Dakota County Groundwater Plan

Summary of Findings & Overview of Potential Strategies

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Groundwater Protection Unit
Environmental Resources Department
Physical Development Division

26 September 2019

Agenda

Dakota COUNTY

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- Planning Process - Steps to Date
- Summary of Research Findings
- Summary of Stakeholder Engagement Findings
- Potential New Initiatives: Review & Discussion

County Planning Process: Progress to Date

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Task	Q1 2019			Q2 2019			Q3 2019			Q4 2019		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Introduce to **Planning Commission** (24 Jan)												
Update **PDC** (12 Feb)												
Confirm process with **Board of Soil and Water Resources** (19 Feb)												
Award Engagement Contract												
Finalize Engagement Plan												
Establish **Technical Advisory Group**												
TAG Meeting #1 (23 Apr)												
Round 1 Stakeholder Engagement												
TAG Meeting #2 (28 May)												
TAG Meeting #3 (25 Jun)												
TAG Meeting #4 (19 Aug)												
Conduct Technical Research												
Develop preliminary Goals, Objectives/Strategies, Tactics												
Update to **Planning Commission** (26 Sep)												
County Board Workshop (8 Oct)												

MN Stat. § 103B.255 requires Advisory Committee – BWSR suggested hybrid approach

Technical Advisory Group (TAG) Members

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MN Stat. § 103B.255 TAG Requirements	Representative
Construction	Patrick Mason, Ames Construction
Agriculture	Bryce Kimmes, SE Irrigators Association Warren Formo, MN Agricultural Water Resources Coalition
Hydrogeology	Joe Richter, Department of Natural Resources
Well Drilling	Debbie Carlson, Carlson Well Drilling
4-Members Public At Large	County Planning Commission fulfills this role
District 1 LGU/WMO	Mark Peine, Hastings Public Works Supt; and John Caven, Hastings Asst. City Engineer
District 2 LGU/WMO	Joe Barten, Lower Mississippi River WMO administrator Krista Spreiter, City of Mendota Heights and LMRWMO representative
District 3 LGU/WMO	Jon Eaton, Eagan Superintendent of Utilities
District 4 LGU/WMO	Scott Thureen, Inver Grove Heights Public Works Director
District 5 LGU/WMO	Linda Mullen, Burnsville Sewer and Water Superintendent
District 6 LGU/WMO	Paul Oehme, Lakeville Public Works Director
District 7 LGU/WMO	Matt Saam, Apple Valley Public Works Director
Additional Members	Ashley Gallagher, Dakota County SWCD Mark Zabel, Vermillion River Watershed JPO Lanya Ross and John Clark, Metropolitan Council John Freitag, MN Department of Health Jeff Berg, MN Department of Agriculture

Research Summary

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- Groundwater Management Roles & Responsibilities
  - ➢Cross Check of other LGU Plans
- Water Quality Concerns
- Water Quantity Concerns

Appendix A, Research Summary Report

Research Summary:
Groundwater Management Roles

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Dakota County –
Current Drinking Water Protection Programs:

- Manage Delegated Well Program (Ordinance 114)
- Promote Well Sealing through cost-share grants
- Conduct Groundwater Quality Research and Outreach
- Provide Drinking Water Testing, Education, and Outreach
- Assist with Wellhead Protection and Water Supply Planning

Research Summary:
Groundwater Management Roles

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Dakota County –
Other Environmental Programs:

- Regulate Septic Systems (Ordinance 113)
- Regulate Shoreland and Floodplain Management (Ordinance 50)
- Regulate County-owned Storm Sewer Systems (Ordinance 132)
- Regulate Solid Waste (Ordinance 110) and Hazardous (Ordinance 111)
- Provide Environmental Assessment and Remediation Assistance
- Conserve Natural Areas and Open Spaces (Land Conservation)

Research Summary:
Groundwater Management Roles (cont.)

