

Victoria's Litter Reduction Strategy



September 1995

Striving for a litter free Victoria

Foreword

On a world scale, Victoria enjoys a clean environment - but it is not as clean as most of us would like it to be. At certain times of the year, particularly in summer, the detrimental impact of litter is evident on our beaches and picnic sites. Instead of being able to relax in an enjoyable setting we often find ourselves searching for a spot that is not degraded by litter.

The amount of litter in our environment is a reflection of:

- a lack of understanding of the environmental consequences of littering
- tolerance of irresponsible behaviour on the part of individuals
- inadequate litter disposal facilities
- insufficient recycling infrastructure in public places
- ineffective street and public place cleaning standards and regimes
- inappropriate products or product materials
- permitting the stormwater drainage system to transport litter to our beaches and waterways
- a preference for cleaning up litter rather than preventing it
- a lack of information of the characteristics, attitudes and behaviour of litterers
- inadequate adherence to, and enforcement of, litter laws.

Litter imposes significant costs on the community, threatens wildlife and destroys public amenities. This should not be tolerated. Victoria's Litter Reduction Strategy sets out a framework for effective community action to control what has become a serious environmental problem. It is now up to each of us to contribute to the successful implementation of the strategy.

Abbreviations

DCNR	Department of Conservation & Natural Resources
DP&D	Department of Planning & Development
EPA	The Environment Protection Authority
IMEA	Institute of Municipal Engineers of Australia
KABV	Keep Australia Beautiful Victoria
LRRA	Litter & Recycling Research Association
MAV	Municipal Association of Victoria
MCA	Municipal Conservation Association
MPW	Melbourne Parks & Waterways
NGOs	Non government organisations
RACV	Royal Automobile Club of Victoria
RRRC	Recycling & Resource Recovery Council
RWMGs	Regional Waste Management Groups
WMC	Waste Management Council

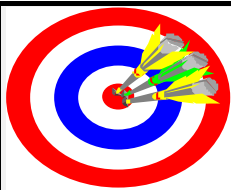
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Aim

This strategy aims to set a direction and lay out priority actions for litter prevention which can be undertaken by:

The community

Manufacturing industry

Industry associations

Non-government organisations

Local Government and

State Government agencies.

Such actions will be complementary and mutually supportive. The strategy will provide a sharper focus and a common objective. Its implementation should result in a significant reduction in the amount of litter in public places.

Rationale

Litter is the most visible sign of environmental pollution. It significantly reduces the visual appeal of beaches, waterways and other natural assets. It also detracts from an appreciation of the urban form.

Litter is a health hazard. Sharp items such as glass and syringe needles pose risks of personal injury. Putrescible litter such as food scraps encourages pest animals such as mice, rats, stray cats and dogs, and seagulls. Food scraps and other vegetative material also add to the nitrogen and phosphorus in waterways and contribute to excessive plant growth and depletion of oxygen levels.

Litter poses a threat to mammals, reptiles, fish and birds, which can be strangled or choked by discarded materials.

Accumulated litter can cause blockages of the drainage system and localised flooding.

The clean-up of litter undertaken by municipalities, government agencies and community groups involves significant financial resources. A State Government survey completed in 1988 estimated that at least \$50 million is spent annually on these activities. It would be reasonable to assume that this figure would now be considerably higher.

A Melbourne recycling and waste reduction survey conducted in 1994 revealed that more than 60% of the community believes that litter represents a significant problem. A high proportion of respondents advocated the need for more community education, better disposal facilities and rigorous enforcement of penalties for littering.

A large number of public and private sector organisations have a responsibility for, or take an interest in, litter:

- local government carries the burden of day-to-day maintenance of the urban environment, including significant parts of the drainage system
- the Environment Protection Authority administers the *Litter Act 1987*
- Melbourne Parks and Waterways maintains much of the public recreational space in Melbourne
- the Department of Conservation and Natural Resources has responsibility for national parks, state and regional parks and many other areas of public land
- Melbourne Water maintains the major down stream parts of the drainage system
- the Public Transport Corporation is responsible for the condition of the public transport network.

Rationale

In addition, organisations such as Keep Australia Beautiful, Clean Up Australia and the Litter and Recycling Research Association undertake public awareness raising programs, litter clean-ups and data collection.

Thus litter is an important environmental issue which imposes a high maintenance cost and is a concern to a wide range of organisations and the community.

Despite the numerous organisations involved in litter management, the significant expenditure committed to dealing with it and recognition of its adverse environmental and civic impacts, litter remains a major problem.

Although litter is the most visible example of environmental pollution, as an environmental issue it is characterised by diffuse sources and very general or highly localised approaches to its resolution. The effect of the significant effort and expenditure put into dealing with litter is dissipated and lasting solutions are elusive. Many of the attempted solutions undoubtedly have merit in their own right, but are not capable of overcoming the more general litter problem.

The best chance of overcoming litter lies in establishing strategic directions and priorities which can form a common agenda for the many organisations which can contribute to a solution. With such a strategy all the agencies involved in litter management will be able to pull in the same direction, in a complementary and mutually supportive manner. This document forms the foundation on which a comprehensive approach to litter prevention can be built.

