



ASEA REPORTS



Illegal asbestos dumping: Review of issues and initiatives

FINAL DISCUSSION PAPER

As prepared by **ACIL ALLEN**
CONSULTING

Illegal asbestos dumping, Review of issues and initiatives

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Contents

Executive Summary	1
1. Introduction	4
2. Illegal dumping of ACMs - Key research findings	5
2.1 Types and sources of illegal dumping	5
2.2 Quantities and trends in illegal dumping of ACMs	7
2.3 Costs to clean up illegally dumped ACMs	11
3. Motivations for illegal dumping of asbestos.....	18
3.1 Information on motivations.....	18
3.2 Analysis of motivations behind illegal dumping of ACMs.....	21
3.3 Lack of awareness about ACMs and related risks	21
3.4 Designing approaches to reduce illegal dumping.....	22
4. Encouraging legal disposal of asbestos-containing materials	25
4.1 Information.....	25
4.2 Waste disposal levies and fees	28
4.3 Accessibility of disposal options	29
4.4 Large fines for illegal dumpers and media coverage.....	29
5. Educating the public and tradespeople	31
5.1 Educating the public	31
5.2 Educating tradespeople	33
5.3 Educating asbestos removalists and demolition contractors.....	34
6. Ensuring coordination within government and with local government	35
6.1 Reporting illegal dumping of ACMs	35
6.2 Coordination within local government.....	37
6.3 Tracking transportation of ACM waste.....	37
7. Moving to best practice approaches	38
7.1 Requiring asbestos removal to be done by licensed removalists.....	38
7.2 Requiring local government approval.....	38
7.3 Information to householders undertaking renovations	39
7.4 Requiring tradespeople removing ACMs to hold transport licences.....	39
7.5 Stronger compliance and judicial action	39
7.6 Coordination within jurisdictions.....	40
8. Case studies.....	41
8.1 Holroyd City Council (NSW) asbestos collection and education program.....	41
8.2 Mandurah Council (WA) hardware shop information sessions.....	43
8.3 Keep South Australia Beautiful (KESAB) industry education materials	45
8.4 Latrobe Council and SafeWork (Victoria) asbestos removal kit	46
8.5 Queensland Government agency coordination of asbestos issues.....	48
8.6 Northern Territory remote location asbestos management.....	49
8.7 NSW data tracking smart phone app.....	50
9. Conclusion.....	52

Bibliography	55
Appendices	57
A. Background	58
A.1 Use of asbestos in Australia	58
B. Cost information and analysis of legal disposal of ACMs	60
B.1 Cost components for disposing of ACMs legally.....	60
C. Review methodology	63
C.1 Scope.....	63
C.2 Methodology	64
C.3 Recruiting stakeholders	64
D. Stakeholders consulted	66
D.1 Stakeholders consulted.....	66

Executive Summary

The Asbestos Safety and Eradication Agency (ASEA) commissioned ACIL Allen Consulting (ACIL Allen) to undertake a review to identify issues relating to the illegal dumping of asbestos containing materials (ACMs) in Australia, and initiatives being implemented by state, territory and local governments to address this dumping.

The removal and disposal of ACMs is regulated because of the potential health impacts resulting from not managing it safely. However, illegal dumping is a problem across Australia. It is a problem for local government and private landowners who bear the clean-up costs, for individuals exposed to it who may bear risks to their health, and for government in terms of potential costs associated with the health system.

Regulations to prohibit dumping are difficult to enforce. Tracking down dumpers is difficult and time consuming. Fines for dumping often do not provide a sufficient deterrent. While it can be costly for an individual to legally dispose of ACMs, illegal disposal may be cheap. The health risks (and clean-up costs) from illegally dumped ACMs are substantially greater than for other illegally dumped waste.

Currently there are no Australia-wide or state and territory-wide statistics on incidents and clean-up costs of illegally dumped ACMs. Notwithstanding this, stakeholder inputs to this and other reviews report that the illegal dumping of ACMs in Australia is a problem. For instance, a 2011 survey of Western Australian local councils revealed that local government environment health officers have a “substantial work burden associated with asbestos issues” (Department of Health 2011).

Stakeholders agree that incidents of illegal dumping of ACMs are likely to be underreported. Illegal dumping is often discovered some time, perhaps years, after the dumping has occurred. Some incidents of illegal dumping may only be found during excavations, typically for building construction.

This review has attempted to estimate the amount of illegally dumped waste containing ACMs. While such estimates necessarily involve a number of significant assumptions based on the existing limited data, the likely figure is around 6,300 tonnes of illegally dumped ACMs per annum across Australia. The cost of cleaning up this illegally dumped waste has been estimated, again using a number of assumptions, at around \$11.2 million per annum.

The review has examined motivations for illegal dumping of ACMs. The primary motivations to dump ACMs illegally appear to be cost and difficulties in accessing legal disposal options. Other motivations include:

- seeking to avoid paying tip fees and levies
- convenience (e.g. to avoid a journey to a legal disposal site)
- lack of readily accessible legal disposal options (e.g. where legal disposal sites are distant)
- the opportunity for commercial operators to make higher profits (e.g. where a client has been charged the full cost of legal disposal), and
- apathy and/or a perception that dealing with ACMs properly is too difficult.

There still appears to be a remarkable lack of awareness of the risks arising from ACMs, particularly among do-it-yourself renovators and some tradespeople. Stakeholders see a need for ongoing education campaigns to ensure that new generations understand the problem. Education campaigns

are most effective when they are supplemented with related local government activities, such as measures to facilitate the collection of small quantities of ACMs as well as security and prevention measures.

- Encouraging the legal disposal of ACMs is being achieved through:
- providing information on how and where to dispose of ACMs legally
- minimising legal disposal costs for ACM
- increasing the numbers and accessibility of disposal facilities in municipalities, and
- making illegal dumping more expensive, with larger fines and clean-up costs, and media coverage.

This review has seen excellent examples of the use of websites to provide information on the legal disposal of ACMs. However, websites are a passive form of communication. Some of the more proactive local government bodies are providing information sessions and mobilising community groups. Educating the public is a challenge that is being met through innovative projects such as the use of cartoon characters in school materials. Making asbestos awareness part of the training of tradespeople is also helping to minimise the risk of exposure to that at-risk group.

The issue of government levies on the disposal of ACMs is a significant issue, as are licence fees for tips that received ACMs. These levies were introduced to encourage recycling and waste minimisation. This review argues that, as ACMs cannot be recycled, charging government levies is illogical. The leading jurisdictions in the fight against illegal dumping of ACMs have been revising their legislation to increase penalties, recover clean-up costs from dumpers and empower state and local government rangers to make it easier to penalise illegal dumpers.

The need for state and territory governments to share information about dumping activities between agencies and with local government is also getting attention. Privacy issues do not prevent the ability of authorities to track down motorists who break the law, so they should not impede similar action in relation to illegal dumpers. Innovative approaches to sharing of information on illegal dumping can help address dumping across local government boundaries and identify dumping hotspots.

Some stakeholders consider that property owners should not be permitted to remove or transport ACMs without having undertaken a training course and obtaining a licence. Most jurisdictions do allow property owners to remove and transport small quantities of ACMs and provide information on how to do this. For larger quantities of ACMs (such as from demolitions), best practice includes linking the control of demolitions to local government building approval processes, notifying environment protection agencies, requiring certificates for the appropriate disposal of ACMs before new construction can commence, and employing sufficient inspectors to ensure that contractors are aware that they are likely to be checked.

The case studies provided in this report illustrate useful examples of initiatives taken by state, territory and local governments in seeking to minimise the illegal dumping of ACMs. Finally, the report provides some conclusions from the review, with suggestions to:

- enhance the accessibility of legal disposal sites
- reduce the costs of disposing of ACMs legally
- provide education and training for renovators and tradespeople

- increase penalties for illegal dumping of ACMs
- simplify and streamline processes through which dumpers are brought to justice
- provide free pick-up services
- notify local government demolition permits to environment protection agencies
- provide education materials at hardware and equipment hire shops
- establish government coordination units
- facilitate information flows on ACM dumping
- allow flexibility in transport requirements for special cases
- undertake spot checks on builders and removalists
- keep asbestos awareness websites up-to-date
- improve awareness about legal ACM disposal
- enhance regulatory oversight
- organise information sessions in schools
- provide and advertise the availability of online asbestos safety courses
- assist remote communities with ACM disposal problems
- enhance the effective accessibility of legal ACM disposal options with transfer stations
- make it easier to report illegal dumping (e.g. the NSW phone app), and
- address local government concerns about insurance for possible public liability.

1. Introduction

Illegal dumping of asbestos containing materials (ACMs) has been identified as a national issue by the Asbestos Management Review (2012) and by state and territory authorities. Such dumping poses environmental and health risks, and imposes significant clean-up and site remediation costs on the states, territories and local government. In summary:

- local councils and state / territory government authorities have the ability to issue fines for disposing of asbestos waste illegally
- state and territory government environmental protection agencies are responsible for the regulation of the storage, disposal and transport of asbestos waste from non-worksites
- the handling and storage of asbestos waste at worksites is regulated by relevant state/territory work safety authorities, and
- local councils and private waste disposal facility operators are responsible for the disposal of asbestos at waste facilities and determining fee structures.

The purpose of this report is to identify issues relating to illegal asbestos dumping in Australia, and initiatives being implemented by state, territory and local government to address this dumping. This report:

- highlights current successful interventions to reduce the illegal dumping of ACMs
- identifies best practice approaches to combat illegal dumping of ACMs
- discusses issues around the collection, management and sharing of illegal dumping data
- recommends how stakeholders at all levels of government can utilise available measures to reduce the cost, impact and incidence of illegal dumping of ACMs
- documents the costs of disposal of ACMs
- examines the role of tip fees and levies in influencing illegal dumping of ACMs, and
- reviews the various types of ACM dumping and potential causes, the potential cost and impact of this dumping and how this falls on business, government and the community, and data collection.

The methodology used in this review is described in Appendix C.

The inappropriate disposal of ACMs is closely related to its illegal dumping. Inappropriate disposal can occur when asbestos-containing waste is disposed of at facilities not licensed to accept it, or outside the designated areas. Arrangements for meeting the cost of remediation vary between jurisdictions. In many cases, the cost is borne by local councils, thus placing a strain on their limited resources.

Australia's state, territory and local governments have adopted a number of measures to combat the illegal dumping of ACMs. In some jurisdictions, compliance and enforcement activities and deterrents have been strengthened to reduce illegal dumping. This paper presents details of current approaches being taken across Australia with a view to helping jurisdictions decide on what further measures might be considered.

2. Illegal dumping of ACMs - Key research findings

Very limited data is collected systemically on the volumes of illegally dumped ACMs and the costs of cleaning it up. Where data is collected by an organisation (e.g. a state or territory government organisation or a local council), that collection is generally limited to the functions of the organisation.

- In general, the functions of state and territory government agencies (e.g. environment protection authorities) vary across jurisdictions.
- The relevant environment agencies in some jurisdictions retain partial data relating to incidents of illegal dumping of ACMs that relate to their enforcement actions.
- Local councils only address illegal dumping of ACMs that occurs on council-controlled land. Where illegal dumping of ACMs occurs on private land, there are mechanisms for a notice to be issued to require the ACM to be removed.
 - Most councils do not have records on the number of incidents of illegally dumped ACMs in their areas and often do not systematically record the volumes or weight of illegally dumped ACMs or the costs of cleaning up these materials.
 - A few councils keep some records on the number of incidents of illegally dumped waste and illegally dumped ACMs (for example, one regional council was able to report that it had experienced three incidents of illegally dumped ACMs and 135 incidents of illegally dumped waste (including ACMs); a rural council reported that it had experienced 12 incidents of illegally dumped ACMs in the past year, including 3-4 houses that were sourced from large urban areas).
 - At least one council tracks the amount of time staff take to clean illegally dumped waste (including ACMs).
 - Many councils do not record activity to address illegally dumped ACMs separately from other related activities (such as addressing littering).
 - In one council there is no centralised data about illegally dumped ACMs because incidents are addressed by different sections of the council on an as-needs basis.
 - One council has only recently engaged a ranger and does not have records of illegally dumped ACMs for the period in which it did not have a ranger.

2.1 Types and sources of illegal dumping

2.1.1 Range of types of ACMs being dumped illegally

Asbestos was widely used in construction up until 2002 and manufacturing of asbestos was only banned in Australia in 1983. As a result, asbestos persists in many different kinds of buildings and materials. Because of its heat resistant properties, asbestos was also used in electric ovens and hotplate wiring and in buildings for its flame retardant and insulating properties. It can be found in carpet underlay, hot water piping or floor tiling. As such, a major source of asbestos is household renovations for houses built pre-2002 (the peak years for use of asbestos in the construction of

Australian homes were from 1945 to 1987). Asbestos materials are also often present in soil where asbestos was not properly treated during a previous renovation or removal.

- Stakeholders consider that the sources of ACMs that are illegally dumped are as follows:
- household renovation and demolition waste
- ACM-contaminated landfill and other asbestos contaminated soil
- corrugated asbestos fencing, and
- in some areas, entire houses dumped that contain ACMs.

2.1.2 Who is dumping ACMs illegally?

Stakeholders generally consider that household renovators, some building contractors and some asbestos removalists are the parties responsible for most incidents of illegally dumped ACMs.

- Stakeholders consider that non-household renovators are responsible for some incidents of illegal dumping of ACMs, as the ACMs have been professionally wrapped.
- Some stakeholders consider that organised crime has a role in a large fraction of illegally dumped ACMs in Western Sydney, while other stakeholders consider that organised crime is responsible for only a small fraction of illegally dumped ACMs, if any, across Australia.

According to the NSW Environment Protection Authority (EPA), illegal dumping is carried out by all types of people in all parts of the community, from householders to businesses and other organisations.

2.1.3 Where ACMs are illegally dumped

There is a degree of commonality in stakeholders' views about where ACMs are illegally dumped. Many stakeholders, especially local councils, are able to identify "hot spots" for illegal dumping of ACMs in their areas. Some stakeholders consider there is a large cross-over in the types of locations that general waste is illegally dumped and the areas in which ACMs are illegally dumped.

Stakeholders identify the following as locations in which ACMs are illegally dumped:

- road reserves, state forests, parks and national parks on the outskirts of urban areas
- areas without passive surveillance, and any place a vehicle can get to without being seen
- areas that have been legal drop-off areas for ACMs in the past but are no longer in use
- areas near tips: people may dump ACMs illegally after finding the tip is closed or will not accept their waste material
- unstaffed tips which are not designed to accept ACMs
- skips on building sites
- roads next to schools where dumping occurs after school has ceased operating for the day
- blocks of land used as unlicensed tips or waste transfer stations by single firms, and

- vacant lots.

ACMs are also often dumped on weekends or at night and at other times when dumpers know that Council rangers are not working.

The Western Sydney Regional Illegal Dumping Squad has identified six different types of illegal dumping:¹

- waste illegally dumped within the vicinity of multi-unit developments (MUDs)
- waste illegally dumped within the vicinity of single unit dwellings (e.g. houses)
- commercial and municipal waste illegally dumped (up to 2 cubic metres)
- demolition waste and contaminated fill transported to unlawful waste facilities by unscrupulous individuals or companies using organised networks (greater than 2 cubic metres)
- green waste and contaminated fill illegally dumped by commercial operators (e.g. in bushland or open spaces), and
- landowners accepting waste on private properties with and without knowledge of the potential risks and legal liabilities.