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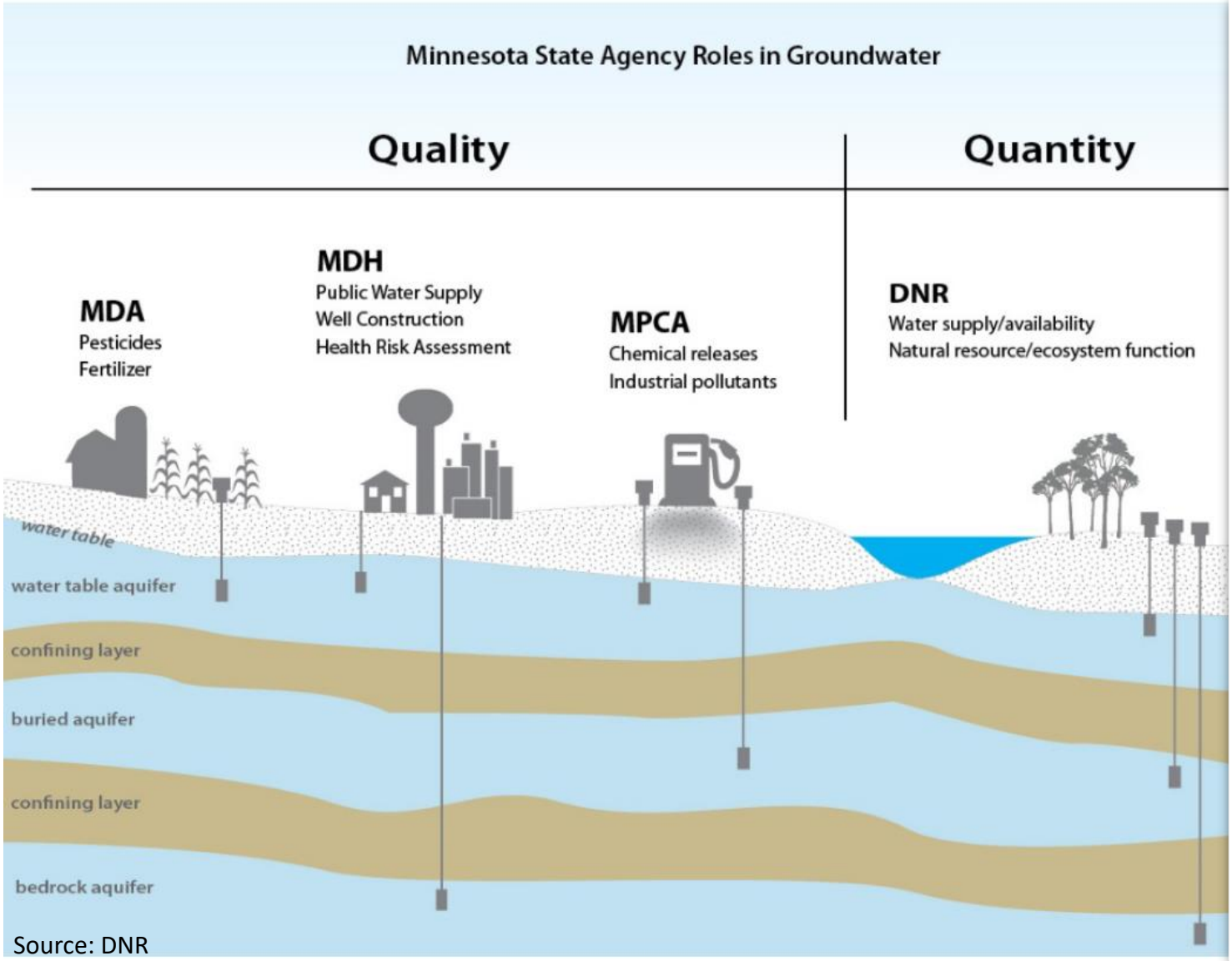

Source: DNR

Planning

Met Council
Regional Planning

BWSR
Water management plans

County/ LGUs

County
SWCD
Cities/ Townships
WMOs

Research Summary:
Groundwater Management Roles

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WHERE ARE THE ROLE GAPS?

- Collaboration
- Inspiring Behavior Change
- Agriculture Chemical Reduction
- Drinking Water Treatment
- Water Conservation

Research Summary : Groundwater Quality Concerns

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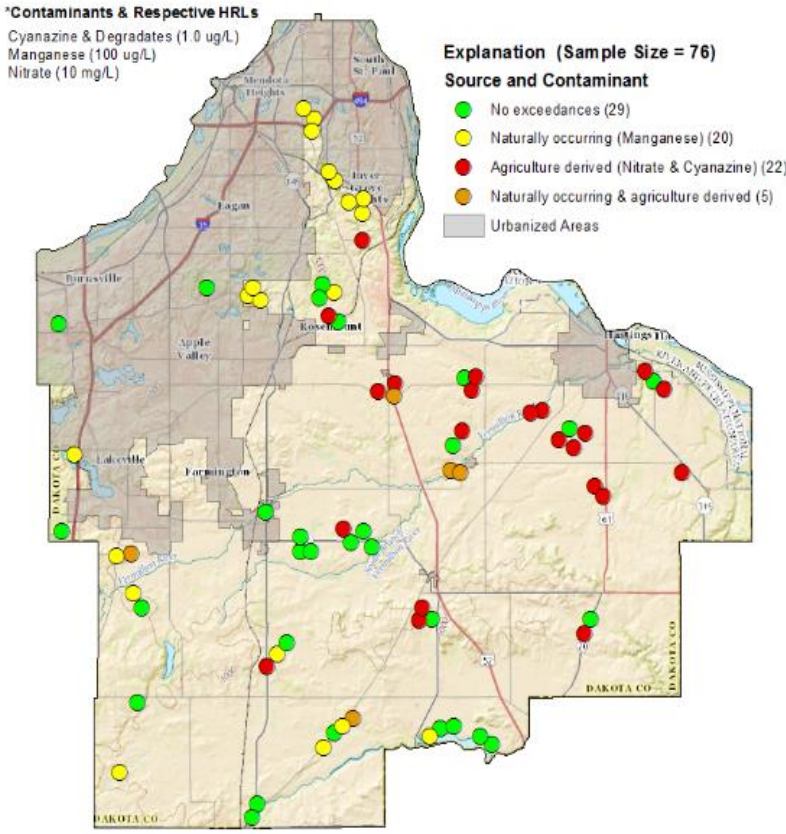
60% of private wells sampled exceeded the drinking water guideline for at least one chemical contaminant

