The Victorian Litter Report 2009

Sustainability victoria

Victoria
The Place To Be

The Victorian Litter Report
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Contact Details
Nick Chrisant
Project Manager
Sustainability Victoria
(03) 8626 8700

The original CCAT methodology was designed in 2003 by Robert Curnow and Karen Spehr, Community Change Pty Ltd.

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Key findings

The Victorian Litter Report presents the outcomes of a comprehensive benchmarking exercise using the Clean Communities Assessment Tool (CCAT) to provide information on litter reduction program effectiveness in public place locations throughout Victoria. The CCAT provides a systematic approach to data collection and scoring of a range of litter behaviours and perceptions. It determines:

- A measure of **litter prevention in public places** based on ratings of location features that influence littering and bin use (expressed as CCAT scores) including features like bin maintenance and servicing levels, infrastructure and landscaping.
- A **littering behaviour rate** expressing littering behaviours as a proportion of overall disposal actions (positive and negative).
- Clean areas and **litter hot spots** based on the amount of litter on the ground.
- A measure of **community satisfaction** with litter management in public places.

The CCAT assesses a number of component factors and sub-factors contributing to the litter prevention score as a means to track improvements in the features of public places that will, over time, contribute to reductions in littering. The components are:

- CONTEXT (community identity and involvement)
- FACILITIES (summarises results for bins and furniture)
- PERCEPTIONS (summary of community views).

The 2009 report compares outcomes to the 2007 and 2005 benchmarks and to the 2003 baseline results.

The key findings from the 2009 assessment of public place littering are outlined below.

1 Towards litter prevention

- **Litter prevention in public places has improved since 2007 and the notional[1] *Towards Zero Waste (TZW)* target was exceeded in 2009.**
    - A CCAT summary score of 75/100 was measured for the state of Victoria indicating an improvement in litter prevention performance in public places compared to the 2007 level of 69/100. The notional TZW target for 2009 was 73/100.
    - This positive result is potentially an indicator that the foundations for long term attitude and behaviour change with respect to littering are improving as a result of a continued and coordinated focus on litter prevention in Victoria.

- **A key component in the overall increase in the litter prevention score (CCAT summary score) is a large increase in the FACILITIES[2] component score.**
    - A CCAT summary score of 78/100 was measured in the FACILITIES component factor and this comes after an overall decrease (displayed in both urban and regional areas) in the FACILITIES score between 2005 and 2007. Generally speaking the components that make up the FACILITIES score (*Infrastructure and BINfrastructure)* indicate better maintenance, presentation and cleanliness of street furniture and landscaping and reflects local improvements in bin design, positioning and servicing.
    - The 2009 improvements may be due in part to state wide public place recycling program grants; increased funding for 'Do the Right Thing' signage; and infrastructure and bin infrastructure training for local government during 2007 and 2008 from the Packaging Stewardship Forum

[1] Notional TZW targets represent an incremental annual improvement in the derived CCAT scores compared to the baseline established in 2003 to achieve a 25% improvement by 2014.
[2] Refer to Appendix A - Methodology, Table 6 CCAT Rating guide for a detailed description of the components that make up the CCAT score.

- **Community attitudes and views measured through the PERCEPTIONS component factor have changed only marginally with incremental changes since 2003.**

    - Interestingly, responses from the community (represented in interviews conducted for *Adequacy of Facilities)* do not reflect the large increase measured for the FACILITIES factor, i.e. better bin design, positioning and servicing as well as better maintenance and cleanliness of street furniture and landscaping.

    - This anomaly between community perceptions and actual improvements measured may be related to:
        1. a lack of communication and awareness of improvements which means the community is not noticing the changes over time and / or
        2. an increase in expectations of facilities due to greater community identification with and use of the public places (note there is an increase in the CONTEXT score measuring community identity and involvement).

2 Towards behaviour change

- **The 2009 Victorian littering behaviour rate of 16% shows that most Victorians (84%) are disposing of waste appropriately in public places.**

    - The littering behaviour rate of 16% in 2009 is lower than the notional TZW target of 22% and represents an improvement on the 2007 rate of 31%. In 2007 and 2009 the same number of sites were assessed yet the total number of disposal observations (positive and negative) decreased considerably including a decrease in littering behaviours

    - The improvement in Infrastructure and BINfrastructure may have contributed to a decrease in littering behaviour.

- **CCAT summary scores are almost identical for urban and regional locations and there is a strong correlation between the component factors.**

    - A noteworthy difference is a variation in the CONTEXT scores with urban areas displaying a score of 75/100 against a regional score of 82/100 but this variation has existed since 2003 and probably represents a stronger sense of community identity and involvement in smaller regional communities.

- ***Site type***[3] **remains an important determinant of littering behaviour**.

    - Shops, parks and transport[4] site types showed large improvements with decreases in littering rates ranging from 21 to 26 percentage points.

    - The improvement in the transport score may be due to the smoking ban in undercover public transport waiting areas and installation of public place recycling around some train stations.

[3] Site types are: Beach, easement, event, landmark, mall, market, public place building, shops, smoking, transport, waterfront and waterfront precinct. Refer to Appendix B, Table 9 for a detailed explanation of the *site type* classification used for the VLR 2009.

[4] Transport site types refer to the outdoor transport sites such as bus and tram stops. Refer to Appendix B, Table 9 Site Type Definitions for a more detailed explanation.

3 Litter count

- **Litter on the ground was lower compared with 2007 levels for all but one site type exceeding the notional TZW target level.**

    - Litter counts levels throughout Victoria in 2009 averaged 32 items per location, well below the 2009 notional TZW target level of 43 items per location. In 2009, litter count levels decreased to below the 2005 level, although 2007 saw a rise in the number of littered items on the ground from 2005 (and from the baseline target in 2003).

    - All but one site type demonstrated a comparatively low level of litter on the ground compared with 2007 with the majority displaying large reductions. Event sites were the only areas that showed an increase from 22 points in 2007 to 53 in 2009 representing an increase since the baseline figure of 2003.

    - Events, transport sites and easements[5] were the most littered site types in 2009 and transport sites and easements have been the most littered site types every year of the VLR survey since 2003.

4 The litter stream

- **Litter counts showed cigarette litter to be the highest proportion of litter on the ground in both regional and urban locations followed by beverage items**.

    - This is a decrease of 7% in the overall proportion of cigarette litter[6] on the ground from the 2007 level and an increase in beverage litter items. Composition of beverage litter showed an increase in '*glass bits'* and a decrease in '*plastic bits / caps'* and '*metal caps*'.

    - The reduction in cigarette litter may be related to a combination of targeted litter prevention programs launched in response to the smoking ban in licensed venues in 2007 along with an increase in infrastructure and signage to encourage appropriate disposal of cigarette litter.

5 What people say about litter

- **Community satisfaction with litter management in public places has increased since 2007**

    - 51% of those interviewed in public places in 2009 indicated they were 'Very Satisfied' or 'Extremely Satisfied' with litter management in their local area

    - Community assessment of location features indicated that 45% of all respondents in Victoria reported cleaning to be 'very good' in the location in which they were interviewed. Community assessments for servicing and proximity of bins were even more favourable with 53% of all respondents reporting that bins were 'very well serviced' and were 'very close to where needed'.

[5] Easement site types refer to the public space or area immediately outside a railway station. Refer to Appendix B, Table 9 Site Type Definitions for a more detailed explanation.
[6] 99% of all cigarette litter is composed of cigarette butts.

Progressing towards our Towards Zero Waste littering target

Working together towards zero waste

Litter is an issue of community concern and an indicator of community attitudes and behaviours. Litter prevention is about shared responsibility, government, industry and community sectors working together to achieve a litter-free Victoria. This is the rationale for the Victorian Litter Action Alliance (VLAA) established in 2000 to coordinate the litter prevention efforts of organisations across the state. Sustainability Victoria is one of fourteen VLAA member organisations drawn from state and local government, industry and the community who develop integrated, research-based litter prevention approaches and deliver on the Victorian Government's litter improvement targets. Sustainability Victoria also hosts the VLAA Litter Champion appointed to achieve major improvements in the coordination and integration of best practice litter prevention across Victoria and to raise the profile of litter within the Victorian community.

The Victorian Government's *Sustainability in Action: Towards Zero Waste* (TZW) strategy is a ten year plan to:

- reduce the amount of waste generated in Victoria
- increase the sustainable recovery of materials for recycling and reprocessing
- reduce damage to our environment caused by waste disposal.

A key target of the strategy is to **improve littering behaviour by 25% by 2014** compared to 2003 levels. Progress towards this target is reported in the *Victorian Litter Report* (VLR)**.**

In 2009 the Victorian Government released an integrated litter strategy - *Creating Cleaner, Safer Places –Working Together to Remove Litter from Victoria's Environment* - to achieve the TZW target. This new strategy represents the next step in litter prevention and litter management and sets the directions to support Victoria to achieve its commitments. It targets shared places and particular littering activities and focuses on working together to remove litter from Victoria's environment. Implementation of the strategy will be supported by the Victorian Litter Action Plan.

Victorian Litter Report (VLR)

The 2009 *Victorian Litter Report* (VLR) provides detailed information on **litter levels** and **littering behaviours** in public places and will help to guide existing and future litter prevention initiatives by identifying particular litter types and litter hot spots that need attention. It is anticipated that implementation of the actions outlined in the new Victorian litter strategy, *Creating Cleaner, Safer Places* will enable necessary improvements towards litter prevention in public places.

Methodology

The VLR assessment process for 2009 was the same as for all previous VLR surveys following standardised Clean Communities Assessment Tool (CCAT) data collection procedures (described in detail in Appendix A). The CCAT provides a systematic approach to data collection and scoring of a range of litter behaviours and perceptions. The original CCAT methodology was designed in 2003 by Robert Curnow and Karen Spehr and the 2003, 2005 and 2007 VLR assessments were conducted by Community Change. In 2009 assessments were conducted by EC Sustainable[7] and the data analysed and reported by Sustainability Victoria.

[7] Whilst the CCAT methodology was employed in 2009 minor variations in approach compared with previous years are possible.

The Clean Communities Assessment Tool determines:

- A **littering behaviour rate** expressing littering behaviours as a proportion of overall disposal actions (positive and negative).
- A measure of **litter prevention in public places** based on ratings of location features that influence littering and bin use (expressed as CCAT scores) including features like bin maintenance and servicing levels, infrastructure and landscaping.
- Clean areas and **litter hot spots** based on the amount of litter on the ground.
- A measure of **community satisfaction** with litter management in public places.

The *Victorian Litter Report* research was conducted from September to early December 2009. Assessments were conducted throughout 215 public place locations divided into 13 site types such as beaches, public building and transport sites. Assessments generated 406 observations of 'disposal actions' (what people actually do with unwanted items) and 283 'interviews' (people approached informally at sites who agreed to respond to set interview questions).

A more detailed description of CCAT site types, sample selection procedures is contained in Appendix B and the CCAT summary score for each location is shown in Appendix C.

Towards litter prevention

Littering behaviour and the local environs

Littering behaviour can be influenced by multiple factors, including the characteristics of the place where the littering occurs. Public places that are well maintained, safe and offer appropriate infrastructure for litter disposal encourage a sense of ownership and care. In contrast, public places that are poorly maintained often attract not only litter but graffiti and displays of anti-social behaviour that make them appear unsafe.

Components of litter prevention

The CCAT assesses a number of component factors and sub-factors contributing to the litter prevention score as a means to track improvements in the features of public places that will, over time, contribute to reductions in littering. The components are CONTEXT, FACILITIES and PERCEPTIONS and they are described, along with the sub-factors, in the table below and in more detail in Appendix A. Ratings for elements within each component are combined and converted into CCAT scores out of 100.

Table 1 Interpretation of High and Low Ratings CCAT Indicators

Component factor/ sub-factor	Description	High score	Low score
CCAT SUMMARY score	Features combined in a summary rating	Area likely to be extremely clean and resource recovery successful	Area is highly littered, with contamination of recyclables
CONTEXT	Community identity and involvement	Strong sense of pride, ownership over the space	Poor sense of ownership and area is not clean
FACILITIES	Summarises results for bins and furniture	Extremely well maintained, litter free facilities that are easily used and well positioned	Inadequate facilities, poorly maintained
Infrastructure	Condition and cleanliness of all furniture, streetscape and landscaping	Furniture is extremely well maintained, clean and appropriate	Poorly maintained and surrounded by litter
BINfrastructure	Features and cleanliness of all litter, recycling and butt bins	Bin design, position and maintenance is highly appropriate to area and usage patterns	Inadequate number, configuration, positioning or servicing of bins
PUBLIC PERCEPTIONS & ATTITUDES*	Summary of community views on area	Area is perceived as extremely well looked after and serviced	Area is seen as inadequately presented
Attitudes to Place	Views on the area and expected actions	Strong expectation exists for people to do the right thing with used items	No expectation to do the right thing
*Attitudes Towards Disposal Facilities***	Perceptions of appropriateness of bins and furniture	Facilities are viewed as highly appropriate and meeting needs of community	Community sees a need to improve facilities

* Abbreviated as PERCEPTIONS in the 2009 VLR
** Referred to as *Adequacy of Facilities* in the 2009 VLR

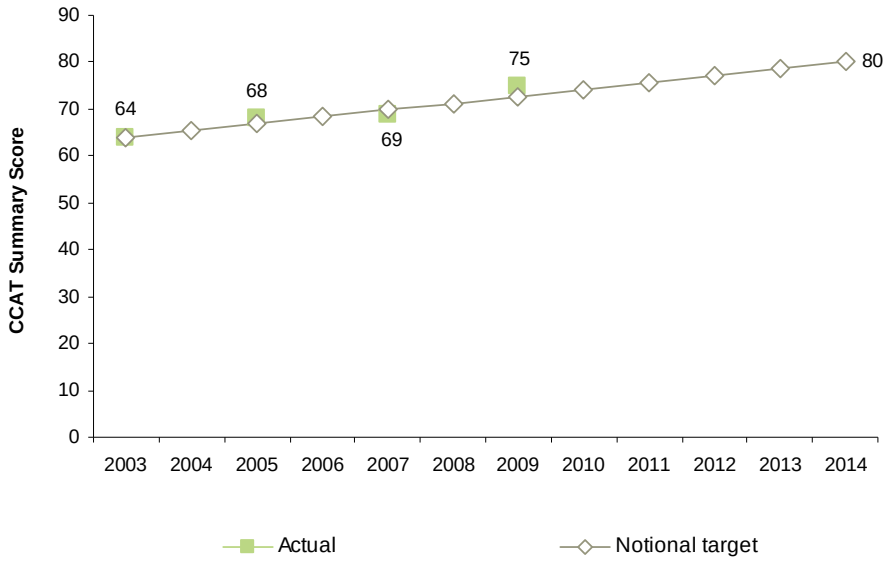
Litter prevention: *Statewide*

Local efforts at litter prevention were measured by rating the design, maintenance and other features of public places that are within the control of the owners or caretakers. These include bin maintenance and servicing, and other infrastructure and landscaping elements that influence littering, bin use and litter accumulation.

