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Municipal Weed Control: Lessons from Ground Zero

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Introduction

While more than 80 percent of Canadians are protected by bans on the cosmetic uses of toxic pesticides, a number of municipalities in some provinces (notably Alberta and Manitoba) resist such restrictions. They are not convinced that weeds can be adequately controlled at reasonable cost without using the more toxic pesticides.

In light of such concerns, in the summer of 2018, the Canadian Association of Physicians for the Environment (**CAPE**) undertook a survey to learn how cosmetic pesticide bans have affected weed control programs in selected municipalities across the country. Under pesticide restrictions in seven Canadian provinces and a number of individual municipalities, program managers have turned to alternative methods and materials for weed control in public parks, sports fields and green spaces. What are these methods? What has been the impact on weed control budgets? Are residents satisfied with the results?

Interviews were conducted with weed control managers in six municipalities: London, Guelph, St. Catharines, Toronto (**ON**), Richmond (**BC**), and Cape Breton Regional Municipality (**NS**).

Summary: What we learned

Weed Control Is Possible Without Toxic Pesticides

Rather than simply substituting allowable weed control products for banned ones, municipalities have successfully adopted alternative practices that are less reliant on chemical weed control.

In places where the more toxic herbicides are not permitted, the surveyed cities have adopted two primary approaches to keep weed populations down: (1) preventing the spread of weeds through cultural practices that strengthen the growth of desired plants, and (2) suppressing weeds

when they do appear, primarily through mechanical means. Typically, even the pest control products that are allowed under cosmetic pesticide bans are used infrequently, and only as a last resort. These strategies are implemented through practices such as:



Photo: Randall McQuaker, Winnipeg

- maintaining healthy turf through aeration, overseeding and fertilization
- mowing and targeted use of line trimmers
- using permitted pest control products sparingly for limited purposes.

Program Costs Do Not Escalate



Photo: Stencil, Kids

Municipalities operating under pesticide bans are not spending more on weed control. Instead, they are spending existing resources differently.

Some survey respondents noted that it would be prohibitively expensive to use allowable pest control products at a municipality-wide scale. Instead, available resources are committed to turf maintenance and mechanical weed control methods. Several reported no increased costs in the

initial and subsequent years of the cosmetic pesticide bans. Others reported initial increases for labour and equipment purchases, but with offsetting savings in other areas. Where cost increases have occurred, they have been managed by adjusting weed control goals, prioritizing resources, and reducing expenses for pesticide purchases. As a result, weed control budgets are stable.

Public Attitudes Are Supportive

Municipalities that have transitioned to a focus on turf health, mechanical control, and the use of less toxic products report that they have not recorded an increase in public complaints about the presence of weeds in parks or sports fields or on boulevards, compared to their pre-ban experience. Survey respondents feel that residents have adjusted their expectations around weed control because they support the purposes of the cosmetic pesticide restrictions.

Some cities report that they do receive annual complaints about dandelions in the spring. They typically respond to these complaints with targeted seasonal mowing and public education to increase awareness that the more toxic products are now banned. The consensus view of key informants interviewed is that residents appear to appreciate the benefits of living in a community with green spaces that have not been treated with toxic pesticides. Managers uniformly regard complaints as minimal.

Municipal Weed Control under Cosmetic Pesticide Bans: Purpose and Methods

Survey Purpose & Scope

By the end of 2015, seven provinces in Canada had put in place bans or restrictions on the cosmetic uses of toxic pesticides on lawns and gardens. “Cosmetic” refers to the use of pesticides primarily for aesthetic or non-essential purposes. Regulations typically do permit the use of restricted substances for control of invasive species, for control of plants that are harmful to the touch (such as giant hogweed), and on golf courses.

In the provinces where no outright provincial ban is in effect and where the more toxic products may still be used (unless prohibited by a municipal by-law), some municipalities have expressed concerns that costs will spiral out of control if they are not allowed to use the restricted products, and that the results will be unsatisfactory and unacceptable to the public.



Photo: Canva; Pesticides

To address these concerns and to ascertain the experience of weed control program managers “on the ground” under cosmetic pesticide restrictions, we interviewed officials in a sample of six cities about weed control practices, products, challenges, costs, results and public acceptance. Given limitations in time and resources, the survey could not include a larger sample of the hundreds of municipalities in the seven provinces where cosmetic pesticide bans are in effect. Nor has it been feasible to produce detailed case studies of each city’s experiences.