2.2 Quantities and trends in illegal dumping of ACMs

There is limited centralised information on the quantities of illegally dumped ACMs, in part due to the nature of the practice being illegal. Although some councils and other stakeholders collect some information about illegal dumping, there is no centralised dataset about the number of incidents and volumes of illegally dumped ACMs. This review was not asked to undertake a comprehensive audit of illegal dumping of ACMs in Australia. However, some data has been collected during this review through desktop research and stakeholder consultations relating to incidents of illegally dumped ACMs and illegally dumped waste (including ACMs). This is summarised in Table 2.1 and Table 2.2 below. In some instances, this data refers to illegal dumping of waste which may include ACMs.

Table 2.1 – Examples of illegally Dumped ACM incidents

Location	Quantity/description
Holroyd City Council, NSW	8.9 tonnes in the period 1 July 2013 - 31 Dec 2013
Holroyd City Council, NSW	5.14 tonnes in the period 1 Jan 2014 - 30 Jun 2014
Holroyd City Council, NSW	36 tonnes in the period 11 August 2014 - 30 May 2015
Hawkesbury City, NSW	5 tonnes in the period 11 August 2014 - 30 May 2015

¹Environment Protection Authority (EPA) 2013, NSW Illegal Dumping Strategy 2014–16, NSW Environment Protection Authority, Sydney.

Location	Quantity/description
Liverpool City Council, NSW	84 tonnes in the period 11 August 2014 - 30 May 2015 ^b
The Hills Shire Council, NSW	2 tonnes in the period 11 August 2014 - 30 May 2015
Blacktown City Council, NSW	11.6 tonnes in the period 11 August 2014 - 30 May 2015 8 incidents in 2007-08, 11 incidents in 2008-09, 6 incidents in 2009-10, all from open space
Fairfield City Council, NSW	37.8 tonnes in the period 11 August 2014 - 30 May 2015
Penrith City Council, NSW	87.4 tonnes in the period 11 August 2014 - 30 May 2015 ^c
Parramatta City Council, NSW	29 tonnes in the period 11 August 2014 - 30 May 2015
Uralla Shire Council, NSW	0.21 tonnes in FY2014-15
South Burnett Regional Council, QLD	3 incidents in 2015 (YTD) ^a
South Burnett Regional Council, QLD	12 incidents in 2014 ^a
Moreton Bay Regional Council, QLD	20 incidents and 1,200 complaints in 2013-14
Mindarie Regional Council, WA	4 incidents in 2015 (YTD) ^{a,e}
Western Australia	191 incidents recorded across the state between Jan 2010 and July 2011 ^{a,d}
Tasmania	Around 20 incidents of illegal dumping per year ^a
Melton City Council, VIC	Around 20 incidents of illegal dumping per year ^a
City of Moreland, VIC	Around 20 incidents of illegal dumping per year ^a
City of Casey, VIC	Around 40 incidents of illegal dumping between March 2008 and March 2015

a Volume of asbestos dumped was not recorded/supplied.

b Actual tonnage higher than this as there were 15 incidents without volume data recorded.

c Actual tonnage higher than this as there were 7 incidents without volume data recorded.

d According to responses by 28 local councils of the 140 surveyed.

e Mindarie Regional Council is a body that operates a waste disposal facility.

Source: Holroyd City Council (2014), Department of Health (2011), Department of Environment and Climate Change NSW (2008), NSW Environmental Protection Authority (2014), Blacktown City Council (2011) and ACIL Allen Consultations.

Table 2.2 – Examples of illegally Dumped Waste (including ACM) incidents

Location	Quantity/description
Western Sydney	More than 11,000 tonnes of waste (including ACMs) dumped in Western Sydney each year
Blacktown, NSW	2,360 tonnes of illegally dumped material in 2008-09; 3,460 tonnes of illegally dumped material in 2009-10
New South Wales	<p>A 2004 survey of NSW local councils reported that:</p> <p>Urban councils each reported between 120 and 1,700 annual incidents of illegal dumping (excluding landfill). They reported up to 300 annual incidents of illegal landfill in each council.</p> <p>Rural councils each reported between 1 and 450 incidents of illegal dumping, and up to 26 annual incidents of illegal landfill in each council.</p>
New South Wales	It is estimated that asbestos is a factor in 1 per cent of incidents of illegal dumping of waste.
Victoria	Local councils clean up more than 33,000 tonnes of illegally dumped waste annually.
Queensland	<p>In 2012-13, local councils managed 14,500 tonnes of litter and illegally dumped waste. Furthermore, modelling conducted in 2010 estimated that there was a total of 20,666 tonnes of illegal dumped waste in Queensland each year.</p> <p>In 2011-12, 55 of the 74 councils reported collecting 9,300 tonnes of litter and illegally dumped waste.</p>
South Burnett Regional Council, QLD	374 incidents of illegal dumping of waste (including ACMs) in 2014; 135 incidents in 2015
South Australia	<p>It is estimated that more than 7,000 tonnes of waste are illegally dumped in South Australia each year.</p> <p>A survey of South Australian local councils in 2008 found that: There was an average of 216 illegal dumping incidents in each council area in 2005-06 and 218 in 2006-07. There were more incidents in metropolitan council areas (524 in 2005-06 and 545 in 2006-07) than rural council areas (44 in 2005-06 and 46 in 2006-07).</p>

Location	Quantity/description
South Australia (continued)	The total estimated average weight of material from illegal dumping was 182 tonnes in 2005-06 and 177 tonnes in 2006-07. The estimated average weight of material in metropolitan areas (449 tonnes in 2005-06 and 443 tonnes in 2006-07) was higher than in rural council areas (18 tonnes in 2005-06 and 27 tonnes in 2006-07).

Source: Department of Environment and Climate Change NSW (2008), McGregor Tan Research (2008), NSW Environmental Protection Authority (2014), Blacktown City Council (2011), Environment Protection Authority Victoria (2012), Department of Environment and Heritage Protection (2014), Department of Environment and Heritage Protection (2013), Local Government Association of South Australia (n.d.) and ACIL Allen Consultations.

Assessing the full extent of illegal dumping of ACMs across Australia using the available data is a challenging task due to the absence of comprehensive data sets to determine the size of the problem. Furthermore, the volumes of illegally dumped asbestos are likely to be influenced by a number of factors, including the characteristics of the area in which the ACMs are sourced (e.g. age of the housing stock and the extent of redevelopment activity), the costs and accessibility of legally disposing ACMs in the area, and the level of public awareness about the risks and proper treatment of asbestos.

To exemplify the extent of illegally dumped ACMs, ACIL Allen has calculated an illustrative average quantity of illegally dumped ACMs per person per annum from the data in Table 2.1 and population estimates from local council websites. As shown in Table 2.3, the average quantity of illegally dumped ACMs across the sample of locations is approximately 0.25 kilograms per person per year. This is not the average level of illegally dumped ACMs across Australia or even New South Wales, but instead the observed average across the relevant council areas based on data obtained in this review. However, if this figure was assumed to apply to the population of Australia, it would suggest a figure of 6,650 tonnes per annum across the country. Extending the limited evidence from this study to a state and territory-wide level or nationally would require data collection across a representative sample of Australian locations.

Table 2.3 – Illustrative amounts of illegally dumped acm

Council area	Average quantity of illegally dumped ACMs (kilograms per person per year)
Holroyd City Council	0.24
Hawkesbury City Council	0.11
Liverpool City Council	0.66

The Hills Shire Council	0.02
Blacktown City Council	0.05
Fairfield City Council	0.26
Penrith City Council	0.64
Parramatta City Council	0.22
Uralla Shire Council	0.03
Average across above councils	0.25

Source: ACIL Allen Consulting estimates

2.2.1 Trends

There is little data on the trends in the level of illegally dumped ACMs either across Australia or at particular locations due to the lack of systemic data collection. Given this lack of data, ACIL Allen sought stakeholders' views about the trends, if any, in the level of illegally dumped ACMs.

- Where stakeholders have a view about the trends in illegally dumped ACM, these relate to trends at local, regional or state-wide levels. There is no consistency across Australia in stakeholders' views about the trends in the level of illegally dumped ACMs.
- One local council considers that there has been no change in the amount of illegally dumped ACMs in its area since tip fees for the commercial disposal of ACMs had been equalised with the fees for the commercial disposal of non-ACM. Another stakeholder considers that the amount of illegally dumped ACMs in NSW did not vary substantially after the NSW Government introduced a waste levy for general waste and asbestos. Other stakeholders take a different view on the impact of the levy.
- Two stakeholders consider that the amount of illegally dumped ACMs in an area is, in part, associated with the amount of building activity in that area. One stakeholder considers that the number of incidents of illegally dumped ACMs has been decreasing and that this may be related to a decreasing local population and reducing level of building activity.

2.3 Costs to clean up illegally dumped ACMs

There is little information available on the costs of cleaning up illegally dumped ACMs. Data on the illegal dumping of general waste (which may include ACMs) for a sample of locations is presented in Table 2.4. Stakeholders advise that clean-up costs per tonne for ACM-containing waste are greater than for general waste (yet there is no data about the extent to which they differ).

The data collected in this review through desktop research and stakeholder consultations relating to illegally dumped ACMs is summarised in Table 2.5 below. While most of this information is robust, some figures are ballpark estimates provided to the project team.

While the data on the costs of cleaning up and disposing of illegally dumped ACMs is scattered and incomplete, it is clear that councils around Australia are spending significant resources on cleaning illegally dumped ACMs. For instance, in Western Sydney, Blacktown, Fairfield, Hawkesbury, Holroyd, Liverpool, Parramatta, Penrith and The Hills Councils collectively spent about \$720,000 in the nine months to May 2015 investigating and arranging the removal of illegally dumped ACMs. These investigations included searching areas of Crown land, private land, and railway land nearby where illegally dumped ACMs were found.

Table 2.4 – Examples of Clean-up Costs for illegally Dumped Waste

Location	Quantity/description
Blacktown City Council, NSW	Approximately \$280,000 per year: \$13,100 cleaning up 25 incidents in 2005-06; \$34,000 on 27 incidents in 2006-07; \$30,600 on 26 incidents in 2007-08; \$60,200 on 47 incidents in 2008-09; \$40,300 on 41 incidents in 2009-10, all involving asbestos and hazardous waste on public roads
South Burnett Regional Council, QLD	\$11,000 in 2014 for cleaning up 374 incidents (including 12 involving ACMs)
New South Wales	\$5,100,000 per year for local councils to clean up illegally dumped waste
Victoria	\$6,004,000 in 2012 for local councils to clean illegal dumping (average of \$76,000 per council)
Queensland	\$11,000,000 in 2012-13 for local councils to manage litter and waste: estimate of \$670 per tonne to manage litter and illegal dumping from data provided by 12 local councils in 2011-12
South Australia	\$1,500,000 in 2006-07 for local councils to manage illegally dumped waste
Western Australia	\$8,000,000 per year cost to industry

Source: Blacktown City Council (2011), Department of Environment and Climate Change NSW (2008), Environment Protection Authority Victoria (2012), Department of Environment and Heritage Protection (2013), Department of Environment and Heritage Protection (2014), Local Government Association of South Australia (n.d.), Hickey (2014) and ACIL Allen Consultations.

Estimating the clean-up and disposal costs of illegally disposed ACMs for Australia as a whole is a challenging task as these costs depend on numerous factors including:

- the prices charged by different removalists
- the cost of disposal at a landfill site
- the location and accessibility of the dump site
- whether or not the ACMs are appropriately wrapped
- the nature of the dumping and the area over which it is spread
- some costs are reported by incident, some by volume and some by weight
- difficulties in separating general dumping costs from the costs of cleaning up ACMs, and
- lack of data for administrative costs incurred by councils.

To illustrate the potential magnitude of the clean-up and disposal costs of illegally disposed ACMs, an illustrative average cost to clean up and dispose of illegally dumped ACMs per tonne was calculated using the data in Table 2.5. Using the data on hand has required adjusting some estimates to put them on a similar basis. As shown in Table 2.6, the average cost of engaging a contractor to clean up and legally dispose of illegally dumped ACMs across a sample of locations has been conservatively estimated at around \$2,000 per tonne. This does not include any additional costs to the general community, local councils, businesses, state and territory governments and other parties.

2.3.1 Estimating the cost of cleaning up illegally dumped ACMs

For this project, we have tried several different approaches to attempt to estimate illustrative clean-up costs for illegally dumped ACMs in Australia. It needs to be emphasised that the data that we have received cannot be said to comprise a representative sample of local government clean-up costs for ACMs across Australia. However, we have used three approaches in an attempt to estimate the costs of clean-up for illegally dumped ACMs.

Scaling up from per capita Victorian illegally dumped waste

Victoria has reported that 33,000 tonnes of waste (including ACMs) are dumped in the state annually (Environment Protection Authority Victoria 2012). The population of Victoria is 5.9 million (as at December 2014) (Australian Bureau of Statistics 2015a). Assuming that this figure is representative of Australia, then with a national population of 23.8 million (as at July 2015) (Australian Bureau of Statistics 2015b), the total amount of illegally dumped waste across Australia is approximately 133,000 tonnes. Stakeholder estimates of the percentage of ACMs in general dumped material range from 1 to 10 per cent with most favouring the higher figure. Assuming that 5 per cent of all illegally dumped waste includes ACMs, the total amount of ACMs illegally dumped annually in Australia is 6,650 tonnes. Assuming a clean-up and disposal cost of illegally dumped ACMs of around \$2,000 per tonne, then the annual cost to Australia of illegally dumped ACMs could be around \$13.3 million.

Table 2.5 – Examples of Clean-up Costs for illegally Dumped ACMs

Location	Quantity/description
Melton City Council, VIC	\$16,000 in FY 2014-15 ^a
City of Moreland, VIC	\$20,000 spent annually cleaning up to 200 kilograms of illegally dumped ACMs
City of Casey, VIC	\$22,000 cleaning up 40 incidents of illegal dumping
Moreton Bay, QLD	\$35,000 spent annually
Industry association	\$60,000 to clean up 20m ³ of contaminated soil containing small fragments of ACMs
Holroyd City Council, NSW	\$30,000 - \$50,000 per year with each incident costing about \$1,000: \$55,000 spent between 11 August 2014 to 30 May 2015 cleaning up 29 incidents (36 tonnes)
Hawkesbury City Council, NSW	\$3,000 spent in the period 11 August 2014 to 30 May 2015 cleaning up 1 incidents (5 tonnes)
Liverpool City Council, NSW	\$56,000 spent in the period 11 August 2014 to 30 May 2015 cleaning up 38 incidents (84 tonnes in 18 incidents, 15 incidents without volume data)
The Hills Shire Council, NSW	\$3,000 spent in the period 11 August 2014 to 30 May 2015 cleaning up 6 incidents (2 tonnes)
Blacktown City Council, NSW	\$39,000 spent in the period 11 August 2014 to 30 May 2015 cleaning up 29 incidents (11.6 tonnes): \$95,000 cleaning up 8 incidents in 2007-08, \$97,000 cleaning up 11 incidents in 2008-09, and \$16,000 cleaning up 6 incidents in 2009-10, all from open space
Fairfield City Council, NSW	\$37,000 spent in the period 11 August 2014 to 30 May 2015 cleaning up 46 incidents (982 tonnes)
Penrith City Council, NSW	\$475,000 spent in the period 11 August 2014 to 30 May 2015 cleaning up 67 incidents (87.4 tonnes in 61 incidents, 7 incidents without volume data)
Parramatta City Council, NSW	\$50,000 spent in the period 11 August 2014 to 30 May 2015 cleaning up 55 incidents (29 tonnes)
Shire of Mundaring, WA	\$50,000 in clean-up cost paid by dumper for a significant incident

Location	Quantity/description
ACT	Approximately \$20,000 spent in 2012-13, approximately \$18,000 in 2013-14 for inspection/removal of ACMs ^b

^a Volume of asbestos dumped was not recorded/supplied. ^b Records did not distinguish cleaning up illegally dumped ACMs from managing uncovered legacy ACMs.

