



Dan Mabe

American Green Zone Alliance



AGZA: The American Green Zone Alliance

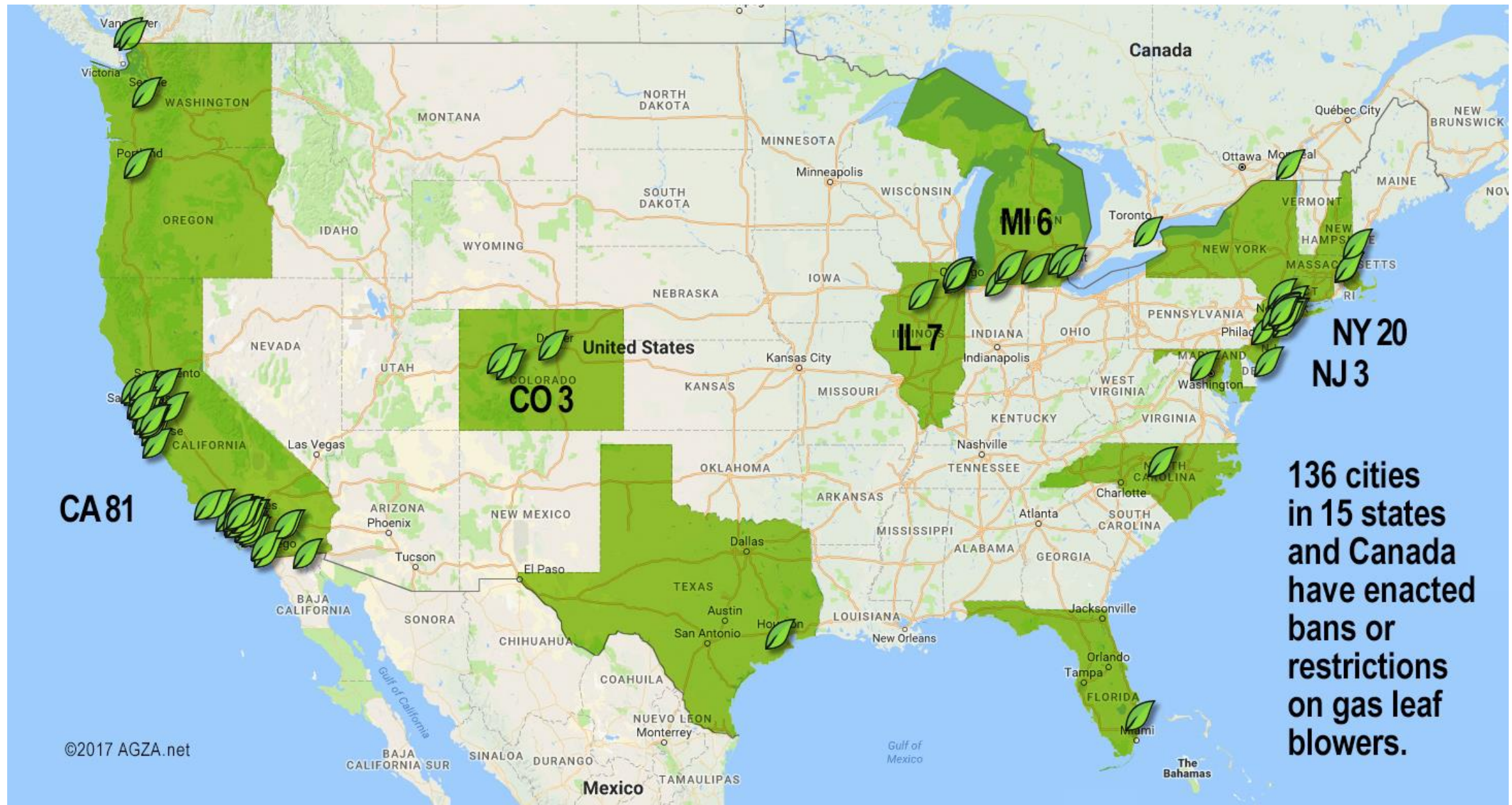
WHO A leader in low – impact sustainable grounds maintenance strategies.

MISSION Prudently transition the grounds maintenance industry to quieter sustainable practices.