The CCAT methodology rates these features and converts them to a score out of 100. This is the primary outcome measure for tracking progress against the TZW target of improving littering behaviour by 25% by 2014 compared to 2003 levels. A higher CCAT summary score indicates that these elements are working well together, encouraging users to keep areas clean and facilitating community ownership and engagement. Lower CCAT scores indicate the need to improve those features likely to facilitate an improvement in littering behaviour such as repairing and cleaning damaged or poorly maintained bins and infrastructure, or adjusting maintenance routines and servicing schedules to reduce overflowing bins.

Figure 1 shows CCAT summary scores for all 215 locations assessed throughout Victoria, which were combined and arithmetically averaged to provide a summary score for litter prevention in public places at a statewide level and also shows performance relative to the TZW 'notional target[8]' for litter prevention. The CCAT Summary score for the state of Victoria in 2009 was found to be 75/100, two percentage points better than the notional TZW target of 73/100 (Figure 1).

Figure 1 VLR Litter Prevention Performance (CCAT summary scores) 2003 – 2009

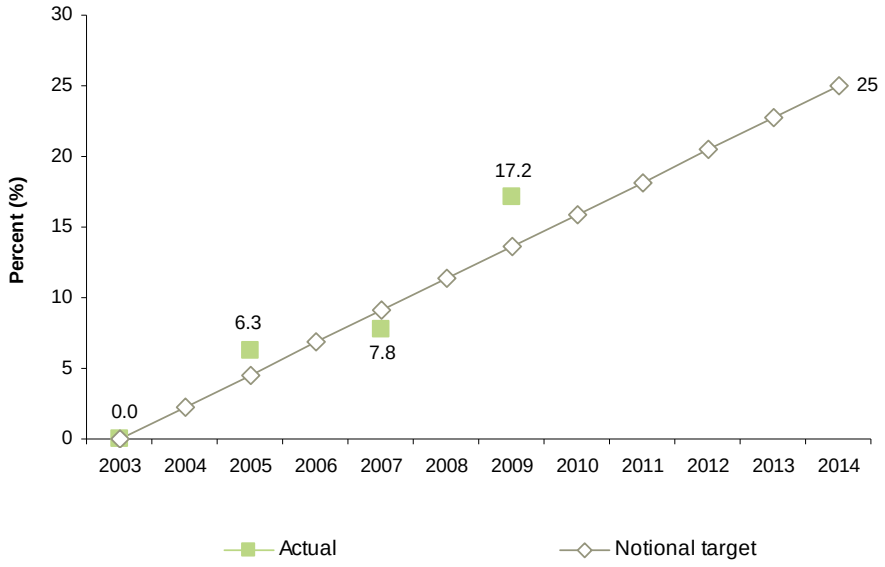


[8] Notional TZW targets represent an incremental annual improvement in the derived CCAT scores compared to the baseline established in 2003 to achieve a 25% improvement by 2014

While Figure 1 represents the annual CCAT summary score derived for each survey period compared against the notional targets required to meet the TZW target of improving littering behaviour by 25% by 2014 compared to 2003 levels. Figure 2 represents the percentage change of the CCAT summary score since 2003.

Figure 2 shows that the CCAT summary score has increased by 17.2% since 2003 and exceeds the notional TZW target of 13.6% by 3.6 percentage points.

Figure 2 VLR Litter Prevention Performance, Per cent change in the CCAT summary score 2003 – 2009



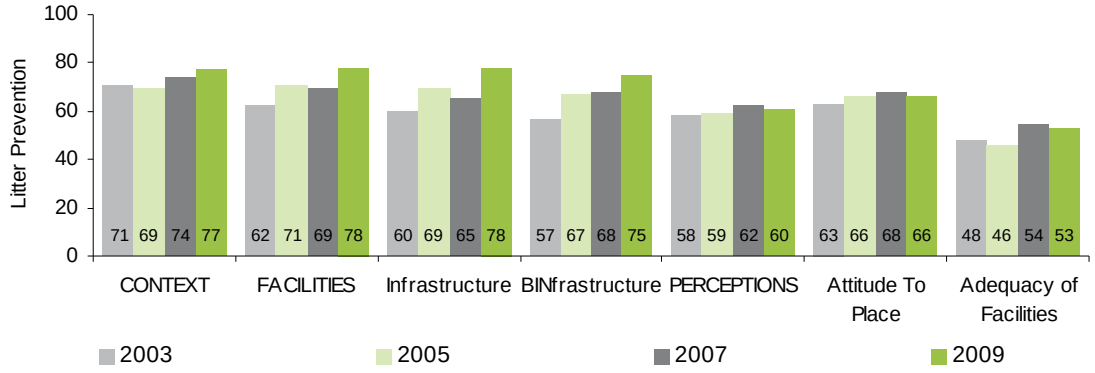
Observations

- A CCAT summary score of 75/100 was found for Victoria indicating an improvement in litter prevention performance in public places compared to the 2007 level of 69/100.
- The TZW notional target for 2009 was 73/100 - since the baseline target of 64/100 was set in 2003, it was exceeded by one point in 2005, not met (by one point) in 2007 and exceeded by 2 points in 2009.
- The 2009 CCAT summary score has increased by 17.2% since the base year of 2003 and exceeded the notional TZW target of 13.6% by 3.6 percentage points.
- This positive result may be an indicator that the foundations for long term attitude and behaviour change with respect to littering are consolidating as a result of a continued and coordinated focus on litter prevention in Victoria.

Components of litter prevention: *Statewide*

Figure 3[9] shows scores for each of the CCAT components that make up the CCAT summary score in 2009 and comparisons with 2003, 2005 and 2007 scores.

Figure 3 Statewide Litter Prevention (CCAT primary and sub-factor scores) 2003 – 2009



Observations

All three component factors, CONTEXT, FACILITIES and PERCEPTIONS, show improvement since the 2003 baseline which laid the foundations for measuring improved littering behaviour in Victoria. The largest long term improvement is evident in FACILITIES.

- An improved CONTEXT score indicates that in 2009, public places showed improvement in their general cleanliness, sense of community belonging and safety, and were reasonably free of graffiti and dumping.

- Increases in FACILITIES scores between 2007 and 2009 come after an overall decrease (displayed in both urban and regional areas) in the FACILITIES score between 2005 and 2007. The *Infrastructure* score increase indicates better maintenance, presentation and cleanliness of street furniture, landscaping and boundary markers. A *BINfrastructure* score increase reflects local improvements in bin design, positioning and servicing. The 2009 improvements may be due in part to statewide public place recycling program grants; increased funding for 'Do the Right Thing' signage and infrastructure and bin infrastructure training for local government and land managers from the Packaging Stewardship Forum.

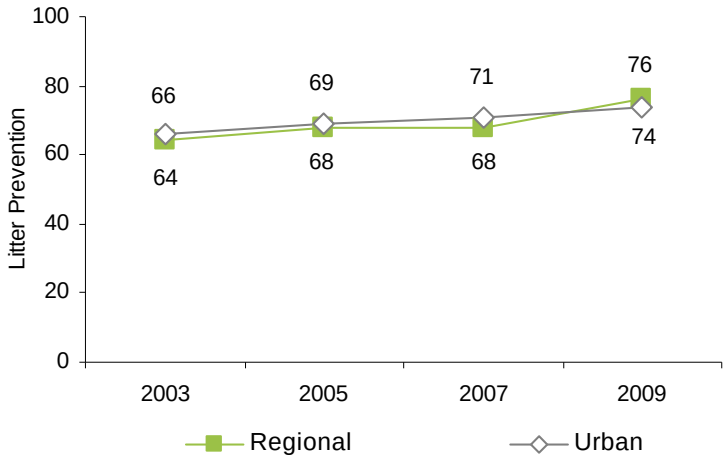
- Community attitudes and views measured through the PERCEPTIONS component factor have changed only marginally with incremental improvements since inception of the litter assessment in 2003 but a slight decrease in 2009. Interestingly responses from the community member interview sample represented in *Adequacy of Facilities* do not reflect the large score increase in the FACILITIES factor. This may be related to: (a.) a lack of communication and awareness of improvements which means the community is not noticing the changes over time and / or (b.) an increase in expectations of facilities due to greater community identification with and use of the public places (note there is an increase in the CONTEXT score measuring community identity and involvement).

[9] CCAT scores have been presented on a 100-point scale. Note that primary factors (in upper case) comprise the sub-factor scores shown in lower case but do not represent an average of the two sub factor scores. For example, the Perceptions and Attitudes score (PERCEPTIONS) comprises all ratings items for sub-factors *Attitude to Place* and *Attitude to Facilities* but does not represent a numerical average of the two sub-factor total scores.

Litter prevention: *Urban and regional*

Figure 4 shows 2009 CCAT summary scores for urban and regional locations assessed throughout Victoria.

Figure 4 Litter Prevention (CCAT summary scores) for Urban and Regional Locations, Victoria 2003 – 2009



In 2009, a CCAT summary score of 74/100 was recorded for urban locations and a score of 76/100 for regional locations. A notional target for urban locations was 75/100, with regional locations exceeding a notional target of 73/100. A possible explanation for this could be due the differences in the demographic profile of the age groups selected in urban areas compared to regional areas (see Figure 23). There seemed to be an overrepresentation of respondents aged 55 and above in regional areas compared to urban areas where more respondents were aged between 18 to 25.

Components of litter prevention: *Urban and regional locations*

Figures 5 and 6 show CCAT component scores for urban and regional locations in Victoria from 2003 to 2009.

Figure 5 Litter Prevention Urban Locations (CCAT primary and sub-factor scores) 2003 – 2009

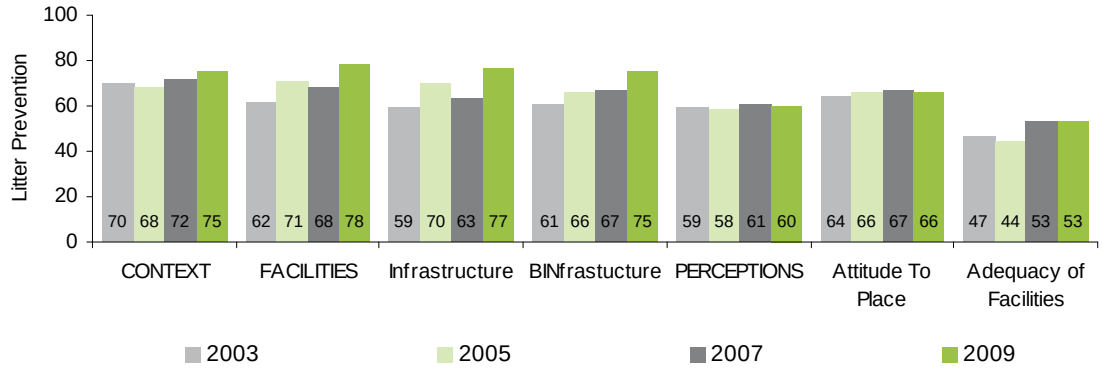
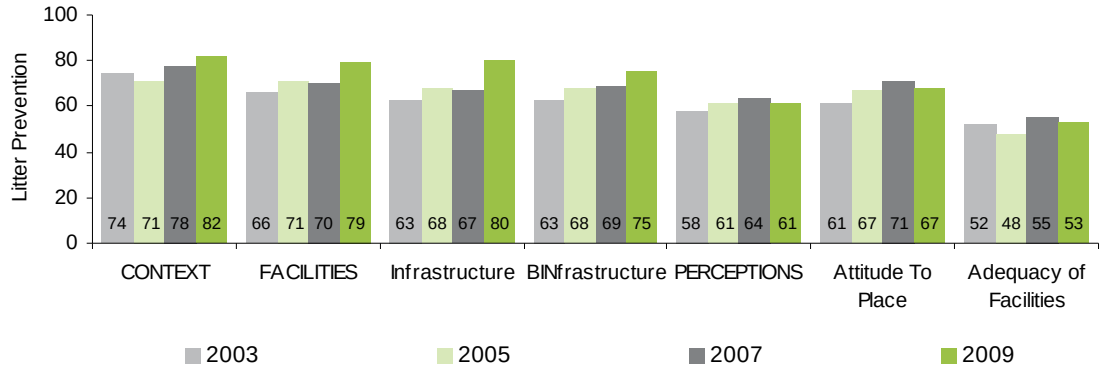


Figure 6 Litter Prevention Regional Locations (CCAT primary and sub-factor scores) 2003 – 2009



Observations

- Urban and regional Litter Prevention scores are almost identical in 2009 and there is also a high degree of correlation between the component factors. Both display a large increase in the FACILITIES component since 2007 with rises in both the *Infrastructure* and *BINfrastructure* sub-factors. *Infrastructure* has a higher score in regional areas but both urban and regional areas displayed an increase (14 and 13 points respectively from 2007). Urban areas show a larger increase for *BINfrastructure* with an 8 point rise from 2007 figures compared to the regional *BINfrastructure* increase of 6 points.