Source: Holroyd City Council (2014), Department of Health (2011), Department of Environment and Climate Change NSW (2008), NSW Environmental Protection Authority (2014), Blacktown City Council (2011) and ACIL Allen Consultations.

Table 2.6 – Clean up and disposal costs of illegally dumped ACM

Information source	Average clean up and disposal cost (per tonne)
Hawkesbury City Council	\$593
Liverpool City Council	\$437
The Hills Shire Council	\$1,598
Blacktown City Council	\$3,399
Fairfield City Council	\$987
Penrith City Council	\$5,309
Holroyd City Council	\$1,534
Parramatta City Council	\$1,720
Industry association	\$2,000
Overall average	\$1,953

Source: ACIL Allen based on stakeholder consultations

Estimating costs based on estimates of illegally dumped waste in different states

Another way of estimating an illustrative clean-up cost of illegal dumping of ACMs in Australia would be on the basis of the annual cost of cleaning up all types of illegally dumped waste reported by different states and the number of local government areas in Australia (approximately 561). The recent annual cost of cleaning up all types of illegally dumped waste has been reported by Victoria, Queensland and NSW (the figure reported for South Australia in Table 2.4 was considered too old to use). Assuming that 5 per cent of the waste comprises ACMs and that the cost of cleaning up ACMs is five times (a conservative estimate based on stakeholder advice) the cost of cleaning up general

dumped waste, the cost of cleaning up ACMs can be calculated to be 25/120 of the total cost for cleaning up illegally dumped waste, as shown in Table 2.7. In this table, the average cost per local government area has been used to calculate costs for Western Australia, South Australia, Tasmania, Northern Territory and the ACT. Using this approach and assumptions, a total cost estimate for the illegal dumping of ACMs annually in Australia could be around \$8.5 million.

Table 2.7 – Estimation of costs based on local government areas

State	No. of lgas	Cost pa (all dumped waste)	Cost pa per lga (all dumped waste)	Cost pa per lga for ACMs	Total cost pa for dumped ACMs
Victoria	79	\$6.004 m	\$76,000	\$15,833	\$1,250,833
Queensland	74	\$11 m	\$148,649	\$30,968	\$2,291,667
NSW	152	\$5.1 m	\$33,553	\$6,990	\$1,062,500
Average for the above		\$22.1 m	\$72,472	\$15,098	\$4,605,000
Western Australia	142	na		\$15,098	\$2,143,967
South Australia	64	na		\$15,098	\$966,295
Tasmania (estimated)	29	na		\$15,098	\$437,852
Northern Territory (estimated)	21	na		\$15,098	\$317,066
ACT (estimated)	1	na		\$15,098	\$15,098
Total					\$8,485,279

Note: lga = local government area

Source: ACIL Allen

Scaling up from per capita estimates based on NSW averages

A third approach to estimating clean-up costs for illegally dumped ACMs would be to take the average quantity of ACMs illegally dumped per person per annum across a sample of NSW locations (0.25 kg) from Table 2.3. and multiply this figure by the population of Australia. If it is assumed that this figure is representative of the whole of Australia, then based on Australia's population at July 2015, the total illegal dumping of ACMs in a year could be estimated using this approach at 5,950

tonnes, which is comparable to the estimate of 6,650 tonnes estimated from levels of illegally dumped waste in Victoria. At a clean-up cost of \$2,000 per tonne, the total cost is estimated to be around \$11.9 million.

2.3.2 Conclusions

The three approaches to estimating the cost of cleaning up illegally dumped ACMs across Australia, set out above involve significant assumptions. However, in spite of the various assumptions, the three cost estimates are remarkably similar (\$13.3 million, \$8.5 million and \$11.9 million). It must also be noted that these estimates do not include administrative costs on the part of local government, which could add a further 10 per cent.

We consider, on the basis of the assumptions above and noting the reservations about the data, that the annual costs of illegal dumping in Australia could to be in the order of \$11.2 million per annum and the quantity involved is likely to be around 6,300 tonnes.

3. Motivations for illegal dumping of asbestos

To obtain a better understanding of which non-regulatory approaches may be useful in combatting the illegal dumping of ACMs in Australia, it is important to identify and understand the motivations of those who do the illegal dumping. This is challenging, as the activity is by its nature illegal, and so direct statistical approaches to help understand the motivations (e.g. surveys) are not generally available.

In order to identify and understand the motivations behind illegal dumping, ACIL Allen examined published material on illegal dumping of ACMs and general waste in Australia and sought the views of stakeholders. Despite the breadth of information sources consulted, there was a great deal of overlap in the perceived motivations behind the illegal dumping of ACMs.

Information gathered for this review indicates there is a good deal of overlap between the motivations to dump general waste illegally and to dump ACMs illegally. However there are particular motivations that drive the illegal dumping of ACMs due to their characteristics and the regulatory arrangements and costs associated with their disposal.

Some stakeholders consider that, in addition to general motivations for the illegal dumping of ACMs, local social and geographic factors (such as the nature and period of construction of housing in the area) may also play a role. Hence, a successful approach to combatting illegal dumping in one area may not be as effective in other areas.

The cost and accessibility of legal disposal options for ACMs were highlighted by the literature and many stakeholders as the key general factors behind the illegal dumping of ACMs, noting that the factors in relation to dumping at any one particular location may vary. This was supported by people consulted across the stakeholder groups: local councils, state and territory government agencies, non-government organisations, asbestos removalists, waste facility managers, representatives of peak industry bodies and trade unions.

3.1 Information on motivations

A number of reports, government documents, submissions to public inquiries, and other commentaries have considered the motivations for illegal dumping in general and, in some cases, illegal dumping of ACMs.

National

The 2012 Australian Government Asbestos Management Review noted that stakeholders had considered that the cost of disposal, including transport costs and waste facilities fees, was a clear incentive for illegal dumping. The WorkCover NSW submission to that review stated that other factors identified as motives were convenience and uninformed action (Department of Education, Employment and Workplace Relations 2012).

New South Wales

The NSW Environment Protection Authority considers that there are four recurring reasons that motivate people to dump general waste illegally (not restricted to ACMs) (NSW Environmental Protection Authority 2014):

- convenience
- using organised networks, particularly with regard to waste generated by businesses
- an unwillingness to pay, and
- an uncaring attitude.

Holroyd City Council identified reasons residents gave as the main barriers preventing them from disposing of ACMs in a June 2013 trial of free residential asbestos collection (Holroyd City Council 2014).

- Cost and lack of knowledge about disposal options were the main barriers that had prevented residents disposing of the asbestos containing material, resulting in them leaving the material on their properties.
- The feedback received for the initiative indicated an overall willingness to pay a small amount (between \$50 and \$75) for such a service.

The Tweed Shire Council's waste management co-ordinator was reported in July 2015 as saying that there had been no reports of illegally dumped ACM across the shire over a year-long period during which the fees to dispose of asbestos had been reduced to \$85 per tonne from \$183.50 per tonne under the NSW EPA Waste Less, Recycle More initiative. The co-ordinator was reported saying that councils in the northern rivers area in prior years had cleaned up 15 loads of illegally dumped ACM (Feliu 2015).

In 2008, the NSW Department of Environment and Climate Change stated that the illegal dumping of asbestos was a major problem and that many NSW councils in a 2006 survey had identified it as a priority. Councils were concerned that some building contractors and renovators were not handling and disposing of asbestos waste in a safe, lawful manner (Department of Environment and Climate Change, NSW 2008). The Department also noted that:

- NSW local councils considered, in a 2004 survey, that construction and demolition businesses and householders often dumped asbestos due to an unwillingness to pay fees and noted that higher landfill fees applied to the disposal of asbestos waste.
- Businesses and householders may simply be unaware of the risks and regulatory provisions for disposing of asbestos waste, or that they may be ignored to save time and costs.

In its 2012 review of the NSW waste levy, KPMG found that there was no conclusive evidence that linked the levy to the illegal dumping of ACMs (KPMG 2012). However, it considered that the cost of disposing ACMs may be a factor in the level of illegal dumping, as it suggested that introducing rebates for NSW householders who appropriately dispose of asbestos waste may assist in reducing the level of illegal dumping of ACMs.

Local Government NSW considers that asbestos waste should not be subject to a levy as this deters residents and contractors from legally disposing of asbestos waste.

“The absence of the levy in regional and rural areas may actually result in a better environmental outcome i.e. the waste is taken to landfill rather than illegally dumped”

Local Government NSW (2014)

The City of Newcastle, in evidence to the NSW Parliamentary Committee on Environment and Regulation, considered that the waste levy was a key cost to dispose of ACMs legally and that legal disposal should be as cheap as possible (NSW Legislative Assembly Committee on Environment and Regulation 2014).

“One of the key costs in disposing of waste lawfully is the waste levy imposed by the NSW Government. The levy is designed to encourage reuse of material and take it out of the waste stream so it does not end up in landfill. You cannot reuse asbestos so it makes no sense at all to apply a levy to the disposal of it because there are no alternatives and in fact we should be encouraging lawful disposal and making it as cheap as possible”

Mr Adam Gilligan, Manager Compliance Services, City of Newcastle, transcript of evidence, 21 October 2013, p.23.

In 2013, the Daily Telegraph reported Holroyd City Council Mayor Ross Grove as saying the \$395 per tonne disposal cost of asbestos, four times that of regular waste, was a factor in the spike in illegal dumping (Campion 2013).

In June 2013, Business Review Weekly reported Brian Seidler, Executive Director of the Master Builders Association of NSW, saying that it was the MBA’s position that the price for legal disposal needed to be reduced in order for more people to dispose of ACMs legally (Bleby 2013).

Queensland

In 2013, the Queensland Ombudsman identified cost and availability of appropriate waste facilities as factors impacting the legal disposal of ACMs.

“The cost of disposing of asbestos legally and the availability of refuse facilities which accept asbestos were identified as key hurdles to the correct disposal of asbestos. In particular, agencies and stakeholders told investigators that the costs of disposal (transport and landfill fees) were too high and this acted as a disincentive for people to dispose of asbestos correctly. One stakeholder also saw the dumping of asbestos as a symptom of a bigger problem: that people do not know how to properly dispose of asbestos.”

Queensland Ombudsman (2013)

Western Australia

The report on the 2011 Western Australia Department of Health survey of local council Environment Health Officers (EHOs) stated that “The potential health risks and considerable work and costs associated with managing illegal dumping may be best addressed by making legal disposal cheaper and easier” (Government of Western Australian Department of Health 2011).

The Western Australian Government perceived that the cost to dispose of ACMs was a factor behind whether people disposed of ACMs properly. The West Australian reported in 2012 that properly wrapped and secured asbestos was to be exempt from the landfill levy from January 2013 in order to remove the disincentive for people to dispose of asbestos properly (AAP 2012).

3.2 Analysis of motivations behind illegal dumping of ACMs

Drawing on the above material and the views of stakeholders, the primary motivations to dump ACMs illegally appear to be cost and the accessibility of legal disposal options. Other motivations include:

- seeking to avoid paying tip fees and levies
- convenience (e.g. to avoid a journey to a legal disposal site)
- lack of readily accessible legal disposal options (e.g. where legal disposal sites are distant)
- the opportunity for commercial operators to make higher profits (e.g. where a client has been charged the full cost of legal disposal), and
- apathy and/or a perception that dealing with ACMs properly is too difficult.

Stakeholders indicated that motivations to dump ACMs illegally may vary across different places and different times. The evidence suggests that some motivations to dump ACMs illegally are similar to motivations to dump general waste illegally although, as noted above, there may be some differences due to its characteristics and the regulatory arrangements and costs associated with its disposal.

The evidence also suggests that much illegal disposal of ACMs occurs as a result of home renovations, with stakeholders suggesting that some do-it-yourself renovators and contractors are primarily responsible for some illegally dumped ACMs. Some asbestos removalists and even organised crime were mentioned as also having some involvement.

Stakeholders generally agree that it is important to identify which groups of people should be targeted to address illegal dumping of ACMs and the ways in which they should be targeted.

3.3 Lack of awareness about ACMs and related risks

Stakeholders report a continuing lack of awareness about ACMs and related risks among do-it-yourself (DIY) home renovators, tradespeople and the general public. This includes:

- failure to identify ACMs, and a lack of understanding about the risks surrounding ACMs
- inappropriate disposal of small amounts of ACMs in the local garbage collection.

There are several Australian surveys on knowledge about disposing of ACMs. The most recent survey, conducted for ASEA, reported that (Asbestos Safety and Eradication Agency 2015):

- among DIY home renovators, 30 per cent disagreed that they had sufficient knowledge on how to identify and manage asbestos on a job site
- among tradespeople, 25 per cent indicated that they felt they had not had sufficient training about how to identify and manage asbestos on job sites and 21 per cent agreed or strongly agreed that they wouldn't have a clue what types of materials contain asbestos, and
- among the general public, 20 per cent considered themselves poorly informed or not at all informed on asbestos, while a further 25 per cent consider they are moderately informed. In

addition, very few people are confident in their ability to identify ACMs or situations that could pose dangers of exposure.

This suggests that there is a need to ensure ongoing awareness and education, especially given the new generations of home renovators and tradespeople in an environment of ongoing household renovation and increasing urban redevelopment.

Stakeholders consider it likely there is a continuum of behaviour – some people will always dispose of ACMs legally, while some will dump it illegally if they think they can get away with it. The aim of most awareness campaigns is to target the population between these two extremes in order to increase awareness of how to dispose of ACMs legally and the risks of not doing so.

The effectiveness of awareness campaigns is difficult to measure. However most are relatively inexpensive compared with the health and clean-up costs for illegally dumped ACMs. Many stakeholders including local councils undertake or support education and awareness sessions. However the experience of Latrobe (Vic), Mandurah (WA) and other city councils suggests that when a serious effort is made and there are groups in the community that support this effort, then campaigns can be effective (see case studies in Section 8).

3.4 Designing approaches to reduce illegal dumping

The motivations behind the illegal dumping of ACMs provide a good starting point for thinking about approaches to reduce the illegal dumping. Addressing the primary motivations for illegal dumping of ACMs involves reducing the cost of disposing ACMs legally and improving the accessibility of legal disposal. However, the approach that is used in relation to dumping in any particular area must be tailored to the geographic and social circumstances in that area. Measures that have been adopted to address these issues are listed below.

3.4.1 Education campaigns

Education campaigns are a major focus. They are carried out in innovative ways, for example fridge magnets and awareness campaigns being held at major hardware stores. An important aspect of such campaigns is that they can help reinforce strong social norms and expectations about how asbestos should be treated. While one stakeholder considers that public awareness of asbestos disposal might have been over-campaigned leading to information fatigue in the community, no other stakeholder mentioned this. The information in these campaigns is pitched at a level that people understand.

Councils and local businesses do a lot of education regarding asbestos. One important aspect of this is that people are given the confidence to identify ACMs and treat them as such. Information campaigns mentioned by stakeholders include:

- the ACT “Mr Fluffy” awareness campaigns
- education workshops
- creating educational websites-both targeted broadly and at householders in the local council area

- “Check before you wreck” campaign in 200 hardware stores
- a survey of local residents to see what asbestos issues were affecting them (this has a twofold benefit as it raises awareness and gathers information)
- e-learning program for home renovators developed by the WA Cancer Council (Cancer Council involvement provides added credibility to the campaign)
- National Asbestos Week
- “Dob in a dumper” campaign
- information days at Bunnings with the Asbestos Diseases Society.
- kits for householders to inform them how to dispose of ACMs properly
- a fridge magnet on municipal garbage disposal dates that includes a footnote on disposal of ACMs, and
- examples of proper disposal in home renovation shows.

