

Review of Curbside Weed Control & Organic Turf Management

City Council Workshop -2/1/23



Dover's turf management & weed control

- Community Services oversees & administers 2 bids
 - Curbside Weed Control
 - Turf Management
- Both historically bid every 2 +/- years.
- Council passed Resolution Committing to Organic Practices – February 2018



CITY OF DOVER

CITY OF DOVER - RESOLUTION

Agenda Item#: 13.B.1.

Resolution Number: **R – 2018.02.28 – 015**

Resolution Re: Commitment to Organic Land Management Practices

Organic Land Management Resolution



CITY OF DOVER

CITY OF DOVER - RESOLUTION

Agenda Item#: 13.B.1.

Resolution Number: **R – 2018.02.28 – 015**

Resolution Re: Commitment to Organic Land Management Practices

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND DOVER CITY COUNCIL THAT:

It shall be the policy of the City of Dover to utilize sound land management practices, and the use of least toxic compounds only when necessary, in the maintenance and protection of City property, thereby minimizing, if not eliminating, exposure to toxic pesticides on the part of our citizens and the environment;

AND, FURTHER BE IT RESOLVED;

The City Manager shall develop and execute a plan to transition the City to eliminate the use of synthetic fertilizers on City property. This plan will culminate in the substantial elimination of the use of synthetic fertilizers by the 2020 growing season.

Dover's evolution in treatment

Presentation Outline

- Compare pre & post 2018
- Recommendations for FY24, w/ Budget Impacts
 - Curbside Weed Control
 - Turf Management
- Questions & Discussion.