It should also be noted that this report is not intended as a “how-to” manual for municipal weed control. Operational requirements are complex, varied, and site-specific across the country, and there is no attempt here to prescribe what should be done (or how) in particular circumstances. Rather, this study aims to draw common themes and lessons from the reported experiences of selected cities and to illustrate the strategies that program managers have adopted, faced with the challenge of managing weeds under conditions of a cosmetic pesticide ban.

Populations of Selected Cities

To assess a range of experiences in the scale of weed management, climatic conditions and other challenges, municipalities of varying sizes in different geographic regions were contacted for the survey. Interviews were completed with weed control managers in London (population of 400,000), Guelph (130,000), St. Catharines (133,000), and Toronto (2,800,000) in Ontario, Richmond (200,000) in British Columbia, and Cape Breton Regional Municipality (95,000) in Nova Scotia.

Dates of Pesticide Bans

A previous study and policy report by CAPE found that pesticide bans were enacted in the following Canadian provinces in the given years: Quebec (2003), Ontario (2008), New Brunswick (2009), PEI (2010), Nova Scotia (2011), Newfoundland and Labrador (2011), and Manitoba (2014). Although British Columbia does not have a province-wide ban, new restrictions in 2016 impose conditions on homeowners who want to use pesticides on their own properties. As well, individual cities in the province have enacted their own municipal by-laws. The City of Richmond passed its by-law in 2009. Effective dates of implementation were generally one year after passage of the respective laws.

Survey Method

Officials who were interviewed held positions such as director, manager or coordinator of weed control programs in their cities. Telephone interviews were conducted based on a standard set of questions. Written notes on responses were sent to each key informant for review to check accuracy in content and tone. In some cases, city web sites and background documents (reports and recommendations to councils, master plans for parks and green spaces) were also consulted, where relevant and available.

Context and Background

The three levels of government in Canada have differing areas of jurisdiction over the licensing, sale and use of pesticides. The federal government approves pesticides and regulates conditions for their use through labelling. Provincial governments can set controls on pesticide use through licensing and permitting to regulate the sale, use, storage and disposal of pesticides, and can establish training and licensing



Photo: Kaeleigh Phillips, Toronto

requirements for pesticide applicators. Municipal governments can pass by-laws that regulate permitted uses of pesticides within their territory.

In 2016, CAPE published a comparative description of cosmetic pesticide regulations across Canada, and made recommendations regarding best practices. The current, more limited study is an attempt to learn how selected municipalities are conducting weed control operations in practice under conditions of a cosmetic pesticide ban.

Lessons from Ground Zero

Weed Control Methods and Materials Used



Photo: City of St. Catharines, City Hall

Faced with public expectations about the need to manage weeds, many municipalities had used commonly available herbicides in the years before cosmetic pesticide bans were legislated. Efforts were made to keep public green spaces as weed-free as possible, and particularly to suppress or eliminate signature weeds such as dandelions. With increasing evidence of harmful health effects associated with exposure to pesticides, public policy-makers began to consider restricting non-essential uses of toxic pesticides. Many municipalities acted

on their own to ban the cosmetic use of toxic pesticides ahead of provincial regulation. The six municipalities selected for this survey had very different histories:

- St. Catharines had relied extensively on glyphosate-based herbicides until the Ontario-wide ban came into effect in 2009.
- Richmond had conducted weed control using traditional chemical pesticides until its municipal by-law was put in place.
- Cape Breton Regional Municipality had made some limited use of pesticides such as glyphosate and 2,4-D before its municipal by-law was enacted.
- City Council in Guelph had passed a resolution in 1991 committing to a reduction in pesticide use.
- Toronto had implemented its own municipal cosmetic pesticide by-law in 2004, which was superseded by Ontario's provincial regulations in 2009.

In the wake of provincial and municipal cosmetic pesticide bans, municipalities in this survey adopted three primary strategies to maintain acceptable levels of weed control in parks, sports fields and other green spaces:

1. Implementing cultural practices to build healthy soil and nourish desired plants to prevent weeds from getting established in the first place;
2. Suppressing the growth and spread of weeds once they appear, primarily by mechanical means; and
3. Establishing different weed control priorities and levels of service for various categories of green space.

