

Helping Small Communities Solve Their Wastewater Issues



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Helping Small Communities Solve Their Wastewater Issues

- Doug Malchow, Extension Educator
- Small Community Wastewater Education Program (SCWEP)
- 507-280-5575 malch002@umn.edu
- <http://septic.umn.edu> (no www in front)
- Click on “Information for Communities”



How to Get Started: Developing a Successful Community Process

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**ONSITE
SEWAGE
TREATMENT
PROGRAM**



- Professional Training – Designers, Inspectors, Pumpers, Installers
- Research and Demonstration
- Homeowner Operation & Maintenance
- **Small Community Wastewater Education Program**

Small Community Wastewater Education Program

*Information and resources for small
communities working toward
solutions to wastewater treatment
issues*

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**A special thanks
To Valerie Prax
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Small Community Wastewater Education Program

University of Minnesota Extension

University of Minnesota Extension has developed a program to help small communities implement appropriate and affordable wastewater treatment solutions. This program puts communities in control of the decision-making process and provides them with valuable baseline information.

Topics covered include:

- **The community process**
- **Surveys**
- **Site evaluations**
- **Community Assessment Report (CAR)**
- **Tools to assist communities**
- **The design phase**
- **Management**
- **Treatment options**
- **Resources**

A successful outcome may be more dependent on the decision-making process a community follows rather than the solutions available.



The Community Process

Finding a Viable Solution

That provides:

- **Effective treatment** - protects human & environmental health
- **Reasonable cost** - Life cycle costs = capital costs & O & M
 - Remember homeowners need to move from costs of occasional tank pumping to regular maintenance costs.
- **Socially acceptable** - community values, culture, esthetics

The Community Process

- Create ownership of issue and benefits of solving it on own terms.
 - maintain rural character, increase property values, community investment, protect environment .
- Create understanding of “the Shift”
 - from paying very little for disposal to paying \$\$ for treatment.
- Remember this is a “fluid” process – no clear lines when finish one phase or begin another – may be in 2 or 3 phases at once

Citizens of communities that succeed ...

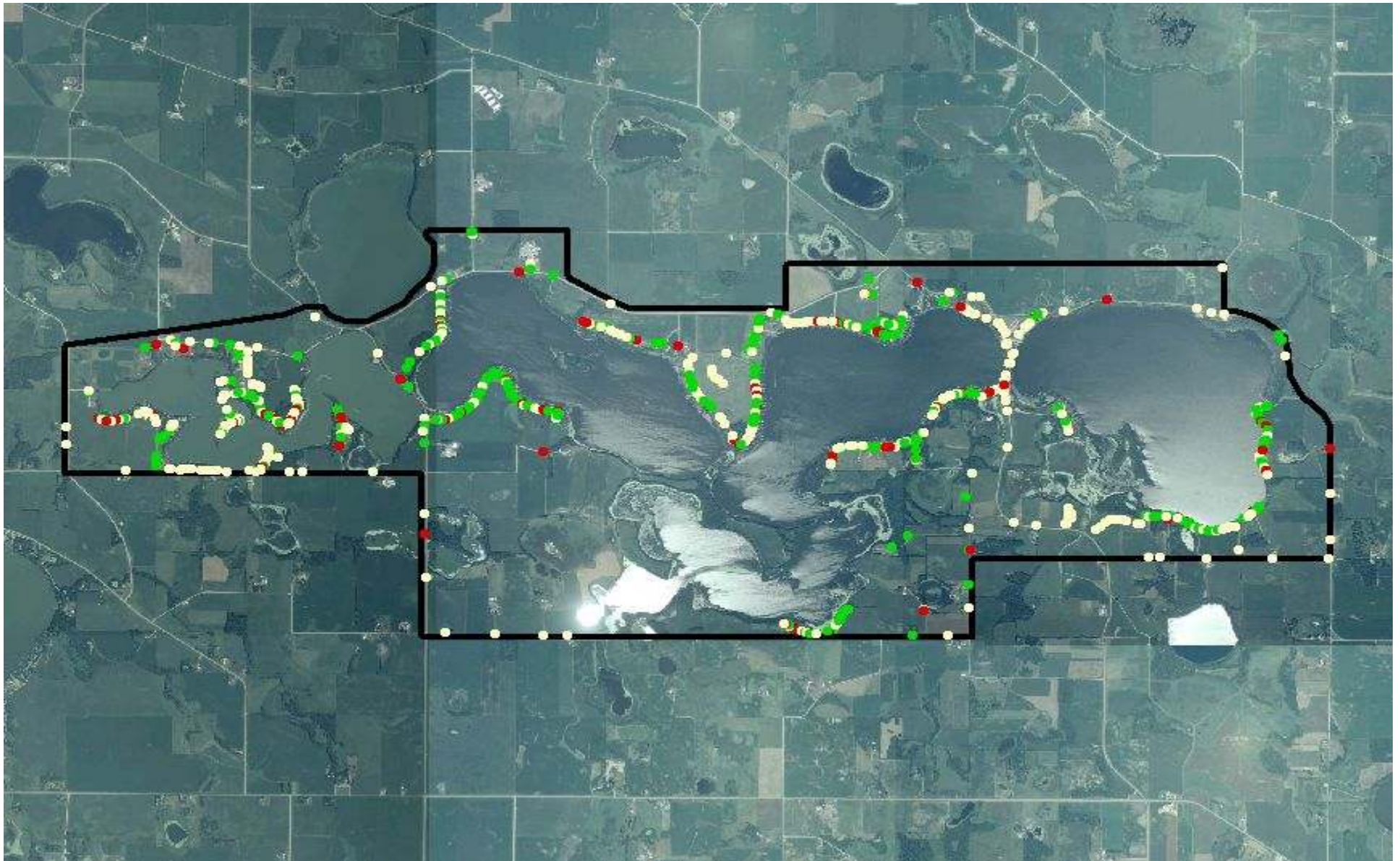
- Develop open communication plan
- Clearly understand their current situation *before* they start looking for solutions
- Know that only they can make the best decisions for their community
- Take responsibility for and ownership of the problem

