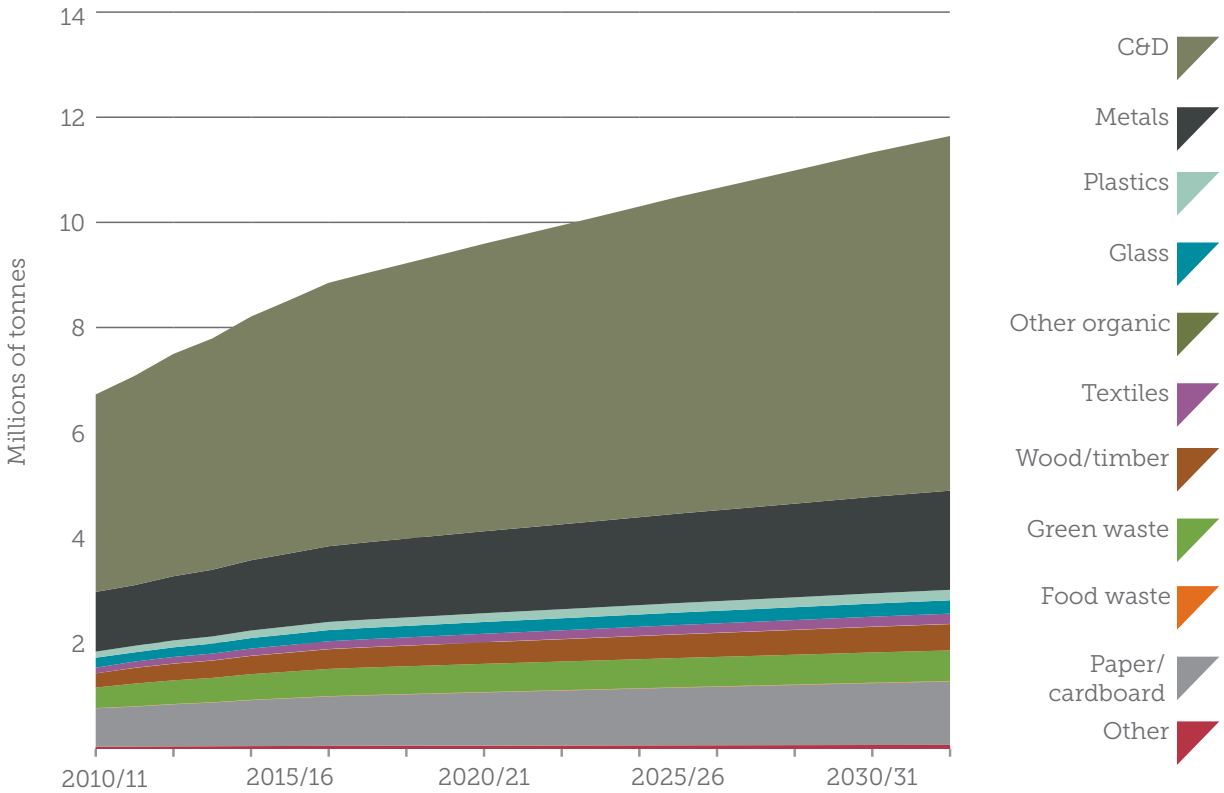
It is projected that total waste recovered in metropolitan Melbourne will increase to 11.6 million tonnes by 2032 with anticipated material composition outlined in figure 2.2 (see below). Material recovered from MSW is expected to increase to over 1.6 million tonnes by 2041 – 42.

The projected increase in material streams recovered from MSW in metropolitan Melbourne over the next twenty years is outlined in Figure 2.3. This shows a steady increase in the recovery of all materials over the projected period.

This projection assumes the 2010-11 recovery rates of materials will continue, where commingled recyclables and concrete/bricks/asphalt will continue to enjoy strong recovery rates.

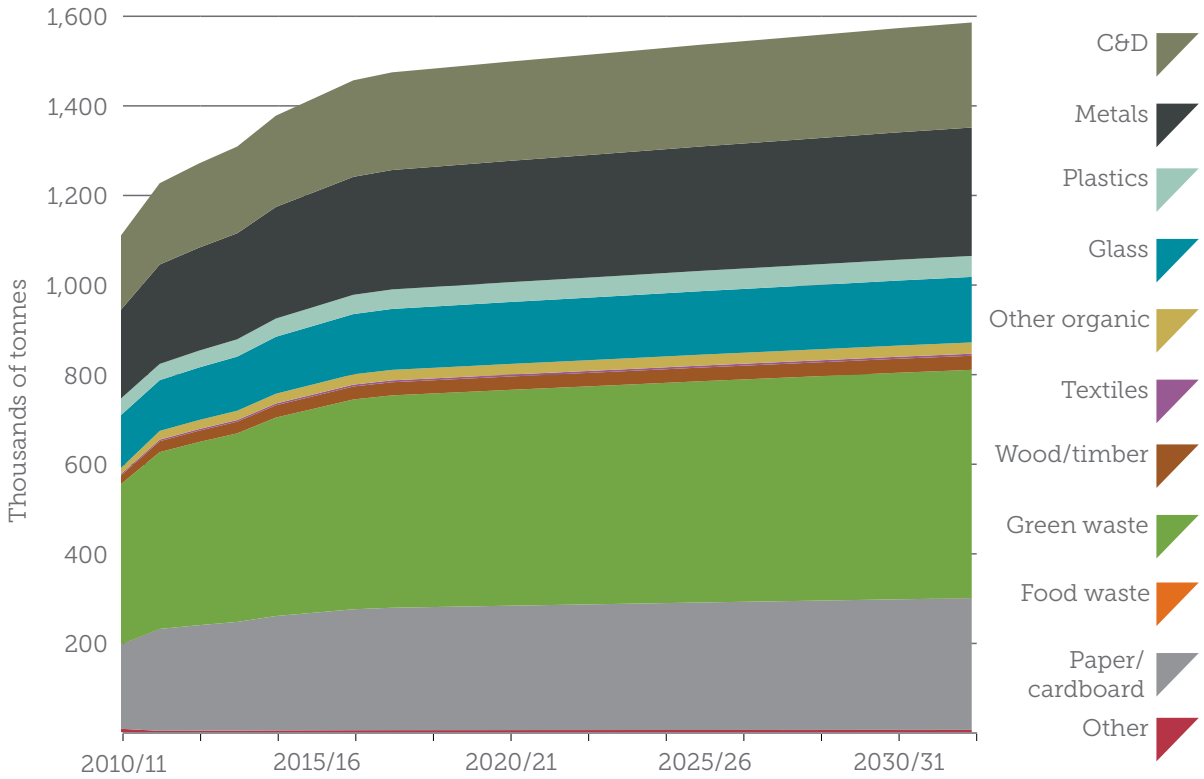
Population growth is the dominant factor influencing recovery rates for commingled recyclables (assuming markets for commingled recyclables remain strong). This contrasts to concrete/bricks/asphalt, which is strongly linked to economic activity in the construction sector. A reduction in construction activity from its current strong position would significantly reduce the tonnage of this material available for recovery. Simultaneously, under declining construction activity, markets for recovered concrete/bricks/asphalt would also reduce.

Figure 2.2: Metropolitan region projected recovery by material for all waste sectors



Source: Metropolitan Waste and Resource Recovery Projection Model, 2013

Figure 2.3: Metropolitan region projected recovery by material for municipal solid waste



Source: Metropolitan Waste and Resource Recovery Projection Model, 2013

Figure 2.4 shows the projected increase in material streams from MSW disposed to landfill in metropolitan Melbourne over the next thirty years. A steady increase in materials going to landfill is anticipated over the projected period.

Figure 2.4 poses important questions for this Infrastructure Schedule:

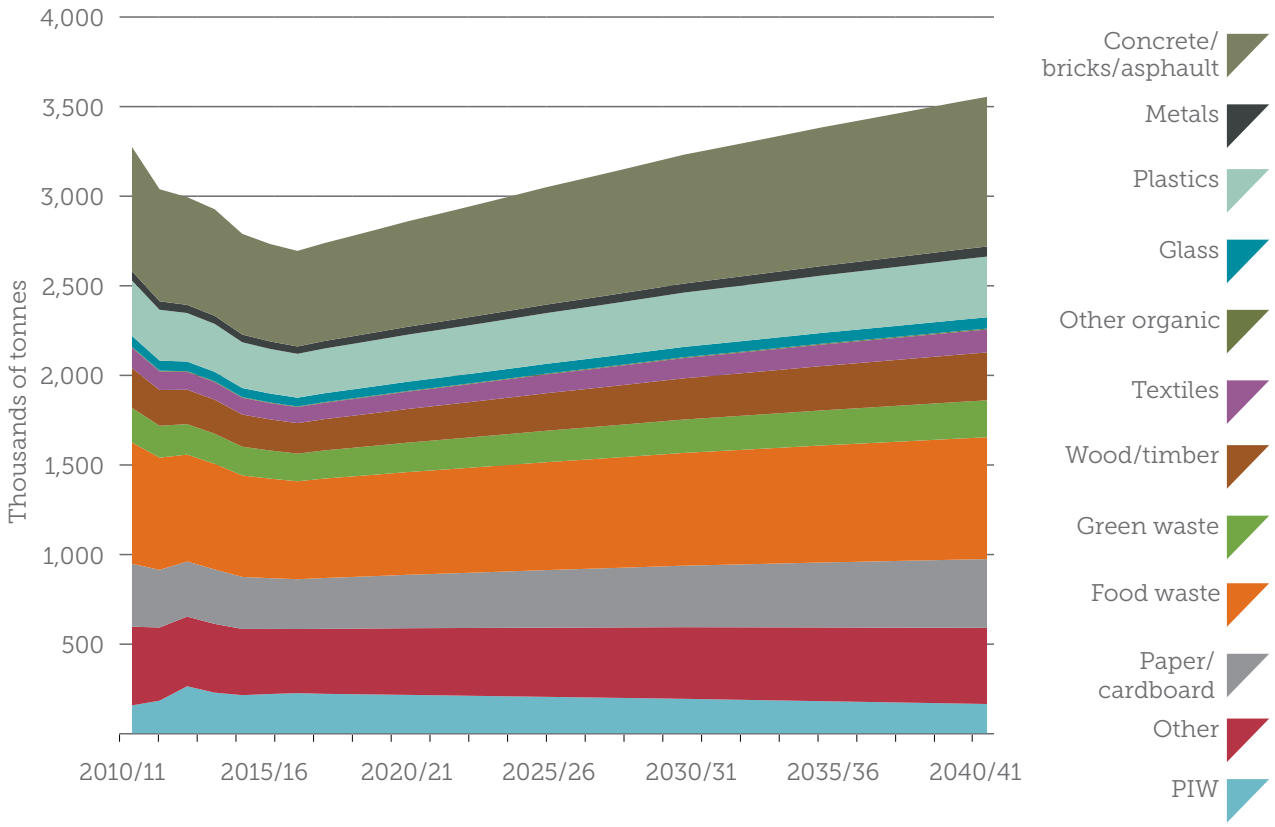
- Are there existing or emerging markets for any of these materials?
- If so, why are these materials going to landfill?
- Are there any market barriers or failures preventing recovery that could be remedied by the provision and ongoing operation of infrastructure and services?

The Metropolitan Plan (Part 1) identifies that the south east of Melbourne is expected to lose around 1.2 million annual tonnes of landfill capacity over the next five years. This is expected to be the single biggest influence on how well metropolitan Melbourne's waste and resource recovery network can meet the policy goals in *Getting full value*.

Planning for and investing in south eastern infrastructure that can *leverage existing* and *emerging markets though recovery infrastructure* is the highest and most imminent priority for the Infrastructure Schedule.

Beyond metropolitan Melbourne's south east, it is a priority to invest in infrastructure and services that support the sustainable growth of existing and emerging markets for both recovered organics and recovered materials.

Figure 2.4: Metropolitan region projected disposal by material for municipal solid waste



12 SUPPORTING SERVICES FOR INFRASTRUCTURE

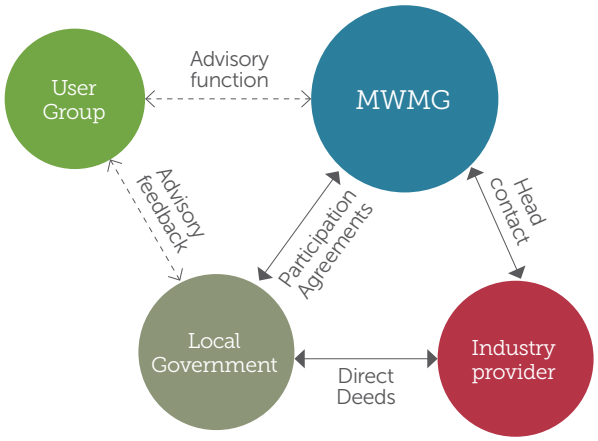
This section at a glance:

- The principal role of resource recovery infrastructure is to maximise the productive value of resources.
- This section analyses two supporting services needed for the long term viability of resource recovery facilities – facilitated council procurement and siting facilities.

12.1 Facilitated council procurement

Under the *Environment Protection Act 1970*, MWMG plans, coordinates and facilitates the procurement of waste and resource recovery services for metropolitan councils, including the disposal of residual waste and the collection and recycling of organic and commingled waste. In effect, MWMG acts as a centralised, specialised procurement agency for participating councils. This delivers benefits in economies of scale and in turn boosts Victoria's resource recovery industry through the reliable, long term provision of aggregated waste material feedstocks.

Figure 2.5: Procurement process model



12.1.1 MWMG procurement model at a glance

Figure 2.5 shows the MWMG-led process for procurement. MWMG acts as the principal between participating metropolitan councils and industry. This arrangement has a number of commercial advantages and opportunities to participating councils, private sector providers and MWMG. It:

- aligns local service delivery with statewide policy outcomes
- provides certainty to commercial investors by:
  - achieving economies of scale by aggregating commercially viable quantities of waste to be treated by private sector service providers
  - securing the expected quality and quantity of feedstock over the commercial life of the facility
  - incorporating environmental regulatory requirements into contracts
- promotes innovation by specifying the desired state policy outcomes and local service delivery outcomes, while allowing the market to select technologies, processes and products able to deliver these
- reduces the need for councils to have specialist tendering and contract management expertise
- improves the alignment between state and councils' plans and programs.

Table 2.6: Key features of the MWMG procurement model

Area of focus	Key features
Council participation	▶ councils are responsible for providing MSW management services to ratepayers ▶ individual councils decide to participate or not in a procurement process ▶ councils decide to commit to supplying MSW over the contract period, to realise economies of scale (needed for providing viable outcomes) to assure industry it is worthwhile competing for contracts ▶ councils are engaged in procurement planning, decision-making and contract finalisation.
The scale and type of procurement determines the procurement protocols	▶ the procurement process generally applies to large-scale activities, but a particular business case may identify smaller-scale or modular development opportunities as more appropriate for an activity ▶ contract governance arrangements for smaller-scale activities will be made project-by-project.
Government engagement	Within the context of the principles outlined above, any level of government engagement in a procurement process will depend on factors including: ▶ objectives, strategic directions and goals of *Getting full value* ▶ the project development approach adopted and the level of commitment shown by key stakeholders through rigorous business case and risk assessment processes ▶ cost differential between landfill and resource recovery technology options and demonstrated product quality and end market viability in the business case ▶ the form of procurement proposed ▶ compliance with environmental and land use regulations and approved guidelines.
Procurement evaluation	A procurement must: ▶ meet with procurement principles ▶ deliver on the objectives, goals and strategic directions of *Getting full value*. A procurement will be assessed on its ability to deliver: ▶ economic prosperity ▶ integrated and efficient systems ▶ public health and wellbeing ▶ environmental protection. Within this context tenderers will be required to demonstrate how they will deliver goals to: ▶ achieve efficient use of resources to achieve savings ▶ facilitate strong markets for recovered resources ▶ facilitate a waste and resource recovery system that maximises the economic value of waste ▶ reduce the environmental and public health risks of waste.

Councils are not required to join a collective procurement. As defined in the *Local Government Act 1989*, each council will make its own determination, guided by whether the facilitated procurement can provide best value for their community. This approach ensures local governments remain accountable to their community, as well as complying with obligations under the Australian Consumer Law 2010. (This is outlined in Table 2.6: Key features of the MWMG procurement model on previous page).

If local governments participate, they must:

- have a legitimate intent to contract
- acknowledge that contracts will be commercially underwritten by participating councils
- accept that MWMG's contract management services are on a fee-for-service basis, or as otherwise agreed
- accept that councils are responsible for municipal waste collection and associated services, within the context of state waste policy.

12.1.2 Current use of procurement model

MWMG and 11 participating councils have successfully used the MWMG procurement model for the Northern and Western Organics Processing Contract which is due to start operations in late 2013. This contract will realise around $30 million of industry infrastructure investment and around $200 million of local government investment over 15 years. The contract will process around 120,000 tonnes of organics annually which will produce mature composts and soil blends for agricultural application.

The model has also been used to tender for south east organics processing facilities and is being used for a further project in the east.

The MWMG procurement model has recently undergone independent legal review and was found to be an appropriate and effective model for its purpose. Ongoing review of the model will be undertaken to ensure continuous improvement occurs in areas such as value for money for local government, appropriate allocation of liabilities and commercial risk mitigation.

12.1.3 Future need

Securing end markets

The supply of recovered materials does not guarantee market demand. It is therefore essential that facilitated council procurements are based on the availability of existing and emerging markets for recovered materials.

The MWMG procurement model must take care to ensure that narrow contract outcomes do not inadvertently preference technologies or products and instead:

- support statewide market development activities undertaken by Sustainability Victoria
- inform tender design with pre-market testing of the waste and resource recovery industry
- ensure the preferred tenderer can demonstrate existing and emerging markets for the contracted quantity and quality of recovered materials
- include contractual risk mitigation measures to manage unforeseen market collapse.

Maintaining feedstock quality

Householders are the first link in the supply chain for recycled materials and will benefit from ongoing awareness campaigns on how to use kerbside bins correctly.

Future MWMG-facilitated procurements will:

- where possible, preference mechanical processes for pre-sorting and removing contamination prior to processing
- include the requirement for on going household education campaigns, while complementing statewide education campaigns.

Building capacity for commercial and industrial organic waste

The relative security and reliability of municipal organic feed stocks can be leveraged to provide increased processing capacity for commercial and industrial organic waste. This might also extend to the inclusion of bio-solids from wastewater treatment, if good commercial, environmental and public health outcomes can be achieved.

Future MWMG facilitated procurements will:

- explore the capacity to include industrial waste options through market testing
- include tendering/contractual options to accept industrial waste.

Expanding the use of facilitated procurement for other municipal services

Facilitated procurement can be extended to other municipal services where a benefit to councils and industry can be realised.

MWMG will work with local government and industry to implement facilitated group procurement for strategic transfer stations/resource recovery centres, residual waste processing and kerbside services where:

- council service levels will not be compromised
- there is demonstrated need and investment capacity
- there are existing or emerging markets for the recovered materials
- better value for money can be achieved in comparison to individual council procurement
- the risk of outcomes, such as monopolies and reduced industry incentive to innovate, can be eliminated, reduced and/or managed.

12.2 Siting infrastructure

It is essential to select a site for infrastructure that:

- can remain viable, in order to attract initial investment and to maximise any economic gains arising from this investment
- has appropriate siting and buffer selection that aligns with both *environmental and land use planning regulatory requirements* to minimise environmental and public health risks.

12.2.1 Current approach to siting infrastructure

The 2009 Strategic Plan was incorporated into the State Planning Policy Framework and acknowledged the importance of land use planning. This has provided an excellent start to integrating land use requirements in recovery infrastructure planning.

Local government and industry activities have continued to highlight the critical need for clear siting guidance and the effective use of planning controls to protect sites. Both *Getting full value* and the draft SWRRIP acknowledge siting challenges and include a number of directives that the Infrastructure Schedule must incorporate.

12.2.2 Future need

Site selection

Appropriate site selection is the most effective means of protecting the environment and public health and minimising commercial risk due to non-compliance with regulatory requirements.

Figure 2.6 shows the high level criteria that MWMG has developed to help identify potentially suitable areas for resource recovery infrastructure. They are separated into two groups: organics (greater buffer distances are needed for organic facilities) and non-organics and each has five criteria that cover:

- site size – to filter out sites that are too small to hold waste and resource recovery management infrastructure
- potential co-location – to favour locations that are within or adjoining existing landfills and /or recovery facilities (including waste water)
- zoning and planning – to favour sites located under planning zones that are considered suitable for the development of waste infrastructure e.g, Special use, Industrial 1, Industrial 2 and Green wedge
- sensitive receptors – to look at relationships between residential areas and other sensitive land uses with the aim of reducing negative amenity on communities
- area access – to favour areas with direct access to roads that can be used by heavy vehicles.

The criteria can assist councils and industry when undertaking a preliminary desktop site assessment of existing and potential site locations.

The more detailed site assessment framework can be used to support procurement and assist investors to identify broad areas where new infrastructure could potentially be sited (excluding landfills). The complete site assessment framework is available on request.

Preferred sites will be identified and ultimately selected through market processes using the MWMG-facilitated procurement model or single council procurement for municipal investment and other commercial practices for private investment. MWMG's framework will form the basis for assessing proposed sites put forward during facilitated procurement and can be used as a guide for private investment.

Figure 2.6: Criteria to identify potential resource recovery infrastructure sites

Site protection

Maintaining full operational capacity and output relies on securing land and separation distances through appropriate land use planning decisions. A lack of long-term land certainty around siting is a barrier to investment and a risk to the commercial viability of existing infrastructure.

To help ensure existing and new infrastructure sites are protected:

- the revised and approved 2013 Strategic Plan is to be referenced in the Victorian Planning Provisions Clause 19.03-5 Waste and Resource Recovery
- the strategic recovery infrastructure sites and associated buffer distances will be referenced in Corridor and Green Wedge Structure Planning exercises
- a special environmental overlay will be developed and deployed for strategic sites (refer to Part 3: Metropolitan Landfill Schedule).

12.2.3 SWRRIP Hubs of state importance

The draft SWRRIP identifies 13 'Hubs of State importance' for metropolitan Melbourne. The draft SWRRIP has identified that "...if the ability to undertake waste and resource recovery activities on these sites were restricted, it would be more difficult to manage the state's waste and resource recovery system and to meet the objectives of *Getting full value.*"[3]

MWMG encourages readers to review the DRAFT SWRRIP and to consider how MWMG, through its implementation planning and procurement facilitation role, may add value to the productivity and performance of these sites.

3 Draft ***Statewide Waste and Resource Recovery Infrastructure Plan*** for Victoria, September 2013.

13 COLLECTION SERVICES

This section at a glance:

- Municipal kerbside collections provide an essential community service and are part of the supply chain for recovered resources.
- This section describes the current mix of collection services and discusses future need.

13.1 Municipal kerbside collection

Municipal kerbside collections provide an essential community service through the regular removal of waste materials from households. In doing so kerbside collection plays a role in protecting public health. It also forms part of the supply chain for recovered materials by providing a relatively secure supply of feedstock for processors.