3.4.2 Measures to improve the knowledge base

Measures to improve the knowledge base around illegal dumping of asbestos include:

- developing a database of asbestos and other waste that is illegally dumped
- NSW EPA running the NSW Illegal Dumping Strategy which aims to build an evidence base by collecting data on ACMs and combatting illegal dumping
- auditing of licensed removalists every three years to gather data on asbestos removal and illegal dumping, and
- asbestos removal kits for property owners.

3.4.3 Asbestos collection days

Asbestos collection days is also a popular non-regulatory initiative among councils. Variations around this theme include:

- collection days in which households can deposit and/or council will collect asbestos sheets
- drop-off services for tradespeople
- a bi-annual free collection service to residents, and
- Western Sydney Regional Organisation of Councils’ initiative to remove asbestos – this initiative, supported by the NSW EPA, allowed residents to call their local council and have small quantities of asbestos collected (less than 10 sqm).

3.4.4 Security and prevention

Innovative measures to improve the security around illegal dumping sites include:

- EPA Victoria developed an illegal dumping strike force with a focus on industrial dumping
- putting “no entry - danger asbestos” tape around dumped ACMs and signage stating that it is under investigation, which is considered to provide a strong disincentive for potential dumpers
- erecting signs in hot spots indicating the area is under surveillance, and
- installing cameras and motion-triggered cameras in hot spots to catch illegal dumpers.

4. Encouraging legal disposal of asbestos-containing materials

Facilitating legal disposal of ACMs is in everyone's interest. Where there is ready access to legal disposal, councils can minimise clean-up costs from dumping and minimise adverse health impacts to residents. State governments have a role here too because they have responsibilities for the health of citizens.

Based on the information obtained in this review, the annual clean-up costs for illegally dumped ACMs across Australia are likely to be substantial. For example, over the nine months to May 2015, eight local councils in Western Sydney alone spent at least \$720,000 on cleaning up over 290 tonnes of illegally dumped ACMs.

The health costs from ACMs are significant – they include medical and treatment costs, loss of earnings and production, legal and administrative costs as well as costs to the families and carers of those affected. Health costs are potentially much greater than clean-up costs. The World Health Organization has estimated global direct economic costs from asbestos-related cancer at \$US2.4 billion per annum (Ivanof n.d.). On a pro-rata basis this translates to approximately \$A20 million per annum across Australia. Thus significant costs can potentially be avoided by encouraging the legal disposal of ACMs.

There are four ways in which legal disposal of ACMs can be encouraged:

- provide information on how and where to dispose of ACMs legally
- minimise legal disposal costs for ACMs
- increase the numbers and accessibility of disposal facilities in municipalities, and
- make illegal dumping more expensive, with larger fines and clean-up costs, and media coverage.

4.1 Information

Information about how and where to dispose of ACMs can be provided via printed material, the Internet, radio, television, social media and council signage. Some councils organise information sessions at council offices, hardware stores and schools.

Given the long-term need for the provision of this information, **television** advertising may not be cost effective. However, stakeholders have suggested that short advertisements during television programs about home renovation could be effective. However securing advertisements in these slots might require some pressure on the TV stations and their program sponsors.

Websites are one way that people can seek information about asbestos and its risks. Many local councils, state and territory governments provide websites that provide information about ACMs. Examples include the Victoria Government's one-stop shop website on asbestos (Government of Victoria n.d.) and the Queensland Government's website for home renovators and owner builders (Queensland Government n.d.). Some councils provide websites targeted at the needs of local people, such as the Holroyd City Council website (Holroyd City Council n.d.) while others provide

generic information with information sourced from state-wide agencies (e.g. Rockdale City Council (Rockdale City Council n.d.)). ASEA provides information about asbestos on its website.

Websites, while useful, have their limitations. They are passive channels – while they are useful for people seeking information, they are not helpful for those who do not know of asbestos or the dangers that it presents.

Telephone hotlines are provided in some jurisdictions where citizens can call and seek advice or report illegally dumped ACMs. In one jurisdiction, callers can be transferred to the relevant agency for example the Parks Service to report illegal dumping or Worksafe to answer questions about contractors demolishing buildings containing ACMs. The hotline number can be advertised in any of the other media discussed in this section.

Mobilising community groups is another approach that has been used successfully to help get information about ACMs into the community. Thus one council sends staff to address Rotary meetings, while another works with the Asbestos Diseases Society of Australia Inc. (which is particularly active in WA) to co-sponsor information sessions at hardware shops (see below).

Asbestos Awareness Week provides a focus on the dangers related to asbestos and is an opportunity to remember the families affected by asbestos-related diseases through Asbestos Victims Memorial Day activities. This event takes place in November each year and provides an opportunity for local government to work with community groups to publicise issues regarding ACMs. In some jurisdictions this week is co-sponsored by state government agencies.

Printed material is also a useful way to provide information about ACM disposal. Information sent out with rates notices is the preferred approach of some councils. This is a good way of reaching property owners (the group most likely to be initiating renovations) but may not reach tenants who decide to dispose of ACMs. Other locations being targeted for brochures include hardware shops and companies hiring equipment to renovators. Printed material can also be provided at council offices where plans for building work are lodged. Maintaining stocks of brochures in some of these locations involves additional work for local authorities.

Some councils have arranged for garbage collection schedules to include information about ACM disposal. When these schedules take the form of a fridge magnet, the ACM information can be conspicuous over the length of the period of the schedule.

In addition to state and territory governments providing information about asbestos via websites, they could also provide a general brochure to be used by all local councils. This could reduce costs to councils.

Information sessions are considered to be particularly important in urban areas where older ACM-clad housing stock is being replaced. As previously noted, some councils operate information sessions at hardware shops, council meeting rooms and other venues such as schools – Holroyd High School enlists the help of students to take information home.

‘Betty the ADRI House’ is an educational trailer, focussed on ACMs in home renovation (see Figure 4.1). The ADRI House is a community engagement and experiential awareness initiative of the Asbestos Education Committee in partnership with the Asbestos Diseases Research Institute (ADRI). It is a purpose built, mobile model home designed to demonstrate where asbestos might be found in and around any Australian home built before 1987. Betty’s exterior resembles a typical fibro home

but when opened up, it has extensive audio and visual information including a bathroom, kitchen, living room, man shed/garage and a dog house.

Council signage is also being used to warn of the consequences of illegal dumping (e.g. Eurobodalla Shire, NSW). Signage at sites that have been used for the illegal dumping of ACMs (sometimes in combination with “no entry – danger asbestos” tape marking the boundaries), can seek information from members of the public who have witnessed the dumping as well as provide general information about ACMs.

Figure 4.1 – Betty the ADRI House



Source: Asbestos Awareness campaign

4.1.1 Information requirements on ACMs

There are a number of considerations about the provision of information on ACM disposal that need to be taken into account regardless of the medium. Information provided about ACMs needs to describe, at a minimum:

- how to identify possible ACMs and, if in doubt, where to go to obtain professional advice on whether asbestos is present
- the risks associated with ACMs, and
- how to manage ACMs legally and safely, both in jurisdictions where the householder is legally able to remove it themselves and where a licensed removalist is required to remove it.

Information about ACMs needs to be published in a number of languages. Many Australians live in households in which two or more languages are spoken, while some Australians do not speak English. Some local councils also have material proportions of residents for whom English is a second language.

4.1.2 Insurance cover for councils providing information on ACMs

Insurance cover in relation to information and advice provided can be an important issue for some local government councils. Some councils are reluctant to provide advice on ACM removal for fear of being liable for anything that goes wrong. They are concerned that they may bear some legal liability and that it is therefore safer to not provide information and advice on ACM disposal. This appears to be a particular issue in Victoria, even though arrangements have been made for Victorian councils to be able to obtain the necessary insurance cover through the Municipal Association of Victoria. State governments need to work with local government to ensure that concerns about possible liabilities do not limit the provision of advice by councils on handling of ACMs.

4.2 Waste disposal levies and fees

Stakeholders identified cost as the key driver of illegal dumping of ACM. The cost of disposal can include getting a licenced contractor to remove, wrap and dispose of the material. Stakeholders consider that levies and fees to dispose of ACMs at waste facilities or transfer stations make up a significant part of the total cost of disposal. Stakeholders agree that, from the point of view of reducing the incidence of illegal dumping of ACMs, disposal levies and fees need to be kept as low as possible. The total cost to dispose of ACMs at waste facilities is higher than for other materials due to the particular requirements relating to handling and disposal.

A number of stakeholders noted that waste levies had been introduced to encourage recycling and that ACMs attract the levy despite the fact that they cannot currently be recycled. Many stakeholders believe that charging the levy on ACMs adds to the total cost of ACM disposal and encourages illegal dumping. In addition, some stakeholders noted the high licence fees which tip operators are charged by state government agencies, particularly in relation to facilities accepting ACMs.

Stakeholders considered that disposal of ACMs should attract no state government waste levy. The NSW EPA has indicated that doing this might create an incentive for non-ACM material to be mixed with ACMs in order to avoid the levy. To address this, stakeholders suggested that there should be no levy where the waste is ACM only, and is appropriately wrapped. The receiving facility operator should have absolute discretion as to whether a load qualifies for a levy waiver. This would provide an incentive to demolition contractors to separate ACMs from other demolition materials. Mixed loads would continue to attract the levy.

NSW is currently experimenting with waving the waste levy in 23 NSW local council districts. It may be challenging to determine whether the trial reduces the extent of illegal dumping of ACMs given the limitations of the data regarding illegal ACM dumping and a possible lack of awareness of this fee waiver. However, the trial may yield valuable data regarding legal disposal of ACMs.

In some areas there is no charge to dispose of ACMs. In Queensland, the Moreton Bay Regional Council has no charge for residential waste including ACMs (commercial waste does attract a charge). However stakeholders noted that even when this disposal is free, there is still an illegal dumping problem in this council area.

4.3 Accessibility of disposal options

Where householders are permitted to dispose of less than 10 square metres of ACMs, there is a need to ensure that legal disposal or waste transfer sites are available within a reasonable driving distance. Many waste facilities and transfer sites are owned and operated by local councils. Others are operated by private firms, under contract to local government or to state government agencies. Disposal sites (waste facilities or transfer stations) not being within reasonable driving distance is more serious in rural or remote areas due to lower population densities, fewer disposal sites and lower rates income bases for local councils.

During consultations, some stakeholders cited examples where it can be necessary to drive hundreds of kilometres to a waste facility that is licenced to accept ACMs. Some small rural councils also highlighted their budget situations that constrain their ability to provide more accessible waste facilities that can accept ACMs.

Given the importance of having accessible waste facilities and transfer stations, consideration should be given to local councils or state and territory governments establishing supervised transfer stations. Stakeholders highlighted that the relative scarcity of waste facilities and transfer stations accepting ACMs increases the likelihood of illegally dumped ACMs. This review has not examined the cost implications of establishing more waste transfer stations, but notes stakeholder views that subsidies from the state government may be needed to make them cost effective.

Stakeholders indicated that in remote areas, people may need to travel very long distances to waste facilities or transfer stations. This increases the incentives for even well-intentioned people to dispose of ACMs illegally. Regional councils in central Australia are tackling this problem by establishing unsupervised locked sites that licensed contractors can access.

The regulation and supervision of waste transfer stations accepting ACMs is an additional cost for councils seeking to provide more accessible disposal options for ACMs. The rules for ACMs to be acceptable at these stations need to be well advertised so that users understood the requirements.

4.4 Large fines for illegal dumpers and media coverage

In some states, illegal dumping of ACMs is treated as littering, with small fines. As part of the compliance strategy, stakeholders from state and territory government agencies advise that strong enforcement tools are needed to encourage compliance. Illegal dumping of ACMs can be life threatening and the clean-up costs much greater than other dumped rubbish. Some jurisdictions have now recognised this and set higher penalties for the illegal dumping of ACMs.

Stakeholders from local government have drawn attention to the difficulties that they face in bringing prosecutions for illegal dumping. These problems vary between jurisdictions, and can include:

- lack of resources to follow-up on reports of illegal dumping of ACMs
- difficulties in getting witnesses to agree to provide statements
- concerns on the part of witnesses that they may be required to appear in court – although in at least one jurisdiction this can now be avoided
- the high level of evidence required in some courts to secure a conviction
- the legal, administrative and staff costs involved in bringing a prosecution
- long delays in getting cases to court – in one jurisdiction these cases are considered in the land and environment court which provides a shorter turn-around time, while in others these cases are heard in a magistrates' court after lengthy delays
- the lack of understanding of the risks posed by asbestos – in one case the defence argued that no harm to humans had been demonstrated by the prosecution
- the likelihood that after a lot of effort, the fine will be relatively small
- serial offenders who continue to be fined but do not pay the fines, leaving state and local government with further costs to pursue matters.

Some jurisdictions have legislated for on-the-spot fines. However using such provisions requires a council or state government officer with the appropriate authority to catch an offender in the act of illegal dumping. On-the-spot fines are often set at a small percentage of the maximum penalty, which has limited deterrent value.

Once an offender has been found guilty they can be fined and, in some jurisdictions, required to pay clean-up costs. Recovering these costs can also be a challenge for local government.

Media coverage can be very helpful in publicising fines from prosecutions of incidents of illegal dumping of ACMs. Stakeholders considered that media coverage is an extremely useful way of raising awareness.

Some jurisdictions have been reviewing legislation and the penalties for illegal dumping of ACMs. These jurisdictions have increased penalties for illegal dumping and provided enforcement officers with additional powers.

5. Educating the public and tradespeople

Householders and contractors need to be able to identify ACMs before being able to dispose of it safely and legally. They also need to know how to manage its disposal. As discussed in Section 3, there is an ongoing need to provide information to and educate new generations of do-it-yourself home renovators and tradespeople in identifying and managing ACMs.

Ongoing education is particularly important given the findings of the recent survey conducted for ASEA which showed that an appreciable fraction of home renovators are not necessarily able to identify ACMs and do not understand how to manage these materials. In addition, a significant percentage of tradespeople reported that they have not had sufficient training to identify and manage ACMs on-site and they do not know what types of materials contain asbestos.

Educating the public and tradespeople is an essential part of reducing the illegal dumping of ACMs, but it is only one measure and, on its own, will not stop illegally dumping. Simply increasing and improving education and awareness, for example, is unlikely to address illegal dumping motivated by the desire of some operators for higher profits. Awareness of ACMs and how to manage them is just a first step in guiding the public towards legal disposal.

5.1 Educating the public

Many stakeholders consider that it is extremely important to educate the public and home renovators to help reduce their risks associated with dealing with ACMs and reduce the incidence of its illegal dumping. Stakeholders across all stakeholder categories consider that the general public and home renovators in almost all jurisdictions need to better understand the risks associated with managing ACMs and how to identify them. The Australian Capital Territory is an exception: the risks associated with ACMs are considered to be well understood in the ACT as a result of awareness raising over several decades associated with a number of schemes to address the “Mr Fluffy” asbestos insulation issue in housing.

Education is needed to improve the general public’s understanding of the risks associated with ACMs. Local councils and state and territory government environment protection agencies indicated that they commonly receive phone calls from concerned people asking how to manage ACMs. Some members of the public are scared to go near ACMs even if it is relatively safe, while others do not appreciate the risks ACMs can pose.

