ACRE
Summary of Findings & Overview of Potential Strategies

Dakota County Planning Commission

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Environmental Resources
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Overview

- Introduction
- Research Summary
- Stakeholder Engagement Summary
- Goals & Outcome Measures
- Proposed Strategies
- Next Steps
- Questions


Pic: Buffer Strip

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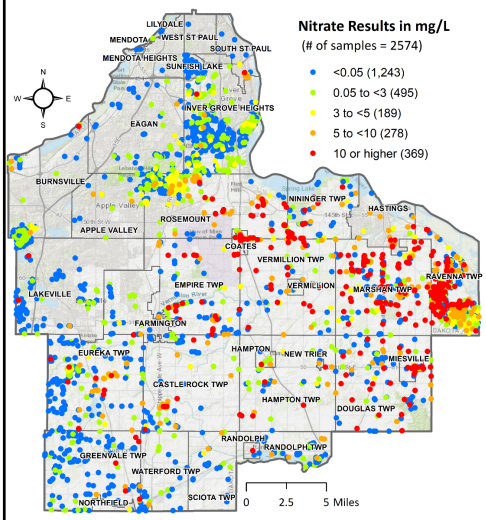
Introduction



Why develop ACRE Plan?

Groundwater Plan identified ag. chemicals as significant concern

Goal 1:
Water Quality

Strategy 1B1:
Reduce Ag chemical contamination

Tactic 1B1B:
Develop & Implement ACRE

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Introduction - Plan Progress

Task	2021 Q1	2021 Q2	2021 Q3	2021 Q4	2022 Q1
ACRE Development Preparation:					
Adoption of 2020-2030 Dakota County Groundwater Plan					
Application and award of MDH Grant for ACRE Development ($50k)					
Planning Commission: Present ACRE into and receive initial guidance (May)					
Technical Research:					
Review available data, regs., precedent					
Develop and install monitoring well network					⇒
Hire contractor to complete nitrate modelling (Barr Engineering)					⇒
Stakeholder Engagement:					
Award Engagement Contract (Environmental Initiatives)					
Partner with SWCD to establish Ag. Advisory Group					
Finalize Engagement Plan					
Phase I Stakeholder Engagement (Aug – Dec 2021)					
Plan Development, Review, Adoption:					
Develop draft goals, strategies and tactics					
Planning Commission: Present Summary of findings and receive feedback on new opportunities (Jan 2022)					
PDC – Board: Present summary of findings and receive feedback on new opportunities (Feb 2022)					

⇒ Task in ongoing beyond Q1, 2022

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Introduction - Draft Concept

Purpose:

- Reduce ag. chemicals in groundwater to levels that no longer pose a threat to human or ecological health
- Develop stronger ag. chemical drinking water protection goals (compared to current MDA Plans and Rules)
- Partner with farmers, SWCD, state, regional, and local agencies and non-governmental organizations
- Develop prioritized, targeted, and measurable strategies

Pic: Irrigator on corn field

Pic: Fertilizer application on field

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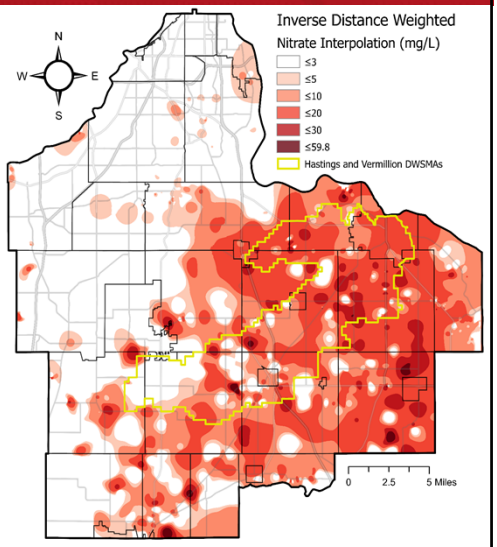
Introduction - Draft Concept

Primary Focus:

- Ag. contamination only - sources from farming practices
- High nitrate areas
- Outside of Hastings' Drinking Water Supply Management Area (DWSMA)
- Collaborate with MDA within Hastings' DWSMA



MDA addressing nitrate in Hastings' DWSMA as part of Groundwater Protection Rule

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Research Summary - Agricultural Practices

Groundwater/ Drinking Water Protection Practices for Agricultural Lands*

Practice Tier	Practice Examples
Tier I – Cropping practices with known benefits	**Nutrient Management "4Rs"** - Right nutrient, rate, time, & place
	Irrigation Water Nitrogen Credits – fertilizer credits for nitrate in water
	Irrigation Water Management – control volume, frequency, and application
	Integrated Pest Management – plan to avoid unnecessary pesticides
Tier II – Cropping system changes	**Cover Crops** – grasses, legumes and forbs for seasonal veg. cover
	Conservation Crop Rotation – rotation of crops on same field, with at least 1 low-nitrogen input crop in 5-year rotation
	Forage and Biomass Planting – perennial veg. for pasture, hay, or biomass
	Pollinator Conservation/ Honey-Bee Production – pollinator habitat
	Specialty & Short-Season Crops – specialty, canning crops

*(BWSR Groundwater/Drinking Water Protection Practices for Agricultural Lands, April 2021)

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Research Summary - Agricultural Practices

Groundwater/ Drinking Water Protection Practices for Agricultural Lands*

Practice Tier	Practice Examples
Tier III – Land Use Changes	**Conservation Cover** – convert land use from intense annual cropping to permanent vegetation
	Open Space Design/ Limit Development – purchase and protection of land in sensitive natural areas or public open spaces
	Outdoor Recreational Uses – game/hunting preserve, wildlife management areas, waterfowl production areas
	Solar Farm with Pollinator Habitat – solar installation with native prairie plantings

*(BWSR Groundwater/Drinking Water Protection Practices for Agricultural Lands, April 2021)

Pic: Bean field

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Research Summary - Agricultural Practices

Current Incentive Programs and Practices	Estimated Nitrate (N) Reduction	Estimated Current Adoption Rates
Nutrient Management Plan Development & Implementation (Tier I)	9-15% N reduction $2-4 lb/N removed	< 5%
Irrigation Water Management Plan Development & Implementation (Tier I)	57-60% N reduction $2-3 lb/ N removed	< 5%
Cover Crops (Tier II)	50% N reduction $18-38 lb/ N removed	4-5%
Perennial Crops (Tier II)	72-95% N reduction $4 lb/N removed	< 1%
Conservation Cover (Tier III)	95% N reduction $15 lb/ N removed	< 1 %
MDA Water Quality Certification Program (Combination of practices in Tier I – III)	Not known	5%

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Research Summary - Other State Programs

- **Common Regulatory Requirements:**
  - Preparation & implementation of nutrient management plans
  - Periodic education and certification
  - Submission of annual fertilizer or chemigation records
- **Common Voluntary Programs:**
  - Technical assistance through Universities, SWCDs, or equivalent organization
  - Cost-share programs for installing water quality-related practices
  - Tax credits for maintaining water quality-related practices
  - Water quality trading programs within a specific area (e.g., watershed)

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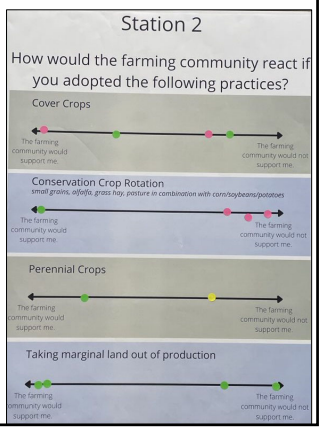
Stakeholder Engagement Summary

Phase I Engagement:

- 3 Ag. Advisory Group Meetings – select group of local farmers and ag. operators
- 1 Ag. Community Townhall – open to all farmers and ag. operators
- 1 Public Sector Meeting – rural cities/townships
- 4 Township Board Meetings
- 1 Watershed Management Organization Meeting
- 1 Tech Advisory Meeting - state and regional agencies
- Paper & Online survey - 304 participants

Pic: Ag. Advisory Group Meeting



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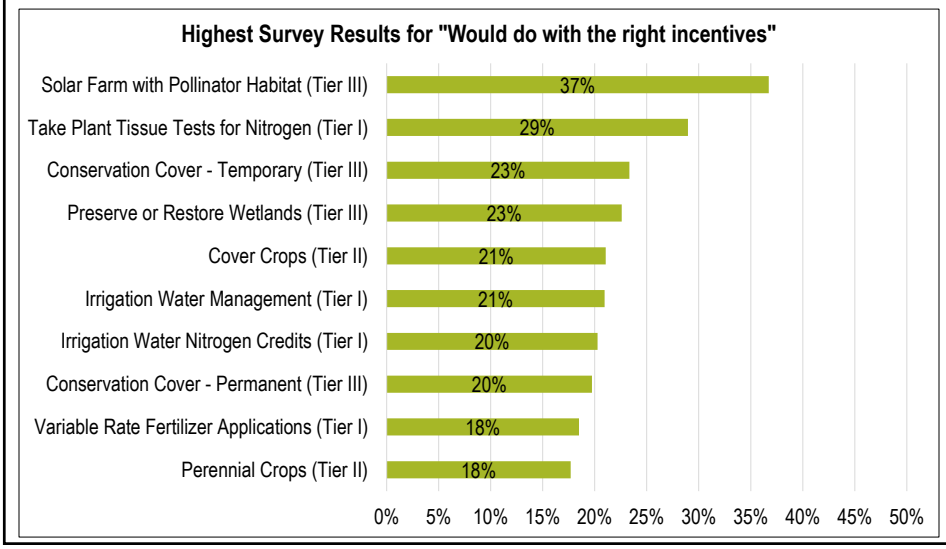
Stakeholder Engagement Summary - Overarching Themes

- **Preferred Practices:** Voluntary practices more appealing with incentives



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Stakeholder Engagement Summary - Overarching Themes

- **Incentive Equity:** Consider programs that reward farmers for continuing to do the right thing, in addition to incentives for adoption of practices that benefit water quality
- **Trusted Resources:** Top sources farmers value are SWCD, UMN Extension, and USDA
- **Regulatory Caution:**
  - Not rejected outright by farming community
  - Must be carefully tailored to be fair, respect the variety of land conditions, and maintain farmers' financial viability
- **Protecting Legacy:**
  - Most farmers want to protect long-term productivity to pass down to descendants
  - Exception is with growing number of absentee landowners that rent out land for short-term profits (33%)

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Question 1 for Planning Commission:

Does the Commission have questions or comments on the concept paper, existing research, or engagement summary?

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ACRE Goal

Groundwater and drinking water that are free from agricultural chemicals that threaten human health or the environment

Pic: Cover crops on corn field

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Draft Long-Term Outcome Measures

Current Conditions:	Outcome Measures:
9 communities have >10% of wells exceed 10 mg/L nitrate 3 communities have 5-10% of wells exceed 10 mg/L nitrate	< 5% private drinking water wells within each township exceed 10 mg/L nitrate
Hastings' public water supply approaching 10 mg/L nitrate	No public water supply exceeds or projected to exceed 10 mg/L nitrate
Median nitrate levels exceed 10 mg/L in some townships	Median nitrate levels in shallow groundwater are below 10 mg/L

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Draft Long-Term Outcome Measures

Current Conditions:	Outcome Measure:
30 of 268 wells tested exceed cyanazine guidelines 65 wells tested exceed 50% of cyanazine guidelines	No private drinking water wells have pesticide concentrations that exceed 50% drinking water guidelines
75% of wells show human impact (1033 of 1381 wells)	Contributions of chloride to groundwater from crop fertilizer are decreasing