Maintaining Healthy Turf

A major focus for all of the municipalities interviewed is active turf maintenance. This represents a shift away from reliance on chemical weed control. The goal is to maintain healthy and resilient plants and grasses to prevent weeds from gaining a foothold, thereby avoiding the need for intervention with chemical pesticides. Virtually every municipality indicated that they have reduced or eliminated the need for pesticides by concentrating staff and resources on cultural practices.



Photo: City of St. Catharines, City Hall Grounds

Commonly used cultural practices cited by respondents include (1) aeration, (2) irrigation, (3) top-dressing, (4) overseeding, and (5) fertilization. Survey informants explained that nurturing healthy turf allows desired species to flourish and, effectively, to out-compete weeds for space and nutrients. Aeration allows water, air and nutrients to reach the roots of grass and revitalizes compacted soil. Irrigation keeps grass green and growing so weeds can't get a foothold. Top-dressing involves spreading a thin layer of soil or compost on top of the turf. Overseeding increases the density of grass growth, preventing weeds from getting established. Fertilization provides important nutrients to growing plants.

Taken together, these techniques are seen as the single most important strategy for maintaining green landscapes without using banned pesticides. Some examples:

- London makes the maintenance of healthy turf a significant focus of their landscape program, and follows the practices noted above. No pesticides are used in parks.
- Guelph relies on cultural practices to minimize the need to use even allowable weed control products.

- St. Catharines uses a slow-release fertilizer periodically as needed.
- Several cities irrigate major sports fields, but not lower priority fields.
- Cape Breton Regional Municipality carries out soil testing to maximize the efficiency of lime and fertilizer applications.
- Toronto makes an effort to write specifications and seek out supplies (such as grass seed mixtures, compost top-dressing blends and organic fertilizers) with optimal performance characteristics that are suited to differing growing conditions and different uses of green spaces.
- Toronto has addressed weed management using an Integrated Plant Health Care (IPHC) strategy that is co-ordinated across the City by one full-time Parks staff.
- Richmond's climate allows continuous, all-season use of parks and sports fields, so aeration and fertilizing occur throughout the year, including winter.

Priority Mowing

In addition to building healthy soil, cities have increased mowing in parks, on sports fields and in high-visibility green spaces, particularly in central core areas. This is a common practice for the control of dandelions in the spring. Some other areas, such as roadsides, cemeteries and outlying spaces, are mowed less frequently. Guelph mows parks and boulevards on a 10-day business cycle. Rural roadsides are mowed twice a year.

- St. Catharines designates the city cenotaph as a priority location and mows there once a week. Greens around City Hall are mowed twice a week, as needed.
- Toronto mows more frequently in spring with the intent to deadhead dandelions prior to them going to seed.
- Cape Breton Regional Municipality lets grass grow to 3" or more before mowing. This helps to discourage the emergence of weeds.
- Richmond has identified its civic precinct as a high-priority area. However, in some outlying areas, grass may be cut only once every three weeks.

Naturalization

Some cities have adopted naturalization programs to re-introduce native species that will flourish and displace weeds. These ecological restoration programs aim to establish natural succession in selected areas. Once established, naturalized areas require little (or no) weed control or other forms of active maintenance, saving costs and eliminating any need for chemical intervention.



Photo: Stencil, Baby

For example:

- Guelph's naturalization policy on city property was adopted in 1991. In 2018, the city prepared a draft "natural heritage action plan" to promote biodiversity and protect natural areas.
- Guelph also encourages home gardeners to practice naturalized gardening. City web pages provide advice for the establishment of woodland, prairie meadow, or wetland habitats.
- London also has a naturalization program.
- The goal of Toronto's naturalization program is to "restore, protect and enhance areas and features of the natural environment within the City of Toronto parks system" (web site description).

Use of Permitted Products



Photo: Sunnybrook Park, Toronto

Some municipalities do not use pesticides of any kind on green spaces such as sports fields. Managers report that alternative methods work successfully and it is not necessary to use even the least toxic pesticides that are allowed by the bans. For particular purposes, allowable substances are sparingly used. A common conclusion is that intensive use of permitted products would be too expensive, given the scale of municipal green spaces. This is especially so in the case of Toronto, for example, which maintains

over 8,000 hectares of green space. In light of these limitations, the use of allowable products is generally targeted to specific areas. In some cities, specialized pieces of equipment (such as weed steamers) are occasionally used for non-chemical weed control. For example:

- The lower-risk substances most commonly mentioned by the survey respondents were iron chelate, horticultural vinegar, and corn gluten.
- Toronto uses horticultural soaps in beds and gardens, and acetic acid in beds and gardens and on hard surface areas.
- Richmond did not find corn gluten to be as effective as expected.
- Guelph and London use horticultural vinegar on vegetation growing out of "hardscape" (i.e. in sidewalk cracks and spaces between paving blocks).
- St. Catharines has also used a preparation based on acetic acid.
- Richmond uses hot water/steam equipment to eliminate weeds on main road sidewalks and, as needed, on aggregate walkways. St. Catharines plans to test out similar equipment.