As noted above, the recent survey on asbestos awareness undertaken for ASEA indicates that many members of the general public and DIY renovators consider they do not have sufficient knowledge about how to identify and manage asbestos on a work site. It is important that members of the general public are able to identify ACMs as this is the pool that home renovators come from.

Many local councils and other stakeholders work to educate the general public and provide information to them about the risks of dealing with asbestos, particularly in relation to renovating houses, and how to manage ACMs safely and legally. In addition, non-government organisations and individuals have sought to educate the general public on the dangers of asbestos, especially from a workplace health and safety point of view. Overall, stakeholders consider that a multi-dimensional

approach which targeted the needs of local populations should be used to educate the general public.

Examples of approaches to educating the public fall into a number of categories.

5.1.1 Education (and ACM removal) kits

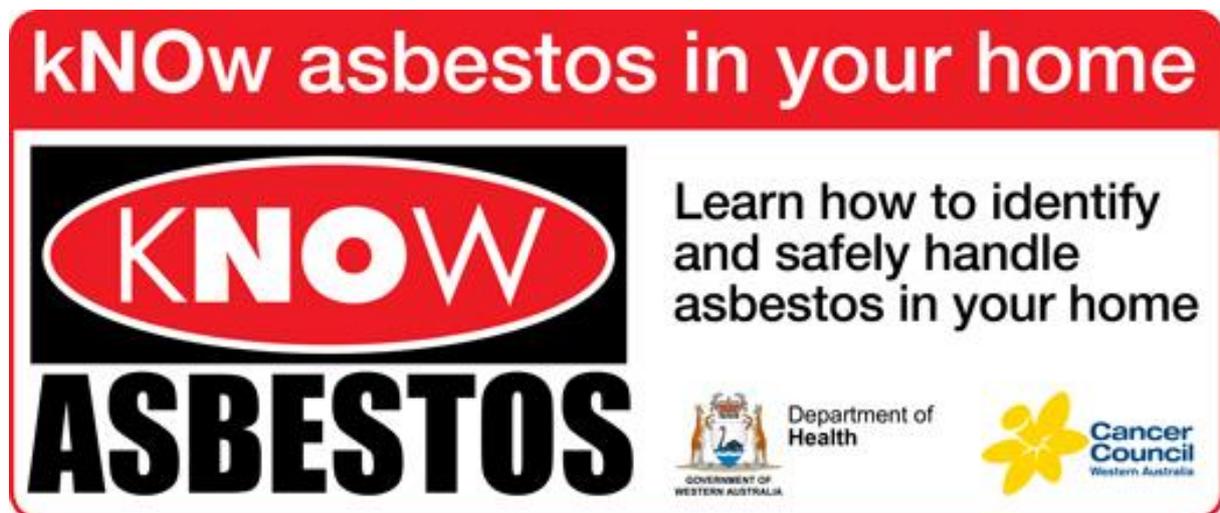
The Latrobe City Council (Vic) in collaboration with local partners has developed a kit to educate home owners about the disposal of ACMs. This is particularly important in Victoria, where home renovators are not restricted in the amounts of ACMs they can remove and transport. The kits have subsequently been trialled by the Victorian Government in eight other council areas.

Each kit includes an eleven-minute DVD instruction guide, and instruction sheet and the equipment needed to remove and dispose of small quantities of ACMs. A more detailed description of this initiative can be found among the case studies in Section 8.

5.1.2 kNOw asbestos in your home

This free online course is designed to give the home renovator basic knowledge about asbestos, and the risks and safe practices when working with or removing, small amounts of asbestos-containing material. It covers all aspects of renovation ranging from painting to the removal of asbestos. This program was developed by the Cancer Council and the WA Department of Health. It can be accessed at <http://elearning.cancer.org.au/courses/>. The course is actively promoted in WA where the Cancer Council WA has teamed up with Bunnings to advertise it (see Figure 5.1).

Figure 5.1 – kNOw asbestos in your home



Source: cancer council australia

5.1.3 School education

Some initiatives are seeking to educate younger audiences. Holroyd City Council sponsored the production of a video which has been used to educate students at Holroyd High School on the

dangers of asbestos, through music and video workshops. The video, aptly titled 'Eaze the Wheeze', is the direct result of student collaboration aimed at raising awareness amongst residents.

The Holroyd Council's Asbestos Education Project was developed to be used as a resource to educate the community, particularly young people, on asbestos including related health effects. This project has been an innovative and preventative approach to engage young people about asbestos awareness. Song writing and film making techniques have been used to deliver educational messages about asbestos. The YouTube video can be accessed at <https://www.youtube.com/watch?v=xKMW2wz4YK0> and, equally useful, the video about its production can be found at <https://www.youtube.com/watch?v=jOwLFU1IWQQ>.

5.1.4 Home renovation shows

It has been suggested that mass media home renovation shows could be a prime target for educating the general population about ACMs. Stakeholders generally considered that renovation shows need to reflect a more realistic image of the likely presence of ACMs and the risks associated with handling them. However, getting traction with program producers and sponsors on this issue might be difficult. One stakeholder noted that a special show on the risks of ACMs had been made for a renovation series some years ago and could be re-used. Some stakeholders suggested running advertisements about ACMs and its safe removal during home renovation shows.

5.2 Educating tradespeople

Outside of home renovators, tradespeople need to be a target of education and awareness raising as they may come into contact with ACMs in their work. The recent survey conducted for ASEA indicates there is a lack of awareness among a significant fraction of tradespeople about which materials might contain asbestos and how to manage ACMs. While there are varied stakeholder views regarding the knowledge of tradespeople, some consider that less-experienced contractors may have less knowledge about managing ACMs.

Stakeholders indicate that people in many trades deal with ACMs in the course of their work. These include plumbers, electricians, air conditioning installers, tilers, builders, fencers, landscapers and gardeners. Building construction in some jurisdictions (e.g. the Northern Territory) often uncovers buried legacy asbestos. It is essential that training for these trades, and any others in which people may come across asbestos, covers the identification and management of ACMs. To the extent that training for these courses are delivered through the Vocational Education and Training (VET) system, this is an issue for state and territory governments. Various VET bodies appear to provide asbestos courses.

Consultations with industry indicated that many industry bodies contribute to the education of the employees and contractors of their members. For example, the National Electrical and Communications Association provides online training for electricians about how to deal with asbestos,² the Master Plumbers Association provides asbestos training courses,³ and the Air Conditioning and Mechanical Contractors also provides training.⁴

Some local councils work to help educate tradespeople. A NSW council consulted for this review seeks to work with tradespeople and has information sessions at electrical outlets and hardware stores.

Some stakeholders support changing the culture of renovating so that asbestos removalists are regarded as a distinct trade needing to be engaged if there is any concern regarding ACMs in a house, in a similar way that electricians and plumbers are engaged to address electrical and plumbing issues. In the ACT only a licenced person can remove ACMs.

Some peak industry stakeholders also consider that there would be benefits to tradespeople and others who might come across ACMs to include elements of the licensing courses for asbestos removalists in their training. It was considered that this might be a way of reducing the risks to tradespeople and the general public, as well as reducing the extent of illegal dumping of ACMs. It is possible that this may be a way of reducing risks at low cost, although care would have to be taken to ensure that qualified asbestos removalists were always used when required.

The South Australian member of the Keep Australia Beautiful National Association, KESAB's Clean Site[®] program provides on-line industry education material developed and implemented by KESAB Environmental Solutions in partnership with state and local government and other industry organisations. The program delivers education and training embracing best practice on construction sites through on site demonstration and information resource material. For more details, see the case studies in Section 8.

5.3 Educating asbestos removalists and demolition contractors

Stakeholders do not identify asbestos removalists and demolition contractors as groups of people needing additional education and awareness-raising about ACMs. Stakeholders consider that asbestos removalists are very likely to be aware of the legal requirements and how to safely handle ACMs. The licensing of asbestos removalists is regulated and it would be expected that their knowledge and understanding of ACMs would form part of their licensing to remove ACMs.

Most demolition contractors are also considered to be aware of the legal requirements about and safe ways of managing ACMs. While there are no indications from stakeholders of a clear need for additional education and training, examples were cited where demolition contractors have not followed best practice (e.g. breaking up ACMs sheeting during the demolition process and throwing sheets of corrugated ACM from the roof of a building).

² E.g. see <http://neca.asn.au/nsw/content/neca-suite-online-whs-training-programs#1>. Asbestos Safety

³ See <http://plumber.com.au/training-a-development/plumbing-training-courses/asbestos-removal-class/>

⁴ See <http://www.amca.com.au/work-health-and-safety/>

6. Ensuring coordination within government and with local government

One of the issues that struck the project team for this review was the lack of coordination between the various agencies that are involved in the management of illegally dumped asbestos. State ombudsmen, auditors general and taskforces have commented on this problem (see for example, the Queensland Ombudsman (2013)). The sharing of information between government agencies is critical in ensuring that the responsible agency in each situation is able to discharge its statutory responsibilities.

One key issue in relation to coordination is the sharing and recording of information about illegally dumped ACMs between state, territory and local government agencies. This is not to criticise the state and territory government departments and local councils involved. Instead it reflects how the arrangements for reporting and addressing illegally dumped ACMs have evolved within each jurisdiction, and between state and territory agencies and local government. These arise, in part, from different regulatory arrangements among agencies, privacy constraints built in to legislation, and sometimes the perceived competing needs for regulatory attention.

One of the findings of this review is that the lack of useful data regarding the illegal dumping of ACMs reflects the lack of data collection at the state and territory level of government. If it is considered worthwhile to have data at a state, territory or national level, changes are needed to collect and collate data at those levels.

6.1 Reporting illegal dumping of ACMs

When illegal dumping of ACMs is discovered, it may be reported to one of a number of agencies. If the incident is not recorded on a central database or details are not shared with other government agencies and local government, the management of illegally dumped ACMs may be less than optimal and there will be no overall picture of the size of the problem for policy makers.

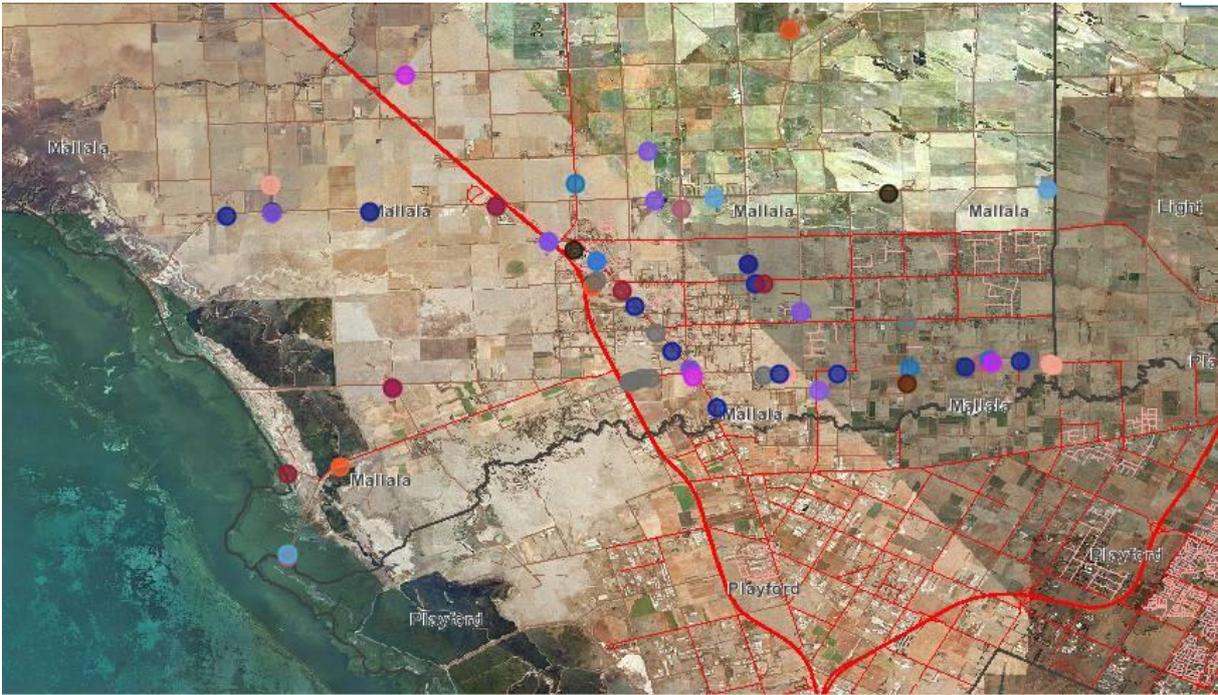
At present, incidents of illegally dumped ACMs are usually brought to the attention of local councils in the area in which the dumping occurred. In cleaning up the illegally dumped ACMs, the council may or may not record details about the location, type of material dumped, volume or weight of material dumped, and cost of cleaning it up (often by a contractor). This information is more likely to be captured if the council itself has to clean up the dumping incident, while it is unlikely to be captured in whole if another party (e.g. a private owner, state or territory government agency) cleans it up.

While some councils keep these types of detailed records, many do not, with one (urban) council consulted not keeping centralised records of illegally dumped ACMs as they are dealt with by different sections of council in a decentralised way. In addition, different councils will, in general, keep different types of information for their own purposes. There is little consistency across councils within the states and territories about the information kept on incidents of illegally dumped ACMs.

In NSW, the EPA is developing a database to record incidents of illegal dumping on public land across NSW (including local council land). Stakeholders indicated that the database will allow reporters to indicate whether asbestos is present in any particular illegal dumping incident.

In South Australia, Zero Waste SA operates a database “Zeus” which records illegal dumping. This database is designed for use by councils. It provides for recording details of location, volume and composition of the waste. An iPad version allows these details and photos to be logged. Those councils contributing to Zeus are able to see patterns of illegal dumping on maps (see Figure 6.1) together with information on volumes.

Figure 6.1 – ZEUS display for a two month period



Source: Zero Waste South Australia

At present, at state and territory government level, illegal dumping can be brought to the attention of the environment agency, the worksafe agency, the health department, the crown lands department or the parks agency. However, incidents of illegal dumping of ACMs may only be reported to state or territory government agencies by local government in order to get some regulatory enforcement action.

In some jurisdictions there are legislated impediments to the sharing of information on reports of illegal dumping. In particular, the Health Department in one state is prevented from sharing details of illegal dumping of ACMs with other agencies and with local government by legislated privacy provisions. In yet another state, the only effective way of communicating information about the illegal dumping of ACMs between two of the key agencies is for one to lodge a “dumping complaint” with the other agency.

In another state where security cameras at dumping hotspots capture the registration number of the vehicles involved, privacy legislation prevents the local authority from obtaining the name and address of the registered owner of the vehicle. Local government officers enforcing antidumping laws need to be given the same access that other law enforcement agencies have to such information.

Currently, most state and territory governments do not have ways of capturing information about all the incidents of illegally dumped ACMs found within their jurisdiction. Even if they did capture all that data, it would only reflect the incidents of illegal dumping that are discovered. Stakeholders from councils believe that much illegal dumping of ACMs goes undiscovered, particularly on the outskirts of urban areas.

Yet another data issue is that records of dumping relate to where the material has been dumped and not to where the ACMs originated. Councils in urban areas are acutely aware that ACMs can originate from one council area and be dumped in another. This can hamper council efforts to reduce illegal dumping and result in cost shifting across councils.

6.2 Coordination within local government

There is sometimes a disconnect between the office within local government responsible for issuing of demolition permits and the inspectors responsible for ensuring the safe removal of ACMs before demolition starts. Applicants for demolition often simply have to tick a box regarding ACMs. Many applicants declare there to be no ACMs even when the building to be demolished was constructed in the period when ACMs were widely used. Such declarations are not generally challenged by the staff issuing demolition permits.