Curbside Weed Control

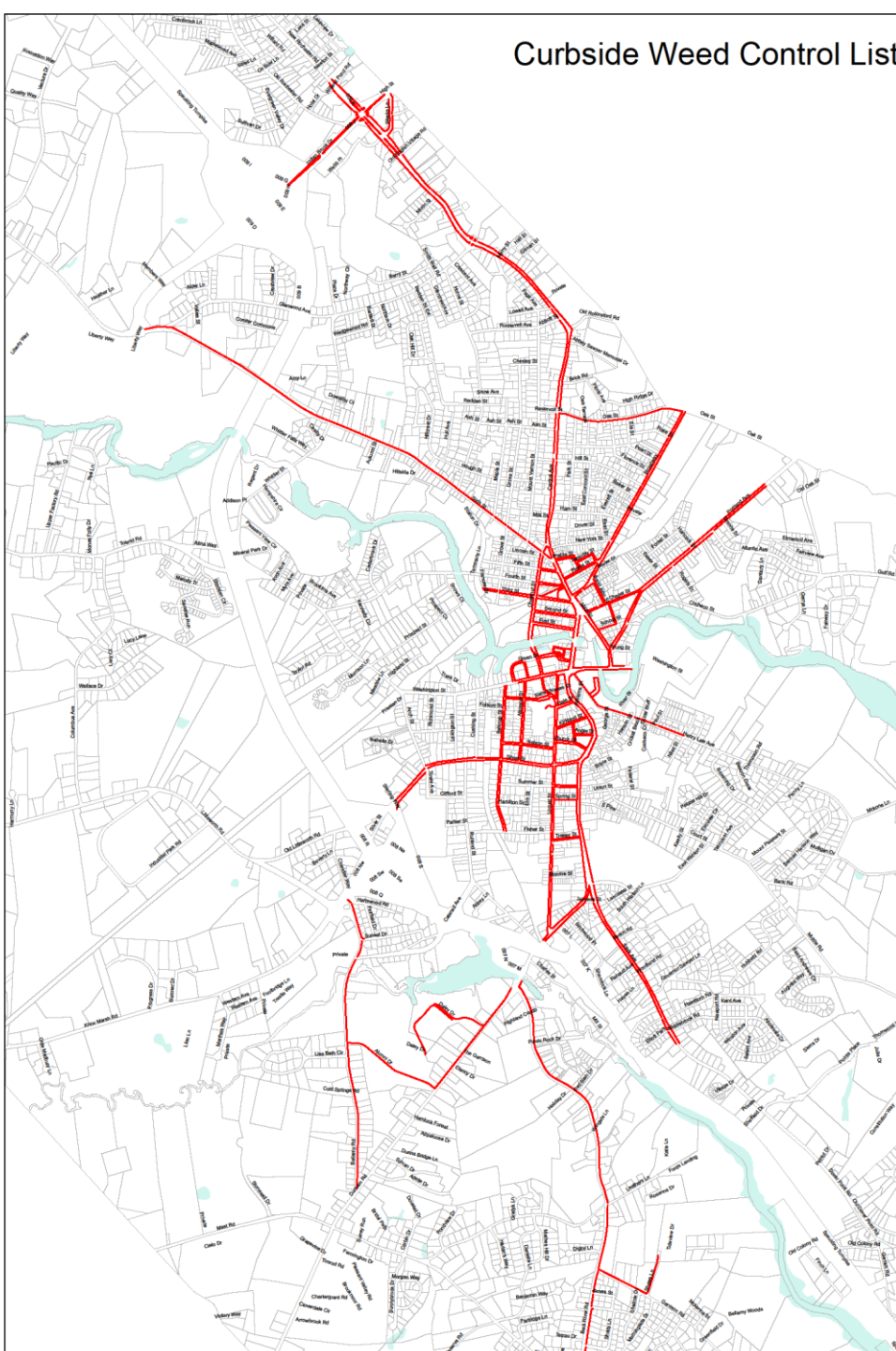
- Target about 30 miles of treatment



Treat curb lines only



Curbside Weed Control List



Highlights

- **Central Ave**
- **Sixth Street**
- **Locust Street**
- **Back River Rd**
- **Broadway**
- **Silver Street**
- **Henry Law Ave**
- **Bellamy Road**

Curbside Weed Control

- Pre-2018 Treatments were glyphosate-based products (Glypro, Round-Up)
- FY18 Requested 3 treatment options
 - Glyphosate-based
 - Burning, pulling, CO2, liquid nitrogen
 - Ammoniated soaps (organic option)

Curbside Weed Control

B18030 Curbside Weed Control Vendor	Price per Mile	Total for 30 Miles	Times 4 Applications	Total
--	-------------------	-----------------------	-------------------------	-------

Municipal Pest Management Svc Inc 21 River Road Newington, NH 03801 603-431-0008	\$ 70.00	\$2,100.00	\$ 8,400.00	\$ 8,400.00
---	----------	------------	-------------	-------------

City has decided on:

Option A **Glyphosate**
Herbicide spray applications

Municipal Pest Management Svc Inc 21 River Road Newington, NH 03801 603-431-0008		\$ -	\$ -	\$ -
---	--	------	------	------

Mechanical, etc.

Option B **NONE OFFERED**
Alternative ei, burning, CO2, liquid nitrogen

Municipal Pest Management Svc Inc 21 River Road Newington, NH 03801 603-431-0008	\$ 170.00	\$5,100.00	\$20,400.00	\$20,400.00
---	-----------	------------	-------------	-------------

Organic

Option C **Finalsan Product**
Organic and/or integrated pest management technique

Curbside Weed Control

- 2019 Tried steam
- Tested applicators



Curbside Weed Control

- 2019 Built unit for steam applications



- Very Slow!!!

Curbside Weed Control

- Re-Bid treatment in 2020 – 3 Options
 - New pre-emergent Esplanade 200 (no glyphosate-based materials allowed)
 - Burning, pulling, CO2, liquid nitrogen, mechanical
 - Organic and/or integrated management approach

2020 Bid Results

B20059 Curbside Weed Control Bid Due: 4/8/2020 at 2:00 PM	Price per Mile	Total for 30 Miles	Times 4 Applications (months)	Total
--	-------------------	-----------------------	-------------------------------------	-------

Option A

DeAngelo Brothers, LLC 100 North Conahan Drive Hazleton, PA 18201	\$ 224.80	\$ 6,744.00	\$ 26,976.00	\$26,976.00
---	-----------	-------------	--------------	--------------------

Spray method at low rate with Methylated seed oil to coat and control plants.
See supplemental information.

Option B

DeAngelo Brothers, LLC 100 North Conahan Drive Hazleton, PA 18201	\$ 475.00	\$ 14,250.00	\$ 57,000.00	\$57,000.00
---	-----------	--------------	--------------	--------------------

Two people using string trimmers to mechanically control unwanted vegetation.
See supplemental information.

Option C

DeAngelo Brothers, LLC 100 North Conahan Drive Hazleton, PA 18201		\$ -	\$ -	\$ -
---	--	------	------	------

No Bid on Option C

Option A

Municipal Pest Management Services, Inc. 21 River Road Newington, NH 03801	\$ 123.00	\$ 3,690.00	\$ 14,760.00	\$14,760.00
--	-----------	-------------	--------------	--------------------

See supplemental information - Esplanade 200 SC and Reward Herbicides

Option B

Municipal Pest Management Services, Inc. 21 River Road Newington, NH 03801		\$ -	\$ -	\$ -
--	--	------	------	------

No bid on Option B

Option C

Municipal Pest Management Services, Inc. 21 River Road Newington, NH 03801	\$ 315.00	\$ 9,450.00	\$ 37,800.00	\$37,800.00
--	-----------	-------------	--------------	--------------------

See supplemental information - Integrated Vegetation Management
Note: Vendor provided their pricing under Option B on the cost sheet, however, supporting documentation clearly states they are providing an Option C.

