Attachment 3

Zero-Emission Outdoor Power Equipment Jurisdictional Scan

May 2025

Prepared by: City of Toronto

Based on commissioned work done on behalf of the City by Clean Air Partnership



Contents

Tables and Figures	2
Introduction	4
Purpose	5
Policy Learnings	5
Summary of Key Findings	5
Methods	6
Findings	2
Restriction Type and Exemptions	
Non-Compliance, Penalties and Administration of Penalties	
Mechanism for Reporting Non-Compliance	
Interview Findings	
Incentive Programs Summary	
Marketing and Educational Campaigns	
Methods	
Marketing Tactics and Communication Tools Literature Review	
_	
Jurisdictional Communication Campaigns	
Two-Stroke, Gas-Powered Engine Equipment Restrictions	
References	
Appendix 2.a	
Examples of communication campaigns	29
Tables and Figures	
Table 1. Jurisdictions included in the scan	1
Table 2: Jurisdictions interviewed	
Table 3: Restriction type and equipment.	
Table 4: Penalties for non-compliance across jurisdictions.	
Table 5: Number of programs per incentive type	
Table 6: Marketing tactics and communication tactics and tools.	
Table 7: Summary of municipal social marketing strategies and communications t	
disaggregated by jurisdiction Table 8: Summary of communication mechanisms	
Table 9: Benefits of zero-emission outdoor power equipment mentioned in	12
communication tools	13

ncentive advertisement in The Clipper, page	1 25
nochave advertisement in the oupper, page	1 ∠∪
ncentive advertisement in The Clipper, page	2 26
ncentive Program advertisement posted in TI	ne
	27
ncentive Program advertisement in the Tahoe	e Daily
	28
rs, Annapolis, Maryland	29
ut, Ann Arbor, Michigan	30
rs are prohibited in the City of Aspen. Aspen,	
	31
egulations, Page 1, Brookline, Massachusett	s 32
regulations, Page 2, Brookline, Massachuse	tts 33
oited, Burlingame, California	34
er ban, Coronado, California	35
it, Montgomery County, Maryland	35
soline campaign flyer, Oakville, Ontario	36
ers prohibited, Paulo Alto, California	37

Introduction

In 2023, Toronto City Council expressed its support for a phase-out of the use of gas powered, two-stroke engine equipment in Toronto as a precaution against adverse impacts to human health and climate (2023.IE5.1). Towards this goal, the Clean Air Partnership (CAP) was retained by the City of Toronto to conduct a jurisdictional scan, interviews and data gathering.

This report provides a high-level review of existing municipal standards and policies related to the phase-out of two-stroke, gas-powered engine equipment. It examines how municipalities and U.S. states have approached the phase-out, including:

- types of restrictions imposed,
- how non-compliance is determined and reported,
- penalties,
- phase-out timelines,
- rational behind restrictions.

Furthermore, the report reviews incentive programs that support the replacement of two-stroke, gas powered engine equipment with zero emissions alternatives, as well as communications and educational efforts encouraging community transitions.

The objective of the jurisdictional scan is to provide the City with guidance on lessons learned from other jurisdictions that have phased-out gas powered, two-stroke engine equipment.

There are three main parts to the study:

- Regulatory, policy, and standards review;
- Incentive programs; and
- Marketing and educational campaigns.

Purpose

The City of Toronto retained the Clean Air Partnership to conduct a jurisdictional scan of 25 jurisdictions across North America, including 23 municipalities and two U.S. states, and conducted interviews with staff from six municipalities that are transitioning their internal operations to zero-emission outdoor power equipment or have enacted community restrictions or bans.

Policy Learnings

The jurisdictional scan revealed that noise, environmental impact and health concerns are primary reasons for imposing ordinances on gas powered outdoor landscape equipment. In 21 of the 25 jurisdictions reviewed, penalties for non-compliance are monetary, often increasing with the number of offences. Out of seven incentive programs included in this scan, gas powered leaf blowers are the most frequently targeted piece of equipment. Educational flyers and brochures targeted at residents are used to promote either a community by-law/ordinance or to encourage the transition from gas powered to zero-emission outdoor power equipment.

Summary of Key Findings

1) Regulatory, policy, and standards review

The regulatory, policy, and standards review included a total of 25 jurisdictions across North America, including 23 municipal governments and two American states. All 25 jurisdictions include gas powered leaf blowers in their restrictions in some capacity, while 23 of the 25 exclusively restrict the use of gas-powered leaf blowers. The main reasons put forth by jurisdictions that have restrictions on gas-powered small engine equipment are concerns regarding health (9 out of 25), the environment (16 out of 25), and noise (24 out of 25). The rationale for exclusively banning leaf blowers and omitting additional gas-powered, two-stroke engine equipment from the ban is not explicitly provided.

2) Incentive programs

Seven incentive programs were reviewed to collect information on incentive types, rates, program structure, communication strategies, and participation metrics.

Of the seven incentive programs covered within this scan, five offered rebates, while only one offered grants and one offered point-of sale vouchers. The programs included an array of equipment; however, leaf blowers were included in the majority (six out of seven) of programs.

The tendency to include leaf blowers aligns with the jurisdictional scans bias toward restricting gas powered, two-stroke leaf blower use.

Information available online related to communication strategies and participation metrics is limited; however, Clean Air Partnership reached out to program staff to gain

further insight into these key program aspects and where possible these findings have been included in the scan.

3) Marketing and educational campaigns

All of the nine municipal governments included in the scan of marketing and educational campaigns are primarily employing educational flyers and brochures, however, it is not clear how these flyers are being distributed (whether they are being promoted on social media, distributed at public outreach events, mailed directly to resident inboxes, etc.).

Methods

The 25 jurisdictions included in the scan represent a range of restrictions on different types of gas powered, two-stroke engine equipment. Information on the jurisdictions' approaches was gathered through a review of websites, staff reports, municipal codes, and related documents as well as through six interviews and direct email communication. The initial questions pertaining to community restrictions that were provided to recipients via email are as follows:

- What enforcement mechanisms are in place?
 - o Have these changed over time/ Were new mechanisms needed?
 - o How many new staff were required to enforce the ban?
 - O What is the proof of violation?
 - O What is working, and what is not?
- Did the City provide incentive programs?
- What communication campaigns were used, and how effective did you find them?
- Were there any pre-existing bans you modeled your ban after?
- Any additional insight into the challenges faced during the transition period.

The questions pertaining to a corporate transition that were provided to recipients are as follows:

- How many batteries are needed to keep up with the maintenance demands of your crews?
- How do you gauge what "Peak" demand is on equipment to ensure proper tooling/battery supply?
- How is performance/use affected under real-world conditions (wet grass vs. dry grass; thick grass vs. sports fields)
- How will batteries perform after long periods of limited use in winter?
- Which equipment is more likely to be first replaced with an electric alternative (like-to-like operations) in your municipality?

Table 1. Jurisdictions included in the scan.

Table 1. Jurisdictions included in the scan.		
Jurisdiction		
Ann Arbor, Michigan		
Aspen, Colorado		
Berkely, California		
Beverely Hills, California		
Burlingame, California		
Bronxville, New York		
Brookline, Massachusetts		
California, U.S.A		
Cambridge, Massachusetts		
District of Columbia, U.S.A		
Halifax Regional Municipality, Nova Scotia		
Hermosa Beach, California		
Lexington, Massachusetts		
Evanston, Illinois		
Montclair, New Jersey		
Montgomery County, Maryland		
Oakland, California		
Pleasantville, New York		
Portland, Oregon		
Rye, New York		
Santa Monica, California		
Solana Beach, California		
Vancouver, British Columbia		
West Hollywood, California		
Yonkers, New York		

Table 2: Jurisdictions interviewed.

Jurisdiction
City of Aspen, Colorado
City of Ottawa, Ontario
City of Vancouver, British Columbia
District of Oak Bay, British Columbia
Halifax Regional Municipality, Nova Scotia
Metro Vancouver Regional District, British Columbia

Findings

Restriction Type and Exemptions

Twenty-three of the 25 jurisdictions have enacted restrictions exclusively on gas powered leaf blowers, while only two jurisdictions prohibit the use of all gas-powered, two-stroke engine equipment.

Ten jurisdictions have prohibited the use of gas-powered leaf blowers year-round (total prohibition), and one of these 10 has included gas-powered string trimmers in their restriction. Table 3 summarizes the type of restriction enacted and type of equipment restricted in each of the jurisdictions. The sum of the values displayed in Table 3 is not 25 due to instances where two separate restrictions exist in one jurisdiction.

The three jurisdictions that have banned the sale of equipment are Montgomery County, Maryland (gas powered leaf blowers and vacuums), Washington D.C. (gas-powered leaf blowers) and the State of California (all gas-powered small engine equipment). The former will prohibit the use of this equipment beginning in 2025, as per the amendments to the Country Noise Law adopted in 2023. California's ban on sales extends to manufactures and requires all new equipment to be zero emissions. However, the state has not released information on their plans to prohibit the use of gas powered, two-stroke engine equipment. Currently, municipal governments are enacting their own regulations.