When ACMs presence is acknowledged, a further form has to be completed. Some West Australian councils require a week's notice and a nominated date for demolition to commence. This gives council inspectors the opportunity to check on the presence and/or removal of ACMs.

6.3 Tracking transportation of ACM waste

One of the widely held concerns among stakeholders relates to the tracking of waste once it has been removed by a licenced operator. In one state, the relevant authority undertakes occasional checks of tip receipts which are required to be held by licenced operators. This occasionally reveals instances where ACMs have "disappeared".

New South Wales introduced requirements in July 2015 to track contractors carting ACM waste that weighs more than 100 kg or is larger than 10 square metres in size. This is designed to ensure that the EPA can track ACM-containing waste transportation from where it is generated to where it is disposed.

7. Moving to best practice approaches

Stakeholders identified a number of potential gaps in the current approach to managing ACMs in the supply chain between its identification to its removal and legal (or illegal) disposal. This section discusses a number of reforms that stakeholders consider would move the current arrangements to 'better practice' in respect of how ACMs are addressed. Moving to better practice approaches would be a step on the path to best practice.

7.1 Requiring asbestos removal to be done by licensed removalists

In most states and territories, householders can remove sheets of ACM with an area of less than ten square metres without an asbestos removalist licence. They can also transport this material to an authorised disposal facility. However, since the start of 2015, the ACT has required that only licensed asbestos removalists are allowed to remove ACMs from premises. Some stakeholders, including representatives from the CFMEU, the ACCI and asbestos removalists, support introducing this requirement across all states and territories.

Supporters of this change contend that many property owners are not sufficiently skilled to remove ACMs safely and that only professionals should do it. This would increase the safety of the removal process. They also contend that it would likely result in less illegal dumping of ACMs, as licensed asbestos removalists would know how to properly manage the ACMs and they have the incentives to do so.

On the other hand, some other stakeholders consider that introducing this change might lead to an increase in the level of illegal dumping of ACMs as it would increase the costs of removing the ACMs. This would increase the incentives for householders to remove the ACMs themselves and dispose of it illegally. Depending on the regulatory scheme adopted, it is likely that householders would be unable to legally dispose of such ACMs in a waste management or waste transfer facility.

ACT stakeholders consulted for the review did not have a view about whether the extent of illegal dumping of ACMs had diminished since these new regulations had been introduced. This is due, in part, to their perception that the level of illegal ACM dumping in the ACT is low. In addition, there has been only a relatively short period of time since the new arrangements were introduced.

7.2 Requiring local government approval

One view put to the review team was that local government approval should be required whenever building alterations involve ACMs, even when the work would otherwise not need local government approval. The purpose of this would be to enhance recording of ACMs and ensuring that the ACMs are addressed properly during renovations. Assuming that these requirements were complied with, this approach would increase the workload for local government but would help to ensure that ACMs are handled appropriately, by requiring records of legal disposal.

In relation to demolition permits, best practice involves local authorities asking for a certificate that the building is free of ACMs before demolition commences. In some areas, the demolition contractor

can lodge advice via the internet as to the date that demolition will commence. A council inspector can then go and inspect how the demolition is being done.

7.3 Information to householders undertaking renovations

For those jurisdictions that accept that property owners will undertake minor alterations involving ACMs, the best strategy is to work to provide information to ensure, to the greatest extent possible, that the ACMs are handled appropriately. This will increase the renovator's knowledge and understanding of ACMs during their renovations, hopefully increasing the likelihood the ACMs will be treated safely and disposed on legally.

Examples of this include the kits of material that the Latrobe City Council has provided to renovators. Latrobe and the Victorian experiment addresses this approach by providing boxes of equipment to facilitate appropriate removal (see case studies, Section 8).

7.4 Requiring tradespeople removing ACMs to hold transport licences

In general, transporting ACMs requires a transportation licence separate to an asbestos removalist licence. Stakeholders indicated that as a result, it is common practice for small contractors, who see this as an additional cost, to leave ACMs for the householder to dispose of.

Leaving ACMs for the householder to transport or otherwise arrange transportation is likely to result in increased illegal dumping of ACMs and does not represent best practice. Instead, these contractors should also hold transportation licences or be held responsible for ensuring the safe and legal transportation of the ACMs by a licensed transporter.

7.5 Stronger compliance and judicial action

Stakeholders believe that effective approaches to illegal dumping have to combine 'carrots and sticks'. One problem with this is that in some jurisdictions, very small penalties, possibly designed to combat littering, have to be used for illegal dumpers of ACMs. Stakeholders report that this problem can be compounded by magistrates who want to see evidence of harm, and in the absence of such evidence, levy very modest penalties. In other cases, the burden of proof required is difficult to meet unless a witness can be found.

Witnesses often are reluctant to appear in court for fear of retribution from the dumper. Some stakeholders considered that organised crime is a source of some dumped ACMs in one major urban area. It can also be challenging to catch illegal dumpers and to identify the sources of illegally dumped ACMs. One state government agency indicated that it was usually not possible for them to identify the source of illegally dumped ACMs, due to the usual lack of identifying information that would allow the dumper to be traced.

To further exacerbate the problem of catching and fining dumpers, the cost of prosecution including preparing the case generally falls on local government, who question whether this is a good use of their limited resources.

Some states have moved to address these issues:

- fines have been increased to provide a stronger deterrent
- the level of evidence required to get a prosecution has been reduced, and
- some jurisdictions provide for on-the-spot fines (usually a small fraction of the maximum penalty that can be levied by a court, but easier and less expensive for local government).

Stakeholders report that, in some jurisdictions, the illegal dumping of ACMs is addressed as a littering offence, under which the fines can be less than \$1,000 per incident. This is not seen as an effective tool to encourage compliance with the legal obligations around dumping ACMs.

7.6 Coordination within jurisdictions

On the basis of consultations undertaken for this project, best practice arrangements involve:

- coordinating the management of illegal dumping of ACM at state and territory government level
- information sharing arrangements and the passing of reports received by one agency to another that has actual responsibility (e.g. where dumping is reported to the environment agency but the dumping is in a national park), and
- sharing of information between state government agencies and local governments – at present privacy legislation is reported as preventing this in some jurisdictions.

Some states have created a database accessible to all appropriate agencies, where information on dumping can be recorded – this is useful in a number of ways (e.g. where adjacent municipalities find they share a particular type of dumping problem they can combine forces to apprehend the offender). However in one state, municipalities opt in to this database arrangement, and those that do not opt in reduce its effectiveness.

8. Case studies

In this section we present case studies illustrating existing measures that parties have been judged to be useful or successful in combatting the illegal dumping of asbestos containing materials (ACMs), as well as interesting measures that have recently been developed to combat the illegal dumping of ACMs. The measures are:

- Holroyd City Council asbestos collection and education program
- Mandurah Council hardware shop information sessions
- Keep South Australia Beautiful (KESAB) industry education materials
- Latrobe Council and SafeWork (Victoria) asbestos removal kit
- Queensland Government agency coordination of asbestos issues
- Northern Territory remote asbestos management, and
- NSW data tracking smart phone app.

8.1 Holroyd City Council (NSW) asbestos collection and education program

8.1.1 Overview

Holroyd City Council in western Sydney operates an ACM collection and education program.⁵ In June 2013, Holroyd City Council commenced a trial of a free ACM collection, the first of its kind in NSW, for small amounts of non-friable asbestos from residential properties within the City Council area. As at 15 June 2015, the service had removed 18.9 tonnes of asbestos waste from 257 properties.

Holroyd City Council is situated in part of western Sydney built in the 1950s and 1960s, with whole streets of houses built from fibro-cement. The City Council viewed the expansion of the asbestos collection service as the best way to continue to offer a lawful, convenient disposal solution for small quantities of bonded asbestos.

Holroyd City Council periodically holds asbestos information nights where participants can learn more about the presence of asbestos in homes and may receive an asbestos removal kit to prepare them with the necessary knowledge and equipment, should they choose to remove up to 10 square metres of non-friable asbestos themselves.

The main objectives of the Holroyd City Council's asbestos collection and education program are to:

- raise awareness about asbestos removal and disposal requirements
- achieve a reduction in the amount of non-friable asbestos within the community, and
- achieve a reduction in the amount of asbestos being illegally dumped in waste bins and public places.

⁵ Sourced from Holroyd City Council website, June 2015

8.1.2 Implementation

Prior to the trial, City Council staff liaised with relevant stakeholders in the asbestos industry including representatives of the Asbestos Diseases Foundation of Australia (ADFA), Workcover NSW and Local Government NSW. The collection model (preferred over a drop off model) has proved highly effective in the relatively compact Holroyd metropolitan environment, with the added benefit of minimising residents' contact with asbestos.

The following conditions were imposed for residents wishing to participate in the collection program:

- the service was for non-friable asbestos only
- only material that was lying dormant on the property would be collected
- nine square metres of material would be collected as a maximum, and
- the material would only be removed if it was able to be easily accessed by the contractor.

In the week following each collection, all participating households were sent an evaluation form, providing the City Council with valuable feedback to help guide the future direction of this initiative. Based on the evaluation forms returned, the cost of disposal and not knowing how to properly dispose of the asbestos material were cited as the major barriers to lawful disposal for participating households.

Illegal dumping of asbestos within the Holroyd community has dropped from 8.9 tonnes (from 1 July 2013 – 31 December 2013) to 5.14 tonnes (from 1 January 2014 – 30 June 2014). The Council is unsure whether this trend can be attributed, in part, to the introduction of the collection service as the community becomes more aware of the program. Material dumped in Holroyd may come from other local council areas.

The success of the program has resulted in funding being allocated to six other western Sydney councils (as part of the NSW EPA's Householders' Asbestos Disposal Scheme) to conduct similar collections within their municipalities, taking the program's benefits to a regional audience.

Figure 8.1 – Holroyd City Council education poster



Source: Holroyd City Council

The biggest challenge facing Holroyd City Council is maintaining the provision of this service that is in high demand within the community. Feedback received from evaluation forms distributed to all participants indicated an overall willingness to pay a small amount (between \$50-\$75) for such a service, which at this stage offers a possible solution (by way of a partial cost recovery) to make the service financially sustainable.

Recently Holroyd City Council has launched an enhanced education campaign in this area (see www.asbestosanswers.com.au). The campaign includes awareness raising posters on bus shelters – Figure 8.1 shows a mock-up.

This case study reports the measures taken by a proactive local government body to address the illegal dumping of ACMs in its area of responsibility. It also illustrates how a local government body can work with its neighbours and with state government on a problem for which they share responsibility.

8.2 Mandurah Council (WA) hardware shop information sessions

In a number of states, local councils are working with other parties to provide information sessions at local hardware shops. One example is the City of Mandurah, which has teamed up with Bunnings and the Asbestos Diseases Society of Australia (ADSA) to provide home renovator information events. For Asbestos Awareness Week in November 2014 there was an information session for home owners to provide asbestos removal advice.

Mandurah Council recognises that home owners proposing to remove ACMs need to know how to do it safely and appropriately in accordance with the Code of Practice and the Health (Asbestos) Regulations 1992. However, the advice provided emphasises that the safest option is to get a licensed person to do this removal.

Figure 8.2 – Mandurah Council Hardware Shop Information Sessions



Source: Mandurah Mail, Martin (2014)

The event is part of ADSA's Asbestos Awareness Week, which is part of Asbestos Awareness Month. Both raise awareness about the risk around dangerous material and the prevalence of asbestos related diseases in Australia. ADSA considers that a lot of home renovators do not understand the risk involved when it comes to do-it-yourself jobs. In an article in the Mandurah Mail reporting the 2014 event, an ADSA spokesman was quoted as saying that, for the first time in history, the number of women with mesothelioma has overtaken the number of men and, in his view, this is because of DIY jobs. He went on to say that people do not know risks involved.

The Mandurah Council refers property owners with questions about asbestos, to the WA Department of Health website.⁶ This website explains that in WA there are a number of different Government agencies that have a role in controlling asbestos in a range of different situations. Asbestos in the workplace is managed by the Department of Commerce (WorkSafe), asbestos transport and disposal is regulated by the Department of Environment Regulation, and asbestos in mining is controlled by the Department of Mines and Petroleum. The Department of Health has

⁶ <http://www.public.health.wa.gov.au/3/1143/2/asbestos.pm>

produced a document that provides a more detailed list of agencies with their roles and contact details. This can be accessed from the website address provided above.

This case study highlights the opportunities for local government to partner with other non-government bodies to deliver education and awareness campaigns at key locations for home renovators.

8.3 Keep South Australia Beautiful (KESAB) industry education materials

KESAB's Clean Site® program provides on-line industry education material developed and implemented by KESAB Environmental Solutions in partnership with state and local government, Master Builders and Housing Industry Association and the building and construction industry organisations including Renewal SA, the South Australian Government's urban development agency. The program delivers education and training embracing best practice on construction sites through on site demonstration and information resource material to engage the building and construction sectors in environmental sustainability best practice site management and resource recovery opportunities.

Included in the program is a strong regulatory focus relative to local government requirements especially with new close density dwelling evolution. Deliverables embrace structured Tool Box meetings, on site demonstrations and displays, engaging students at TAFE and tertiary school students via the "Pathways2Construction" initiative through a partnership with the Construction Industry Training Board.

Learning and education is both class room style and on site practical and demonstration facilitated by a skilled trainer delivering in alignment with materials and resources developed by key stakeholders over recent years and regularly reviewed and upgraded to meet environmental sustainability education required and regulatory changes.

Asbestos is embraced in overall Clean Site® learning. In addition to above, KESAB also conducts waste audits and monitoring with the building and construction industry relative to waste avoidance/minimisation, diversion from landfill, hazardous waste streams, stormwater management, and regulatory awareness. Clean Site® provides a simple and cost effective approach to the building and construction sector (including do-it-yourself renovators and councils) in the efforts to raise the bar on their respective performance. The program has been trialled and delivered in WA, NT and Qld with some success, taking into account the differing regulatory approaches adopted.

This case study highlights the potential reach of online programs targeted at tradespeople. It also recognises the importance on integrating asbestos awareness training into trade training courses.

8.4 Latrobe Council and SafeWork (Victoria) asbestos removal kit

In 2004 the Gippsland Asbestos Related Diseases Support Inc. (GARDS) and Gippsland Trades and Labour Council (GTLC) identified a need for education, safe removal and safe storage of domestic asbestos in Gippsland. In 2005, after meetings between GARDS, the GTLC and representatives from other organisations, the Latrobe Domestic Asbestos Waste Management Committee was formed. Subsequently, representatives from Latrobe City Council, the then Department of Human Services, the Victorian Workcover Authority, and Victorian Waste Management Association joined the committee. The Victorian EPA has chaired these meetings and provided the secretarial support.

During 2006-07, the Latrobe interagency group designed the Asbestos in the Home Removal Kit (“the kit”) and the Latrobe City Council commissioned the supply of the kits. The cost of supplying the kit inclusive of the DVD at that time was \$62.20. This cost did not include the costs of producing the DVD and the cost of staff time to plan and implement the project.