Part 1: Analysing Litter

Analysing Litter

-----Litter is not a single or a simple issue. It is defined by different individuals and groups in different ways. Among the suggested causes are:

- the anti-social behaviour of individuals
- the imposition of unwanted packaging on unwilling consumers
- a failing of street cleaning regimes
- insufficient disposal facilities
- a failure to enforce fines or penalties and
- penalties which are too low.

However these focus on allocating blame and obscure the complexity of the matter.

In examining the nature of litter and littering behaviour, an attempt must be made to avoid allocating blame. Unless such an approach is adopted, conclusions may pre-empt proper analysis. This strategy is based on the assumption that litter in our environment is a reflection of attitudes emanating broadly from our culture and social interactions, rather than individual or organisational failure. This strategy is consequently based on an analysis of litter as a multi-dimensional environmental and civic issue.

To identify an appropriate analytical framework, it is essential to consider the various ways litter is experienced. In doing so, some of the complexities surface - for example, litter is fundamentally linked to individual behaviour, but also to the marketing and design characteristics of the product which is carelessly discarded. Moreover, the extent to which litter is witnessed in public places depends to some degree on our expectations of cleanliness, the quality of measures used to maintain cleanliness and the frequency with which these are applied. Places which are litter sources may not appear to be a problem if high levels of maintenance activity occur. Conversely, places which experience low levels of littering may appear to be problems if maintenance is occasional. The human dimension, the characteristics of frequently littered products and the effectiveness of municipal maintenance need to be considered.

The major tools used against litter in the past have been community information and the threat of prosecution under the *Litter Act 1987* or local by-laws. Community information has been broadly targeted on radio, television and signs. Enforcement of anti-litter laws has been patchy. The Victoria Police issue approximately 1,500 penalty notices each year and in the 1994/95 financial year the Environment Protection Authority issued 1,605 litter infringement notices. Although the *Litter Act 1987* empowers a wide range of public bodies to appoint officers to enforce it, there is little evidence that other agencies exercise these powers with any vigour.

The adoption of a multi-dimensional approach produces a deeper understanding of litter as an environmental and civic issue. However it also reveals the need for sophisticated responses - in as much as litter is not a simple issue, there are no simple answers.

This strategy does not lay down a set of rules - it proposes directions and priorities for joint action by the many parties with an interest in the issue.

1.1 The Analytical Framework

To address litter management issues broadly, a framework which widens the focus beyond the individual is required. The framework selected for the development of this strategy has facilitated an analysis based on:

- the role of people who litter
- the role of the products which appear most frequently in the litter stream
- the nature of the places in which litter initially accumulates and the places where litter may be transported
- the capabilities and responsibilities of organisations which can contribute to solutions.

A similar approach has been adopted in relation to the tools which are available to deal with the issue. These include:

- investigation and monitoring
- information
- education
- enforcement action
- infrastructure provision - such as devices which intervene in the flow of litter into and through the drainage system
- codes of practice for:
 - * drainage system protection
 - * street cleaning
 - * kerbside collection of garbage and recyclables
 - * product design



1.2 People

Clearly, people are fundamental contributors to litter. However exactly who causes litter is poorly understood. Figure 1 identifies some of the groups which can be readily identified and whose littering behaviour varies according to category.

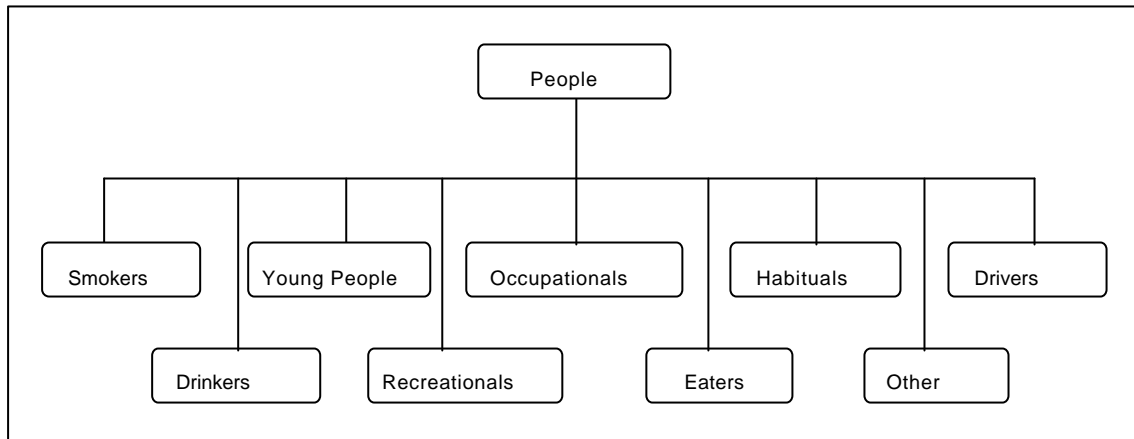


Figure 1: Groups whose littering behaviour varies

An examination of litter from a more detailed breakdown of the community produces some interesting insights.

