

Part 3: Draft
Metropolitan **landfill**
schedule





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1 Introduction

The Metropolitan Waste Management Group (MWMG) is required under the *Environment Protection Act 1970* (the Act) to set out a Metropolitan Landfill Schedule identifying the location and sequence for the filling and operation of landfill sites.

This draft Metropolitan Landfill Schedule (the Schedule) forms Part 3 of the Metropolitan Waste and Resource Recovery Strategic Plan.

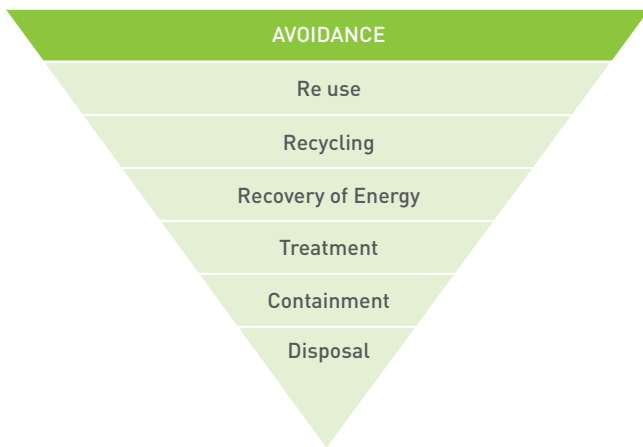
Preparation of this Schedule required assessing the future need for landfill in the metropolitan area and comparing this to currently scheduled sites to determine future need for new sites in the period under consideration. This Schedule covers the 10-year period to 2017 and will be reviewed periodically.

The Act also requires the Schedule to identify options for future landfill capacity. Refer to Appendix A for the Act's requirements.

2 Context

Whilst this Schedule sets out future landfill requirements for metropolitan Melbourne, the broad focus of the Strategic Plan is on resource recovery and greater diversion of waste from landfill. It is underpinned by the Waste Management Hierarchy, which places disposal to landfill as the least preferred option for managing wastes.

Figure 1



There are a number of existing state, local and community driven programs and initiatives aimed at diverting solid waste going to landfill. Following the direction and targets established in the *Towards Zero Waste Strategy* (TZW) for 2013-14 the development of this Schedule considers the diversion of the waste stream generated in metropolitan Melbourne.

Concentrations of population and industrial activity highlight Melbourne and other provincial urban centres as a priority for key recovery initiatives. This is because the economies of scale and concentration of waste generation make alternative resource recovery technologies more viable than in less densely populated areas.

Metropolitan Melbourne's contribution to Victoria's waste generation is approximately 70 per cent. This contribution can be separated further into three streams:

- Municipal Solid Waste (MSW)
- Commercial and industrial (C&I)
- Construction and demolition (C&D)

Figure 2 shows the percentage breakdown of waste generated by these key waste streams.

Figure 2
Percentage of waste generated by waste (2005-06)

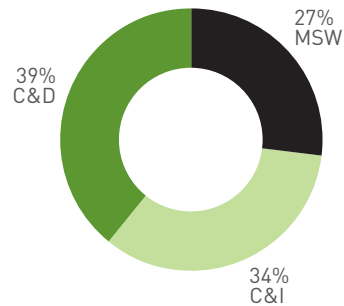


Table 1 provides future recovery targets compared to actual figures sourced from Sustainability Victoria.

Table 1: Recovery targets compared to actual recovery for Victoria

	ACTUAL	TZW RECOVERY TARGETS	
	2005-06	2008-09	2013-14
Municipal Solid Waste (MSW)	36%	45%	65%
Commercial & Industrial (C&I)	68%	65%	80%
Construction & Demolition (C&D)	70%	65%	80%

Source: TZW Progress Report – 2005-06

While the MSW stream accounts for 27% of metropolitan Melbourne's waste contribution, the drivers for material diversion are less market driven (when compared to C&I and C&D streams), being more a combination of householder and local government engagement, commitment and leadership – enabling good recovery and re-processing of waste materials to occur.

3 Policy setting

The Schedule is required to be consistent with relevant policies including state environment protection policies, the waste management policy and strategies, and the *Towards Zero Waste Strategy* (TZW).

The *Waste Management Policy (Siting, Design and Management of Landfills)* was the key policy providing guidance to the development of the Schedule. While all principles of the policy were considered in the preparation of the Schedule, a key guiding principle from the policy was:

8 (1) *Integration of Economic, Social and Environmental Considerations*

(a) *Sound environmental practices and procedures should be adopted as a basis for ecologically sustainable development for the benefit of all human beings and the environment.*

(b) *This requires the effective integration of economic, social and environmental considerations in decision making processes with the need to improve community well-being and the benefit of future generations.*

(c) *The measures adopted should be cost-effective and in proportion to the significance of the environmental problems being addressed.*

Similarly, all elements of the intent of the policy were considered in developing the Schedule. Of particular relevance was:

9 (3) *the development and use of landfills for the management of waste in Victoria be minimised, consistent with the policy principles.*

The *Waste Management Policy* also provided the criteria used for landfill site selection. The site selection criteria require that the Metropolitan Waste Management Group take into account the siting considerations established in the Environment Protection Authority (EPA) *Best Practice Environmental Management, Siting, Design, Operation and Rehabilitation of Landfills Publication 788*. Issues such as buffers, landfill type and protection of groundwater are addressed by both.

4 Consultation

The *Environment Protection Act 1970* requires that:

The Metropolitan Waste Management Group must:

- (a) *Consult with relevant stakeholders;*
- (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;*
 - (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.*

The development of the draft Metropolitan Landfill Schedule included the following elements.

- Consultation with metropolitan councils through the bimonthly Local Governments' Waste Forum;
- Industry Briefings held on 23 April and 3 May 2007 on the preparation of the Metropolitan Waste and Resource Recovery Strategic Plan;
- Issues Workshops held on 11 and 12 July 2007 for the Metropolitan Waste and Resource Recovery Strategic Plan;
- Advertisement in the Age Newspaper seeking Expressions of Interest for the preparation of the Landfill Schedule;
- Industry Briefing on Landfill Schedule held on 27 July 2007;
- Provision of information to Landfill Vic;
- Communications to Extractive Industry Works Authority holders as per database provided by the Department of Primary Industries;
- Site inspections where required to evaluate airspace availability at existing sites;
- Consultation with adjacent Regional Waste Management Groups;
- Consultation with consultants and site owners where requested during development of the schedule.

See *Appendix A* for the *Environment Protection Act's* requirements.

5 Landfill capacity

The EPA Landfill Levy is the primary source of information on waste disposal quantities to landfill. The levy applies to all waste – MSW, C&I, C&D and prescribed industrial wastes deposited at licensed landfills in Victoria.

The landfill levy data used covers the period from 1997-98 to 2005-06. The data prior to 2002-03 combined municipal and industrial tonnages. From 2002-03 the data has been separated into municipal and industrial tonnages.

The data was aggregated by the previous metropolitan regional boundaries to maintain confidentiality.

