

25 years in the Biosolids at LAWPCA

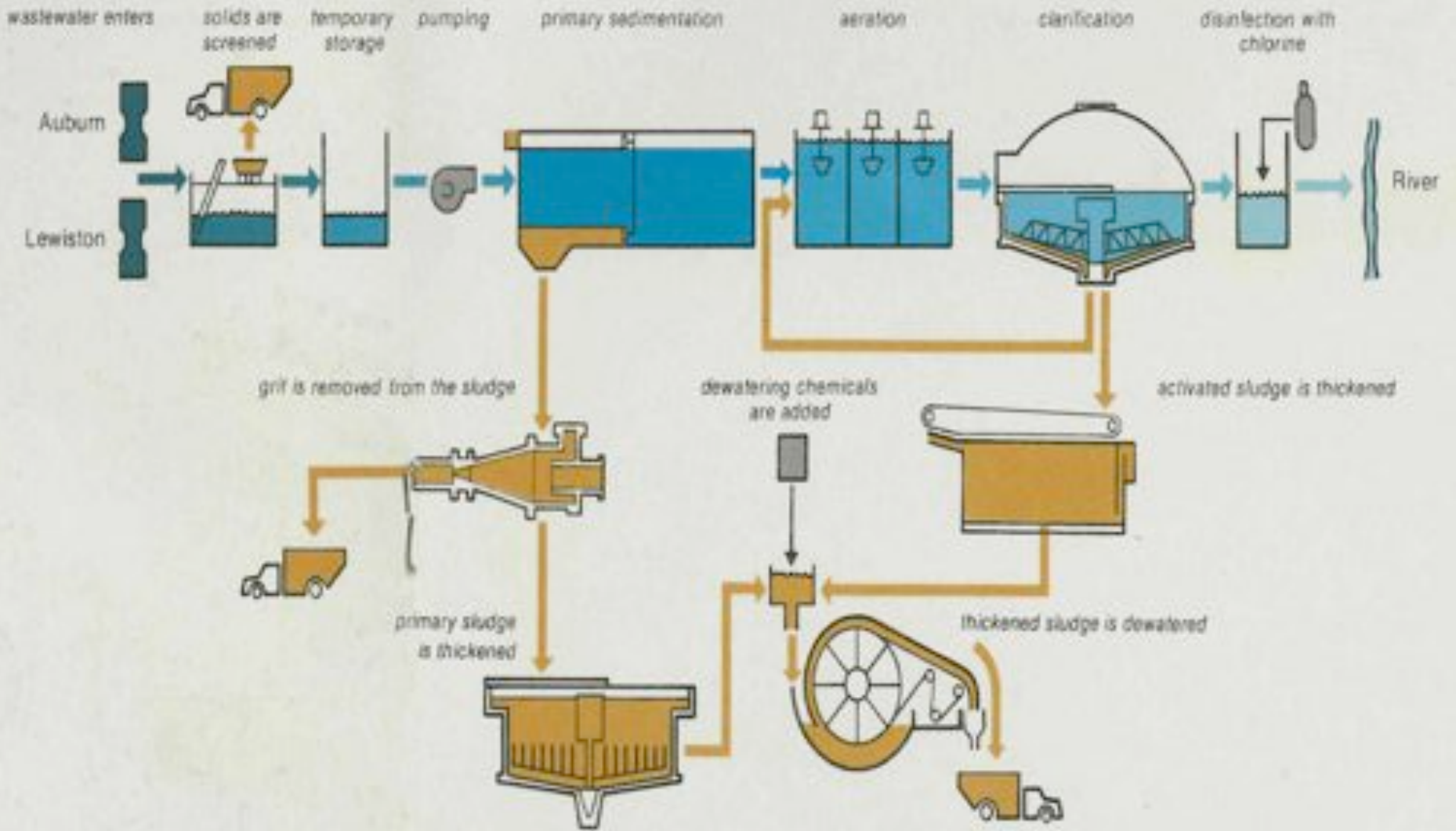
Challenges, Changes, Chances and Conclusions

Clayton (Mac) Richardson, P.E.

Lewiston – Auburn Water Pollution Control
Authority



TREATING THE WASTEWATER



Where to go???

- Excerpt from 1973 Annual Report:

“Solid Waste from our facility occupied much of our time during the year. It was finally agreed that we could dispose of the solid waste **at or near** the area of the Lewiston City Dump. Final arrangements were not completed during the year, but the Board was assured that satisfactory arrangements could be made with the City of Lewiston as time goes on.”



