

Biosolids Management and Storage: Metrogro Program

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Madison Metropolitan
Sewerage District



Resource Recovery

Madison Metropolitan Sewerage District Nine Springs Wastewater Treatment Plant



The district receives:

- Over 40,000,000 gal of wastewater daily from over 380,000 area residents through the sewer system
- 17 MG of holding tank waste and 11 MG of septic tank waste annually

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The Resource Cycle



Resource Recovery

- The district separates solid material from the wastewater stream
 - Solids are digested
 - Ostara process removes some of the phosphorus through struvite harvesting
 - Process ends with a high value horticulture fertilizer (5-28-0)



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Resource Recovery



1.75 tons of fertilizer produced daily with
Ostara process = 980 lbs P₂O₅



Metrogro Program

- Remaining solids are stored in the Metrogro storage tanks for future farm field application
 - 3 storage tanks
 - Total of 18,000,000 gallons
 - 180 days of storage



Metrogro Program

- 2017 Metrogro Statistics
 - 34 million gallons hauled to area farm fields
 - 6,600 semi loads
 - Applied to nearly 5,000 acres



Metrogro Program

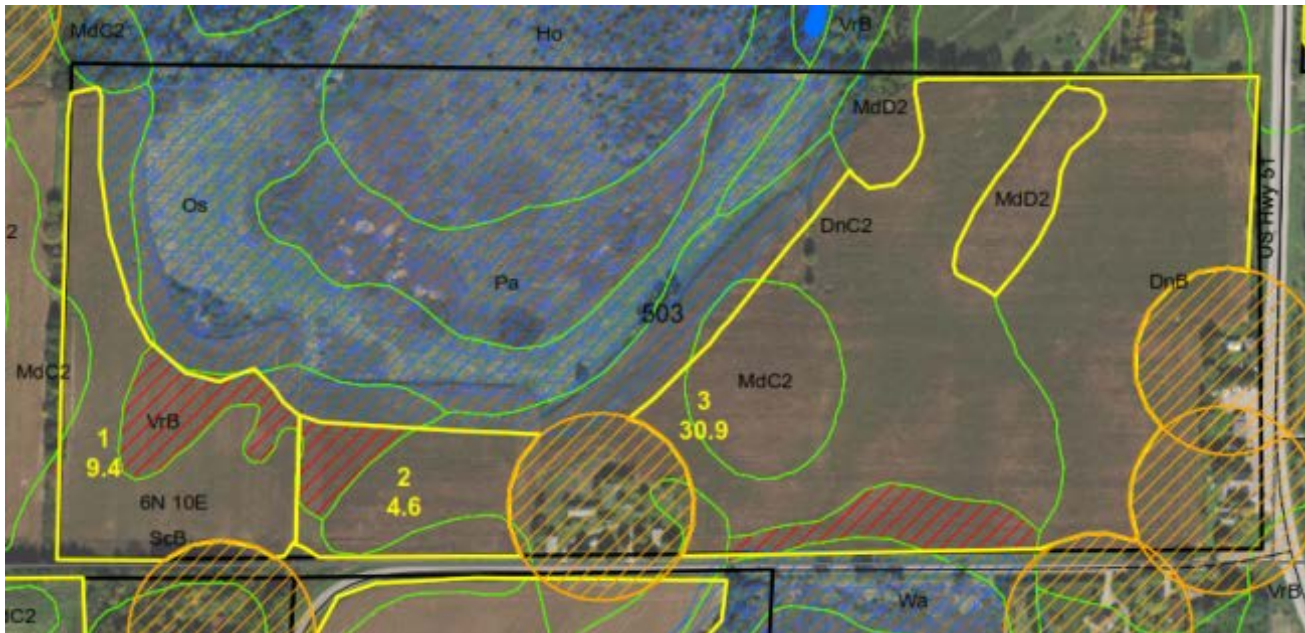


- All Metrogro applications are injected into the soil
 - no surface application
 - no winter application



