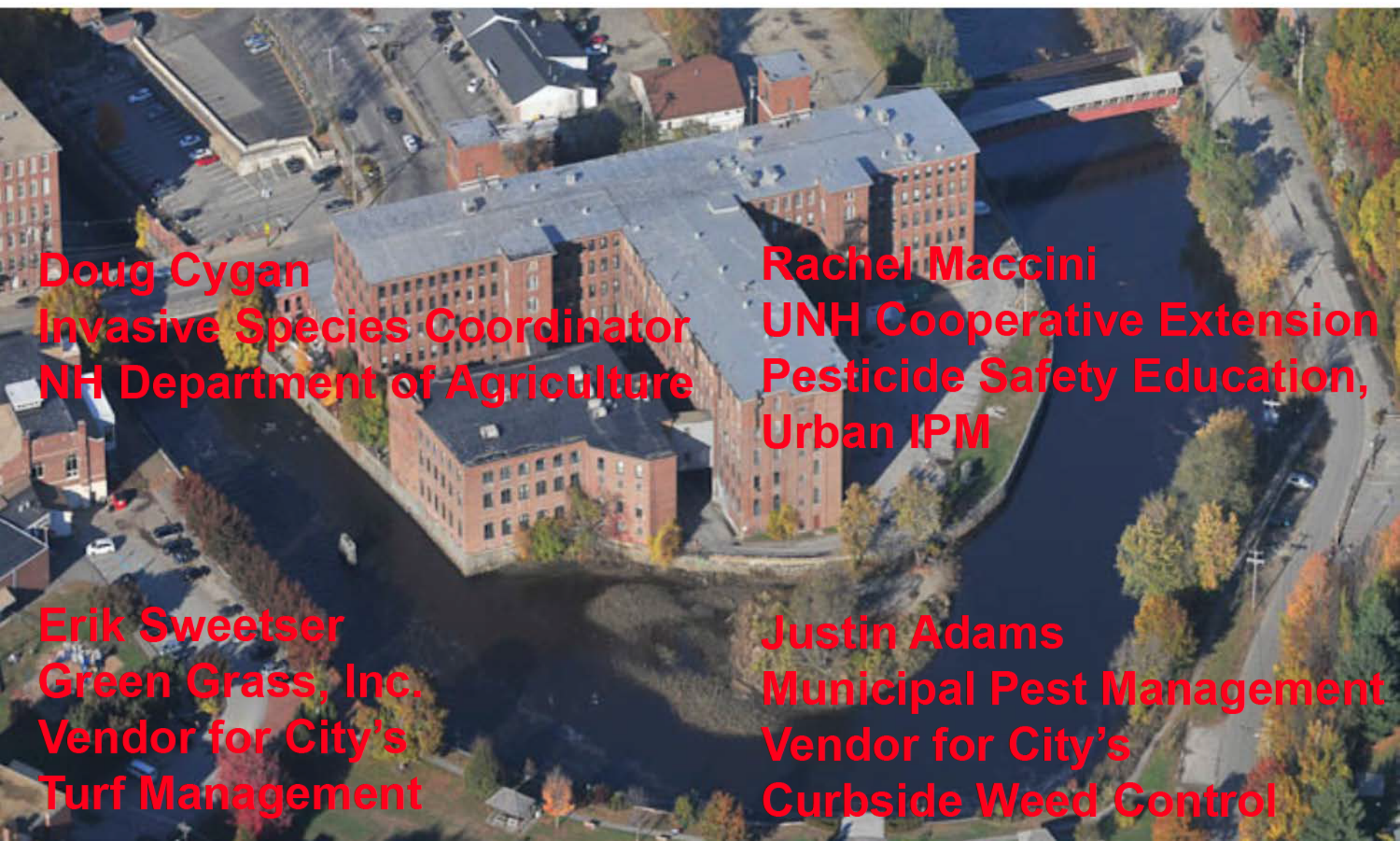


Dover's use of pesticides/herbicides

City Council Workshop -2/21/18



Doug Cygan
Invasive Species Coordinator
NH Department of Agriculture

Rachel Maccini
UNH Cooperative Extension
Pesticide Safety Education,
Urban IPM

Erik Sweetser
Green Grass, Inc.
Vendor for City's
Turf Management

Justin Adams
Municipal Pest Management
Vendor for City's
Curbside Weed Control

Dover's use of pesticides/herbicides

- Community Services oversees & administers 2 bids
 - Curbside Weed Control
 - Turf Management
- Both typically bid every 2 years.
- Both last bid FY16
- FY18 Curbside Bids received 12/27/17
- FY18 Turf Management has not gone out yet