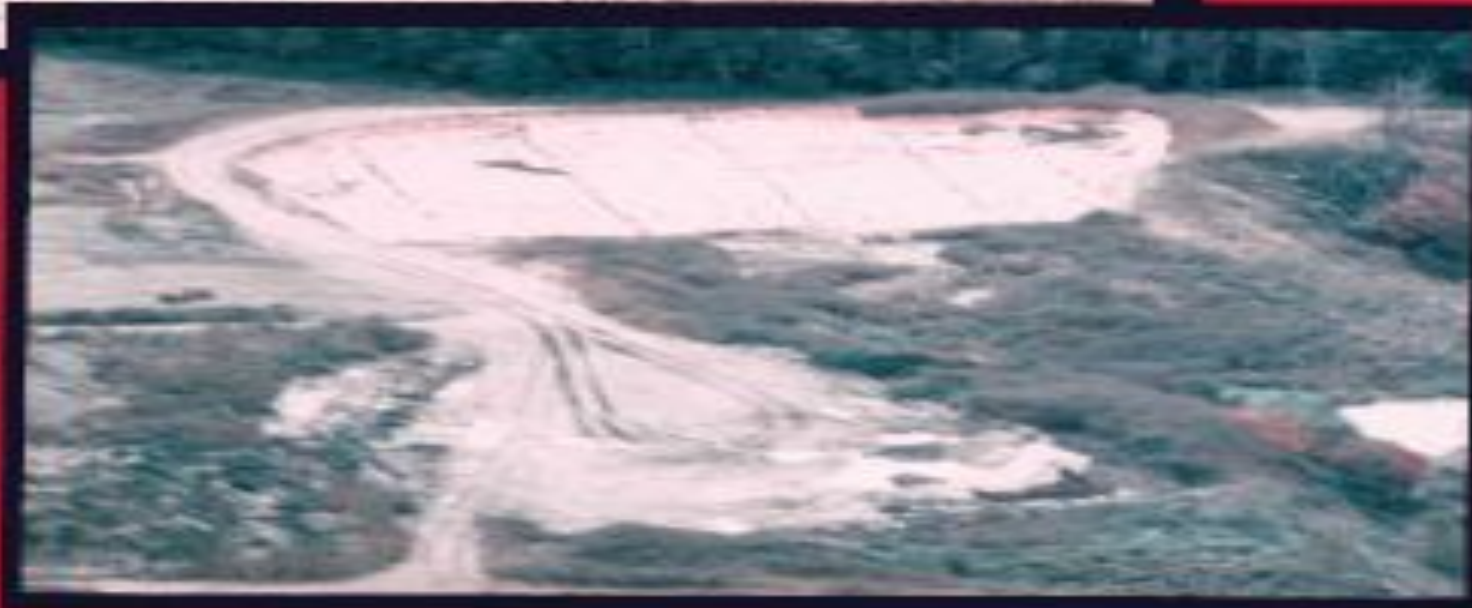
Early LAWPCA Issues

- Vacuum Coil Filters for Dewatering
- Start treating wastewater March 11, 1974
- Interim Landfill (River Road) two year life limit
- 1977/1978 Bought Jordan School Rd Site (JSR)
- DEP issues first order to close temporary River Rd Site by June 1, 1979.
- CDM Estimates sludge disposal cost at \$20 to \$25 per ton



To Landfill or Not to Landfill

- 1980 DEP denies LAWPCA proposal for JSR landfill after assurances of approval
- Strong Public opposition to JSR site
- 1981 Trial of landspreading 1 acre at Lewiston Landfill 5 acres at Larabee Farm, Auburn.
- High Cadmium results – purchase AA Spectrophotometer
- Extend the truck garage



Land (or Land application) Ho!

- 1982 held a Farmer's Seminar
- 1984 Construct Stacking Pad at Barker Farm
- Chairman objects to out of State opposition
- Maine starts testing for dioxins
- Suggestion made to call "Sludge" "Residual Waste"
- The great Dioxin Scare of 1987
- The Sludge Dam at River Rd LF deemed unstable, (compost facility site w/purch option abandoned)





LAWPCA Biosolids 86 to 87

Month	'86 Farm	'86 Landfill	'87 Farm	'87 Landfill
Jan	1023	539	1502	371
Feb	1493	0	1293	464
Mar	1649	62	157	1811
Apr	1887	0	0	1606
May	1819	37	0	1896
Jun	1090	587	0	1449
Jul	1027	289	368	1104
Aug	837	222	1478	30
Sept	1479	104	247	1602
Oct	1607	145	123	1542
Nov	1631	68	384	1361
Dec	1606	0	0	1727
Total	16,148	2,053	4,200	14,963

This is where I step In!