The Metropolitan Waste Management Group (MWMG) was established on the 1 October 2006 under the *Environment Protection (Amendment) Act 2006*, replacing the four former Regional Waste Management Groups (RWMGs).

5.1 Historic regional trends

A graph of the historical landfill levy trends across metropolitan Melbourne is shown in *Appendix B*.

The data from the former eastern region shows a decline in landfilling from more than 400,000 tonnes per annum down to zero in 2004-05 because the last landfill in the former eastern region closed.

Residual waste generated in the eastern region was disposed of in the former south eastern region after the closure of their sites. C&I waste generated in the former eastern region was disposed of at sites in both the former south east and western regions depending on pricing and transportation options.

Similar to the former eastern region, the former northern region data shows a declining trend that is related to landfill closures.

The data from the former south eastern region indicates that MSW disposal in the region has been relatively stable. The Clayton landfill temporarily closed in June 2004 (scheduled to reopen in 2008). Stonington and Boroondara councils have disposed in western region since closure of Clayton. Disposal of C&I waste in the former south eastern region has declined significantly since 2003-04.

In contrast to the other three regions, the former western region has shown steady increases in disposal rates. These increases can be attributed to greater availability of airspace and numbers of landfills providing greater competition than other regions with the result that waste has been transported into the region for disposal.

The data shows a downwards spike of approximately 10 per cent in 2002-03 when the automatic 15 per cent daily cover allowance was introduced into landfill levy calculations. As such, EPA data was adjusted to account for this spike.

5.2 Cross regional disposal

The landfill levy information does not provide any data on the source of the wastes that are disposed of in regions neighbouring the metropolitan region. Significant volumes of wastes are transported out of the metropolitan area for disposal. In particular, the Maddingley Brown Coal site in Moorabool Shire (Highlands region) accepts large volumes of solid inert metropolitan wastes.

Adjoining waste management regions were consulted during the preparation of this Schedule to determine the likely waste flows during the life of the Schedule. Some shires adjoining the metropolitan area such as Moorabool Shire and Shire of Macedon Ranges utilise metropolitan sites for waste disposal, and for the purposes of this plan it is assumed that current cross-regional waste movements will continue.

The Mornington Peninsula region has both a solid inert and putrescible landfill. These sites and potential replacement sites within the Region gives Mornington Peninsula sufficient capacity.

There are some short to medium term waste movements planned in the next five years including:

- City of Latrobe utilising metropolitan landfills during the development of their new Traralgon South site;
- Diversion of C&I waste from Bendigo to the metropolitan area in order to preserve the life of its existing site; and
- Potentially, some C&I waste from the Barwon region could be disposed of in metropolitan landfills with the closure of the Corio landfill in 2009. This will depend on the rate of filling of the Drysdale landfill owned by City of Greater Geelong.

The waste disposal from non-metropolitan regions does not impact on the Schedule, as these wastes will be disposed of at sites that have long term availability of airspace. A list of neighbouring regions and local government shires is shown in *Appendix C*.

5 Landfill capacity continued

5.3 Airspace consumption projections

The rate of airspace consumption was derived assuming two scenarios:

- meeting the *TZW* Strategy targets;
- no reduction in waste to landfill.

Projections took into account population growth to 2030.

The projection based upon meeting the *TZW* targets uses the Sustainability Victoria waste to landfill projections that indicate waste to landfill by 2013-14 will be 63 per cent of 2005-06 levels.

This assumes that the rate of reduction in waste to landfill will be small (2.5 per cent per annum) until 2010-11, when advanced resource recovery facilities will begin to be commissioned. The rate of waste disposal to landfill then reduces to around 12 per cent per annum until 2013-14. From 2014 to 2017 no further decreases in waste reduction are projected for the purposes of developing this Schedule.

The proportions of solid inert waste to putrescible waste were analysed for 2002-03 and 2005-06. There was no discernable trend in the relative proportions between these two periods.

Exact data on solid inert waste disposal compared to putrescible waste disposal is not available as levy data only provides information on what is disposed of at sites. The larger putrescible waste licensed sites in the north and west of Melbourne accept solid inert wastes which are therefore included in the putrescible waste data.

The scenario assuming 'no waste reduction' is based on no change from 2005-06. This scenario was used to evaluate airspace requirements in the event that the introduction of an alternative waste processing technology does not occur in the schedule period.

The airspace demand projections for the period 2006-07 to 2016-17 are shown in Table 2, which illustrates the two airspace demand scenarios broken down by sub region and waste type. This data is also shown on a graph at *Appendix D*.

Consumption projections have been based on the worst case scenario of 2013-14 *TZW* targets not being met and closure dates being possibly extended assuming targets are met.

Table 2
Airspace consumption with meeting *Towards Zero Waste* and no change to waste disposal to landfill ('000 cubic metres)

	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
S&E Solid Inert <i>TZW</i>	710	696	682	668	568	483	410	362	362	362	362
S&E Putrescible <i>TZW</i>	739	724	710	695	591	502	427	377	377	377	377
N&W Solid Inert <i>TZW</i>	303	297	291	285	243	206	175	155	155	155	155
N&W Putrescible <i>TZW</i>	1,213	1,189	1,165	1,142	970	825	701	619	619	619	619
S&E Solid Inert No Reduction	710	710	710	710	710	710	710	710	710	710	710
S&E Putrescible No Reduction	739	739	739	739	739	739	739	739	739	739	739
N&W Solid Inert No Reduction	303	303	303	303	303	303	303	303	303	303	303
N&W Putrescible No Reduction	1,213	1,213	1,213	1,213	1,213	1,213	1,213	1,213	1,213	1,213	1,213

6 Future landfill need

Needs analysis must consider four key factors.

1. Total volumes of waste for disposal, including potential for diversion
2. Available airspace
3. Transportation logistics
4. Market security

6.1 Waste volumes to landfill

The availability of airspace in the entire metropolitan region is adequate to satisfy demand for many decades. However, most of this airspace is located to the north and west of Melbourne. Landfill airspace is in relatively short supply to the south east of Melbourne.

The former South Eastern Region Waste Management Plan 2005 – 2010 identified the need for an additional solid inert landfill located in the south eastern segment (Casey, Frankston or Cardinia councils) of the south eastern region. The only other sites identified were possibly replacement sites as the exiting sites in the Clayton area were filled and rehabilitated.

The eastern metropolitan area has limited availability of suitable landfill sites. No expressions of interest were received for prospective landfill sites in the former eastern region.

In developing this Schedule the volumes of solid inert and putrescibles airspace available at approved sites was calculated based on data provided by landfill operators.

Volumes of waste to landfill were then extrapolated based upon the following.

- Landfill levy data to 2005-06;
- Waste projections to 2017 based on achieving the TZW targets and a business as usual estimation; and
- Assumption that the proportions of solid inert waste to putrescible wastes would remain a constant.

The volume of wastes to landfill was then compared to available airspace to derive landfill life expectancy. The airspace availability in the south and east and north and west is shown on Tables 3 and 4. The graphs of landfill airspace availability for the south and east and north and west are shown in *Appendices E and F*.