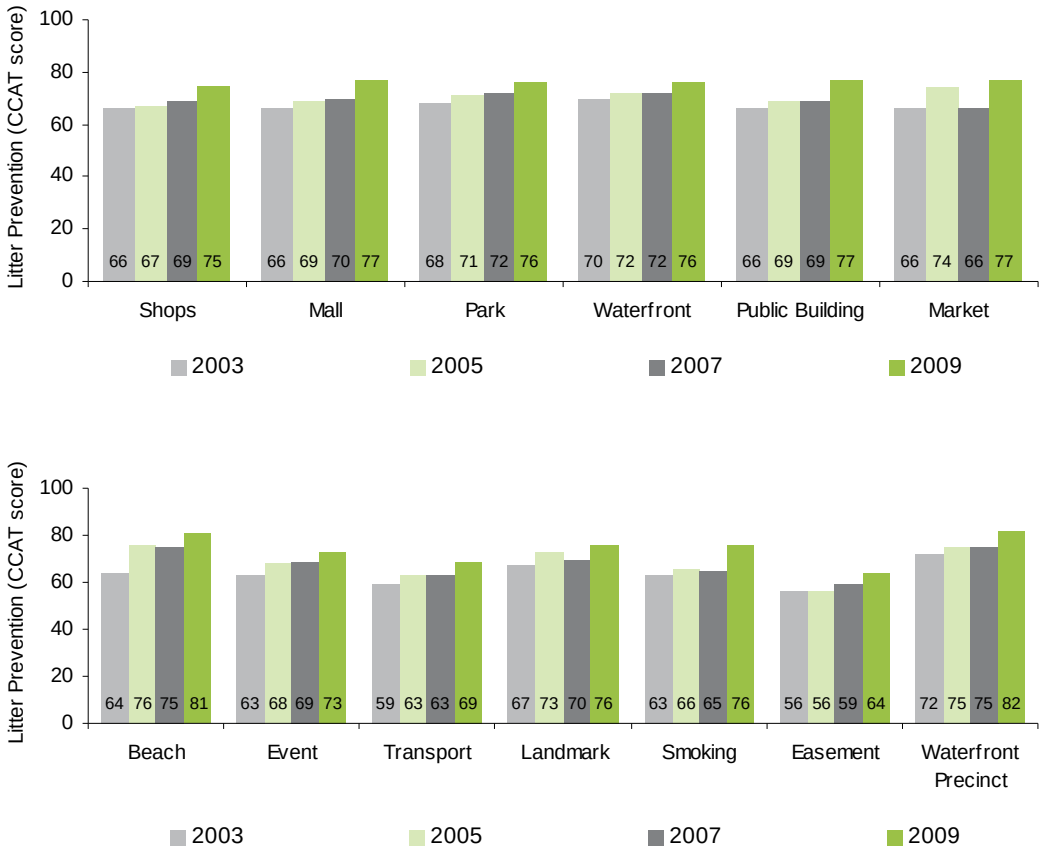
- A noteworthy difference is a variation in the CONTEXT scores with urban areas displaying a score of 75/100 against a regional score of 82/100 but this variation has existed since 2003 and may represent a stronger sense of community identity and involvement in smaller regional communities.

- There was a decrease in the PERCEPTIONS score for regional areas, and this is concentrated in the *Attitude to Place* sub-factor. As highlighted in the statewide observations (Figure 3), this appears to be at odds with the increased FACILITIES scores but may reflect an increase in *expectations* of facilities due to greater community identification with and use of the public places.

Litter prevention: *Site types*

Figure 7 shows CCAT summary scores for litter prevention in different site types throughout Victoria.

Figure 7 CCAT Summary Score for Site Types 2003 – 2009



Observations

- Improvements can be seen across all site types ranging from 4 to 11 points since 2007. There was very little variation between scores between 2005 and 2007 (generally only 1 to 2 points) apart from a decrease of 8 points in market sites taking it back to the 2003 baseline score.

- The highest 2009 CCAT summary scores were for waterfront precincts (82) and beaches (81). These two site types were also highest in 2007 but scores have increased by 7 points for waterfront precincts and 6 points for beaches since then. Easements, transport sites and events were all below the state CCAT average score of 75.

- The areas that recorded the highest (11 point) increases were markets and smoking[10] sites. Markets declined by 8 points between 2005 and 2007 so the 2009 score restores and adds to the previously higher 2005 level. Smoking sites were identified in 2007 as having one of the lowest scores, but this jumped by 11 points in 2009 suggesting that cigarette litter prevention behaviour change campaigns have been effective and/or better infrastructure for butt disposal has been both implemented and are being utilised. During the survey period there were targeted butt litter prevention programs throughout Victoria which may have contributed to the observed increase.

- The lowest 2009 CCAT summary scores were for high people traffic areas, easements (64) and transport areas (69). Again this is consistent with 2007 but both scores have increased.

[10] Smoking site types refer to areas outside a building where cigarette smoking is prevalent. Refer to Appendix B, Table 9 Site Type Definitions for a more detailed explanation.

Components of litter prevention: *Site types*

Table 2 shows the CCAT summary scores for each CCAT component and sub-factors for the different site types.

Table 2 Site Type by CCAT Summary and Component Factor Scores 2009

Site type	CCAT summary score	CONTEXT	FACILITIES	*Infrastructure*	*BINfrastructure*	PERCEPTIONS	*Attitude to Place*	*Adequacy of Facilities*
Shops	75	77	79	75	80	63	67	57
Mall	77	78	81	79	81	62	67	54
Park	76	78	80	80	78	61	67	54
Waterfront	76	79	77	79	71	65	68	62
Public Building	77	83	79	85	67	62	71	50
Market	77	76	79	75	81	64	68	59
Beach	81	89	84	87	83	67	77	55
Event	73	80	75	75	75	60	70	47
Transport	69	67	75	68	78	54	62	44
Landmark	76	81	80	84	71	58	63	52
Smoking	76	73	81	79	82	58	62	53
Easement	64	67	65	63	54	54	61	46
Waterfront Precinct	82	86	86	86	86	63	67	56

Observations

- The two site types demonstrating the highest CCAT summary scores – waterfront precincts and beaches - showed considerably higher than average scores for CONTEXT and FACILITIES (both *Infrastructure* and *BINfrastructure*).
- The *Attitude to Place* scores were consistently higher than the *Adequacy of Facilities* scores for each site type. For example beaches attracted the highest *Attitude to Place* score of 77 but the *Adequacy of Facilities* is only 55. As previously noted, this perception of the adequacy of facilities is at odds with the FACILITIES scores (both *Infrastructure and BINfrastructure*) which have increased since 2007 and contributed to improvements in CCAT summary scores for every site type.

Towards behaviour change

Observation of 'disposal actions' - that is data gained through direct observation of what people do with unwanted items is the most effective indicator of community littering and bin use. This offers hard evidence, avoiding reliance on self-reported measures and the mismatch between what people *say they do* and what they *actually do*.

Given adequate sample sizes, indicators of littering (and bin use) can be calculated and expressed as a percentage, representing littering behaviours as a proportion of overall disposals (positive and negative). This is called the **community littering behaviour rate**. A higher rate indicates more people are littering rather than using bins.

The aim of litter prevention is to change behaviour. A comparison between the community littering behaviour rate and the notional TZW target of 25% improvement by 2014 is one way to find out how community littering behaviour is tracking.

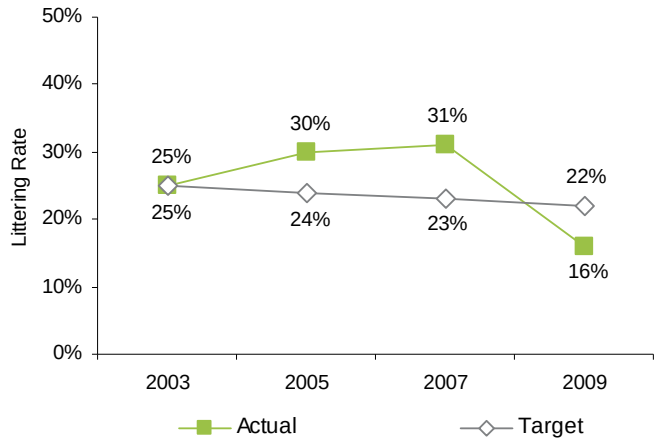
Littering Behaviours in Victoria

In 2009, 406 observations of disposal actions recorded in 215 locations throughout Victoria showed 16% of people to have littered and 84% to have disposed of used items appropriately by using bins, as shown below in Table 3 and Figure 8.

Table 3 Comparisons of Littering in Victoria 2003 – 2009

	Number		Behaviour Rate	
Year	Locations	Observations	Bin Use	Littering
2003	263	685	75%	25%
2005	247	858	70%	30%
2007	215	1,692	69%	31%
2009	215	406	84%	16%

Figure 8 Statewide Littering Rate, 2003 – 2009



Observations

- In 2009, most Victorians (84%) disposed of waste appropriately in public places representing an increase of 15 percentage points on the previous survey period (Table 3).
- In 2009, the rate of observed littering behaviour was 16% representing a decrease of 15 percentage points on the 2007 level (Figure 8).
- Littering behaviour levels throughout Victoria in 2009 were lower than the notional TZW target. This contrasts with the previous two reporting years where the littering rate was higher than the TZW target (by 6 percentage points in 2005 and 8 percentage points in 2007).
- In 2007 and 2009 all but 5 of the same sites were assessed yet the total number of observations (positive and negative) decreased considerably in 2009 from 2007 including a decrease in littering behaviours. A connection could be made between an improvement in Infrastructure and BINfrastructure and a decrease in littering behaviour.

Urban and regional littering

In 2009, the disposal observation sample sizes in urban and regional areas were 81 and 325 respectively. Figure 9 summarises outcomes for littering behaviour in regional and urban locations since 2003.

Figure 9 Urban and Regional Littering Rates 2003 – 2009

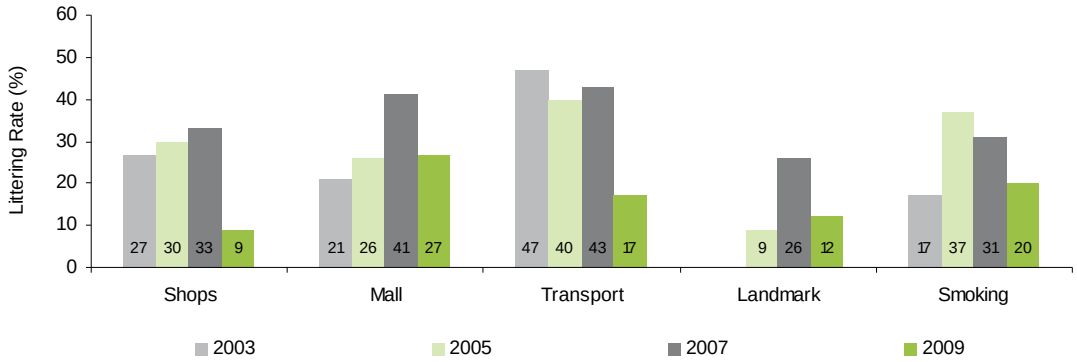
In 2009 the urban littering rate was at 16% (a decrease of 16 percentage points compared to 2007) and the regional littering rate was also at 16% (a decrease of 11 points from 2007). This is the first time that the littering rate has been the same for both urban and regional areas.

Littering and site types

Littering behaviour and bin use were also examined according to site type, as summarised in Figure 10.

Beaches, easements and waterfront precinct site types had insufficient numbers of behavioural observations in 2003, 2005 and 2009 and are not shown in Figure 10. Where the total number of observations at a site type is less than 30 observations the data has not been used to report on the littering rate due to the small sample size. Beaches, easements, waterfront precincts, events, market, public building, and waterfronts are not shown for the 2009 data presented in Figure 10 due to low behavioural observations. See Appendix B for details of site types.

Figure 10 Littering Rates in Site Types 2003 – 2009



Observations

Littering rates varied between site types and there were a number changes from the 2007 rates. The following changes are evident in 2009:

- Shops, and transport areas showed large decreases in littering rates, a positive outcome with decreases ranging from 24 to 26 percentage points.
- The large 26 point decrease in the littering rate for transport areas may be due to the smoking ban in undercover public transport waiting areas and the installation of public place recycling at some train stations.

Site type differences in 2009 littering behaviour were also examined according to whether they were in an urban or regional area. Unfortunately, the number of behavioural observations was insufficient to undertake the analysis at this level for waterfront, public building, market and event site types.

Litter counts

Litter counts measure the number of littered items in public places in Victoria. Using a standardised approach, the amount of litter present in each location is assessed over a 48m^2 area including ideally, a bin and furniture or other infrastructure. In 2007 and 2009 the litter count methodology was refined to enable improved comparison of the factors over which councils can have direct influence in litter prevention policies and to provide meaningful comparison to earlier benchmarks. Refinements included: (1) removal of poo and chewing gum; (2) 'other' now includes hazardous litter such as syringes, medical litter such as bandaids, and commercial litter such as trolleys. Data from 2003 and 2005 were adjusted to reflect these changes.

Litter counts are a useful indicator but not a reliable outcome measure as they can be influenced by a range of factors including the number of people in public places at given times the number of people littering and levels of maintenance and clean up schedules. It is important to note that litter counts can vary due to the adequacy of litter containment, timing of the litter counts (in particular in relation to clean up schedules) and weather conditions such as wind and rain.

Effective litter prevention is associated with reductions in litter items found on the ground. While litter counts help to build the picture of litter accumulation in public places, the littering behaviour rate is considered an accurate outcome measure of success in efforts at prevention. Litter counts in the VLR are compared to notional targets representing the level of expected change using the TZW 'equivalent' of 25% improvement by 2014[11].

Litter levels: *Statewide*

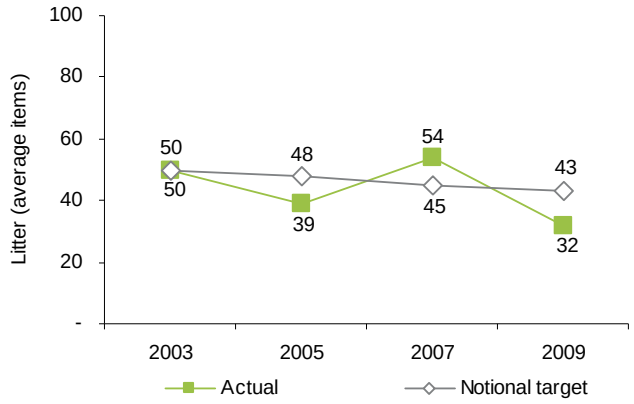
Table 4 and Figure 11 show the number of littered items found in locations throughout Victoria in 2003, 2005, 2007 and 2009. Notional litter count reduction targets for 2009 have also been included.