- CH2M Hill already working on Belt Press Proj.
- Interim stabilization of sludge bed and Second Interim Disposal Area proposed.
- Sept 1989 – Consent order to close Riv Rd LF
- Start sending solids to CWS for \$65/ton
- Completed Lined Disposal Area –DEP will not allow its use.
- 1990 Trial “Comtek” Composting system.



Where do we go from here?

- Feb 1991 Hired CDM/TSI for phase 1 Compost Siting Study 44 sites considered
- Received approval to use LDA for 1yr + 1yr.
- Farmer's Open House
- Option to Purchase 118 acre farm in Auburn
- Issued design/build RFP for compost facility as permitting with City of Auburn & DEP contin
- Two & a half years for total project completion
- Designed for 100% LAWPCA Production of 1990 (34 yd/day).

•

•

Sludge angers residents

By John Adams Young
Staff Writer

BOWDOINHEAM — Talk to farmers or superintendents of "wastewater treatment facilities" and they'll tell you sludge is great stuff — a valuable soil additive that can add essential nutrients to enrich soil. In talks to several White Road homeowners near the Richmond town line here — who have been bombarding town officials with complaints about the odor of sludge — and you'll get a different opinion.

One of those homeowners, Christine Wilson, said she was forced to come "as active" this summer because of a "stench" so strong it woke her family up in the middle of the night July 11.

Wilson said she had to seal up her house in the middle of last week's heat wave, and that she felt like Is-

raelis who had to hole up in sealed rooms under the threat of Iraqi poison gas missile attacks during the recent Gulf War.

Wilson set up a toilet in her front yard, surrounded by signs, to protest the sludge spreading.

Fulton D. Oakes Jr., whose land the sludge is being spread upon, said he intends to continue the spreading but added that he is listening to neighbors' complaints. Oakes said he has an application on file with the federal Soil Conservation Service to install a new stream culvert that will allow dump trucks to dump the sludge at least 1,000 feet away from the nearest house.

Oakes added that there is a feeling among some people who move to rural areas that "they should not be subjected to agricultural processes in an agricultural area."

In neighboring Richmond, Town Manager Nancy J. Churchill said in the past she has received complaints about sludge smells, but the three farms — all located near town — that accept sludge from Bath, Gardiner and Richmond's own treatment plant have changed their operating procedures to keep the complaints to a minimum.

One of the biggest rules in Richmond, Churchill said, is no spreading of sludge on the week of the Fourth of July, when most people are outdoors for picnics.

In the past, Lisbon officials have also had to face complaints of homeowners living next to spreading areas, but Town Manager Michael L. Miller said he hasn't received a single complaint this year.

Lee Townley, superintendent of



Signs painted in phosphorescent-colored paint were posted in Christine Wilson's front yard in Bowdoinham to protest the odor emanating from sewage plant sludge spread on a hayfield across the street. (Paul Cunningham photo)

Sludge

From front page

the Lisbon treatment plant, said a recent expansion at the plant has allowed more flexibility in the timing of sludge spreading so that she can take advantage of better weather conditions.

Lisbon uses farms off River Road, the Bowdoinham Road and the Little Ever turf farm for sludge disposal,

and Townley said the best odor control is to spread on "a nice, cool breezy day."

Public relations also enters the picture, Townley said. Neighbors who are informed ahead of time to expect "a day or two" of foul air will be less likely to complain. She said tilling the sludge under immediately also helps control the odor.



a recently passed bill calls for careful evaluation of the steps to meet their teen-ager's emotional and financial needs. The bill is hailed by welfare directors as a step toward clearing the law's gray area.



1993 A very good Year!

- February 19 Part 503 Rule promulgated
- March 10, start up Compost Facility
- MWWCA Biosolids Video
- Open House for Compost facility –Senator Mitchell attends
- VPS (Auburn Fiber) announces Auburn chosen for paper recycling facility.