- Cape Breton Regional Municipality has found that allowable substances such as chelated iron work satisfactorily for the purposes for which they are used.



Program Costs

A significant concern for cosmetic pesticide ban sceptics is the worry that weed control program costs will escalate dramatically, because permitted products are more expensive to use at the scale of municipally-managed green spaces. None of the surveyed municipalities has adopted the strategy of simply substituting allowable substances for the more toxic products that are no longer permitted. We found that municipalities are not spending more on weed control, but rather that they are allocating their available resources differently than before.

Some survey respondents reported no increased costs in the initial years of the transition away from the more toxic products. This was typically because those municipalities had already moved to alternative practices as a result of a municipal by-law or policy that had been adopted before the provincial regulations came into effect. Where there were increases in costs, they were offset by adjusting weed control goals, prioritizing resources, and savings on conventional pesticide purchases. Program managers indicated that they have sufficient flexibility in their budgets to permit the implementation of differing weed control strategies for different green spaces, supported by the necessary labour, equipment and supplies, without exceeding budgeted financial resources. At the time of the interviews, all the municipal staff indicated that their program costs were stable.

Making the Transition

Most municipalities reported that they set different goals for weed control in different green spaces, depending on the visibility and use of the space. Rather than attempting to maintain a manicured appearance in all green spaces, several cities say they have prioritized downtown and high-visibility locations and accepted reduced levels of weed control in outlying and less-used spaces. Realistically, this means that some weeds are present in areas that receive less attention. The differential allocation of resources is a strategy by which costs can be managed while maintaining acceptable levels of weed control in priority green spaces.

As noted, City Council in **Guelph** had passed a pesticide reduction resolution in 2000, with the result that the city was already on a pesticide reduction path when Ontario's province-wide legislation came into effect. Costs and budgets had been adjusted, so there was no abrupt transition period. Guelph's approach has been to shift resources from pesticide purchases to cultural practices that reduce weed populations. This has not involved any significant increase in costs. Guelph has prioritized mowing parks and boulevards on a regular basis, but rural roadsides are mowed just twice a year.

London had similarly avoided cosmetic pesticide use in parks prior to the legislated ban in Ontario. Although there had been initial increases in labour costs, the size of areas under weed management was not reduced. However, the intensity of weed control was prioritized differently in different areas (higher in downtown locations, lower along roadways), with cost savings as a result.



Photo: City of St. Catharines, Montebello Park

London: Hosting 2018 Ontario Summer Games

The City of London hosted the Ontario Summer Games in August 2018, an event for which sports fields had to be in top condition to handle the intense demands of competitive use. In preparing for the Games, the city followed its usual turf maintenance and cultural practices, which do not involve application of herbicides. City facilities withstood the high demand with no difficulty. Athletes and officials were well-pleased with the condition of the fields.

London decided to actively maintain traffic islands through the use of line trimmers, a relatively labour-intensive practice that some other cities have not followed. Residents accept that there may be some dandelions in fields and on boulevards, where lower-intensity maintenance is practised. As noted, the City has also undertaken naturalization projects to reduce chemical and mechanical weed control requirements.

Program costs did increase initially in **St. Catharines**, where glyphosate-based herbicides had been used quite extensively before the provincial ban. Budget allocations for labour increased. For example, roving crews equipped with line trimmers attend to weeds in city parkettes, incurring higher labour costs. However, costs have been managed by reducing the intensity of weed control in lower priority areas and by reducing locations (such as the number of shrub beds) requiring maintenance.

The city cemetery is mowed to maintain an acceptable appearance, but not at a frequency that fully eliminates all evidence of weeds throughout the summer. By balancing and adjusting program goals, overall costs are held stable. The city notes that alternative methods and products provide for acceptable weed control, but not at the same level as previously in all locations.