Exceeds Standard in Groundwater

- 14 of 73 wells (19%) exceed **Cyanazine** standard
- 370 of 1420 wells (26%) wells exceed **Nitrate** standard
- 25 of 74 wells (34%) wells exceed **Manganese** infant standard

Present in Groundwater

- 316 of 931 (34%) have presence of **Arsenic**
- 64 of 73 wells (88%) have presence of **Pesticides**
- 76 of 76 wells (100%) have presence of **Chloride** above background levels



Research Summary : Groundwater Quality Concerns

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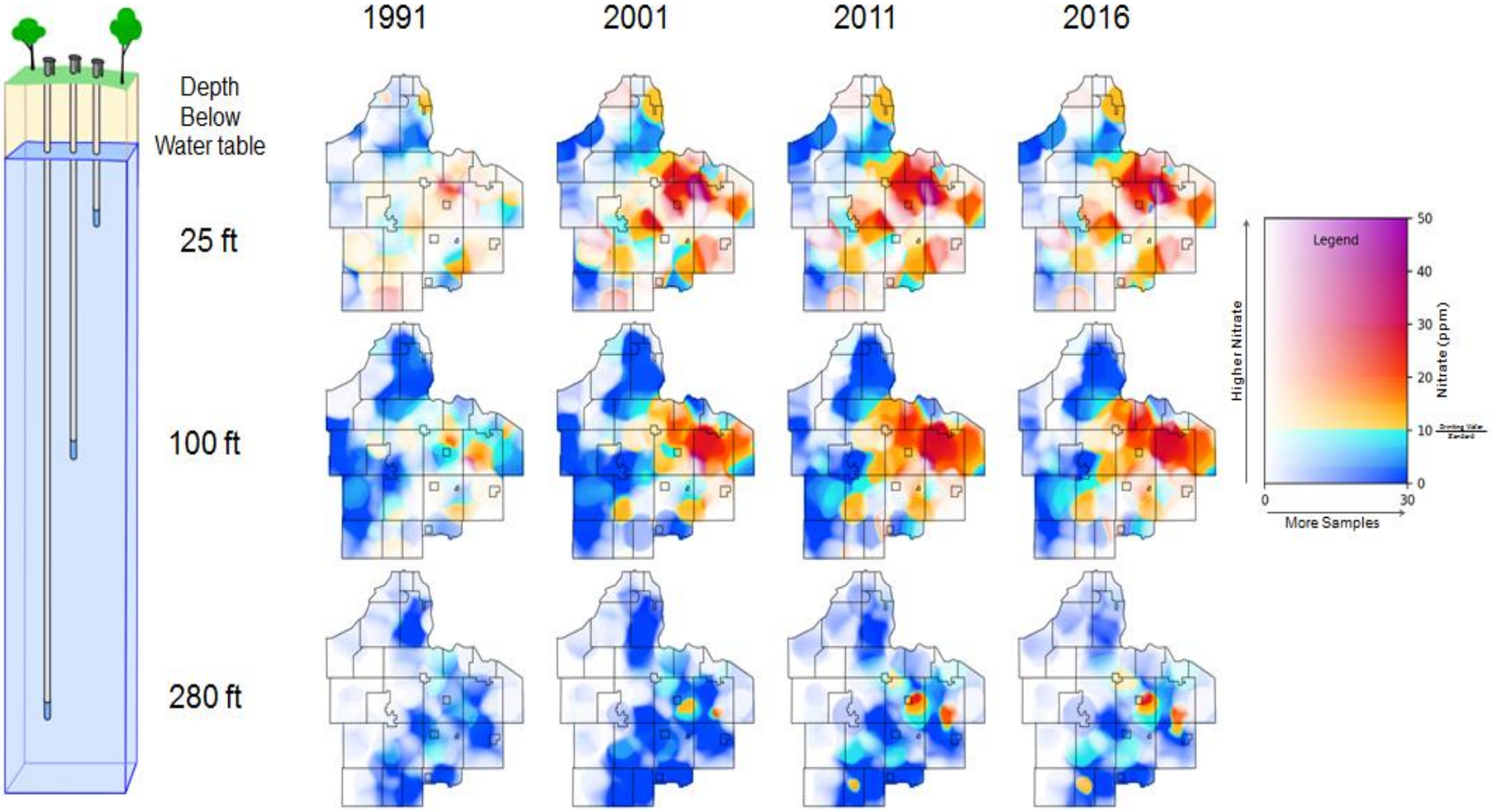
Nitrate over TIME and DEPTH