Smokers

Smokers are no longer allowed to smoke in office buildings but are often permitted to take work breaks. An unintended consequence of the change in community attitude towards the health impacts of tobacco has been workers congregating on footpaths at building entrances. A concentration of cigarette butts occurs in those areas unless there are well designed and located cigarette butt disposal facilities. The resolution of an important health issue has created a new environmental issue.

Occupations

Certain occupations are inherently litter-causing. Among these are market trading, food vending, building and construction, and garbage and recycling collection. Whether people engaged in these occupations are more disposed towards littering than the rest of the community is doubtful. It is more likely that the litter they create is not due to a lack of concern, but of the performance pressures they experience, inappropriate or inadequate disposal facilities or the absence of defined work practices which minimise environmental impacts.

Youth

Young people appear to be over-represented among litterers. This is often attributed to rebellious attitudes across a broad range of issues during this period of life or peer pressure. However it can also be reasonably argued that young people spend more time in public places than children and adults and are the target of intensive consumer advertising. Many of the products which are highly represented in the litter stream are specifically marketed to youth.

Drivers Drivers of motor vehicles often throw litter from their vehicles. It is a practice often associated with cigarette smoking and with consumption of refreshments during longer journeys. The registration of the vehicle provides greater capacity to identify offenders than is possible in relation to littering by pedestrians.

Habitual litterers Some people seem immune to community information about litter impacts and are not dissuaded from littering by the existing penalty system. They appear to have a careless disregard for the impact of their behaviour on the environment or on other members of the community.

In most of these cases littering has a dimension which goes beyond the single, transient, irresponsible act of littering. Lack of knowledge of impacts, inadequate disposal facilities, marketing pressures and ineffective enforcement provisions all contribute.

To apply the available tools to the best effect means matching the tool to each individual case.

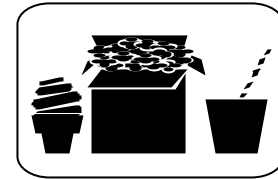
Community education People who understand the effects of their actions and have a sense of responsibility towards the environment and to others in the community are more likely to act in appropriate ways - once they have the knowledge required to make a self assessment of the impact of their action.

Enforcement Enforcement of anti-litter laws is an appropriate measure to apply to those who choose to ignore the effects of their actions and may serve to focus people's attention on the education messages. Where education fails, enforcement needs to be effective.

Peer pressure Peer pressure is believed to have a strong negative influence on youth behaviour. Peer pressure by way of role model example is a positive tool which may produce a more effective response than either education or enforcement action in relation to youth littering.

Infrastructure Infrastructure provision which is well designed and attuned to particular occupational or recreational needs is a pre-requisite in many circumstances. The community expects that litter disposal facilities will be appropriately provided and adequately serviced by local authorities and land managers.

To apply the most appropriate tool in any particular circumstance requires a comprehensive knowledge of the attitudes and motivation of litterers and their level of understanding of the environmental impacts of litter. This can only be discovered from thorough research. No research of this kind is known to have been undertaken for several years. Some earlier research commissioned to prepare community service advertisements has not been followed through to determine whether community education activities have been effective. Some recent work has identified very high levels of recall of educational materials, but has not explained the apparent absence of behaviour change.



1.3 Products

A 1993 Melbourne study estimated that about 4.6 million items of floatable litter enter the waterways each year. These estimates did not include non-floatable or semi-floatable litter items such as cans and plastic bags.

A survey of the Merri Creek identified 66% of litter as plastic, 21% as paper and 23% as other materials. These figures are comparable with similar surveys of waterways in Sydney. Clean Up Australia data suggests that about 47% of total litter is plastic, 20% paper, 14% metal, 13% glass and 6% other materials. Keep Australia Beautiful data suggests that paper is the most dominant form of litter (47%), while plastic contributes about 38%.

No data are known to exist which allow analysis by product, as opposed to material.

The absence of reliable data on the litter stream causes uncertainty about the precise nature of litter. Managing litter is made more difficult when it is not monitored in a systematic manner needed to inform state level policy development and the assist in the preparation of maintenance regimes and contingency plans by local authorities.

Despite the small amount of reliable information, it is possible to make some general observations about products in the litter stream.

Much litter results from the abandonment of consumer packaging materials which protect products intended for immediate consumption. This includes confectionery, snack food wrappers and drink containers. Household delivered advertising material features significantly, cigarette butts and packets are a problem and receipts from bank teller machines often overflow from congested and inadequate disposal facilities.

Figure 2 sets out some headings under which the littered products can be considered.