Of the 14 jurisdictions that have not already prohibited the use of gas-powered leaf blowers, six have proposed to do so in the future (Ann Arbor, Michigan; Brookline, Massachusetts; Cambridge, Massachusetts; Lexington, Massachusetts; Montgomery County, Maryland; Portland, Oregon).

Correspondence with municipal staff from the City of Portland, Oregon provided insight into the rationale behind a seasonal ban, stating that the reason for the allowance between October and December is due to the "wet leaf season", when leaves are heavier and stick to surfaces, causing surfaces to be slippery. The reported ineffectiveness of removing wet leaves, due to zero emissions equipment being less powerful, not only prolongs the process, but increases the likelihood of workers and passerby slipping. Gas powered leaf blowers will continue to be allowed during this season in the City of Portland, Oregon with the presumption that by 2028 the equipment will be improved, and the zero emissions version will be a like-to-like replacement.

¹ Cooper, S. (2024, August 14). Portland ban on 2-stroke engine leaf blowers and other equipment [Email].

² Cooper, S. (2024, August 14). Portland ban on 2-stroke engine leaf blowers and other equipment [Email].

Table 3: Summary of gas-powered small engine restrictions of the 25 jurisdictions

included in the jurisdictional scan.

	Total Prohibition	Seasonal	Time of Day	Neighbourhood Restriction	Seasonal and Time of Day	Ban on Sales
Gas Powered Leaf Blowers	11	6	3		1	
All Leaf Blowers				1		
Two-Stroke Engine Equipment			1	1		1
Gas Powered Leaf Blowers and String Trimmers	1					
Gas Powered Leaf Blowers and Vacuums			1			1

Non-Compliance, Penalties and Administration of Penalties

Penalties for non-compliance vary between jurisdictions. In six out of 25 jurisdictions perpetrators receive warnings upon the first offence, whereas in 13 out of 25 jurisdictions first time violations result in fines of varying sums (Table 4). It is common for jurisdictions to establish penalties for first, second and third offences, and at times the value of penalties for subsequent offences. In Table 4, in cases where information on penalties beyond the third offence has not been found, 'N/A' has been inserted. 'Unknown' has been inserted where information on penalties was unavailable, and Clean Air Partnership was unable to receive this information from jurisdictional staff.

Table 4: Penalties for non-compliance across jurisdictions.

Jurisdiction	First Offence	Second Offence	Third Offence	Fourth Offence	Fifth Offence
Municipal Governm					
Ann Arbor, Michigan ³	\$100	\$250*	\$250	\$250	\$250
Aspen, Colorado ⁴	Warning	\$100	\$250	\$500	Unknown
Berkely, California	Unknown	Unknown	Unknown	Unknown	Unknown
Beverly Hills, California	Unknown	Unknown	Unknown	Unknown	Unknown
Burlingame, California	Currently in a six month grace period before fines are administered.				
Bronxville, New York ⁵	\$250	\$500	\$1000	Unknown	Unknown
Brookline, Massachusetts ⁶	Written warning	\$50	\$100	\$150*	\$150
Cambridge, Massachusetts ⁷	\$300	N/A	N/A	N/A	N/A
Halifax Regional Municipality, Nova Scotia ⁸	\$300+	\$700+	\$1000+	N/A	N/A
Hermosa Beach, California	Up to \$100	Up to \$200	\$500*	\$500	\$500
Evanston, Illinois ⁹	Written warning	\$100	\$150	\$200	\$250*
Lexington, Massachusetts ¹⁰	Up to \$50	Up to \$100	Up to \$200	Up to \$200	Unknown
Montclair, New Jersey ¹¹	\$250	\$500	\$1000*	\$1000	\$1000
Montgomery County, Maryland ¹²	\$500*	\$500*	\$500*	\$500*	\$500*

³ City of Ann Arbor. (n.d.-b). Gas leaf blower phase-out. https://www.a2gov.org/departments/sustainability/Sustainability-Me/Businesses/Pages/Gas-Leaf-Blower-Phase-Out.aspx

⁴ Sandifer, Sarah. (2024, October 11). *Gas powered leaf blower ban* [Email].

⁵ Village of Bronxville. (2021, June 14). Mitigating the health, environmental, and quality of life impacts of gas powered leaf blowers. https://www.villageofbronxville.com/sites/g/files/vyhlif336/f/pages/cody_bronxville_leaf_blower_report_june14_2021_2_2.pdf

⁶ Town of Brookline. (n.d.-a). Leaf blower bylaw. https://www.brooklinema.gov/DocumentCenter/View/21303/

⁷ City of Cambridge. (2016, September 12). Leaf blower regulations. https://www.cambridgema.gov/-/media/Files/licensecommission/leafblowersandnoise/lbregulationsenglish.pdf

⁸ Halifax Regional Municipality. (n.d.). By-law N-200: Respecting the use of leaf blowers.

https://www.halifax.ca/sites/default/files/documents/city-hall/legislation-by-laws/By-LawN-200.pdf

⁹ City of Evanston. (n.d.). Leaf blowers. https://www.cityofevanston.org/about-evanston/sustainability/leaf-blowers#:~:text=In%20November%20201%2C%20the%20Evanston,permitted%20after%20April%201%2C%202023.

¹⁰ Town of Lexington. (n.d.). Bylaw on the use of landscape maintenance equipment. https://www.lexingtonma.gov/796/Bylaw-on-the-Use-of-Landscape-Maintenanc

¹¹ Spear, S. (2023, August 17). *Montclair bans gas powered leaf blowers starting in October: What to know.* Montclair Girl. https://www.themontclairgirl.com/leaf-blower-ban-montclair-new-jersey/

¹² Montgomery County Department of Environmental Protection. (n.d.). Leaf blowers. https://www.montgomerycountymd.gov/DEP/property-care/leaf-blowers/index.html

Jurisdiction	First Offence	Second Offence	Third Offence	Fourth Offence	Fifth Offence
Oakland, California ¹³	\$100	\$200	\$500	N/A	N/A
Pleasantville, New York ¹⁴	Up to \$500	Up to \$500	Up to \$500	Up to \$500	Up to \$500
Portland, Oregon ¹⁵	Warning	\$250	\$500	\$1000*	N/A
Rye, New York ¹⁶	Up to \$250	Up to \$350	Up to \$1,500	N/A	N/A
Santa Monica, California ¹⁷	Administrative citation	Up to \$250 if within one year from initial violation	N/A	N/A	N/A
Solana Beach, California ¹⁸	Warning	\$100	N/A	N/A	N/A
Vancouver, British Columbia ¹⁹	\$250+	\$250+	\$250+	\$250+	\$250+
West Hollywood, California ²⁰	Violations may result in a fine ranging from \$100 to \$500, plus an administrative fee of \$50.				
Yonkers, New York ²¹	Violations may result in a fine ranging from \$250 to \$5,000.				
States					
California	N/A	N/A	N/A	N/A	N/A
District of Columbia ²²	Up to \$500	Up to \$500	Up to \$500	Up to \$500	Up to \$500

^{*}Amount fined for subsequent violations

Note: Fine amounts are shown in USD for American jurisdictions and CAD for Canadian jurisdictions.

¹³ Gardenland. (n.d.). City of Oakland bans gas powered leaf blowers, string trimmers. https://www.gardenland.com/buyers-guide/city-of-oakland-bans-gas powered-leaf-blowers-string-trimmers/

¹⁴ Pleasantville, NY. (2023.). *Seasonal ban on gas powered leaf blowers: FAQ*. https://www.pleasantville-ny.gov/projects-initiatives/pages/seasonal-ban-on-gas powered-leaf-blowers-faq

¹⁵ City of Portland. (n.d.). Ordinance no. 191653. https://www.portland.gov/council/documents/ordinance/passed/191653

¹⁶ City of Rye. (n.d.). Municipal code: Chapter 122 leaf blowers. https://ecode360.com/40654630

¹⁷ City of Santa Monica. (n.d.). Leaf blower policy. https://www.santamonica.gov/leaf-blower-policy

¹⁸ Kaplanek, B. (2011, January 6). New law limits leaf blower use in Solana Beach. The Coast News Group. https://thecoastnews.com/new-law-limits-leaf-blower-use-in-solana-beach/

¹⁹ City of Vancouver. (n.d.). Noise Control By-law 6555: Part 5 offences and penalties. https://bylaws.vancouver.ca/6555c.PDF

²⁰ City of West Hollywood. (2021, December 13). City's code compliance division increases outreach to residents about 'good neighbor' policies. https://www.weho.org/Home/Components/News/News/10069/23

²¹ City of Yonkers. (n.d.) Leaf blower ban. https://www.yonkersny.gov/210/Leaf-Blower-

Ban#:~:text=In%202007%2C%20the%20City%20of,health%20by%20reducing%20air%20pollution.