Ongoing Challenges

- Calcium Saturation starting to limit land application
- Odor issues (Neighborhood advisory committee)
- Biofilter issues – fouled fabric, media breakdown, plugged pipe and air diffusion, humidification
- Public Sentiment against land application in Falmouth, New Vineyard, Knox etc.
- LAWPCA class B used for Westbrook Landfill closure
- Purchased Libby Farm – 208 acres abutting CF
- Kady BioLysis Trial imbroglio of 1999



NEBRA!

- “There is a movement underway to form an organization that can act as a strong advocate for biosolids in New England modeled after the very successful Northwest Biosolids Management Association in Seattle. The organizers envision paid staff that can provide public outreach, legislative input, and coordinate research efforts, I am not yet sure what the fee support would be, but I do believe that such an organization is becoming critical in our region. Unfortunately, in many places acceptance of beneficial use, rather for lime stabilized material on farm and forest lands or unrestricted use of compost is being challenged. All too often opponents are driven by fear, emotion, and a large dose of “not in my back yard”. I feel LAWPCA has put forth good effort in our area to inform the public and deal with these issues but the lack of support in other parts of the State and New England could ultimately harm the Authority and cost our rate payers. I will inform the Board further about this group as more is known.”

- NEBRA incorporated December 20, 1997



Ongoing Challenges (cont'd)

- Topsoil manufacturing Trial at Barker Farm
- 2000 National Biosolids Partnership Gap analysis
Volume land applied hits historic low 1,565 yards
- 2001 Refurbish first turner at \$110,000 -- Start shipping solids to GSI, Canada for composting – first mention of potential of A/D to reduce biosolids vol
- 2002 CATS appeals Land Ap permit to BEP – turn around in Land Ap – 5,066 yd (23.6%) to farms.
- 2004 DEP severely restricts use of Barker Pad, raises concern over nitrate in groundwater at CF

•

•



Challenges Still Ongoing!

- 2005 Constructed Finished Compost Pad at Compost Facility -- Truck in route to GSI Canada overturns in Solon, Maine telephone worker threatens suit – Compost Facility hits 70 cy/day throughput
- 2006/2007 Town of Brunswick approves by 6 votes a ban on all biosolids (class A & B). NEBRA, LAWPCA, NEO and others challenge in court on 1310 U, win -- Record volume of solids produced.
- 2008 proposed a feasibility study for Anaerobic Digestion – CDM hired Feb 2009
- 2009 Conceptual Design of A/D – replace DAF thickeners