Research Summary: Water Quantity Concerns

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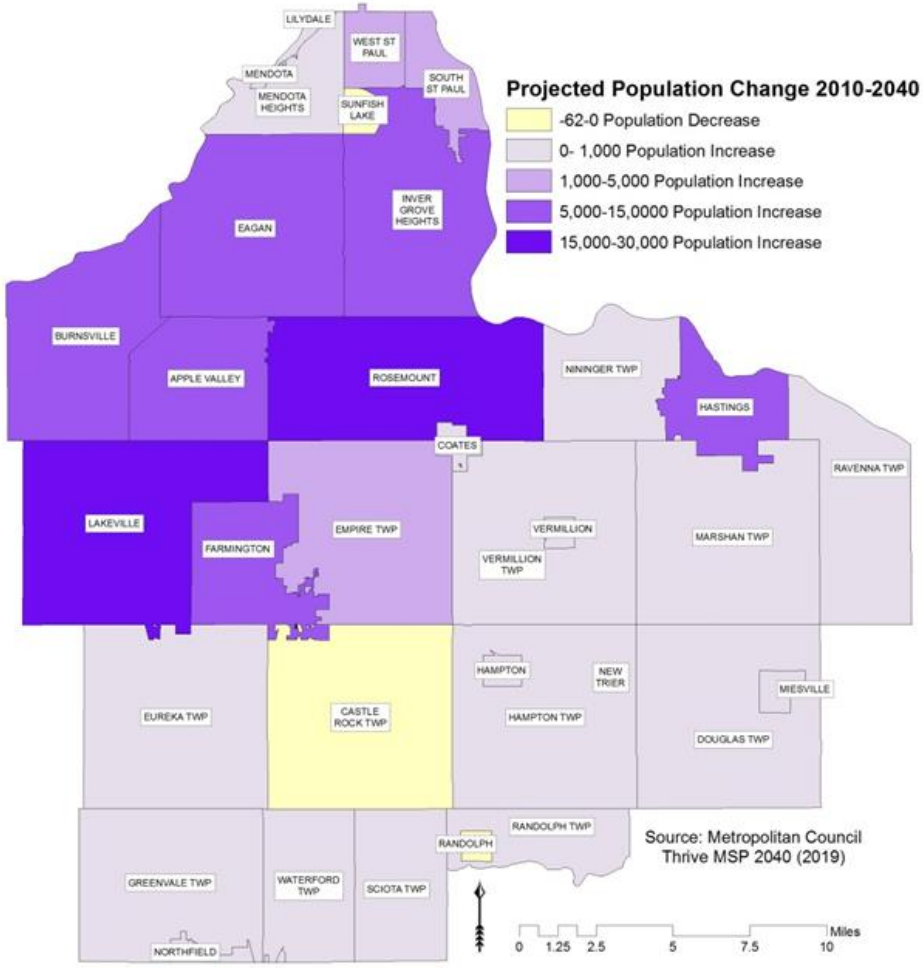