The project aimed to keep the cost of the kit at a minimal price to ensure affordability to all socio-economic groups within the community. The kit (see Figure 8.3) contains:

- an eleven minute DVD instruction guide
- a letter and a seven-step instruction sheet
- a Department of Health and Human Services booklet A guide for the householder and the general public, February 2012
- two breathable disposable coveralls
- four pairs of ‘blue rhino’ disposable gloves
- two pairs disposable overshoes
- two vented flat fold respirators
- a one litre spray mister
- a tube of 250ml PVA glue
- two 600 x 450mm 200um printed disposable bags
- two 1100 x 700mm 200um printed disposable bags
- two 5m x 3m 200um black plastic wrap
- three asbestos warning stickers
- a roll of duct tape
- one 6m printed barrier tape
- four wipe down rags, and
- one voucher for disposal at licensed transfer station/landfill.

Figure 8.3 – Latrobe asbestos in the home removal kit



Source: Victorian Department of Human Services 2008

The Asbestos in the Home Removal Kit Project was evaluated in 2008 (Department of Human Services 2008). The evaluation found that the kit was considered to be an extremely valuable resource by the majority of respondents. Users considered the content of the kit to be of sufficient quality and quantity to support the asbestos removal jobs for which the kit was intended using the majority of items in the kit. The majority of users were also satisfied with the quality and adequacy of the service provided with the kit as well as the cost.

The evaluation identified some areas for improvement to the kit and the associated distribution and disposal services. The overall very positive responses in relation to the project and the kit strongly support replication of both the project and kit in other municipalities of Victoria and in other jurisdictions.

The Asbestos in the Home Removal Kit is currently available to Latrobe City residents and can be purchased from the Latrobe City Council headquarters, Commercial Road, Morwell for \$40. The cost also covers the disposal fee at the Latrobe City landfill. A free asbestos awareness and education session (approximately 30 minutes duration) is provided with each kit (Latrobe City Council 2015).

The Victorian Government provides comprehensive advice about asbestos via websites:

<http://www.asbestos.vic.gov.au/>

<http://www.health.vic.gov.au/environment/hazards-asbestos.htm> and

http://www.healthtranslations.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Asbestos_and_your_health?open

This case study also demonstrates how local and state governments can work together to address illegal dumping of ACMs. It also describes a novel approach to the safe collection of small quantities of ACMs.

8.5 Queensland Government agency coordination of asbestos issues

State and territory regulation of asbestos is generally divided among a number of agencies and local councils, although the details vary from jurisdiction to jurisdiction. Stakeholders emphasised that the division of responsibility can lead to issues “falling between the cracks” and not properly addressed.

Following a critical 2013 Queensland Ombudsman report focussing on the lack of coordination and strategic oversight about ACM among state government agencies and local councils (Queensland Ombudsman 2013), Queensland has been implementing a collaborative service delivery model and improving coordination of public agencies addressing ACM. The Queensland Government launched a statewide strategic plan for managing asbestos in 2014 (Department of Justice and Attorney-General 2014) which focusses on the three priorities of minimising the risk of exposure to asbestos; seamless and integrated service delivery; and community education and awareness about asbestos. The plan details a list of specific actions, parties responsible for undertaking those actions, and timeframes.

Workplace Health and Safety Queensland in Queensland Treasury (formerly in the Department of Justice and Attorney-General) provides oversight for the implementation of the plan, and is supported by an Interagency Asbestos Group with senior representatives from Queensland Government departments and the Local Government Association of Queensland.

In September 2014, the Queensland Government published a report card on how the plan had been implemented to that time (Department of Justice and Attorney General 2014). This indicated that progress had been made on improving coordination among agencies. Agencies had agreed on their roles and responsibilities and had published a list of local government waste disposal sites that accept asbestos. They had finalised a protocol for responding to and managing asbestos incidents. Further, a whole-of-government asbestos communication strategy had been developed, which included publishing an online register of asbestos removal licence holders, publishing safe work procedures, and increasing information to the public through social media updates and the Queensland Government asbestos website.

Since the 2014 report card, the Queensland Government has also secured commitment from local councils to respond to asbestos matters in domestic settings on behalf of the state under the Public Health Act 2005. In order to gain this commitment, the Queensland Government introduced a legislative indemnity for local council officers; delivered training to 380 council officers across Queensland to equip them for the role of enforcing the asbestos provisions; and secured funding to reimburse local councils for the costs of carrying out urgent rectification works where asbestos incidents release asbestos fibres into the community. This has been a key step in integrating service delivery and the enforcement of asbestos regulation by state government agencies and local councils in Queensland.

The indemnity for local government officers was provided by amendments which were made to the Public Health Act 2005. It protects these officers from civil liability for any asbestos-related harm to a member of the public that results from local governments undertaking asbestos related work. It is expected these amendments and associated amendments to the Public Health Regulation 2005 will commence in September 2015.

Having coordination among state / territory government agencies and local councils is very important. Until a few years ago, Tasmania had a small asbestos unit, which stakeholders considered was very effective in driving a coordinated approach to asbestos policy and action.

This case study illustrates how one state government is taking a whole-of-government and whole-of-state approach to managing illegal dumping of ACMs.

8.6 Northern Territory remote location asbestos management

The Northern Territory (NT) Government and regional councils in Central Australia have adopted innovative procedures appropriate for remote areas. The regional councils of Central Australia are implementing a process to regulate the disposal of ACMs at unstaffed waste facilities in a very large remote area. In addition to facing challenges of ACM disposal in a large remote region, Northern Territory authorities face major legacy issues with previous ACM disposal in ways that are no longer considered acceptable. This includes disposal of ACM after destruction of buildings by major cyclone events. The Territory has a significant stock of community buildings constructed with ACM sheeting. Stakeholders believe that land tenure issues in the Territory create some uncertainty about who has responsibility for some community facilities.

Responsibility for management of ACM in the Northern Territory is, like other jurisdictions, spread across several Territory government agencies. Local government in the Northern Territory has no control over planning which, some stakeholders consider, limits the scope for councils to manage ACM.

Alice Springs is the major population hub of Central Australia. Alice Springs Town Council owns and operates a registered landfill. The Alice Springs landfill accepts ACM, which is double-wrapped in plastic, and buries it in a designated location within the landfill. Alice Springs does not appear to have an illegal dumping problem. However, the Council area is small and the dumping may be taking place in the adjacent regional councils. Outside of Alice Springs, the Northern Territory is establishing new sites for ACM disposal at five sites including Lajamanu, Yuendumu, Papunya and Tennant Creek.

A Central Australian waste management coordinator has oversight of forty remote landfill sites on Aboriginal land. There has been ACM spread over wide areas around these tip sites. This is now being brought under control. Legacy sites have been mapped with a particular focus on ACM within close proximity to community facilities. Front line staff in the three councils around Alice Springs have been trained to provide advice. Some sites have up to 40 hectares of such contamination, and the regional councils have inadequate funds and resources to tackle these areas that pre-date the formation of the current NT regional councils in 2008. They are being fenced, signed with 'Possible Asbestos' signage and left for another day, having been assessed as low risk to residents due to the intact nature of the asbestos products and the distance from communities.

The Local Government Association of the Northern Territory (LGANT) notes that there are a number of large properties and "outstations" in the territory that are unregulated. The LGANT believes that legacy issues are from illegal dumping that has happened in the past.

The Territory's Tidy Towns awards provide one way of focussing attention on waste disposal in general, as well as addressing the disposal of ACM. For example, in 2013 the Central Desert Regional Council's Waste Management Program received the Best Waste Management Initiative award, in conjunction with the MacDonnell and Barkly Regional Councils (Figure 8.4). This recognised the work that the three regional councils have done with landfill upgrades, and demonstrates the value of a collaborative regional partnership. Central Desert, MacDonnell and Barkly Regional Councils service

thirty-one remote Aboriginal communities across the southern half of the NT (a bigger area than NSW), covering around 15,000 people.

Figure 8.4 – Territory tidy town award for best waste management initiative



Source: Central Desert Regional Council

The Yuendumu landfill won the Territory’s Most Improved Landfill (Tip Top Tip) award. The Central Desert Shire developed a master plan at the start of 2013. Work undertaken has included filling and covering several rubbish pits, setting up a recycling drop off area, setting up a scrap metal area and an Asbestos disposal pit. This is the first Asbestos disposal pit in the NT outside Darwin.

This case study discusses the special problems faced by local government in remote areas and describes the practical approaches they have adopted. It also illustrates how state and territory government awards can motivate local government in relation to waste management.

8.7 NSW data tracking smart phone app

NSW regulations introduced in 2014 require transporters moving more than 100 kg of asbestos waste or more than 10 square metres of asbestos sheeting to report this to the NSW Environment Protection Authority (EPA). To make it easy to comply with these requirements, the EPA developed an online system that can be accessed from computers, tablets, and smart phones called WasteLocate. This system assigns a unique consignment code to each load of asbestos to monitor its movement from where it is generated to where it is disposed to ensure that the asbestos is reaching a lawful facility.

To comply with these requirements, transporters of asbestos waste are now required to use WasteLocate to record information about the site of generation, the load they are transporting (e.g. weight) and the receiving facility. Once these details have been entered into the system, a unique code is generated, allowing WasteLocate to track the movement of that load to its final disposal

location. On arrival at a disposal facility, transporters will simply have to scan a fixed plate with a QR code that will be displayed at all facilities receiving asbestos, to report the waste has been delivered.

WasteLocate provides the EPA with an innovative tool to regulate the waste industry and discourage the illegal dumping and unlawful management of asbestos.

9. Conclusion

During this review, stakeholders suggested numerous potential approaches that might be taken to combat the illegal dumping of ACMs.

The tables below identifies a number of potential approaches stakeholders suggested. Each of these approaches would require policy development and stakeholder consultation. Table 9.1 indicates regulatory approaches and Table 9.2 indicates non-regulatory approaches.

Table 9.1 – Suggested Regulatory approaches to reduce illegal dumping of ACM

Approach	Description
Reduce the costs of legal disposal of ACMs	Cost was brought up as a key factor by many stakeholders. State/territory government waste disposal fees should not be levied on appropriately wrapped ACMs because it cannot be recycled. However mixed loads from building demolitions should not benefit from this.
Increase the penalties for illegal dumping of ACMs	In some jurisdictions the fines do not reflect the costs of bringing prosecutions and also do not reflect the cost of asbestos-related diseases that may occur as a result of illegal dumping.
Simplify and streamline processes through which dumpers are brought to justice	Tailor the level of proof required and enhance the ability of regulatory agencies to access information about vehicles and their drivers observed dumping.
Notify local council demolition permits to EPAs	Ensure that demolition permits issued by local government are notified to environment protection agencies and Worksafe agencies to facilitate their enforcement of disposal regulations. No new construction should be permitted to proceed until a disposal receipt for ACMs has been viewed by the authorising body (potentially the council).
Facilitate information flows on ACM dumping	Amend state and territory legislation to facilitate the flow of information necessary to apprehend and convict illegal dumpers.
Allow flexibility in transport requirements for special cases	Provide exemptions from ACM transport regulations for companies (e.g. NBN Co) where these companies can demonstrate that they are collecting and correctly disposing of small quantities of ACMs.
Undertake spot checks on builders and removalists	Undertake occasional spot checks on small builders and removalists to ensure that ACMs are being appropriately disposed.
Enhance regulatory oversight	Building approval bodies should consider requiring an asbestos certificate before any alterations are undertaken if ACMs are involved, even where the work would not normally require building approval.

Approach	Description
Enhance effective accessibility of legal ACM disposal options	Allowing ACMs to be stored in transfer stations before being transferred to a legal disposal facility.
Address local government insurance concerns	A number of stakeholders considered that many local councils are very risk averse in dealing with ACMs due to perceived issues with their insurances. Addressing these issues (which may require legislative change) may provide councils greater confidence to address issues surrounding ACMs.

Table 9.2 – Suggested Non-Regulatory approaches to reduce illegal dumping of ACM

Approach	Description
Enhance the accessibility of legal disposal sites	The vast majority of those interviewed consider this to be a very useful option. Many of the sites are operated by local councils and issues around this would involve councils being satisfied with their insurances and the costs of having legal disposal sites accessible. In addition, the cost of establishing and operating a legal disposal site may be prohibitive for local councils.
Provide education and training for renovators and tradespeople	Improve awareness of the dangers of ACMs and how best to deal with ACMs by educating and undertaking awareness training targeting do-it-yourself renovators and small tradespeople. Run advertisements on ACM removal during do-it-yourself shows to get the message to the DIY audience.
Provide free pick-up services	Offer a free service to property owners with small quantities of ACMs that need to be disposed of (e.g. the Holroyd Council and others contracting pickup). In another example, some Victorian councils have provided kits for ACM disposal.
Education materials in hardware and equipment hire shops	Develop materials that can be distributed through equipment hire companies and hardware shops to target the do-it-yourself renovators.
Establish state/territory government asbestos coordination units	Establish an asbestos coordination unit within state and territory government to improve the flow of information between public health, environment, Worksafe, infrastructure, local government agencies.
Keep websites up-to-date	Ensuring the information and links on websites providing information about asbestos are kept up to date.

Approach	Description
Improve awareness about legal ACM disposal	Local government and tip operators should include information on ACM disposal with the schedules for waste collection (e.g. on the foot of schedules supported by fridge magnets).
Organise information sessions in schools	Provide cartoon material on ACMs in schools (e.g. as done by one Victorian council).
Provide and advertise the availability of online asbestos safety courses	Promote the KESAB online course on asbestos safety.
Assist remote communities with ACM disposal problems	State and territory governments should assist remote communities to dispose of ACMs where they are far from the nearest licenced disposal facility.
Make it easier to report illegally dumped of ACMs	Environmental protection agencies and local councils have apps that allow the reporting of illegally dumped ACM.

Source: ACIL Allen consulting

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Appendices

A. Background

This appendix provides background to the use and dumping of asbestos-containing materials in Australia.

A.1 Use of asbestos in Australia

Asbestos is a group of naturally occurring silicate minerals that are made up of fine, fibrous crystals. Asbestos was widely used in Australia during the 1950s to 1970s, with some uses continuing until the 2000s. Certain qualities of asbestos, such as its strength, flexibility and resistance to fire and chemical attack, made it useful for many industrial applications.

Asbestos was widely used in the Australian building construction and manufacturing industries. It was used in insulation, roofing, asbestos cement sheeting, fire blankets, water pipes; and in motor vehicles for clutches and brake linings, gaskets and pads. The 2012 Asbestos Management Review noted that asbestos fibres may be present in many items including (Department of Education, Employment and Workplace Relations 2012):

- fire blankets and curtains, and insulation in heaters and stoves
- shingles or tiles-both external and ceiling-corrugated asbestos cement roofing sheets and ceiling insulation products
- pipes, tubes or fittings, and lagging or jointing materials (including on pipes)
- asbestos tape or rope, electrical cloths and tapes, mastics, sealants, putties, adhesives, and heat-resistance sealing and caulking compounds
- textured paints/coatings and asbestos bitumen damp-proofing products
- compressed, rubberised or polymerised asbestos fibre gaskets and seals
- floor coverings, such as vinyl asbestos tiles, and the backings of linoleum floor coverings
- compressed asbestos cement sheeting
- brake pads and clutch facings, and
- electrical panel partitioning.

Inhalation of asbestos fibres is now known to cause a number of health problems such as asbestosis and mesothelioma. Asbestos can become a fine airborne dust made up of tiny fibres when it is mined or processed or when ACMs are sanded, sawn, drilled or broken. These fibres are easily inhaled and, due to the small size and elongated shape of the particles, are able to resist the lung's natural cleaning process. There is generally a long time lag between exposure to asbestos and the subsequent adverse health impacts.

