Financing Multi-Purpose Drainage Management

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Overview

1. Why Do Multi-Purpose Drainage?
2. New Era of Drainage/Multi-Purpose Drainage
3. Heron Lake Watershed District Success
4. Finance and Policy Issues
1. Why Do Multi-Purpose Drainage?
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Importance of Drainage

- Most of the Midwest needs artificial drainage to support agriculture
- Drainage Statutes
  - 1800s: Developed
  - 1900s: Refined
- 1900s-1920s
  - Numerous drainage systems were constructed
- Many private/handshake agreements on original drainage systems
1. Why Do Multi-Purpose Drainage?

When Drainage Fails
1. Why Do Multi-Purpose Drainage?

Old Drainage Design Mentality

“Drain the wetlands. Water is the enemy.”
1. Why Do Multi-Purpose Drainage?

**Old Drainage Design Mentality**

- Drain shallow wetlands and basins for agricultural purposes
- Low areas and basins drained for conveyance purposes, not necessarily for farming
- Designed for 0.10-0.25 inches per day for tile

- Designed 0.5-1.0 inch per day for open ditch
- Get water to the ditch/stream as fast as possible
- 3-4 different crops
  Small grain and hay generally in low land
2. New Era of Drainage/Multi-Purpose Drainage
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What is MDM?
An engineered drainage system that utilizes Best Management Practices (BMPs) to increase agricultural drainage while improving water quality

Preventive Measures
Conservative practices that can be applied toward the existing agricultural land without dramatically changing the layout of the landscape.

Control Measures
Either conveys water, controls flow direction and rate, or maintains a desired water elevation.

Treatment Measures
Treatment of runoff and drainage water by providing filtering through the use of vegetative cover or water storage.
2. New Era of Drainage/Multi-Purpose Drainage

Preventive Measures

- Tile management
- Nutrient management
- Crop rotation
- Cover crops
2. New Era of Drainage/Multi-Purpose Drainage

Control Measures

- Water control structure
- Two-stage ditch
- Alternative side inlets
- Grassed waterways
- Riparian channel vegetation
- Controlled subsurface drainage
2. New Era of Drainage/Multi-Purpose Drainage

Treatment Measures

- Filter strips
- Wetland restorations
- Sediment basins
- Woodchip bioreactors
- Saturated buffers
- Storage basins
- WASCOBs
2. New Era of Drainage/Multi-Purpose Drainage

Drainage Demands

• Meet new farming demands
• Increase pattern tiling
• Improve/upsize systems to handle the tile
• Manage more intense rainfall frequencies
• Update existing infrastructure that is not designed for current needs
• Maintain adequacy of outlet
2. New Era of Drainage/Multi-Purpose Drainage

MDM Plan Development

Run the Agricultural Conservation Planning Framework (ACPF) Tool

- Develop priority list of BMPs
- Meet with landowners for input and buy-in
- Research grant opportunities
- Identify what lines up with existing infrastructure needs
- Review detailed modeling results to calibrate the MDM plan
- Implement the plan
2. New Era of Drainage/Multi-Purpose Drainage

MDM Plan Example

Jackson County Judicial Ditch No. 3
Overall Watershed Boundary
Total Area = 17,058 Acres
2. New Era of Drainage/Multi-Purpose Drainage

Jackson County JD 30

- Pond cost: $127,000
- Land cost: $10,000
- Total cost: $137,000
- Storage: 14 acre-feet
- Land area: 1.6 acres
- Cost per acre-foot: $9,785
- Cost per cubic-yard of excavation: $3.60
- Project contractor: Hutton, Inc.
3. Heron Lake Watershed District Success
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TOTAL GRANT, MATCH, AND LOAN FUNDS

- **Grant Funds**: $7,612,672.08
- **Cash Match**: $216,078.69
- **Inkind**: $4,593,139.99
- **Loan**: $1,620,412.41
- **Total**: $14,042,303.17
3. Heron Lake Watershed District Success

Jackson County JD 19

- DNR Conservation Partners Grant
3. Heron Lake Watershed District Success

Jackson County JD 3

- EPA 319 Grant
- CWF Grant
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Jackson County CD 3

- 15 alternative side inlets
- 7-acre storage basin
- 2,000 linear-feet of two-stage ditch
4. Finance and Policy Issues
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4. Finance and Policy Issues

Challenges

• New way of design—it is difficult to get farmers to change old ways.

• Buy-in for storage to help with drainage
  Most farmers don’t like seeing more water ponded and prefer more water in the ditch. They want to get rid of water fast.

• Who gets the storage?
  Storage creates low land with great productions when dry. Landowners who are petitioning?

• What about the road authorities?
  There is more water against the roadways.

• Is it state or federal land?
  Any land sale is difficult.

• Timing and process are difficult, which can prevent great projects from happening
4. Finance and Policy Issues

Limitations

- **Funding**
  Who pays and how much?

- **Cost-Benefit Ratio**
  Some cases can only do so much, if anything.

- **Landowner Agreements**
  Some land is great for these storage areas, but disagreements between landowners prevent that.
Thank you!

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