



Promoting Alternatives to Leaf Blowers

Pleasantville Conservation
Advisory Council

with thanks to Bedford Council

Emissions of Air Pollutants

2-stroke engines leave ~30% of the fuel incompletely combusted & have no emissions controls

Noise Pollution



Air Pollutants Produced by Gas Leaf Blowers

Direct Emissions

- Volatile Organic Compounds (VOCs)
 - Benzene, 1,3 butadiene, acetaldehyde, toluene, formaldehyde, etc.
 - Among top ranking carcinogens
- Carbon Monoxide
- Nitrogen Oxides (NOx)
- Fine Particulate Matter (<10 microns, <2.5 microns; assimilated by lungs)
- Up to 12% of all U.S. emissions are just from lawn care equipment
 - But, concentrated in the places we live, play, and learn
- Greenhouse gases (i.e. CO₂)

Indirect Emissions

- VOCs + NOx → Ozone production (i.e. smog)
- Aerosolize mold spores, pollen, heavy metals, fecal material, dust, etc.

Emissions Test: Car vs. Truck vs. Leaf Blower

by [Jason Kavanagh](/about/authors/jason-kavanagh.html),
Engineering Editor
December 5th, 2011

	VOCs	NOx	CO
2011 Ford Raptor	0.005	0.005	0.276
2012 Fiat 500	0.016	0.010	0.192
Ryobi 4-stroke leaf blower	0.182	0.031	3.714
Echo 2-stroke leaf blower	1.495	0.010	6.445

Overwhelming
majority →

Take-home:

- Emissions from 15-30 min of leaf blower use (typical for Pleasantville) is equivalent to emissions from driving a pick-up ~2,000 to 4,000 suburban miles)
- Only way to get leaf blowers to emit less than a car or truck is to turn them off

Noise Pollution Produced by Gas Leaf Blowers

Causes acute hearing impairment

Causes hearing impairment



Leaf blower Sound levels by frequency over distance

*decibel (dB) is expressed on a logarithmic scale

Health and Environmental Impacts of Leaf Blower Pollution

Children, elderly, and those with pre-existing conditions are particularly sensitive and vulnerable



Air Pollution

- Carcinogens
- Hematological and immunological abnormalities
- Upper respiratory irritants & exacerbates Asthma and complications associated with COVID-19 and other upper respiratory conditions
- Developmental and neurological disorders
- Increased risk of heart attacks, strokes, congestive heart failure, & premature death
- ***Mounting evidence of increased risk even from short-term (< 24 hrs) exposure***

Key Sources: World Health Organization American Speech-Language-Hearing Association, American Psychological Association; Babisch W. Noise Health. 2006;8:1-29. Stansfeld S, Crombie R. Noise Health. 2011;13:229-33.; Banks LB, EPA. <https://www.epa.gov/sites/production/files/2015-09/documents/banks.pdf>; Svah et al. 2015. British Medical Journal. 350:h1295; EPA Integrated Science Assessment for Ozone and Related Photochemical Oxidants. 2020; Integrated Science Assessment (ISA) For Particulate Matter (Final Report, Dec 2009). USA, Washington, U.S. Environmental Protection Agency, EPA/600/R-08/139F, 2009.

Health and Environmental Impacts of Leaf Blower Pollution

Children, elderly, and those with pre-existing conditions are particularly sensitive and vulnerable

Noise Pollution (effects generally above 55 dB)

- Change stress hormone levels in blood → cardiovascular effects
- Strong correlations between noise and mental health problems
- Interferes with speech communication, concentration, working memory, sustained attention, learning, etc.
- Reduces school and work productivity
- Sleep disturbance
- Threshold for inducing high level of annoyance
- Reduced quality of life



Key Sources: World Health Organization American Speech-Language-Hearing Association, American Psychological Association; Babisch W. Noise Health. 2006;8:1-29. Stansfeld S, Crombie R. Noise Health. 2011;13:229-33.; Banks LB, EPA. <https://www.epa.gov/sites/production/files/2015-09/documents/banks.pdf>; Svah et al. 2015. British Medical Journal. 350:h1295; EPA Integrated Science Assessment for Ozone and Related Photochemical Oxidants. 2020; Integrated Science Assessment (ISA) For Particulate Matter (Final Report, Dec 2009). USA, Washington, U.S. Environmental Protection Agency, EPA/600/R-08/139F, 2009.