Table 4 Statewide Litter Counts 2003 – 2009

	Number		
Year	Locations	Items Total	Items Average
2003	209	10,408	50
2005	247	9,535	39
2007	215	11,496	54
2009	215	6,835	32
Notional 2009 Target	n.a.	8,989	43

[11] Notional TZW targets represent an annual incremental improvement compared to the baseline established in 2003 (i.e. a 25% decrease in litter counts)

Figure 11 Statewide Average Litter Counts 2003 – 2009



Observations

- Litter count levels throughout Victoria in 2009 averaged 32 items per location, well below the 2009 notional TZW target levels by an average of 11 items per location.
- Whilst 2007 saw a rise in the number of littered items on the ground from 2005 (and from the baseline target in 2003) in 2009 litter count levels decreased well below the 2007 level by 22 items per location.

Litter levels: *Urban and regional*

Figures 12 and 13 summarise the average litter count outcomes for regional and urban locations from 2003 to 2009. The 2009 notional target for urban litter was 47 items and 36 items for regional litter.

Figure 12 Urban Average Litter Counts 2003 – 2009

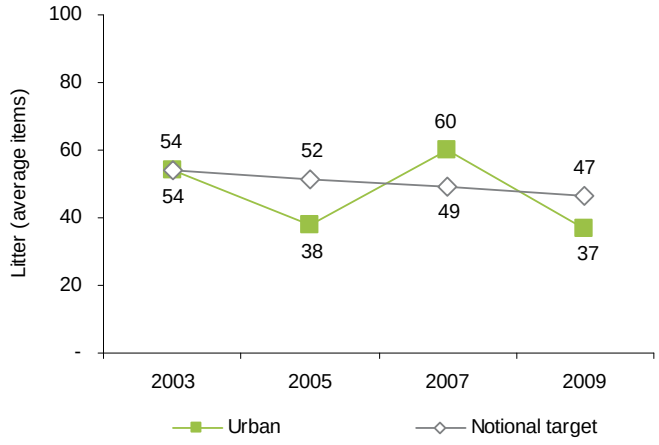
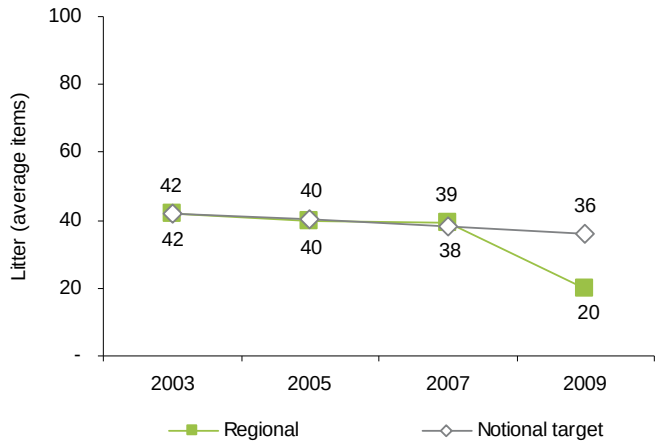


Figure 13 Regional Average Litter Counts 2003 – 2009



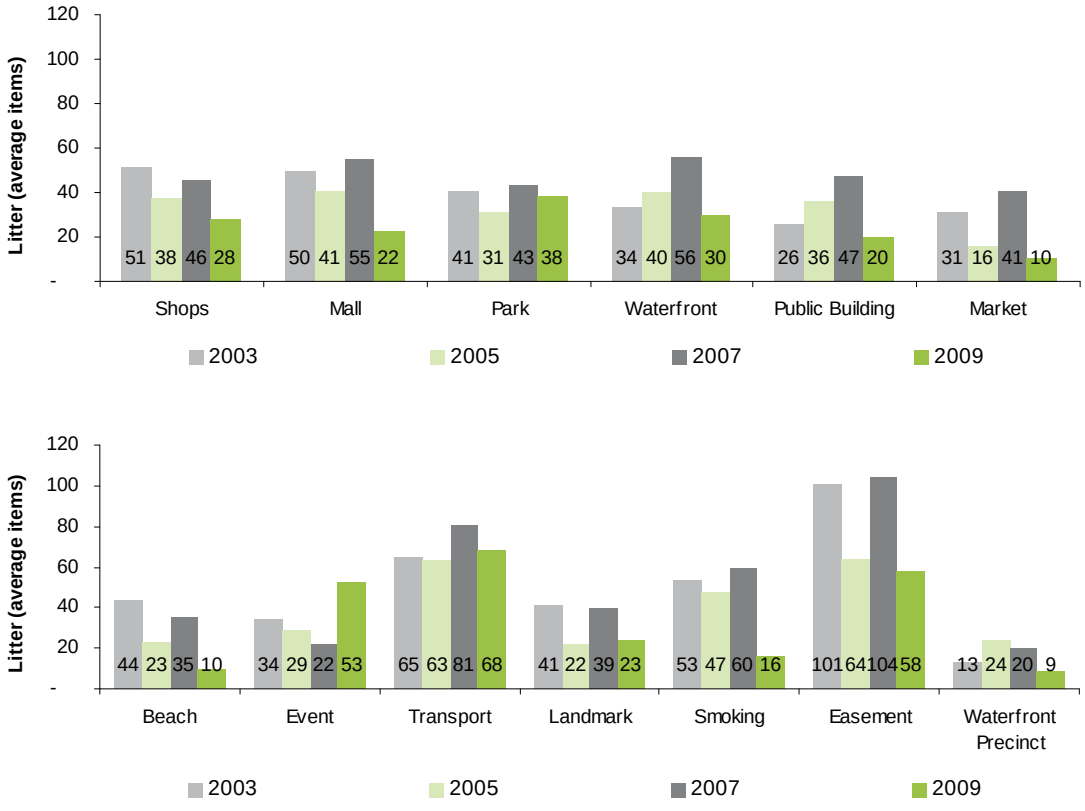
Observations

- Since 2003 the average number of littered items on the ground has generally been higher for urban than for regional areas. In 2009 this remains the same with an average of 37 items for urban locations and 20 items for regional locations.
- The average numbers of littered items for both urban and regional sites were below the notional targets of 47 items for urban areas and 36 items for regional areas.

Site types and litter

Litter counts were also examined according to site type, as summarised in Figure 14.

Figure 14 Average Litter Counts in Site Types 2003 – 2009



Observations

- All but one site type demonstrated a comparatively low level of litter on the ground compared with 2007 with the majority displaying large reductions. Event sites was the only area that showed an increase from 22 points in 2007 to 53 in 2009 representing an increase since the baseline figure of 2003.

- Apart from events and transport areas 2009 figures for all sites show a decrease in litter on the ground since the baseline counts in 2003. Parks, waterfront sites, public buildings and waterfront precincts recorded smaller decreased between 3 to 6 points since 2003. It should be noted that waterfront precincts started with a low baseline count.

- Apart from events and waterfront precincts, all site types showed an increase in litter in 2007 from 2005 litter counts. For a number of sites the decreases in 2009 took litter averages closer to but still lower than 2005 levels - shops (28), malls (22), waterfront areas (30), public buildings (20), markets (10), beaches (10) and easements (58) were lower than 2005 levels by between 6 and 19 points. In contrast waterfront precincts show a progressive decline in litter between 2005 and 2009. Litter in smoking areas showed a large decrease of 31 points from the 2005 level and 44 points from the 2007 level which may be due in part to success of butt litter programs and /or improved *BINfrastructure* at these sites.

- Events, transport sites and easements were the most littered site types in 2009. Transport sites and easements have been the most littered site types every year of the VLR since 2003.

- Shop site types showed a large improvement in litter on the ground (Figure 13) but also displayed a large improvement in littering behaviour (Figure 10). This improvement could be due to increased government funding for public place recycling initiatives.

The litter stream

During litter counts, individual litter items found on the ground are identified and tallied for each litter item type and used to measure their relative contribution to the litter stream. The higher the contribution of the litter item type to the litter stream, the more likely it is to be targeted as an area for focussed litter reduction efforts. For example, cigarette butt litter has long been the major item group contributing to litter counts in public places and in recent years has received particular attention in targeted programs. A full list of items assigned to each litter item type is shown in Appendix D.

Litter composition: *Statewide*

Figures 15, 16, 17 and 18 illustrate the composition of littered items found in locations throughout Victoria in 2003, 2005, 2007 and 2009 respectively. With dog poo and chewing gum excluded from the data, cigarette litter[12] continues to be the most common item in litter count totals but in 2009 the percentage of cigarette litter has decreased compared to all previous years.

Figure 15 Littered Items 2003

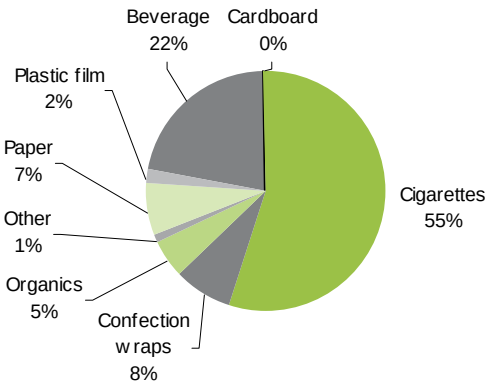


Figure 16 Littered Items 2005

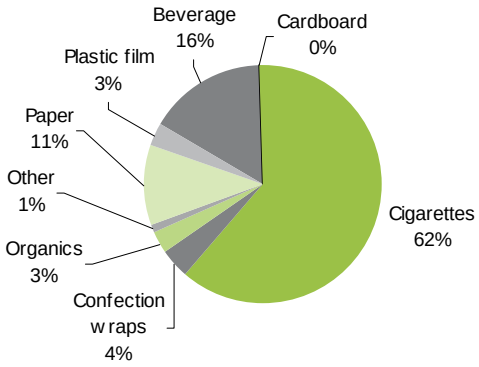


Figure 17 Littered Items 2007

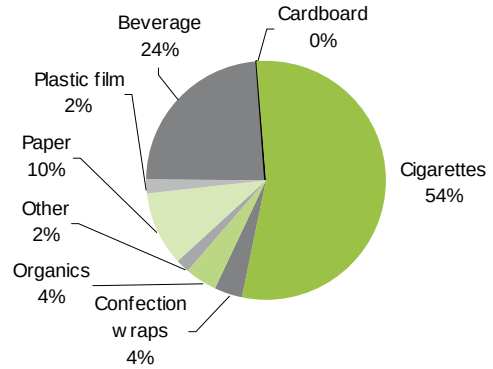
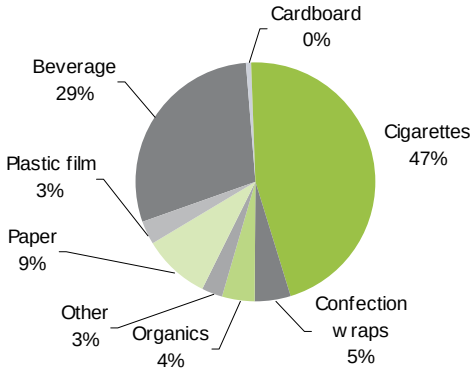


Figure 18 Littered Items 2009

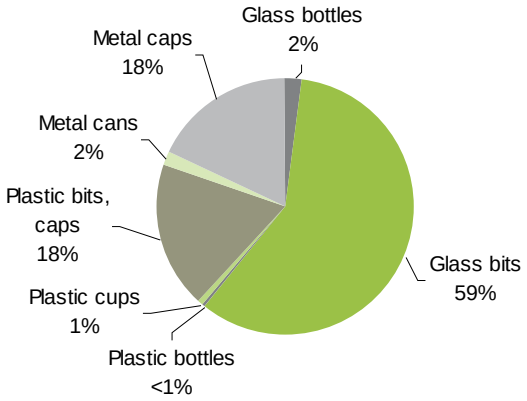


In 2009, the most common item evident in litter counts was cigarette litter (47%) followed by beverage litter (29%) and then paper (9%). A proportional decrease of 7% in cigarette litter from the 2007 level is apparent along with a corresponding increase in beverage litter items.

[12] 99% of all cigarette litter is composed of cigarette butts.

The composition of beverage items found littered in 2009 is summarised in Figure 19. It shows that over half (59%) of all beverage items found littered were broken pieces of glass and 36% of beverage litter items were '*plastic caps and bits'* (18%) and '*metal caps'* (18%).

Figure 19 Composition of Beverage Littered Items 2009



Observations

- There has been a relative consistency throughout all the VLR surveys in the composition of items found littered on the ground.
- The reduction in cigarette litter may be related to the smoking ban in licensed venues in 2007 along with an increase in infrastructure and signage to encourage appropriate disposal of cigarette litter.
- Beverage container litter increased by 5 percentage points from 2007 and 13 points from 2005 levels. This included an increase of 12 points in glass bits from 2007 and a decrease of 9 points in plastic bits / caps and 5 points in metal caps.

It should be noted that larger item types such as bottles and cans are more visible for clean up, whereas cigarette butts may be excluded from regular cleaning programs. This build up of old and new cigarette butt litter impacts on litter count item type totals, which highlights some of the aforementioned difficulties associated with using litter count methods.

Litter composition: *Urban and regional*

Figures 20 and 21 summarise the composition of litter on the ground for urban and regional locations in 2009.