Staff Recommendation

Council Award

Curbside Weed Control

- Re-Bid again in 2021
 - 2021 - \$40,000
 - 2022 - \$62,000
 - Program includes:
 - 8 treatments of Finalsan (ammoniated soap, OMRI-listed, natural herbicide)
 - Crack-filling with polymeric sand

Finalsan worked



But dead weeds remained

Need pre-emergent option



Henry Law Pavilion

- F&G Staff have to weed-whack every couple of weeks
- Have to collect debris
- Strains staffing & resources

2023 Curbside Options

- Continue as-is, with extension of current program:
 - Up to 8 applications of Finalsan & targeted crack-filling
 - \$65,000 in FY24 Budget for CS – Streets for continuation of Curbside Weed Control
- Mechanical (weed-whacking) estimated \$75,000

2023 Recommendation

- Initial treatment Esplanade 200
- 3 to 4 “mop-up” treatments w/ Finalsan, as necessary
- Mechanically remove weeds with new sidewalk sweeping attachment
- Estimated cost \$35,000
(cost for contracted applicator)



2023 Recommendation

- Esplanade 200 is registered for use in NH
- Very low dosing – 3.5 to 7 ounces per acre
- MA allows use – Sensitive Area Materials

Recommendation

The product is recommended, with restrictions, for pre-emergence use to manage vegetation in ROW areas. Within ROW areas, pre-emergent use of this product would be for use in railroad and roadside applications.

- How do you determine “least toxic”?

Material	What the heck is it?	LD50 (mg/kg)*	Toxic Category**
water	You know this one.	90000	practically non-toxic
sucrose	...and this one. Refined from sugar cane or sugar beets	30000	
citric acid	A chemical in citrus fruits (lemons, oranges, etc)	12000	
ethanol (in many bevvies)	Hic! 	7000	slightly toxic
glyphosate	A broad-spectrum systemic herbicide used to kill weeds brought to market under trade name RoundUp	5600	
sodium bicarbonate (baking soda)	One word: Biscuits 	4220	moderately toxic
sodium chloride (table salt)	Not too much now... 	3000	
acetaminophen	Whoa...I'm getting a headache	1944	
hydrogen peroxide	Common household product often used industrially for drinking water and waste water treatment	1580	
chocolate	What the heck is this doing on this list?	1265	
caffeine	Gasp. See comment above ^ 	192	very toxic
copper sulfate	A compound approved for use in organic production as a fungicide	300	
rotenone	A broad-spectrum insecticide and pesticide approved for use in organic production	132-1500	
DDT	Tasteless and almost odorless chemical known for its insecticidal properties. Was used in WWII to control malaria and typhus.	113-800	
Nicotine	A potent alkaloid found in the nightshade family of plants (Solanaceae) and a stimulant drug and a major contributing factor to the dependence-forming properties of tobacco smoking. 	50	extremely toxic
Cyanide	Cyanides are produced by certain bacteria, fungi, and algae and are found in a number of plants - used in mining, industrial organic chemistry and for pest control.	10	
vitamin D	Vitamin D toxicity can occur when you have excessive amounts of vitamin D in your body by megadoses of of vitamin D supplements (not by diet or exposure to the sun). 	10	
Strychnine	Is a highly toxic, colorless, bitter crystalline alkaloid used as a pesticide, particularly for killing small vertebrates such as birds and rodents.	1-2	super toxic
Aflatoxin	Naturally occurring mycotoxins produced by species of fungi. 14 different types of aflatoxin are produced in nature. They can colonize and contaminate grain before harvest or during storage.	0.003	
Botulin	A protein and neurotoxin produced by a bacterium. In its pure form, it is the most acutely toxic substance known. Preparations of the toxin can be effectively used for		

5,000

Finalsan

2,000

Esplanade

Turf Management

- Manage multiple parks & ball fields, 21 different sites or ballfields, totaling over 23 acres
- Evolved to fully organic program



Areas Treated

Description	Est Sq Ft
City Hall	5,800
Public Library	14,200
Upper Henry Law Park	32,200
Lower Henry Law Park	84,500
Upper Square Central Ave	1,900
Shaws Lane (2) Ball Fields	72,900
Shaws Lane (3) Soccer Fields	218,655
Shaws Lane multi Purpose Field	48,000
Woodman Park Ball field	82,000
McConnell Center	24,700
Maglaras Park 2 Ball fields	96,000
Guppy Park Ball Field	54,000
Pointe Pl - Applevale Ball Field	43,560
Sullivan Dr Ball field	34,000
Long Hill Park Multi Purpose Field	42,000
Garrison Park Ball Field	133,406
North End Fire Station 262 6th st	26,000

- 21 locations,
23 acres



Turf Management

Applications/Treatments

- Soil Testing
- Fertilization
- Crabgrass Control
- Broadleaf Weed Control
- Grub Control
- Limestone addition
- As necessary/requested
 - ✓ Core aerification
 - ✓ Slice seeding
 - ✓ Deep tine aeration