²² Council of the District of Columbia. (2022). B22-0234: Gas powered leaf blower prohibition act. https://lims.dccouncil.gov/downloads/LIMS/37820/Signed Act/B22-0234-SignedAct.pdf?ld=105999

Mechanism for Reporting Non-Compliance

Nineteen out of 23 municipal governments included in the scan have established complaint-driven reporting, where complaints are submitted either to police, public works, or code compliance departments. In the case of the City of Portland, Oregon, a complaint system has been proposed, however, there are concerns that a complaint system may disproportionately affect equity-deserving groups.²³

Through correspondence with Aspen, Colorado City staff, they expressed interest in enforcing via patrol rather than complaints to solve issues surrounding violators avoiding detection.²⁴ In addition to concerns around avoiding detection, complaint-based reporting has resulted in challenges in other jurisdictions. For example, in the City of Evanston, Illinois, landscapers have made claims that their staff have been harassed.²⁵

Interview Findings

Key findings from the interviews showed that the City of Vancouver, British Columbia had successfully transitioned approximately 90 per cent of their hedge trimmers and long pole saws to zero emissions alternatives. Similarly, District of Oak Bay, British Columbia found smaller equipment like zero-emission alternatives chainsaws, hedge trimmers and handheld leaf blowers worked well.

However, five out of six municipalities reported challenges with battery performance, with insufficient battery and equipment lifespan hindering operations. Completing larger, more demanding or longer tasks proved difficult with battery-operated equipment. For example, Halifax Regional Municipality, Nova Scotia reported that tasks like leaf removal in cemeteries require a mix of gas powered and zero emission equipment, while District of Oak Bay, British Columbia reported that zero emission leaf blowers were unsuitable for large tasks like long stretches of boulevards due to their short battery life. The City of Ottawa, Ontario found that handheld leaf blowers did not meet performance needs during wet seasons or in areas with dense vegetation. Additionally, the City of Vancouver, British Columbia reported that battery-operated string trimmers required mid-season replacements. The City of Ottawa, Ontario emphasized the importance of collecting daily input from staff during pilot programs to better understand the transition's challenges and benefits and to aid in equipment selection.

Incentive Programs Summary

This scan includes a total of seven incentive programs, five of which are administered at the municipal level. While the incentive programs administered by the South Coast Air Quality Management District and the El Dorado County Air Quality Management District operate under the same guidelines established by the California Air Resource Board,

²³ Cooper, S. (2024, August 14). Portland ban on 2-stroke engine leaf blowers and other equipment [Email].

²⁴ Sandifer, Sarah. (2024, October 11). *Gas powered leaf blower ban* [Email].

²⁵ Meadows, J. (2021, June 15). Evanston leaf blower policy changes hedged by city council. Patch. https://patch.com/illinois/evanston/evanston-leaf-blower-policy-changes-hedged-city-council

how they are administered differs and they are therefore considered two separate programs within this scan.

The most frequently (five out of seven) administered incentive type is a rebate, which provides customers with money following a purchase (Table 5). Within the scan, grants (funds that do not require repayment) and point-of-sale vouchers (which provide a discounted price at the time of purchase) were only administered once each.

Table 5: Number of programs per incentive type.

Type of Incentive	Number of Programs	Jurisdictions Using this Approach
Rebates	5	 Burlingame, California El Dorado County Air Quality Management District Holland, Michigan South Portland, Maine Toledo, Ohio
Grants	1	Evanston, Illinois
Point-of-Sale Voucher	1	 South Coast Air Quality Management District

Zero emissions leaf blowers are included in six out of seven incentive programs and were only excluded from The City of Toledo's Electric Lawn Mower Rebate Program (Figure 1). The tendency to include leaf blowers aligns with the jurisdictional scan's bias toward restricting gas-powered, two-stroke engine leaf blower use. Of the jurisdictions who provide incentives for gas-powered leaf blowers, only two have not implemented restrictions on gas-powered leaf blower use (Holland, Michigan and South Portland, Maine), although, South Portland recently held a City Council workshop focused on advancing an ordinance that would specifically prohibit gas-powered, two-stroke engine leaf blower use.²⁶

²⁶ Parmelee, Susan. (2024, October 16). South Portland Electrify Everything incentives for electric leaf gas blowers [Email].

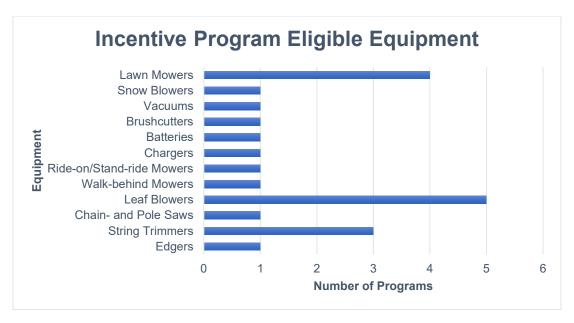


Figure 1: List of equipment included in the seven incentive programs reviewed.

Marketing and Educational Campaigns

Methods

To inform potential promotional campaigns, a review of marketing strategies and communication tools was conducted to identify current leading practices. This included the following:

- A literature review of marketing strategy communication tools for promoting environmental policy and behaviour and sustainable practices, including examples from environmental organizations; and
- A scan of jurisdictional communication campaigns related to zero-emission outdoor power equipment adoption and restrictions on gas powered, two-stroke engine equipment.

Marketing Tactics and Communication Tools Literature Review

A study conducted by Grilli and Curtis (2021) concluded that "improving environmental quality ... can be achieved by changing unsustainable behaviour". ²⁷ Those who feel motivated to protect the environment are more likely to support environmental policy and behave pro-environmentally. ²⁸ Research has explored how to galvanize the public into increased motivation and pro-environmental behaviour. It has been suggested that to build trust between residents and municipal government and for residents to accept

²⁷ Grilli, G., & Curtis, J. (2021). Encouraging pro-environmental behaviours: A review of methods and approaches. Renewable and Sustainable Energy Reviews, 135. https://www.sciencedirect.com/science/article/abs/pii/S1364032120303300

²⁸ Sharpe, E. J., Perlaviciute, G., & Steg, L. (2021). Pro-environmental behaviour and support for environmental policy as expressions of proenvironmental motivation. Journal of Environmental Psychology, 76. https://www.sciencedirect.com/science/article/pii/S0272494421001031

the need for action, municipal governments need to "begin to discipline themselves into more pro environmental practices".²⁹

The European Environment Agency (EEA) conducted a scoping study in 2016 focused on the connections between public communication, environmental policy, and behavioural science. This report outlined a series of communication tools including nudging and social marketing. Several prominent campaigns centered on sustainable lawn care and yard practices have utilized the tools and tactics outlined in the EEA report (Table 6).

Table 6: Marketing tactics and communication tactics and tools.

Tactic/Tool	Description	Example/Campaign
Nudging	A predictable, repeated attempt to influence decision-making without limiting available choices by presenting one choice as more attractive and convenient than others, through minorly changing the setting in which decisions are made. ³⁰	Bee City Bee City is an organization dedicated to the protection of pollinators. Bee City Canada and Bee City USA utilize nudging by presenting pollinator friendly practices such as planting native gardens as easy and actionable steps.
Social Marketing	Marketing on the basis that certain ideas, attitudes, and behaviours are beneficial to the audience and greater population. ³¹	Plastic Free Foundation – Plastic Free July Plastic Free July is a movement that targets plastic waste reduction and aims to change consumption behaviours. The movement uses social marketing by framing practices that reduce plastic waste as positive for the greater good. For example, one of the reasons the Plastic Free Foundation promotes refusing single-use plastic straws is to protect animals who may ingest the waste.
Social Innovation	Presents new solutions as meeting needs more effectively than existing solutions, while also leading to improvements in asset and resource use. Generally, social innovation	Grass Lawn Alternatives Many organizations promote alternatives to grass lawns, such as native plant gardens, xeriscaping, and food-scaping, as superior to grass lawns. For example, GreenUP

²⁹ Burgess, J., Harrison, C. M., & Ilius, P. (1998). Environmental communication and the cultural politics of environmental citizenship. Environment and Planning, 30, 1445–1460. https://journals.sagepub.com/doi/pdf/10.1068/a301445

³⁰ European Environmental Agency. (2016). Communication, environment and behaviour: Scoping study on the links between public communication, environmental policy implementation and behavioural science. https://www.eea.europa.eu/publications/communication-environment-and-behaviour/file

³¹ European Environmental Agency. (2016). Communication, environment and behaviour: Scoping study on the links between public communication, environmental policy implementation and behavioural science. https://www.eea.europa.eu/publications/communication-environment-and-behaviour/file

Tactic/Tool	Description	Example/Campaign
	leads to increased public trust and encourages new social norms. Under this lens, environmental issues may be reframed as opportunities. ³²	promotes the low maintenance nature of native plant gardens. ³³
Social Media	A highly interactive platform that permits users to share, converse, and co-create in real-time on a broader scale in terms of reach, frequency, and proximity using direct, accessible language. ³⁴	Introduced by United Kingdom based organization Plantlife, the goal of this movement is to support pollinators by putting a halt on lawn mowing throughout the early spring when there are limited floral resources. 35 Plantlife utilizes social media to promote the movement by encouraging the use of hashtags such as #NoMowMay and providing the public with pre-developed sharable social media posts available through their website.
Direct Mail Marketing	Direct mail marketing is the practice of distributing promotional materials through mail directly to resident's home mailboxes. ³⁶	El Dorado The El Dorado County Air Quality Management District's Clean Lawn Equipment Incentive Program measure's marketing success through their incentive application by posing the question "How Did You Hear About the Clean Lawn Equipment Incentive Program?". Through this question, it has been determined that the program has encountered the most success through direct mail marketing.