Curbside Weed Control

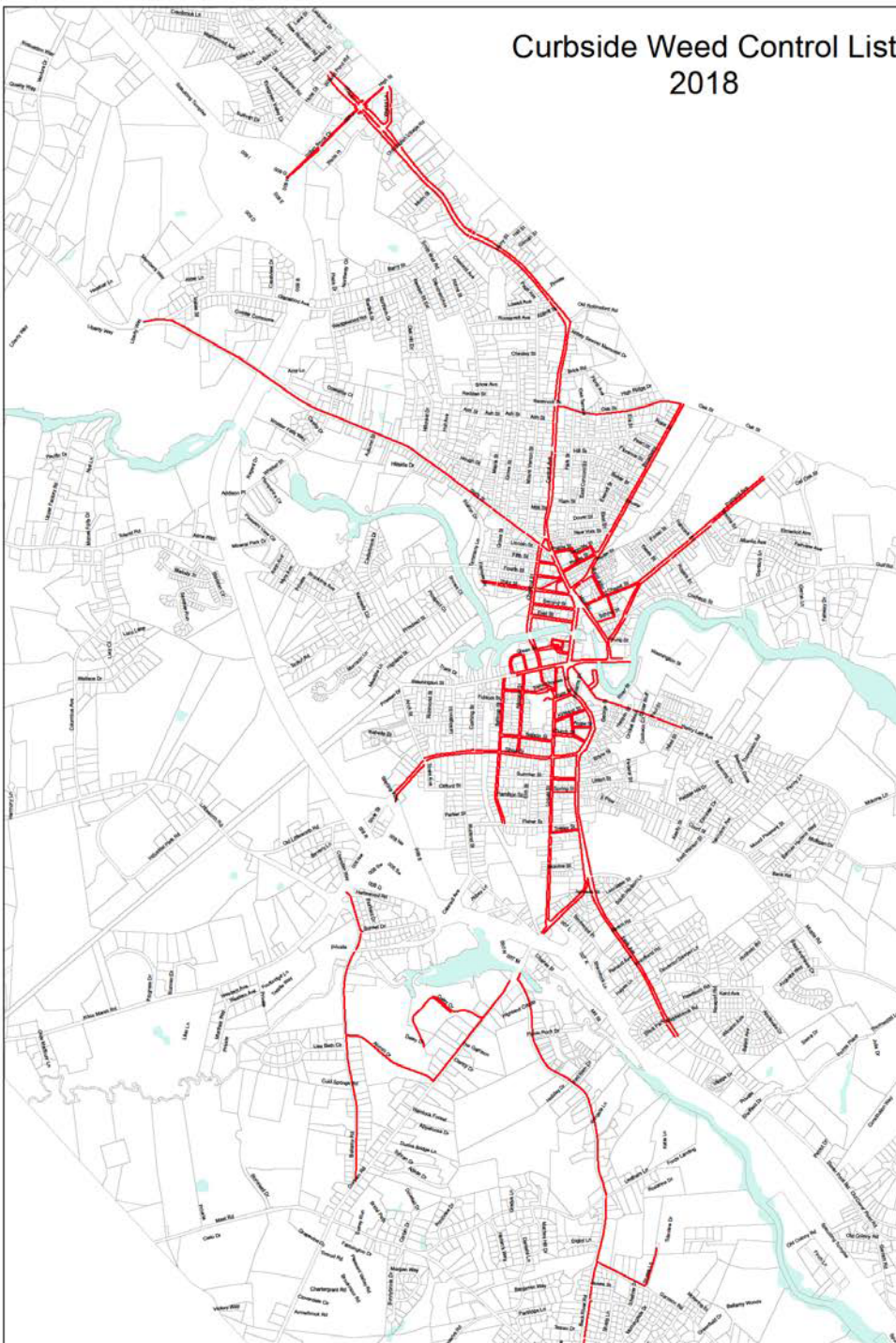
- Target about 30 miles of treatment



Treat curb lines only



Curbside Weed Control List
2018



Highlights

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

Curbside Weed Control

- Treatments historically have been glyphosate-based products (Glypro, Round-Up)
- FY18 Requested 3 treatment options
 - Glyphosate-based
 - Burning, pulling, CO2, liquid nitrogen
 - Ammoniated soaps (organic option)
- Portsmouth tried ammoniated soaps 2017. Less effective & requires additional treatments than glyphosate. Surficial contactor

B17015 Curbside Weed Control Vendor	Price per Mile	Total for 30 Miles	Times 4 Applications	Total
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Municipal Pest Management Svc Inc 21 River Road Newington, NH 03801 803-431-0008	\$ 70.00	\$2,100.00	\$ 8,400.00	\$ 8,400.00
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Option A
Herbicide spray applications