Diseases caused by exposure to asbestos include (The Allen Consulting Group 2013):

- malignant mesothelioma (pleura and peritoneum)
- asbestosis (interstitial lung fibrosis)
- lung cancer (Bronchogenic carcinoma) (small cell, non-small cell)

- pleural plaques (hyaline)
- diffuse pleural thickening
- benign asbestos pleural effusion
- rolled atelectasis (infolding lung syndrome), and
- other cancers.

One of the major uses of asbestos in Australia has been in asbestos cement sheets, used in the housing and construction sector, in a corrugated form for roofing and in a flat form for areas likely to be exposed to moisture. When buildings containing this material are renovated or demolished, the asbestos cement sheets are removed. In December 2003, Australia banned the manufacture, supply, storage, transport, sale, use and re-use, installation and replacement of products and materials containing asbestos. While disposal of ACMs is regulated, cases of inappropriate disposal are a source of problems for state, territory and local governments and also for private land owners on whose property this material is being dumped.

B. Cost information and analysis of legal disposal of ACMs

This appendix discusses the costs of legal disposal of asbestos-containing materials in Australia.

B.1 Cost components for disposing of ACMs legally

The cost to dispose of ACMs legally has a number of components, of which waste facility fees are just one part. The cost to dispose legally of ACMs includes:

- search costs, e.g. costs of finding a facility that will accept ACMs
- time-related costs, e.g. minimum periods of time to notify regulators of the removal of ACMs, and waiting times before an asbestos removalist is available
- labour and equipment costs, especially where contractors or licensed asbestos removalists remove the ACMs
- transportation costs, and
- waste facility fees.

In discussing the factors that impact the level of legal and illegal dumping of ACMs, stakeholders indicated that, in relation to cost as a factor, it is the overall cost that is the important variable and not any particular component of the cost.

B.1.1 Waste facility fees

The level of fees at waste facilities and waste transfer stations to dispose of ACMs has received attention as a potential factor in the level of illegal ACM dumping.

Asbestos can be legally disposed of at landfill sites across Australia and its disposal is governed by strict regulations. In addition to the regulatory costs, costs for asbestos disposal at waste facilities are higher than for other waste. Landfill owners can also be reluctant to take ACMs as it requires extra labour and specialist equipment for disposal. Landfills that do take asbestos in Australia are also required to be licensed and often require prior notification, as ACMs are required to be buried on the day it arrives at a landfill. Landfills require asbestos to be double wrapped in 0.2 mm thick polythene sheeting with a clearly displayed “CAUTION ASBESTOS” label prior to disposal.

Many landfills have stopped accepting ACMs over the past two years (the years for which data is available). Table B.1 provides a high level summary on the different treatment of asbestos by different landfills across Australia drawing on information from ASEA’s database of asbestos waste management facilities and transfer stations updated by ACIL Allen for this review. The proportion that have stopped taking asbestos since 2013 is quite high in Victoria and Queensland.

Average waste facility fees for the disposal of asbestos range from \$140/tonne in WA to \$277/tonne in NSW. The average price across Australia is \$185/tonne. While these prices are not exorbitant, especially for small quantities, there are also in many instances minimum fees and minimum quantities imposed in order to compensate for the extra burden on landfills. Further, there is substantial variation between landfills – not only in terms of price, but also in terms of whether the

facility accepts residential and/or commercial quantities and also accepts asbestos from outside the local area (e.g. the local council area).

Table B.1 – Landfill operating characteristics

State	Proportion imposing a quantity limit on ACMs	Proportion restricting ACM disposal to residents only	Proportion that have stopped accepting ACMs since 2013
New South Wales	8%	12%	3%
Victoria	45%	31%	17%
Queensland	51%	12%	12%
South Australia	19%	15%	15%
Western Australia	21%	20%	6%
Northern Territory	0%	33%	0%
Tasmania	30%	0%	20%
Australian Capital Territory	0%	0%	0%
Australia	29%	20%	12%

Note: Landfill includes waste management centres and waste transfer stations

Source: ASEA Landfill Database

Table C.2 shows the average, maximum and minimum prices per tonne for asbestos disposal across Australia as at 2015. The data reveal a substantial price range across and within states. There are usually only one or two options for disposal in each locality.

Table B.2 – Prices for Legal disposal of ACM at landfills

State	Number of landfills	Residential Average \$/t	Residential Min \$/t	Residential Max \$/t	Commercial Average \$/t	Commercial Min \$/t	Commercial Max \$/t
NSW	76	\$277	\$-	\$600	\$274	\$55	\$471
VIC	29	\$154	\$40	\$240	\$195	\$40	\$240
QLD	67	\$208	\$32	\$525	\$199	\$32	\$525

State	Number of landfills	Residential Average \$/t	Residential Min \$/t	Residential Max \$/t	Commercial Average \$/t	Commercial Min \$/t	Commercial Max \$/t
SA	27	\$210	\$31	\$330	\$210	\$31	\$330
WA	71	\$139	\$30	\$458	\$141	\$30	\$458
NT	3	\$287	\$221	\$360	\$287	\$221	\$360
TAS	10	\$116	\$31	\$289	\$124	\$31	\$289
ACT	2	\$-	\$-	\$-	\$152	\$152	\$152
AUS	285	\$213	\$-	\$600	\$198	\$31	\$525

Source: ASEA Landfill Database

Prices for the disposal of asbestos are generally indexed to CPI and as such no major price changes were noted over the past 2 years. Landfill operators surveyed in this review were asked whether they had noticed any changes in the amount of asbestos being brought in due to recent price changes and while some operators did mention that price could deter people from disposing of asbestos properly, there was no additional evidence supporting this.

C. Review methodology

ACIL Allen was engaged by the Asbestos Safety and Eradication Agency (ASEA) to undertake a review of issues and initiatives relating to the illegal dumping of asbestos containing materials (ACMs).

This appendix outlines the scope of this review, the methodology for the review, and process for recruiting stakeholders for consultation.

C.1 Scope

The scope of this review is as follows.

Illegal dumping of asbestos containing materials (ACMs) has been identified as a national issue by the Asbestos Management Review (2012) and by state and territory authorities. Such dumping poses environmental and health risks. The purpose of this review report is to identify issues relating to illegal asbestos dumping in Australia, and initiatives being implemented by state, territory and local government to address this dumping.

The review will:

- highlights current successful interventions to reduce illegal dumping of ACMs
- identifies best practice approaches to combat illegal dumping of ACMs, and
- recommends how stakeholders at all levels of government can utilise available measures to reduce the cost, impact and incidence of illegal dumping of ACMs.

The review will also:

- document the costs of disposal of ACMs
- examine the role of tip fees and levies in influencing illegal dumping of ACMs, and
- review the various types of ACM dumping and potential causes, the potential cost and impact of this dumping and how this falls on business, government and the community, and data collection.

Key issues to be explored in the review are as follows.

- Understand and categorise the different types of illegal asbestos dumping and why it occurs.
- Identify initiatives that have been implemented by jurisdictions and local councils to encourage safe disposal at licensed facilities, such as full or partial fee subsidisation.
- How and why decisions were made regarding these initiatives and what the impact has been
- What the relationship between preventative initiatives and illegal dumping outcomes is
- Document costs of disposal of ACMs in a variety of locations and settings, including identifying if fees are imposed by waste facilities (and how these fees are structured), and whether these fees or waiving of fees impact appropriate disposal of asbestos-containing waste.
- Identify what are all real or perceived disincentives for the appropriate disposal of ACMs, and how these can be addressed through non-regulatory levers and influences.

C.2 Methodology

The methodology for this review has involved:

- identifying research questions
- undertaking a desktop review of government reports, public submissions, the published literature, and other grey literature
- identifying and recruiting stakeholders across all states and territories for consultations
- undertaking structured interviews with stakeholders in each state and territory to obtain qualitative information and to identify further information sources
- obtaining additional information as needed
- undertaking quantitative analysis, and
- drafting this discussion paper.

As part of the research, ACIL Allen has updated ASEA's list of waste facilities and waste transfer stations across Australia that accept ACMs.

C.3 Recruiting stakeholders

ACIL Allen used the following process to identify and recruit stakeholders for consultation and to undertake consultations.

- ASEA initially identified a lead agency and official in each agency for each state and territory government and invited them to participate in the review.
- ACIL Allen undertook an initial consultation with each of those officials. These officials identified other government agencies, local councils, and other relevant parties operating in their jurisdiction for potential consultation. These officers organised consultation meetings in their jurisdiction or provided relevant contact details to ACIL Allen.
- Where contact details were provided, ACIL Allen made initial contact by phone and/or email to discuss the project and to arrange a time for a consultation.
- ACIL Allen undertook face-to-face group consultations with state and territory government agencies in each state and territory. Local councils were consulted through group consultations in each jurisdiction and one-on-one consultations were held with local councils who were unable to participate in a group consultation.
- A number of stakeholders identified additional potential stakeholders to consult during our consultations. ACIL Allen followed up these leads where it was considered this would be valuable for the project.
- Most stakeholders contacted were keen to participate in the review. Only a small number of stakeholders did not respond to multiple voice messages, phone messages and email requests requesting a consultation.

- A number of written responses were received from Western Australian local councils in response to an email circularised by the Western Australian Local Government Association. This proved to be an effective and low cost way of obtaining written responses from a number of different stakeholders.
- One private waste disposal operator contacted ACIL Allen to provide their views without having been approached to participate in the review.

D. Stakeholders consulted

D.1 Stakeholders consulted

ACIL Allen consulted a large number of stakeholders for this review over the period April-June 2015. Stakeholders were targeted in each jurisdictions from among state and territory government agencies, local councils, asbestos removalists and demolition contractors, waste facilities, and peak bodies (including trade unions). This appendix details the stakeholders consulted.

The table below indicates the names, organisations, and jurisdiction of each stakeholder.

Table D.1 – Stakeholders consulted

Name	Organisation	Jurisdiction
Carolyn Davis	Australian Chamber of Commerce and Industry (ACCI)	Australia
Deborah Vallance	Australian Manufacturing Workers Union	Australia
John Mathieson	Department of Defence	Australia
John Townsend	Transpacific Industries Pty Ltd (trading as Waste-away)	Australia
Kristin Brookfield Graham Wolfe Tony Lopez	Housing Industry Association	Australia
Linda Pearson	Comcare (Commonwealth)	Australia
Matthew Cross	Property Council of Australia	Australia
Simon Butt John Darcy Phil Edwards Rebecca Pickering Kim Richardson David Solomon Richard Calver Carolyn Davis	Master Builders Association	Australia
Tony Magliaro	NBN Co	Australia
Des Clayton David Power	EPA	ACT
Joel Kelly	Territory and Municipal Services	ACT

Name	Organisation	Jurisdiction
Matt Craig-Barry	Worksafe ACT	ACT
Stuart Finch David Roberts	ACT NOWaste	ACT
Amy Withnall	EPA	NSW
James Allsop	Holroyd City Council	NSW
Jeff Tipping	Bega Valley Shire Council	NSW
Katherine Little	Uralla Shire Council	NSW
Luke Speechley	Nation Partners	NSW
Michael Preston	CFMEU (NSW)	NSW
Oliver Bradshaw	Hawkesbury City Council	NSW
Amanda Bombaci	Western Sydney Regional Organisation of Councils	NSW
Ross Mitchell Stephen Hickey	RMA Group, and Asbestos Removal Contractors Association (ARCA)	NSW
Zoran Sukara	WorkCover	NSW
Greg Buxton	Alice Springs Town Council	NT
Julie Whiting	Department of Infrastructure	NT
Mike Cafe	Barkly, Central Desert and MacDonnell Shires	NT
Peter McLinden	Local Government Association of Northern Territory	NT
Peter Shuttleworth	Department of Lands, Planning and the Environment	NT
Ryan Wagner	Northern Territory Environment Protection Authority	NT
Shenagh Gamble Meredith Newall Sandrine Ricardo	City of Darwin	NT
Xavier Schobben	Department of Health	NT

Name	Organisation	Jurisdiction
Andrew Hamilton	South Burnett Regional Council	Qld
Anne Cowdry	Townsville City Council	Qld
Darryl Graham	Queensland Rail	Qld
Julie Hoek Scott Mears Gina Cavendish	Department of Environment and Heritage Protection	Qld
Kerry Myatt	Moreton Bay Regional Council	Qld
Paula Kempley	Redland City Council	Qld
Trevina Victorsen Nilanga Thabrew Alan Kemmerling	Isaac Regional Council	Qld
Trevor Long	Demolition Contractors Association (Qld) Inc.	Qld
Uma Rajappa Elizabeth Brown	Department of Health	Qld
Andrew Butler	Association of Building Consultants	SA
Anthony Brazzale	Resourceco	SA
Brad Pfeffer	SafeWork SA	SA
Catherine Jones	Department of Health	SA
Daniel Tuk	Public Lands, Department of Environment, Water and Natural Resources	SA
David Eams Gideon Mellor	DE-Construct Pty Ltd	SA
Gail Gorman	CFMEU	SA
Gary Purdy	AEC Environmental Pty Ltd (trading as Greencap)	SA
Grant Pelton Wayne Hutchinson	Department of Environment, Water and Natural Resources	SA

Name	Organisation	Jurisdiction
John Flavel	McMahon Services Australia Pty Ltd	SA
John Phillips Grace Barila	Keep South Australia Beautiful (KESAB)	SA
John Vanzo	ZeroWaste SA	SA
Keith Earl Allan Smith	District Council of Mallala	SA
Laura Stansfield	Crown Lands, Department of Environment, Water and Natural Resources	SA
Loren Mercier	City of Charles Sturt	SA
Mark Rawson Brian Johnson	Waste Management Association of SA	SA
Sam Mangas	Department of Planning, Transport and Infrastructure	SA
Sarah Shinn James Story	City of Salisbury	SA
Simon Jenner	Transpacific	SA
Simon Thompson Adam Gray	Local Government Association of South Australia	SA
Tania Kiley Suresh Kumar Shellie Humphries Kevin Rowley Jeff Todd Steven Potter	Environment Protection Authority (SA)	SA
Wade Della Torre Marcus Dunatov	District Council of the Copper Coast	SA
Alex Moore	Aegis Asbestos	Tas
David Holman	Hobart City Council	Tas
Kerry Wratten	National Parks and Wildlife Service	Tas

Name	Organisation	Jurisdiction
Tim Turner		
Lachie Clark	Forestry Tasmania	Tas
Melanie Brown	Local Government Association of Tasmania	Tas
Shane Hogue Tammy Miller John Gorrie	EPA	Tas
Dylan Weeks	Melton City Council	Vic
Phoebe Swing	Environment Protection Authority (Victoria)	Vic
Pino Perri	City of Moreland	Vic
Richard Versteegen	WorkSafe	Vic
Vandama Rama	City of Casey	Vic
Sharon Mitchell	Shire of Ashburton	WA
Dave Peckitt	Department of Health	WA
Eugene Lee	City of Perth	WA
Geoff Atkinson	Mindarie Regional Council	WA
Jake Hickey	Instant Waste Management	WA
Ken Raine	Department of Environment Regulation	WA
Kevin Davidson	City of Belmont	WA
Kyle Boardman Mark Tamblyn	City of Mandurah	WA
Lyall Davieson	City of Cockburn	WA
Martin Shurlock Adrian Dyson Liam Noonan	Shire of Mundaring	WA
Maurice Walsh	Shires of Coolgardie, Cranbrook, Dumbleyung, Gnowangerup, Katanning and Narrogin	WA

Name	Organisation	Jurisdiction
Sally North	Worksafe	WA
Tony Turner	Shire of Serpentine-Jarrahdale	WA
Trevor Brandy	Shire of Coorow	WA
Vitor Martins	City of Busselton	WA
Wayne Harris	City of Wanneroo	WA

Source: ACIL Allen