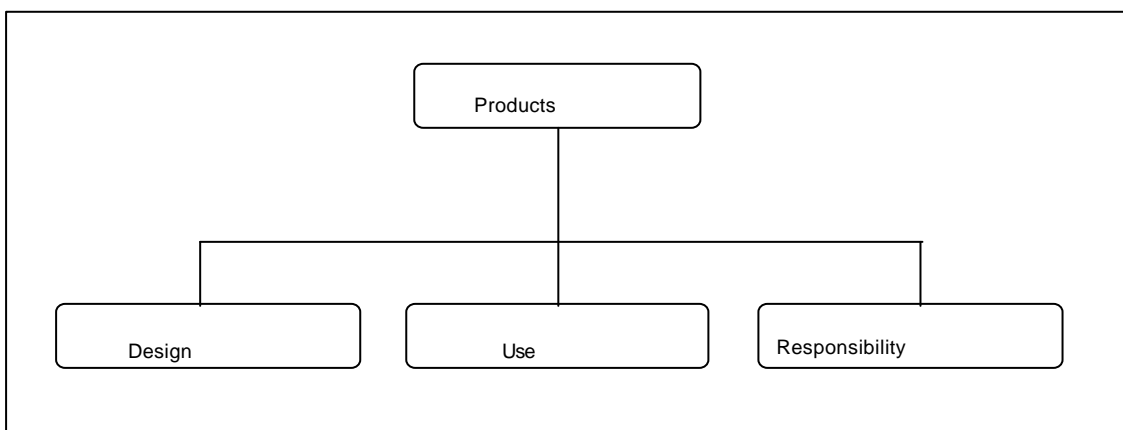


Figure 2: Ways in which littered products can be considered.

Using this framework it is possible to recognise that some products are more likely to become litter or have worse litter impacts than others. Some of the characteristics shared by frequently littered items are that they tend to be:

- designed for single use and immediate disposal
- designed to be portable
- designed to be highly visible
- easily transported by wind and rain once they become litter
- often made from durable materials.

They are also often items which are the subject of heavy advertising. A debate often arises around whether consumer demand creates the supply of problem products or whether manufacturers exercise low levels of consciousness of the environmental impact of their products. The discussion can distract from what should be a central concern - that consumers put great store in both convenience items and protection of the environment. The fact that the public is demanding both the products which form the litter stream and that agencies do more to manage litter suggests a need to address the issues simultaneously.

Existing products contain some contradictions - for example, the use of packaging which has a long life to protect contents which have a short shelf life is incongruous. This should not suggest however that the use of biodegradable packaging makes littering acceptable.

On the other hand, there are many examples of products which have overcome environmental concerns. The redesign of ring pulls on cans so that they remain attached to the can has done a great deal to avoid the formerly extensive problem of ring pull litter. The redesign of plastic six pack carriers to reduce their potential to entangle wildlife also testifies to the potential to reduce environmental impacts of consumer products through better design.

Design for the environment offers a responsible approach to product design which is in sympathy with contemporary concepts of product stewardship.

The appropriateness of particular product uses should be considered. There are clearly circumstances in which some materials are unsuitable - for example, glass at beaches.

The responsibility of manufacturers and suppliers of frequently littered materials would best be dealt with by the adoption of a stewardship ethic by industry. If industry is not sufficiently responsive to consumer concerns about litter, ultimately this position may result in a loss of market share in favour of alternatives.



1.4 Places

An analysis of litter from the perspective of ‘places’ readily identifies that there are two major categories with which to be concerned. There are litter **source** places and litter **repositories**. Some repositories become source places for other repositories if litter is allowed to accumulate over any significant time.

Figure 3 sets out some of the major places of concern.

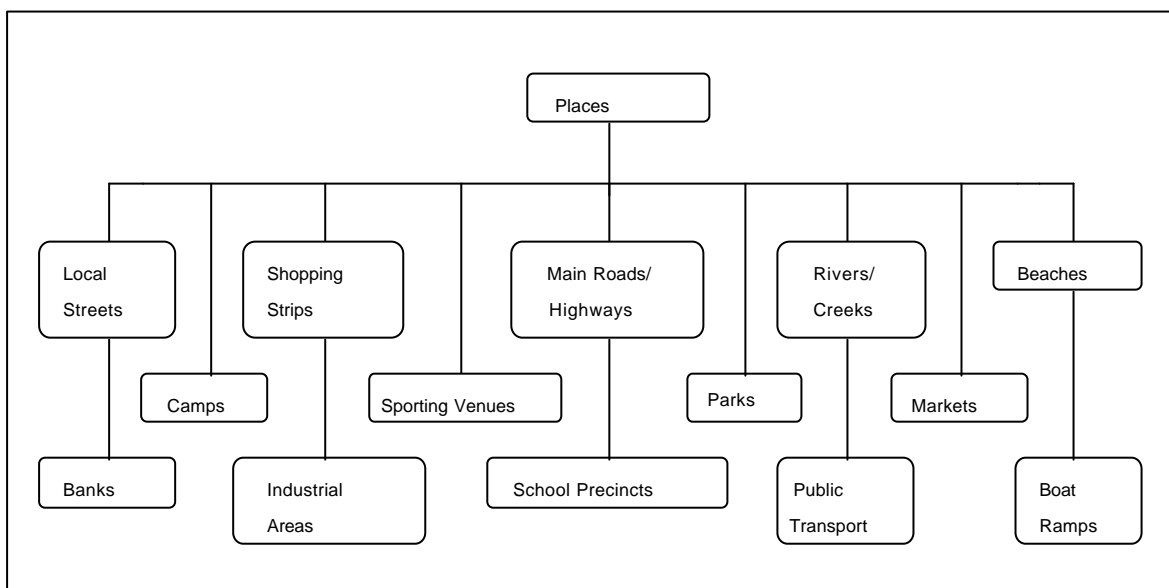


Figure 3: *Places of concern*

Dominant among problem source places are shopping strips, industrial areas and school precincts.