Table 3
Airspace availability south and east ('000 cubic metres)

	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
S&E Solid Inert TZW	14,179	13,469	12,773	12,091	11,423	10,855	10,372	9,962	9,600	9,237	8,875
S&E Putrescible TZW	16,220	15,496	14,786	14,091	13,500	12,997	12,570	12,193	11,816	11,439	11,062
S&E Solid Inert No Reduction	14,179	13,469	12,759	12,049	11,339	10,629	9,919	9,209	8,499	7,789	7,079
S&E Putrescible No Reduction	16,220	15,481	14,742	14,003	13,264	12,526	11,787	11,048	10,309	9,570	8,831

Table 4
Airspace availability north and west ('000 cubic metres)

	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
N&W Solid Inert TZW	7,605	7,308	7,017	6,731	6,489	6,282	6,107	5,952	5,798	5,643	5,488
N&W Putrescible TZW	119,100	117,911	116,746	115,605	114,634	113,809	113,108	112,489	111,871	111,252	110,633
N&W Solid Inert No Reduction	7,605	7,302	6,999	6,695	6,392	6,089	5,786	5,482	5,179	4,876	4,573
N&W Putrescible No Reduction	119,100	117,887	116,674	115,461	114,248	113,035	111,822	110,609	109,396	108,183	106,970

Note: Low level contaminated soil

Category C prescribed waste or low level contaminated soil data was not used in the preparation of the draft Metropolitan Landfill Schedule. Low level soils are generally used either as daily cover or are disposed of at sites that accept only prescribed wastes. As such, the disposal of these soils will have limited affect on the life of solid industrial waste sites in the metropolitan area.

Low level contaminated soils historically have been approximately seven per cent of waste to landfill in Victoria. Due to the relatively higher density of soil compared to waste, low level soil would occupy less than four per cent of landfill airspace in Victoria.

6 Future landfill need continued

6.2 Transportation

Waste transportation requires consideration of two issues:

- east to west waste transportation; and
- transportation within the collection zones.

Transportation of wastes over long distances (east to west – more than one hour) should consider the environmental, economic and social consequences. Therefore, it is an outcome that is to be avoided if other suitable sites for landfill and/or resource recovery facilities are available. Landfill sites are best located close to areas of waste generation within collection zones.

Waste collection vehicles are inefficient for haulages over long distances. Kerbside collection vehicles servicing residential or commercial premises are designed to pick up mobile garbage bins with side loading arms or one to three metre skips with front or rear loading vehicles. These vehicles then transport the wastes to a landfill or transfer station. Similarly, skip trucks collect wastes from building sites and commercial generators and transport these skips to landfills and transfer stations.

The payload of these collection vehicles is generally less than 10 tonnes. Collection vehicles are not cost effective at transportation over long distances due to the small payload. Generally these vehicles will not transport wastes more than 30 to 60 minutes from the collection point. Where landfill facilities are not available transfer stations have been developed to allow for aggregation of wastes for transportation in larger vehicles.

Bulk transportation of wastes from transfer stations to landfill or processing facilities is largely performed by “walking floor” semi trailer vehicles. These vehicles have a maximum payload of approximately 25 tonnes. The advantages of bulk hauling are therefore reduced labour costs and reduced fuel costs. The disadvantages are that bulk haul requires the construction and operation of transfer facilities and the purchase and operation of prime mover trucks and walking floor trailers.

Much of the east to west transportation of wastes requires the use of parts of the road network such as the Burnley and Domain tunnels.

In recent years increasing volumes of wastes have been shipped across Melbourne from east to west. An example of this is the Casey transfer station wastes that are transported more than 100 kms for disposal at the Maddingley Landfill, Bacchus Marsh.

The total cost of transferring wastes from Casey to Bacchus Marsh is in the order of \$26 to \$35 per tonne extra compared to landfilling wastes at a site in Cranbourne.

Once wastes have been loaded into a walking floor trailer for transportation then it is more likely that these wastes will be transported across town for disposal as the landfill gate fee differential from east to west provides a sufficient price incentive to transport the wastes. If however a landfill site is available for drop off from a waste collection vehicle it is likely that wastes will be disposed of at this site and not transported long distances for disposal. This analysis only applies to the metropolitan region. In non metropolitan regions there are different transportation and landfill cost drivers.

6.3 Market security

The intention of previous regional waste management plans when there were four Regional Waste Management Groups in Melbourne was to provide for one or more putrescible or solid inert landfills in each region to guarantee security of airspace. However, more recently there has been an increasing trend for waste to be transported from east to west (see 6.2). This has been driven by some landfill closures in the east and greater availability of airspace and competition in the west.

The plan does not provide a one for one replacement for landfill sites. At present the current scheduled sites are considered sufficient to meet the demand for landfill space in the metropolitan region.

The metropolitan area for the purposes of preparation of this plan has been assumed to operate as two catchments. The south east and east is considered to operate as one catchment and northern and west operates as the other catchment. Whilst some wastes are transported from east to west, it is only considered desirable to transport waste between the two catchments after examining economic, social and environmental factors.

7 Landfill sites

In addition to sites that are currently scheduled, the MWMG sought expressions of interest for new sites to be included in the draft Metropolitan Landfill Schedule. Forty-one submissions were received. There were multiple submissions from some operators and two submissions for one site. The list of submissions is included in *Appendix G*.

All submissions were for sites that are former, current or future extractive industry sites. Submissions were also received for sites outside the metropolitan area. These submissions could not be considered as the Regional Waste Management Groups outside the metropolitan area are responsible for scheduling sites within their regions.

The geology, hydrogeology and patterns of development in the metropolitan area are such that there is a relative abundance of sites that potentially could be suitable for development of landfills. The extraction rate from metropolitan Melbourne quarries is creating space at a rate of around six times faster than it is being filled. It is likely that many potentially suitable quarry sites will never be landfills.

7.1 Scheduled sites

In developing this draft Schedule, the MWMG evaluated airspace availability compared to filling rates, assuming various scenarios. Even a conservative filling rate, which assumes that there will be no reduction in waste to landfill over the schedule period to 2017, does not generate the need for any additional landfill sites. A flowchart of the scheduling process used to add new sites to the schedule is given in *Appendix H*.

The need for additional sites takes into account the airspace available at existing landfills and airspace available at existing scheduled sites. The Act section 50BC Part 3 (2) (a) requires that the Metropolitan Landfill Schedule specify the proposed sequence for the filling of available landfill sites for at least the next 10 years. The Schedule is included in *Appendix I*.

The Schedule anticipates that a number of existing sites will close during the next ten years; however adequate airspace is available at the other scheduled sites to cater for the waste disposal needs of Melbourne.

The SBI Cranbourne Quarries site, which was scheduled in the 2005–2010 South Eastern Regional Waste Management Plan, has been included as a scheduled site in this plan. This site had the highest rating of the available sites when using criteria set out in the *Waste Management Policy*.