Citizens of communities that succeed ...

- Have or develop members with strong leadership abilities
- Implement open communication plan
- Have a clearly defined vision and mission, and set appropriate goals
- Develop appropriate project area boundaries

Establish Appropriate Boundaries

Green= '96/later Red= pre-'96 White= no record



Citizens of communities that succeed ...

- Take the time and energy to identify and examine all options before making decisions
- Gather information from as many sources as possible before taking action
- Keep all affected parties involved and informed all along the way
- Identify criteria for making decisions and use all identified criteria.

Communities do not succeed ...

- When a small group makes the decisions and expects everyone to agree – and pay the bill
- When the community lets engineers, consultants or funding sources dictate their choices
- Result in chaos, bickering among neighbors, elected officials getting “un-elected,” and a loss of sense of community.

Communications, Outreach

- **Make sure all interests and “sides” receive equal information**
- **Utilize every public route available**
- **Establish a bulletin board devoted to this issue in a place people regularly go – Keep info current**
- **Establish a way for residents to contact committee members easily**
- **Reach every resident regularly – at least BEFORE major action is taken**

Making the Decisions

Allow 3 – 12 months

- **Wastewater Treatment Options:**
 - Task Force selects the options that consider viable
 - Send out RFP's and RFQ's to engineering firms specifying your option choices
 - Interview engineers, negotiate contracts
- **Organizational Structure:**
 - Work with local government to determine choices
 - Begin process to form a legal structure
- **Funding:**
 - May need a grant writer
 - Work with funding agencies
- ***COMMUNICATE!!***

Organizational Structures

- Municipality
- Sanitary District - M.S. 115, 116A
- Regional Sanitary Sewer District
- Special Legislative District
- Subordinate Service District - County or Township
- Lake Improvement District
- Homeowner & lake association
- Joint Power Agreement
- Rural Water District
- Watershed Management Organization
- Watershed District
- Private Agreements

What roles might the entity play?

- Provide continuity within the project
- Acquire property or easements
- Obtain/administer financing to build project
- Negotiate contracts
- Develop and enforce project rules
- Recover costs of damages to the system
- Budget/Levy to manage, repair, and replace the system

Working with Professionals

- The more specifically you can define your needs, the more likely you are to get what you need.

- Engineers
- Consultants
- Regulators
- Developers
- Assistance Agency Staff
- City Administrator
- Educator/Researcher



Bias and 'self interests'

- "Many professionals may be biased toward particular technologies, so they may not seriously consider options they are unfamiliar with or simply don't like". *

*Assessing Wastewater Options for Small Communities - National Environmental Training Center



- Everyone has some bias and vested interest in the outcome of a project:
Professionals & Residents!

Keys to Success

*Remember: This is YOUR project: not the county's, not the consultants, not the engineers
It belongs to the residents*

- A community 'vision'
- Civic engagement –
 - Responsibility
 - Ownership
- Setting appropriate goals:
 - Treatment
 - Affordable
 - Community values/character
- Effective leadership
- Understanding that all professionals have biases & self interests
- Identify & evaluate all options
- Involve all interests
- Keep everyone informed.

Objectives

- Discuss history of and the need for the Small Community Wastewater Education Program (SCWEP)
- What is a Community Assessment Report (CAR)?
- SCWEP process followed in Seaforth, MN
- Challenges facing the SCWEP



Questions???