Specific Concerns Related to COVID-19

Emissions

- Respiratory problems increase risk factors for complications from COVID-19
- NOx, VOCs, ozone, Particulate matter are all known to cause and aggravate breathing problems

Noise

- Working & schooling from home will continue for many for months or longer
- Noise interrupts business calls, classes, remote teaching, and makes concentration difficult

Some Pleasantville Context

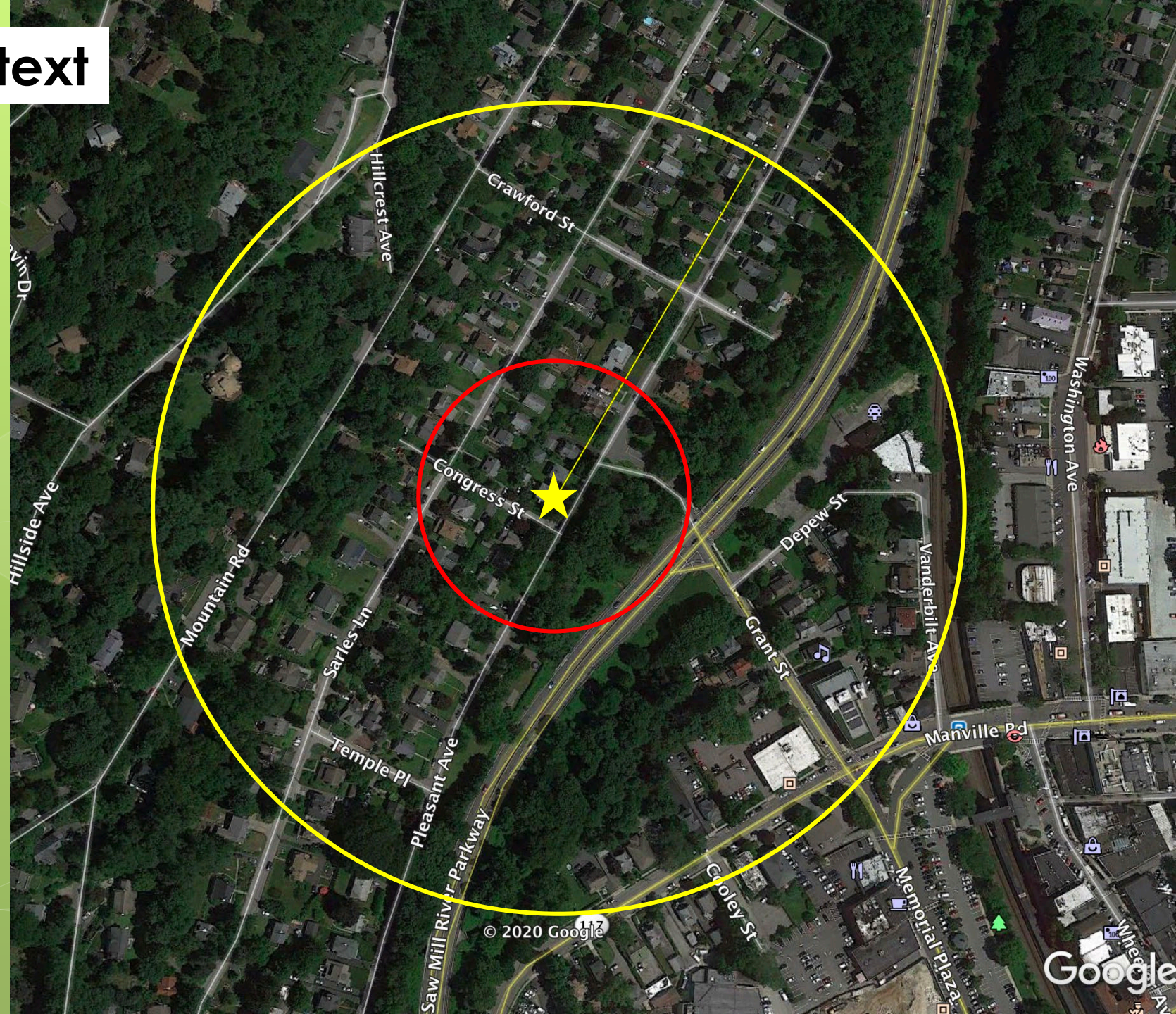
- Noise is >WHO threshold for **800'**
- Air quality acutely impaired for **AT LEAST 200'**

~100 homes within 800'

- ~300 residents

20-30 homes within 200'