Cape Breton Regional Municipality has experienced increased costs for fertilizer, but money is saved on chemical herbicides with the result that there is no net increase in costs.

For turf operations, **Toronto** faces issues of scale with over 4,300 hectares of maintained turf. It is impractical to aim for a highly manicured appearance in all locations. Using allowable weed control products to achieve such a goal would be prohibitively expensive. The City's Integrated Plant Health Care program operates within budgeted allocations and concentrates on optimizing plant health to reduce weeds and weed control requirements.

Richmond has had almost ten years of experience in maintaining parks and controlling weeds without the use of traditional chemical pesticides. The City has a particularly restrictive by-law that does not permit even the use of chelated iron formulations. Staff experienced a learning curve in researching and testing means and methods of weed control under conditions of a ban, and now find that the more toxic products are simply not necessary. City Council had initially approved a one-time budget increase of about 2.5 per cent, but this proved

unnecessary and in subsequent years budgets returned to their earlier level. At this point, weed control staff would not want to return to the use of the banned substances.

Sports Fields



Photo: Canva, Soccer Field

As a special case, the condition of sports fields is a high priority for most municipalities. Overall, none of the surveyed cities reported significant concerns or complaints about weeds on sports fields, despite restrictions on allowable herbicides. Municipalities have found that implementation of cultural practices for turf management has been successful in maintaining healthy soil conditions and reducing the intrusion of weeds in sports fields. Most of the cities surveyed designate different service levels for different categories of sports fields – for example, A, B or C, depending on whether they are central (“premier”) fields or local community facilities.

London implements aeration, overseeding, fertilization and irrigation to maintain top-drawer turf for sports fields. This results in a groomed appearance of sports fields, which occasionally prompt inquiries from members of the public who are concerned that toxic chemicals may have been used on the fields to achieve that result, which is not the case. The provincial pesticide ban has not caused any issues with maintenance of sports fields.

Guelph has about 100 sports fields (baseball and soccer) requiring maintenance. The City mows irrigated sports fields on a five business day cycle. Some dandelions do appear, but the weed component of turf areas is judged to be less than 10 per cent. Non-irrigated sports fields are mowed on a 10-business day cycle.

Toronto assigns dedicated crews to monitor and manage turf on all their sports fields. This has optimized delivery of best plant health care practices and improved turf quality for these areas. Due to the nature of the sport, community soccer fields are more challenging to maintain than baseball fields. Toronto has made outreach efforts to inform and involve recreation groups in understanding how playing fields are managed, how playing fields deteriorate from over-use, and how judicious use (for example, suspending use following heavy rain) can help maintain safe and playable surfaces.

Richmond experiences high rainfall and soil is sandy, so sports fields require intensive management – top-dressing, fertilization and aeration. Because of the mild climate, fields are used year-round. The city by-law does not permit use of iron chelate formulations for control of

broadleaf weeds. When facilities are at end-of-life from intensive use, they may be stripped and re-sodded.

Cape Breton Regional Municipality undertakes targeted aeration of sports fields during the playing season (especially around goals) when compaction occurs.

Public Reaction

Managers who were interviewed reported that residents appear to understand that, in practice, not all green spaces can be managed to achieve weed-free conditions. Complaints are sometimes recorded, particularly in regard to dandelions in the spring, but even these have become fewer as communities have become more accustomed to the goals and practices that weed departments have adopted. The consensus opinion of key informants



Photo: Thinkstock, Kids playing

is that residents have adjusted to levels of weed control that are reasonably achievable under cosmetic pesticide bans because they agree with the goals of such bans.

London takes the view that the dandelion season is relatively short-lived, and people are encouraged to appreciate the burst of early spring colour. Mowing is carried out in parks and along roadsides. Some weed complaints are still lodged, but they have dropped off in recent years.

St. Catharines also experiences some dandelion complaints in the spring and occasionally records complaints about weeds in shrub beds. This tends to happen when staff are occupied in planting annuals and preparing hanging baskets. To compensate, the number of shrub beds has been reduced. Over the years since the ban came into effect, staff report that there has not been an escalating pattern of weed complaints.