In 2010-11, 30 metropolitan Melbourne councils collected approximately 1.53 million tonnes of residual waste, commingled recyclables and garden organic waste from the kerbside. This was about 90% of the total MSW stream.

Table 2.7 shows the quantities of kerbside material collected and total cost of collections in metropolitan Melbourne in 2010–11 compared with 2006–07. Residual comprised 54% of the total kerbside tonnage in 2006-07 and 51% in 2010-11.

The table shows that in 2006-07, kerbside collections cost local governments more than $162 million, in 2010-11 this increased to $216 million. The cost per household of residual and organics collections has increased over the last four years which can be attributed to a number of factors such as increasing cost of landfilling and introducing and / or expanding organic services. The cost of recycling services has decreased by about $17 per household from 2006-07 to 2010-11.

Table 2.7: Kerbside bin collections, 2010–11 and 2006-07[4]

Infrastructure type	Residual waste		Commingled recyclables		Garden organic waste		Total	
	2006-07[5]	*2010-11*	*2006-07*	*2010-11*	*2006-07*	*2010-11*	*2006-07*	*2010-11*
Annual service cost	$88,703,446	$132,177,957	$45,385,704	$41,935,067	$28,694,558	$41,977,641	$162,783,708	$216,090,665
Tonnes collected	708,700	777,572	403,100	438,813	203,300	320,242	1,315,100	1,536,627
Tonnes processed/ recycled[5]	—	—	364,150	402,790	203,000	305,870	567,150	708,660
Total households serviced[6]	1,461,321	1,539,428	1,437,433	1,540,159	1,322,240	838,367	-	-
Cost per tonne[6]	$125.17	$169.99	$112.59	$95.56	$141.12	$131.08	-	-
Cost per household[6]	$60.70	$85.86	$31.57	$27.23	$21.70	$50.07	-	-
Household yield (kg)[6]	485	505	280	285	154	382	-	-

Source: Victorian Local Government Data Survey 2006-7 to 2010–11

4 Tonnage totals are rounded up and apply only to annual service cost and tonnes collected / processed.
5 Total households serviced includes commercial and industrial properties, estimated to be more than 97,000.
6 Totals for cost per tonne, cost per household and household yield are not provided because it is not statistically valid to add ratios when population sizes vary. For example, 1.5m households have a garbage collection service, while about 840,000 have a garden organics service.
7 Around 10 to 15% of material placed in commingled bin is contaminated, and must be disposed to landfill.

13.1.1 Current situation

Twenty seven municipalities offer a three bin service:

- one bin (120L, 240L or 360L) for recyclables
- one bin (80L, 120L, 140L or 240L) for residuals
- one bin (120L or 240L) for organics.

The key facts about the current situation in metropolitan Melbourne are:

- Twenty seven municipalities offer the three bins. Most provide an organic bin as an optional service, requiring households to request a bin for an extra charge. Three municipalities (Melbourne, Port Phillip and Yarra) only offer a two-bin service mainly due to space restrictions and households with small or no gardens.
- To encourage households to recycle more and reduce the amount of residual waste going to landfill, an increasing number of local governments are reducing the size of the residual waste bin and charging for larger sizes.
- In 2006, the Australian Standard for Mobile Waste Containers (AS4123) introduced a universal standard for kerbside bins. Bin lid colours across Melbourne do not align with this, which can confuse householders and inhibit education efforts and increase contamination.
- Contamination of kerbside material continues to be a problem. Visual truck audits have shown contamination of the green organics stream to be around 8%. Bin audits of the recycling stream in 2012 (undertaken for the Get It Right On Bin Night (GIROBN) program shows contamination to be around 13%.

13.1.2 Future need

Increasing the quality and quantity of recovered materials will be achieved through:

- providing householders a 360 litre commingled recyclable bin (where appropriate) at the time of a council's kerbside contract renewal
- councils adopting the Australian Standard for Mobile Waste Containers (AS4123) at the time of kerbside contract renewal
- implementing metropolitan wide education campaigns as well as providing ongoing localised household engagement programs.

13.2 Residential multi-unit development collections

Melbourne's population growth has resulted in increasing numbers of higher density residential and mixed use developments. Multi-unit and high rise developments in established urban areas have created challenges for providing waste and resource recovery services. Resource recovery provisions in planning schemes have not dealt adequately with the complex situation of larger residential multi-unit developments. It is essential that provision is made for infrastructure, bins and storage for all waste streams (putrescible, recycling, organics, hard waste) and that vehicles have appropriate access. Metropolitan councils have been limited in their ability to ensure infrastructure is in place to provide a full range of municipal kerbside services to these dwellings.

13.2.1 Current situation

No specific planning control governs waste infrastructure in high rise or multi-unit developments. Instead a range of waste and resource recovery provisions, objectives and standards are scattered throughout the Victorian Planning Provisions. This has led to waste and recovery infrastructure often being poorly planned and provided. Relevant State Planning Policy Framework provisions are:

- Clause 15 (Built environment and heritage).
- Clause 19 (Waste and resource recovery).
- Clause 55 (Two or more dwellings on a lot and residential buildings).
- Clause 56 (Residential subdivision).

Waste infrastructure design decisions can discourage residents from recycling effectively. Coupled with the high turnover of residents in such dwellings (reducing the effectiveness of education) this can result in high contamination rates.

Poorly designed collection areas and infrastructure create amenity impacts for residents which are costly to address through retrofitting. Inadequate planning can also require private collections instead of municipal services.

Metropolitan councils continue to develop guidelines to promote better design. MWMG have been working with some councils to deliver education programs to support residents of multi-unit and mixed use developments to re-use, recycle and minimise their waste.

13.2.2 Future need

Planners, waste managers, the waste industry and the development industry need clear and consistently applied standards for waste services for multi-unit and high rise developments. An efficient transport system and well located resource recovery hubs are critical to maintaining functional waste collection, recovery and disposal services for Melbourne. Equally, efficient waste systems for multi-unit and high rise developments are important to reduce the impact of collection services on transport systems.

This can be achieved by:

- locating all waste infrastructure and service standards in one place in planning schemes
- providing clear waste and recovery objectives with appropriate standards
- stating the needs and requirements clearly for municipal waste service provision
- stating the need to prepare and have approved waste management plans for multi-unit and high rise developments.

13.3 Hard waste collection and drop off

All metropolitan local governments provide hard waste collection services for residents. At 2013, 18 municipalities offered at-call hard waste collections, either free or for a charge and 13 offered municipality wide collections once or twice a year.

13.3.1 Current situation

Table 2.8 shows quantities of hard waste collected and costs since 2001-02. Quantities and costs have significantly increased while the diversion rate has dropped greatly. MWMG considers that hard waste diversion rates have dropped due to:

- people collecting valuable material before the contractor arrives at kerbside (reducing the ability to off-set collection costs with revenue from recovered items)
- collection processes that damage items
- In 2010–11, over 77,000 tonnes of hard waste was collected across metropolitan Melbourne which is an average of 50kg per serviced household. This hard waste includes kerbside collections and rubbish that was dumped in laneways, creeks and streets.

Table 2.8: Hard waste statistics, 2001–02 to 2010–11

Item	2001–02	2004–05	2007–08	2010–11
*Annual service cost **	$4.9 million	$7.3 million	$10.4 million	$16.6 million
Tonnes collected	47,493	71,586	58,750	77,303
Tonnes disposed	37,148	58,775	51,179	70,537
Diversion rate	22%	18%	13%	9%
Total properties serviced	1,168,685	1,341,118	1,320,255	1,531,136
Cost per tonne	$104.18	$101.47	$177.61	$214.28
Cost per household	$4.23	$5.42	$7.90	$10.82
Household yield (kg)	41	53	44	50

**Annual service cost has been rounded off*
Source: Victorian Local Government Data Survey 2001-2 to 2010–11

13.3.2 Future need

Municipalities need support to specify future hard waste collection services that:

- can maximise material recovery through minimising damage to materials
- achieve better value for money.

MWMG will work with councils to plan and implement a trial facilitated group procurement of hard waste, with a view to extending the service across metropolitan Melbourne.

13.3.2 Future need

Municipalities need support to specify future hard waste collection services that:

- can maximise material recovery through minimising damage to materials
- achieve better value for money.

MWMG will work with councils to facilitate a group procurement trial of hard waste, with a view to extending the service across metropolitan Melbourne.

13.4 Commercial collections and drop off

13.4.1 Current situation

Commercial collections are private arrangements between the waste generator and waste collector, consequently limited information is available. Some metropolitan councils offer kerbside services to small and medium enterprises – as ratepayers – similar to what is provided to residents.

Sustainability Victoria recently commissioned a study into commercial and industrial waste flows to help inform the development of targeted programs, infrastructure and interventions to reduce overall waste in the C&I sector.

13.4.2 Future need

By implementing statewide programs, MWMG will support and strengthen local governments' capacity to improve feedstock sourced from local industries and commercial enterprises through:

- reviewing existing service options offered by local governments to small to medium enterprises (SMEs) and investigating ways to increase resource recovery
- developing consistent guidelines for local government who provide waste services to SMEs to increase source separation, diversion, minimise dumping and improve public amenity and safety
- investigating and where economically viable, invest in precinct recycling and processing solutions
- increasing recovery from smaller, source separated and mixed loads of C&I and C&D from SMEs, residential buildings, renovations and demolition work.

14 TRANSFER STATIONS/RESOURCE RECOVERY CENTRES

This section at a glance:

- Transfer station / resource recovery centres mostly compact kerbside waste and recycling and accept small drop offs from residents and businesses.
- To cope with future waste projections, Melbourne's 41 metropolitan transfer station / resource recovery centres will need to grow into a 'hub and spoke' network that plays a greater role in consolidation, transport and resource recovery.

Transfer stations are sites that principally accept and manage kerbside MSW. The material managed comes from a variety of sources including:

- resident drop offs of hard, organic and residual waste and commingled recyclables
- small loads of solid industrial waste and kerbside collected material.

Local governments originally built transfer stations to consolidate and transfer putrescible waste and, in some cases, limited solid inert waste (such as building and domestic hard waste). The consolidated waste was then bulk hauled to landfill or a processor. Although most kerbside collected MSW is now directly hauled to landfill or a processor, there are still some municipal transfer stations that perform consolidation and bulk haul of waste to landfill.

Over time, many transfer stations have adapted to include resource recovery centres, which aim to divert waste from landfill. These sites are now referred to as a transfer station/resource recovery centre (TS/RRC). TS/RRCs undertake a variety of activities to process the material they receive, including:

- consolidating municipal kerbside and commercial collection of waste material in preparation for bulk haul to an external processor or disposal site
- accepting materials dropped off by residents and commercial operators
- on-site recycled goods shops.

All publicly owned TS/RRCs allow public access. Private ones are mainly set up to manage commercial loads.

14.1 Current situation

Over the past 20 years, the number of TS/RRCs in metropolitan Melbourne has grown to 41 (Table 2.9), while the number of landfills has decreased.
The growth has resulted in a network capable of:

- processing quantities of material previously managed at landfill sites
- managing an increasing and diverse waste stream
- meeting the expectations and access requirements of local government and communities.

Table 2.9: TS/RRC/drop off facilities in metro Melbourne, by LGA at August 2013

Local government area	TS/RRCs/drop off facilities(MSW, C&I, C&D) publicly owned	TS/RRCs/drop off facilities (MSW, C&I, C&D) privately owned	TS/RRCs (C&I, C&D only) privately owned
Banyule City Council	1		
Bayside City Council	1		
Boroondara City Council	2		
Brimbank City Council	1	1	1
Cardinia Shire Council		1	
Casey City Council		1	
Darebin City Council	1		
Frankston City Council			
Glen Eira City Council			
Greater Dandenong City Council	1		1
Hobsons Bay City Council			1
Hume City Council	2		
Kingston City Council	1	1	2
Knox City Council	1	1	
Manningham City Council			
Maribyrnong City Council			
Maroondah City Council		1	
Melbourne City Council		1	1
Melton Shire Council	1		
Monash City Council	1		
Moonee Valley City Council	1		
Moreland City Council		1	1
Nillumbik Shire Council	1		
Port Phillip City Council	1		
Stonnington City Council	1		
Whitehorse City Council	1		
Whittlesea City Council		2	
Wyndham City Council	1		
Yarra City Council	1		
Yarra Ranges Shire Council	3	1	
Total	**23**	**11**	**7**

Table 2.10: Tonnages of materials received by publicly owned TS/RRCs, 2010–11[8]

Kerbside collected material received at TS/RRC for consolidation (tonnes)			Drop-off by residents and small commercial loads (tonnes)		
Residual waste	*Organic waste*	*Commingled recyclables*	*Residual waste*	*Organic waste*	*Commingled recyclables*
109,000	43,640	0	284,415	69,363	53, 423

Eight TS/RRCs in metropolitan Melbourne have an associated resale centre. Site operators divert loads with items of value to a place in the TS/RRC to assess and recover saleable items. Usually, these TS/RRCs have workshops where staff repair items or recover parts.

Table 2.10 lists the estimated quantities of materials managed by publicly owned TS/RRCs[9] in metropolitan Melbourne in 2010-11. It shows material collected from kerbside and dropped off at one of the four TS/RRC that currently receive kerbside residual waste or organic waste. These materials are consolidated for bulk hauling in large trucks to either landfill or organics processing. The sites that currently do this are in Banyule, Melbourne, Boroondara and Stonnington.

Table 2.10 also provides totals on the materials that are currently dropped off at TS/RRC site by residents or from small commercial operators.

In total, approximately 25% of all material collected by the TS/RRC is kerbside material consolidated and bulk hauled for further processing or disposal.

14.2 Future need

The current role of TS/RRCs is expected to change as they face and adapt to the same challenges that are applicable across the whole waste and resource recovery sector, which are detailed in Part 1: Metropolitan Plan.

To further understand the current issues faced by TS/RRCs, MWMG undertook a review of the network which found:

- status quo is not sustainable and new sites are required to meet increasing demand
- site upgrades are required to ensure additional capacity and material types can be handled
- network upgrades will require financial assistance.

TS/RRCs will also need to align with the direction of *Getting full value* and the SWRRIP by:

- increasing the amount and type of waste/s that can be managed on site
- moving to a system able to undertake consolidation and bulk haul of larger quantities of waste
- undertaking further resource recovery activities to reduce the amount of valuable resources sent to landfill
- implementing future product stewardship programs
- meeting community expectations regarding service provision and accessibility
- managing the impact from closure of further local landfill sites (south east region specific).

14.2.1 Increasing network service and capacity

Data projections have proposed a 66 %[10] increase in the waste to be managed in metropolitan Melbourne by 2042. Although the network of TS/RRCs currently only manages approximately 6%[11] of total waste material generated in the metropolitan region, the increase will still have an impact. The network will need to undergo a transformation to meet future volume capacity and cater for an increase in the type of waste materials it will be expected to manage. This will:

- ensure the most efficient movement of waste throughout the metropolitan area
- improve markets by consolidating material streams to establish economies of scale to attract investment
- maximise recovery of valuable resources.

8 2010-11 MWMG data

9 Quantities include all publicly owned TS/RRCs across metropolitan Melbourne as well as the privately owned Citywide site in the Melbourne City Council area, which consolidates a large volume of municipal waste from kerbside.

10 Source: Metropolitan Waste and Resource Recovery Projection Model, 2013

11 MWMG Transfer Stations Review - 2012

14.2.2 A move to consolidation, transport and recovery

A key issue facing the metropolitan TS/RRC network is that current landfills in the south east will reach capacity by 2020. Around 1.2 million tonnes of material will need to be managed through new disposal and resource recovery opportunities. In the absence of new recovery and/or landfilling facilities in the south east, local government has indicated that this material will be transported to the north west for disposal.

Local government has also indicated a need to transition to consolidation and bulk haul of kerbside material. This will further increase the amount of material some TS/RRCs will be required to manage and this could impact their role as a consolidation centre for waste materials.

To respond to this change in practice, the TS/RRC network will need to be capable of consolidating, recovering and transporting even larger quantities of material. New infrastructure and upgrades will be required to ensure facilities can undertake the work required to support the efficient movement of material over greater distances.

MWMG has developed a draft TS/RRC classification system for publicly-owned facilities that will be used to assist in identifying sites that can perform the required function for the metropolitan Melbourne region (Table 2.11). This table sets out the proposed classification system and highlights that almost half of all publicly-owned facilities provide consolidation prior to bulk haul for multiple government areas.

Table 2.11: Proposed Classification of TS/RRCs

TS/RRC Classification	Description of classification	Number of publicly-owned TS / RRCs in metropolitan area given this classification
Strategic transfer and resource recovery facility	▶ accepts MSW materials collected through kerbside residual, commingled recyclables (and where relevant) organic collections ▶ MSW material is pre-sorted to maximise recovery of materials, where markets exist ▶ MSW material is consolidated and bulk hauled off-site for reprocessing and/or disposal ▶ MSW material is accepted from more than one municipality ▶ residents and small commercial operators can drop off material	11
Strategic resource recovery	▶ a resource recovery centre, often associated with a landfill site ▶ residents and small commercial operators can drop off material ▶ MSW material is accepted from more than one municipality	2
Local transfer and resource recovery facility	▶ facility accepts MSW materials collected through kerbside residual, commingled recyclables (and where relevant) organic collections ▶ MSW material is pre-sorted to maximise recovery of materials, where markets exist ▶ MSW material is consolidated and bulk hauled off-site for reprocessing and/or disposal ▶ residents and small commercial operators can drop off material ▶ MSW material only accepted from one municipality	7
Local community resource recovery	▶ a resource recovery centre associated with a landfill site ▶ residents and small commercial operators can drop off material ▶ MSW material is accepted from more than one municipality	3

The purpose of classifying TS/RRCs is to:

- clearly define TS/RRC functions to promote better integration with the broader network of waste and resource recovery management infrastructure
- clarify the role current facilities play in the metropolitan network
- efficiently maximise future network capacity and resource recovery opportunities through identifying:
  - strategic sites for future upgrades and funding
  - need for new facilities

MWMG suggests establishing strategic sites that will service multiple council areas (clusters). These sites will consolidate material in preparation for bulk hauling to a disposal or reprocessing site.

To complement the strategic consolidation centres a series of localised collection sites will be required to serve the local community through:

- collecting specialised/priority materials
- providing resource recovery and waste disposal options
- undertaking product stewardship programs
- running detox events and seasonal programs (e.g. pre-summer bushfire clean-up of garden waste).

Councils often support resale recovery shops at local centres as an important way of providing social inclusion opportunities for their communities. MWMG will support councils and social enterprise operators to strengthen the recovery rates of these centres.

While this draft classification is designed to inform future investment in publicly-owned facilities privately-owned facilities might also be used to meet the expanded MSW capacity.

MWMG will further refine and test the assessment criteria (table 2.11) to help identify suitable strategic sites. This will help to consolidate waste flows by including a site's ability to accommodate the required logistics and work to significantly increase the overall capacity of the network. These sites will be expected to perform a resource recovery function that:

- Maximises the recovery of valuable resources from waste streams
- Reduces the cost associated with landfilling
- Provides an income stream to offset the costs of recovery activities
- reduces the number of vehicle movements required to move waste to disposal/processing sites.

The benefits of handling increased volumes include providing a cost effective service to communities whilst attracting industry investment by aggregating material and providing long term contracts on material amounts.

Adopting a 'hub and spoke' network to guide investment

In order for the TS/RRC network to adapt, grow and accommodate the projected mix and tonnage of materials, an optimal mix of strategic and local TS/RRCs will be required.

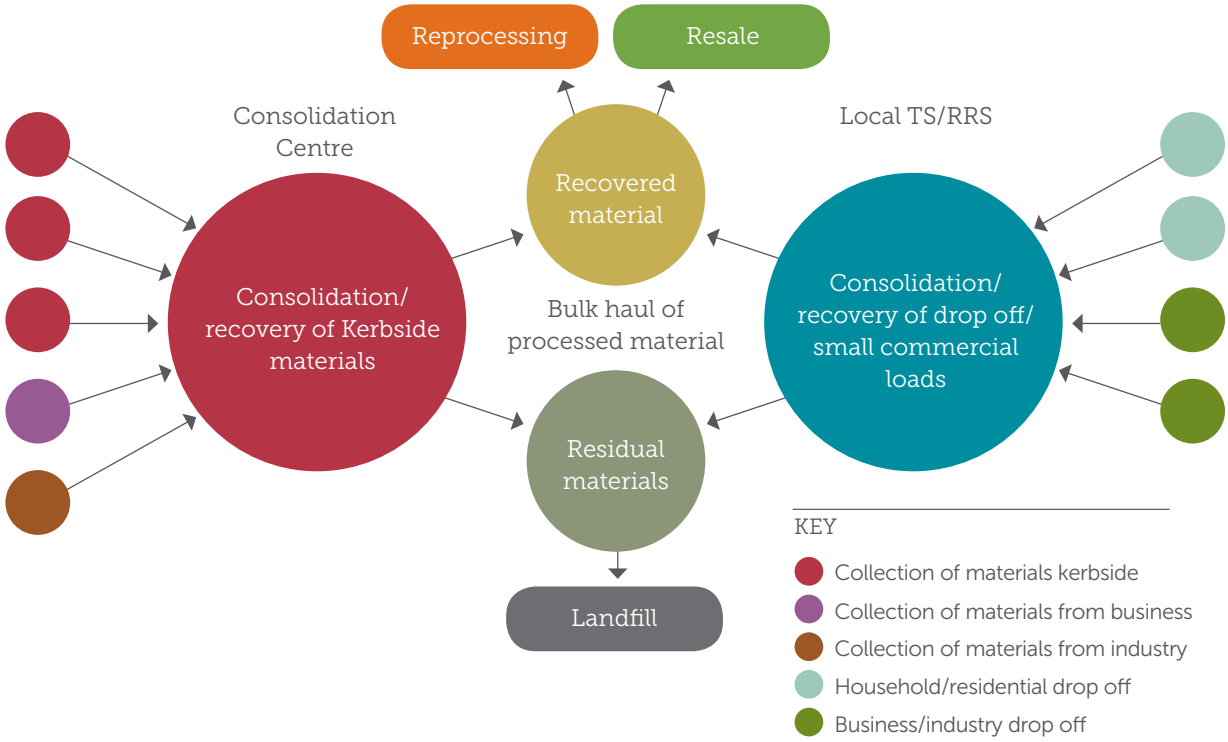
Getting full value describes a 'hub and spoke' system to guide local government and industry investment. The draft SWRRIP builds on this concept by putting forward criteria for hubs of state importance.

This Infrastructure Schedule defines 'hubs and spokes' as:

- TS/RRC Hubs – will be centralised *strategic transfer and resource recovery* facilities used by multiple councils areas and/or a strategic resource recovery facility that allows local residents to drop off specialised material (i.e. product stewardship items).
- Spokes – are the activities that move material to the hubs, including direct haul of kerbside collected material and resident drop offs.

Figure 2.7 (page 64) provides an example of how the localised and strategic consolidation sites of the T/S RRC network will work to ensure they meet local government service provision requirements and community expectations. The diagram also illustrates the network of processing and disposal infrastructure that supports the role of the transfer station network.