APPLICATIONS Commercial crews who service municipalities, schools, and residential properties.

REGULATIONS, BANS, RESTRICTIONS, ENFORCEMENT

Over 200 and Counting



Top Ten Impacts of Gas Operations

EMISSIONS



Poisonous, toxic gasses, GHGs, carcinogenic PM

HEALTH RISKS



Asthma, heart disease, hypertension, cancer

NOISE



Tinnitus, hearing loss, headaches, stress, irritation

VIRBRATION



Tingling, numbness, hand-arm vibration syndrome

GAS & OIL



1.2 billion gallons burned, 17 million spilled every year

TOXIC WASTE



Cans + rags of oil, cleaners, solvents, and degreasers

SOLID WASTE



Air & fuel filters, spark plugs, hoses, belts

INEFFICIENT



High friction and heat, only 20% - 40% efficiency

MAINTENANCE



Frequent maintenance and parts replacement

EXPENSE



High operational cost of fuel, oil, and repairs

Addressing Worker Health and Environmental Justice

HEALTH RISKS



NOISE



VIBRATION



EMISSIONS

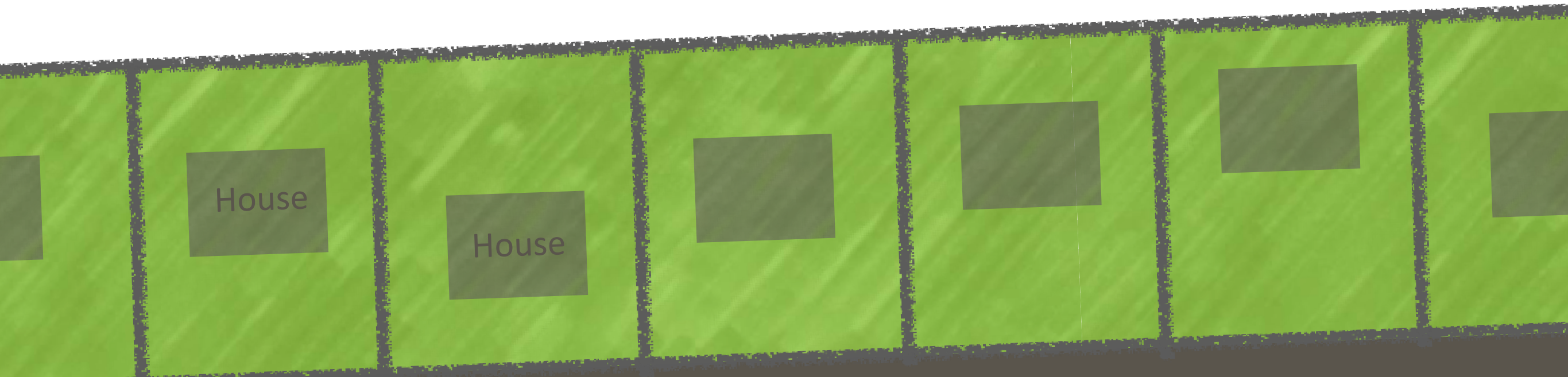


GAS & OIL



TOXIC WASTE





riendly Neighborhood Street





House

Noisy
Gas
Machine

Friendly Neighborhood Street

Your
House

@#%&

House

Noisy
Gas
Machine

House

House

Quieter
Electric
Machine

Friendly Neighborhood Street

Wow!
What a difference!
Thanks AGZA!

Your
House

House

Quieter
Electric
Machine

The Future is Already Here -- It's Entirely Different

Energy
(Solar/Wind)



Electrical
Infrastructure



Energy Storage
(Batteries)