Evolution of Organic Treatment

2015

- Bid traditional Turf Treatment Program - \$18,813, with option to renew for 2 additional years

February
2018

- City Council passes Organic Land Management Resolution

April 2018

- Bid Turf Treatment w/ 2 options, organic immediately, or transitional approach over 3 years. Transitional \$24,125, Organic \$35,000

August 2018

- Stonyfield Foods offers \$5,000 for pilot program, organic treatments

March 2019

- Organic Consultant (Osborne Organics) presents recommendations for fully organic program



Evolution of Organic Treatment

April 2019

- Bid Turf Treatment Program, fully organic - \$99,305
- Limited vendors that practice “fully organic”

April 2019

- Due to Budget Constraints, Council awards PJC Organics Woodman Park - \$6,000
- Continue with organic transition (product swap) on remaining fields - \$25,000

May 2020

- Re-Bid Turf Treatment w lessons learned on Woodman Park
- PJC Organics, \$68,925, with option for renewals

April 2021

- Renew contract with PJC Organics, city-wide treatment - \$70,961

May 2022

- Renew contract with PJC Organics, city-wide treatment - \$87,680

Challenges/Lessons Learned

- Irrigation is critical – but have experienced drought
- Managing expectations, organic adjusts more slowly
- Mowing requires sharp blades!



- Consultant was concerned grass was being “scalped”

Challenges/Lessons Learned

- Mowing height is critical – 3½ to 4 inches recommended
- But that conflicts with sports leagues – they want shorter

Table 2	
Desired Height:	Field Usage
2 1/2"	Baseball - Infield
3"	Baseball – Outfield
3"	Softball
3" - 3 ½"	Soccer
3 ½ "	Football
1 ½" – 2"	Field Hockey
2"	Lacrosse

- Quote from a coach to Recreation:

Any chance that I can make a request to have Woodman mowed shorter? Even when they mow, the grass is so long that the ball dies in the infield. Then it grows so fast that the ball gets lost several days later.



PJC Organics Observations & Concerns

- Almost every field mowed too short
- No grub treatment was required
- Mowing blades too dull
 - ❖ Sharpen blades every 8 hours
 - ❖ Keep spare blades on hand





PJC Organics Observations & Concerns

- Infields & base paths not being maintained
 - ❖ They consider many Not Safe to Play On (NSPO)





PJC Organics Observations & Concerns

- Eliminate weed-whacking, cutting too low
- Do vertical edging, not horizontally

Weed whacking –areas along walkways, curbing and around monuments are being weed whacked at less than 1" creating habitat where weeds proliferate and creep onto the sidewalks. Many of these areas should be mowed, NOT weed whacked. Other areas should be weed wacked vertically to create an "edge" not horizontally as is being done. Continued practice only encourages weed establishment.





PJC Organics Site Assessment Recommendations

- Soil Test in Spring 2023 (recommended every 3 years)
- Correct Cultural Practices: improved mowing, maintenance of base paths and infields, field repairs. Get leagues involved with maintenance.
- Prioritize Areas: do more on high-visibility areas, and minimize on low-use fields

“While it has been a challenge guiding Dover through this transition its good to look back and see the change that has come.”

Mowing Costs

	Athletic Fields	Shaws Lane	Total
Bid 2015	\$13,150	\$7,400	\$20,550
	renewed for 2 years		
Bid 2018	\$16,745	\$6,800	\$23,545
	renewed for 1 year		
Bid 2020	\$36,290	\$9,720	\$46,010
	renewed for 2 years		
	Extra Mowing - all fields	\$1,565	each
	4 extra "mows" in 2022	\$6,260	
	Annual Mowing Cost		\$52,270
Budget FY24, including allowance for Warming Center			\$60,000
	Organic Maintenance Mowing	\$7,200	
	(extra "mows")	\$67,200	FY24

Budget Impacts

Field & Lawn Treatments

- FY 23 Budget - \$78,361
- FY 24 Proposed - \$98,000
- Increase of \$19,639

Athletic Field Mowing

- FY23 Budget - \$50,330
- FY24 Proposed - \$67,200
- Increase of \$16,870

Questions???

John B. Storer
Director of Community Services
603-516-6462
j.storer@dover.nh.gov

What is Integrated Pest Management (IPM)?

Integrated pest management (IPM) is an ecological approach to pest control that combines several different techniques to maintain pests below damaging levels. Pests may include insects, spiders, mites, diseases, weeds, snakes, rodents and larger vertebrates. By practicing IPM, growers and gardeners protect the environment and maintain food quality. *(from UNH Cooperative Extension)*

Don't overtreat!

Organic consultants suggest there are times when corrective actions might require limited use of pesticide/herbicide