Figure 2.7: Localised and strategic consolidation sites of T/S RRCs, processing and disposal infrastructure



A TS/RRC investment program will be developed to achieve the right balance of service provision. This will identify sites that:

- are strategically important
- require upgrades and funding to perform their role.

14.2.3 Increasing recovery in the south east

Managing with an anticipated short term loss of 1.2 million annual tonnes of landfill in the south east is a critical infrastructure priority (see Part 1 – The Metropolitan Plan, Section 6.3).

MWMG will work with affected local governments in the south east to investigate the feasibility of a strategic transfer and resource recovery facility. MWMG will also support Sustainability Victoria and industry partners to explore commercial recovery opportunities, (also refer to Part 3 – The Metropolitan Landfill Schedule, Section 12.2).

The Kingston/Clayton/Dingley precinct is a significant hub for organics transfer and composting, putrescible and solid inert landfilling and C&D processing. The draft *SWIRRP* identifies this precinct as a "hub of state importance" and advises "that these sites are important to the state's waste management and resource recovery system". The *SWIRRP* also acknowledges the opportunities these sites provide to transition to resource recovery. Preserving the land for future resource recovery activities will allow future waste and recovery needs of metropolitan Melbourne to be met.

MWMG acknowledges that while the market will determine the location for most resource recovery facilities, MWMG expects that preference will be given to current resource recovery hubs and employment precincts. For organics processing, the preference will still be for sites in green wedges and farming zones as they provide the best opportunities to operate with appropriate buffers that will preserve amenity and mitigate against public health impacts.

To assist readers reviewing this draft Strategic Plan, MWMG and south east councils have developed the *Waste and Resource Recovery in Melbourne's South-East: Discussion Paper* to help councils in this region of Melbourne to consider collection procurement options for managing waste.

Accommodating cross border flows

As residential development in metropolitan Melbourne encroaches on regional borders, an increasing amount of material is being managed by the regional waste management system. This places a burden on its limited infrastructure capacity. MWMG will need to work with regional waste management groups to understand the impact this is having on the regional transfer station network and what assistance is required to manage the situation.

Planning amendments

Many transfer stations and landfills operate resale shops, which aim to maximise the value of resources and reduce the volume going to landfill. The federal government also has policies that aim to remove e-waste, paints and tyres from landfill and instead provide opportunities for their resale.

However, there are current planning controls in the planning scheme definitions and zone provisions that require transfer stations to co-locate with landfills and restrict on-site resale shops. These controls limit an integrated service delivery model and should be removed.

Mornington Peninsula

The Victorian Government's response to the report of the Ministerial Advisory Committee Waste on Waste and Resource Recovery Governance Reform will provide the Mornington Peninsula with new opportunities for transfer station / resource recovery facilities.

15 ORGANICS PROCESSING INFRASTRUCTURE

This section at a glance:

- MWMG and metropolitan councils have commenced collective procurement of organics processing facilities and this draft Strategic Plan aims to provide a road map for continued investment.
- In responding to future need, care needs to be taken to ensure organics recovery supports a sustainable growth in the reprocessing industry and associated markets.
- The addition of food to the kerbside green waste bin needs particular monitoring and management.

The benefits of returning organic matter to the ground as compost are well known.[12] However, both municipal and commercial efforts to recover and recycle organic waste from metropolitan Melbourne to date have been limited. Analysis of waste to landfill suggests that more than 60%[13] of it is biologically active, meaning that it contains food and garden waste.

For these reasons, *Getting full value* includes the strategic direction to "...prioritise actions that minimise the short and long term environmental impacts of organic waste". Likewise, the SWRRIP has a priority action to "...maximise the recovery of valuable resources from waste streams".

These directions for metropolitan Melbourne will be achieved through existing procurement activities and the development and delivery of an organics strategy that can build on MWMG's *Strategic Implementation and Directions Paper: Metropolitan Melbourne Organics Recovery and Recycling (2013).*

MWMG aims to ensure this Strategic Plan supports the clear directions of *Getting full value* and the draft SWRRIP that promote opportunities for capital infrastructure and innovation in waste management. This elevates the importance and creates greater certainty for stakeholders seeking to invest in the organics recovery industry.

MWMG will use the Infrastructure Schedule as a road map for council procurement of organic waste management solutions. Logical groupings of councils have been established to enhance best value outcomes from public tender processes:

- three 'outer' metropolitan 'procurement clusters' involving councils that have similar kerbside collection configurations
- an 'inner' metropolitan 'procurement cluster' that incorporates the higher density municipalities where three bin collection systems are not a practical option because of space and traffic congestion considerations.

The MWMG procurement strategy is outlined in Section 3.1.

There are opportunities for industry, water authorities and local government to unite and provide integrated infrastructure solutions across the waste, sewerage and water treatment industries. Examples include:

- treating food waste from commercial sources with household organics
- co-locating water, waste and organics treatment facilities to streamline the management and treatment of organics waste.

These solutions generate end products such as renewable energy, organic fertilisers, soil conditioners, mulches, composts and crop treatments.

12 Source: Strategic Implementation & Directions Paper, MWMG (2013)
13 Source: *Getting full value : the Victorian Waste and Resource Recovery Policy (Getting full value)(2013)*

Metropolitan Melbourne needs a sustainable network of facilities capable of processing organic material from both the municipal and commercial sectors. To achieve this, several factors need to be considered, including:

- waste management and land use planning authorities need to synchronise their priorities
- the views of multiple stakeholders need to be considered
- stakeholders need to acknowledge their roles and responsibilities in the process
- the need to align to the development of end market strategies
- policy imperatives which are required to be addressed.

The same applies for the planning of future municipal organics services.

15.1 Current situation

Organics processing facilities biologically process organic matter in the presence of oxygen, yielding carbon dioxide, heat and stabilised organic residues. End products can include renewable energy, organic fertilisers, soil conditioners, mulches and crop treatments.

An estimated half of Victoria's organic waste is recycled and most of that is garden waste. Only 3.7% of food waste is recycled, that being C&I waste.[14] Figure 2.8 below highlights the growth in kerbside organics collected to 2006, a levelling off from that period until 2009, followed by a current further upward trend. This could be attributed to councils progressively introducing kerbside collection services in the early 2000s, countered by the effects of the 10-year drought in the mid to late 2000s. Despite little variance in collection service levels in recent years, there is a recent upward trend due to higher rainfall rates and corresponding vegetation growth.

14 Sustainability Victoria (September 2011) *2009-10 Victorian Recycling Industry Annual Survey*

Figure 2.8: Indicative MSW organics 2002-2010

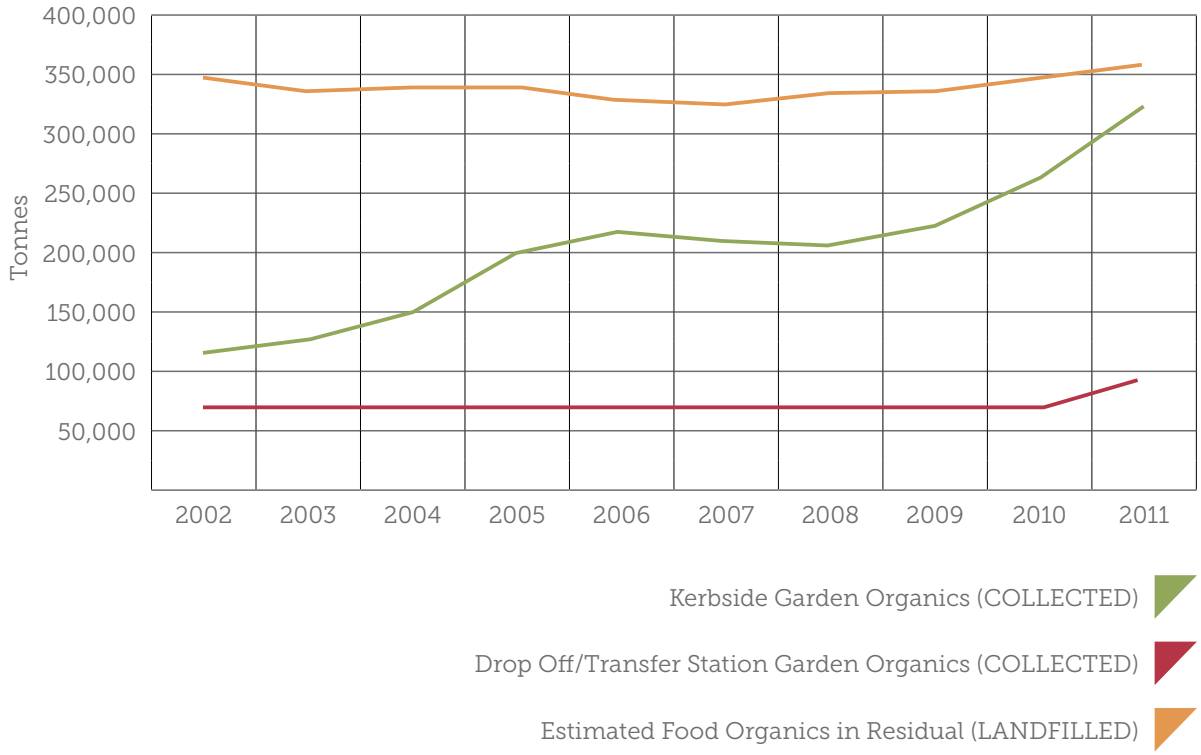


Table 2.12 details metropolitan Melbourne's organics processing infrastructure. There are four composting facilities within the metropolitan area and two outside which service MSW garden organic waste. These six facilities process a majority of the 380,000 tonnes a year of metropolitan-generated, MSW garden organic waste.

Veolia's Dandenong facility is the only one in metropolitan Melbourne processing food organic waste, mostly from the commercial sector. On-farm composting and quarry remediation outside of metropolitan Melbourne account for a small proportion of municipal organics.

Table 2.12: Facilities managing MSW garden organic waste collected in metropolitan Melbourne at July 2013

Role	Company	Location	Capacity[1]	Current management method
Composting	SITA	Epping	Large	Open turned windrow aerobic composting
	Gippsland Water	Dutson Downs[2]	Large	Open turned windrow aerobic composting
	Pine Gro	Deer Park	Large	Forced aeration system for the first few weeks, then open turned windrow aerobic composting, with basic cover system
	Enviromix	Dingley	Medium	Open turned windrow aerobic composting
	Biomix	Stanhope [2]	Medium	Open turned windrow aerobic composting
	Veolia	Dandenong	Medium	In vessel tunnel aerobic composting: the facility also processes C&I food organic waste
	Pomonal	Warnambool[2]	Small	Open turned windrow aerobic composting
Transfer	Bio Gro	Dandenong	Large	Receives and consolidates the waste for bulk haul transport to Dutson Downs facility
	TPI	Clayton	Large	Receives, sorts, shreds, screens and consolidates the waste for bulk haul transport to various processing facilities including Barro Group Point Wilson facility
	KTS	Knox	Large	Receives and consolidates the waste for bulk haul transport to various processing facilities
	SITA	Brooklyn	Large	Receives, sorts, shreds, screens and consolidates the waste for bulk haul transport to various processing facilities
	KTS	Coldstream	Medium	Receives and consolidates the waste for bulk haul transport to Biomix Stanhope facility
	Garden State Mulching Service	Wantirna South	Small	Receives, sorts, shreds, screens and consolidates the waste for bulk haul transport to various processing facilities
Rehabilitation	Barro Group	Point Wilson[2]	Large	Receives mulched material which it spreads and levels for quarry rehabilitation
	Miners Rest Quarry	Miners Rest[2]	Small	Receives mulched material which it blends with overburden, spreads and levels for quarry rehabilitation

Notes:
1. Capacity: Small = <5,000t; Medium = 5,000 – 20,000t; Large = > 20,000t
2. These locations are in regional Victoria. All other locations are in metropolitan Melbourne.

Since 2009, four major organic waste processing facilities in metropolitan Melbourne have closed because of site amenity, odour issues and non-compliance with planning requirements. This meant that other uses had to be found for some 150,000 tonnes of organic waste in 2011 (including for site rehabilitation and farm trials).

Since MWMG implemented its organics procurement strategy (as outlined in the 2009 Strategic Plan), the use of recovered organics for site rehabilitation has fallen to about 50,000 tonnes a year. This quantity will reduce further as new organics processing facilities open in the metropolitan area, including:

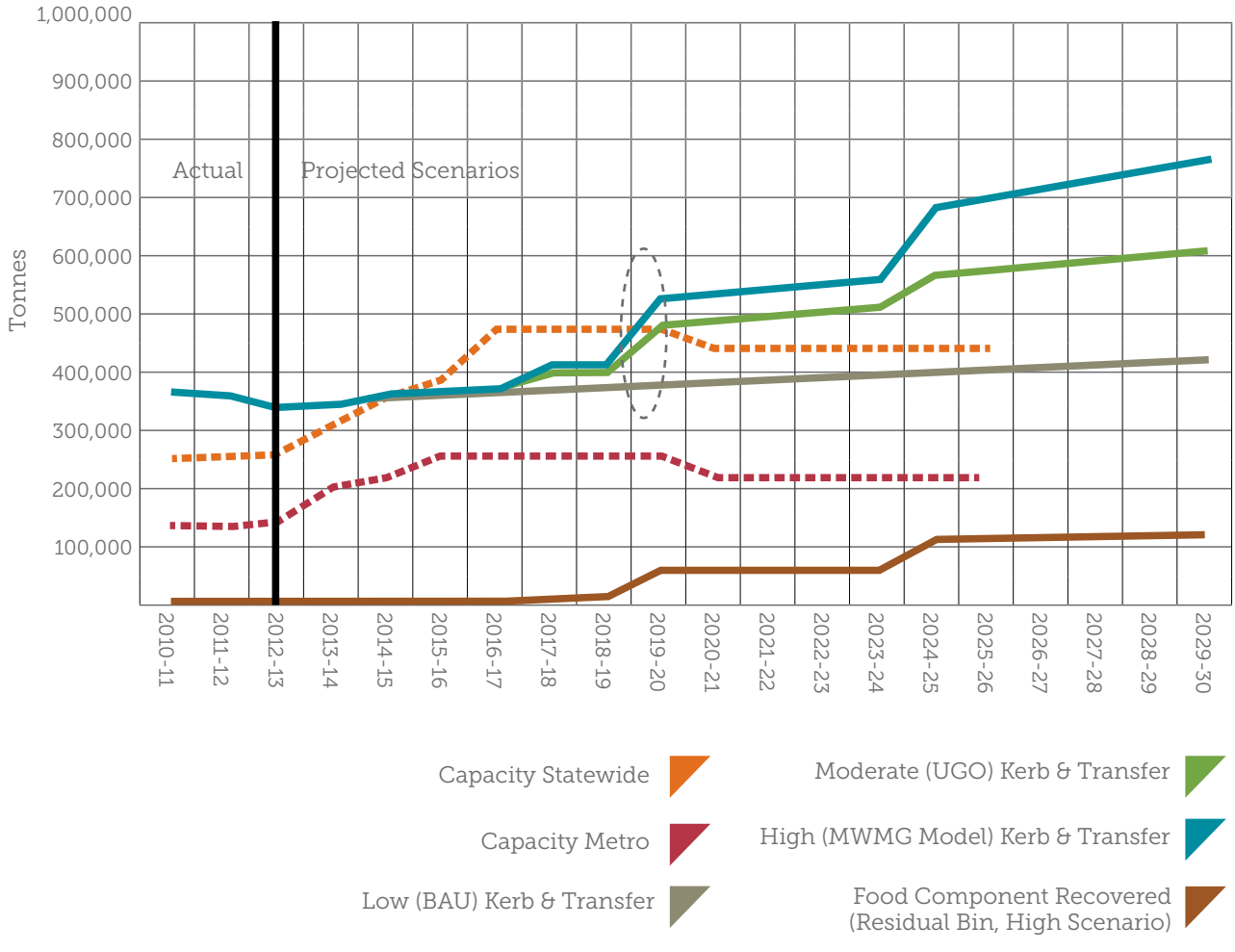
- the north west at Bulla, operated by Veolia and expected to start processing in 2013
- the south east, the location of which will be decided in 2013 and operating in 2014–15
- the east, for which procurement will begin in 2013 and operations in 2015–16.

15.2 Future need

MWMG has identified three potential recovery scenarios for Melbourne's MSW organic waste:

- a business as usual approach (retaining current collection services and processing arrangements, but with the ability to increase capacity as the population grows)
- diverting food waste to kerbside organic collection systems initially established for garden organic waste
- recovering and treating food and garden organics waste from the residual waste bin, with the remainder of waste going to landfill.

Figure 2.10: Metropolitan Melbourne – MSW kerbside organics generation and processing capacity scenarios at June 2013



The three projected scenarios outlined below assume:

- expanded collection services (to coincide with council collection contract service renewals) – two councils introduce a universal food and garden (UFG) service by 2015, a further 10 councils by 2020 and a further eight by 2025 (high-growth scenario)[15]
- increase in organic waste in line with projected population growth[16]
- half[17] of the 43% organic waste component in household garbage bins is diverted from the residual (garbage) stream, effectively accounting for approximately 21% recovery under a high-growth scenario.

It should be noted that:

- a significant quantity of organic material remains in the residual stream under the high-growth scenario (approximately 41%; comprising 21% food, 11% green organics and 9% paper organics).
- as at June 2013, that the statewide organic processing capacity (that produces product to Australian Standards 4454 (2012) and does or could accept organics from metropolitan Melbourne) is estimated at 320,000 tonnes per annum. This is estimated to increase to 370,000 tonnes in 2013 and 430,000 tonnes in 2014.

Based on experience with new garden organic waste collection services, the quantity of organics recovered by expanding or introducing new services could initially spike and then revert to more consistent levels.

15.2.1 Future growth potential

While the collection of organics through regular council kerbside services currently represents the smallest component of waste, it has the greatest potential to grow due to factors such as:

- there's a significant amount of organic material available in the residual waste stream (food organics 43%; garden organics 26%) that can be recovered
- organics collections services and processing options are currently limited, restricting the amount that can be collected
- vegetation growth (and subsequent green organic waste) has been hampered by rainfall, drought, bushfire and other climatic factors.

15.2.2 Future procurement pathways for local government

Melbourne's 30 metropolitan councils have various options for future organic waste collection and processing. These options, their costs and benefits will vary from council to council, especially for those which participate in MWMG-led procurement, or have organics processing facilities within their boundaries.

Extending their organics collection and recycling services beyond 'business as usual' will be subject to councils' appetite for change, the effectiveness of their economic and environmental policy drivers and recognising the importance of diverting waste from landfill. Should this be realised, then further processing capacity to service metropolitan Melbourne may need to be procured before 2019.

MWMG has completed an extensive modelling process to assess current and future organics processing needs for Melbourne's metropolitan councils (see Part 1: The Metropolitan Plan).

The increased diversion of household food organics from landfill can occur via two pathways:

- Pathway 1: households putting their food organics in green waste bins, or
- Pathway 2: through recovering the organic food component from residual bins.

Any increased diversion of household organics needs to be matched by markets for quality end products, otherwise MWMG, metropolitan councils and the organics industry risk having stockpiles of feedstocks or products that can't be moved, which would reduce the long term viability of the sector.

Based on what MWMG has learnt from the organics industry and experiences across Australia, both pathways have unknown elements. These include the need to :

- ensure service changes are carefully implemented so that increased quantities of food organics into the processing system can be managed
- limit contamination from large loads of food organics through education programs and/or sorting/processing technologies
- establish viable end markets for compost products to warrant a significant increase in organic feedstock
- ensure combined food and green waste processes work with available technologies at an affordable price point
- products produced meet end user needs and requirements.

15 Assumed that service changes will be made over time as collection contracts expire and/or waste strategies are reviewed. This is not a process that can be easily time managed.
16 Council data supplied or default to Australian Bureau of Statistics projections.
17 50% diversion of food organic fraction premised on successfully implementing and maintaining a significant householder behavioural change program.

15.2.3 MWMG's organics strategy

MWMG's organics recovery strategy supports working with SV and local government to implement Pathways 1 and 2. The strategy promotes sustainable growth in food organics recovery and support for processing facilities in metropolitan Melbourne's north west, south east and east.

MWMG will implement Pathway 1 (food in organics bin). MWMG has confidence in the technologies being proposed to cater for the garden organic stream and the capacity to consider including food organics in a controlled and measured way. To implement Pathway 1 MWMG will:

- keep initial volumes low until stakeholders have confidence that contamination can be minimised, technologies can operate effectively and there are markets for end-products
- implement contractual requirements that any council participating in an MWMG-led organics procurement contract and wishing to combine food and garden waste meets bin contamination standards, with penalties for non-compliance
- ensure targeted household education for the duration of the organics contracts to promote reliable quality and quantity of feedstock
- only enter into any new cluster procurements if market and industry testing confirms a strong demand for end products
- establish an ongoing contract and operations management approach that will not compromise the integrity of the overall system, will involve incremental steps and allow for any changes to product standards and market impacts to occur.

As food organics are introduced into Veolia's processing plant, MWMG will monitor the transition and overall experience to help inform future decision making in delivering Pathway 1.

MWMG will also implement Pathway 2. To do this MWMG will:

- support inner council clusters, led by the City of Melbourne, to design and implement residual bin organic processing procurement
- work with councils, industry and SV to incorporate C&I into the contract design (focusing on the food services sector)
- use lessons learnt from Victorian Advanced Resource Recovery Initiative (VARRI) to develop procurement
- test EPA draft guidelines for waste to energy by incorporating them into the procurement process.

To inform and identify a long term approach for food organics recovery across metropolitan Melbourne, MWMG will examine the implementation and outcomes of these two pathways as part of the 2017 Strategic Plan review.

16 MATERIALS RECOVERY INFRASTRUCTURE

This section at a glance:

- Materials recovery facilities need guaranteed, long term volumes of materials and access to end markets to be viable.
- The capacity of existing MRFs may need to increase as recyclable volumes, collection systems and transport change.

16.1 Current situation

Materials recovery facilities (MRFs) receive and sort household and business commingled recyclables. They compact and bale, or consolidate the segregated materials and send them to processing facilities to be used in the manufacture of new products.

Figure 2.11 shows the MRF network, including the contractual coverage of the metropolitan area. There are seven MRFs in metropolitan Melbourne that service about 60% of Victoria's local governments (30 metropolitan and 18 non-metropolitan) and three alpine resort areas.

As MRFs are expensive to build, operators look for guaranteed volumes of material, long term contracts and end-processors with secure market outlets. As municipal volumes of commingled recyclables provide certainty of supply for end-processors, this tonnage could be leveraged to help support future investment in MRF infrastructure. MWMG currently assists metropolitan councils in joint procurements in this area.

Sorting of recyclables at MRFs has greatly improved over the past 20 years and the introduction of optical sorting has further improved productivity. A modern, semi-automatic facility can now sort 20 tonnes an hour, with a staff of 16. This is the quantity of commingled recyclables collected by fortnightly kerbside collections from up to 140,000 households.

In 2010-11, metropolitan MRFs managed 533,000 tonnes[18] of commingled recyclables; approximately 60% of which was from local governments across Victoria. This was about 82% of commingled recyclables recovered across the state.