Electric
Equipment



Robotics/AI

Electric
transportation



Electric
Vehicles



Software/
Data Analytics



Investment/ROI

Recycling





AGZA PROGRAM SOLUTIONS

1. Institutional AGZA Green Zones®

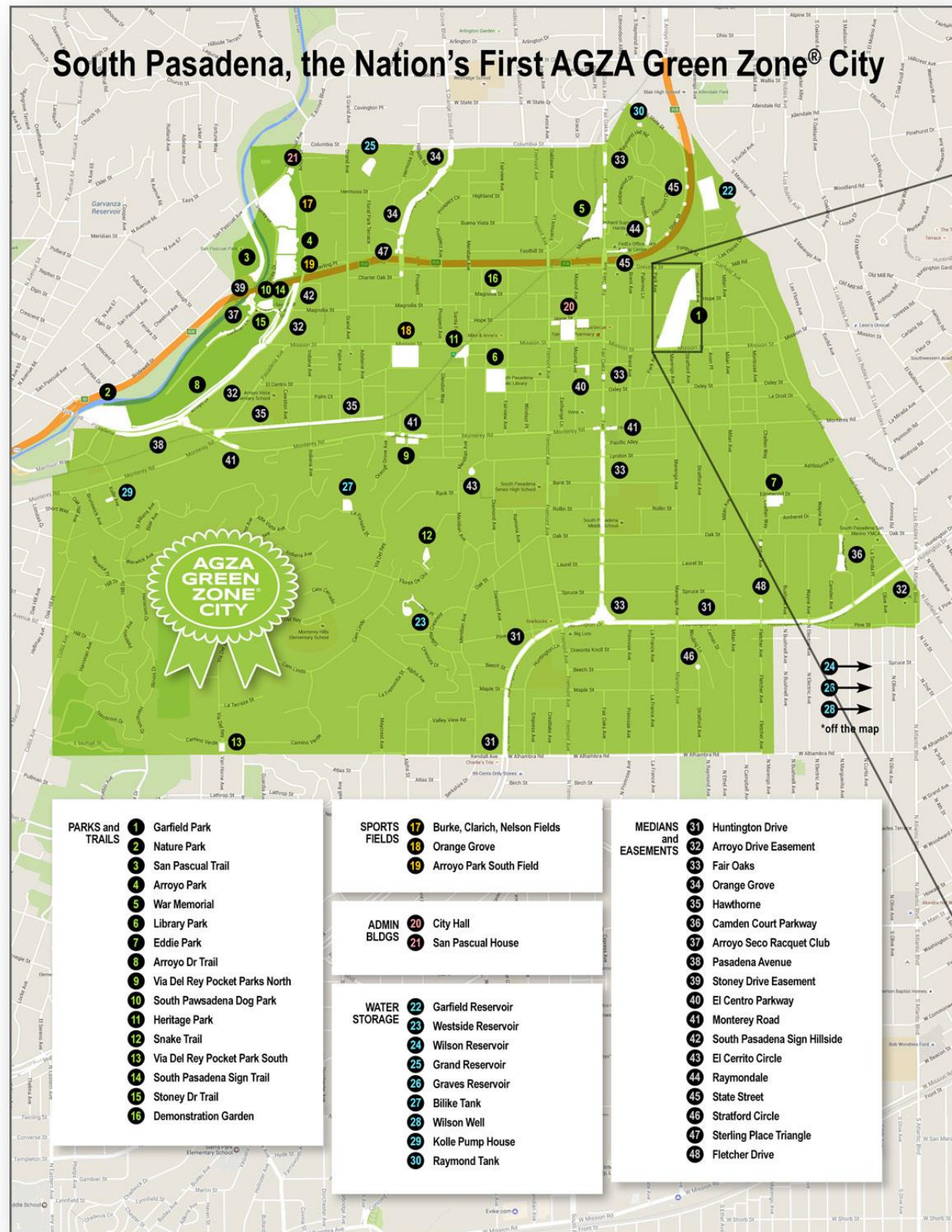
South Pasadena: The Nation's First AGZA Green Zone City



The City of South Pasadena is the first
AGZA GREEN ZONE[®] CITY
in the nation! Learn more at AGZA.net



Mapping and Metrics



Garfield Park: The Nation's First AGZA Green Zone Municipal Park



RFP South Pasadena



CITY OF SOUTH PASADENA
- PUBLIC WORKS DEPARTMENT -

REQUEST FOR PROPOSALS

CITYWIDE LANDSCAPE MAINTENANCE
SERVICES

All of Contractor's personnel assigned to work on any City Parks, medians, grounds and facilities shall undergo American Green Zone Alliance (AGZA) or equivalent accreditation and training which will be provided by the City. This training shall cover the safety and efficient operation of electric equipment, proper storage and charging procedures of electric equipment, competency training for trouble shooting and basic maintenance and repair of electric equipment.