Municipal Pest Management Svc Inc 21 River Road Newington, NH 03801 803-431-0008		\$ -	\$ -	\$ -
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Option B NONE OFFERED
Alternative ei, burning, CO2, liquid nitrogen

Municipal Pest Management Svc Inc 21 River Road Newington, NH 03801 803-431-0008	\$ 170.00	\$5,100.00	\$20,400.00	\$20,400.00
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Option C Finalsan Product
Organic and/or integrated pest management technique:

FY 18 Operations budgets = \$8,000

Applicators suggest we may need 1 or 2 additional treatments with Finalsan (ammoniated soap)

❖ 1 + treatment = \$5,100. Total = \$25,500

❖ 2 + treatments = \$10,200. Total = \$30,600

Finalsan needs surficial contact with weeds

Pesticide comparative data for City of Dover

Prepared by:
Douglas Cygan
Invasive Species Coordinator
NH Department of Agriculture, Markets & Food

Most dangerous	Signal Word	Meaning
Toxic ↑ ↓ Safest	Poison	Highly toxic
	Danger	Extremely toxic
	Warning	Moderate hazard
	Caution	Low hazard
	No signal word	Not hazardous

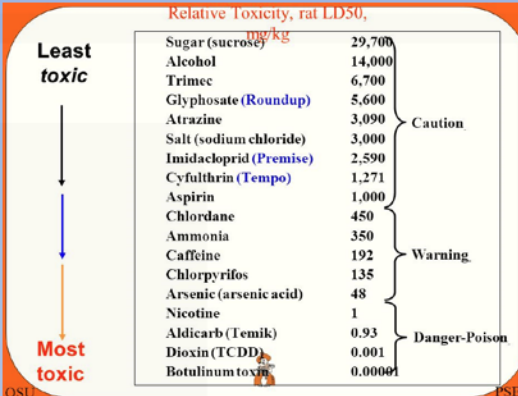


Image above: Oklahoma State University
Pesticide Safety Education Program

Glyphosate

- Signal Word: **Caution**
- Precautionary Statement: Hazard to humans and domestic animals
- PPE: Long-sleeved shirt and long pants, shoes plus socks.
- Re-entry period: Until dry, usually within 1 hour
- Environmental hazards: Do not apply directly to water.
- LD 50: 5,600

Axxe

- This product is not translocated
- Signal Word: **Warning**
- Precautionary Statement: Hazard to humans and domestic animals
- PPE: Coveralls worn over short-sleeved shirt and short pants, socks, chemical resistant footwear, chemical resistant gloves and eye protection
- Re-entry period: 4 hours
- Environmental hazards: This product is toxic to fish and aquatic invertebrates
- LD50: 5,000

Finalsan

- This product is not translocated
- Signal Word: **Warning**
- Precautionary Statement: Hazard to humans and domestic animals
- PPE: Must wear coveralls worn over short-sleeved shirt and short pants, socks, chemical resistant footwear, gloves and eye protection
- Re-entry period: 24 hours
- Environmental hazards: This product may be hazardous to aquatic invertebrates
- LD50: 5,000

Turf Management

- Bid for FY18 is pending, waiting on Council feedback
- Proposing joint-bid w/ School Department
- Target multiple parks & ball fields



Turf Management

Group A City

City Hall
Public Library
Upper Henry Law Park
Upper Square Central Ave
Shaws Lane (2) Ball Fields
Shaws Lane (3) Soccer Fields
Shaws Lane multi Purpose Field
Woodman Park Ball field
McConnell Center
Maglaras Park 2 Ball Fields
Guppy Park Ball Field
Sullivan Dr Ball field
Longhill Multi Purpose Field
Garrison Park Ball Field
North End Fire Station 262 6th st

Group B School

Bellamy Soccer/Lacrosse Field 1
Bellamy Soccer/Lacrosse Field 2
Bellamy Soccer/Lacrosse Field 3
Dunway Baseball Field
Dunway Football Field
Varsity Softball Field
JV Softball Field
Football Practice Field
Fiske Lacrosse/Field Hockey Field

Group C Pine Hill Cemetery

Applications/Treatments

- Fertilization
- Crabgrass Control
- Broadleaf Weed Control
- Grub Control
- Limestone addition
- As necessary/requested
 - ✓ Core Aerification
 - ✓ Slice Seeding
 - ✓ Deep Tine

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!