Figure 20 Urban Littered Items 2009

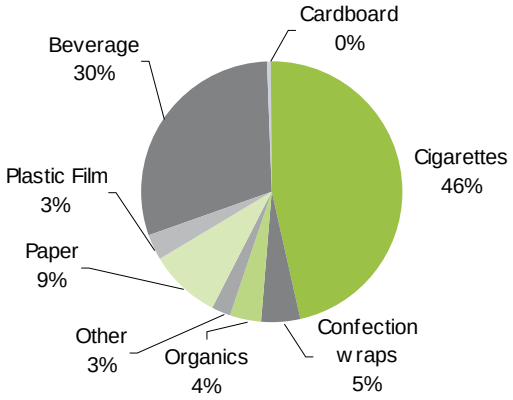
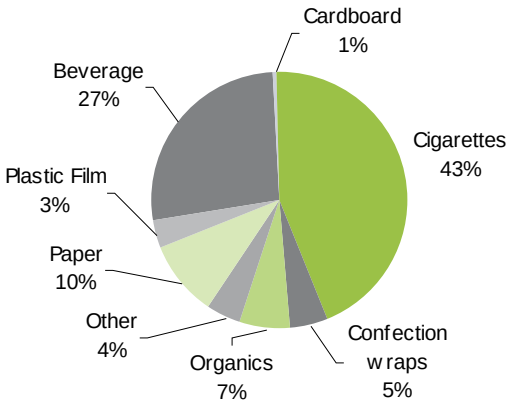


Figure 21 Regional Littered Items 2009

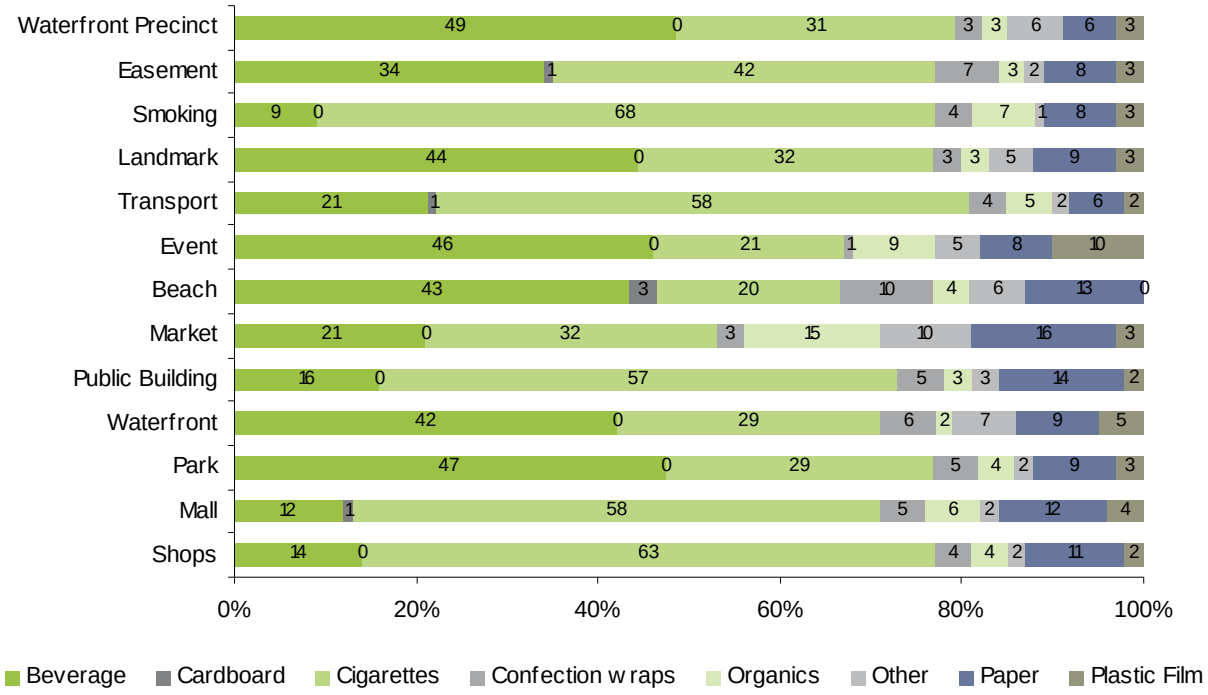


The three most common types of items littered on the ground were the same for urban and regional locations, with cigarette litter accounting for almost half of all items on the ground (46% for urban and 43% for regional), followed by beverage litter (30% for urban and 27% for regional) and paper (9% for urban and 10% for regional).

Site types and litter composition

Figure 22 summarises the composition of types of litter on the ground for site types throughout Victoria in 2009.

Figure 22 Composition of Littered Items in Site Types 2009



Observations

It should be emphasised that this information shows proportional amounts of litter types at each site. Littering rates and litter counts show that overall amounts of litter on the ground have decreased.

- As expected the highest proportion of littered items on the ground in smoking locations were cigarette items (68%) but this is a reduction from 86% in 2007. Beverage, paper and cardboard litter have increased proportionally in smoking locations but the overall amount of litter in smoking areas has decreased.

- A similarly high proportion of cigarette litter was evident at shops (at 63% this is proportionally the same as in 2007), malls (at 58% this is proportionally lower than in 2007 by 3 points), transport sites (at 58% this is a proportional increase of 10 points on 2007) and public buildings (at 57% this is a decrease of 12 points on 2007).

- Two site types had an above average (29%) proportionally amount of beverage litter and demonstrated a greater than 50% increase on the proportion in 2007 – waterfront precincts (49%) and events (46%). This is due in part to the significant decreases in cigarette butt litter for the two site types compared with 2007.

What people say about litter

Members of the public were consulted about their views on litter as part of the VLR survey conducted in all locations where people were present and where those approached agreed to be interviewed. The sample size was large enough to provide a valid indicator of community sentiments with 283 respondents participating in surveys throughout 215 locations.

Statewide, survey sample sizes were robust enough to enable reporting of demographic comparisons between urban and regional locations as shown in Table 5.

Demographic profile of survey respondents

Gender and age

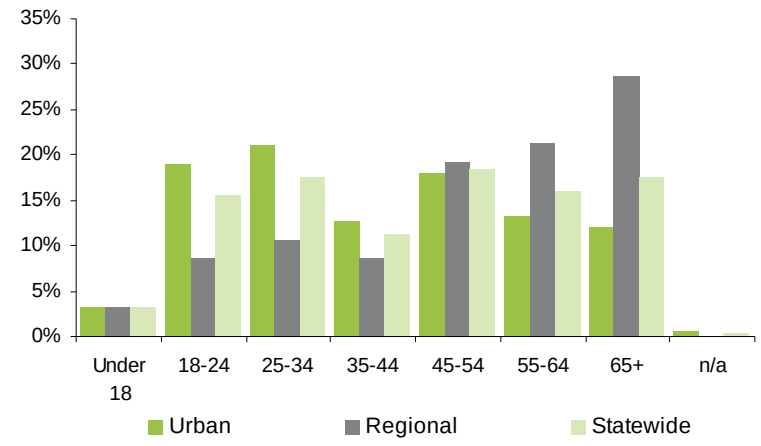
The gender of respondents participating in 2009 surveys is shown in Table 5 below.

Table 5 Gender Profile, Survey Participants 2009

Year	Men	Women	Total	Percent Female
2003	343	402	745	54%
2005	491	507	998	51%
2007	240	281	521	54%
2009	140	143	283	51%
Urban 2009	93	96	189	51%
Regional 2009	47	47	94	50%

The age group of respondents participating in the 2009 survey is illustrated in Figure 23 below.

Figure 23 Age Profile, Survey Participants 2009



In 2009 there was a good distribution of ages between 18 and 65 or older represented in the survey. Just over half (52%) of respondents were aged 45 or older. This is in contrast to previous years where the majority of respondents were aged less than 45 years. As per previous benchmarks, people willing to be interviewed in regional public place locations tended to be older (45 and older) than those in urban public places.

Education and employment

In 2009, the highest level of education achieved by respondents is shown in Figure 24, with employment categories included in Figure 25 below.

Figure 24 Education Profile, Survey Participants 2009

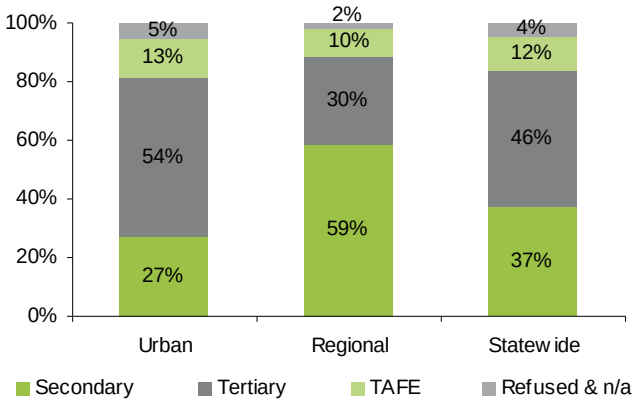
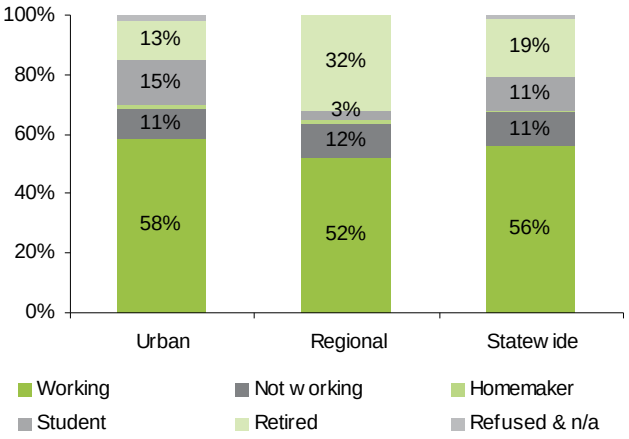


Figure 25 Employment Profile, Survey Participants 2009

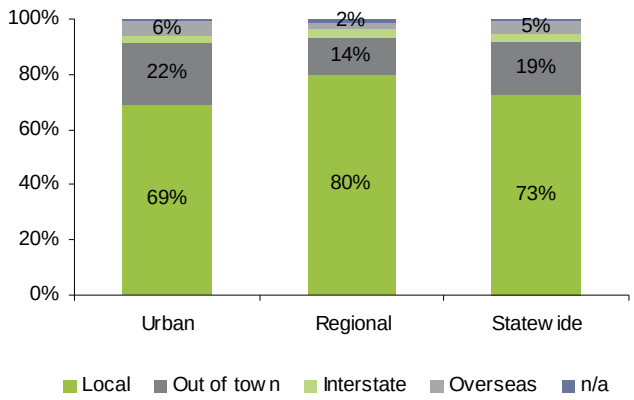


- The statewide education and employment profiles showed the typical respondent to have some form of tertiary education and to be in paid employment.
- As in 2007, urban survey respondents were more likely than regional respondents to have a tertiary education background.
- In contrast to 2007, the number of respondents working was similar in both urban and regional areas.

Place of residence

The place of residence of respondents participating in the 2009 survey is shown in Figure 26 below.

Figure 26 Place of Residence Profile, Survey Participants 2009



Similar to previous benchmarks, the large majority of those surveyed considered themselves local to the area where the interview was conducted (73%), followed by those from out of town (19%). Respondents in regional locations were more likely than those in urban areas to be locals, and less likely to be from out of town.

In summary, the VLR 2009 demographic profile indicated that most of those interviewed were local to the area, employed and with a tertiary education. The age profile of those selected was well represented between all age groups.

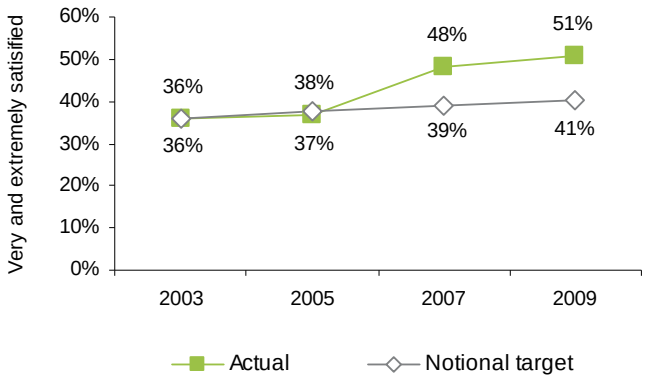
Community satisfaction with litter management

Community satisfaction with litter management is measured by interviews with users of public places who indicate their attitude towards the public place itself, the adequacy of bins and overall satisfaction with litter management in the location.

Level of satisfaction with litter management in an area provides a further indicator of the degree of community alignment with managers of public places. People who recognise and are satisfied with efforts to prevent litter and to keep a location clean are less likely to litter.

Overall community satisfaction with litter management in Victoria has been measured since 2003 as shown in Figure 27 which summarises the proportion of people ‘very satisfied’ or ‘extremely satisfied’ with litter management. Notional targets for 2009 community satisfaction with litter management compared to the 2003 baseline are also shown.

Figure 27 Community Satisfaction Related to Public Places and Litter 2003 – 2009

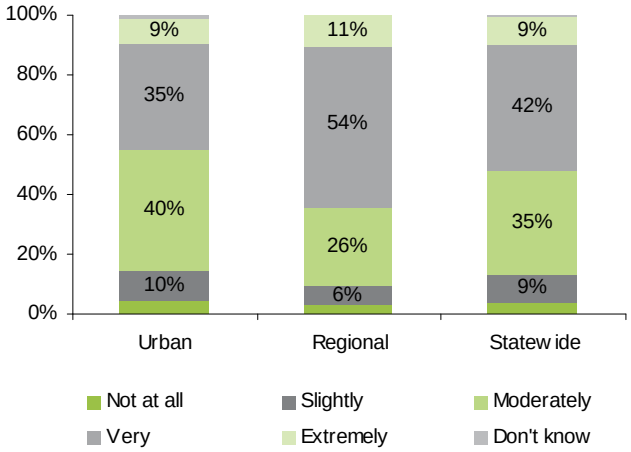


Observations

- Community satisfaction with litter management in public places has increased since 2007 with 51% of those interviewed in public places in 2009 indicating they were 'Very Satisfied' or 'Extremely Satisfied' with litter management in their local area.
- The 2009 community satisfaction level exceeds the notional target by 10 percentage points and has increased by 3 percentage points since 2007 indicating more people were satisfied with efforts at litter prevention in 2009.

Community surveys measured satisfaction with litter management at the particular public place where each respondent was surveyed. These responses are combined in Figure 28 to get a picture of how well the community perceives litter to be managed in Victoria as a whole and in urban and regional locations in particular.