All landscape maintenance equipment shall be battery-powered cordless electric type, 100% emission free equipment. Contractor shall have sufficient batteries and equipment to complete the daily required work load to complete the scope of services. No outdated, polluting power equipment shall be used. Contractor may not use a stand-alone generator to charge batteries in the City Parks or City Facilities.

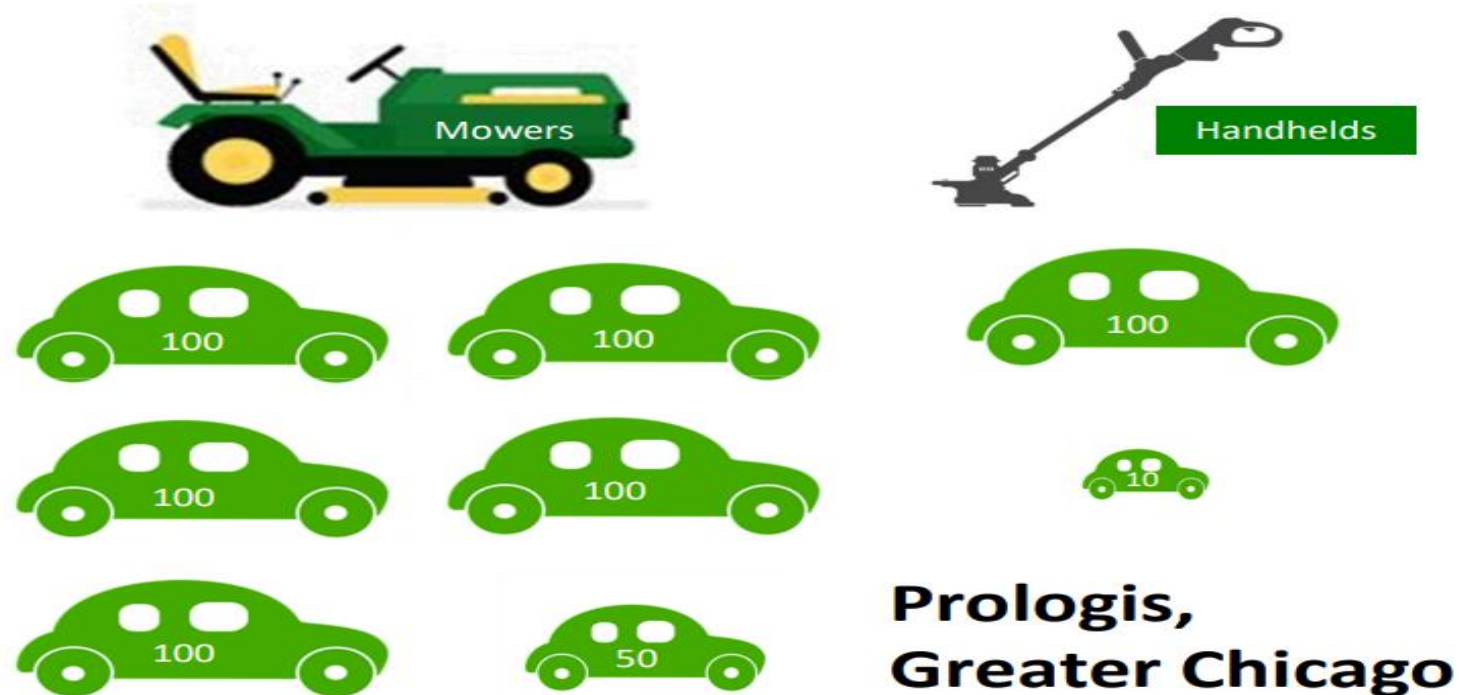
Prepared by: Department of Public Works
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ELF® CARBON REDUCTION MODEL: PROLOGIS, GREATER CHICAGO*



For Prologis Internationale (3 buildings), the annual CO2 emissions related to maintenance are equivalent to removing 6 cars off the road (5 cars for mower emissions; 1 car for handheld tool emissions).