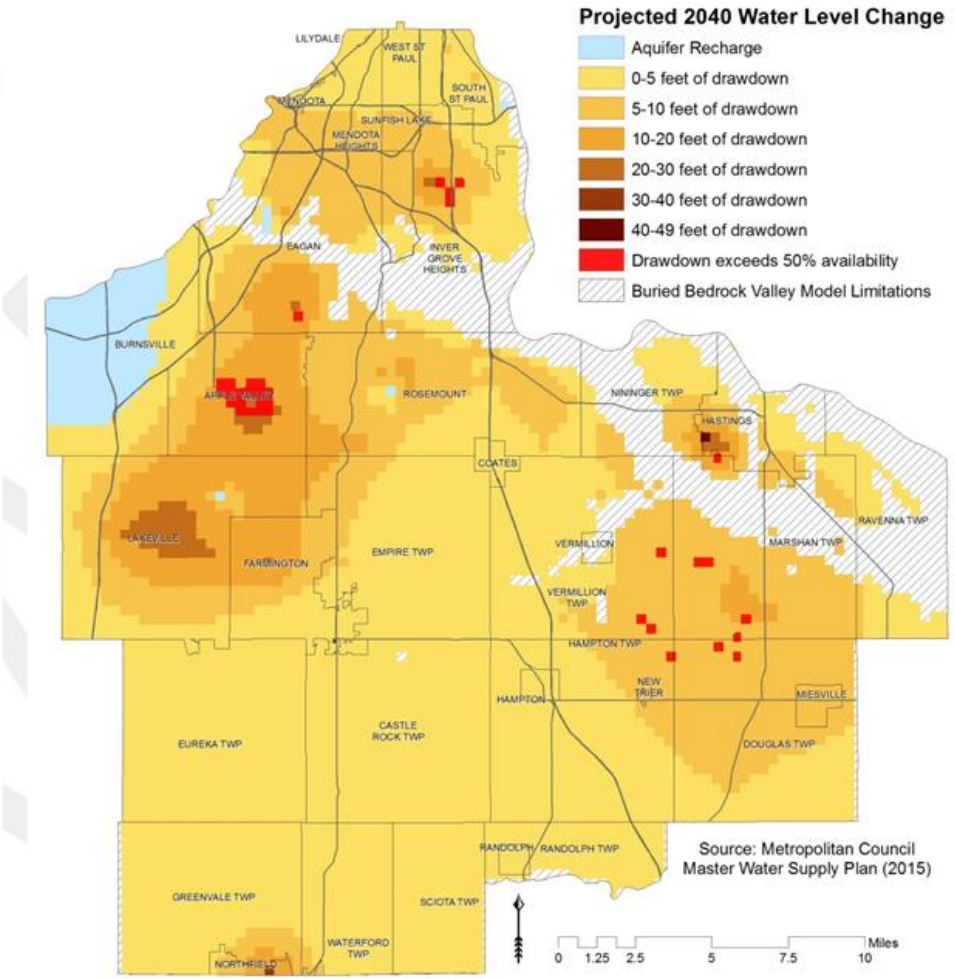

Stakeholder Engagement Summary:
Input on Issues, Barriers, Solutions

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Total of ~ 300 participants

- 2 Open Houses with water testing event
- 4 Workshops
- 2 Nitrate Testing Clinics
- Online Survey

Stakeholder Engagement Summary: Overarching Themes

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> *"Water quality, wetlands protection, and sustainability should be key considerations in any future development in Dakota County."*

- **Inspire behavior change**
- **Use data and science to support actions**
- **Address water quality**
  - Agriculture sources; promote alternative practices
  - Protect wellhead and supply management areas
  - Collect and communicate data
  - Support development of technology
- **Address water quantity:** Conservation, Reuse, Recharge

Stakeholder Engagement Summary: 2019 Residential Survey

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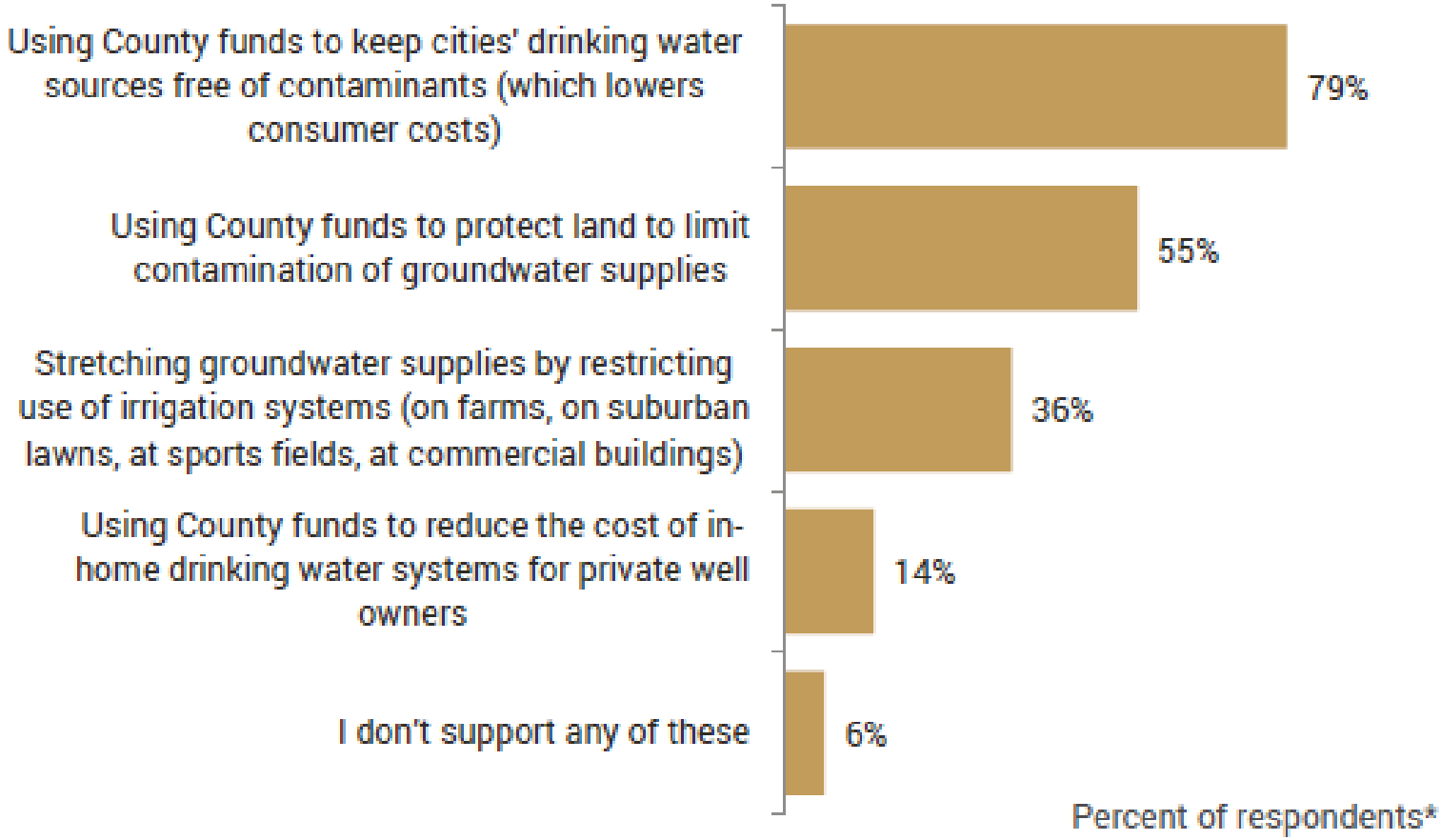
Figure 30: Support for Groundwater Plan Programs, 2019