³² European Environmental Agency. (2016). Communication, environment and behaviour: Scoping study on the links between public communication, environmental policy implementation and behavioural science. https://www.eea.europa.eu/publications/communicationenvironment-and-behaviour/file

³³ Goodchild, H. (n.d.). Peterborough GreenUP shares four reasons to plant a tree or shrub this fall. GreenUP. https://greenup.on.ca/peterborough-greenup-shares-four-reasons-to-plant-a-tree-or-shrub-this-fall/

³⁴ European Environmental Agency. (2016). Communication, environment and behaviour: Scoping study on the links between public communication, environmental policy implementation and behavioural science. https://www.eea.europa.eu/publications/communicationenvironment-and-behaviour/file

³⁵ Bee City USA. (n.d.). Now mow may, slow mow spring. https://beecityusa.org/no-mow-may/

³⁶ Canada Post. (n.d.). How to do direct mail: Your small business guide to launching a direct mail campaign. https://www.canadapostpostes canada. ca/blogs/business/marketing/how-to-do-direct-mail-your-small-business-guide-to-launching-a-direct-mail-campaign/scanada. ca/blogs/business/marketing/how-to-do-direct-mail-your-small-business-guide-to-launching-a-direct-mail-campaign/scanada. ca/blogs/business/marketing/how-to-do-direct-mail-your-small-business-guide-to-launching-a-direct-mail-campaign/scanada. ca/blogs/business/marketing/how-to-do-direct-mail-your-small-business-guide-to-launching-a-direct-mail-campaign/scanada. ca/blogs/business-guide-to-launching-a-direct-mail-campaign/scanada. ca/blogs/business-guide-to-launching-a-direct-mail-ca/blogs/business-guide-to-launching-a-direct-mail-ca/blogs/business-guide-to-launching-a-direct-mail-ca/blogs/business-guide-to-launching-a-direct-mail-ca/blogs/business-guide-to-launching-a-direct-mail-ca/blogs/business-guide-to-launching-a-direct-ma

Jurisdictional Communication Campaigns

Two-Stroke, Gas-Powered Engine Equipment Restrictions

Several of the tools and tactics highlighted in Table 6 have been employed by jurisdictions with the objective of promoting restrictions on gas powered, two-stroke engine equipment and advancing zero-emission outdoor power equipment adoption. Each jurisdiction included in this scan has utilized social marketing by presenting zero emissions alternatives as having widespread benefits, ranging from emissions reduction to health benefits. Often, several tactics have been used to relay these benefits to the public, often communicated via promotional flyers, webpages and public service announcements. Table 7 provides a detailed list of communication tools, however, information on marketing strategies was not available. The flyers and brochures found during this search can be viewed in Appendix 2.A.

Table 7: Summary of municipal social marketing strategies and communications

tools disaggregated by jurisdiction.

Jurisdiction	Marketing Strategies and Communication Tools
Annapolis, Maryland	 FAQ webpage on the municipal site Go Electric: Leaf Blower Policy webpage on the municipal site Bilingual flyers (Figure 6)
Ann Arbor, Michigan	 Dedicated webpage on the municipal site Electric Lawn Care Case Study Guide Gas Leaf Blower Phase-Out FAQ Gas Leaf Blower Phase-Out Flyer (Figure 7) The City will be hosting a Sustainable Lawn Care Learning Session in October 2024, open to homeowners, lawn care companies, and property owners and will include presentations and live demonstrations
Aspen, Colorado	 Bilingual flyers (Figure 8) Emails directly to landscaping companies Local newspaper announcements Social media posts Community Development Newsletter
Brookline, Massachusetts	 Dedicated webpage on municipal site Brochure outlining best practices regarding how and when to use leaf blowers (Figures 9 and 10)
Burlingame, California	 Dedicated webpage on municipal site Leaf Blower Ban Flyer, available in English and Spanish (Figure 11) Leaf Blower Ordinance Informational Flyer

Jurisdiction	Marketing Strategies and Communication Tools
	 Leaf Blower Regulation Reminder, available in <u>English</u> and
	<u>Spanish</u>
Coronado,	 Gas powered Leaf Blower Ban webpage on municipal site
California	- Gas powered Leaf Blower Ban flyers (English and Spanish)
	(Figure 812
	 Public service announcement published to YouTube
	- Two electric leaf blower virtual webinars
Montgomery	 Multiple webpages on the municipal site, including pages on
County,	the following: Ordinance, About Electric Leaf Blowers, Buying
Maryland	Electric Lead Blowers, Electric Leaf Blower Rebates, and Leaf
	Blower FAQs
	- Gas powered leaf blower ban flyer (Figure 13)
Oakville,	 Providing information on their Community Climate Action
Ontario	<u>webpage</u>
	- Choose electric over gasoline flyer (Figure 14)
Paulo Alto,	- Blog post on City run blog
California	 Webpage on municipal website
	- Gas powered Leaf Blowers Prohibited in Residential
	Neighborhoods brochure (Figure 15)

Across the nine jurisdictions included in the review, all used flyers as a tool to promote bans on gas-powered and/or two-stroke engine equipment and encourage the adoption of zero emission outdoor power equipment (Table 15). Seven of the nine municipalities have enacted, or are advancing, a ban and have dedicated webpages located on their municipal website. The municipality that utilizes the largest variety of communication tools, including an in-person event and study guide (both of which are not utilized by any other jurisdiction), is Ann Arbor, Michigan.

Table 8: Summary of communication mechanisms.

Jurisdiction	Webpage	Flyers	Study Guide	Virtual Event	Public Service Announcement	In Person Event	Blog/ Newspaper post
Ann Arbor, Michigan	Х	х	X	х		Х	
Annapolis, Maryland	x	х					
Aspen, Colorado		х			Х		х
Burlingame, California	Х	х					
Brookline, Massachusetts	Х	х					

Jurisdiction	Webpage	Flyers	Study Guide	Virtual Event	Public Service Announcement	In Person Event	Blog/ Newspaper post
Coronado, California	Х	х		х	х		
Montgomery County, Maryland	x	х					
Oakville, Ontario		х					
Paulo Alto, California	Х	х					Х

The review found that when promoting bans or encouraging a transition away from gas powered, two-stroke engine equipment, jurisdictions are likely to highlight the following benefits in their communication tools (Table 16):

- carbon reduction;
- improved health;
- · financial savings;
- improved air quality;
- lightweight/less physically demanding yard work; and
- noise reduction.

As displayed in Table 16, carbon reduction is the most cited benefit among the sample (six out of nine). Of the seven municipalities that have enacted a ban, six have implemented a ban and are using the flyers as educational tools targeting residents. The only exception is the Town of Oakville, Ontario, which is promoting the adoption of zero-emission outdoor power equipment to residents through an annual six month campaign but have not yet indicated that they are pursuing a municipal ban or bylaw.

Table 9: Benefits of zero-emission outdoor power equipment mentioned in communication tools.

Jurisdiction	Carbon Reduction	Improved Health	Financial Savings	Improved Air Quality	Lightweight	Noise Reduction
Ann Arbor, Michigan	х	х				х
Annapolis, Maryland		х	Х			х
Aspen, Colorado						
Burlingame, California				х		х
Brookline, Massachusetts	х					х

Jurisdiction	Carbon Reduction	Improved Health	Financial Savings	Improved Air Quality	Lightweight	Noise Reduction
Coronado, California						
Montgomery County, Maryland	х	х	х	х		х
Oakville, Ontario	x	х	x	x	x	
Paulo Alto, California	x					х

References

Aspen, Colorado. (n.d.). Municipal code: Title 18 land use and development https://library.municode.com/co/aspen/codes/municipal code?nodeId=TIT18NOAB CH18.04NOAB2

Aves, K., & Funk, K. (2022, December 22). One thing city leaders can do to support electrification: Electric lawn equipment. <a href="https://www.nlc.org/article/2022/12/22/one-thing-city-leaders-can-do-to-support-electrification-electric-lawn-equipment/#:~:text=This%20rebate%20program%20started%20on,lawn%20mowers%20and%20snow%20blowers.