Assuming the same maintenance needs for all 330 buildings, the annual CO2 emissions related to maintenance are estimated to be equivalent to removing 660 cars (7.6 million miles driven on average) off the road/yr (550 cars for mower emissions; 110 cars for handheld tool emissions).

*These estimates are averages only and may not reflect differences in property equipment fleets, layouts, and maintenance schedules.



AGZA Service Pro Workshop | www.agza.net | ©2020



AGZA Program Solutions

3. AGZA Service Pro Certification

**Paradigm Shifts
in societal thinking.
Fresh Thinking about
our Landscaping.
Communication!**



Perception: Look at the Equipment Don't Demonizing the Worker



Hyper Manicured Landscaping









The Landscaper

The Homeowner



What steps can homeowners and gardeners take together today?

- Stop or reduce the use of Gas Leaf Blowers
- Mulch leaves with mower
- Use rake/broom selected areas
- Use electric blower efficiently and judiciously
- Homeowners - Consider paying your gardener more \$ to go electric and use people powered tools Is your gardener working in an outdoor sweatshop environment?
- Gardeners – Consider how important you are to the quality of life in the community

Homeowners Purchasing Dedicated Equipment For Their Gardeners To Use





AGZA
Green Zone
Gas-Free Yard
QUIET HEALTHY CLEAN
WE KICKED GAS™

21"

56V

Commercial Implementations

Key components: Education, Testing, Approach, Verification,
Financial Support








AGZA Program Solutions

Gas Leaf Blower Replacement

Commercial Battery Powered vs. Gas Powered Blowers -- Backpack and Handheld

AGZA Field Testing Results (as of 2022)

Feature	Comparison to Internal Combustion Engine
Power	<p>Top rated electric models:</p> <ul style="list-style-type: none"> • 450 to 650 CFM versus 500–900 CFM or higher CFM for gas blowers • 120 to 150 MPH out of the nozzle versus 150–200 or higher MPH for gas blowers.
Performance	Comparable to gas blowers for all routine maintenance on hardscape surfaces.
Work Production Rates 	<p>Work production rates for commercial electric blowers are:</p> <ul style="list-style-type: none"> • The same as gas blowers when blowing hardscapes in dry conditions. • 10% to 25% less when used on soaked hardscape and garden beds with heavy leaf material. • At least 25% less when used on wet, damp turf surfaces and for extra heavy leaf material in the Fall in the Northeast and other regions with similar seasonal leaf burden. • Run times can be extended to the entire workday with the proper battery capacity packages to handle different workloads.
Durability	Equivalent
Tolerance to Worker Abuse	<p>Equivalent when workers are properly trained.</p> <p>Note: AGZA worker training and certification for electric grounds maintenance operations helps protect and extend the life span of electric equipment fleets.</p>

**Average gas leaf blower
replacement can be as
much as = \$4,500.00 to
\$8,000.00**







How Much to Operate?

- Know Cost of Gas Per Gallon
- Added Cost Per Gallon with 2 – Stroke Mix
- How Much is Preventative Maintenance & Unforeseen Repairs Per Year?

ECHO PB770T 2 – Stroke Leaf Blower



Year 1 - 600.00 + 807.00 = 1,407.00

Year 2 - 000.00 + 807.00 = 2,214.00

Year 3 - 000.00 + 807.00 = 3,021.00

Year 4 - 000.00 + 807.00 = 3,828.00

**Based on 950 hours of annual use @ .85 per hour to operate.
Includes cost of gas, 2 –stroke oil, Preventative & Repair
Maintenance*

How Many Batteries Per Blower For A Typical Workday?