16.2 Future need

MRFs are currently well serviced by the municipal and commercial sectors but their future needs are not fully understood. More work with the industry is required to determine if current facilities require upgrades to meet any anticipated growth. Collection contracts and resource recovery markets will help in determining this need.

Private sector investment in MRFs is expected to keep pace with the increasing volume of recyclables collected from the kerbside. The current trend of increasing transportation of commingled recyclables from regional areas to MRFs in Melbourne and Geelong for sorting is likely to continue under current market conditions, but is subject to local government contracting arrangements.

The capacity of existing MRF operations may also need to increase as commingled volumes and/or collection and transport systems change. For example, some Melbourne metropolitan councils are introducing 360 litre commingled recycling bins and expanding the network of public place recycling facilities.

It is difficult to determine the current capacity of MRFs in metropolitan Melbourne because:

- facility owners are not required to report the quantities of materials they recover, nor the total capacity of their facilities
- voluntary reporting cannot be verified because contracts are not publicly available
- MRFs sort C&I waste as well as MSW.

Therefore, MWMG assumes that MRFs currently have the capacity to process the quantity of materials they receive. However, as resource recovery rates and the population increase, existing MRFs capacity will be stretched.

18 Sustainability Victoria (September 2011) *2009-10 Victorian Recycling Industry Annual Survey – sourced to SWIRRP*

17 REPROCESSING FACILITIES

This section at a glance:

- There are around 64 reprocessors in metropolitan Melbourne that change the physical structure and properties of waste into saleable end products.
- MSW makes up a significant portion of exported products which is currently supported by strong international markets.
- Readers should refer to the draft SWRRIP for a full analysis of reprocessors.

17.1 Current situation

There are an estimated 64 reprocessors in Melbourne (excluding organics processing), all of which are private enterprises. They reprocess source-separated materials (such as glass, metal, paper/cardboard, concrete and timber) from TS/RRCs and MRFs and solid industrial waste. They change the physical structure and properties of these materials to produce saleable end products.

In 2010-11, 55% of reprocessed waste was from the C&D stream (mostly concrete, brick and brick rubble and rock and stone from excavation), 30% was C&I waste and 15% MSW.[19]

The number and type of facilities change in line with the availability of well-sorted material of a consistent quantity and market demand for end products. The price for which operators can sell reprocessed waste is mostly determined by domestic and international commodity markets.

The main material streams and quantities reprocessed include: [20]

- metals – 1,390,000 tonnes
- paper and cardboard – 1,213,000 tonnes
- glass – 196,000 tonnes
- plastics –146,000 tonnes
- tyres and rubber – 55,000 tonnes
- concrete, bricks and asphalt – 4,194,000 tonnes

The amount of concrete, brick and brick rubble recovered has increased in recent years due to:

- better integration between Melbourne's construction, demolition and recycling industries
- increased use of recycled concrete for building roads, pavements and other civil infrastructure
- new and upgraded reprocessing plants
- better screening and blending technologies for crushed brick and asphalt, including for road base[21]

In 2010-11 over 3.6 million tonnes of C&D waste was reprocessed in Melbourne.[22]

There are three types of C&D reprocessors:

- source separated load reprocessors, which are generally located close to both the largest sources of C&D waste generation and market outlets for their end-products
- mixed load recyclers, some of which use automated sorting to separate mixed C&D waste loads by material stream and others which separate out valuable materials using manual labour
- mobile processing, where some TS/RRCs (particularly in regional areas) have dedicated areas for the drop off of separated C&D waste and use mobile crushing and screening equipment to reprocess it.

Some metropolitan TS/RRCs arrange with reprocessors to collect C&I and C&D waste for less than it costs to send to landfill.

For a full analysis of statewide reprocessing infrastructure refer to the draft SWRRIP.

19 SV Victorian Recycling Industry Annual Survey (revised) 2010–11
20 SV Victorian Recycling Industry Annual Survey (revised) 2010–11
21 SV Victorian Recycling Industry Annual Survey (revised) 2010–11
22 SV Victorian Recycling Industry Annual Survey (revised) 2010–11

17.2 Future need

As with MRFs, it is difficult to determine the current and future capacity of reprocessing facilities in metropolitan Melbourne. MWMG assumes that reprocessing facilities currently have the capacity to process the quantity of materials they receive.

17.3 Export facilities and activities

When planning the strategic direction for waste infrastructure and services for the recovery of MSW, the role and function of exports need to be considered.

It is common practice in Victoria and elsewhere in Australia to export materials from kerbside commingled recycling because:

- more materials are recovered than can be reprocessed here
- local reprocessors cannot meet the prices for the materials that can be achieved on export markets, or
- processes do not exist locally to manage a particular material.

While the proportion of exports for the total of MSW, C&I and C&D recovered materials in Victoria is considered low[23], for MSW it is a significant proportion.

The effect of this on infrastructure planning is that if the export prices change or markets fail, then the recovered materials may need to be stockpiled here until the market price returns to a viable level, used for alternative local purposes, or landfilled.

This has been experienced to an extent in 2013 as China imposed new restrictions on the importation of end-of-life plastics and other recyclable materials, more closely inspecting loads of imported waste and recyclables . The reported impact has been that much of the material destined for China has been rejected and returned to the originating exporter for disposal or to find other destinations.

Public reports from the USA indicate that these import restrictions combined with reduced demand from China have increased sorting and processing costs in the USA[24]. Reports also indicate that the situation has driven new investment in domestic processing infrastructure in the USA as waste companies seek to ensure alternative export markets[25].

23 Draft *Statewide Waste and Resource Recovery Infrastructure Plan*, 2013
24 Quartz publication, May 2013
25 Plastics and Rubber Weekly, June 2013

18 CONTINGENCY PLANNING FOR EMERGENCY EVENTS

This section at a glance:

- Emergency events can result in large volumes of waste.
- The immediate need to safely manage large volumes is likely to preclude recycling

18.1 Current situation

Depending on their type and severity and the nature of the built environment, natural disasters can create large volumes of inert and hazardous debris. Natural disasters result in significant waste volumes (as was experienced recently in Victoria with the 2009 bushfires and the 2011 floods) with varying degrees of contamination that required urgent disposal to landfill. *Getting full value* requires that the Strategic Plan includes contingency planning for responding to such emergency events.

The immediate need to safely manage large quantities of waste arising from emergency events is expected to preclude recycling. This could accelerate the expected filling of landfills, which may require the Metropolitan Landfill Schedule to be revised.

18.2 Future need

To ensure a prompt and well-coordinated response the waste portfolio needs to work with local government to:

- develop procedures for managing waste resulting from emergency events
- assist in preparing disaster waste management plans at a municipal level that include clear pre-and post-disaster consultation and communication strategies.

19 IMPLEMENTATION OF THE INFRASTRUCTURE SCHEDULE

This section at a glance:

The purpose of the Infrastructure Schedule is to ensure that for the next 30 years, metropolitan Melbourne has adequate capacity to ensure the safe and efficient recovery and processing of MSW that is not disposed to landfill.

The Metropolitan Waste and Resource Recovery Implementation Plan is set out in Table 2.13. The actions set out below map the objectives set out in Part 1 – The Metropolitan Plan. They should also be read in conjunction with Part 3 – The Metropolitan Landfill Schedule.

Table 2.13: Implementation plan

Key area	Objective to be achieved	Actions	Timeframe
Procurement	Integrated and efficient waste and resource recovery	MWMG will work with the 30 metropolitan councils to:	
		▶ review existing procurement guidelines and submit updated guidelines to DEPI and DTF for formal approval	End 2013
		▶ ensure the scope of procurement services for MSW infrastructure promotes the inclusion of C&I and C&D waste materials, with an initial focus on organics	2014
		▶ support and maintain strong working relationships with local government and industry stakeholders to secure end markets for recovered resources OR undertake market and industry testing to inform procurement services and contract design	2014
		▶ provide support to SV's market development programs with industry and local government	2014
	Best practice environmental management to protect the environment and public health	MWMG will:	
		▶ support industry and local government to better understand potential economic and transport implications to guide the procurement of resource recovery and landfill infrastructure	2013
		▶ ensure MWMG facilitated contracts referenced regulatory requirements in tender documents and contracts	2013-17
	Foster investment in infrastructure and services	▶ ensure contract design requires proponents to demonstrate existing or emerging markets for recovered material/product	2013-17
		▶ work with local government and industry and SV to identify and remedy market barriers and failures affecting infrastructure procurement and operation	2013-17
Siting infrastructure (selection and protection)	Integrated and efficient waste and resource recovery	▶ finalise siting criteria assessment framework with local government and industry and make it available as a tool for use	2013
		▶ support co-location of new waste infrastructure with other industrial facilities that support better integration of MSW and C&I and where it is likely to deliver positive waste and resource recovery outcomes.	2013-17
		▶ work with water authorities to identify options for co-treatment and colocation of recovery infrastructure	2014
		▶ seek opportunities with existing waste management and resource recovery facilities, landfills and aligned industries to co-locate new infrastructure	2013-17

Table 2.13: Implementation plan (cont)

Key area	Objective to be achieved	Actions	Timeframe
Siting infrastructure (selection and protection)	Best practice environmental management to protect the environment and public health	▶ make sure BEPM requirements for existing and proposed infrastructure are met. This will ensure appropriate siting and management of waste and recovery facilities and promote best practice environmental management to protect public health and community amenity	2013-17
		▶ provide support to local government and preferred tenderers on best practice community consultation processes in relation to waste siting and infrastructure development	2013-17
	Foster investment in infrastructure and services	▶ ensure siting criteria and assessment framework for sites helps to: potentially suitable areas for resource recovery infrastructure, provides sufficient information to support future investment in infrastructure and can be incorporated into collective procurement processes	2013-17
		▶ assess opportunities for new waste facilities and co-location of waste and resource recovery infrastructure with compatible industrial activities	2013-17
	Foster investment in infrastructure and services	▶ ensure contract design requires proponents to demonstrate existing or emerging markets for recovered material/product	2013-17
		▶ work with local government to identify and remedy market barriers and failures affecting infrastructure procurement and operation	2013-17
	Effective land use planning policies and controls	MWMG will work with the 30 metropolitan councils to:	
		▶ establish and convene a 12-month waste and resource recovery taskforce to oversee the development and use of local land use planning policies and controls	2013-14
		▶ improve and develop integrated planning approaches to waste management and resource recovery infrastructure and services	2013-14
		▶ develop a toolkit of fundamental waste policy principles, guides, policies and overlays for waste managers and planners	2014
		▶ develop appropriate templates to assist in reviewing and aligning municipal waste and resource recovery strategies with the Strategic Plan and *Getting full value*	2014
		▶ prepare local planning scheme amendments to councils Municipal Strategic Statements and to revise municipal waste and resource recovery strategies – to ensure alignment with the strategic plan	2014 - 17
		▶ DEPI, MWMG and SV to prepare an amendment to the VPPS to ensure Clause 19 now references *Getting full value,* SWRRIP and Metropolitan Strategic Plan	2013-14
		▶ prepare an amendment to waste and resource recovery land use definitions and zoning controls to enable integrated waste and recovery hubs and support co -location of recovery activities with landfills across metropolitan Melbourne	2014-15
		▶ prepare waste disposal and recovery guidelines or planning practice note for green wedge planning and precinct structure planning	2014
		▶ strengthen planning controls and guidance to protect separation distances and identify resource recovery hubs and significant resource recovery sites	2014
		▶ work with the Department of Transport Planning and Local Infrastructure (DTPLI) to ensure that the options and outcomes of the south east Expressions of Interest (EOI) process are integrated into waste management and resource recovery planning for Melbourne	2014

Table 2.13: Implementation plan (cont)

Key area	Objective to be achieved	Actions	Timeframe
Municipal kerbside collections	Integrated and efficient waste and resource recovery	MWMG will work with the 30 metropolitan councils to:	
		▶ encourage, where appropriate, the use of 360lt commingle recycling bins and a smaller residual waste bins when kerbside collection contracts are due for renewal	2013-17
		▶ encourage and support local governments to adopt the Australian Standard for Mobile Waste Containers (AS4123) at the time of kerbside contract renewal	2013-17
		▶ build in ongoing education over the life of kerbside contracts and continue to lead, support and participate in statewide recycling commingled and organics bin contamination programs like GIROBN	2013-17
Residential multi-unit development collections	Integrated and efficient waste and resource recovery	▶ following the completion of various local government multi-unit development recovery projects, identify opportunities to implement metropolitan wide solutions to increase resource recovery in multi-unit developments.	2013-14
		▶ develop and promote an integrated metropolitan wide model for infrastructure provision and supporting community education in MUDS utilising the learning from GIROBN and the demonstration projects funded from the Metropolitan Waste and Resource Recovery Fund.	2013-15
		▶ develop a contract template with local government and body corporates that includes the expectation that education of residents is permanently embedded into future contracts	2014
		▶ encourage partnerships between councils and body corporates to promote resource recovery options for tenants as part of their moving out process to reduce instances of illegal dumping	2014
	Effective land use planning policies and controls	▶ investigate the amendment of planning provisions to improve building design and enable equitable access to waste and resource recovery services and maximise opportunities for recovery from residential developments and subdivisions	2013-14
		▶ to better define the needs around waste infrastructure for multi-unit developments and subdivisions by ensure planning permits require adequate waste and resource recovery infrastructure. (For example, by changing planning provisions Clause 55 Two or more dwellings on a lot and residential buildings and Clause 56 residential subdivision and expanding Clause 55.02 Neighbourhood character and infrastructure).	2013-14
Hardwaste collection and drop off	Integrated and efficient waste and resource recovery	MWMG will work with the 30 metropolitan councils to:	
		▶ research best practice hard waste models that aim to: > reduce cost of collections > increase recovery (such as minimise the damage to maximise reuse and recovery of materials) > increase accessibility of collection and drop off (such as 'second-hand Saturdays' and one off 'pop up' drop off days)	2013-14
		▶ commence pilot cluster procurement for standardised hard waste collections (based on researched best practice model examples), with a view to a metropolitan wide rollout	2014-15
		▶ develop guidelines that support local government to deliver efficient collection, transportation and sorting processes for hard waste that maximise resource recovery	2014
		▶ encourage TS/RRC to expand hard waste recovery operations using the learning's from existing TS/RRC in the network and where resale centres exist	2013-17

Table 2.13: Implementation plan (cont)

Key area	Objective to be achieved	Actions	Timeframe
Commercial collections and drop off	Integrated and efficient waste and resource recovery	MWMG will work with the 30 metropolitan councils to:	
		▶ review methods councils currently use to support resource recovery from businesses and investigate ways to increase recovery of waste from SMEs	
		▶ building on this review, provide consistent guidelines for metropolitan councils to assist in increasing diversion, minimising litter and dumping, improving public amenity and safety in public places from SMEs	
		▶ engage with industry (such as retail, office and other site based businesses) in LGAs to encourage increased source separation (organics, containers, paper/ cardboard)	
		▶ leverage stronger waste recovery outcomes for SMEs through providing template contracts for engaging waste management services	
		▶ encourage on site recycling consolidation and food waste processing infrastructure solutions such as the Degraves Street, Melbourne project	
		▶ help disseminate research conducted by SV to better understand market influences and the costs and benefits of resource recovery compared to landfill	
		▶ explore digestion and other technologies for large volumes and largely homogenous waste streams and the potential for energy recovery	
		▶ deliver statewide C&I and C&D engagement program priorities	
		▶ expand the capacity of existing TS/RRCs to accept drop offs by SMEs for recycling and residential C&I and C&D materials free of asbestos	
		▶ increase recovery from smaller, source-separated and mixed loads from residential buildings, renovation and demolition work by engaging with peak industry bodies and retailers to promote resource diversion	
		▶ encourage pre-sorting of C&D waste disposed to landfill and locate recovery facilities in proximity to end use	2013-15
TS/RRCs	Integrated and efficient waste and resource recovery	MWMG will work with the 30 metropolitan councils to:	
		▶ complete a feasibility study into integrated resource recovery in the south east options	2013 -14
		▶ work with south east councils to collectively procure a new strategic TS/RRC servicing and Melbourne's south east	2014
		▶ construct and commission a new TS/RRC in Melbourne's south east	2016
		▶ support collective procurement preferences that might emerge for TS/RRCs on the basis of the future waste and resource recovery transport options (direct or bulk haul) selected by local government for future garbage and organics transportation	2014-15
		▶ develop guidelines and support materials to improve efficiency and reduce contamination within TS/RRC 's facilities	2013-14
		▶ ensure reviews and upgrades to TS/RRCs consider any potential expanded management of C&I generated materials	2014-15
		▶ encourage parties proposing new TS/RRCs to use MWMG's siting criteria and assessment guidance	2014
		▶ develop guidelines for supporting cost effective resale recovery shops that can offer social inclusion opportunities while maximising material recovery.	2013-14

Table 2.13: Implementation plan (cont)

Key area	Objective to be achieved	Actions	Timeframe
TS/RRCs	Foster investment in infrastructure and services	▶ complete a transfer station investment strategy (upgrades and new facilities)	2014
		▶ investigate options to incentivise local government and industry rollout of a transfer station investment strategy	2014-17
	Best practice environmental management to protect the environment and public health	MWMG will:	
		▶ ensure that future TS/RRC contracts will build in best practice requirements to protect public health and environment	2014-17
		▶ work with SV to review and update the existing Guide to Best Practice at Resource Recovery Centres	2014-15
Organics processing infrastructure	Integrated and efficient waste and resource recovery	MWMG will work with the 30 metropolitan councils to:	
		▶ review, maintain and update facilitated overflow contract arrangements to service local government organic processing needs while long term, contracted facilities are established	2013-17
		▶ in its role as the contract principal, ensure all contractual obligations for establishing an operating new processing facility at Bulla (Veolia contract) are met	End 2013
		▶ in its role as the contract principal, ensure all contractual obligations for constructing an organics transfer station and processing facility at Wyndham RDF are met	Mid 2014
		▶ in its role as the contract principal, finalise the tender process for organic processing facilities to service south east metropolitan councils and ensure all contractual obligations are met	2013-15
		▶ deliver a facilitated council procurement for organic processing facilities to service east metropolitan councils.	2013-15
		▶ deliver a facilitated council procurement for organic and kerbside residual waste processing facilities (with commercial waste capacity) to service inner metropolitan councils and in its role as contract principal ensure subsequent contract obligations are metcommence planning for further processing capacity needs and associated facilitated procurements for the north west	2014-16
		▶ promote the sustainable growth of food recovery (as new facilities come online), through Implementation of MWMG's organics strategy Pathway 1 (putting food organics in the green waste bin) and Pathway 2 (recovery organics from residual) with the inner cluster of councils	2015-17
		▶ develop and deliver organics recycling communications and community engagement programs to support infrastructure procurement and clustered processing contracts (through minimising contamination in household organics bins and encouraging uptake of municipal organics recycling services)	2014-17
		▶ ensure Councils' organics contracts require industry participants to demonstrate the high likelihood of end markets for products	2013-17
	Best practice environmental management to protect the environment and public health	▶ MWMG will ensure that future contracts will incorporate best practice requirements to protect public health and environment	2014-17

Table 2.13: Implementation plan (cont)

Key area	Objective to be achieved	Actions	Timeframe
Materials recovery infrastructure	Integrated and efficient waste and resource recovery	MWMG will work with the 30 metropolitan councils to: ▶ support local governments to make collective procurement arrangements for receipt and processing of kerbside recyclables (similar to its support with kerbside organics), within its procurement framework ▶ to advocate for the changing needs of local government in relation to material recovery ▶ facilitate processes with industry to invest in smaller, material recovery sites to consolidate and transfer materials to larger MRFs ▶ encourage parties proposing new MRFs to use MWMG's siting criteria and assessment tool	2013-17
Reprocessing facilities	Integrated and efficient waste and resource recovery	▶ encourage parties proposing new reprocessing facilities to use MWMG's siting criteria and assessment tool ▶ facilitate industry investment in new facilties through providing a brokering role that reduces administrative burden and supports information sharing and approval processes for industry	
Contingency planning for emergency events	Best practice environmental management to protect the environment and public health	▶ engage with EPA, DEPI and councils to develop procedures for contingency planning for waste from emergency events to ensure a prompt and well-coordinated waste disposal response	2013-14
Landfills	Minimise the use and development of landfills, as required under the Waste Management Policy (Siting, Design and Management of Landfills)	▶ conduct a transparent EOI process to test market readiness to move towards integrated recovery and disposal solutions for the south east of Melbourne (Refer to Part 3: Landfill Schedule)	2014

Confidential draft internal document for review. This document does not represent Victorian Government policy.

PART 3: THE METROPOLITAN LANDFILL SCHEDULE

Part 3:

- Identifies all landfills currently licensed by EPA to receive Melbourne's waste.
- Provides an estimate of the need for landfill capacity in metropolitan Melbourne.
- Identifies available landfill sites for at least the next ten years.
- Specifies the proposed sequence for filling of scheduled sites for at least the next ten years.
- Supports an integrated approach to finding waste disposal solutions in metropolitan Melbourne with an immediate need to address the south east of Melbourne.

Confidential draft internal document for review: This document does not represent Victorian Government policy.

20 THE METROPOLITAN LANDFILL SCHEDULE (PART 3)

This section at a glance:

- The Metropolitan Landfill Schedule ensures the safe and sanitary disposal of waste.
- Governance requirements for the Schedule are contained in the *Environment Protection Act 1970* and relevant state environment protection and waste management policies and strategies.
- MWMG has developed the draft Schedule through a technical review and assessment of existing landfills and future need.

20.1 Purpose and objectives

The *Environment Protection Act 1970* (the Act) requires the MWMG to prepare a Metropolitan Landfill Schedule (the Landfill Schedule). The Landfill Schedule aims to ensure that Melbourne has sufficient landfill capacity to ensure the safe and sanitary disposal of wastes that are not recovered for the next 30 years.

The Landfill Schedule:

- identifies all landfills currently licensed by EPA to receive Melbourne's waste
- estimates the need for landfill capacity in metropolitan Melbourne (by estimating the likely tonnages of waste that will be disposed to landfill)
- identifies available landfill sites for at least the next ten years
- specifies the proposed sequence for filling these sites for at least the next ten years
- includes a program for replacing and rehabilitating existing landfill sites
- gives the intended or likely date each landfill site will close
- identifies options for future landfill capacity for Melbourne.

The Landfill Schedule also aims to:

- minimise the number of landfills serving Melbourne
- estimate the closing date of landfills listed in the Landfill Schedule
- ensure that any new landfills meet current best practice standards and policies set out by EPA Victoria and the state government
- provide direction to planning and responsible authorities to inform and ensure appropriate planning decisions can be made for existing and new landfills and their buffer areas.

The Landfill Schedule, as a part of the Strategic Plan, is incorporated into planning schemes across the state through Clause 19 of the State Planning Policy Framework. It provides local governments, state planning agencies and other responsible authorities with a strategic framework for their policy development and provides direction and guidance for the approval of development in and around scheduled landfills. This is to ensure:

- the ongoing viability of existing scheduled sites so that the capacity to meet Melbourne's landfill disposal needs is not compromised
- buffer distances can be defined, protected and considered in planning decisions.