The Barro Kealba site, which was scheduled in the 1997 Western Regional Waste Management Plan, has been included as a scheduled site in this plan. It had a works approval issued in 2002 and will apply for a licence in the near future.

Two of the three existing Transpacific Industries (TPI) Clayton sites are expected to close (Clarinda Rd and Victory Rd), however the remaining Heatherton Sands site has sufficient airspace to cater for the catchment need.

There will also be closures of sites in the north and west including TPI Brooklyn, TPI Market Road and Bulla Rd Tip.

None of these could be considered to reduce competition or generate the need for a new site as they are either owned by a company with another site close by, as is the case with TPI in Clayton, or they will be closed in areas that already have excess landfill capacity.

7.2 Potential future sites

The draft Schedule includes two sites that are currently not licensed which were listed in previous RWMG plans. It does not provide for any new sites in the scheduled period. However, the Act requires that the Schedule identifies options for future landfill capacity.

It is clear there is substantial capacity of airspace in the north and west of Melbourne for many decades. There is significantly less airspace available in the south east of Melbourne. The Schedule must identify potential sites so that appropriate landuse planning can protect options for landfill where it is required. The sites that are included as potential future sites were listed on the basis of the information available at the time of preparing this Schedule. Between now and the next review of the Schedule, additional information on potential sites may alter the view of the MWMG on these sites.

Before any of these potential sites are included in a future landfill schedule, they will be assessed against siting criteria in the *Waste Management Policy (Siting, Design and Management of Landfills)* and the *Best Practice Environmental Management, Siting, Design, Operation and Rehabilitation of Landfills Publication 788*.

North and west metropolitan area

The Wyndham, Hanson and Boral putrescible landfill sites have combined airspace capacity in excess of 50 years. As such, the identification of future putrescible sites in the north or west is beyond the scope of this present Schedule.

Planning for solid inert landfills is more difficult. The Maddingley Brown Coal (Maddingley) landfill accepts some hundreds of thousand tonnes of solid inert waste from the metropolitan area. Were this site not to be extended (in the next two to three years), then potentially with the closure of the Bulla Road Tip, the TPI Market Road site and the Sunshine Groupe Bunting Road landfill within the next 10 to 12 years, a need to consider new sites could arise.

Given that the metropolitan region does not include either the scheduling or the works approval to extensions to the Maddingley site, the future of the Maddingley site cannot be catered for in this Schedule. Therefore, the need for future solid inert landfill sites will be considered during the next revision of the Schedule.

7 Landfill sites continued

South and east metropolitan area

The need for new landfill sites in the south and east is envisaged within the next 10 to 20 years. At a minimum TPI Clarinda Rd, TPI Victory Rd, The Glen, SBI Cranbourne and the Clayton Regional Landfill will be closed by 2020. Other sites such as TPI Fraser Rd may close by about 2020.

Sites seeking inclusion in this draft Schedule were for solid inert waste only and a combination of solid inert and putrescible. The earliest need for a new site will be for a replacement for SBI Cranbourne in approximately 2018 and it would be best located in the outer south and east corridor of metropolitan Melbourne.

Two sites in the outer south and east were identified as potential solid inert replacement sites: The Hanson, Noack Road, Harkaway Quarry site, and Ballarto Pastoral at 65 Harold Road, Skye. The next review of this Schedule will be required to further consider their relative merits.

When the solid inert sites in the Clayton area close the possibility exists to schedule an additional site in this area. This will not occur until the latter stages of the life of the TPI Heatherton Sands site. The Delta site at Kingston Road, Heatherton would potentially be a suitable replacement site, when the other Clayton solid inert sites are filled.

The City of Kingston released a draft *Northern Non Urban Framework Plan* in September 2007. This plan supports the filling of the Delta site in order to facilitate the development of the Chain of Parks. This draft Schedule is supportive of the use of the Delta site in accordance with the Kingston Plan. The timing of the filling of the Delta site should be further considered in the next review.

SITA has purchased the "Kingsvale" site from Rinker. The "Kingsvale" site is a soon to be closed sand mining operation located immediately south of the Hallam Road landfill site. This site could potentially be used as an extension of the existing Hallam Road landfill, when the space at the Hallam Road site is filled.

None of the other sites seeking inclusion in the Schedule would be required for the foreseeable future. It should be noted that the sites discussed above are not required for the current Schedule, but may be included after 2017.

8 Landfill rehabilitation

Section 50BC (2)(b) of the Act requires the Metropolitan Landfill Schedule to include a program for replacing and rehabilitating existing landfill sites.

The EPA was provided with a list of existing landfill sites that may close during the scheduled period. The EPA advises that all the subject sites 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), which contains Rehabilitation Plans. These are publicly available from the EPA.

9 Future review

The MWMG may amend the Metropolitan Landfill Schedule at any time in accordance with the *Environment Protection Act*.

The Metropolitan Waste and Resource Recovery Strategic Plan must be reviewed within four years of the date that it takes effect under section 50BD of the Environment Protection Act as ratified by the Victorian government.

It is anticipated that a review of the Metropolitan Landfill Schedule will take place at the same time as a review of the Metropolitan Waste and Resource Recovery Strategic Plan.

10 References

City of Kingston (2007) *Northern Non Urban Area Framework Plan (draft)*

Environment Protection Authority (August 2004) *Development and Maintenance of Regional Waste Management Plans* Publication 957.

Environment Protection Authority (October 2001) *Best Practice Environmental Management - Siting, Design, Operation and Rehabilitation of landfills* Publication 788

State of Victoria (2005) *Sustainability in Action: Towards Zero Waste Strategy*, Sustainability Victoria, Melbourne,

Victorian Government (2004), *Waste Management Policy (Siting, Design and Management of Landfills)*, Victorian Government Gazette No. S264, 14/12/2004

Appendix A:

Environment Protection Act requirements

Compliance is required as follows.

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.

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.

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.