Bee City USA. (n.d.). Now mow may, slow mow spring. https://beecityusa.org/no-mow-may/

Bronxville Green Committee. (n.d.). Leaf blowers. https://www.bronxvillegreencommittee.org/biodiversity/leaf-blowers

Burgess, J., Harrison, C. M., & Ilius, P. (1998). Environmental communication and the cultural politics of environmental citizenship. Environment and Planning, 30, 1445–1460. https://journals.sagepub.com/doi/pdf/10.1068/a301445

Cahan, R. (2024, March 2). Landscapers rally against ban on gas powered leaf blowers. Evanston RoundTable.

https://evanstonroundtable.com/2024/03/02/landscapers-rally-against-ban-on-gaspowered-leaf-blowers/

California Air Resource Board. (n.d.). Proposed 2024 Carl Moyer program guidelines – Volume I: Program overview, program administration and project criteria chapter 9: Lawn and garden equipment replacement.

https://ww2.arb.ca.gov/sites/default/files/2024-08/chapter9.pdf

California Legislative Information. (2021). Assembly Bill No. 1346: An act to amend Section 41865 of the Public Resources Code, relating to gas powered leaf blowers. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220AB1346

California Air Resources Board. (2021, December). CARB approves updated regulations requiring most new small off-road engines be zero emission by 2024. https://ww2.arb.ca.gov/news/carb-approves-updated-regulations-requiring-most-new-small-road-engines-be-zero emission-2024

Canada Post. (n.d.). How to do direct mail: Your small business guide to launching a direct mail campaign. https://www.canadapost-postescanada.ca/blogs/business/marketing/how-to-do-direct-mail-your-small-business-guide-to-launching-a-direct-mail-campaign/

Caruso, J. (2023, July 25). Council delays fines for leaf-blower violations. Santa Monic Lookout. https://www.surfsantamonica.com/ssm_site/the_lookout/news/News-

2023/July-

2023/07 25 2023 Council Delays Fines for Leaf Blower Violations.html

City of Ann Arbor. (n.d.). Code of ordinances: Title VI – Food and health. https://library.municode.com/mi/ann_arbor/codes/code_of_ordinances?nodeId=TITVIFOHE_CH73TCLPOEQ

City of Ann Arbor. (n.d.). Gas leaf blower phase-out FAQ document.

https://www.a2gov.org/departments/sustainability/Sustainability-Me/Businesses/Documents/Gas%20Leaf%20Blower%20Phase-Out%20FAQ%20Document.pdf

City of Ann Arbor. (n.d.). Gas leaf blower phase-out. https://www.a2gov.org/departments/sustainability/Sustainability-Me/Businesses/Pages/Gas-Leaf-Blower-Phase-Out.aspx

City of Ann Arbor. (2024). Gas leaf blower phase-out [Flyer]. https://www.a2gov.org/departments/sustainability/Sustainability-Me/Businesses/Documents/Gas%20Leaf%20Blower%20Phase-Out%20Flyer.pdf

City of Annapolis. (n.d.). Go electric: Leaf blower policy. https://www.annapolis.gov/2184/Go-Electric-Leaf-Blower-Policy

City of Aspen. (n.d.). Municipal code: Title 18 – noise abatement. https://library.municode.com/co/aspen/codes/municipal_code?nodeld=TIT18NOAB_CH18.04NOAB2

City of Aspen. (n.d.). Noise.

https://www.aspen.gov/329/Noise#:~:text=The%20Aspen%20City%20Council%20banned,noise%20ordinance%20for%20more%20information.&text=I%20saw%20someone%20using%20a,blower%2C%20what%20should%20I%20do%3F

City of Berkely. (n.d.). Municipal code: Chapter 13.40 community noise. https://berkeley.municipal.codes/BMC/13.40

City of Berkeley. (n.d.). Noise standards. https://berkeleyca.gov/city-services/livable-neighborhoods/noise-standards

City of Beverly Hills. (n.d.). Did you know that....

https://www.beverlyhills.org/DocumentCenter/View/1078/Gas-Leaf-Blowers-PDF

City of Burlingame. (n.d.). Leaf blowers. https://www.burlingame.org/573/Leaf-Blowers#:~:text=Reducing%20Noise%20%26%20Air%20Pollution,and%20air%20pollution%20in%20Burlingame.

City of Burlingame. (n.d.). Leaf blower ordinance. https://burlingame.org/DocumentCenter/View/2007/Leaf-Blower-Ordinance-PDF City of Burlingame. (2024, February). Ordinance no. 2023.

https://www.burlingame.org/DocumentCenter/View/4689/Gas-Leaf-Blower-Ban-Ordinance-PDF

City of Cambridge. (2016, September 4). Advisory notice - leaf blowers. https://www.cambridgema.gov/Departments/licensecommission/News/2016/09/advis

City of Cambridge. (2016, September 12). Leaf blower regulations.

https://www.cambridgema.gov/-

orvnoticeleafblowers

/media/Files/licensecommission/leafblowersandnoise/lbregulationsenglish.pdf

City of Cambridge. (2023, December). Ordinance no. 2023-10 – final publication. https://www.cambridgema.gov/-

/media/Files/publicworksdepartment/leafblowers/leafblowerordinance/20310.pdf

City of Coronado. (n.d.). Gas=powered lea blower ban.

https://www.coronado.ca.us/296/Gas powered-Leaf-Blower-Ban

City of Evanston. (n.d.). Leaf blowers. <a href="https://www.cityofevanston.org/about-evanston/sustainability/leaf-evanston/sustainability/sustainability/sustainability/sustainability/sustainability/sustainability/sustainability/sustainability/sustainability/sustainability/sustainability/sustainability/sustainability/sustainability/s

blowers#:~:text=In%20November%202021%2C%20the%20Evanston,permitted%20 after%20April%201%2C%202023.

City of Evanston. (n.d.). Municipal code: Chapter 26 leaf blowers.

https://library.municode.com/il/evanston/codes/code of ordinances?nodeId=TIT8HE SA CH26LEBL 8-26-6PEHOLEBLUS

City of Evanston. (2024, February 14). Apply for a 'Sustain Evanston' grant. https://www.cityofevanston.org/Home/Components/News/News/6198/17

City of Hermosa Beach. (n.d.). Code enforcement.

https://www.hermosabeach.gov/our-government/community-development/code-enforcement

City of Hermosa Beach. (n.d.). Hermosa Beach, CA municipal code.

https://online.encodeplus.com/regs/hermosabeach-ca/docviewer.aspx?secid=988#secid-988

City of Oakland. (2020, July 20). Legislative Report for the Ordinance Banning Combustion Engine-Powered Leaf Blowers and String Trimmers.

https://oakland.legistar.com/View.ashx?M=F&ID=8676014&GUID=7DB0292A-A928-413D-9E1A-9D7F712B8989

City of Oakland. (2020). Ordinance no. 13616.

https://oakland.legistar.com/View.ashx?M=F&ID=8676015&GUID=97CCE601-F2CD-4B61-85FE-6643CB2D6E6D

City of Oakland. (n.d.). Oakland bans the use of combustion engine-powered leaf blowers and string trimmers. https://www.oaklandca.gov/resources/oakland-bans-the-use-of-combustion-engine-powered-leaf-blowers-and-string-trimmers

City of Portland. (n.d.). About the equitable gas leaf-blower phase-out. https://www.portland.gov/bps/climte-action/leaf-blowers/glb-phase-out

City or Portland. (2024). City council hearing – equitable gas leaf blower phase-out. https://www.portland.gov/bps/climate-action/leaf-blowers/events/2024/3/13

City of Portland. (n.d.). Equitable gas leaf blower phase-out. https://www.portland.gov/bps/climate-action/leaf-blowers

City of Portland. (n.d.). Ordinance no. 191653.

https://www.portland.gov/council/documents/ordinance/passed/191653

City of Rye. (n.d.). Municipal code: Chapter 122 leaf blowers. https://ecode360.com/40654630

City of Santa Monica. (n.d.). Leaf blower policy. https://www.santamonica.gov/leaf-blower-policy

City of Santa Monica. (2023, August 22). Ordinance number 2753. https://ecode360.com/SA5008/laws/LF1890936.pdf

City of Solana Beach. (n.d.) Code enforcement.

https://www.cityofsolanabeach.org/en/code-

enforcement#:~:text=You%20may%20obtain%20a%20copy,%2C%20Solana%20Be ach%2C%20CA%2092075.&text=Please%20call%20the%20Citation%20Processing ,for%20more%20information%20about%20citations.