Backpack batteries 1200 to 1600 Watt Hours 3 -5

Onboard batteries 300 to 600 Watt Hours 4 - 25

- Depends on the Watt Hour Rating of the battery
- What season of the year it is
- What are the working conditions? (wet and dry hardscape, wet and dry turf)
- Operator habits and behavior
- **MOST IMPORTANTLY: Property Owner Aesthetic Expectation**



- \$1,500.00 to \$1700.00



- \$1,400.00



- \$300.00 to \$400.00
- Extra 7.5 Ah Battery = \$350.00

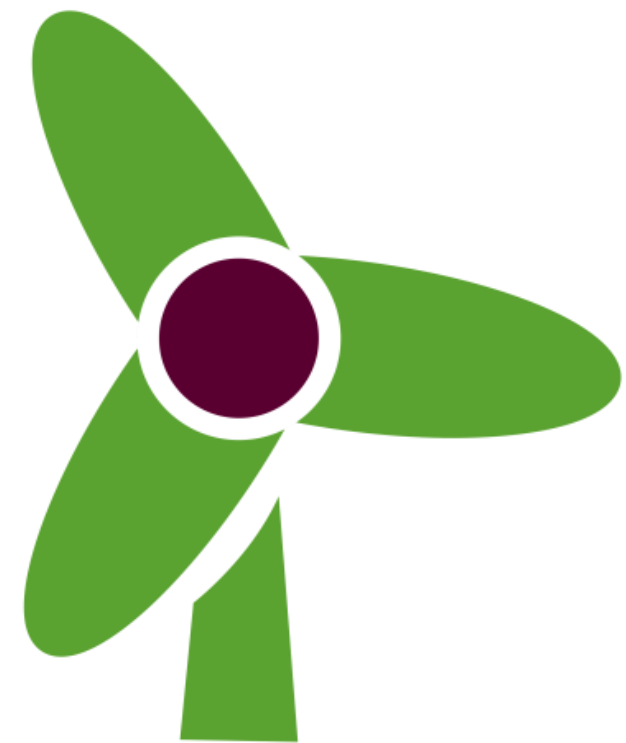
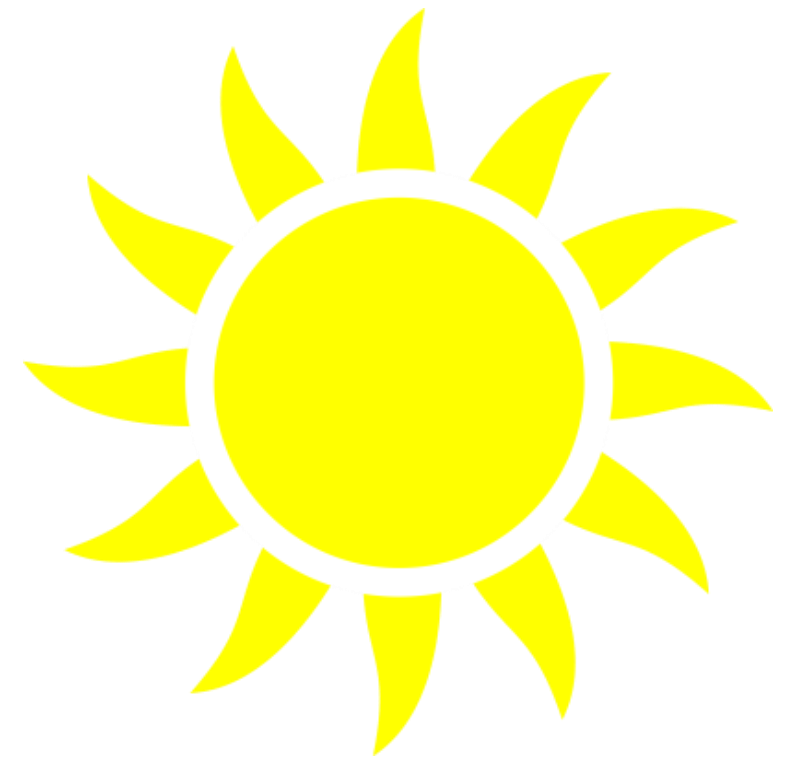


Battery Cycle Life, Repurposing, and Recycling



Battery Repurposing: A Second Life

- Once a battery's capacity falls to a level where the equipment cannot function efficiently, the battery may repurposed for applications that require similar voltage but less power density and capacity, such as:
 - **Solar energy storage**
 - **Wind energy storage**



End User and Manufacturer Responsibilities

- As the battery electric revolution expands it is critical that end users and manufacturers take steps to ensure batteries are reused, recycled, or disposed of in a responsible manner to prevent or reduce negative impacts on our planet.





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