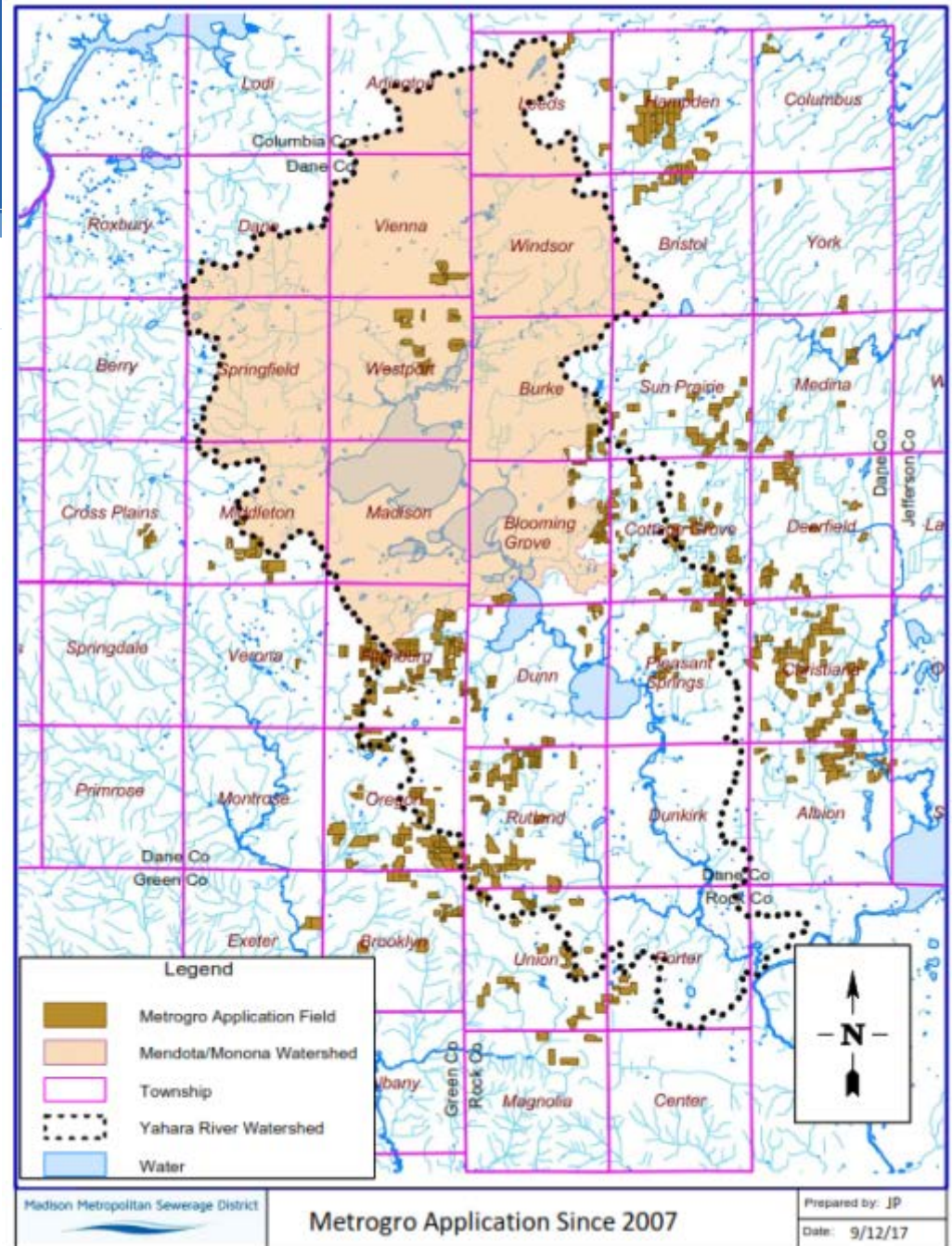
Metrogro Program

- All fields are pre-approved by the DNR
 - Setbacks for biosolids (NR 204) are more stringent than animal manure applications (WI 590 and NR 243)
- Application rates are based on nitrogen, not phosphorus
 - Avoid fields that receive manure applications



Metrogro Program

- The Yahara Watershed and Metrogro applications
- 36% of Metrogro fields utilized in the last decade are located within the Yahara Watershed



Metrogro Program

- Program Goals:
 - Improve data and information
 - Move to low disturbance manure injector that works with the Metrogro product
 - Conduct comprehensive field by field assessments to ensure proper environmental protections are in place on every field receiving Metrogro



Metrogro Program

- Researching alternative biosolid products
 - Cake material, 20-23% dry material
 - Class A status, which allows District to distribute material similar to a commercial fertilizer product



Metrogro Program

- Researching alternative biosolid products
 - Composting
 - Successful, but carbon additions are expensive
 - Air Drying
 - Very labor intensive



Metrogro Program

- Ideas in solving our runoff and nutrient concerns are many, but it takes time to verify that they are viable alternatives to what we are already doing
- “When we try to pick out anything by itself, we find it hitched to everything else in the Universe” – John Muir
 - So is true at a wastewater treatment plant, and on a farm...



Metrogro Program

Questions?
New Ideas?



“Farming looks mighty easy when your plow is a pencil and you’re a thousand miles from the corn field.” – Dwight D. Eisenhower

Resources

Madison Metropolitan Sewerage District

- www.madsewer.org

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WI DNR Biosolid Contacts

- Fred Hegeman, frederick.hegeman@wisconsin.gov
- Amy Garbe, amy.garbe@wisconsin.gov



Summary

- The district conducts resource recovery
 - Removal of phosphorus through the production of a horticulture fertilizer
 - Recycles nutrients to area farm fields through the Metrogro program
- The district has 180 days of storage
 - 18,000,000 gallons of storage
 - No winter spreading
- 34,000,000 gallons of Metrogro were applied to area farm fields in 2017
 - Application based on nitrogen needs of crop



Summary

- Biosolids application restrictions are more stringent than animal manure application restrictions
- The district is working to improve methods of managing Metrogro in-field
 - Improved data, LDMI, field by field assessments
- The district is looking into Metrogro alternatives with the dewatered cake material
 - Composting, air drying