City of Solana Beach. (2009). Ordinance 399.

https://www.codepublishing.com/CA/SolanaBeach/html/ords/ords300-399/ORD399.pdf

City of South Portland. (n.d.). Electrify Everything! Eligibility self-assessment. <a href="https://www.southportland.gov/DocumentCenter/View/1761/Electrify-Everything-Application-April-1-2023?bidld="https://www.southportland.gov/DocumentCenter/View/1761/Electrify-Everything-Application-April-1-2023?bidld="https://www.southportland.gov/DocumentCenter/View/1761/Electrify-Everything-Application-April-1-2023?bidld="https://www.southportland.gov/DocumentCenter/View/1761/Electrify-Everything-Application-April-1-2023?bidld="https://www.southportland.gov/DocumentCenter/View/1761/Electrify-Everything-Application-April-1-2023?bidld="https://www.southportland.gov/DocumentCenter/View/1761/Electrify-Everything-Application-April-1-2023?bidld="https://www.southportland.gov/DocumentCenter/View/1761/Electrify-Everything-Application-April-1-2023?bidld="https://www.southportland.gov/DocumentCenter/View/1761/Electrify-Everything-Application-April-1-2023?bidld="https://www.southportland.gov/DocumentCenter/View/1761/Electrify-Everything-Application-Applic

City of Toledo. (n.d.). Electric lawn mower rebate program. https://toledo.oh.gov/residents/sustainability/electric-lawn-mower-rebate-program

City of Vancouver. (n.d.). Noise Control By-law 6555: Part 5 offences and penalties. https://bylaws.vancouver.ca/6555c.PDF

City of Vancouver. (2022). Report on the proposed ban of gas powered leaf blowers. https://council.vancouver.ca/20220126/documents/pspc9.pdf

City of West Hollywood. (n.d.). Municipal code: Chapter 9.08 noise. https://ecode360.com/43907509

City of West Hollywood. (2021, December 13). City's code compliance division increases outreach to residents about 'good neighbor' policies. https://www.weho.org/Home/Components/News/News/10069/23

City of Yonkers. (n.d.) Leaf blower ban. https://www.yonkersny.gov/210/Leaf-Blower-Ban#:~:text=In%202007%2C%20the%20City%20of,health%20by%20reducing%20air%20pollution.

City of Yonkers. (n.d.). The code: Article III leaves, clippings, and grass cuttings. https://ecode360.com/15089766#15089762

Clean Air Partnership. (2024, October 17). CAC fleet meeting: Electrical municipal light-duty equipment. [Webinar]. https://www.youtube.com/watch?v=z6SnPxf22-M&t=133s

Collins, R. (2023, August 9). WeHo reminds residents about gas leaf blower ban. https://beverlypress.com/2023/08/weho-reminds-residents-about-gas-leaf-blower-ban/

Cooper, S. (2024, August 14). Portland ban on 2-stroke engine leaf blowers and other equipment [Email].

Council of the District of Columbia. (2022). B22-0234: Gas powered leaf blower prohibition act. https://lims.dccouncil.gov/downloads/LIMS/37820/Signed_Act/B22-0234-SignedAct.pdf?Id=105999

Cummings, B. (2024, September 25). Sustain Evanston grants help businesses cut waste, energy use. Evanston Roundtable.

https://evanstonroundtable.com/2024/09/25/sustain-evanston-grants-help-businesses-cut-waste-energy-use/

Davis, A. (2018, July 2). The blow-by-blow: The leaf blower battle in D.C. DCist. https://dcist.com/story/18/07/02/the-blow-by-blow-the-leaf-blower-ba/

District of Columbia. (n.d.). Leaf blower regulations. https://dlcp.dc.gov/page/leaf-blower-

<u>regulations#:~:text=Where%20in%20the%20District%20of,government%20of%20the%20United%20States.</u>

District of Columbia Council. (2018, December 26). An act D.C act 22-538. https://lims.dccouncil.gov/downloads/LIMS/37820/Signed_Act/B22-0234-SignedAct.pdf?Id=105999

El Dorado County Air Quality Management District. (2024). Air quality grants and incentives: EDC AQMD CLIP flyer update [PDF]. Eldorado County.

https://www.eldoradocounty.ca.gov/files/assets/county/v/1/documents/services/air-guality-grants-amp-incentives/edc-aqmd-clip-flyer-update-2-1-2024.pdf

El Dorado County. (n.d.). Air quality grants and incentives. https://www.eldoradocounty.ca.gov/Services/Air-Quality-Grants-Incentives

European Environmental Agency. (2016). Communication, environment and behaviour: Scoping study on the links between public communication, environmental policy implementation and behavioural science.

https://www.eea.europa.eu/publications/communication-environment-and-behaviour/file

Gardenland. (n.d.). City of Oakland bans gas powered leaf blowers, string trimmers. https://www.gardenland.com/buyers-guide/city-of-oakland-bans-gas powered-leaf-blowers-string-trimmers/

Goodchild, H. (n.d.). Peterborough GreenUP shares four reasons to plant a tree or shrub this fall. GreenUP. https://greenup.on.ca/peterborough-greenup-shares-four-reasons-to-plant-a-tree-or-shrub-this-fall/

Grilli, G., & Curtis, J. (2021). Encouraging pro-environmental behaviours: A review of methods and approaches. Renewable and Sustainable Energy Reviews, 135. https://www.sciencedirect.com/science/article/abs/pii/S1364032120303300

Halifax Regional Municipality. (n.d.). By-law N-200: Respecting the use of leaf blowers. https://www.halifax.ca/sites/default/files/documents/city-hall/legislation-by-laws/By-LawN-200.pdf

Halifax Regional Municipality. (2023). Gas powered leaf blowers in HRM. https://cdn.halifax.ca/sites/default/files/documents/city-hall/standing-committees/230907esscinfoitem2.pdf

Holland Department of Public Works. (n.d.). Lawn tool rebates. https://hollandbpw.com/en/lawn-tool-rebates

Kaplanek, B. (2011, January 6). New law limits leaf blower use in Solana Beach. The Coast News Group. https://thecoastnews.com/new-law-limits-leaf-blower-use-in-solana-beach/

Kiefer, E. (2023, August 18). Montclair council OKs full ban on gas powered leaf blowers. Patch. https://patch.com/new-jersey/montclair/montclair-council-oks-full-ban-gas-powered-leaf-blowers

Klein, E. (2019, March 29). Washington, D.C., enacts a phase-out of gas powered leaf blowers. The Atlantic.

https://www.theatlantic.com/ideas/archive/2019/03/washington-dc-enacts-phase-out-gas powered-leafblowers/622210/

Kohli, A. (2021, December 9). California regulators to phase-out new gas powered lawnmowers and leaf blowers. Los Angeles Times.

https://www.latimes.com/california/story/2021-12-09/california-regulators-phaseoutnew-gas powered-lawnmowers-and-leaf-blowers

Kurzius, R. (2018, July 2). Blow-by-blow: D.C. Council hears debate on banning gas powered leaf blowers. DCist. https://dcist.com/story/18/07/02/the-blow-by-blow-the-leaf-blower-ba/

Levy, M. (2023, November 7). Gas powered leaf blowers could be gone in 2027, but electric models aren't ready as replacement. Cambridge Day.

https://www.cambridgeday.com/2023/11/07/gas powered-leaf-blowers-could-begone-in-2027-but-electric-models-arent-ready-as-replacements/

Luby, A. (2022, July 4). Pleasantville gas powered leaf blower ban adopted into law. The Examiner News. https://www.theexaminernews.com/pleasantville-gas powered-leaf-blower-ban-adopted-into-law/

Mazzoni, N. (2024, February 6). Burlingame bans leaf blowers. The Daily Journal. https://dcist.com/story/18/07/02/the-blow-by-blow-the-leaf-blower-ba/e-b8ae-338910477d91.html

Meadows, J. (2021, June 15). Evanston leaf blower policy changes hedged by city council. Patch. https://patch.com/illinois/evanston/evanston-leaf-blower-policy-changes-hedged-city-council

Montgomery County. (n.d.). Chapter 31B – noise control. https://www.montgomerycountymd.gov/DEP/Resources/Files/property-care/noise/Noise-control-ordinance.pdf

Montgomery County Department of Environmental Protection. (n.d.). Leaf blowers. https://www.montgomerycountymd.gov/DEP/property-care/leaf-blowers/index.html

Montgomery County Department of Environmental Protection. (n.d.). Noise control. https://www.montgomerycountymd.gov/DEP/property-care/noise/index.html#yard

Montclair Local. (2023, July 6). Montclair council takes first step toward full ban of gas powered leaf blowers. Montclair Local.

https://montclairlocal.news/2023/07/montclair-council-takes-first-step-toward-full-ban-of-gas powered-leaf-blowers/

Montclair Local. (2023, July 17). Montclair Council to Introduce Ban on Gas powered Leaf Blowers. Montclair Local. https://montclairlocal.news/2023/07/montclair-council-to-introduce-ban-on-gas-powered-leaf-blowers/

Quiet Montclair. (n.d.). Code enforcement. https://www.quietmontclair.org/code-enforcement#:~:text=The%20use%20of%20gas
powered%20leaf%20blowers%20is%20prohibited,973-509-

<u>5703%20to%20report%20violations%20and%20request%20immediate%20enforce</u> ment.

Paddock, B. (2024, May 23). Some landscapers say Evanston's gas powered leaf blower ban created a tense atmosphere, with the public and fellow landscapers submitting more than 1,000 violations. WTTW.

https://news.wttw.com/2024/05/23/some-landscapers-say-evanston-s-gas powered-leaf-blower-ban-created-tense-atmosphere

Parmelee, Susan. (2024, October 16). South Portland Electrify Everything incentives for electric leaf gas blowers [Email].