As Melbourne's population and the waste to be managed increases, more must be done to reduce the volume of waste going to landfill, to recover more resources for reuse and recycling and to avoid environmental and social harm from waste treatment and disposal activities. Landfills must not leave an unacceptable environmental legacy for future generations and their management must be best practice.

A shortage of landfill airspace in one catchment or region does not necessarily require the scheduling of a new landfill. The Waste Management Policy (Siting, Design and Management of Landfills) 2004 (Landfill WMP) provides that, in developing a schedule for the proposed sequence for filling of available landfill sites, consideration should be paid to the potential to utilise landfill airspace available in surrounding regions (WMP 2004 item 12(1)).

MWMG supports an integrated approach to finding a solution for waste disposal and management in Melbourne. The development of resource recovery infrastructure together with the efficient bulk hauling and transfer of waste to another landfill in an adjoining catchment or region may in some cases provide a cost effective and preferred, environmental solution to treating the volume of waste presented for disposal in Melbourne.

20.2 Landfill governance and policy

Landfills are regulated to ensure good planning and facility design so that communities are protected from adverse amenity effects such as noise, odour, dust and the potential for landfill gas migration.

The *Environment Protection Act 1970* is the primary legislation for waste management in Victoria. It establishes government waste agencies, defines their objectives, powers and functions and creates principles and policy tools that are used to achieve objectives.

In administrating the Act regard should be given to the principles of environment protection. Of particular importance are: integration of economic, social and environmental considerations, intergenerational equity, shared responsibility and integrated environmental management. These principles of environmental protection are restated in the Landfill WMP.

Under the *Environment Protection Act 1970* the landfill schedule must be consistent with relevant state environment protection and waste management policies and strategies. The most applicable landfill policies are EPA Victoria's:

- Waste Management Policy (Siting, Design and Management of Landfills) 2004
- Best Practice Environmental Management (Siting design operation and rehabilitation of landfills) (Landfill BPEM), 2010 updated.

The *Environment Protection Act 1970* also includes a 'Consistency with the *Metropolitan Waste and Resource Recovery Strategic Plan* and *Regional Waste Management Plans*' requirement (Section 50BH). In effect, this section requires anyone (including councils) involved in waste generation, management or transport of waste within metropolitan Melbourne to be consistent with the Strategic Plan.

Getting full value mirrors the requirements of the *Environment Protection Act 1970* and states that 'the fundamental role of the waste and resource recovery system is to protect the environment and public health from the risks that arise from waste materials'. Victorians expect a high-quality, high-performing and convenient waste and resource recovery system. It sets three strategic directions to do this:

- minimise the environmental and public health impacts of waste and resource recovery facilities
- prioritise actions that minimise the short and long term environmental impacts of organic waste
- facilitate the long term purpose of landfills to be for receiving and treating residual waste and ensure a range of support mechanisms for closed landfills.

Getting full value reaffirms that the government will continue to require all new and existing landfills to be managed in line with the Landfill BPEM.

Getting full value also mirrors requirements of the Landfill WMP 2004 and Landfill BPEM and:

- states that the landfill levy will continue to be a key tool to make alternatives to landfill more viable. Its ongoing purpose is to:
  - > divert waste from landfill
  - > promote recycling and recovery, in line with community expectations about the appropriate management of waste
  - > send a clear signal to industry and local government that the state government is committed to facilitating resource recovery options, by making them more cost-competitive with landfills
- promotes changes to planning controls for scheduled landfill sites to protect existing landfills from encroachment by unsuitable and incompatible uses – such as residential development
- requires the strategic plan to address the issue of contingency planning for emergency events, such as floods, fires, storm events and sea level rises. These events can produce significant volumes of waste—with varying degrees of contamination—that will need urgent disposal to landfill, or treatment.

Figure 3.1 shows an indicative governance framework for landfills in metropolitan Melbourne . It highlights:

- the three stages of a landfill's life (application, operation and aftercare post-closure)
- primary and other governance arrangements at each stage (including waste management planning and policy tools and best practice guidelines)
- the importance of the schedule to the EPA's works approvals and licensing processes
- how risk management and compliance relates to the governance framework.

Strategic directions for landfill planning

EPA's Waste Management Policy 2004 notes that landfills are and will continue to be, an important part of Victoria's waste and resource recovery system. While Victorians are increasingly embracing waste and resource recovery practices, landfills will be required for materials that can't practicably be removed from the waste stream.

This policy gives direction on best practice siting standards for landfills in Victoria, which take account of community needs, landfill types, surface and groundwater impacts, alternative potential uses for sites, buffer distances between a landfill and sensitive land uses, site geology, local infrastructure and land ownership.

Generally, the policy gives preference to fewer, well-located and well-managed landfills. The Waste Management Policy requires that scheduled landfills not currently operating only come into operation:

- upon the closure, or imminent closure, of existing landfills
- and when their closure has created a demonstrable need for new landfill space in that sub-region.

The policy and the *Environment Protection Act 1970* require MWMG to consider the potential to use landfills in surrounding regions. MWMG has assessed landfill levy data for the state and met with Regional Waste Management Groups in all adjoining regions to consider the Landfill Schedule's implications for Melbourne and their municipalities.

EPA licensing framework for landfills implemented in 2009–10 requires environmental audits of all landfills and of all new landfill cells. Landfill operators must also submit an annual performance statement with details of noncompliance and of what action they will take to ensure compliance. If the landfill operator does not comply with licence conditions, or the landfill poses an unacceptable risk to the environment or the surrounding community, EPA can revoke or suspend the landfill licence.

Sustainability Victoria has developed the Draft *Statewide Waste and Resource Recovery Infrastructure Plan (SWRRIP)* for consultation. This includes an analysis of projected landfill capacity needs through to 2041–42 and notes that a shortage of landfill airspace does not necessarily require a new landfill: in some cases, efficient transfer to another facility may be the most cost effective and preferred environmental solution.

In developing the *SWIRRP*, Sustainability Victoria has identified the regions projected to run out of airspace capacity in the shortest timeframe. These are:

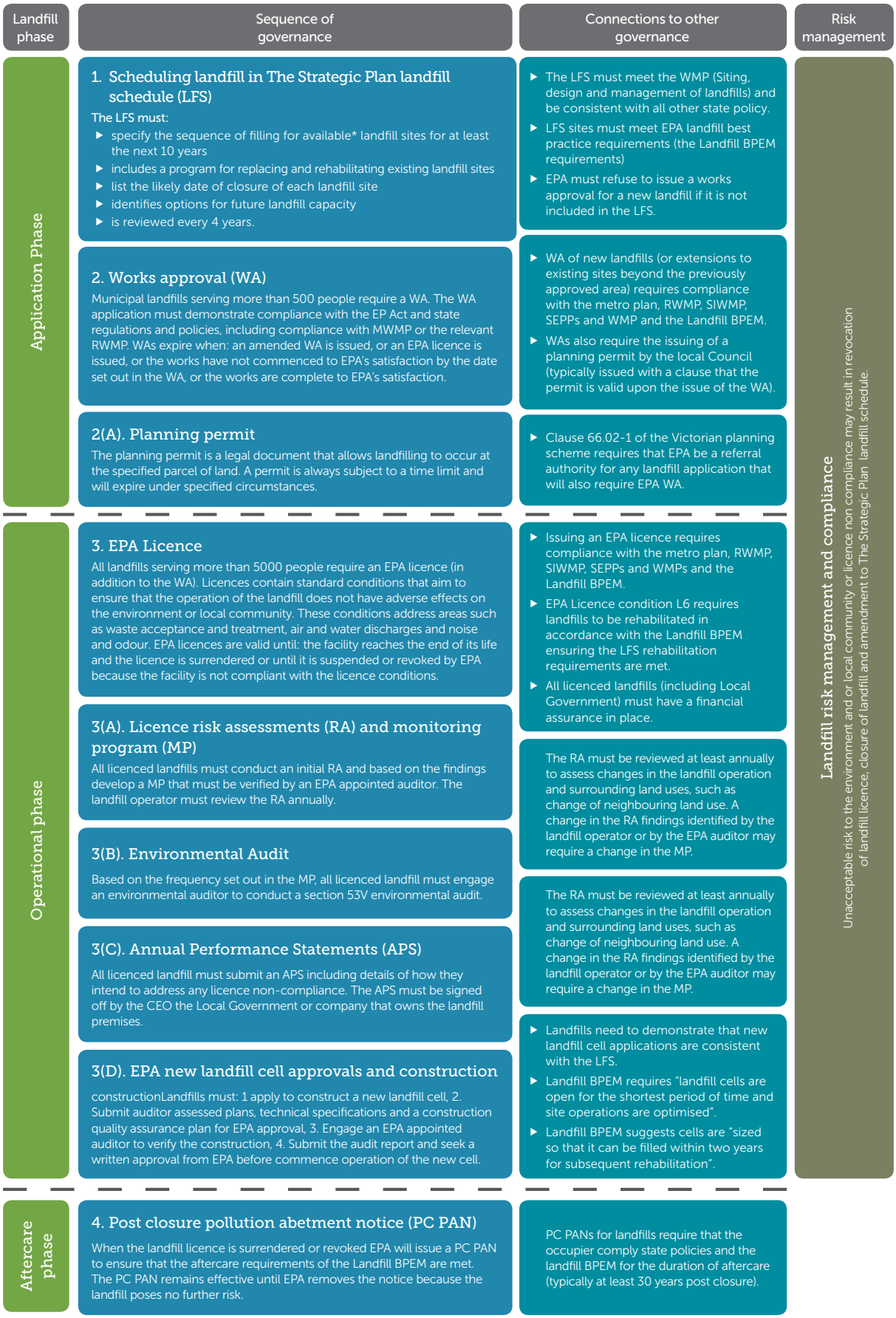
- South east Melbourne
- Calder (particularly City of Greater Bendigo)
- Mornington Peninsula
- Barwon.

As three of these regions border metropolitan Melbourne where price points and transport costs can also make the movement of waste into Melbourne more economically viable than seeking an alternative regional disposal option.

The SWRRIP identifies four metropolitan landfills that play an important part in the Victorian landfill network:

- Werribee (owned by Wyndham City Council)
- Boral at Ravenshall (Boral)
- Hanson at Wollert (Hanson Quarries)
- SITA at Hallam (SITA)

Figure 3.1: Indicative landfill governance summary



Sources: EPA (2012), EPA (2011), EPA (2010), State of Victoria (2012), State of Victoria (2004), VPPs (2012)] Available landfill sites (as asterisked in Figure 1) : includes both landfills that are licensed and have been granted works approval for all or part of the site and where necessary also includes sites that are considered potential landfill sites.*

20.3 Landfill schedule decision making principles

This schedule supports the principles of environment protection set out in the *Environment Protection Act 1970* and the waste management and resource recovery principles for decision making outlined in *Getting full value*, which include:

- principle of intergenerational equity
- integrated economic, social, environmental, waste and resource recovery management
- transparent and informative decision making
- evidence based decision making
- proportionate and appropriate Victorian government intervention.

20.3.1 Principle of demonstrable need

Consistent with the Landfill WMP, the 2009 Metropolitan Landfill Schedule introduced the guiding principle of demonstrable need, which requires that:

"works approvals and licences allowing the development of new landfills should not be granted until the closure or imminent closure of existing operating landfills in their relevant sub-region has created a demonstrable need for new landfill space".

The 2013 consultation draft landfill schedule continues to support and incorporate the principle of 'demonstrable need'. This principle has been used to guide land use planning decisions and approvals for new landfills and extensions to existing landfills. It has also been discussed in a range of cases at the Victorian Civil and Administrative Tribunal and in the Supreme Court, particularly in relation to the Barro Kealba landfill in Sunshine.

20.3.2 Principle of review and removal

This principle requires that there is an ongoing review of scheduled landfill site/s that have:

- not yet commenced operations, or
- not yet received the required planning approvals, or
- not been issued a works approval and licence to dispose of wastes.

This principle aims to ensure accountability and transparent and informative decision making around the listing and de-listing of sites within the Metropolitan Landfill Schedule.

In previous landfill schedules there has been inaction regarding potential future landfill sites. Significant delays in commencing the required planning, works approvals and licence applications have resulted in sites not being available for filling when they were sequenced to start. In some instances over 10 years have passed between the initial scheduling, the scheduled commencement date and the commencement of approval processes.

This creates difficulties when environmental, buffer and planning controls have changed over time or sites have been encroached upon due to residential development or growth area planning.

If a site is listed in the landfill schedule, but the occupier has been refused the required planning approval (between publication of the Landfill Schedule and its legislative four year review) the site may be removed from the Landfill Schedule (should MWMG assesses it as no longer appropriate and EPA approves that assessment).

MWMG may replace a scheduled landfill with a different, replacement landfill if:

- the scheduled landfill in question has no issued planning permit or works approval and/or
- the scheduled landfill in question has become 'buffer non-compliant' since the plan was last approved (e.g. because statutory buffer requirements have been increased or inappropriate sensitive use encroachment has occurred) and/or
- MWMG has made every effort to locate an appropriate alternative site and/or
- an alternative, apparently more appropriate site (e.g. one with a larger buffer distance) has become available and
- EPA approves the replacement landfill.

In relation to any proposal to remove a site from the Landfill Schedule, MWMG will undertake any applicable consultation process stipulated in the *Environment Protection Act 1970*.

EPA should not need to consider a works approval and license application for a new site until about four years before the year in the Landfill Schedule that the site is needed to commence receiving waste. This is an estimate of time needed to obtain the necessary planning, works approval and licensing requirements. As noted in Section 20.3.1, the listing of a proposed new site in the Landfill Schedule does not guarantee that the site will continue to be listed.

20.4 Roles and responsibilities (landfill)

Section 5.2 in Part 1 details the roles and responsibilities for key landfill and disposal stakeholders. The key landfill regulator is the EPA and its roles and responsibilities in relation to landfills are also outlined in Part 1.

20.5 Metropolitan and regional context (landfill sites and catchments)

The 2013 consultation draft Landfill Schedule identifies:

- 21 landfills that manage waste disposal needs for metropolitan Melbourne
- three of these landfill sites have recently closed and are commencing post closure approvals at:
  - TPI Deals Road Clayton South (ES 49849)
  - Ernest Smith Dingley (ES146)
  - TPI Market Road Brooklyn (EX304)
- two of these landfill sites scheduled in 2009 are seeking relevant approvals at
  - Barro Kealba
  - SBI Cranbourne.

Figure 3.2 shows the location of these landfills, which disposed over 3.2 million tonnes of waste in 2010-11.[1]

1 Metropolitan Waste and Resource Recovery Projection Model, 2013

Figure 3.2: Metropolitan landfill locations

There are two metropolitan landfill catchments in metropolitan Melbourne: north west and south east. The landfill disposal market has operated in these catchments to take advantage of economies of scale and travel distances. Landfills in these catchments operate within a network of infrastructure that supply and haul waste to the landfill. Waste is either directly hauled to sites or bulk hauled through a network of public and private transfer stations. Details of the networks and markets are provided in Parts 1 and 2 of this Strategic Plan.

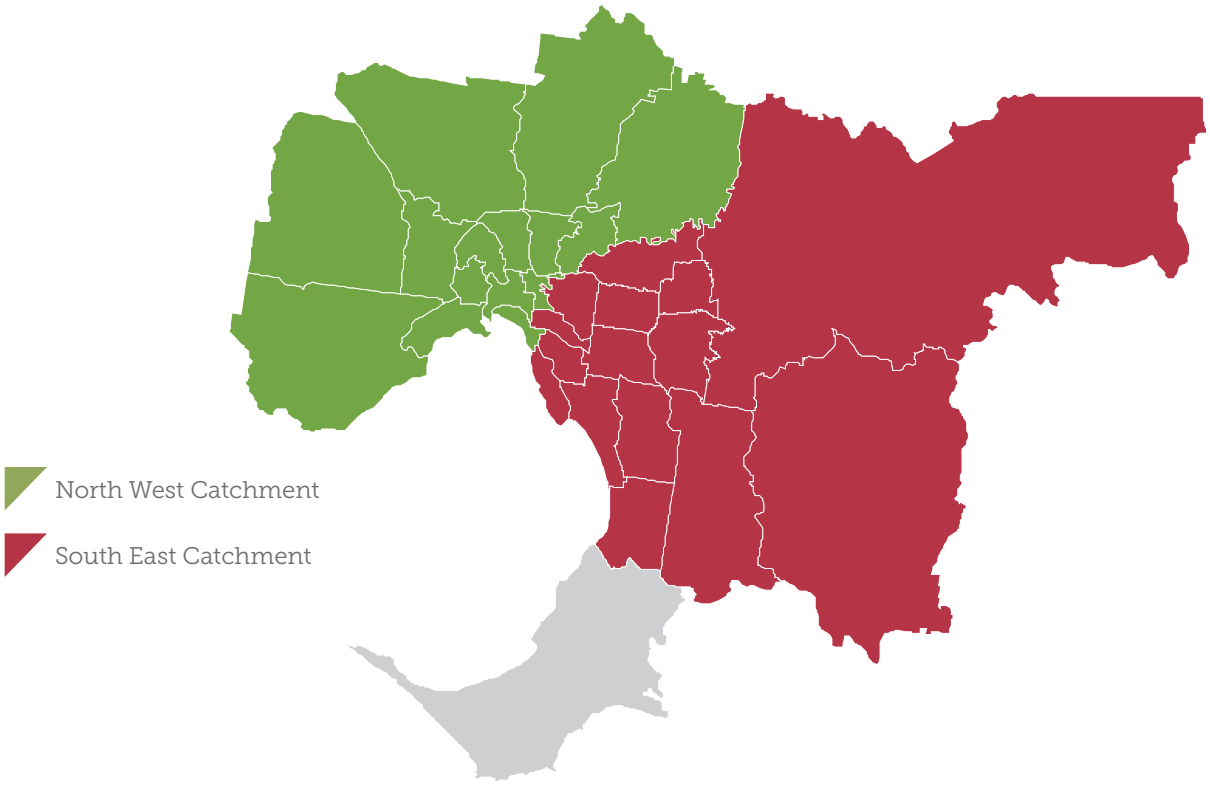
Figure 3.3 shows metropolitan landfill catchments. The north west catchment includes the local government areas of: Wyndham, Melton, Hume, Banyule, Whittlesea, Nillumbik, Hobsons Bay, Maribyrnong, Brimbank, Moonee Valley, Moreland, Darebin, Port Phillip, Yarra and Melbourne. The south east catchment includes the local government areas of: Stonnington, Boroondara, Monash, Glen Eira, Bayside, Whitehorse, Manningham, Maroondah, Knox, Yarra Ranges, Greater Dandenong, Casey , Cardinia, Frankston and Kingston.

20.6 Types of waste sent to landfill

Waste disposed to landfill can be categorised and grouped as follows:

- inert waste, commonly referred to as 'solid inert wastes' which do not readily decompose and therefore generates low levels of landfill gas, odour and landfill leachate
- putrescible waste, which includes food waste and organic waste from gardens and readily decomposes, therefore generating significantly more landfill gas, odour and landfill leachate
- hazardous waste, known as 'prescribed industrial waste' (PIW) in Victoria. PIW is further categorised into Category A, Category B and Category C wastes
  - > Category A wastes are the highest hazard wastes and cannot be landfilled without treatment
  - > Category B wastes can only be landfill at one landfill in Victoria (Sita Lyndhurst landfill ES511)
  - > Category C wastes are the lowest hazard PIW and several landfills around Victoria are licenced to receive Category C PIW. The landfill cell design standards for Category C wastes are similar to putrescible wastes and some scheduled putrescible landfills are also licensed to receive hazardous wastes.

Figure 3.3: Metropolitan landfill catchments



Landfills licensed to receive putrescible waste can accept both inert and putrescible wastes. Some can also accept Category C PIW waste if so licensed because the landfill design (cell construction) and location is appropriate for all of these waste streams. The buffer for putrescible landfills is 500 metres.

Landfills licensed to receive inert waste can only accept inert waste because the sites are not designed (cell construction) and located (200m buffer distance) to manage the increased risks created by landfilling putrescible or hazardous waste.

The Strategic Plan does not reference PIW waste, however the landfill schedule needs to account for the volume of hazardous wastes received at metropolitan landfills. Hazardous waste consumes available airspace and the amount of disposal will impact the estimated airspace available for other types of waste and corresponding estimate of a life of a landfill.

20.7 Cross regional landfill disposal

Historical and current landfill levy data and data from the SWRRIP, shows that there is a range of cross-regional flows of waste for disposal in and out of metropolitan Melbourne. A fraction of the organic components of the municipal solid waste stream is currently transported from metropolitan Melbourne for reprocessing into regional Victoria at Point Wilson and Dutson Downs. All other municipal solid kerbside waste generated within metropolitan Melbourne requiring disposal is disposed within metropolitan Melbourne.

There is substantial movement of inert waste across Melbourne as it is price sensitive and there are currently disposal options within both Metropolitan catchments and outside the metropolitan region (Maddingley Brown Coal landfill at Bacchus Marsh in Moorabool Shire {Highlands region}). The SWRRIP highlights that this landfill was also the largest disposer of waste outside metropolitan Melbourne. The price differential for the transportation of inert waste is such that solid inert waste mainly from the north west metropolitan area can and does regularly exit Melbourne to the Maddingley site.

The SWRRIP also highlighted other significant amounts of waste flow into the metropolitan region for disposal at landfill. These include:

- about 50% of Geelong's MSW is transported to the Werribee landfill for disposal, following the closure of the Corio landfill in Geelong at the end of 2011. It is also likely that a significant amount of solid inert waste from Geelong also goes to Wyndham Landfill Werribee.
- Macedon Ranges Shire Council transports its MSW to the Sunbury landfill for disposal; Solid Industrial Waste from the Macedon Ranges area is also likely to be transferred to Melbourne for disposal.
- Moorabool Shire Council transports its MSW to the Werribee landfill for disposal.
- Baw Baw Shire Council transports its MSW to the Sita Hallam landfill for disposal, following the closure of the Trafalgar landfill in 2011–12. It is also likely that Solid Industrial Waste from Baw Baw is transported to Melbourne for disposal.
- Due to a delay in approving the new landfill cell at the Smythesdale landfill (Ballarat, now approved), Solid Industrial Waste was transported to Melbourne for disposal in 2012.

The Smythesdale example demonstrates the backup role Melbourne plays when delays in approvals mean that airspace capacity is not available at regional landfills when needed. Price points and transport costs can also make the movement of waste into Melbourne more economically viable than seeking an alternative regional disposal option.

Cross-regional landfill disposal trends highlight the role Melbourne plays as a waste generator and receiver and how waste, particularly solid inert, will flow in and out of Melbourne depending on the location waste is generated, the infrastructure in place to move it and price points for disposal being asked at regional and metropolitan landfills.

20.8 How MWMG developed this draft schedule

20.8.1 Summary of process

A robust process for the review of the Landfill Schedule has included:

- undertaking a review of the content and operation of the 2009 Landfill Schedule
- preparing a risk assessment for the Landfill Schedule and incorporating it into the Strategic Plan risk profile
- analysis of key policies that impact on landfills
- making projections of waste generation, resource recovery and disposal (detailed projections for disposal including landfill capacity requirements and projected waste to landfill tonnages are included in section 21)
- estimating current landfill capacity (the airspace currently available at licensed sites)
- determining the need for additional landfill capacity for waste

- assessing and screening potential new landfill sites.