- ~60-90 residents



Some Pleasantville Context

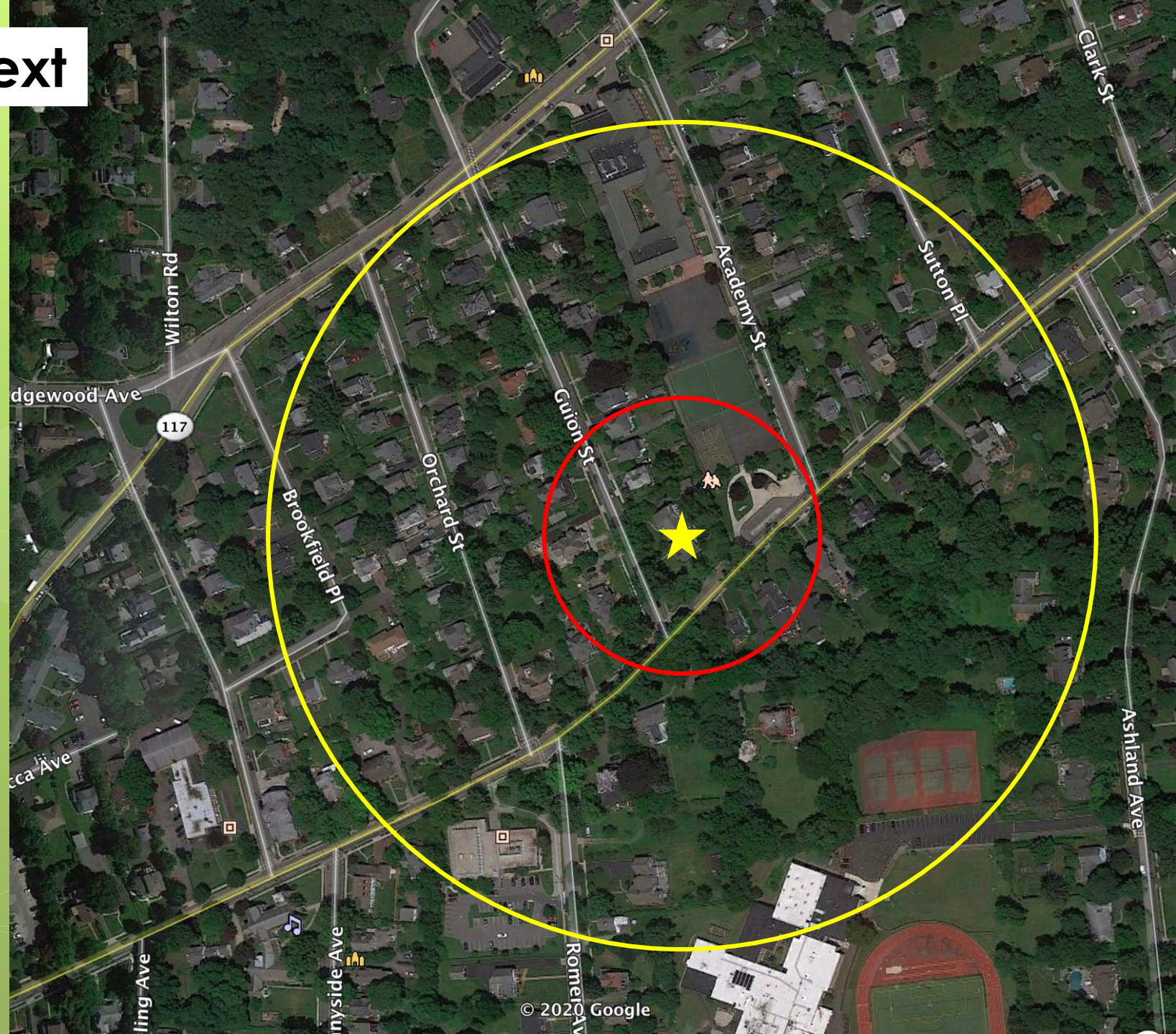
- Noise is >WHO threshold for **800'**
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~100 homes & 2 schools within 800'

- ~300 residents
- ~1150 kids and staff

~15 homes & 1 school yard within 200'

- ~45 residents
- ~600 kids and staff



Alternatives

- ◆ Leaf mulching mowers
- ◆ Grass bag / Composting
- ◆ Leaving on garden beds
- ◆ Raking
- ◆ Sweeping



Westchester County Initiatives

- Rye
- Yonkers
- Hastings
- Dobbs Ferry
- Mamaroneck
- Tarrytown
- Tuckahoe
- Ardsley
- Scarsdale
- Pelham
- Greenburgh
- Irvington
- Croton
- Buchanan
- Larchmont
- White Plains
- New Rochelle
- Sleepy Hollow

Restrictions and regulations vary:

- ✧ Summer use ban
- ✧ Time/place/manner restrictions
- ✧ Sunday ban
- ✧ Winter months ban
- ✧ Electric only
- ✧ Landscaper registration
- ✧ Blower permits
- ✧ Decibel limits

(New Castle in discussion.)



Local Ordinance Proposal

Leaf Blowers allowed only in Spring (2 wks) and fall (3 wks)

- Start/End dates dependent on weather
- No use before 10 am on Saturday
- No use before noon on Sunday
- Request users minimize high-throttle use
- Require landscapers and lawn care companies to use equipment meeting current EPA standards
- Request/encourage 4-stroke or electric leaf blowers
- Develop procedures for enforcement!

This ordinance is supported by and in line with mandates of the Village's Climate Smart Community Task Force

Anticipated Controversy

Common arguments advocating for continued use of gas-powered leaf blowers:

- It is 5x faster to clean a landscape site with leaf blowers than broom and rake*
- Many clients cannot afford/not willing to pay for additional cost of maintenance without a leaf blower*
- Makes for a tidy yard

But...

- The common good needs to be considered
 - Large number of residents & school children are impacted by leaf blowers
- A DPW study commissioned by the Los Angeles City Council compared efficiency of gas powered leaf blowers, electric leaf blowers, and raking (by person in 50s)
 - Raking proved to be as fast and sometimes faster and more thorough than either gas powered or electric leaf blowers

Grandmother Proves Rake and Broom as Fast as Leaf Blowers

(January 8, 1998 press release from Zero Air Pollution, Los Angeles)

*California Landscape Contractors Association

Thank you!