Dakota County is working on a long-range Groundwater Plan to protect and improve groundwater resources, the source of our drinking water. Please indicate which, if any, of these programs/regulations you support:



** Totals exceed 100% as respondents could select up to three options.*

Draft Proposed Goals

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1. **Optimized groundwater-related public service**
2. **Groundwater and drinking water that are free from unhealthy levels of contamination**
3. **Sufficient groundwater to meet human needs**
4. **Sustainable groundwater-dependent ecosystems** (trout streams, springs, wetlands, fens)
5. **“Water Wise,” knowledgeable stakeholders**

Draft Proposed Goals

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Planning Commission:
Do you feel the draft goals are comprehensive and address groundwater protection for the County?

1. Optimized groundwater-related public service
2. Groundwater and drinking water that are free from unhealthy levels of contamination
3. Sufficient groundwater to meet human needs
4. Sustainable groundwater-dependent ecosystems (trout streams, springs, wetlands, fens)
5. “Water Wise,” knowledgeable stakeholders

Draft Potential County Roles

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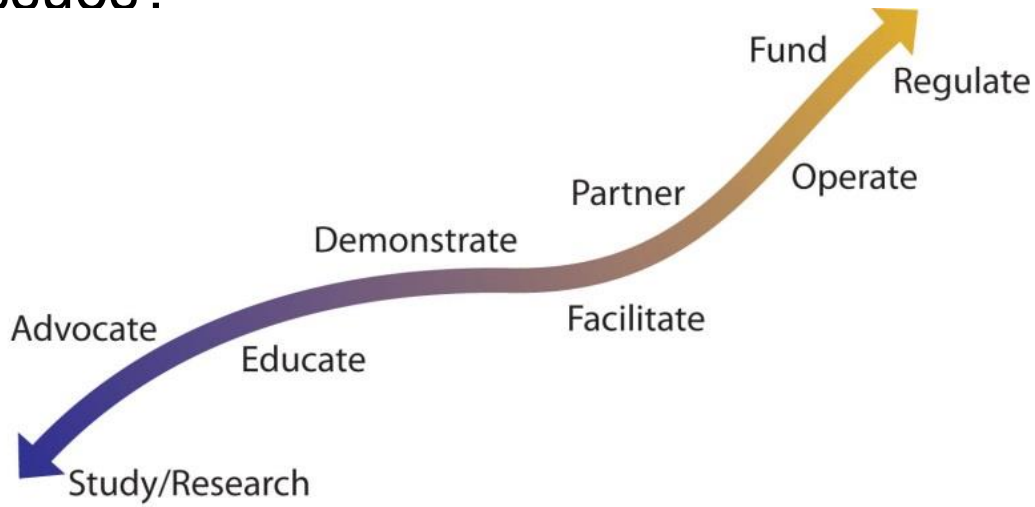
Planning Commission:

Do the potential tactics and roles individually and as a group focus on appropriate roles for the County?

Are there any different roles that you believe should be applied for specific issues?



Groundwater Management Roles (e.g., permits, education)

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County Role	Current	Proposed
Regulate	X	X
Fund		X
Operate		X
Partner	X	X
Facilitate		
Demonstrate		
Educate	X	X
Advocate	X	X
Research	X	X

Groundwater Management

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GROUNDWATER MANAGEMENT STRATEGIES:

A. Collaborate with other levels of government.

B. Assist water users in protecting their drinking water quality by regulating well construction and sealing.

C. Review, streamline, and improve County and State regulatory processes.

D. Support decisions with appropriate, representative groundwater data that are accessible to stakeholders.

E. Monitor groundwater quality to develop, implement, and evaluate strategies for reducing groundwater contamination in the County.

F. Improve public knowledge, awareness, and practices regarding water science, local geology, water conservation, and pollution prevention.