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

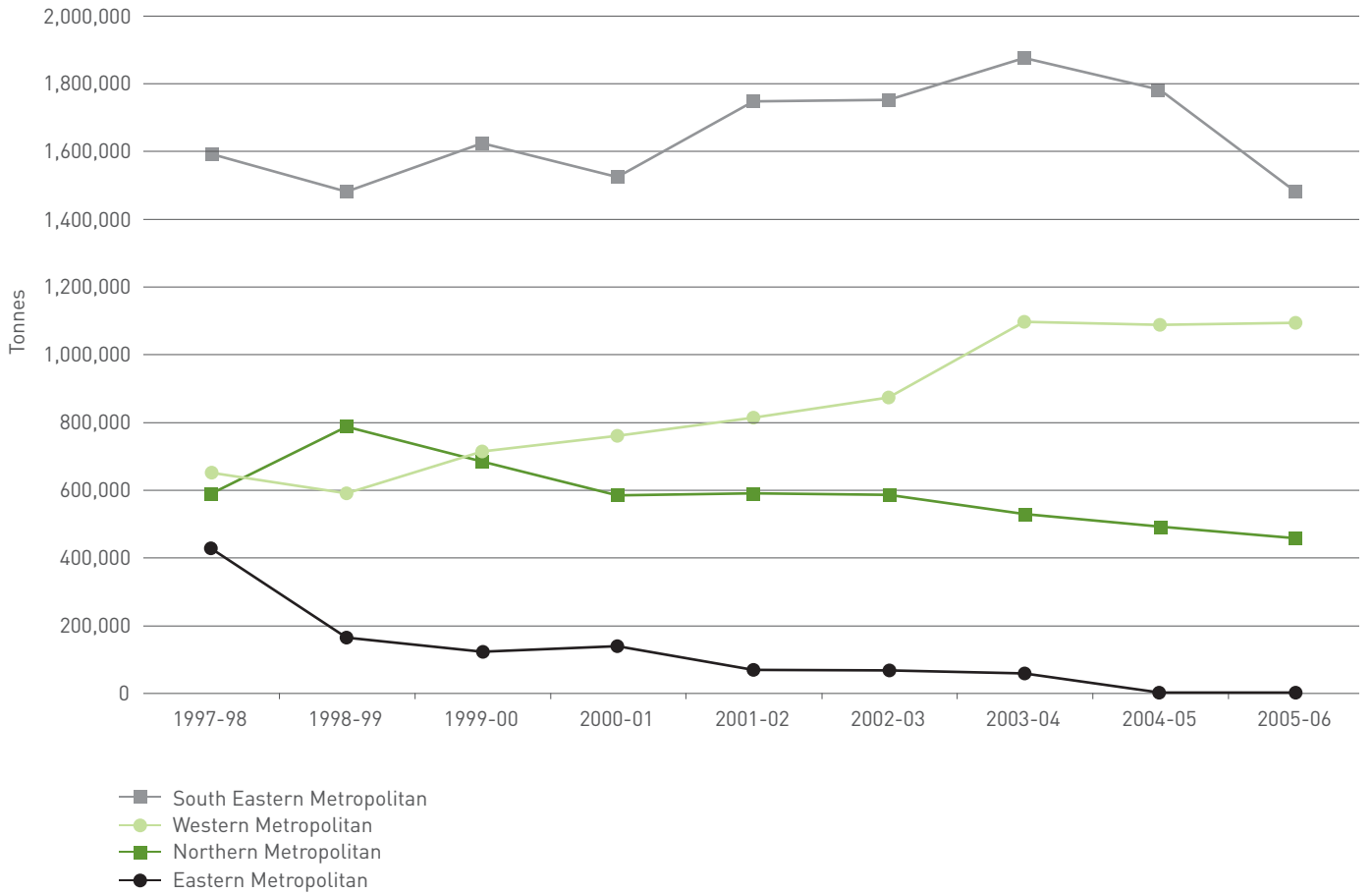
After complying with subsection (4), the Metropolitan Waste Management Group must provide a copy of the draft Metropolitan Landfill Schedule to the Authority for approval.

Compliance Checklist

ISSUE	COMPLETED	SECTION
Filling Sequence for 10 years	Yes	Appendix I
Program for rehabilitation	Yes	Section 8
Closure date	Yes	Appendix I
Future Options	Yes	Section 7
Consistent with WMP	Yes	
Consistent with SEPPs	Yes	
Consistent with SV Waste Strategy	Yes	
Consistent with SIWMP	Yes	
Consult with stakeholders	Yes	Section 4
Advertise draft	Yes	
Consider comments on draft	No	
Submit draft for approval to EPA	No	

Appendix B: Historical landfill levy trends

Historical Region Levy Data (Daily Cover Adjusted)



Appendix C: Neighbouring RWMGs and local government shires

Barwon Regional Waste Management Group

Member councils – Queenscliffe, Great Geelong,
Surf Coast and Colac Otway

Highlands Regional Waste Management Group

Member councils - Ballarat, Central Goldfields, Pyrenees,
Hepburn, Moorabool and Golden Plains

Calder Regional Waste Management Group

Member councils - Greater Bendigo, Mount Alexander
and Macedon Ranges

Goulburn Valley Regional Waste Management Group (Resource GV)

Member councils - Moira, Greater Shepparton, Campaspe,
Mitchell, Murrindindi and Strathbogie

Gippsland Regional Waste Management Group

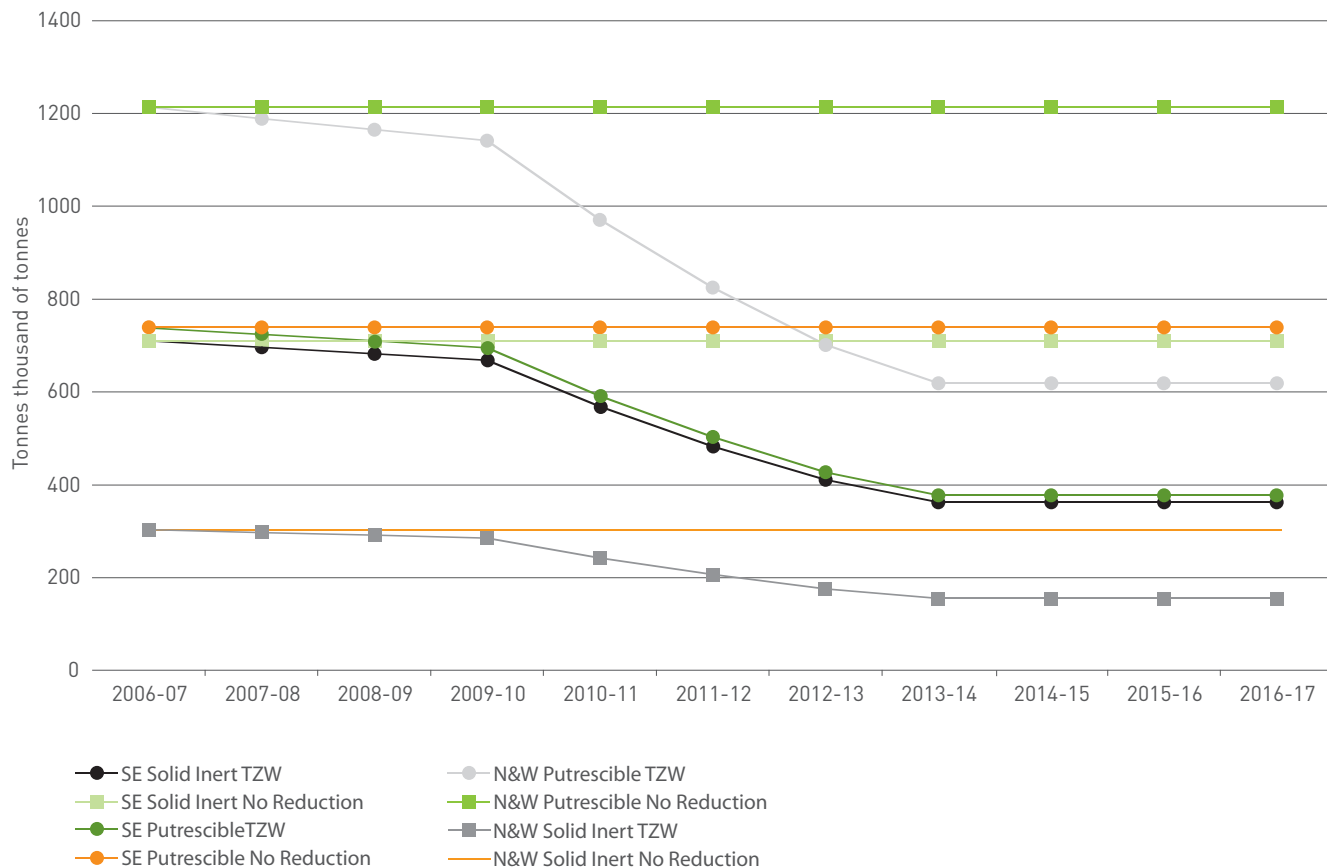
Member councils - East Gippsland, South Gippsland,
Baw Baw, Wellington, Latrobe and Bass Coast