Figure 28 Community Satisfaction with Location Litter Management 2009

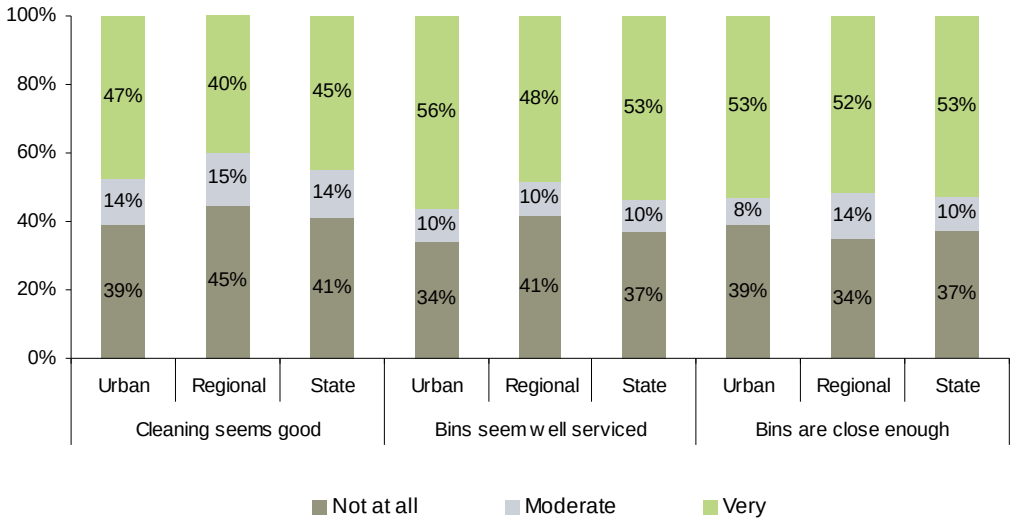


Statewide respondents are moderately satisfied (35%); very satisfied (42%) or extremely satisfied (9%) with litter management in their local area. Fewer people are 'very satisfied' or 'extremely satisfied' in urban areas (44%) than in regional areas (65%).

Community assessment of location features

Community surveys also investigated community assessments of location features, cleaning and BINfrastructure (servicing and position). Responses from statewide, urban and regional respondents are shown in Figure 29.

Figure 29 Community Assessments of Features of Disposal Facilities 2009



Observations

- 45% of all respondents in Victoria reported cleaning to be ‘very good’ in the location in which they were interviewed. Urban respondents were more likely than their regional counterparts to report cleaning to be ‘very good’. However, 39% of respondents in urban and 45% in regional locations commented that cleaning was ‘not at all’ good.
- Community assessments for servicing and proximity of bins were even more favourable with 53% of all respondents reporting that bins were ‘very well serviced’ and were ‘very close to where needed’. 37% reported that bins were ‘not well serviced’ and or ‘not at all close’ to where they were needed.
- Urban respondents (56%) were a little more likely than their regional counterparts (48%) to report that bins were ‘very well serviced’.

Appendix A: Methodology

Background

The original Clean Communities Assessment Tool (CCAT) methodology was designed in 2003 by Community Change social researchers, Robert Curnow and Karen Spehr. The CCAT provides a systematic assessment of littering behaviour, litter and key features of public places. In 2003, 2005, 2007 and 2009 Sustainability Victoria has used the CCAT to establish statewide benchmarks and assess progress towards TZW targets.

Tools used in the VLR

The Victorian Litter Report 2009 (VLR) contains the outcomes of this comprehensive benchmarking exercise based on the following CCAT measures:

1. **Littering behaviour rate** - the primary outcome measure for behaviour change progress towards TZW targets.

   Observations of disposal actions are the most effective indicator of community littering and bin use, avoiding reliance on self-report measures that are often influenced by social desirability and where there is a frequent mismatch between what people *say they do* with what they *actually do.*

   People's littering behaviour can be influenced by numerous factors, including the characteristics of public place locations themselves. Public places that are clean, safe and user friendly promote participation of the community (and visitors) in efforts to care for and maintain the location, as well as engendering a sense of ownership and community pride. In contrast, public places that are dirty and poorly cared for attract not only litter, but are more likely to contain graffiti and other characteristics promoting the likelihood of anti-social behaviour and threatening community safety.

   The CCAT categorises disposal acts as 'positive' or 'negative' according to whether items have been effectively contained.
   - Negative acts include littering, dropping, throwing and leaving items on the ground; on top of full, overflowing or closed bins and brimming on bin edges. It also includes dog owners not cleaning up after dog poo and items being swept or kicked into the gutter.
   - Positive acts include bin use (an object disposed into a bin regardless of its recycling status); cigarette butts put into personal ashtrays (often used beverage containers); returning a shopping trolley to a collection bay; and cleaning up dog poo.

   When sample sizes are large enough to provide robust indicators of littering (and conversely bin use) a **littering behaviour rate** can be calculated and expressed as a percentage, representing littering behaviours as a proportion of overall disposals (positive and negative).

2. **Litter Counts.** The number of littered items present in a 48 square metre area of a location.

   Litter counts provide information about litter 'on the ground,' indicating clean areas, litter hot spots, effectiveness of litter containment and litter management practices (including clean up) by relevant authorities, as well as consistent assessment of the composition of materials littered (when sample sizes are large enough to provide robust indicators).

   Using the CCAT, litter counts can be used to provide a proxy or an indirect assessment of littering behaviour, particularly when behavioural information is not available or when the observation sample size is too small. However, caution is required when using litter counts to represent littering behaviour because the indirect measure is susceptible to variability not directly related to littering including the influences of cleaning routines, containment of litter, animal scavenging and weather conditions, and provides only limited information on actual community behaviour.

To reduce some of the variability associated with litter counts, a standardised approach to counting items is used in a 48 square metre zone that includes, ideally, a bin and furniture or other infrastructure. In the VLR 2007, reporting of litter count item totals and composition categories were adjusted and previous results recalculated to focus attention on those items where litter prevention efforts are likely to have a behavioural impact and ensure the most accurate comparison between reports.

3. **CCAT Factor Ratings.** Assessment of Victoria's progress in litter prevention is based on systematic assessment of the features of public place locations that influence littering, bin use, litter accumulation and litter management.

   Trained assessors rate the features of a location and conduct community surveys to provide information about attitudes toward litter, its prevention and perceptions about the location. Three primary CCAT factors ('Context', 'Facilities' and 'Community Attitudes and Perceptions') are comprised of the following sub-factors:

   1. **Context** (combines assessor ratings and community surveys)
      - Sense of community
      - Feeling of safety
      - Graffiti
      - Commercial and domestic dumping
      - Overall cleanliness of the location

   2. **Facilities** (using assessor ratings)
      Infrastructure (furniture, landscaping, open space, entrance, boundary markers)
      - Condition
      - Cleanliness including presence of old litter and new litter
      - Maintenance

      BINfrastructure (litter, recycling and butt bins)
      - Number
      - Presentation (design, consistency, signage, colour)
      - Position (prominence, proximity, configuration and placement)
      - Performance (ease of use, size of openings, containment of litter, ability to manage weather)
      - Cleanliness

   3. **Community Attitudes and Perceptions** (using community surveys)
      - Attitudes towards the place itself
      - Adequacy of disposal facilities

Each primary factor consists of assessor ratings of sub-factor based on a five-point scale with assessments ranging from 'very low', 'low, 'medium', 'high' to 'very high'. The higher the CCAT rating for a sub-factor, the cleaner it is likely to be and the greater the likelihood it will remain clean.

Using sub-factor ratings (from CCAT assessor ratings and community survey data) a score from 0-100 is calculated for each of the three primary factors – 'Context', 'Facilities' and 'Community Attitudes and Perceptions'. A CCAT summary score is also calculated to represent the location's overall litter prevention performance averaged over all three factors.

In summary, the VLR uses the CCAT methodology to provide a comprehensive method for benchmarking litter prevention performance at a location, local government, regional and state wide level. The report summarises information from a range of performance indicators for determining effective litter prevention programs:

1. Littering behaviour rate (littering actions as a proportion of both positive and negative disposals)
2. Litter counts (average number of items)
3. Type of items found in locations (composition percentage)
4. CCAT summary score indicating overall litter prevention performance (0-100)
5. CCAT primary factor scores identifying strengths and weaknesses of location features (0-100)
6. An indication of community satisfaction and support for litter prevention programs

VLR 2009 methodology

The Victorian Litter Report was conducted from September to early December 2009 and followed standardised CCAT data collection procedures used in previous years.

Sampling procedures followed the protocols established in the 2003 benchmark study and used a sample frame determined by Sustainability Victoria to represent urban population areas in the Melbourne Statistical District and major regional centres. As many locations as possible were reassessed to provide comparability with 2007 data. The VLR 2009 sample consisted of 215 locations.

A more detailed description of CCAT site types, sample selection procedures and summaries of CCAT outcomes for each location is contained in Appendix B.

Inter-rater Agreement

The level of agreement between two independent CCAT raters in a location is determined using an inter-rater reliability protocol which involves two raters assessing the same location at the same time with no discussion of ratings until after data has been entered into the database.

A total of 5 locations had inter-rater assessments completed by staff members operating in teams of two and comparisons were made by calculating the concordance rate. The concordance rating showed that in 67% of instances, the two raters agreed exactly on the rating. If adjacent values are included in the concordance rating, then in 100% of instances, raters agreed within one ranking difference on either side.

Interpreting CCAT Scores

Location features are rated on a scale from 1 to 5, the higher the score, the cleaner the feature being assessed. For analysis purposes, the ratings are converted to scores on a scale from 0 to 100 points. Table 6 provides a description of CCAT primary factors at the extreme high and low ends of the scale.

Table 6 CCAT Rating Guides

Key Indicator	Factor	High	Low
CCAT summary	Features combined in a summary rating	Area likely to be extremely clean and resource recovery successful	Area is highly littered, with contamination of recyclables
Context	Community identity and involvement	Strong sense of pride, ownership over the space	Poor sense of ownership & area is not clean
Facilities	Summarises results for bins and furniture	Extremely well maintained, litter free facilities that are easily used and well positioned	Inadequate facilities, poorly maintained
Infrastructure	Condition & cleanliness of all furniture, streetscape and landscaping	Furniture is extremely well maintained, clean and appropriate	Poorly maintained & surrounded by litter
BINfrastructure	Features and cleanliness of all litter, recycling and butt bins	Bin design, position and maintenance is highly appropriate to area and usage patterns	Inadequate number, configuration, positioning or servicing of bins
Public Perceptions & Attitudes	Summary of community views on area	Area is perceived as extremely well looked after and serviced	Area is seen as inadequately presented
Attitudes to Place	Views on the area and expected actions	Strong expectation exists for people to do the right thing with used items	No expectation to do the right thing
Attitudes Towards Disposal Facilities	Perceptions of appropriateness of bins and furniture	Facilities are viewed as highly appropriate and meeting needs of community	Community sees a need to improve facilities

Using the CCAT to enhance strategic planning processes

The CCAT provides a comprehensive and unique assessment of the key features of locations and site types influencing littering that enables councils to go beyond simply installing more bins to providing strategic guidance for systematic change and sustainable public places.

CCAT assessments can be used to:

1. Identify positive local achievements as well as problem areas.
2. Engage location managers and staff in discussions about changes to be made (rather than arguing about responsibilities and ascribing blame) through credible and constructive feedback based on local successes as well as problem areas, and provide a foundation for ongoing positive improvement.
3. Establish community competencies as well as deficits in relation to litter and littering.
4. Reliably assess, through the use of a proven benchmarking method, the progress of litter prevention and management strategies in fostering sustainable change.

Appendix B: Site types

Sustainability Victoria selected the VLR sample from the frame of all Local Government Authorities (LGAs). LGAs were then assigned to strata based on population groupings for urban and regional areas. One LGA was selected from each stratum for sampling. The Melbourne Statistical District (MSD) and Greater Geelong City Council were included as separate strata and included in the sample selected.

The selection of LGAs for the VLR was based predominately on precedents set in 2003 using geography and population.

Review of site classification and selection

Sustainability Victoria updated the site classification and sample selection system in 2005 to ensure that the sample of site types selected for assessment and monitoring were appropriate for representing public places in Victoria. Locations used in 2009 largely matched those in 2007 and 2005 to increase comparability of outcomes and build a clear picture of progress toward TZW targets.

Selection of sites to be assessed was made to reflect information requirements for particular site types and locations within regions. Some VLR site types were selected more often than others, for example shopping centres, due to their more frequent occurrence in the local government areas selected.

The random sample of VLR sites selected in an LGA was influenced by the availability of each site type within the chosen locations. For example, a beach site type might have been randomly selected to be assessed in Hume but there are no beaches in that LGA. Consequently the beach site type was replaced by the next available site type in Hume.

Definitions of site types, sample characteristics and the location of sites, are presented in the tables below.