MWMG has identified the likely risks associated with the development and delivery of the Strategic Plan and this schedule and prepared mitigation measures.

Strategic risks specific to the schedule include:

- the estimation of landfill capacity
- the consideration of the sequencing and expected closure of landfill sites within and servicing metropolitan Melbourne
- the capacity of remaining sites in the metropolitan north west and south east waste catchments to receive the projected landfill tonnages and the need for new or additional landfill airspace capacity.

Within the 30-year period of the draft Landfill Schedule:

- MWMG will not list prospective landfills if there is no demonstrable need
- consistent with the requirements set out in the *Environment Protection Act 1970* and *Getting full value* decision making principles MWMG will identify the most appropriate prospective landfill site(s) to be listed in the Landfill Schedule if additional capacity is needed.

Section 21.8.2 below provides an overview of the process MWMG used to review the 2009 Metropolitan Landfill Schedule and prepare the 2013 consultation draft Landfill Schedule.

20.8.2 Developing the consultation draft schedule

Assessing capacity

Most of Melbourne's licensed landfills are in quarry voids. As a quarry is enlarged, more landfill capacity potentially becomes available. In preparing this draft schedule, MWMG has considered the entire void space that could become available in future, not just the space currently extracted or included in the works-approved area. Some landfills located in quarries have the entire future quarry void included in their works-approved area; at others, only part of the quarry void is works-approved for landfilling.

To estimate the current and potential capacity of presently licensed landfills, MWMG used landfill levy data supplied from EPA and asked licensed operators to complete a detailed site assessment survey[2]. MWMG met with key operators to better understand their business planning for airspace consumption, landfill availability and future expansion plans. See Section 22 for the results of this assessment.

Following this, MWMG then determined the need for additional landfill capacity by analysing the expected uptake of available and planned landfill capacity, using projected landfill tonnage requirements. This involved assessing landfill consumption patterns across metropolitan Melbourne and surrounding regions, as well as assessing future landfill tonnage.

MWMG landfill model

In accessing the current landfill capacity, MWMG has relied on a range of data sources including the *Regional Waste and Resource Recovery Projection Model 2013*, developed by Sustainability Victoria to inform the draft SWRRIP. The model projects landfill capacity for existing sites across Victoria.

MWMG also analysed EPA landfill levy data to understand the types and volumes of waste disposed at metropolitan and regional landfills over the last seven years.

All of this data has been incorporated into an *MWMG Metropolitan Landfill Model*, developed as a subset of the draft SWRRIP Projection Model. Further details on the modelling work can be found in the SWRRIP.

Landfill catchments

Melbourne's landfill market has operated as two separate catchments (north west and south east) for the past few decades and this arrangement is likely to continue at least until the current available airspace in the south east is exhausted.

20.8.3 Site selection process for future sites

A process for evaluating potential future landfill sites, if they are needed, has been undertaken and includes:

- a process of mapping and broad screening suitable sites
- an initial assessment of suitable sites through a sieve mapping exercise
- a detailed, spatial, multi-criteria assessment of potential landfill sites (based primarily on EPA best practice guidelines)
- an expression of interest (EOI) process to identify preferred resource recovery and / or landfill solutions (discussed in Section 23.2)
- presentation of the potential sites to EPA and DEPI
- testing and aligning of sites with key outcomes, costs and benefits outlined in the social and economic assessment.

2 Siting Assessment Framework for Landfills is available on request

If there is a demonstrable need for scheduling new site/s, they will be listed on the landfill schedule for sequencing and filling if the site/s:

- are available for filling within the sequenced timeframe
- demonstrate high potential of complying with land use planning and environment regulatory requirements (significantly the Landfill BEPM)
- demonstrate strong capacity to achieve the required environmental, public health and economic outcomes, as assessed though MWMG's economic assessment and the EOI process.

MWMG proposes this occurs during 2014 and be subject to the consultation processes of the *Environment Protection Act 1970*.

20.8.4 Site assessment work progressed to date

Mapping commenced to show:

- existing scheduled landfill sites
- a 500 and 1000 metre buffer from each site referenced to underlying zoning
- the urban growth boundary to highlight existing and potential future encroachment issues.

The next step was sieve mapping potential future landfill sites around the south eastern area of the state, determined by current and future extractive industry usages, quarry sites and DEPI Extractive Industries Work Authorities sites.

A number of sites were identified for potential use. This mapping was followed by a desktop study using spatial multi-criteria analysis to short list sites that have a high potential to meet all environmental and land use planning regulatory requirements.

20.8.5 Next steps

To finalise the 2013 Landfill Schedule, MWMG will undertake a statutory consultation process (as outlined in Section 50BC of the *Environment Protection Act 1970)* and engage with relevant local governments, waste, resource recovery and disposal stakeholders and the community.

MWMG is aware that the two catchments may change following the closure of the south east landfills in Clayton South. One option is to transport waste across Melbourne to north west landfills (which have enough capacity for Melbourne's waste for at least 50 years, see Section 22). Alternatively, there may need to be another landfill site south east of Melbourne (possibly outside the metropolitan area).

Once current landfill capacity in the south east is reached, it may be that the north west / south east catchment arrangement is no longer the best environmental, social and economic way to manage waste to be landfilled that is generated in the south east catchment.

MWMG will use an EOI process to explore an integrated landfill and infrastructure solution for the estimated 1.2 million tonnes of solid inert and putrescible wastes currently landfilled in the Clayton South area. MWMG proposes to undertake a transparent and selective EOI process that is discussed and outlined in detail in Section 22.3 below to decide potential new landfill and /or resource recovery sites for Melbourne.

Following consideration of submissions to the consultation draft, the results of the economic assessments analysis and the EOI process, MWMG will prepare the final Landfill Schedule and submit it to the EPA for approval. The EPA may approve it as is, or make changes. Once approved, the Landfill Schedule takes effect on the date that the Government Gazette publishes a notice that the Minister has endorsed the revised *Metropolitan Landfill Schedule* (expected late 2013).

21 PROJECTED WASTE TO LANDFILL TONNAGES

This section at a glance:

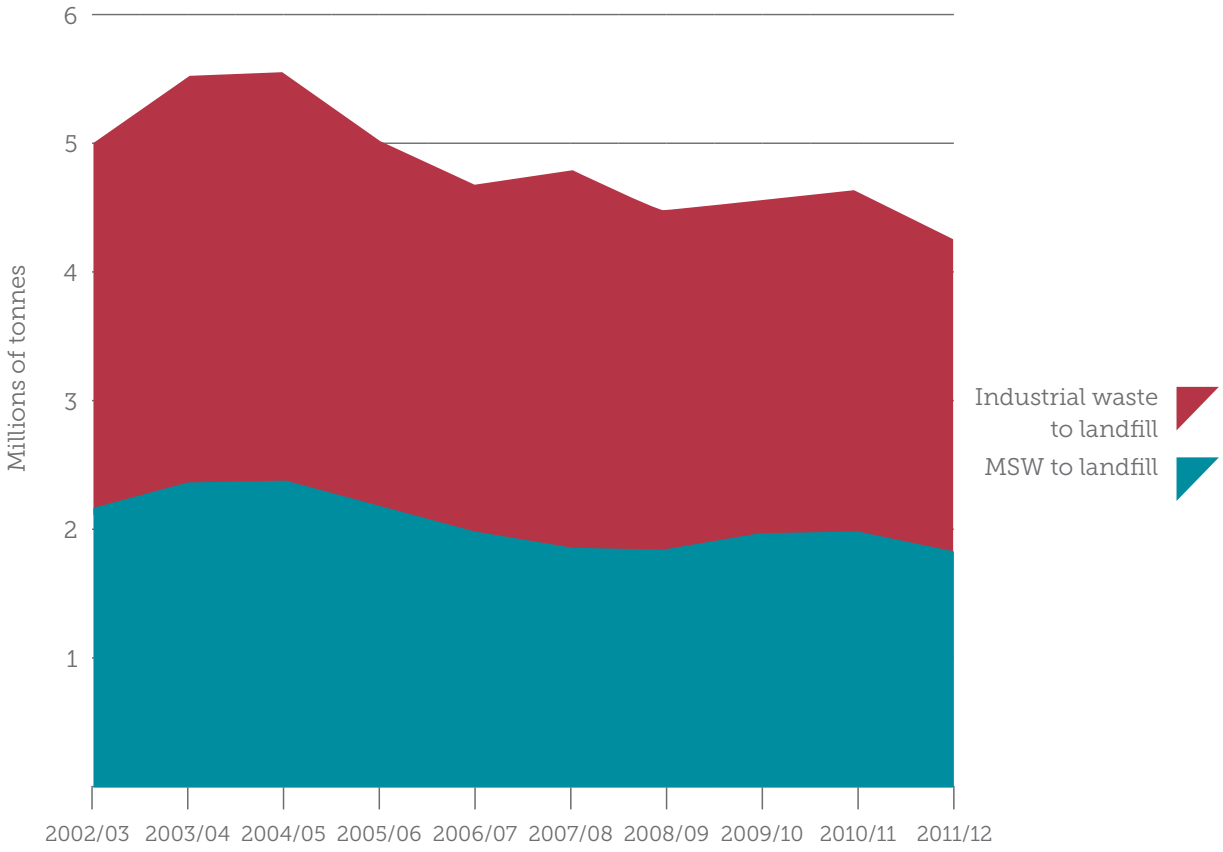
- This section projects waste to landfill tonnages for the next 30 years.

21.1 Historical and current tonnages summary

The main source of information about waste quantities disposed to landfill is data gathered through the landfill levy. The levy applies to all waste deposited at licensed landfills in Victoria and all landfills in metropolitan Melbourne must keep data on the type and volume of waste disposed.

Figure 3.4 shows that over four million tonnes of waste was disposed in Victoria in 2011-12 and that the rate and volume of disposal has been dropping since 2004-5.

Figure 3.4: Total Waste to landfill, Victoria, 2002–03 to 2011–12



Source: SV Regional Waste and Resource Recovery Projection Model 2013 v 1.1

Figure 3.5 shows historical amounts of waste disposed in metropolitan Melbourne by catchments and highlights the significant role metropolitan Melbourne plays in waste disposal for the state. Metropolitan Melbourne provided disposal for approximately 3.3 million tonnes of waste in 2010-11, which is over 80% of all waste disposed in Victoria.

The graph highlights the difference in volumes of waste disposed between the north west and south east metropolitan catchments. In 2011-12 the north west catchment disposed of approximately 1.46 million tonnes and the south east catchment 1.84 million tonnes.

Figure 3.6 highlights that the level of waste disposed in the north west and south east has proportionally favoured the south east. Both catchments have had relatively small fluctuations in the volume of waste disposed. The north west has had greater reductions in volumes mainly due to the pull of waste in this region out of Melbourne to large disposal sites like Maddingley Brown Coal in Bacchus Marsh.

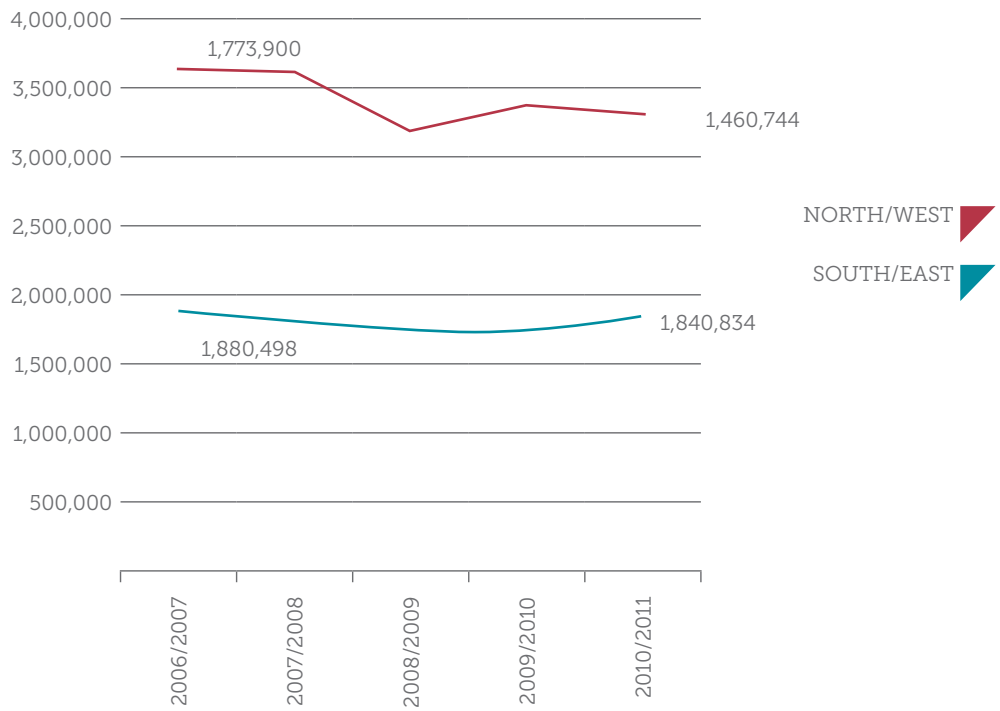
The consistent stream of waste disposed in the south east highlights the significant and equal role the south east plays in the Metropolitan disposal market. It is anticipated that any loss of waste disposal capacity in the south east will impact the market, existing businesses and local government waste services.

Alternatives for the recovery and/or disposal of this volume of waste will need to be found before any adverse impacts on south east businesses, employment and services occur. Figure 3.9 highlights the imminent loss of south east disposal and the need for an understanding of the impacts of this loss and the identification of options and solutions for existing waste generators in the south east. A detailed economic assessment is being undertaken to quantify and qualify these impacts and is discussed in section 23.3 below.

21.2 30-year projection of waste disposal to landfill

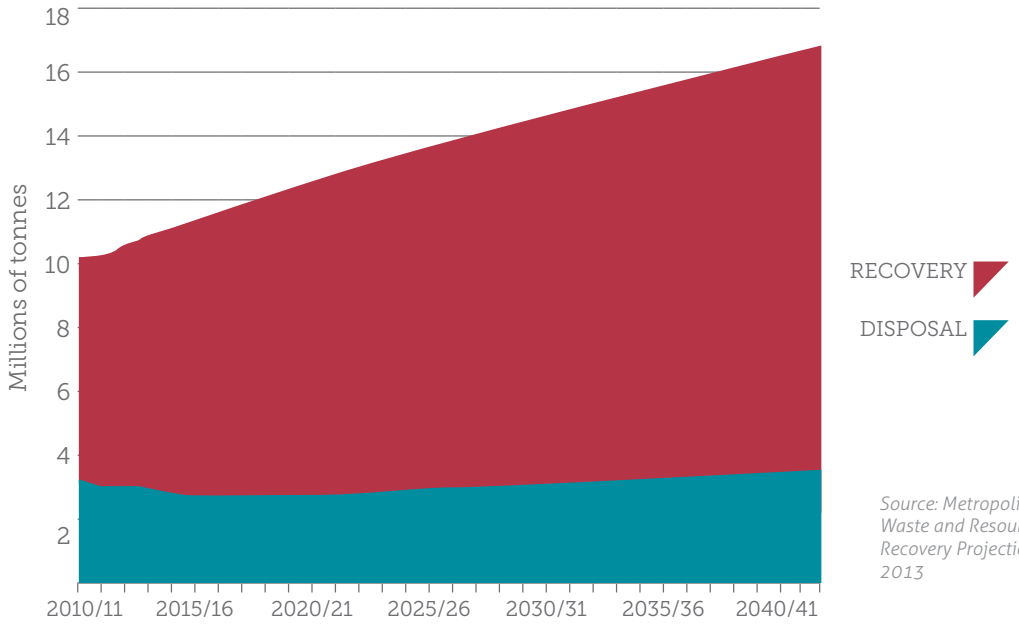
Figure 3.5 and 3.6 highlights the projected level of disposal of waste to landfill estimated out to 2040. The volume of waste to be managed is projected to grow in line with population growth over this period. The quantity of waste for disposal is projected to remain around 3.5 million tonnes per annum with significant increases in recovery tonnages. Should the level of resource recovery not be increased disposal will increase. A detailed analysis of these trends can be found in Part 1 and 2.

Figure 3.5: Waste to landfill, metropolitan annual disposal to landfill 2006–07 to 2011–12.



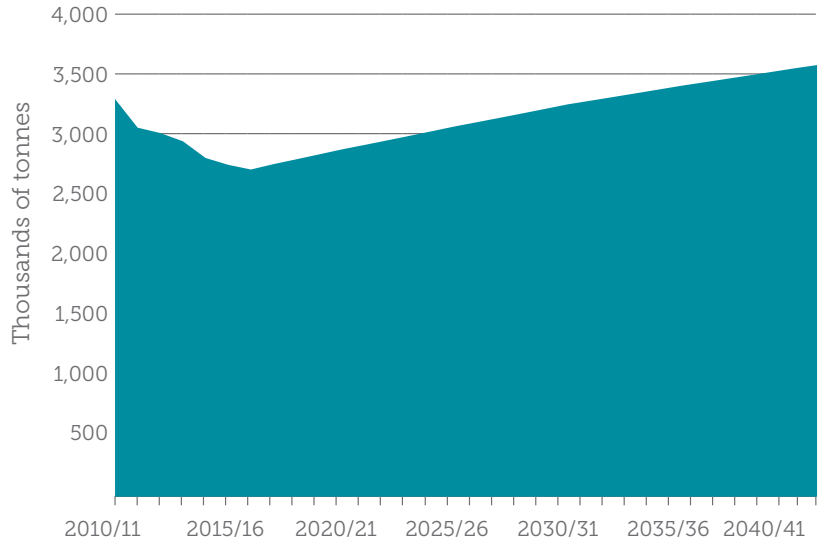
Source: EPA landfill Levy Data 2006-2011

Figure 3.6: Projected total metropolitan recovery and waste to landfill, 2010–11 to 2040–41



Source: Metropolitan Waste and Resource Recovery Projection Model, 2013

Figure 3.7 Metropolitan region projected landfill tonnages 2010-11 to 2040-41



Source: Metropolitan Waste and Resource Recovery Projection Model, 2013

Figure 3.6 and 3.7 also shows the following outcomes of the modelling for disposal:

- In the first few years of the modelling, the projected tonnage of waste to landfill declines by an annual average of over 3%. This is consistent with recent trends and the general outlook for resource recovery.
- From 2016-17 no further increase in recovery rates are assumed. Expected increases in waste generation then result in a gradual increase in waste to landfill. The average annual increase to 2041-42 is about 1.1%.
- In the 10 years from July 2013, the model projects that waste to landfill will decrease by about 2%. By July 2042 it projects that the quantities of waste disposed will be almost 20% above current levels.
- Even with a slowing economy, it is anticipated Melbourne will continue to see increasing resource recovery with increasing growth.

22 PROJECTED LANDFILL CAPACITY REDUCTION

This section at a glance:

- Over the next 30 years current metropolitan landfill capacity will decrease by about 45%.
- Current landfill capacity in Melbourne's south east is projected to be depleted by 2032.

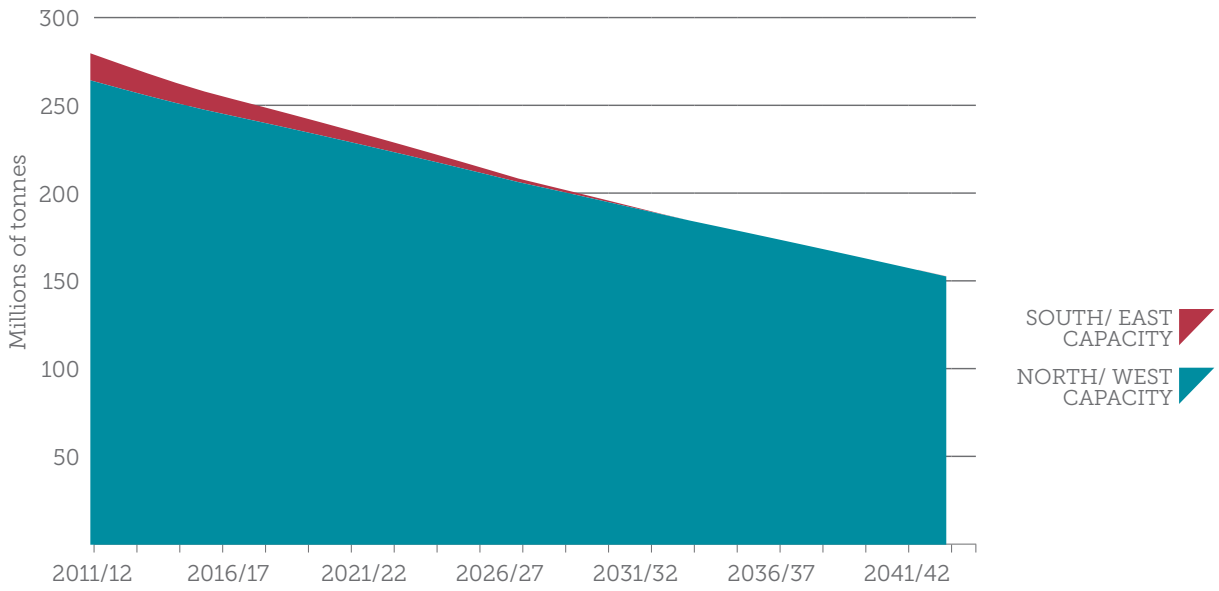
22.1 Metropolitan region total landfill capacity

Figure 3.8 shows the current landfill capacity at 2011-12 and the projected reduction in this capacity over the next 30 years. The 30 year planning horizon poses a significantly different disposal challenge for Melbourne than in the past.

In 2013, we have the challenge and opportunity to plan for a waste and resource recovery management solution for the estimated loss of 1.2 million tonnes per annum of residual waste disposal capacity in the south east, while population growth and business and community demand for disposal is still expected to generate significant disposal needs.

If resource recovery rates were higher than projected then the availability of current landfill airspace to meet demand and the corresponding landfill airspace reduction would be slower than what is presented below.

Figure 3.8: Projected landfill capacity, 2011–12 to 2041–42



Source: Metropolitan Waste and Resource Recovery Projection Model, 2013

Figure 3.8 illustrates the following:

- Over the next 30 years current landfill capacity in the metropolitan region is projected to decrease by about 45% from 270 to 150 million tonnes, or an average of 1.9% per annum.
- Current landfill capacity in the south east catchment is projected to be depleted by 2032.

The following assumptions are made in this projection:

- As landfill capacity is filled in the south east, the tonnage currently going to those sites is transported to the north west catchment.
- Known transfers of waste (from Melbourne to regional landfills as well as from regional Victoria into landfills in Melbourne) will continue.