Mornington Peninsula Regional Waste Management Group (Peninsula Zero Waste)

Member council - Mornington Peninsula

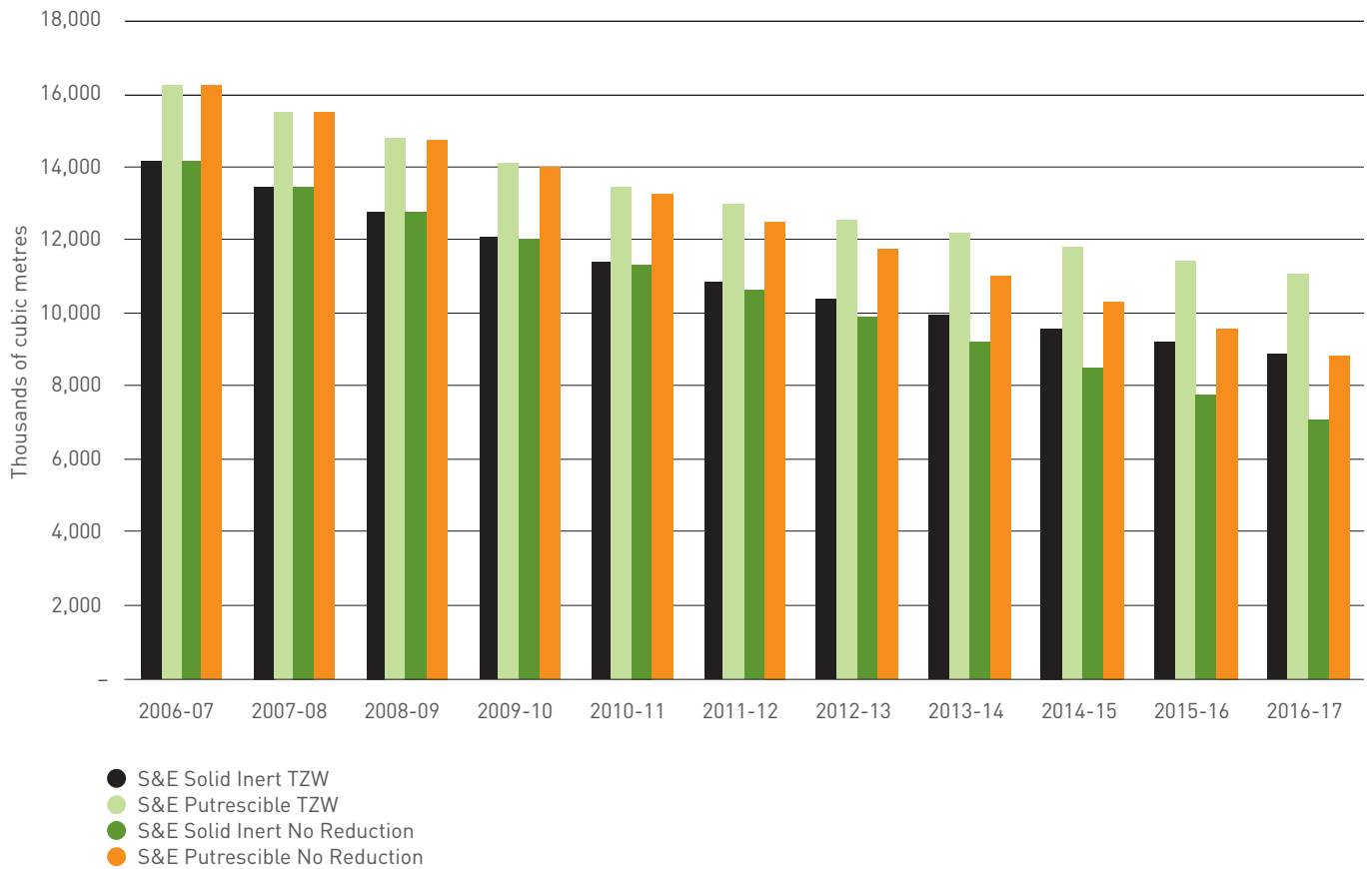
Appendix D: Airspace demand

Airspace Demand with meeting TZW and No Reduction



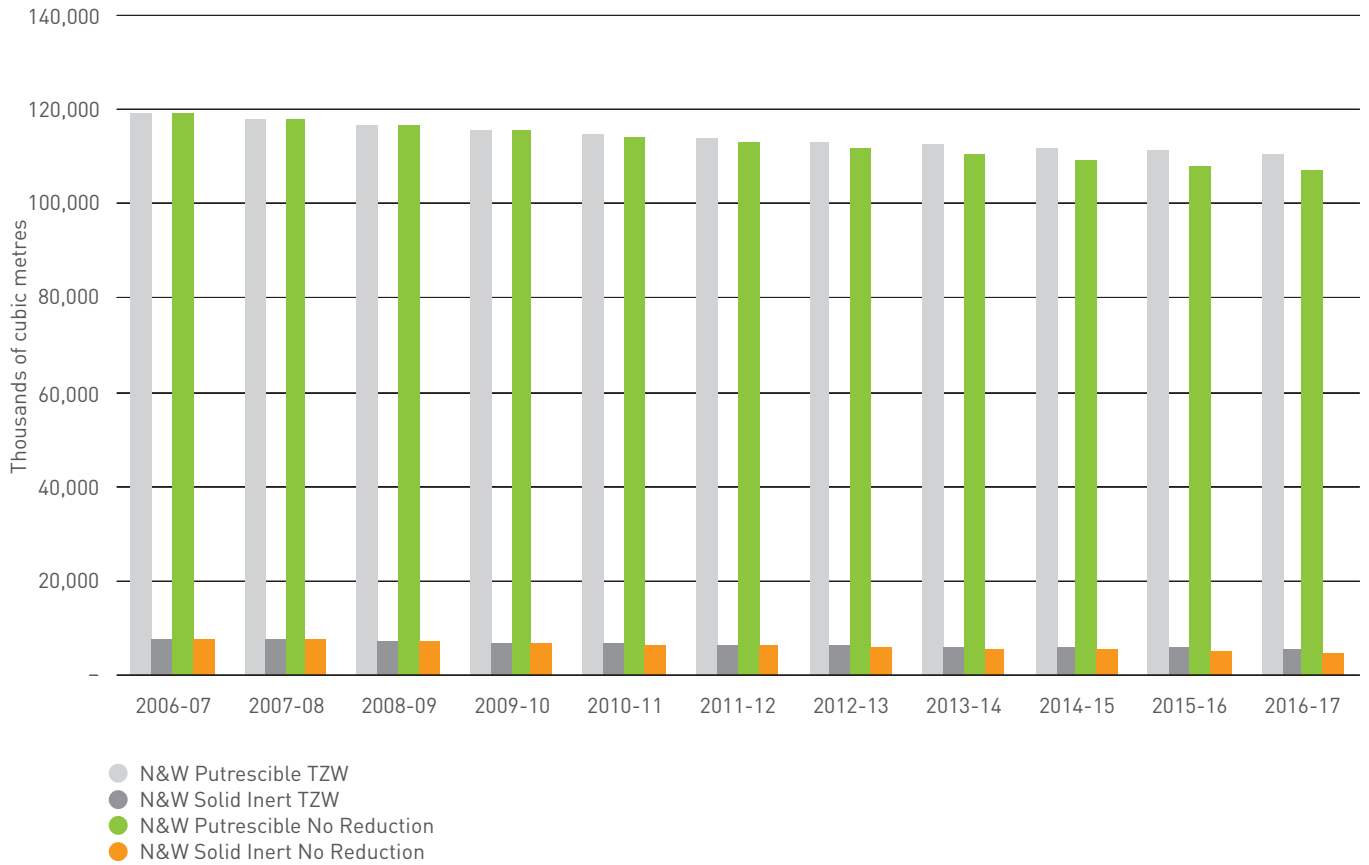
Appendix E: South and east airspace

South and East Landfill Availability



Appendix F: North and west airspace

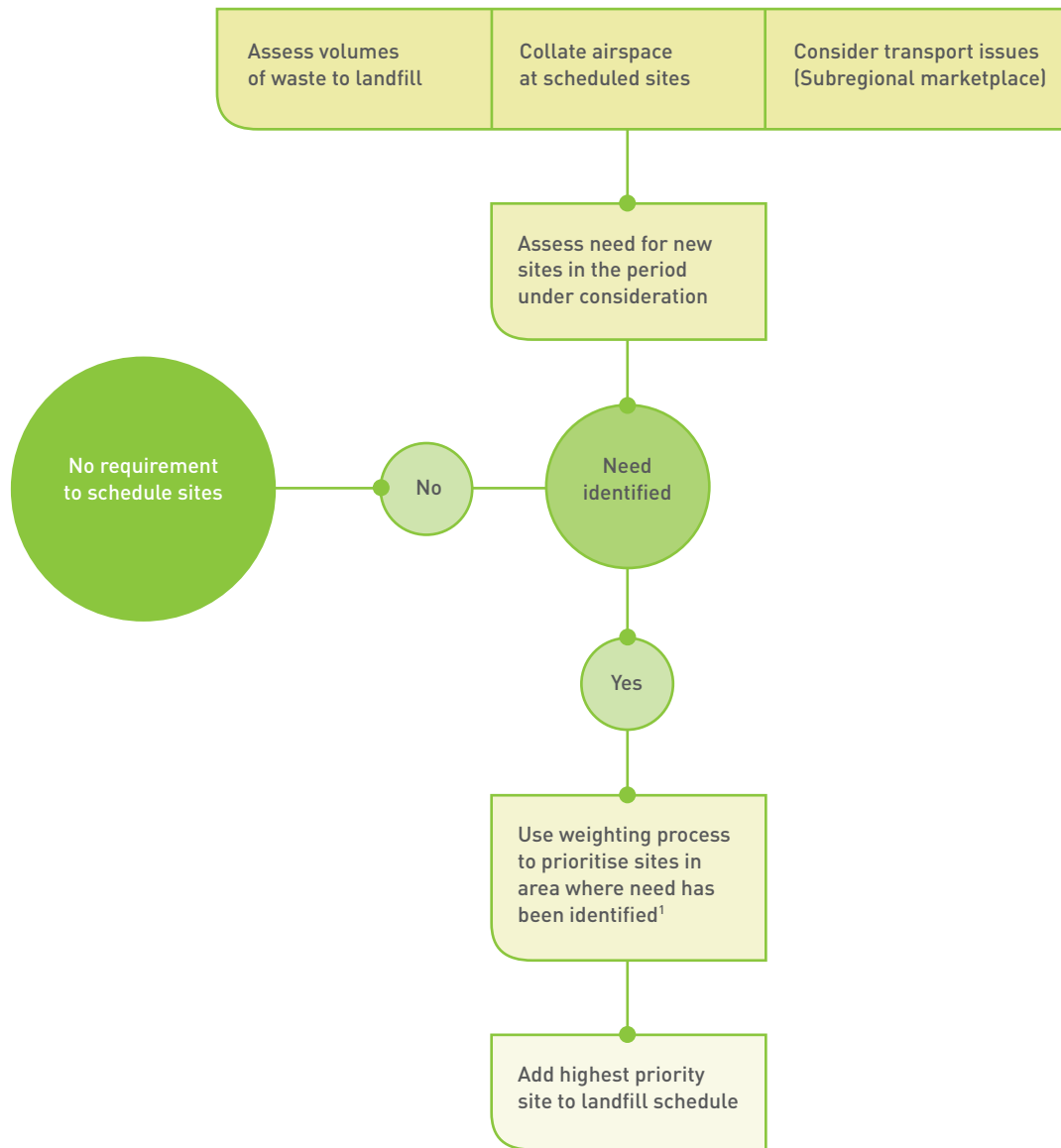
North and West Landfill Availability



Appendix G: List of submissions

COMPANY NAME	LANDFILL SITE NAME	LANDFILL ADDRESS ¹	EXISTING OR NEW SITE
Altona North Landfill Pty Ltd	Altona North Landfill	55 McArthurs Road	Existing
Barro Group P/L	Sunshine Quarry Landfill	McIntyre Rd	Existing
Bulla Tip & Quarry	Bulla Tip & Quarry	500 Sunbury Road	Existing
Transpacific Industries Group	TPI Victory Road, Clayton	Victory Road	Existing
Transpacific Industries Group	Twigg Brooklyn Landfill	Old Geelong Road	Existing
Transpacific Industries Group	Carroll Road Clarinda	Carroll Road	Existing
Transpacific Industries Group	Deals Road	Deals Road	Existing
Transpacific Industries Group	Fraser Road	Fraser Road	Existing
Transpacific Industries Group	Twigg Landfill	Old Dandenong Road	Existing
Transpacific Industries Group	Cleanaway Brooklyn Landfill	Market Road	Existing
SBI Cranbourne Quarries	Stevenson Bros Industries - Cranbourne Quarry	950 Ballarto Road	Existing
Hume City Council	Bolinda Road Landfill	Bolinda Road	Existing
SITA Environmental Solutions	Taylor's Road Landfill	Taylor's Road	Existing
SITA Environmental Solutions	Hallam Road Landfill	Hallam Road	Existing
Hanson Construction Materials Pty Ltd	Hanson Landfill Wollert	45 Bridge Inn Road	Existing
Boral Resources Pty Ltd	Boral Western Landfill	Christies Road	Existing
Clayton Road Joint Venture (Cities of Boroondara, Glen Eira, Monash, Stonnington and Whitehorse)	Clayton Road Landfill	654-718 Clayton Road	Existing
Highfield Quarries. Jones Road Properties	Western Land Reclamation Pty Ltd Site	Jones Road	Existing
Grosvenor Lodge Pty Ltd	Grosvenor Lodge Devilbend Landfill	435 Balnarring Road	Existing
Wyndham City Council	West's Road Landfill	West's Road	Existing
High Quality Landfill	High Quality Landfill	600 Sunbury Rd	Existing