Parmelee, Susan. (2024, October 31). South Portland Electrify Everything incentives for electric leaf gas blowers [Email].

Platte-Bermeo, E. (2023, August 24). City modified leaf blower ordinance to allow zero emissions blowers. https://www.santamonica.gov/blog/city-modifies-leaf-blower-ordinance-to-allow-zero emission-blowers

Poole, Chris. (2024, October 1). Adaptation implementation and tools [Email].

Portland City Council. (2023). Council ordinance 191653: Adding leaf blowers code to phase-out the use of gasoline leaf blowers to reduce public health impacts; adding Code Chapter 8.80. https://efiles.portlandoregon.gov/record/16869058

Quiet Princeton. (n.d.). History of the leaf blower. https://quietprinceton.org/wp-content/uploads/2017/12/History-of-Leaf-Blower.pdf

Reynolds, A. (2024, October 3). City of Holland and Board of Public Works incentives for electric leaf gas blowers [Email].

Rusch, H. (2024, February 12). Burlingame to pass gas leaf blower ban. The Daily Journal. https://www.smdailyjournal.com/news/local/burlingame-to-pass-gas-leaf-blower-ban/article-6f5b28c0-c983-11ee-9629-8b01a032d380.html

Sandifer, Sarah. (2024, October 9). Gas powered leaf blower ban [Email].

Sandifer, Sarah. (2024, October 11). Gas powered leaf blower ban [Email].

Salvail, A. (2005, May 12). Aspen to enforce its ban on gas leaf blowers. Aspen Daily News. https://www.aspendailynews.com/aspen-to-enforce-its-ban-on-gas-leaf-blowers/article 31f52aab-2ade-5575-9760-2a866ab0131f.html

Seidenberg, B. (2024, March 26). Council Oks \$180,000 to buy electric leaf blowers for landscapers. Evanston Roundtable.

https://evanstonroundtable.com/2024/03/26/council-approves-spending-180k-to-buy-electric-leaf-blowers-for-local-landscapers/

Sharpe, E. J., Perlaviciute, G., & Steg, L. (2021). Pro-environmental behaviour and support for environmental policy as expressions of pro-environmental motivation.

Journal of Environmental Psychology, 76.

https://www.sciencedirect.com/science/article/pii/S0272494421001031

Shaw, R. (2021, March 3). Opinion: An Earth Day goal: Let's end the use of gaspowered leaf blowers. Berkeley Side.

https://www.berkeleyside.org/2021/03/03/opinion-lets-end-the-use-of-gas-leaf-blowers-berkeley-

ca#:~:text=According%20to%20Berkeley%20Municipal%20Code%20Section%2013. 40.070%20%28B%29,lawns%2C%20or%20other%20surfaces%20within%20the%2 0City%20limits.%E2%80%9D

Sloan, R. (2023, October 17). Montclair gas powered leaf blower ban lawsuit. CBS News. https://www.cbsnews.com/newyork/news/montclair-gas powered-leaf-blower-ban-lawsuit/

South Coast AQMD. (n.d.). Commercial electric lawn & garden equipment. https://www.aqmd.gov/home/programs/community/electric-lawn-and-garden-programs/lawn-and-garden-equipment

Spear, S. (2023, August 17). Montclair bans gas powered leaf blowers starting in October: What to know. Montclair Girl. https://www.themontclairgirl.com/leaf-blower-ban-montclair-new-jersey/

Strickler, S., & Lyons, E. (2023, May). To mow or not to mow. Landscape Ontario. https://horttrades.com/to-mow-or-not-to-mow-in-may#:~:text=The%20%E2%80%9CNo%20Mow%20May%E2%80%9D%20campaign,to%20support%20insect%20pollinator%20populations.

Town of Brookline. (n.d.). Article 8.31 leaf blower control. https://www.brooklinema.gov/DocumentCenter/View/21303/LeafBlowerBylaw831

Town of Brookline. (2022, April 28). Ad hoc subcommittee report on WA27. https://www.brooklinema.gov/DocumentCenter/View/32127/2022-04-28-Ad-Hoc-Subcommittee-Report-on-WA27-final

Town of Brookline. (n.d.). Leaf blowers: Commercial landscapers. https://www.brooklinema.gov/954/Leaf-Blowers-Commercial-Landscapers

Town of Brookline. (n.d.). Leaf blower bylaw. https://www.brooklinema.gov/DocumentCenter/View/21303/

Town of Lexington. (n.d.). Bylaw on the use of landscape maintenance equipment. https://www.lexingtonma.gov/796/Bylaw-on-the-Use-of-Landscape-Maintenance

Town of Lexington. (2021). Reducing noise from landscape maintenance equipment. <a href="https://www.lexingtonma.gov/DocumentCenter/View/2172/Article-10-of-Special-Town-Meeting-2021-1-PDF?bidId="https://www.lexingtonma.gov/DocumentCenter/View/2172/Article-10-of-Special-Town-Meeting-2021-1-PDF?bidId="https://www.lexingtonma.gov/DocumentCenter/View/2172/Article-10-of-Special-Town-Meeting-2021-1-PDF?bidId="https://www.lexingtonma.gov/DocumentCenter/View/2172/Article-10-of-Special-Town-Meeting-2021-1-PDF?bidId="https://www.lexingtonma.gov/DocumentCenter/View/2172/Article-10-of-Special-Town-Meeting-2021-1-PDF?bidId="https://www.lexingtonma.gov/DocumentCenter/View/2172/Article-10-of-Special-Town-Meeting-2021-1-PDF?bidId="https://www.lexingtonma.gov/DocumentCenter/View/2172/Article-10-of-Special-Town-Meeting-2021-1-PDF?bidId="https://www.lexingtonma.gov/DocumentCenter/View/2172/Article-10-of-Special-Town-Meeting-2021-1-PDF?bidId="https://www.lexingtonma.gov/DocumentCenter/View/2172/Article-10-of-Special-Town-Meeting-2021-1-PDF?bidId="https://www.lexingtonma.gov/DocumentCenter/View/2172/Article-10-of-Special-Town-Meeting-2021-1-PDF?bidId="https://www.lexingtonma.gov/DocumentCenter/View/2172/Article-10-of-Special-Town-Meeting-2021-1-PDF?bidId="https://www.lexingtonma.gov/DocumentCenter/View/2172/Article-10-of-Special-Town-Meeting-2021-1-PDF?bidId="https://www.lexingtonma.gov/DocumentCenter/View/2172/Article-10-of-Special-Town-Meeting-2021-1-PDF?bidId="https://www.lexingtonma.gov/DocumentCenter/View/2172/Article-10-of-Special-Town-Meeting-2021-1-PDF?bidId="https://www.lexingtonma.gov/DocumentCenter/View/2172/Article-10-of-Special-Town-Meeting-2021-1-PDF?bidId="https://www.lexingtonma.gov/DocumentCenter/View/2172/Article-10-of-Special-Town-Meeting-2021-1-PDF?bidId="https://www.lexingtonma.gov/DocumentCenter/View/2172/Article-10-of-Special-Town-Meeting-2021-1-PDF?bidId="https://www.lexingtonma.gov/DocumentCenter/View/2172/Article-10-of-Special-Town-Meeting-2021-1-PDF?bidId="https://www.lexingtonma.gov/DocumentCenter/View/2

Township of Montclair. (n.d.). Municipal code: Chapter 219 leaf blowers. https://ecode360.com/42952623#42952623

<u>Vancouver City Council. (2004, July 22).</u> Leaf blower regulation - prohibition in the West End. https://council.vancouver.ca/20040722/cs3.htm

Village of Bronxville. (n.d.). Municipal code: Article V internal combustion leaf blowers. https://ecode360.com/37960574

Village of Bronxville. (2021, June 14). Mitigating the health, environmental, and quality of life impacts of gas powered leaf blowers.

https://www.villageofbronxville.com/sites/g/files/vyhlif336/f/pages/cody bronxville le af blower report june14 2021 2 2.pdf

<u>Village of Pleasantville. (n.d.). Municipal code: Chapter 123 noise.</u> https://ecode360.com/39399161?highlight=&searchId=10462275491418975

Village of Pleasantville. (n.d.). Seasonal ban on gas powered leaf blowers FAQ. https://www.pleasantville-ny.gov/projects-initiatives/pages/seasonal-ban-gas powered-leaf-blowers-faq

Village of Pleasantville. (2023.). Seasonal ban on gas powered leaf blowers: FAQ. https://www.pleasantville-ny.gov/projects-initiatives/pages/seasonal-ban-on-gas-powered-leaf-blowers-faq

Willon, P. (2021, October 9). California moves toward bn on gas lawn mowers and leaf blowers. LA Times. https://www.latimes.com/california/story/2021-10-09/california-moves-toward-ban-on-gas-lawnmowers-and-leaf-blowers

Appendix 2.a Clean Lawn Equipment Incentive Program Communications Materials



Figure 2: Clean Lawn Equipment Incentive advertisement in The Clipper, page 1.37

 $^{^{}m 37}$ Wilson, Scott. (2024, October 25). Clean lawn incentive program [Email].