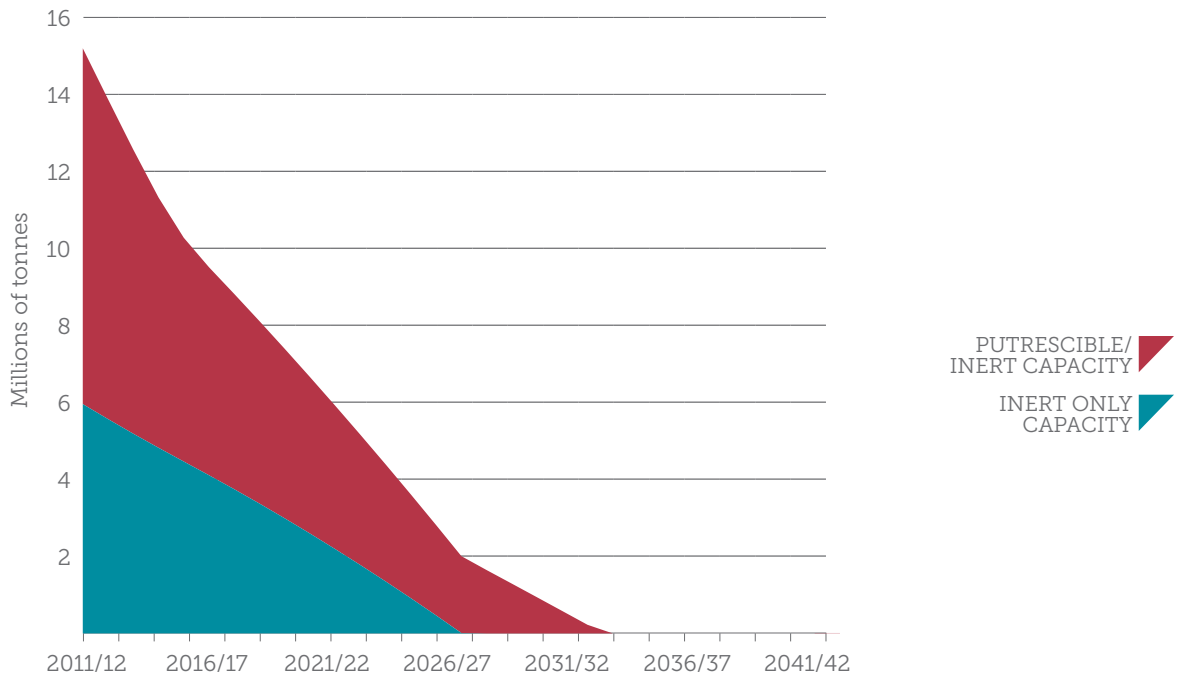
22.2 South east catchment landfill capacity

Figure 3.9 shows the current and projected landfill capacity reduction in the south east catchment to 2041–42. Figure 3.9 also shows the projected loss of landfill airspace capacity in the south east catchment of the metropolitan area to 2041–42.

Figure 3.9 also illustrates the following:

- The inert waste-only landfill capacity in the south east is projected to be filled by 2025.
- The putrescible and inert waste landfill capacity is projected to be filled around 2030.

Figure 3.9: Projected landfill capacity, south east catchment, 2011–12 to 2041–42



Source: Metropolitan Waste and Resource Recovery Projection Model, 2013

In making this projection it is assumed that current patterns of waste transfer into and out of Melbourne will continue. It is also assumed that once all the sites approved for inert-only landfilling capacity are filled in the south east, this waste will be transported to the north west catchment rather than to the remaining putrescible landfills in the south east. In support of this assumption it is noted that waste is often transported significant distances in response to disposal prices.

It is also noted that prices at putrescible landfills are, in general, considerably higher than those for inert-only sites due to more stringent requirements in engineering design and other factors. Gate fees are also significantly cheaper in the north west than the south east.

The modelling was undertaken for the purposes of this analysis only and should not be taken as pre-empting the detailed investigations currently underway into the best economic, environmental and social resolution to the problem of landfill capacity depletion in the south east catchment.

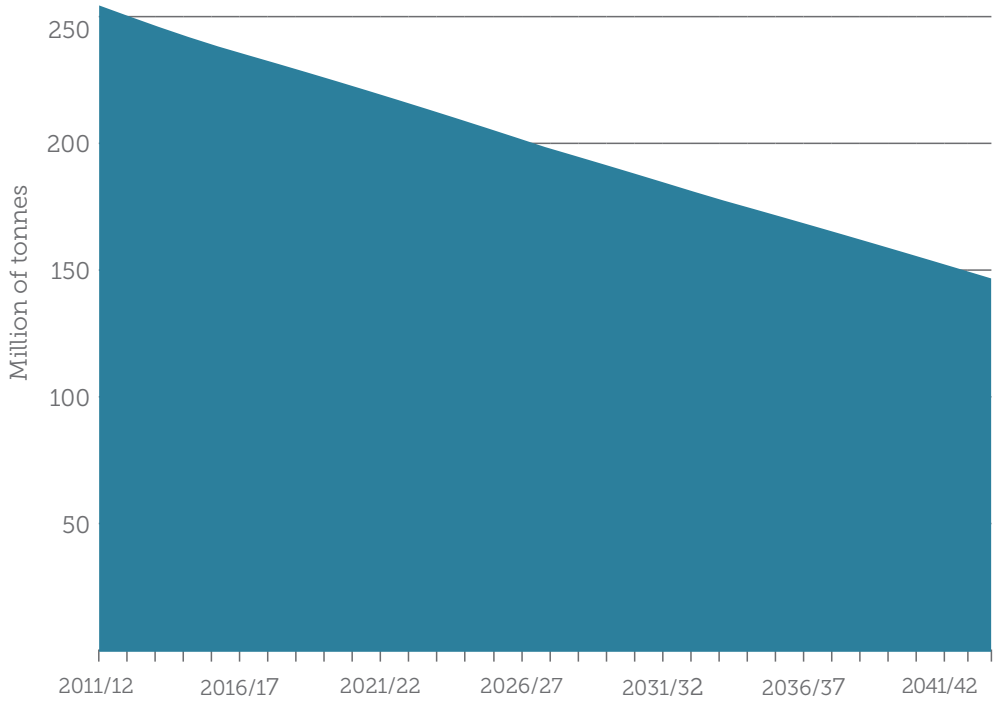
22.3 North-west catchment landfill capacity

Figure 3.10 shows projected landfill airspace capacity in the north west catchment to 2041–42. It shows there is adequate capacity for both inert and putrescible waste disposal. It also shows that the north west, (unlike the south east) has the capacity to meet the volume of waste expected for disposal for well in excess of the next 30 years.

As noted in Section 22.1, the north west total landfill capacity is projected to be 147 million tonnes in 2042. As noted in Section 22.2, it is assumed that all of the tonnage from the south east catchment is transferred to the north west catchment when the south east sites reach capacity (i.e. the total north west landfill capacity reduction includes the additional tonnage from the south east over the projection period).

The modelling has not sought to specify which of the north west catchment sites will receive the landfill tonnage from the south east. There are a number of sites with potential to accept south east capacity.

Figure 3.10: Projected landfill capacity, north-west catchment, 2011–12 to 2041–42



Source: Metropolitan Waste and Resource Recovery Projection Model, 2013

Therefore the reduction of capacity in the north west is presented in aggregate only (i.e. not by inert only and putrescible and inert sites).

The Landfill Schedule details the landfills included in the north west catchment. The majority of the landfill capacity included in the Landfill Schedule for the north west catchment is at sites that can receive both putrescible and inert wastes.

North-west landfill sites may be needed to provide capacity while south east options are being planned and delivered. The planning, works approvals and budgeting for the construction of new cells at north west landfills may need to be bought forward to ensure airspace is available and demand can be met. In some instances this need may require sites like Wyndham and Boral to almost double existing annual disposal volumes.

23 LANDFILL NEED ASSESSMENT

This section at a glance:

- Approximately 25 potential sites have been identified though developing a site assessment criteria and undertaking a desk top study.
- MWMG is proposing an Expression of Interest process to help identify a preferred long term waste and resource recovery solution for Melbourne's south east.

23.1 Outcome of needs assessment for this review

The landfill capacity reduction projections are based on the assumption that waste will move from the south east catchment to the north west catchment over the next 30 years. As illustrated in Figure 3.10, these significant landfill reserves in the north west provide sufficient disposal capacity to receive all the metropolitan area waste tonnages.

Based on these assumptions, the Metropolitan Landfill Model does not predict the need for new landfills to be scheduled (beyond those listed in the previous Landfill Schedule and/or already licensed as landfills) for metropolitan Melbourne.

Whilst the model illustrates there is sufficient landfill capacity to cater for anticipated volumes from the south east, the bulk hauling, transportation and movement of this volume may come at a cost to local government and industry. This needs to be further understood and tested.

An integrated approach to planning requires MMWG and its partners, to consider the impacts this approach may have on the broader waste and resource recovery system and on connecting systems such as land use planning and transport.

Transporting waste from the Melbourne's south east to the north west may not achieve the best environmental, public health or economic outcomes for Melbourne. For this reason, MWMG is proposing to test the waste and resource recovery market's preference for managing this waste through an EOI process.

MWMG has also commissioned an economic study to further understand the likely benefits and costs of options to manage waste from Melbourne's south east.

23.2 Identification of potential sites for disposal

23.2.1 Landfill site assessment process

As outlined in Section 20.8.3, MWMG has undertaken a rigorous site assessment of Melbourne and the surrounding regions to explore potential waste disposal sites that may meet the needs of the south east area.

In Part 2 of this Strategic Plan, MWMG details the process to identify sites for resource recovery. A similar process has been developed to explore potential landfill sites. Spatial data sources used in the landfill sieve mapping task included:

- MWMG landfill sites data
- Department of Environment and Primary Industries' (DEPI) Features of Interest
- Department of Primary Industry's Extractive Industry Work Authorities.

Landfill site assessment criteria were then developed that related and responded to key criteria in the *Best Practice Environmental Management – Siting, Design, Operation and Rehabilitation of Landfills (Landfill BPEM)* (publication 788).

A shortlist of potential sites extending into Gippsland and the Mornington Peninsula were identified.

A spatial multi-criteria analysis methodology delivers a systematic, robust and transparent approach to assessing existing and potential locations, while being flexible enough to take into consideration the particular sensitivities and requirements related to identification of alternate location options. Within this framework, techniques were used to identify, rank and weight the performance criteria that drive the assessment process.

The outcome of implementing a spatial multi-criteria analysis is a series of map products and tabular data, which provide the suitability of waste management infrastructure areas using the specific evaluation criteria for possible locations. The specific criteria used included:

- planning and zoning
- alternative uses
- sensitive receptors
- site access
- site geology
- site groundwater
- surface water
- environmental and cultural significance

This process will inform and support the proposed EOI process.

23.3 Assessment of other options to manage future waste disposal needs (south east catchment closures)

MWMG has commissioned an economic assessment to further understand the likely benefits and costs of options to manage waste from Melbourne's south east. The assessment will consider a range of landfill and resource recovery options.

The economic assessment will further inform the decision on the need to schedule new landfills to service Melbourne's disposal needs.

It is estimated that around 1.2 million tonnes a year of landfill (inert and putrescible) airspace capacity will be lost in south east Melbourne by around 2020. Whilst the model maintains this need can be meet for at least the next 30 years by disposal options in the north west, this annual tonnage of waste will still be generated in and around the south east and require management to maximise recovery opportunities and maintain employment and an economically viable disposal option for local government, industry and the community.

Exploring these options enables MWMG to meet and deliver the integrated vision for waste disposal and resource recovery set out in *Getting full value.* Instead of assuming that this waste needs to be landfilled, MWMG proposes testing the market to better understand local government and industry's capacity to innovate and realise state government's landfill and resource recovery policy goals. Understanding the transport and freight issues is central to this task.

This approach is consistent with and is also the *Environment Protection Act 1970* states the landfill schedule should also identify options for future landfill capacity.

Mornington Peninsula

In assessing future landfill needs, MWMG has considered waste flows into and out of Metropolitan Melbourne from all adjoining regions.

MWMG modelling for the revised *Metropolitan Waste and Resource Recovery Strategic Plan* has planned for the scenario of Truemans Road Rye closing within the next five years. In this scenario, it is anticipated that waste from the Mornington Peninsula region would move into Metropolitan Melbourne, where it is anticipated the market would drive options for its bulk haul, recovery and disposal.

MWMG modelling has not planned for any metropolitan waste to move to the Mornington Peninsula, nor has the modelling identified any strategic hubs on the Mornington Peninsula that would provide a service for Melbourne's waste.

To meet MWMG's planning responsibilities under the *Environment Protection Act 1970,* the Waste Management Policy (Siting ,design and management of landfills) 2004 and the infrastructure planning obligations articulated in *Getting full value,* MWMG's assessment of options to meet future demand for landfill will seek to promote integrated waste and resource recovery management.

MWMG is proposing an EOI process to identify the optimal long term mix of resource recovery and landfilling to meet the needs of Melbourne's south east. MWMG is testing this proposed way forward with local government, industry and the community through this consultation draft.

The Victorian Government's response to the report of the Ministerial Advisory Committee on Waste and Resource Recovery Governance Reform will enable MWMG to invite the Mornington Peninsula Shire and local businesses and community to participate in the proposed EOI process.

The Victorian Government's response will also allow Mornington Peninsula to opt into metropolitan procurements that takes advantage of economies of scale. MWMG procurement activities may also present options that can reduce the need for purely disposal solutions to meet Mornington Peninsula's long term waste generation, recovery and disposal needs.

23.3.1 Proposed south east expression of interest process

MWMG proposes undertaking an EOI process. This will test the market and help identify the preferred long term solution for serving Melbourne's south east waste disposal and recovery needs.

The EOI process will ask both local government and industry to submit proposals for the long term management of the 1.2 million tonnes of waste currently disposed in the Clayton landfill cluster.

Proposals will need to demonstrate that they present the best possible waste and resource recovery outcomes for Melbourne and more broadly Victoria, align with WMP 2004, respond to requirements of the *Landfill BPEM* and align with policy objectives of *Getting full value*.

The EOI process will seek proposals that will need to specifically respond to how the following policy goals will be realised:

- strong markets for recovered resources
- facilitate a Victorian waste management and resource recovery system that maximises the economic value of waste
- reduce the environmental and public health risks of waste
- demonstrate how development of the proposal has had regard to the waste management and resource recovery principles.

In any EOI response, industry and\or local government may consider the most suitable landfill sites identified through MWMG's landfill siting multi criteria assessment.

For commercial and confidentiality reasons, these sites are not included in this consultation draft landfill schedule and releasing them and the data and analysis during the EOI process will be subject to the requirements of a robust probity plan, along with any other legal requirements.

MWMG will work with DEPI and DTF to develop and conduct this EOI process.

Once a preferred solution has been identified, MWMG will seek to amend the MSW Infrastructure Schedule and/or the Metropolitan Landfill Schedule under Section 50BE of the *Environment Protection Act 1970*. Consultation will also occur subject to Sections 50 BC and 50 BC of the EP Act where appropriate.

This will allow the incorporation of these site/s and details of the site or sites, how much airspace is being proposed, the sequence for filling sites and the expected start date of filling to be scheduled. If sites identified are outside the metropolitan area, they will need to be listed in the relevant regional landfill schedule. MWMG has met with all adjoining RWMGs to discuss this possibility and a process for inclusion into regional waste management schedules.

24 THE METROPOLITAN LANDFILL SCHEDULE

This section at a glance:

- This Schedule sequences landfill sites and their estimated closure dates.

This draft Landfill Schedule responds to section 50 BC 3 (2) (a) of the Act, which requires it to specify the proposed sequence of filling available sites for at least the next 10 years. MWMG's strategic planning uses a long-term horizon of 30 years to better align the landfill schedule with other planning considerations

Sections 21 and 22 above details the MWMG projections for the Metropolitan Regional Waste Management Area landfill disposal requirements and the projected landfill capacity reduction. The MWMG projections of waste to landfill include projection of when each of the landfill sites may reach capacity based on projections made using the tonnages disposed at the landfill in 2010-11. These detailed projections have been used to assess the need for new landfill.

The schedule needs to sequence each of the landfill sites, including their estimated closure dates. For numerous reasons the tonnage disposed to a specific landfill may change from year to year. It is therefore it is difficult to rely on projections and so the estimated closure dates detailed in the table below are based on:

- the information provided by landfill operators to MWMG during the development of the schedule
- consideration of the MWMG projections for when each site will be filled based on the 2010-11 tonnages disposed
- other factors such as planning permit expiry dates.

Table 3.1 Notes:

1 *For both the Boral (ES37288) and Werribee (ES492) landfills, the schedule includes capacity that is within the current works approved area and additional capacity that is outside of the current works approved area. The 2009 schedule also included non-works approved areas for these sites. Should either of these sites not be issued works approval for additional capacity the schedule will require a review as the landfills will close earlier than planned.*

2 *SBI Cranbourne does not yet have a planning permit, EPA works approval, or a licence to operate. This site was listed in the 2009 schedule and is included here as a planning permit application had been lodged with council. If a planning permit and/or works approval are not issued, the schedule will require review and this site will be removed.*

3 *Hi Quality Bulla has a planning approval and a licence for a landfill. It has operated as a solid waste landfill for Category C.*

4 *Western Land Reclamation (ES26594) is licensed to receive putrescible waste but currently only accepts solid inert waste.*

Table 3.1: Draft landfill schedule, 2011–12 to 2041–42

Metro SE catchment landfills Putrescible and Inert	2011/12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Clayton Regional Landfill (ES 20872)	▶	▶	▶	▶	▶	▶	▶	C																							
Sita - Hallam (ES33144)	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	C				
Sita - Lyndhurst (ES511)	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	C												
TPI - Fraser Rd (EM 28818)	▶	▶	▶	▶	▶	C																									
TPI - Deals Rd (ES 49849)	▶	▶	▶	C																											
Inert only	2011/12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
TPI - Heatherton Sands (ES 552)	▶	▶	▶	▶	▶	▶	C																								
TPI - Clarinda Landfill (ES45017)	▶	▶	▶	▶	▶	C																									
TPI - Victory Rd (ES419)	▶	▶	▶	▶	▶	▶	C																								
SBI Cranbourne[2]				▶	▶	▶	▶	▶	▶	▶	C																				
Ernest Smith Contractors (ES 146)	▶	C																													
Glen Landfill (ES 22749)	▶	▶	C																												
Metro NW catchment landfills Putrescible and Inert	2011/12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Boral (ES 37288)[1]	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	>30+ yrs
Werribee Landfill (ES 492) [1]	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	>30+ yrs
Hanson Landfill - Wollert (ES41808)	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	>30+ yrs
Riddell Rd Landfill (ES465)	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	C											
Inert only	2011/12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Altona North Landfill (ES 26227)	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	C																		
BTQ Group Sunbury (ES21321)	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	C																		
Western Land Reclamation (ES26594) [4]	▶	▶	▶	▶	▶	▶	▶	▶	C																						
Barro Kealba		▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	C		
TPI - Brooklyn (EX 304)	▶	C																													
Hi Quality Bulla (ES 46084) [3]	▶	▶	▶	▶	▶	▶	▶	▶	C																						
Total metro capacity (Mt)	271	265	260	255	250	246	242	237	233	229	225	220	216	211	207	202	198	194	190	186	182	179	175	172	169	165	162	158	155	151	148

Legend:

- C projected year of site closure is an estimate only and dependant on approvals
- ▶ the site is expected to be operational in that year

In this 2013 review of the Landfill Schedule it is noted that TPI Jones Road Brooklyn ceased accepting waste in 2010 and has been removed from the schedule. Post closure (PAN) commenced and site now listed in Table 3.3 closed landfills. There is no guarantee that including a landfill in this schedule will result in the EPA issuing a works approval or licence for it. The Landfill Schedule lists potential capacity and sites that have been through the first stage of a multi-stage screening process. All landfills must be issued with a number of planning and environmental approvals prior to being able to accept waste for disposal.

Consultation draft for public consideration October 2013. This document does not represent Victorian Government policy.

25 REHABILITATION STATUS OF CLOSED LANDFILLS

This section at a glance:

- Once a landfill stops accepting waste, it typically needs to be managed for at least 30 years.
- There are 40 closed metropolitan landfill sites currently being managed by EPA Victoria.

25.1 Rehabilitation of closed landfills

Under the Act, this schedule must include a program for replacing and rehabilitating existing landfill sites.

Once a landfill stops receiving waste and is in the aftercare phase, EPA revokes the landfill licence and issues a post-closure pollution abatement notice (PAN) to the landfill operator. The notice sets out EPA's requirements for monitoring, auditing and managing the landfill site post-closure and typically applies for at least 30 years post-closure. The PANs vary according to the risks the landfill poses to the local environment and community. In 2012 the EPA provided detailed guidance about the requirements of this notice.

Table 3.2 shows landfill sites currently subject to a post-closure pollution abatement notice, or are still subject to EPA monitoring and management via an operational licence. They have submitted rehabilitation plans, which have been approved by either specifying rehabilitation conditions directly in the licence or by approval of their Environment Improvement Plan (EIP).

Table 3.2 details the 40 sites identified as closed landfills within metropolitan Melbourne currently being managed by EPA.

25.2 Closed metropolitan landfills subject to EPA management

The information in Table 3.2 was current as at April 2013. Landfill closure dates are estimates of when operators ceased depositing waste. Sites may have continued to receive clean fill and soils to undertake capping and rehabilitation work after these dates.