Bulla Tip & Quarry	Bulla Tip & Quarry	500 Sunbury Road	New
Rocla/Aidan J Graham	Quarry Road	240-300 McClelland Drive	New
Rocla/Aidan J Graham	Quarry Road	230 Quarry Road	New
Rocla/Aidan J Graham	Quarry Road	130 Quarry Road	New
Rocla/Aidan J Graham	Quarry Road	165 Quarry Road	New
Stella Farm Pty Ltd	Leakes Road Clean fill Landfill & Recycling Facility	Leakes Road	New
Jandaro Pty Ltd	Talbot Ave	Talbot Avenue	New
Frank Baguley	Baguley	Cnr Clayton and Heatherton Roads	New
Hanson Construction Materials Pty Ltd	Hanson Harkaway Quarry	Noack Road	New
SBI Cranbourne Quarries	Stevenson Bros Industries - Cranbourne Quarry	950 Ballarto Road	New
Ballarto Pastoral Pty Ltd	Skye	65 Harold Rd	New
Conundrum Holdings Pty Ltd	Northern quarries site	Cooper street	New
Quarry View Pty Ltd	Quarry View	500 Ballarto road	New
Altona North Landfill Pty Ltd	Plumpton	1498-1620 Melton Hwy	New
Delta Plant Hire Pty Ltd	Delta	91-185 Kingston road	New
Delta Plant Hire Pty Ltd	Delta	91-185 Kingston road	New
SITA Environmental Solutions	Hallam Road Landfill	Hallam Road	New
Love Pastoral Industries	Clonard Number 3 Landfill	Cooper street	New
Austral Brick	Bolinda Rd	8 Bolinda Rd	New
High Quality Products	High Quality Landfill	600 Sunbury Rd	New

Appendix H: Flowchart of scheduling process



¹ Using the criteria from the Waste Management Policy, clause 13, the assessment includes:

- Community needs
- Landfill type
- Buffers
- Groundwater
- Surface waters
- Flora/fauna
- Infrastructure
- Geology
- Land ownership

Appendix I:

Scheduled sites

Sequence Table of Scheduled Landfill Sites

This schedule has been prepared to comply with section 50 BC Part 3 (2) (a) of the EP Act 1970.

North & West Putrescible

LANDFILL	ADDRESS	LICENCE	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	LIKELY CLOSURE
Hume	Lot 21, Riddell Rd, Sunbury	ES465	→	→	→	→	→	→	→	→	→	→	post 2022
Hanson	Bridge Inn Rd, Wollert	ES41808	→	→	→	→	→	→	→	→	→	→	post 2040
Boral	Riding Boundary Rd, Truganina	ES37288	→	→	→	→	→	→	→	→	→	→	post 2040
Wyndham	West's Rd, Werribee	ES492	→	→	→	→	→	→	→	→	→	→	post 2040
TPI Brooklyn	Jones Rd, Brooklyn	ES499	Ω										2008

North & West Solid Inert

LANDFILL	ADDRESS	LICENCE	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	LIKELY CLOSURE
TPI Market Road	Market Rd, Brooklyn	EX304	→	→	→	→	Ω						2012