In **Toronto**, it is felt that there is broad understanding of the reasons why the city has adopted its current approach to weed control, partially because Toronto Public Health carried out a public education campaign when the City's municipal pesticide ban came into effect. There has been a transition between the expectation of perfectly manicured, weed-free landscapes to the acceptance of the natural presence of weeds in parkland. As a result, the volume of weed complaints is regarded as minimal.

Cape Breton Regional Municipality finds that people are generally on board with weed control practices in the municipality. Complaints are sometimes reported concerning weeds on boulevards or along roadsides, if the mowing schedule slides.

Richmond notes that there is strong public support for the pesticide ban and that residents indicate they do not want to be exposed to toxic pesticides in their own yards, in neighbours' yards, or in public spaces.

One respondent noted that, despite contrary claims, Ontario municipalities have not gone to ruin because of the province's cosmetic pesticide ban, and residents are not up in arms. Another noted that Ontario's province-wide ban is "ancient history" at this point, and residents have accepted its impact on the scale of weed control that is practically possible in communities.

Public Education

Municipalities generally do not conduct active public education on the reasons for the cosmetic ban. For municipalities in **Ontario**, the weed regulations have been in effect for nearly a decade, and it is felt that residents understand and support the reasons for the ban. Some cities offer information on their web sites. Virtually all municipalities respond to complaints by explaining why the more toxic products are not being used. For example:

Guelph has information on the City web site concerning pest control using alternatives to toxic products.

Toronto has posted an on-line fact sheet that outlines how weeds are managed in parks, on sports fields, along fences and on hard surfaces. As a rule, the Integrated Plant Health Care (IPHC) program and its associated operational practices are the focus of the Parks, Forestry and Recreation Division's educational initiatives. Information on health risks associated with the use of pesticides originates with the City's public health department, not the Division.

In **Richmond**, the parks operations department does not undertake specific public education, but responds to questions on materials and methods when people make inquiries. However, the City employ an environmental coordinator whose role includes organizing free public workshops and providing information on lawn care and alternative methods of pest management.

Peer to Peer – Recommendations for other Municipalities

When asked what advice they would offer to municipalities that are contemplating a move to less toxic methods and products, parks program managers offered a variety of suggestions:

- Ensure that the community is provided with appropriate messaging to prepare for new practices when cosmetic pesticide restrictions are pending.
- Make the connection with human health to help people understand and support changes in the weed control program.
- Ensure that municipal staff are trained on the new approaches.
- Be flexible and open to alternatives. It is possible to find approaches that will work to address weed problems.
- Develop a plan and strategy and have a designated manager who is experienced in methods of weed control that do not rely on toxic pesticide products.
- A comprehensive program should include contracting appropriate materials and supplies based on desired specifications for different locations and purposes. For example, choose seed varieties to match anticipated usage and conditions such as drought tolerance or wear tolerance.

Conclusions



Photo: Randall McQuaker, Winnipeg MB

This study of selected Canadian municipalities found that publicly acceptable levels of weed control can be achieved at reasonable cost without the need for the more toxic pesticides. Parks managers have successfully adopted cultural practices to actively maintain turf health and to reduce or eliminate the need for pest control products in municipal green spaces. Cities have not opted to simply substitute allowable products for banned ones in an attempt to achieve weed-free conditions in parks, on boulevards and sports fields, and in other green spaces. Such a strategy is felt to be

impractical, cost-prohibitive and unnecessary. Allowable products are sparingly used for specialized purposes such as hardscape weed control.

To manage costs, some cities have scaled back the intensity and frequency of weed control in certain areas, reduced the size and number of developed gardens, and established differing goals and priorities for different locations. In this way, the function and appearance of high visibility spaces (e.g. downtown green spaces, sports fields, high-use parks) are well maintained. Program budgets are stable. Under bans on non-essential uses of pesticides, municipalities are not spending more than before. Instead, they are spending available resources differently, with a focus on turf maintenance and mechanical weed control.

Parks managers acknowledged the presence of some weeds and reported that public complaints about weeds (particularly dandelions) do occur. Respondents noted that complaints have decreased significantly where pesticide restrictions have been in effect for a number of

years. Managers observed that a majority of residents are supportive of weed control methods that do not expose people to toxic pesticides and that residents are satisfied with the groomed (but not manicured) appearance of public green spaces.

In practice, parks managers are well able to maintain the pleasing appearance of priority spaces without resorting to toxic pesticides. Key informants in the study said they would not opt to use the banned pesticides, even if they were allowed to do so, because such products are simply not needed.

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