Table 7 Site Type and Sample Size by LGA, 2009

Site types	Ballarat	Casey	Dandenong	Geelong	Hume	Manningham	Melbourne	Mt Alexander	Port Phillip	Yarra	Total
Beach	—	—	—	4	—	—	—	—	3	—	**7**
Easement	—	2	2	4	1	—	2	1	1	1	**14**
Event	—	—	—	1	—	—	3	—	—	—	**4**
Landmark	1	—	—	4	1	—	9	3	—	—	**18**
Mall	3	1	1	3	2	2	3	—	—	—	**15**
Market	—	—	1	1	—	—	3	—	1	—	**6**
Park	4	2	3	4	2	3	7	1	2	3	**31**
Public Building	1	4	2	5	2	2	2	1		2	**21**
Shops	5	4	4	5	3	2	6	3	3	3	**38**
Smoking	2	2	1	3	2	1	5	—	—	—	**16**
Transport	2	4	3	4	2	3	1	—	—	1	**20**
Waterfront	1	3	1	2	2	2	5	1	2	2	**21**
Waterfront Precinct	—	—	—	1	—	—	2	—	1		**4**
Total	**19**	**22**	**18**	**41**	**17**	**15**	**48**	**10**	**13**	**12**	**215**

Table 8 Site Type and Sample Size by Urban / Regional Classification

Site type	Urban	Regional	State
Beach	3	4	7
Easement	9	5	14
Event	3	1	4
Landmark	10	8	18
Mall	9	6	15
Market	5	1	6
Park	22	9	31
Public Building	14	7	21
Shops	25	13	38
Smoking	11	5	16
Transport	14	6	20
Waterfront	17	4	21
Waterfront Precinct	3	1	4
Total	**145**	**70**	**215**

Table 9 Site Type Definitions

Site type	Definition
Beach	The sandy area between the water and a boundary or border that clearly marks areas for recreation. This includes boardwalks and grassy areas adjoining the beach such as St. Kilda beach but excludes parks that are adjacent to the beach such as Brighton beach parkland (included in Parks).
Event	A special occasion often involving large crowds of people attending a venue for a significant activity involving leisure, recreation, or sport. eg, AFL and local VFL football, cricket, Grand Prix, Melbourne Cup, etc.
Landmark	A place (usually a building) characterised as having some significance in terms of the history or culture of the city, and by sightseeing or tourist activity although not designated as such. The Victorian Parliament building in Melbourne offers sightseeing to visitors but its main activity is government. This site type also includes Federation Square and Myer Music Bowl.
Mall	A pedestrian thoroughfare or sheltered promenade with merchandise and food vendors lining the walkway or street, often with limitations on vehicle access, eg, Bourke Street Mall.
Market	An open or covered space where merchandise and food stalls provide fresh produce and/or a range of goods to the public, which often include seating and eating areas, eg, Queen Victoria Market.
Park	Grassy site with shrubbery or garden beds, children's play equipment, seats and tables, often with barbecue facilities used for picnicking and recreation.
Public Building	An area around a building open to the public, which often includes places for people to sit and eat within walking distance of food vendors, eg, library, post office, council building, museum, court, cinema, hospital, etc.
Easement	The public space or area immediately outside or leading up to a ticketed area of a railway station which provides access to the public. An actual or implied fence line extending to a point of unauthorised entry is the limit of the easement.
Shops	Areas for selling goods or services, often with a vehicular thoroughfare down the middle of a street lined with merchandise and food vendors with wide footpaths and places for people to sit, eg, Chapel Street, Lygon Street, Elizabeth Street, etc. Restaurants and cafes are included in this definition where they have outdoor seating for patrons.
Smoking Area	Places outside a building where cigarette smoking is prevalent. Smokers may be catered for (officially or unofficially) by the placement of permanent or temporary ashtrays.
Transport	Outdoor transport terminal or waiting and transit area with pedestrian traffic going to and from public transport stops, eg, all bus stops and tram stops are outdoor transport terminals.
Waterfront	Area next to a body of water, eg, river, lake or pond, often with seats or grassy areas used by the community for recreation and picnicking, eg, Lake Wendouree in Ballarat, Lake Weeroona in Bendigo, Albert Park lake in Melbourne, Yarra river bank Melbourne. Generally, no significant retail activity takes place in these areas.
Waterfront Precinct	Area next to a body of water with cafes and shops, catering for a mix of tourist and significant retail activity, eg, Southbank and the Docklands area in Melbourne.

Appendix C: Locations

The CCAT summary scores for each location audited for the 2009 VLR are presented in the table 10 in alphabetical order of LGA[13] by site type.

Table 10 Location by CCAT Summary Score, 2009

LGA	Site type	Location	Area	CCAT summary score
Ballarat	Landmark	Camp St Precinct		80
Ballarat	Mall	Bridge Mall	Near McDonalds	80
Ballarat	Mall	Bridge Mall	Sturt St End	82
Ballarat	Mall	Phoenix Mall	Eastern Side	79
Ballarat	Park	Botanic Gdns , Ballarat	Morey Gate	90
Ballarat	Park	DeSoza Pk		82
Ballarat	Park	Victoria Pk	Between Sturt & Oak Avenue	71
Ballarat	Park	Windmill Drive Precint	Adventure Playground	81
Ballarat	Public Building	Ballarat Miner Dome		81
Ballarat	Shops	Bunninyong Shops cnr Learmonth & Warrenheip		74
Ballarat	Shops	Central Sq	Target Entrance	65
Ballarat	Shops	Howitt St 1219B-1225D		74
Ballarat	Shops	Sebastopol Shops cnr Rubicon		65
Ballarat	Shops	Sturt St book city	Book City	70
Ballarat	Smoking	Phoenix Mall	West Side	75
Ballarat	Smoking	Wendouree Village		89
Ballarat	Transport	Central Sq	Myer Entrance	73
Ballarat	Transport	Lt Bridge St Bus Stop		71
Ballarat	Waterfront	Wendouree Parade	Gnarr St	78
Casey	Easement	Cranbourne Railway Station		87
Casey	Easement	Narre Warren Train Station	Car Park Side	56
Casey	Mall	Clydesdale Mall/Cranbourne Park SC		76
Casey	Park	Lawson Poole Reserve		80
Casey	Park	Wilson Botanic Park	Playground	85
Casey	Public Building	Cranbourne Library		67
Casey	Public Building	Family Resource Centre		85
Casey	Public Building	Hampton Park Library		63
Casey	Public Building	Narre Warren Library		62
Casey	Shops	Berwick Village		80
Casey	Shops	Hampton Park Shopping Square		77
Casey	Shops	High St Shops, Cranbourne		73
Casey	Shops	Webb St, Narre Warren		67
Casey	Smoking	Clydesdale Mall/Cranbourne Park SC		74
Casey	Smoking	Cranbourne Park Carpark	Safeway	76
Casey	Transport	Fountain Gate Bus Stops		61
Casey	Transport	Hallam Bus Stop opp Station		60
Casey	Transport	Lyall St		64
Casey	Transport	Webb St, Narre Warren		61
Casey	Waterfront	Akoonah Park, Berwick		74
Casey	Waterfront	Banjo Paterson Park		75
Casey	Waterfront	Buchanan Park		79

[13] Please note that the local governments selected as part of this survey are a representative sample based on population size and the geographic boundary they fall within, i.e. whether they are defined as metro or non-metro councils. A sample of 7 metropolitan and 3 non-metro local governments was selected for the VLR 2009. It is not the intent of this report to rank or highlight the overall scores associated with each of the local governments selected as part of this survey but to highlight the overall Summary CCAT scores associated with each of the locations and site types. Appendix C does not represent a ranking of local governments but rather a list sorted by local governments by site types for easy reference to the sites selected.

LGA	Site type	Location	Area	CCAT summary score
Dandenong	Easement	Dandenong Train Station		59
Dandenong	Easement	Springvale Station Lightwood rd side		49
Dandenong	Mall	Palm Plaza Mall		70
Dandenong	Market	Dandenong Market		74
Dandenong	Park	Burden Park		88
Dandenong	Park	Dandenong Park	Lonsdale St End	74
Dandenong	Park	Fotheringham Reserve		83
Dandenong	Public Building	Post office on Langhorne St		76
Dandenong	Public Building	Springvale Library Back entrance		72
Dandenong	Shops	Athol St shop	Plaza	78
Dandenong	Shops	Douglas St, Noble Park		67
Dandenong	Shops	Springvale Shops	Safeway	75
Dandenong	Shops	Walker St		73
Dandenong	Smoking	ATO, Mason St		71
Dandenong	Transport	Bus Stop 303-321 Springvale rd		64
Dandenong	Transport	Dandenong Train Station		56
Dandenong	Transport	McRae St		68
Dandenong	Waterfront	Dandenong Park	Near Footbridge	70
Geelong	Beach	Eastern Beach		81
Geelong	Beach	Ocean Grove	Hodgson St	86
Geelong	Beach	Ocean Grove SLSC		81
Geelong	Beach	Rippleside		84
Geelong	Easement	Geelong Train Station		67
Geelong	Easement	Lara Train Station		68
Geelong	Easement	North Geelong Station		49
Geelong	Easement	North Shore Station		67
Geelong	Event	Skilled Stadium	Graham 'Polly' Farmer Gate	67
Geelong	Landmark	Boer War Memorial Park		61
Geelong	Landmark	City Hall Geelong	Entrance	85
Geelong	Landmark	City Hall Geelong	North Side	81
Geelong	Landmark	Waterworld		56
Geelong	Mall	Highton Shopping Village		79
Geelong	Mall	Labuan Sq		61
Geelong	Mall	Lt Malop St Mall		78
Geelong	Market	Corio Markets		79
Geelong	Park	Cameron Pk		72
Geelong	Park	Eastern Beach	Reserve	76
Geelong	Park	Johnstone Park		73
Geelong	Park	Rippleside	Playground	78
Geelong	Public Building	Geelong Library		67
Geelong	Public Building	GPAC		71
Geelong	Public Building	Information Centre		83
Geelong	Public Building	Ocean Grove P.O.		86
Geelong	Public Building	Wool Museum		73

LGA	Site type	Location	Area	CCAT summary score
Geelong	Shops	High St shops Belmont		71
Geelong	Shops	Market Sq		82
Geelong	Shops	Moorabool St, Cnr Malop St		86
Geelong	Shops	Ocean Grove		84
Geelong	Shops	Separation St, Corner Thompson Rd		64
Geelong	Smoking	ATO Brougham St		77
Geelong	Smoking	Centrelink Geelong		67
Geelong	Smoking	State Government Offices		82
Geelong	Transport	Geelong Train Station		66
Geelong	Transport	High St Bus Stops		75
Geelong	Transport	Malop St Bus Stops		77
Geelong	Transport	Moorabool St Bus Stops		73
Geelong	Waterfront	Balyang Sanctuary		75
Geelong	Waterfront	Barwon Valley Park		79
Geelong	Waterfront Precinct	Carousel		78
Hume	Easement	Broadmeadows Train Station		55
Hume	Landmark	George Evans Museum		80
Hume	Mall	Dallas Square		75
Hume	Mall	Link Arcade, Sunbury		74
Hume	Park	Broadmeadows Town Park		79
Hume	Park	Sunbury Recreation Reserve		70
Hume	Public Building	Broadmeadows Library		85
Hume	Public Building	Council Offices, Broadmeadows		83
Hume	Shops	Mahoneys Plaza Shopping Centre		81
Hume	Shops	Roxburgh Park Shopping Centre		82
Hume	Shops	Sunbury Shops, Evans cnr Brook		81
Hume	Smoking	Centrelink Broadmeadows		73
Hume	Smoking	Meadow Heights Shopping Centre		74
Hume	Transport	Broadmeadows Station Bus Stops		66
Hume	Transport	Sunbury Train Station Bus stop		73
Hume	Waterfront	Apex Park, Sunbury Rd		81
Hume	Waterfront	Jack Roper Reserve		88
Manningham	Mall	Goldfields Plaza		89
Manningham	Mall	Macedon Square		88
Manningham	Park	Birrarrung Park	Playground	64
Manningham	Park	Koonung Reserve		82
Manningham	Park	Ruffey Lake Park		78
Manningham	Public Building	Doncaster Library Temporary Site		89
Manningham	Public Building	The Pines Branch Library		69
Manningham	Shops	Blackburn Rd		77
Manningham	Shops	Templestowe Village		80
Manningham	Smoking	Westfield Doncaster, Smk area		86
Manningham	Transport	Goldfields Plaza Bus Stop		73
Manningham	Transport	The Pines Shopping Centre		78
Manningham	Transport	Westfield Bus Terminal	Bus Terminal	65

LGA	Site type	Location	Area	CCAT summary score
Manningham	Waterfront	Banksia Park	BBQ	73
Manningham	Waterfront	Westerfolds Park, Swamp Gum Carpark		74
Melbourne	Easement	Southbank		63
Melbourne	Easement	Southern Cross Station - Collins St end		72
Melbourne	Event	MCG	Tower 2	61
Melbourne	Event	Melbourne Museum	Street Entrance (Rathdowne Street)	87
Melbourne	Event	Melbourne Museum	Upper Entrance	76
Melbourne	Landmark	Between Hamer Hall and Arts Centre		80
Melbourne	Landmark	City Square		81
Melbourne	Landmark	Exhibition Building	Fountain	81
Melbourne	Landmark	Exhibition Centre		67
Melbourne	Landmark	Flinders St Station		72
Melbourne	Landmark	Myer Music Bowl	Near George V Statue	83
Melbourne	Landmark	Rialto Towers		67
Melbourne	Landmark	St Kilda Rd in front of Hamer Hall		80
Melbourne	Landmark	VCA, opp George V Statue		70
Melbourne	Mall	Bourke St Mall	Elizabeth St	76
Melbourne	Mall	Bourke St Mall	Swanston St	78
Melbourne	Mall	Hardware Lane	Lonsdale St End	69
Melbourne	Market	Queen Victoria Market		76
Melbourne	Market	Queen Victoria Market	Peel Street Side	66
Melbourne	Market	Southbank Sunday Market		85
Melbourne	Park	Birrarung Marr	Tollway End	81
Melbourne	Park	Fitzroy Gardens		78
Melbourne	Park	Flagstaff Gardens		74
Melbourne	Park	Gordon Reserve		69
Melbourne	Park	Kings Domain	Opp VCA	70
Melbourne	Park	Queen Victoria Gardens		75
Melbourne	Park	Treasury Gardens		76
Melbourne	Public Building	Melbourne Town Hall		79
Melbourne	Public Building	State Library		75
Melbourne	Shops	Collins St	Centreway	71
Melbourne	Shops	Elizabeth St	Near Coles	69
Melbourne	Shops	Galleria Plaza, Elizabeth St		76
Melbourne	Shops	Lt Collins St		74
Melbourne	Shops	Swanston St	Btwn Collins & Lt Collins St	76
Melbourne	Shops	Target Centre, Bourke St		78
Melbourne	Smoking	222 Exhibition st		75
Melbourne	Smoking	242 Exhibition st		74
Melbourne	Smoking	Collins Place, 35- 55 Collins St		72
Melbourne	Smoking	Defence Plaza		64
Melbourne	Smoking	Melbourne Central, 360 Elizabeth St		83
Melbourne	Transport	William St	Cnr Bourke St	76
Melbourne	Waterfront	Alexandra Gardens	Boat sheds replaces park grnd under repair	72
Melbourne	Waterfront	Birrarung Marr	Near Federation Square	83