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)*

Treatments	Garrison Park Ball Field	
	133,406	sq. ft
Balanced fertilizer		\$/round
Crabgrass control		\$/round
Broadleaf weed control		\$/round
Grub control		\$/round
Dolomitic limestone		\$/round
Core Aerification*		\$/round
Slice seeding*		\$/round
Deep tine aerification*		\$/round
*as requested		

City Bid is structured to allow flexibility.
i.e. fertilizer applied based on results of soil tests.

Turf Management

- City engaged Lawnmark Plus for turf treatment pilot from 2015-2017
- Targeted lower Henry Law Park & 1 ballfield at Sullivan Drive
- Organic-based fertilizers
- Goal was to optimize treatments, but still used synthetic herbicides/pesticides for weed & Grub control

LAWNMARK PLUS TURF TREATMENTS 2015

PO Line #	LOCATION	DATE	Description	APPLICATION
9	Henry Law Park	5/27/2015	Fertilizer	10-0-3 Organic Fertilizer 700 lbs
				Growth Activator Soil Innoculant 3.82 gals
1 & 3			Broadleaf Weed/Crabgrass	Tenacity Herbicide 7 oz
10	Sullivan Dr	5/27/2015	Fertilizer	10-0-3 Organic Fertilizer 400 lbs
				Growth Activator Soil Innoculant 2.18 gals
2 & 4			Broadleaf Weed/Crabgrass	Tenacity Herbicide 4 oz
8			Vegetation	Finalsan Herbicide - Weed Control 78 oz
9	Henry Law Park	7/7/2015	Fertilizer	7-0-2 Organic Fertilizer 5.5 gals
				Growth Activator Soil Innoculant 2.75 gals
			Broadleaf Weed/Crabgrass	Tenacity Herbicide 7 oz
			Grub Control	Acelepryn Insecticide 13 oz
10	Sullivan Dr	7/7/2015	Fertilizer	7-0-2 Organic Fertilizer 3.12 gals
				Growth Activator Soil Innoculant 1.56 gals
			Broadleaf Weed/Crabgrass	Fiesta Herbicide 14 oz
			Grub Control	Acelepryn Insecticide 7.3 oz
8			Vegetation	Finalsan Herbicide - Weed Control 78 oz

1st treatment

2nd treatment

Applications included organic fertilizer, but also applied:

- **Tenacity Herbicide**
- **Finalsan Herbicide**
- **Acelepryn Insecticide**
- **Fiesta Herbicide**

LAWNMARK PLUS TURF TREATMENTS 2015

PO Line #	LOCATION	DATE	Description	APPLICATION
9	Henry Law Park	9/4/2015	Fertilizer	Growth Activator Soil Innoculant 2.75 gals Organic Start Fertilizer 1 lb 7-0-2 Organic Fertilizer 5.5 gals
13			Core Aerification	
15			Slice Seeding	blue/rye grass mix 350 lbs
10	Sullivan Dr	9/4/2015	Fertilizer	Growth Activator Soil Innoculant 1.56 gals Organic Start Fertilizer 8 oz 7-0-2 Organic Fertilizer 3.12 gals
14			Core Aerification	
16			Slice Seeding	blue/rye grass mix 100 lbs
8			Vegetation	Finalsan Herbicide - Weed Control 78 oz
9	Henry Law Park	10/30/2015	Fertilizer	Fertilizer 13-0-0 3.5 lbs Root Builder Winterizer 2 lb
11			Dolomitic Limestone	Granular lime stone 1000 lbs
10	Sullivan Dr	10/30/2015	Fertilizer	Fertilizer 13-0-0 1 lb Root Builder Winterizer .5 oz
12			Dolomitic Limestone	Granular lime stone 300 lbs
8			Vegetation	Finalsan Herbicide - Weed Control 78 oz

3rd treatment

4th treatment

Goal for all turf is to create healthy fields to minimize applications of any pesticides/herbicides. Irrigation is critical for health. Over-seeding and aerification helps.

Sullivan Drive Ballfield 2017

Infield treated w/ Finalsan 8/10/17

Photo taken 8/24/17 – weeds remain



Costs - Turf Management

FY 17 Total Expenses = \$23,814

City Fields, no schools, no cemetery

- Pilot-program
 - 2 sites, ~ 2.6 acres
 - \$5,895 total, or \$2,267 per acre
- Turf Management Bid
 - 19 sites, ~ 27.5 acres
 - \$17,918 total, or \$651 per acre

Example

Treatments	Garrison Park Ball Field	
	133,406	sq. ft
Balanced fertilizer		\$/round
Crabgrass control		\$/round
Broadleaf weed control		\$/round
Grub control		\$/round
Dolomitic limestone		\$/round
Core Aerification*		\$/round
Slice seeding*		\$/round
Deep tine aerification*		\$/round
*as requested		