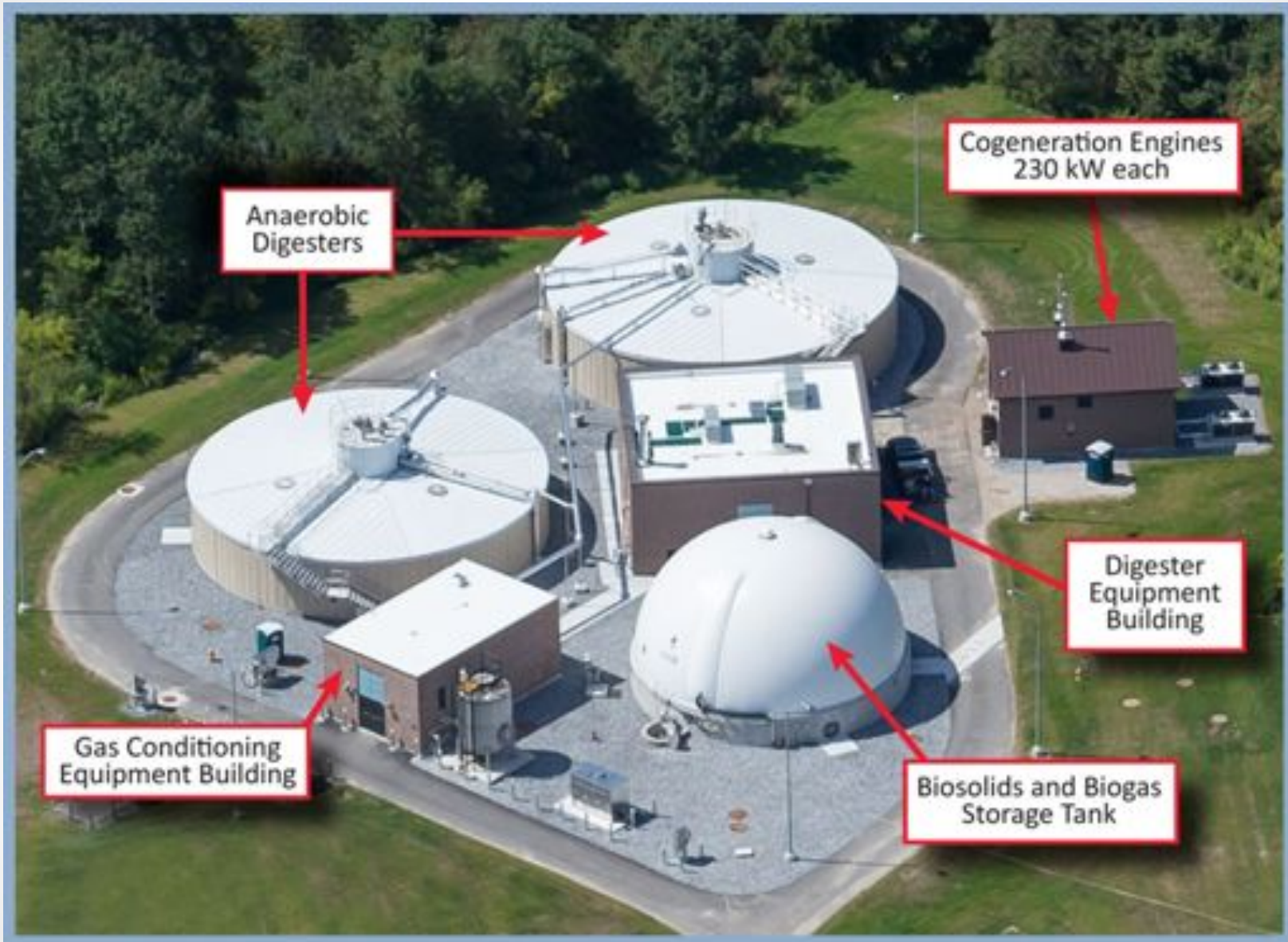
Getting Anaerobic Digestion Done

- 2009 Board of Directors Tour of Nashua, Franklin – presentations to Lewiston and Auburn City Councils – ARRA no grant funding for our project
- 2010 Sealed leaking Manholes at CF biofilter (nitrate) -- VE study of preliminary A/D design (defer Co-gen) – More presentations to City Councils, Rotary, etc. – Certified NBP EMS.
- 2011 A/D meetings with DEP – biomethane potential study of LAWPCA solids – WEF Washington DC fly in – NEBRA study of outside feedstock sources -- Sept award construction to Methuen for \$11,957,548 (co-gen bid alternate \$817,000)



Getting Anaerobic Digestion Done (cont'd)

- 2011 Efficiency Maine Grant for co-gen \$360,000 – Started construction in October – Groundbreaking Ceremony Nov 4.
- 2012 met with DEP to discuss changes in Land Ap from lime stabilization to anaerobic digestion – Employee groups toured Nashua and GLSD digesters.