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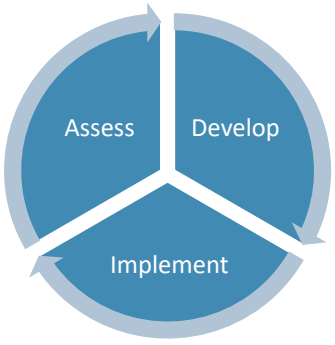
Strategies

1. Information for Decision Making
2. Communication, Outreach, and Education
3. Technical Assistance
4. Financial Assistance
5. Potential Regulation



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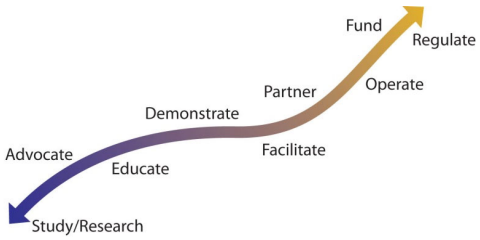
Question 2 for Planning Commission:

Please keep in mind the below question for the following slides:

What are the Commission's thoughts on potential new tactics and roles presented?



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Strategy 1

Information for Decision Making

Ongoing or Expanded Tactics/Roles:

- Conduct gw monitoring – county & private wells [Operate]
- Update groundwater models and nitrate leaching estimates [Operate]
- Collect info on farming practices, nitrogen usage, demographic data, & costs [Research]

Potential New Tactics/ Roles:

- Develop scenarios for practice adoption to prioritize funding [New, Operate]


Pic: Monitoring well installation

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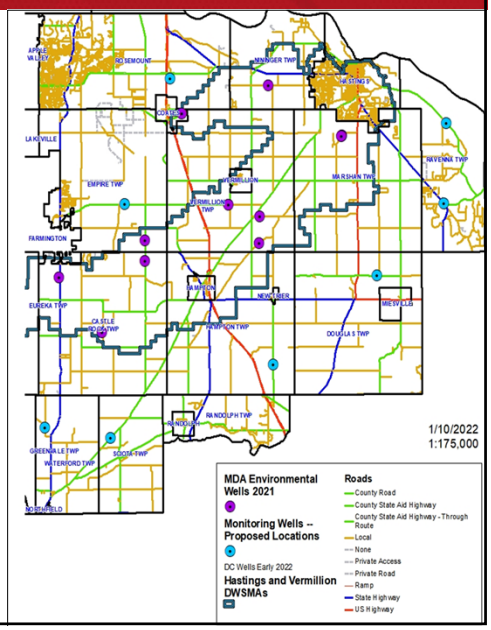
Strategy 1

Groundwater Monitoring Network

- 7 Dakota County Wells – outside of Hastings' DWSMA
- 11 MDA Wells – within Hastings' DWSMA



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Strategy 2

Communication, Outreach, and Education

Ongoing or Expanded Tactics/Roles:

- Provide groundwater data and progress updates to farmers and rural residents [Educate]
- Increase promotion of SWCD and other local, state, and federal technical and financial assistance programs [Educate]
- Promote educational opportunities for farmers and ag. operators [Educate/ Facilitate]
- Partner with agronomists, co-ops, retailers, and lenders to promote water quality practices [Educate/Partner]

Potential New Tactics/ Roles:

- Create a permanent Agricultural Advisory Group [New, Facilitate]

Pic: Weather Station Sign

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Strategy 3

Technical Assistance

Ongoing or Expanded Tactics/Roles:

- Provide opportunities for assistance at individual farm level [Educate]
- Assist with completion of Nutrient Management and Irrigation Management Plans [Educate/Facilitate]
- Partner with U of M, MDA and others to provide certification programs [Partner]

Potential New Tactics/ Roles:

- Increase availability of one-on-one assistance to farmers [Expand, Educate]

Pic: SWCD staff doing survey

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Strategy 4

Financial Assistance

Ongoing or Expanded Tactics/Roles:

- Seek sources of funding for water quality incentive programs [Advocate]
- Increase incentives for initial adoption of water quality practices (short-term subsidies) [Fund]
- Increase incentives for completion of Nutrient Management and Irrigation Management Plans [Fund]

Potential New Tactics/ Roles:

- Provide incentives to farmers for maintaining water quality practices (long-term subsidies) [New, Fund]
- Provide incentives for completing MN Ag Water Quality Certification process, or scale to score [New, Fund/Facilitate]

Pic: Kernza

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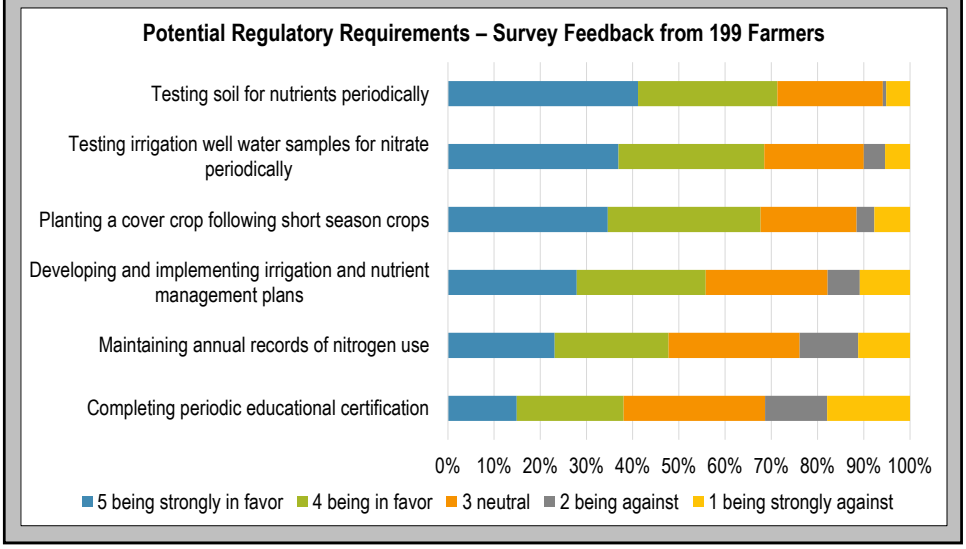
Strategy 5

Regulation – Potential New Tactics/Roles



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Question 3 for Planning Commission:

What are the Commission's thoughts on potential regulatory approaches, related to the County role and ability to enforce regulation?

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Plan Development – Next Steps

Task	2022 Q1	2022 Q2	2022 Q3	2022 Q4
Technical Research				
Review available data, regs., precedent				
Develop and install monitoring well network				
Hire contractor to complete nitrate modelling (Barr Engineering)				
Conduct baseline well monitoring				
Stakeholder Engagement:				
Phase II Stakeholder Engagement				
Finalize Stakeholder Engagement Report				
Plan Finalization, Review, Adoption				
Develop Draft Plan based on Planning Commission, PDC-Board, and Stakeholder Feedback				
Update Planning Commission and County Board (May-Jun 2022)				
Review/ Refine Plan				
Public Review (45 – 60 days)				
Finalize Plan - County Board adoption				

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Questions?

Partial funding for the ACRE Plan is provided through the Clean Water Land and Legacy Amendment, distributed by the Minnesota Department of Health to Dakota County.

CLEAN WATER LAND & LEGACY AMENDMENT

Pic: Old well in field

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Agricultural Advisory Group Members

Representative	Organization
Al Bester	Dakota County Farmer
Christy Bauer-Schmidt	River County Coop and Dakota County Farmer
Chuck Clanton	Vermillion River Watershed Joint Powers Operation Planning Commission and Dakota County Farmer
Mike Conzemius	Dakota County Cattle and Crop Farmer
Colin Cureton	Forever Green Initiative, University of Minnesota
Warren Formo	Minnesota Agricultural Water Resources Center
Jean-Marc Versolato	Bailey Nursery

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