Groundwater Management Tactics/Roles

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GROUNDWATER MANAGEMENT STRATEGIES:

A. Collaborate with other levels of government.

B. Assist water users in protecting their drinking water quality by regulating well construction and sealing.

C. Review, streamline, and improve County and State regulatory processes.

POTENTIAL NEW TACTICS / ROLES

1: Review the County's Well Program Delegation Agreement with MDH and investigate taking on additional delegated authority. (Delegating public water supply permits would require change in federal law). [Regulate, new]

2: Obtain authority to issue and regulate water appropriations permits instead of the DNR. (Would require a change in state law.) [Regulate, new]

Groundwater Management Tactics/Roles

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GROUNDWATER MANAGEMENT STRATEGIES:

A. Collaborate with other levels of government.

F. Improve public knowledge, awareness, and practices regarding water science, local geology, water conservation, and pollution prevention.

POTENTIAL NEW TACTICS / ROLES

11: Establish, staff, and fund a groundwater conservation and pollution prevention education and outreach program. [Educate, new]

Water Quality Roles

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County Role	Current	Proposed
Regulate	X	X
Fund	X	X
Operate	X	X
Partner	X	X
Facilitate	X	X
Demonstrate		
Educate	X	X
Advocate		X
Research	X	X

Water Quality

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WATER QUALITY STRATEGIES:

A. Reduce agricultural chemical contamination of groundwater.
B. Use land protection programs to improve water quality.
C. Assist private well owners in having their drinking water tested and in understanding their results.
D. Assist water users in protecting their drinking water quality by promoting appropriate water treatment.
E. Collaborate with other levels of government.
F. Mitigate existing contamination of groundwater from point sources of pollution and historically contaminated sites.
G. Promote sealing of unused wells.
H. Minimize wastewater impacts on groundwater quality.
I. Minimize impacts of aggregate mining on groundwater quality.
J. Prevent groundwater pollution from stormwater.
K. Prevent groundwater contamination from chloride.
L. Promote proper disposal of household hazardous waste.

Water Quality Tactics/ Roles: Agriculture Chemical Reduction

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WATER QUALITY STRATEGIES:

A. Reduce agricultural chemical contamination of groundwater.

POTENTIAL NEW TACTICS / ROLES: AGRICULTURE CHEMICAL REDUCTION

17: Develop, adopt, and implement a plan for a Dakota County Agricultural Chemical Reduction Effort (ACRE) with prioritized, targeted, and measurable strategies that go beyond the MDA Nitrogen Fertilizer Management Plan and Groundwater Rule. This could be non-regulatory or have a regulatory component, depending on the County Board. [Research/Regulate, new]

19: Research and, if the County Board approves, implement property tax or other financial incentives to promote cost-effective AMTs (for nitrate reduction) and other water quality practices. [Fund, new]

Water Quality Tactics/ Roles: Drinking Water Treatment

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WATER QUALITY STRATEGIES:

D. Assist water users in protecting their drinking water quality by promoting appropriate water treatment.

POTENTIAL NEW TACTICS / ROLES: EFFECTIVE CONTAMINANT TREATMENT FOR DRINKING WATER

25: Develop and implement a program to subsidize the installation of appropriate, effective drinking water treatment systems for households with private wells. [Fund/Advocate, new]

Water Quality Tactics/ Roles: Other Pollution Prevention

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WATER QUALITY STRATEGIES:

B. Use land protection programs to improve water quality.

E. Collaborate with other levels of government.

I. Minimize impacts of aggregate mining on groundwater quality.

POTENTIAL NEW TACTICS / ROLES: OTHER POLLUTION PREVENTION

30: Amend Ordinance No. 50, Shoreland and Floodplain Management, to require additional information from applicants seeking mining permits in County-administered shoreland or floodplain. [Regulate, expanded]

31: Protect vulnerable groundwater below retired aggregate mines, either by using a portion of the County's aggregate tax revenues to purchase conservation easements around lakes or ponds created by aggregate mining or by advocating that local units of government require land owners to dedicate conservation easements around the lakes or ponds. [Fund/Advocate, new]

36: Advocate that local units of government not allow aggregate mining within ten vertical feet of the maximum static groundwater level within Drinking Water Supply Management Areas. [Advocate, new]

Water Quantity (Availability) Roles

Dakota COUNTY

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County Role	Current	Proposed
Regulate		X
Fund		X
Operate		
Partner	X	X
Facilitate		
Demonstrate	X	X
Educate		X
Advocate		
Research		

Water Quantity

WATER AVAILABILITY (QUANTITY) STRATEGIES:

A. Collaborate with other levels of government.

B. Review, streamline, and improve County and State regulatory processes.

C. Promote water conservation.

D. Protect groundwater recharge areas.

E. Support development of alternative water supplies.

Water Quantity Tactics/ Roles:

Dakota COUNTY

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WATER AVAILABILITY (QUANTITY) STRATEGIES:

A. Collaborate with other levels of government.

B. Promote water conservation.

D. Support development of alternative water supplies.

POTENTIAL NEW TACTICS / ROLES

38: Develop and implement a County-wide water supply/conservation plan. [Demonstrate or Regulate, new]