LGA	Site type	Location	Area	CCAT summary score
Melbourne	Waterfront	Royal Bot Gardens Melb	Central Lakes	89
Melbourne	Waterfront	Yarra Park	BBQ	79
Melbourne	Waterfront	Yarra River	North Side	73
Melbourne	Waterfront Precinct	Docklands	New Quay	92
Melbourne	Waterfront Precinct	Southbank	Southgate Entrance	82
Mt Alexander	Easement	Castlemaine Train Station		73
Mt Alexander	Landmark	Burke and Wills Monument		77
Mt Alexander	Landmark	Maldon War Memorial		82
Mt Alexander	Landmark	Mt. Tarrangower Lookout		90
Mt Alexander	Park	Victory Park		84
Mt Alexander	Public Building	Castlemaine Post Office		81
Mt Alexander	Shops	Barker Street Shops, cnr Lyttleton St		82
Mt Alexander	Shops	Main Street Shops Maldon, Dolphin St to Garage		83
Mt Alexander	Shops	Mostyn Street Shops, cnr Frederick		72
Mt Alexander	Waterfront	Castlemaine Botanical Gardens		83
Port Phillip	Beach	Elwood Beach		83
Port Phillip	Beach	Port Melbourne Beach		78
Port Phillip	Beach	Sandridge Beach		77
Port Phillip	Easement	Ripponlea Station		66
Port Phillip	Market	The Esplanade	Opposite Footbridge	81
Port Phillip	Park	Alma Park East		68
Port Phillip	Park	Elwood Park		77
Port Phillip	Shops	Acland St	Safeway	78
Port Phillip	Shops	Bay St Shops	Outside Coles	74
Port Phillip	Shops	Carlisle St	Corner Woodstock Street	74
Port Phillip	Waterfront	Albert Park	Playground	78
Port Phillip	Waterfront	Pt Ormond Reserve		73
Port Phillip	Waterfront Precinct	Beacon Cove		74
Yarra City	Easement	Richmond Station - Brunton Ave		68
Yarra City	Park	Citizens Park		73
Yarra City	Park	Darling Gardens - Hoddle St entrance		69
Yarra City	Park	Edinburgh Gardens - Rowe St entrance		69
Yarra City	Public Building	Carlton Library		84
Yarra City	Public Building	Collingwood Town Hall		83
Yarra City	Shops	Bridge Road - Richmond Plaza		71
Yarra City	Shops	Queen's Parade Micheal St	Cafes	82
Yarra City	Shops	Victoria St, Richmond 176-214		78
Yarra City	Transport	Bridge Rd & Church St Tram Stop		80
Yarra City	Waterfront	Dight Falls		69
Yarra City	Waterfront	Flockhart Reserve		52

Appendix D: Littered items classification

Table 11 Littered Items Classification

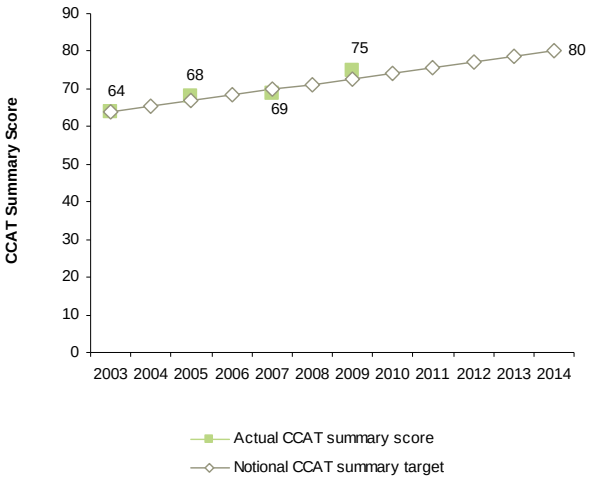
2005[14] Littered item type	Items Included	2009 Littered item type	Items Included
Confectionery	Chewing gum Confectionery wrappers Ice cream wrappers	**Confection wraps**	Confectionery wrappers Ice cream wrappers
Paper	Paper bags Serviettes and tissues Receipts and tickets Paper pieces, newspaper, advertising material Takeaway boxes, cardboard boxes, cardboard pieces	**Paper**	Paper bags Serviettes and tissues Receipts and tickets Paper pieces, newspaper, advertising material Paper cups
		Cardboard	Takeaway boxes, cardboard boxes, cardboard pieces
Beverage	Glass bottles and pieces Plastic bottles and cups Plastic caps, straws and utensils Paper cups and tetra boxes Aluminium cans, metal caps, ring pulls and pieces	**Beverage** Component items of beverages are reported separately	Glass bottles and pieces Plastic bottles and cups Plastic bits, caps, straws and utensils Aluminium cans, metal caps, ring pulls and pieces
Cigarette	Cigarette butts Cigarette packets, wrappers, foil and matches	**Cigarettes**	Cigarette butts Cigarette packets, wrappers, foil and matches
Organic	Animal poo Food Wooden utensils	**Organics**	Food Wooden utensils
Plastic film	Plastic film, bags and wrappers	**Plastic film**	Plastic film, bags and wrappers
Other	Packaging straps Shopping trolleys Syringes Other items not listed above	**Other**	Packaging straps Shopping trolleys Syringes Other items not listed above
		Not reported	Dog poo Chewing gum

[14] Up until the 2005 VLR, the classification used for littered items is shown above. The 2007 and 2009 VLR used the modified version which excluded animal poo and chewing gum as littered items.

Appendix E: CCAT summary scores and notional targets

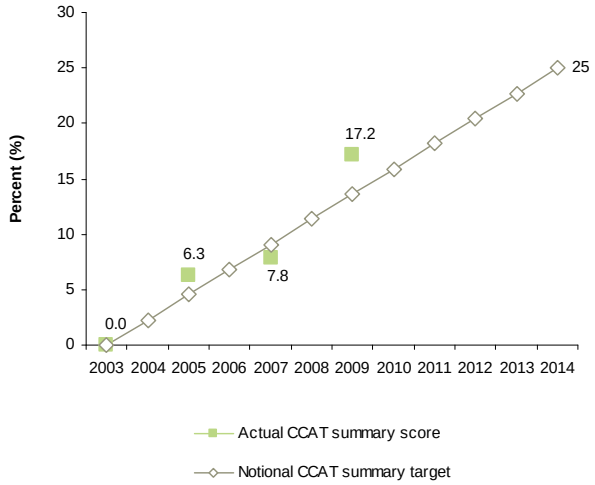
CCAT Summary Score

Year	Actual CCAT summary score	Notional CCAT summary target
2003	64	64
2004		65
2005	68	67
2006		68
2007	69	70
2008		71
2009	75	73
2010		74
2011		76
2012		77
2013		79
2014		80



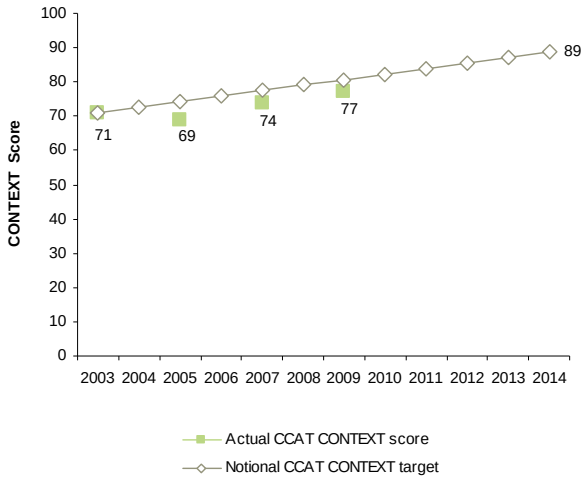
Percent change in CCAT summary Score

Year	Actual CCAT summary score % change	Target CCAT summary score % change
2003	0.0	0.0
2004		2.3
2005	6.3	4.5
2006		6.8
2007	7.8	9.1
2008		11.4
2009	17.2	13.6
2010		15.9
2011		18.2
2012		20.5
2013		22.7
2014		25.0



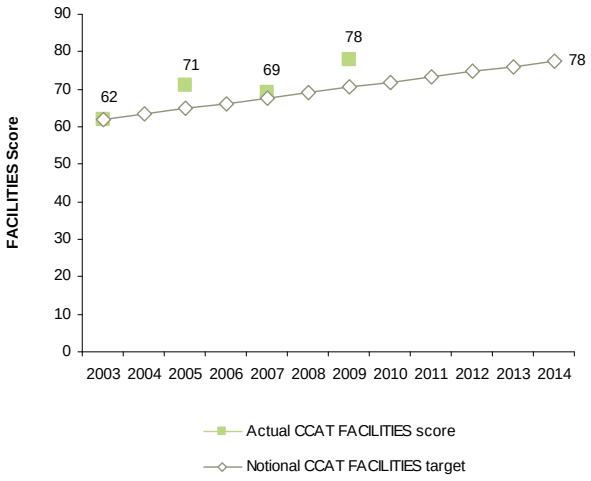
CONTEXT Score

Year	Actual CCAT CONTEXT score	Notional CCAT CONTEXT target
2003	71	71
2004		73
2005	69	74
2006		76
2007	74	77
2008		79
2009	77	81
2010		82
2011		84
2012		86
2013		87
2014		89



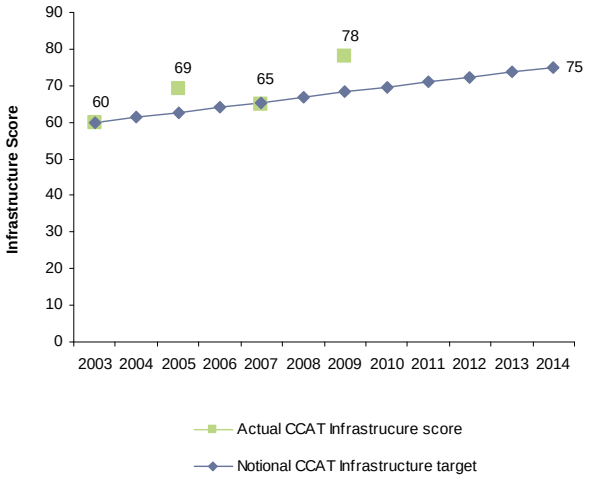
FACILITIES Score

Year	Actual CCAT FACILITIES score	Notional CCAT FACILITIES target
2003	62	62
2004		63
2005	71	65
2006		66
2007	69	68
2008		69
2009	78	70
2010		72
2011		73
2012		75
2013		76
2014		78



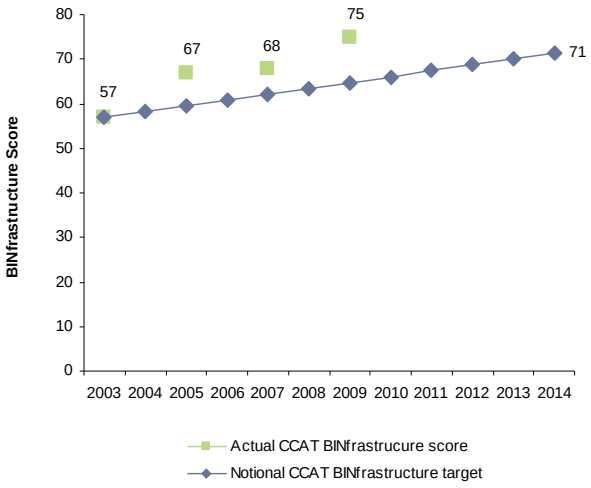
FACILITIES – *Infrastructure* Score

Year	Actual CCAT *Infrastrucure* score	Notional CCAT *Infrastructure* target
2003	60	60
2004		61
2005	69	63
2006		64
2007	65	65
2008		67
2009	78	68
2010		70
2011		71
2012		72
2013		74
2014		75



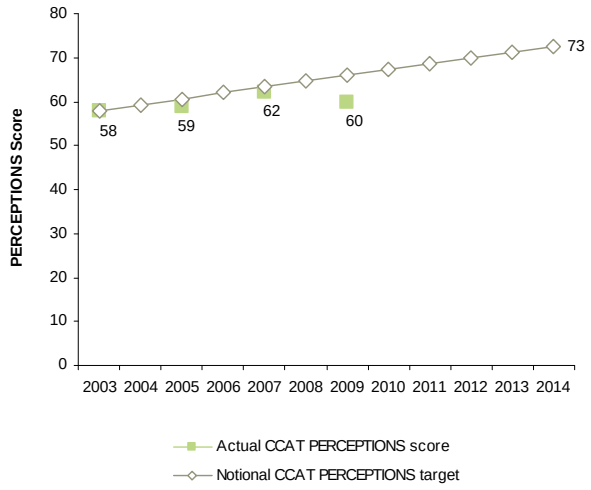
FACILITIES – *BINfrastructure* Score

Year	Actual CCAT *BINfrastrucure* score	Notional CCAT *BINfrastructure* target
2003	57	57
2004		58
2005	67	60
2006		61
2007	68	62
2008		63
2009	75	65
2010		66
2011		67
2012		69
2013		70
2014		71



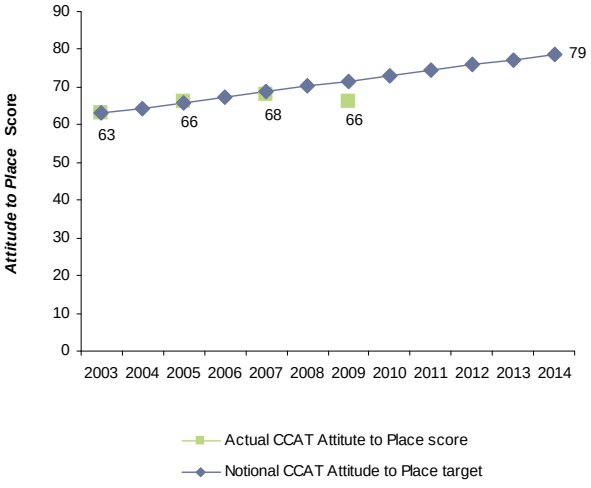
PERCEPTIONS Score

Year	Actual CCAT PERCEPTIONS score	Notional CCAT PERCEPTIONS target
2003	58	58
2004		59
2005	59	61
2006		62
2007	62	63
2008		65
2009	60	66
2010		67
2011		69
2012		70
2013		71
2014		73



PERCEPTIONS – *Attitude to Place* Score

Year	Actual CCAT *Attitute to Place* score	Notional CCAT *Attitude to Place* target
2003	63	63
2004		64
2005	66	66
2006		67
2007	68	69
2008		70
2009	66	72
2010		73
2011		74
2012		76
2013		77
2014		79



PERCEPTIONS – *Adequacy of facilities* Score

Year	Actual CCAT *Adequacy of Facilities* score	Notional CCAT *Adequacy of Facilities* target
2003	48	48
2004		49
2005	46	50
2006		51
2007	54	52
2008		53
2009	53	55
2010		56
2011		57
2012		58
2013		59
2014		60