A great deal of litter is a problem because it ends up in places we set aside for recreational purposes - such as beaches, parks and riverbanks.

Few litter repositories are problem sources. Provided litter bins are regularly serviced, most litter which accumulates on beaches, for example, is likely to have been disposed of some distance away. Litter sources and litter repositories form a network of places joined together by the storm water drainage system, which is a very efficient vehicle for the transport of litter. Thus storms present a particular problem in relation to litter. High winds also have a significant capacity to gather and transport litter to places which then become a problem.

The effectiveness of the drainage system as a vehicle for litter transportation depends on the ability to access the system. Drainage systems in some older urban areas are protected from

the intrusion of litter by the use of grills at entrance points (side entry pits). Side entry pits in more recently developed areas are more likely to be unprotected from the entry of litter.

The amount of litter transported through the drainage system is a function of the amount of litter existing at street level, ease of access to the drainage system, the frequency of street cleaning services and the frequency of intensive storm events.

The cost of cleaning up litter is high and inequitably distributed. The cost of removing litter from downstream locations is increased directly by any deficiency in street cleaning methods and frequency upstream. Some municipalities have exacerbated the problem by employing street cleaning techniques which depend on the use of water from fire hydrants and street cleaning vehicles to flush litter into the drainage system as a means of disposal.

Research has identified a direct link between the frequency and method of street cleaning and the incidence of litter in particular waterways. Although the Institute of Municipal Engineers has been developing a code of practice for street cleaning equipment, there are no known specifications or codes of practice for street cleaning frequency, litter bin placement or servicing. Nor does there appear to be any contingency planning for cleaning up litter after major wind and rain storms.



1.5 Organisations

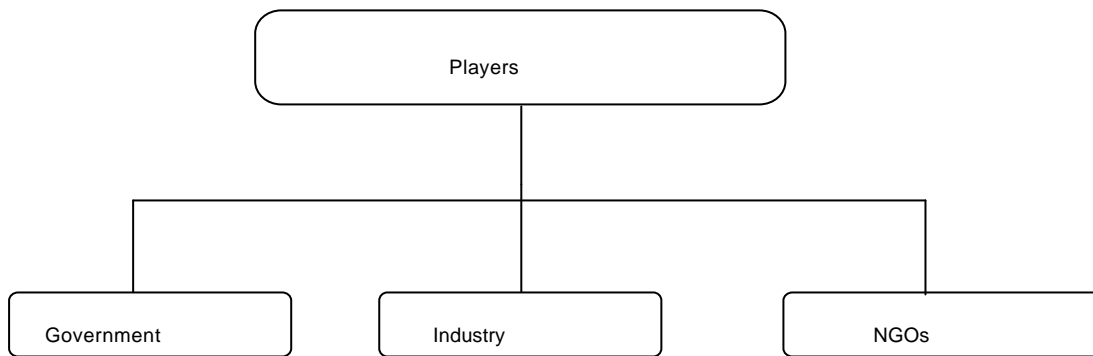
Organisations which play important roles in litter prevention can be categorised in three groups. These are set out in Figure 4.

Performance levels of all organisations can be improved. Litter tends not to be a priority issue for many agencies and has not attracted staff and financial resources.

Community education approaches have proven to be ineffective - such programs may have a limited period of effectiveness or are not sufficiently targeted.

Enforcement of the *Litter Act 1987* appears a minor priority within the whole range of issues facing public authorities.

Little data are collected by public sector organisations, despite a responsibility to design and monitor litter management programs. Product stewardship has not been effectively applied to litter issues.



EPA	Manufacturers	KABV
RRRC	Fillers/Producers	Clean Up Australia
Local government	Packagers	Banksia Env. Foundation
Melbourne Water	Retailers:	LRRA
MPW	* supermarkets	Friends groups
DCNR	* local markets	IMEA
Victoria Police	* fast food	MCA
VicRoads	Publishers	MAV
WMC	Printers	RACV
PTC	Distributors	Service groups
RWMGs	Building Industry	Merri Creek Mgt. Com.
DP&D	Leisure/Recreational	

Figure 4: Organisations which play an important role in litter prevention

It is clear that there is a significant number of players and they represent a potent resource. There is potential to either operate at cross-purposes or to maximise effectiveness through collaboration and adoption of consistent and mutually reinforcing approaches. A successful outcome depends on ensuring that the efforts of each organisation are directed to the litter problem and not to protecting a particular interest.

Individual roles are possible but need to be clear. Industry groups - especially peak industry organisations, for example - are in the position to embrace and promote product stewardship principles. Non-government organisations are well placed to undertake community-based activities such as clean-up days and to be partners in community education programs. Public sector agencies are best placed to design and enforce litter legal provisions and to identify and undertake data collection for policy and planning purposes. Local government bodies are best equipped to design and implement appropriate performance standards for engineering activities such as rubbish collection and street cleaning. There is also scope for bilateral and multilateral partnerships to design and communicate community education materials.