39: On behalf of cities and townships, develop a model water conservation ordinance. AND/OR develop and adopt a County water conservation ordinance. [Demonstrate or Regulate, new]

46: Advocate with the state on behalf of the cities and townships to clarify the rules and guidelines regarding water reuse. AND/OR Develop County guidelines for water reuse. [Advocate, expanded]

Groundwater Management Tactics/Roles

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GROUNDWATER MANAGEMENT STRATEGIES:

A. Collaborate with other levels of government.

POTENTIAL NEW TACTICS / ROLES

3: Fund innovative municipal water supply projects through a competitive grant program using Environmental Legacy Funding. [Fund, new]

Water Quality Tactics/ Roles: Agriculture Chemical Reduction

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WATER QUALITY STRATEGIES:

A. Reduce agricultural chemical contamination of groundwater.

POTENTIAL NEW TACTICS / ROLES: AGRICULTURE CHEMICAL REDUCTION

23: Advocate for and potentially fund innovative irrigation practices that reduce the downward migration of contaminated water. [Fund/Advocate, new]

Water Quality Tactics/ Roles: Drinking Water Treatment

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WATER QUALITY STRATEGIES:

D. Assist water users in protecting their drinking water quality by promoting appropriate water treatment.

E. Collaborate with other levels of government.

POTENTIAL NEW TACTICS / ROLES: EFFECTIVE CONTAMINANT TREATMENT FOR DRINKING WATER

28: Conduct a feasibility study for establishment of a rural water supply system to serve rural residents who currently rely on private wells. [Research, new]

Water Quantity Tactics/ Roles:

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WATER AVAILABILITY (QUANTITY) STRATEGIES:

A. Collaborate with other levels of government.

C. Promote water conservation.

D. Protect groundwater recharge areas.

POTENTIAL NEW TACTICS / ROLES

42: Provide cost-share funding for water conservation projects, including crop and non-crop irrigation efficiency projects and projects to replace low-water-efficiency appliances with high-efficiency ones. [Fund, new]

43: Subsidize city or township acquisition of land for enhanced groundwater recharge. Inventory, prioritize, and facilitate the preservation of groundwater recharge areas based on both quantity potential and contamination potential. [Fund, new]

Draft Potential County Roles

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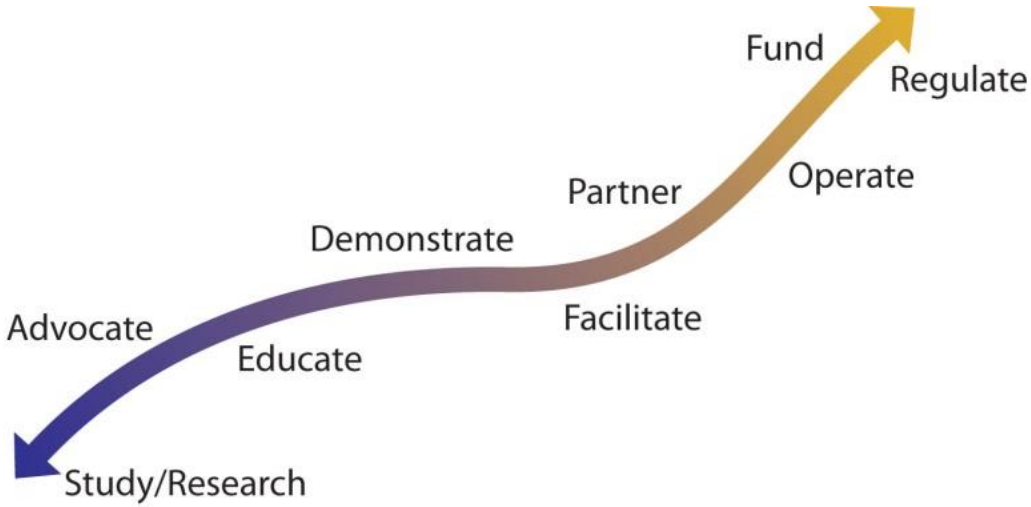
Planning Commission:

Are there any potential strategies, tactics or roles you strongly recommend or strongly don't recommend pursuing?

Are there issues that you believe were not identified and/or potential strategies, tactics, or roles you feel were not considered?



Next Steps

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Task	Q4 2019			Q1 2020			Q2 2020			Q3 2020			Q4 2020		
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Refine Goals, Objectives/Strategies, Tactics															
TAG Meeting #5															
Round 2 Stakeholder Engagement															
TAG Meeting #6															
Provide stakeholder engagement summary to **Planning Commission**															
Review/refine goals and implementation plan															
Present draft goal package to **Planning Commission** & **Board**															
Complete Draft Groundwater Plan															
Present Draft Plan to **Planning Commission**															
Present Draft Plan to **Board**															
60-day **BWSR** & public review															
Compile/ summarize comments															
Seek recommendation for adoption from **Planning Commission** & **Board**															


Questions?