Anaerobic
Digesters

Cogeneration Engines
230 kW each

Digester
Equipment
Building

Gas Conditioning
Equipment Building

Biosolids and Biogas
Storage Tank

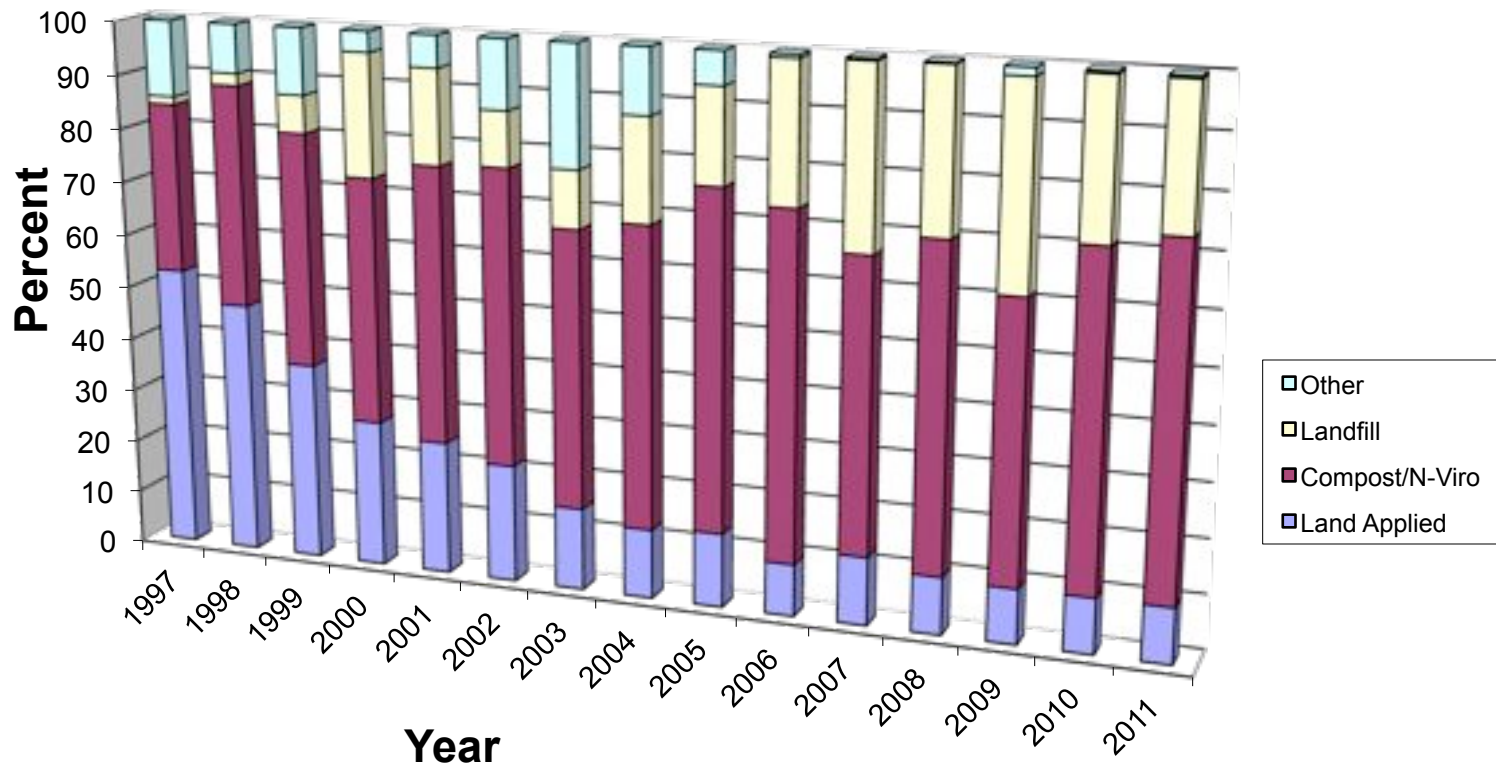
Project Cost and Debt Service

Item		Amount
Source of Funds		
	State Revolving Fund (SRF)	\$13,800,000
	Principal Forgiveness	880,000
	Efficiency Maine Grant	<u>330,000</u>
	Total Cost	\$15,010,000
Anaerobic Digestion Debt Service		\$920,000
Compost Facility Debt Service		<u>(520,000)</u>
Net Debt Service		\$400,000
Annual Operating Cost Savings Goal		>\$400,000

Approximate Annual Savings from A/D

Item	Amount
Reduction in Land Application Program	\$310,000
Reduction in Composting and Compost Revenues	170,000
Elimination of Contract Disposal	150,000
Reduced Plant Energy Costs	130,000
Co-Digestion of Other Organics	20,000
Composting of Other Biosolids	<u>180,000</u>
Total	\$960,000

Maine Biosolids Use & Disposal 1997-2011



LAWPCA Budget and Biosolids Costs

Year	O&M Expenses (actual)	Residuals Budget	Residuals Actual	Residuals Percent
1986	1,289,314		310,610	24.1
1987	1,643,689	308,640	518,483	31.5
1990	2,091,051	475,000	702,737	33.6
1995	1,994,427	495,500	423,719	21.2
2000	2,271,100	626,713	479,500	21.1
2001	2,723,207	642,325	827,549	30.3
2005	2,934,106	858,900	751,327	25.6
2008	3,534,459	942,950	985,576	27.9
2010	3,168,964	1,085,850	891,557	28.1
2013	2,975,000	729,100	827,809	27.8

Conclusions

- The tail that wags the Dog
- At LAWPCA we have tried almost everything
- Cost Estimates should be viewed skeptically
- Multiple outlets and back up plans are needed
- Public Outreach and Employee Communication
- Biosolids & Organics are too valuable to waste
- What is our mission? – Protect the Environment!

•

•

Questions