Summary

The analysis suggests:

1. Litter is a more complex issue than first meets the eye.
2. Approaches based on allocating blame for litter make identifying causes unrewarding.
3. The main tools to prevent litter (education and enforcement) have not been effectively applied.
4. Litterers are not a single type of person with a common motivation.
5. Litter is more likely to be a consequence of multiple factors than attributable solely to deviant behaviour by individuals.
6. Consumers' simultaneous demands for convenience products and a clean environment are not being adequately addressed.
7. Design for the environment is a critical issue capable of contributing to litter solutions.
8. The drainage system is a critical factor in litter transport.
9. Strong links exist between street cleaning practices and litter in waterways.
10. Cost inequities arise from failure to deal with litter at source.
11. The performance of responsible organisations can be improved.
12. The number and diversity of organisations involved in litter prevention requires clarification of roles, co-ordination of efforts and the forging of partnerships.

Summary

Part 2: Strategies for Reducing Litter

Strategies for Reducing Litter

2.1 Introduction

This strategy can only be a beginning. Ad hoc remedies are not appropriate - a change of culture is required. Prevention, not cure, is the goal.

It is evident that there are widespread shortcomings in the availability of information in many areas of litter education, municipal maintenance, litter law enforcement and litter stream data collection. In the absence of sound information, assumptions are the only foundations for conclusions. The analysis leading to this strategy demonstrated that some common assumptions about litter are simplistic. It suggested that the abandonment of simplistic solutions based on blame would open the way for better understanding and more effective responses. To undertake new activities in some of the areas nominated in this strategy on the basis of existing information, involves taking significant risk.

2.2 Research and Data Collection

To minimise the risk, a major part of this strategy is to place an increased emphasis on research and data collection in key areas. Without sound information, the potential for resources to continue to be wasted on ineffective activities is high. The absence of critical information inhibits effective policy development and denies local authorities the opportunity to plan services effectively.

Research and data collection are needed in the following areas.

- **People**

Research is needed to confirm the propensity of different groups to litter, and the motives and influences which dictate such behaviour. Understanding these matters at a detailed level will provide the basis for addressing particular audiences on particular issues, in terms which are most likely to be effective, and provide the scope to tackle structural and infrastructural influences on littering behaviours.

- **Products**

Data based on random sample methodology, collected in a statistically valid and reliable manner allowing different sites to be compared with confidence are required. Existing data collection - which concentrates on material types - needs to be complemented by analyses based on identifying the particular products in the litter stream. This information will facilitate an understanding of whether commonly held perceptions of the contribution of particular types of products in the litter stream are valid. Without such information, a small number of high profile products tend to be the focus of community attention while products which should receive priority attention by manufacturers and other parties are neglected.

- **Places**

Location-specific data collection assessing overall litter loads are required to:

- * help public authorities to plan and execute effective regular clean-up activities

- * assess and implement drainage system protection options
- * plan equipment purchases
- * inform the development of contingency plans to facilitate responses to storm weather events.

- **Organisations**

A survey of organisations undertaking litter prevention activities would facilitate co-ordination of activities.

Some action to address the shortage of data is currently underway. The Recycling and Resource Recovery Council, with the Litter and Recycling Research Association have commissioned consultants to conduct attitudinal research. The Recycling and Resource Recovery Council has also sponsored the development of revised litter data collection methodology for use by Keep Australia Beautiful Victoria. In addition, the Waste Management Council has commissioned consultants to investigate litter in relation to waste management facilities such as landfills and transfer stations, and other aspects of municipal services.

2.3 Strategy for People

A detailed strategy for addressing the human dimension of litter must await the outcome of the research discussed above. Nevertheless, some preliminary priorities are indicated:

- shifting from general anti-litter messages to ones addressing specific audiences and behavioural patterns using messages which have been identified as most likely to be effective
- reviewing some aspects of the *Litter Act 1987* - particularly in relation to penalties for habitual littering
- improving understanding of the relationship between the propensity to litter and the placement and servicing of disposal and public place recycling facilities
- improving understanding of youth lifestyle and how young people might be encouraged to support litter prevention objectives
- developing guidelines and codes of practice to reduce occupation-related littering
- providing infrastructure for litter disposal - especially cigarette butt disposal - and purpose-designed disposal facilities for occupation related litter.

2.4 Strategy for Products

A key consideration for products is to ensure that the individual's obligation to act responsibly is matched by products and support systems designed to facilitate responsible individual action. Environmental impacts need to be considered in product design. Among the considerations are questions of portability, disposability, visibility, transportability and circumstances of use. Actions by industry should include:

- adopting a product stewardship ethic

- developing support infrastructure and community information programs to ensure recapture of litter
- ensuring that short shelf life products are as far as possible, not packaged in long-life packaging
- considering weight, buoyancy, shape and transportability in product design
- marketing sound environmental qualities of products
- selecting materials on the basis of recyclability
- avoiding supply of inappropriate items at specific locations - for example, glass at beaches
- informing consumers of environmental impacts - for example, that cigarette butts do not biodegrade.

2.5 Strategy for Places

Three of the most important measures to reduce the impact of litter are:

1. To maximise the incentive to the individual to dispose of material properly.
2. To remove litter expeditiously if it is dropped.
3. To prevent the transportation of litter through the drainage system where cleaning services fail.