Figure 3: Clean Lawn Equipment Incentive advertisement in The Clipper, page 2.38

_

³⁸ Wilson, Scott. (2024, October 25). Clean lawn incentive program [Email].



Figure 4: Clean Lawn Equipment Incentive Program advertisement posted in The Windfall. 39

 $^{^{\}rm 39}$ Wilson, Scott. (2024, October 25). Clean lawn incentive program [Email].



Figure 5: Clean Lawn Equipment Incentive Program advertisement in the Tahoe Daily Tribune.⁴⁰

 $^{^{\}rm 40}$ Wilson, Scott. (2024, October 25). Clean lawn incentive program [Email].



Figure 6: Gas powered leaf blowers, Annapolis, Maryland. 41

⁴¹ City of Annapolis. (n.d.). Go electric: Leaf blower policy. https://www.annapolis.gov/2184/Go-Electric-Leaf-Blower-Policy

Leaf Blower Ordinance In December 2023, the Ann Arbor City Council passed new restrictions on the use of gas-powered leaf blowers within Ann Arbor city limits.

What are the new restrictions?

- Summer ban: Beginning this year, the use of gas-powered leaf blowers is prohibited in the city from June 1st to September 30th.
- Seasonal use and phase-out: The use of gas-powered leaf blowers is permitted from October 1st to May 30th through 2027. Starting January 1st, 2028, the use of gas-powered leaf blowers will be prohibited at all times in the city.

Why transition away from gas-powered leaf blowers?

- Heath: Gas-burning leaf blowers release harmful pollutants that increase the risk of cardiovascular disease, cognitive impairment, and respiratory disease.
- Noise: Gas-powered leaf blowers can operate as loud as 100 decibels, which is almost as load as a jet flyover. This can cause hearing damage and stress from noise pollution.
- Emissions: Using a gas leaf blower for one hour can emit the same amount of greenhouse gases as driving a car over 1000 miles.

What are the alternatives?

- Go electric: Electric leaf blowers are healthier alternatives to their gas-burning counterparts and are widely available.
- Skip the leaf blower: Leaving whole or mulched leave on a lawn can help create a habitat for
 pollinators, and a broom or rake can be used to remove leaves from sidewalks or driveways.

How can violations be reported?

Violations of the ordinance can be reported to the Ann Arbor Police Department Community Standards at (734)-794-6942.

What is coming next?

The City of Ann Arbor will launch resources to help lower the cost of transitioning to electric leaf blowers by the end of 2024.

Questions? | Email sustainability@a2gov.org | Visit osi.a2gov.org/leafblowers

Figure 7: Gas leaf blower phase-out, Ann Arbor, Michigan. 42

⁴² City of Ann Arbor. (2024). Gas leaf blower phase-out [Flyer]. <a href="https://www.a2gov.org/departments/sustainability/S

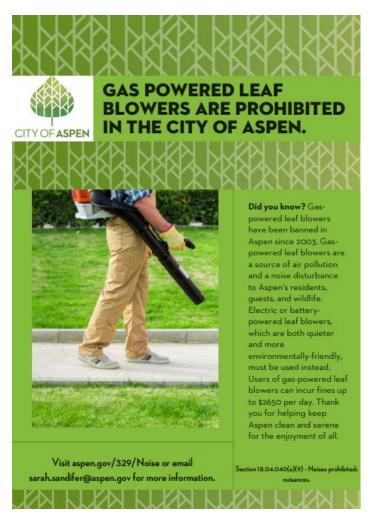


Figure 8: Gas powered leaf blowers are prohibited in the City of Aspen. Aspen, Colorado. 43

_

⁴³ Sandifer, Sarah. (2024, October 11). Gas powered leaf blower ban [Email].



Figure 9: Leaf blower by-law and regulations, Page 1, Brookline, Massachusetts.44

⁴⁴ Town of Brookline. (n.d.). Leaf blower by-law and regulations [Brochure]. https://www.brooklinema.gov/DocumentCenter/View/21302/Brookline-Leaf-Blower-Regulations-Brochure-2023?bidld=

DEPARTMENT OF PUBLIC WORKS: A TEAM APPROACH TO SAFETY 🧩



LIVABLE NEIGHBORHOODS

Town Meeting passed the Leaf Blower Bylaw in order to reduce emissions and noise created from leaf blower use. The bylaw regulates when gas-powered leaf blowers may be used and the maximum decibel level allowed. The goal is to eliminate the use of gas-powered leaf blowers outside of heavy leaf litter collection periods. The regulations are intended to support livable neighborhoods through greater compliance and improved enforcement.

LEAF BLOWER USE

- Ø Article 8.31 Town By-Law holds that: Property owners/managers are CO-RESPONSIBLE for compliance with the By- law. Both are subject to penalties following any violation.
- Property owners/managers are not only responsible for the compliant operation of leaf blowers on the property they control, but also on contiguous sidewalks and streets
- Ø On land parcels of 7,500 sq. ft. or less in size, a maximum of two leaf blowers may be used

VIOLATIONS ARE SUBJECT TO THE FOLLOWING PENALTIES:

First Offense: Written warning Second Offense: \$50 Third Offense: \$100

Each Subsequent Offense: \$150

ENFORCEMENT PROCEDURES

The DPW is responsible for complaint handling and monitoring, as well as enforcement coordination with the police.

Leaf blower violations should be reported to:

Department of Public Works

Monday – Friday | 7am–3pm | 617-879-4900

After business hours:

Brookline Police Department | 617-730-2222

The DPW will contact and inform property owners/ managers if a violation has been reported to have taken place on their property, as well as any hired landscaper involved. When applicable violations will be issued to both the property owner, as well as the hired landscaper involved.

NOISE LEVEL

The Town By-Laws require that any portable leaf blower used in the town have a manufacturer's sticker or a DPW sticker certifying a noise level of no more than 67 dBA when measured at a distance of fifty feet, utilizing American National Standard Institute methodology.

Leaf blowers needing a sticker can be tested at the Municipal Service Center, by appointment on the 1st and 3rd Tuesday of the following months: October, November, December, March, April and May.

Town Exemption: The Department of Public Works is exempt from the Article 8.31 By-Law.

Please read carefully as to how the Leaf Blower By-Law and regulations affect you and how violations will be enforced.

www.brooklinema.gov/dpw



SEASONAL BAN FOR GAS POWERED LEAF BLOWERS*



- **✓** DATES PERMITTED March 15 - May 15 💋 October 1 - December 31
- ✓ HOURS PERMITTED Monday - Friday: 8am - 8pm Saturday- Sunday and Holidays: 9am - 6pm
- *Electric leaf blowers are permitted year round during the permitted hours above.



Figure 10: Leaf blower by-law and regulations, Page 2, Brookline, Massachusetts.45



Figure 11: Gas lead blowers prohibited, Burlingame, California. ⁴⁶

⁴⁶ City of Burlingame. (n.d.). Gas leaf blowers prohibited [Flyer]. https://www.burlingame.org/DocumentCenter/View/4700/Leaf-Blower-Ban-Flyer -English-PDF



Figure 12: Gas powered leaf blower ban, Coronado, California. 47



Figure 13: Gas leaf blowers are out, Montgomery County, Maryland. ⁴⁸

⁴⁷ City of Coronado. (n.d.). Gas=powered lea blower ban. https://www.coronado.ca.us/296/Gas powered-Leaf-Blower-Ban ⁴⁸ My Green Montgomery. (2024, July 20). Gas leaf blowers are out, electric are in-law changing July 1, 2025. https://mygreenmontgomery.org/2024/montgomery-countys-leafblower-law-what-does-it-mean-for-me/



Figure 14: Choose electric over gasoline campaign flyer, Oakville, Ontario.⁴⁹

⁴⁹ City of Oakville. (n.d.). Choose electric over green [Flyer]. https://www.oakville.ca/getmedia/4b9c4aaf-46d0-4575-a1d9-f263c7c77f19/environment-electric-yard-tools.pdf

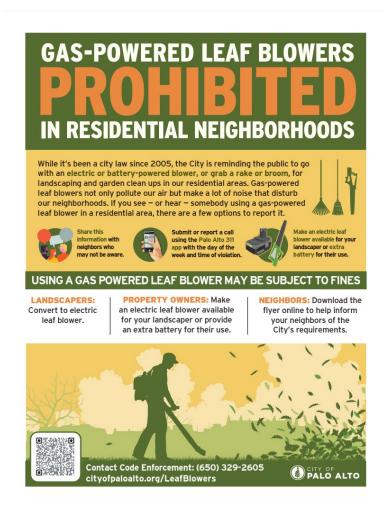


Figure 15: Gas powered leaf blowers prohibited, Paulo Alto, California.⁵⁰

⁵⁰ City of Paulo Alto. (n.d.). Gas powered leaf blowers prohibited in residential neighborhood [Flyer]. https://www.cityofpaloalto.org/files/assets/public/v/1/development-services/gas powered-leaf-blowers-flyer_english.pdf