Bulla	500 Sunbury Rd, Bulla	ES21321	→	→	→	→	Ω						2012
Altona North Landfill	McArthurs Rd, Altona	ES26227	→	→	→	→	→	→	→	→	→	→	2020
Brooklyn Sunshine Group (Western Land Reclamation) ¹	Jones Rd, Brooklyn	ES26594	→	→	→	→	→	→	→	→	→	→	2020
Barro Kealba	McIntyre Rd, Kealba	²	→	→	→	→	→	→	→	→	→	→	post 2030

South East Putrescible

LANDFILL	ADDRESS	LICENCE	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	LIKELY CLOSURE
SITA Hallam Rd	274 Hallam Rd, Hampton Park	ES33144	→	→	→	→	→	→	→	→	→	→	2027
SITA Taylors Rd ³	890 Taylors Rd, Lyndhurst	ES511	→	→	Ω								2010
TPI Clayton	Deals Rd and Fraser Rd, Clayton	ES49849 EM28818	→	→	→	→	→	→	→	→	→	→	post 2020
Clayton Regional	674-718 Clayton Rd, Clayton	ES20872	→	→	→	→	→	→	→	→	→	Ω	2017

Notes:

1. Has regulatory approval to take putrescible but currently only accepts solid inert.

2. Works Approval issued.

3. For putrescible waste Taylors Road life may be extended by reducing filling rate. This does not affect its capacity for prescribed waste which is projected to continue to 2020.

→ Landfill in operation.

Ω Indicates likely closure year for the facility as advised by the landfill operator.

Scheduled sites

South East Solid Inert

LANDFILL	ADDRESS	LICENCE	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	LIKELY CLOSURE
The Glen	75 Quarry Rd, Langwarrin	ES22749	Ω										2008
TPI Victory Rd	Victory Rd, Clarinda	ES419	→	→	→	Ω							2011
TPI Carroll Rd	Carroll Rd, Clarinda	ES45017	→	→	→	→	→	→	Ω				2014
SBI Cranbourne ⁴	950 Ballarto Rd, Cranbourne			→	→	→	→	→	→	→	→	→	2019
TPI Heatherton	Bunnys La, Heatherton	ES552	→	→	→	→	→	→	→	→	→	→	Post 2020

Prescribed Waste Landfills

LANDFILL	ADDRESS	LICENCE
TPI Western Ave	Western Ave, Tullamarine	HS346
Hi Quality	600 Sunbury Rd, Bulla	ES46084
SITA Taylors Rd	890 Taylors Rd, Lyndhurst	ES511

Notes:

4. The SBI Cranbourne site was scheduled in the SERWMG 2005 - 2010 plan and is expected to apply for a Works Approval in 2008/09.

→ Landfill in operation.

Ω Indicates likely closure year for the facility as advised by the landfill operator.

Out of Region Landfills

LANDFILL	ADDRESS	LICENCE	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	LIKELY CLOSURE
Maddingley	East Maddingley Rd, Bacchus Marsh	ES90	→	→									