These objectives can be achieved through optimal placement of disposal facilities (in some circumstances the best option may be to *not* provide disposal facilities), by optimising the frequency of cleaning services and by installing a range of barriers in the drainage system. The objective should be to deal with litter as close to its source as possible.

Actions by responsible authorities can be categorised as follows.

There needs to be an increased effort by state and local government authorities to protect the drainage system. Important amongst these is an increased emphasis on:

- installing litter baskets and/or grills in side entry pits
- installing gross pollution traps in problem areas
- installing litter booms in rivers and creeks
- diverting litter from storm water drains in high litter areas such as markets

There is also a need to improve municipal management systems to minimise litter by:

- negotiating performance based contracts, based on best practice, for garbage and recycling services which minimise the generation of litter and allow local authorities to recover any costs of clean-up
- identifying optimal street cleaning and litter bin servicing frequencies, and optimal bin locating, design and size parameters
- developing contingency plans for litter clean-up after severe weather events
- including litter requirements in building development approvals

2.6 Organisational Roles

Litter is a community-wide issue in which many people and organisations have a part to play. Some roles are quite separate, some overlap, others are complementary.

Government - at both state and local level - has major responsibility. At state level, responsibility is widely dispersed. Responsibility is distributed according to organisational function. At local government level, responsibility is divided geographically, with regional forums providing a capacity for co-ordination. In industry there are several peak organisations which represent the interests of manufacturers of the products which feature in the litter stream.

There are also co-ordinating agencies - such as the Recycling and Resource Recovery Council and the Waste Management Council. In the non-government sector, Keep Australia Beautiful Victoria and Clean Up Australia interact directly with the community. A wide range of local community groups is also involved in clean-up and litter control activities.

The development of this strategy is the result of considerable consultation and input from a number of organisations and has provided a mechanism to bring these organisations together. Nevertheless, there are some overlaps and uncertainties about individual directions which need to be clarified.

The actions which have been outlined need to be pursued by the organisations identified below.

Action	Lead agencies	
A shift from general anti-litter messages to ones addressing specific audiences and behaviours using messages which have been identified as most likely to be effective.	Recycling and Resource Recovery Council Litter and Recycling Research Association Keep Australia Beautiful Victoria	People
A review of some aspects of the <i>Litter Act 1987</i> , in particular in relation to penalties for habitual littering.	Environment Protection Authority	People

<p>The need to better understand the relationship between the propensity to litter and the placement and servicing of disposal facilities.</p>	<p>Local government Regional Waste Management Groups Waste Management Council</p>	<p>People</p>
<p>The need to better understand youth lifestyle and how young people might be encouraged to support litter prevention objectives.</p>	<p>Recycling and Resource Recovery Council Litter and Recycling Research Association Keep Australia Beautiful Victoria Environment Protection Authority</p>	<p>People</p>
<p>The development of guidelines and codes of practice to reduce occupation-related littering.</p>	<p>Local Government Industry organisations Waste collection industry Market management Environment Protection Authority</p>	<p>People</p>
<p>Adoption by industry of a product stewardship ethic.</p>	<p>Industry organisations Environment Protection Authority Recycling and Resource Recovery Council</p>	<p>Products</p>

<p>Support for infrastructure and community information programs to ensure recapture of litter.</p>	<p>Recycling and Resource Recovery Council Waste Management Council Environment Protection Authority Melbourne Parks and Waterways Melbourne Water Keep Australia Beautiful Victoria Clean Up Australia</p>	Products
<p>Ensure that short life products are not packaged in long life containers.</p>	<p>Industry Organisations Recycling and Resource Recovery Council Manufacturers Environment Protection Authority</p>	Products
<p>Consider weight, buoyancy, shape and transportability in product and packaging design - especially for single use and convenience products.</p>	<p>Industry organisations Manufacturers</p>	Products
<p>Market sound environmental qualities of products and provide information on adverse impacts.</p>	<p>Industry organisations Manufacturers Recycling and Resource Recovery Council Environment Protection Authority</p>	Products

<p>Select materials on the basis of recyclability.</p>	<p>Industry organisations Manufacturers Recycling and Resource Recovery Council</p>	<p>Products</p>
<p>Avoid supply of inappropriate items at specific locations - for example, glass at beaches.</p>	<p>Industry organisations Local government</p>	<p>Products</p>
<p>Install litter baskets and/or grills in side entry pits.</p>	<p>Local government Regional Waste Management Groups Waste Management Council VicRoads</p>	<p>Places</p>
<p>Install gross pollution traps in problem areas.</p>	<p>Melbourne Water Melbourne Parks and Waterways Local government Water Authorities Catchment Land Protection Boards VicRoads</p>	<p>Places</p>