Table 3.2: Closed metropolitan landfills

No.	Duty holder	Statutory tool	Statutory tool	Address	Municipality	Landfill closure date
1	Calleja Properties P/L	ES432	*Licence*	*Cnr Annandale Road and Arundel Road, Keilor*	*Brimbank City Council*	*2005*
2	Hume City Council	ES506	*Licence*	*Cnr Bolinda Road and Sydney Road, Campbellfield*	*Hume City Council*	*2008*
3	Nillumbik Shire Council	NO1752 / 6711	*31A(1)*	*Graham Road, Kangaroo Ground*	*Nillumbik Shire Council*	*2000*
4	Nillumbik Shire Council	HS306	*Licence*	*Nillumbik Shire Council Depot, Yan Yean Road, Yarrambat*	*Nillumbik Shire Council*	*2007*
5	Yarra Ranges Shire Council	HS1264	*Licence*	*Cnr Ingram Road and Leonard Road, Coldstream*	*Yarra Ranges Shire Council*	*2004*
6	Yarra Ranges Shire Council	ES112	*Licence*	*Landfill, Mount Riddel Road, Healesville*	*Yarra Ranges Shire Council*	*1997*
7	City Of Greater Dandenong (Spring Valley)	NO3823 (formerly ES553)	*31A(1)*	*Springvale South (eastern side of Clarke Road)*	*City Of Greater Dandenong*	*1999*
8	Ernest Smith (DinSan)	ES146	*Licence*	*Old Dandenong Road, Dingley Village*	*Kingston City Council*	*2012*
9	GLYNLEE P/L	NO8706	*31A(1)*	*Springvale South*	*Kingston City Council*	*2010*
11	Kingston City Council (Heatherton Park)	Old HS1388. Draft Environmental Management Plan replaced PAN in 2002. PAN originally issued in 1988 outlining rehab. and leachate/stormwater management requirements	*none*	*Oakleigh*	*Kingston City Council*	*mid-1980s*
12	Knox City Council (Cathies Lane)	EM28913	*licence*	*Cathies Lane*	*Knox City Council*	*2004*
13	Transpacific Waste Management (Deals Road)	ES49849	*licence*	*Deals Road, Clayton South*	*Kingston City Council*	*2011*
14	Brimbank City Council	NO9854	*31A(1)*	*Carrington Reserve, Hulett Street, Sunshine*	*Brimbank City Council*	*1978 (City of Sunshine) / Late 1980 (Hulett St)*
15	Hewson andrew H andrew J & Mar	NO2086 / NO3111 / NO 3329	*31A(1)*	*Bunting Road, Brooklyn*	*Brimbank City Council*	*2000*
16	Hobsons Bay City Council	NO1247 / NO2623	*31A(1)*	*Former Altona Landfill, Queen Street, Altona*	*Hobsons Bay City Council*	*1999*
17	Maribyrnong City Council	NO6121	*31A(1)*	*Farnsworth Avenue, Footscray*	*Maribyrnong City Council*	*1998*
18	Melton Shire Council	NO2982	*31A(1)*	*Former Melton Shire Landfill, Ferris Road, Melton*	*Melton Shire Council*	*2000*
19	Phileo Aust Ltd	NO3999	*31A(1)*	*14 Federation Street, Box Hill*	*Whitehorse City Council*	*2000*

No.	Duty holder	Statutory tool	Statutory tool	Address	Municipality	Landfill closure date
20	Transpacific Cleanaway P/L	NO8168	*31A(1)*	*Western Av, Tullamarine*	*Hume City Council*	*2008*
21	Frankston City Council	NO2089	*31A(1)*	*Mcclellend Drive, Parish of Frankston C/A 33c, Frankston North*	*Frankston City Council*	*1999*
22	Knox City Council	NO3396 / MWPAN-90002537	*31A(1)*	*Llewellyn Park Cathies Lane, west of Helpmann Street, Wantirna South. 14 Coppelia Street, Wantirna South*	*Knox City Council*	*1986*
23	Monash Council	None	*None*	*Reg Harris Reserve, Ferntree Gully Road, Oakleigh East*	*Monash Council*	*1993*
24	Brimbank City Council	NO3409	*31A(1)*	*Green Gully Rd, Keilor Downs*	*Brimbank City Council*	*1987*
25	Cawley Road P/L	NO2181	*31A(1)*	*Former James Hardie Landfill, Hardie Rd, Brooklyn*	*Maribyrnong City Council*	*2000*
26	Darebin City Council	NO3743	*31A(1)*	*Cnr Clifton Street and Wales Street, Northcote*	*Darebin City Council*	*2001*
27	Hewson andrew James & Andrew Henry	NO3111 / NO3329	*31A(1)*	*594 Geelong Road (Corner McDonald Rd), Brooklyn*	*Brimbank City Council*	*2000*
28	Hume City Council	NO413 / NO2026	*31A(1)*	*Mahoneys Road, Campbellfield*	*Hume City Council*	*1991*
29	Hume City Council	NO7018	*31A(5)*	*Craigieburn Road, Craigieburn*	*Hume City Council*	*1996*
30	Kyle Road Developments P/L	NO7534	*31A(1)*	*Kyle Road, Altona North*	*Hobsons Bay City Council*	*2003*
31	Roda, Carmelo (Charlie)	NO1196	*31A(1)*	*570 Wildwood Road, Bulla*	*Hume City Council*	*1998*
32	Sims Group Aust Holdings Ltd	NO9572	*31A(1)*	*44-60 Mcdonald Road, Brooklyn*	*Brimbank City Council*	*2003*
33	Whittlesea City Council	NO414	*31A(1)*	*500 Cooper Street, Epping*	*Whittlesea City Council*	*1992*
34	Whittlesea City Council	NO6736	*31A(1)*	*500 Cooper Street, Epping*	*Whittlesea City Council*	*2004*
35	Brambles Aust Ltd - Twm	NO2706. Now NO6383	*31A(1)*	*Cnr Clayton Road and Ryans Road, Clayton South*	*Kingston City Council*	*1992*
36	Brambles Aust Ltd - Twm	NO3391. NO6094 and NO6382	*31A(1)*	*Ryans Road, Clayton South*	*Kingston City Council*	*2003*
37	Cardinia Shire Council	NO2296	*31A(1)*	*Five Mile Road, Nar Nar Goon*	*Cardinia Shire Council*	*2001*
38	Casey City Council	NO798	*31A(1)*	*Quarry Road, Narre Warren North*	*Casey City Council*	*1997*
39	Whelan Kartaway P/L	NO3679	*31A(1)*	*Lot 8 Elder Street, Clayton South*	*Kingston City Council*	*2002*
40	Casey City Council	NO 8538	*31A(1)*	*Stevensons Road, Cranbourne*	*Casey City Council*	*2005*

26 IMPLEMENTATION OF THE LANDFILL SCHEDULE

This section at a glance:

- The implementation plan proposes actions to achieve the objectives and priorities identified in Part 1 of the Strategic Plan.

It is an implementation priority to address the loss of capacity to landfill approximately 1.2 million tonnes of waste each year in the south east of Melbourne. The EOI process will provide MWMG, industry and local government with an opportunity to test and explore a wide range of options available to meet and deliver the integrated vision set out in this Strategic Plan and in *Getting full value.*

- promote an integrated and efficient waste and resource recovery system capable of maximising the value of materials
- maintain and improve the best practice environmental management of all resource recovery and landfill infrastructure serving Melbourne to protect the environment and public health
- foster investment in infrastructure and services that can manage the projected mix and volumes of waste materials for Melbourne, while supporting councils to procure best value services
- protect waste and resource recovery facilities by developing and using effective land use planning policies and controls
- minimise the use and development of landfills, as required under the *Waste Management Policy (Siting, Design and Management of Landfills)* as required to facilitate the long term role of landfills to receive treated, residual waste

For this schedule it is an implementation priority to address the loss of capacity to landfill approximately 1.2 million tonnes of waste each year in the south east of Melbourne. The EOI process will provide MWMG, industry and local government with an opportunity to test and explore a wide range of options available to meet and deliver the integrated vision set out in this Strategic Plan and in *Getting full value.*

Another priority for the Strategic Plan is working with local government to protect separation distances through land use planning controls, provide for the identification of buffer areas to ensure that the use and development of land around landfills is compatible with ongoing site operation and to limit the risk of adverse impacts on any nearby residential uses.

Where there is an overlap of strategic opportunities between the Metropolitan Landfill Schedule and Municipal Infrastructure Schedule, these actions will be undertaken concurrently and MWMG will ensure there is an integrated response and approach to delivery.

Table 3.3: Implementation Plan

Key area	Objectives To be achieved	Action	Timeframe
Integrated solution	Promote an integrated and efficient waste and resource recovery system capable of maximising the value of materials Minimise the use and development of landfills under the *Waste Management Policy (Siting, Design and Management of Landfills)* as required to facilitate the long term role of landfills to receive treated, residual waste	▶ MWMG will work with the 30 metropolitan councils to determine and model potential disposal implications and options from the annual loss of approximately 1.2 million tonnes of landfilling capacity in Melbourne's south east over the next five years ▶ MWMG will plan and implement an integrated solutions to the loss of disposal capacity in the south east by undertaking an EOI process to test market readiness to move towards an integrated solution to the loss of south east disposal. This will include landfill alternatives involving advanced resource recovery technologies. ▶ EOI will also test whether replacement infrastructure could also serve the Gippsland region ▶ Seek councils to engage in collective procurement arrangements to meet market needs similar as it has for kerbside organics, within the MWMG procurement framework and model ▶ Inform final south east solution with economic modelling to reduce risk of increasing congestion costs through Melbourne's east –west freight corridor ▶ Ensure appropriate short term planning to minimise risk of lag period between closure of landfills and commissioning of new facilities	*2013-2014 Identify sites and test market including amendment to schedule if required* *2014-2015 Commence procurement* *2015-2017 Amend schedule commence construction of solutions*
		▶ Support local governments and industry to maximise use of the existing recovery and disposal system by working with local governments and industry to promote investment in existing disposal sites and new infrastructure like pre-sorts to maximize disposal capacity and recovery opportunities	*2013-2017*
	Promote an integrated and efficient waste and resource recovery system capable of maximising the value of materials	▶ Facilitate procurement processes on behalf of local government to ensure the collection and treatment of municipal solid waste is secured for the long term by continuing to support group local government contracting for landfill services	*2013-2017*
Best Practice	Maintain and improve the best practice environmental management of all resource recovery and landfill infrastructure serving Melbourne to protect the environment and public health Minimise the use and development of landfills, as required under the *Waste Management Policy (Siting, Design and Management of Landfills)* to facilitate the long term role of landfills to receive treated, residual waste)	▶ Continually improve the performance of waste disposal and resource recovery facilities and operations and reduced impacts on local communities of odour, noise, dust and litter from landfills and other waste management facilities by promoting investment and requiring landfills to operate to best practice. ▶ Reduction in community reported impacts of air emissions, noise, dust and litter from landfills and other waste management facilities by promoting investment and requiring landfills to operate to best practice	*2013-2017*

Table 3.3: Implementation Plan (cont)

Key area	Objectives To be achieved	Action	Timeframe
Land use Planning	Protect waste and resource recovery facilities by developing and using effective land use planning policies and controls	▶ Continually improve the performance of waste disposal and resource recovery facilities and operations and reduced impacts on local communities of odour, noise, dust and litter from landfills and other waste management facilities by promoting investment and requiring landfills to operate to best practice. ▶ Work with councils to develop new planning tools for protecting infrastructure from urban encroachment, with a view to establishing a variety of tools that can be deployed more widely across Victoria ▶ Support local government to increase waste and resource recovery knowledge and planning capabilities by the development of a waste and planners toolkit of fundamental waste policy principles, policies, guides and overlays ▶ MWMG to assist local government to prepare local planning scheme amendments to councils Municipal Strategic Statements and to revise municipal waste and resource recovery strategies – to ensure alignment with the strategic plan ▶ Improve integration with land use planning, transport and development, to enable better and more consistent waste management decisions in line with growing population	*2013-2017*
		▶ Work with local government and industry to prepare appropriate planning controls for Melbourne's landfills and prepare overlay controls (ESO control) and implement amendments across all key landfills in metropolitan Melbourne to ensure buffer distances are determined, defined and managed	*2013-15*
		▶ DEPI, SV and MWMG to prepare an amendment to the VPPS to ensure Clause 19 now references to *Getting full value*, SWRRIP and the Strategic Plan ▶ Prepare an amendment to waste and resource recovery land use definitions and zoning controls to enable integrated waste and recovery hubs and support colocated of recovery activities with landfills across metropolitan Melbourne ▶ Prepare waste disposal and recovery guidelines or planning practice note for green wedge planning and precinct structure planning	*2014-2015*
	Protect waste and resource recovery facilities by developing and using effective land use planning policies and controls	▶ Improving integration with land use planning, transport and development, to enable better decisions for a growing population ▶ Support local government to increase waste and resource recovery knowledge and planning capabilities by strengthening planning controls and guidance to protect separation distances for all landfill and resource recovery sites listed in the *Metropolitan Waste and Resource Recovery Strategic Plan* Landfill and Infrastructure Schedules under the *Environment Protection Act 1970*	*2013-2015*
Contingency Planning		▶ Work with EPA, DEPI and councils to document procedures for contingency planning for waste from emergency events, to ensure a prompt and well-coordinated waste disposal response	*2013-14*

27 REFERENCES

Victorian Government 2013, *Getting full value: the Victorian Waste and Resource Recovery Policy*¸ Department of Environment and Primary Industries, Melbourne.

Sustainability Victoria 2013, *Draft Statewide Infrastructure Plan for Waste and Resource Recovery*

EPA Victoria 2012, *Closed Landfill Guidelines*, EPA publication 1490, Carlton. Available at http://www.epa.vic.gov.au/our-work/publications/publication/2012/december/1490

EPA Victoria 2011, *Landfill licensing guidelines*, EPA publication 1323.2, Carlton.

EPA Victoria 2010, *Best practice environmental management – Siting, design, operation and rehabilitation of landfills*, EPA publication 788.1, Carlton.

EPA Victoria 2004, *Waste Management Policy (Siting, Design and Management of Landfills)*, EPA publication 968, Carlton.

State of Victoria 2012, *Environment Protection Act 1970 Version No. 180 No. 8056 of 1970 Authorised Version incorporating amendments as at 26 July 2012*, Melbourne.

Victoria Planning Provisions (VPPs) (2013)

APPENDIX A: EXTRACT KEY REQUIREMENTS OF THE ENVIRONMENT PROTECTION ACT 1970

Environment Protection Act 1970 –

50AE Powers

(1) Subject to subsection (2), the Metropolitan Waste Management Group may do all things that are necessary or convenient to enable it to carry out its functions and achieve its objective.

(2) The Metropolitan Waste Management Group cannot own or operate a waste management facility.

Division 2AD—*Metropolitan Waste and Resource Recovery Strategic Plan*

50B The *Metropolitan Waste and Resource Recovery Strategic Plan*

(1) There is to be a *Metropolitan Waste and Resource Recovery Strategic Plan*.

(2) The objective of the *Metropolitan Waste and Resource Recovery Strategic Plan* is to –

(a) provide a long term vision for the management and reduction of waste in metropolitan Melbourne; and

(b) identify short term and long term waste infrastructure needs and schedule the development of landfill sites.

(3) The *Metropolitan Waste and Resource Recovery Strategic Plan* is to consist of –

(a) Part 1 – The Metropolitan Plan;

(b) Part 2 – The Municipal Solid Waste Infrastructure Schedule;

(c) Part 3 – The Metropolitan Landfill Schedule.

(4) The Minister must appoint a person or body to be responsible for ensuring that the *Metropolitan Waste and Resource Recovery Strategic Plan* is prepared.

(5) The Minister must nominate a person or body to develop Part 1 – The Metropolitan Plan.

(6) The Metropolitan Waste Management Group must develop Part 2 – The Municipal Solid Waste Infrastructure Schedule.

(7) The Metropolitan Waste Management Group must develop Part 3 – The Metropolitan Landfill Schedule.

50BA Part 1 – The Metropolitan Plan

(1) The purpose of Part 1 – The Metropolitan Plan is to set the strategic framework for the management of all solid waste in metropolitan Melbourne.

(2) Without limiting the generality of subsection (1), Part 1 – The Metropolitan Plan must –

(a) include an analysis of the long term trends for the generation, management and reduction of municipal solid waste, construction and demolition waste and commercial and industrial waste;

(b) identify future waste volumes and processing needs;

(c) include a strategic analysis of existing infrastructure and services for waste management and resource recovery of materials and energy;

(d) identify options for waste minimisation and resource recovery, waste collection and transport and waste disposal and provide a social and economic assessment of the options identified;

(e) identify programs for infrastructure and services development to ensure that projected needs for waste management, resource recovery and resource efficiency can be met;

(f) specify measures for litter prevention and control within metropolitan Melbourne.

(3) Part 1 – The Metropolitan Plan must not be inconsistent with the solid industrial waste management plan.

(4) The person or body nominated under section 50B(5) to prepare Part 1 – The Metropolitan Plan must –

(a) consult with the Metropolitan Waste Management Group, metropolitan councils, industry and other relevant stakeholders; and

(b) advertise in a newspaper circulating generally throughout metropolitan Melbourne that a draft Metropolitan Plan has been prepared; and

(c) include in the advertisement –

(i) an outline of the draft Metropolitan Plan; and

(ii) advice as to where a copy of the draft Metropolitan Plan can be obtained or examined; and

(iii) a statement inviting anyone with an interest in the draft Metropolitan Plan to make comments within 28 days after the date of publication of the advertisement; and

(d) consider any comments that are made in response to the invitation.

(5) Consultation under this section may be conducted jointly with, or separately from, consultation conducted under sections 50BB and 50BC.

50BB Part 2 – The Municipal Solid Waste Infrastructure Schedule

(1) The purpose of Part 2 – The Municipal Solid Waste Infrastructure Schedule is to set out a schedule of existing and required infrastructure for municipal solid waste.

(2) Without limiting the generality of subsection (1), Part 2 – The Municipal Solid Waste Infrastructure Schedule must –

(a) include an assessment of the need, priorities and general preferred locations for municipal waste management facilities (other than landfill) within metropolitan Melbourne;

(b) contain a detailed description of existing municipal waste and resource recovery infrastructure within metropolitan Melbourne;

(c) identify the type, timeframe and general location of new municipal waste and resource recovery infrastructure within metropolitan Melbourne.

(3) The Metropolitan Waste Management Group must –

(a) consult with relevant stakeholders;

(b) advertise in a newspaper circulating generally throughout metropolitan Melbourne that a draft Municipal Solid Waste Infrastructure Schedule has been prepared;

(c) include in the advertisement –

(i) an outline of the draft Municipal Solid Waste Infrastructure Schedule; and

(ii) advice as to where a copy of the draft Municipal Solid Waste Infrastructure Schedule can be obtained or examined; and

(iii) a statement inviting anyone with an interest in the draft Municipal Solid Waste Infrastructure Schedule to make comments within 28 days after the date of publication of the advertisement; and

(d) consider any comments that are made in response to the invitation.

(4) Consultation under this section may be conducted jointly with, or separately from, consultation conducted under sections 50BA and 50BC.

(5) After complying with subsection (3), the Metropolitan Waste Management Group must provide a copy of the draft Municipal Solid Waste Infrastructure Schedule to the Secretary to the Department of Sustainability and Environment for approval.

(6) The Secretary to the Department of Sustainability and Environment may –

(a) approve the draft Municipal Solid Waste Infrastructure Schedule; or

(b) approve the draft Municipal Solid Waste Infrastructure Schedule subject to specified changes being made.

(7) If the draft Municipal Solid Waste Infrastructure Schedule is approved under subsection (6), it forms part of the *Metropolitan Waste and Resource Recovery Strategic Plan*.

50BC Part 3 – The Metropolitan Landfill Schedule

(1) The purpose of Part 3 – The Metropolitan Landfill Schedule is to set out a schedule identifying the location and sequence for the filling and operation of landfill sites.

(2) Without limiting the generality of subsection (1), Part 3 – The Metropolitan Landfill Schedule must –

(a) specify the proposed sequence for the filling of available landfill sites for at least the next 10 years;

(b) include a program for replacing and rehabilitating existing landfill sites;

(c) list the intended or likely date of closure of each landfill site;

(d) identify options for future landfill capacity.

(3) Part 3 – The Metropolitan Landfill Schedule must not be inconsistent with any relevant-

(a) State environment protection policy; or

(b) waste management policy; or

(c) waste management strategy published by Sustainability Victoria; or

(d) solid industrial waste management plan.

(4) The Metropolitan Waste Management Group must –

(a) consult with relevant stakeholders; and

(b) advertise in a newspaper circulating generally throughout metropolitan Melbourne that a draft Metropolitan Landfill Schedule has been prepared; and

(c) must include in the advertisement –

(i) an outline of the draft Metropolitan Landfill Schedule; and

(ii) advice as to where a copy of the draft Metropolitan Landfill Schedule can be obtained or examined; and

(iii) a statement inviting anyone with an interest in the draft Metropolitan Landfill Schedule to make comments within 28 days after the date of publication of the advertisement; and

(d) must consider any comments that are made in response to the invitation.

(5) Consultation under this section may be conducted jointly with, or separately from, consultation conducted under sections 50BA and 50BB.

(6) After complying with subsection (4), the Metropolitan Waste Management Group must provide a copy of the draft Metropolitan Landfill Schedule to the Authority for approval.

(7) The Authority may –

(a) approve the draft Metropolitan Landfill Schedule; or

(b) approve the draft Metropolitan Landfill Schedule subject to specified changes being made.

(8) If the draft Metropolitan Landfill Schedule is approved under subsection (7), it forms part of the *Metropolitan Waste and Resource Recovery Strategic Plan*.

50BE Amendment of the *Metropolitan Waste and Resource Recovery Strategic Plan*

(2) The Metropolitan Waste Management Group may amend—

(a) Part 2—The Municipal Solid Waste Infrastructure Schedule; or

(b Part 3—The Metropolitan Landfill Schedule— at any time in accordance with subsection(3).

(3) Subject to sub-section (4)—

(a) sections 50BB(3), 50BB(5), 50BB(6) and 50BB(7) apply to an amendment to Part 2—The Municipal Solid Waste Infrastructure Schedule;

(b) sections 50BC(4), 50BC(5), 50BC(6), 50BC(7) and 50BC(8) apply to an amendment to Part 3—The Metropolitan Landfill Schedule.

(4) If an amendment to Part 2—The Municipal Solid Waste Infrastructure Schedule or Part 3—The Metropolitan Landfill Schedule is of a fundamentally declaratory, machinery or administrative nature, sub-section (3) does not apply.

(5) An amendment to—

(a) Part 1—The Metropolitan Plan to which sub-section (1) applies, takes effect on the date on which the Minister publishes a notice in the Government Gazette stating that the Minister has endorsed the amendment;

(b) Part 2—The Municipal Solid Waste Infrastructure Schedule takes effect on the date on which the Secretary to the Department of Sustainability and Environment publishes a notice in the Government Gazette stating that the Secretary to the Department of Sustainability and Environment has approved the amendment;

(c) Part 3—The Metropolitan Landfill Schedule takes effect on the date on which the Authority publishes a notice in the Government Gazette stating that the Authority has approved the amendment.

50BH. Consistency with the *Metropolitan Waste and Resource Recovery Strategic Plan* and regional waste management plans

(1) A metropolitan council must perform its waste management functions in a manner which is consistent with the *Metropolitan Waste and Resource Recovery Strategic Plan*.

(2) A metropolitan council that disposes of waste outside the metropolitan Melbourne region must dispose of that waste in a manner which is consistent with the regional waste management plan of the group in whose waste management region the waste is being disposed.

(3) A council which is not a metropolitan council and disposes of waste within the metropolitan Melbourne region must not do anything that is inconsistent with the *Metropolitan Waste and Resource Recovery Strategic Plan* in relation to that disposal of waste.

(4) Any person involved in the generation, management or transport of waste within the metropolitan Melbourne region must not do anything that is inconsistent with the *Metropolitan Waste and Resource Recovery Strategic Plan* in relation to that waste while the waste is in that region.

50BI. Authority may refuse applications for certain facilities if *Metropolitan Waste and Resource Recovery Strategic Plan* not observed

(1) The Authority may refuse to consider any application from a person for works approval, the issue of a licence or the amendment of a licence in relation to a landfill in metropolitan Melbourne if the person is in breach of any relevant requirement of Part 3—The Metropolitan Landfill Schedule.

(2) Subject to sub-section (3), the Authority must refuse to issue a works approval for a new landfill in metropolitan Melbourne if the landfill is not provided for in the proposed sequence for the filling of available landfill sites in Part 3—The Metropolitan Landfill Schedule.

(3) The Authority cannot refuse, on the ground referred to in sub-section (2), to issue a works approval to a landfill that is privately owned and that will only receive wastes that consist of substances that were owned by the owner of the site before they became wastes.

(4) The Authority must give any person whose application is refused under this section a written notice setting out the reason for the refusal.".

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