<p>Install litter booms in rivers and creeks.</p>	<p>Melbourne Parks and Waterways Water Authorities Catchment Land Protection Boards</p>	<p>Places</p>
<p>Divert litter from storm water drains in high litter areas - for example, markets.</p>	<p>Local government Market managements Shopping centre management</p>	<p>Places</p>
<p>Negotiate performance-based contracts for garbage and recycling services which allow local authorities to recover any costs of clean-up from these activities and other best practice approaches</p>	<p>Local government Regional Waste Management Groups Waste Management Council Recycling and Resource Recovery Council</p>	<p>Places</p>
<p>Identify and use optimal street cleaning and litter bin servicing frequencies, and optimal bin location, design and size parameters.</p>	<p>Local government Regional Waste Management Groups Waste Management Council</p>	<p>Places</p>

<p>Develop contingency plans and litter clean-up after severe weather events.</p>	<p>Local government Regional Waste Management Groups Waste Management Council Catchment Land Protection Boards</p>	<p>Places</p>
<p>Litter requirements to apply to building developments.</p>	<p>Local government Department of Planning and Development</p>	<p>Places</p>
<p>Provide adequate litter and recycling facilities at beaches, sporting events and other places which attract large numbers of people.</p>	<p>Recycling and Resource Recovery Council Local government Management committees Event organisers</p>	<p>Places</p>
<p>The need to provide infrastructure for litter disposal - especially cigarette butt disposal.</p>	<p>Building owners Employer organisations Local government</p>	<p>Places</p>

Part 3: Major Directions & Priorities

Major Directions and Priorities

This strategy identifies the need for four broad directions:

1. Improved data.
2. Focused community education.
3. Systematic land management.
4. Product stewardship.

It proposes three levels of priority:

1. Pre-requisite.
2. Within 12 months.
3. Longer term

3.1 Data Collection

There is an urgent need for improved data in most areas of litter management. All data need to be collected using methodologies which contribute valid and reliable results and are consistent across time and the state. Although data collection have been identified as 'pre-requisite', there is a need for this information to be collected on an on-going basis. Data are required in the following areas:

- attitudes and behaviours of individuals in the community (in progress via Recycling and Resource Recovery Council)
- composition of the litter stream analysed by both materials and product
- assessment of the effectiveness of prevention strategies
- optimal location and servicing of litter disposal equipment
- comparison of alternative litter bins and drainage system waste traps
- cost/litter impacts of wide-scale fitting of litter baskets to side entry pits.

It is also important that public sector agencies become directly involved in gathering the data required for policy development and municipal/regional planning.

Pre-requisite

Within 12 months

3.2 Community Education

Community education remains one of the most useful tools for litter prevention. However to be effective, materials need to focus on specifics - general messages appealing to people's better nature or to global environmental concerns have not produced behavioural improvement. Materials are needed in the following areas in particular:

- smokers' litter
- litter effects on fauna
- litter effects on health/public sanitation
- occupation-derived litter
- litter from garbage/recycling collection
- enforcement measures/penalties
- dangers of vehicle litter.

Some material needs to be developed immediately, with a view to release as part of the summer *Beachwatch* program.

Longer term

3.3 Product Stewardship

The adoption of a product stewardship ethic will provide the long-term confidence that litter impacts of particular products are minimised. It is important however that this does not simply result in the production of items which break down into small pieces and are therefore 'out of sight, out of mind'. The level of understanding of product stewardship and the uptake of the concept is variable. To expedite the adoption of product stewardship approaches to litter the following mechanisms can be applied:

- negotiation of industry waste reduction agreements with manufacturers of problem products
- given the significant problem represented by cigarette litter, an industry waste reduction agreement with the tobacco industry should be a priority
- industry bodies should develop codes of practice to establish high standards of product stewardship and encourage member companies to subscribe to litter management and litter education programs.

3.4 Land Management

Land management - in particular management of the drainage system - has been identified as a critical aspect of litter control. There is a general need for land managers - whether in local government or in other areas - to take greater account of the environmental and health consequences of litter. Central to making progress is a planned catchment-based approach.

The responsibility clearly lies with the individual municipality. However as a means for ensuring consistency across municipalities it may be feasible for municipalities to work together. The most appropriate mechanism for co-ordination of planning is through the existing waste management regions, whose members are the municipalities of metropolitan Melbourne and Geelong, Ballarat and Bendigo. Other regions will come into existence in due course through implementation of Part IX of the *Environment Protection Act 1970*. Regional waste management groups are charged with a statutory responsibility for waste management planning which includes waste disposal, recycling and litter. The requirements of a waste management plan are set out in the Act. Among these is a requirement for litter control.

Litter planning by regional waste management groups needs to encompass co-ordination of municipal:

- data collection and litter load monitoring
- phased introduction of side entry pit litter baskets
- identification of priority litter 'hot-spots'
- monitoring of maintenance standards
- staff training
- weather contingency planning.

The regional waste management groups are also well placed for liaison with Catchment Land Protection Boards.

A number of key activities fall outside the core capabilities of the regional waste management groups, but would be appropriate to the Waste Management Council - the metropolitan co-ordinating body of the regional groups. It would be appropriate for the Council - in consultation with municipalities - to develop:

- codes of practice for litter bin placement and servicing
- codes of practice for street cleaning
- standard contract clauses covering responsibility for clean-up of litter from garbage and recycling collection contracts.

**Further ideas on litter reduction are welcome.
Please forward any suggestions in writing to:**

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