Site Evaluations and the Community Assessment Report Process

Definitions

- CAR: Community Assessment Report
- OSTP: Onsite Sewage Treatment Program (University of Minnesota)
- PFA: Public Facilities Authority (funding)
- RD: USDA Rural Development (funding)
- SCWEP: Small Community Wastewater Education Program (University of Minnesota Extension)
- Community – group of homes that define themselves as a “community”

Three approaches to wastewater treatment -

- 1) **Centralized:**
 - Collection network (many homes)
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- 2) **Decentralized:**
 - Individual or small group of homes
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 - Discharge – subsurface (PCA permit may be required)
- 3) **Combination**

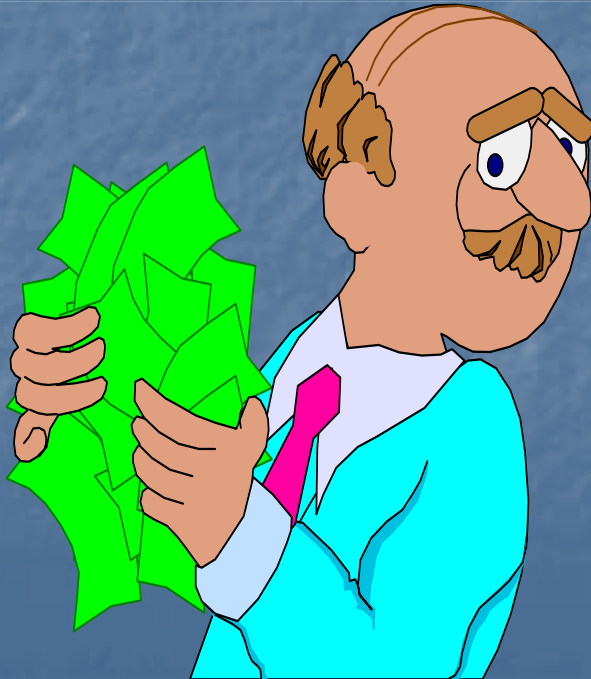
Typical Cost Range **per Connection** in Low Density Areas

Design & Installation

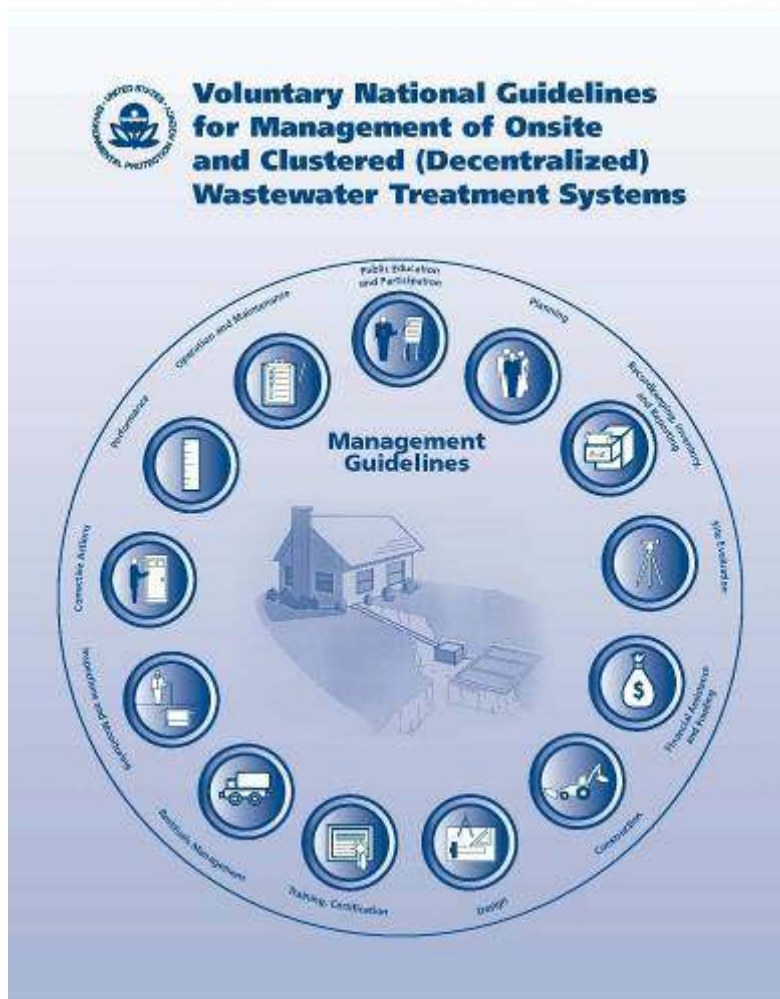
- Decentralized -
\$6000 to \$20,000+
- Centralized -
\$20,000 to \$40,000+

Monthly Fees

•\$35 – \$100 (depends on cost of system, management costs, and funding type)



EPA: “Decentralized approach will work”



- 1997 - EPA suggested ‘decentralized’ systems as a solution to many sewage treatment problems
- Why?
 - Now have good on-site treatment systems
 - Cost is usually lower than centralized
- Report:
 - www.epa.gov/ow-owm.html/decent/index

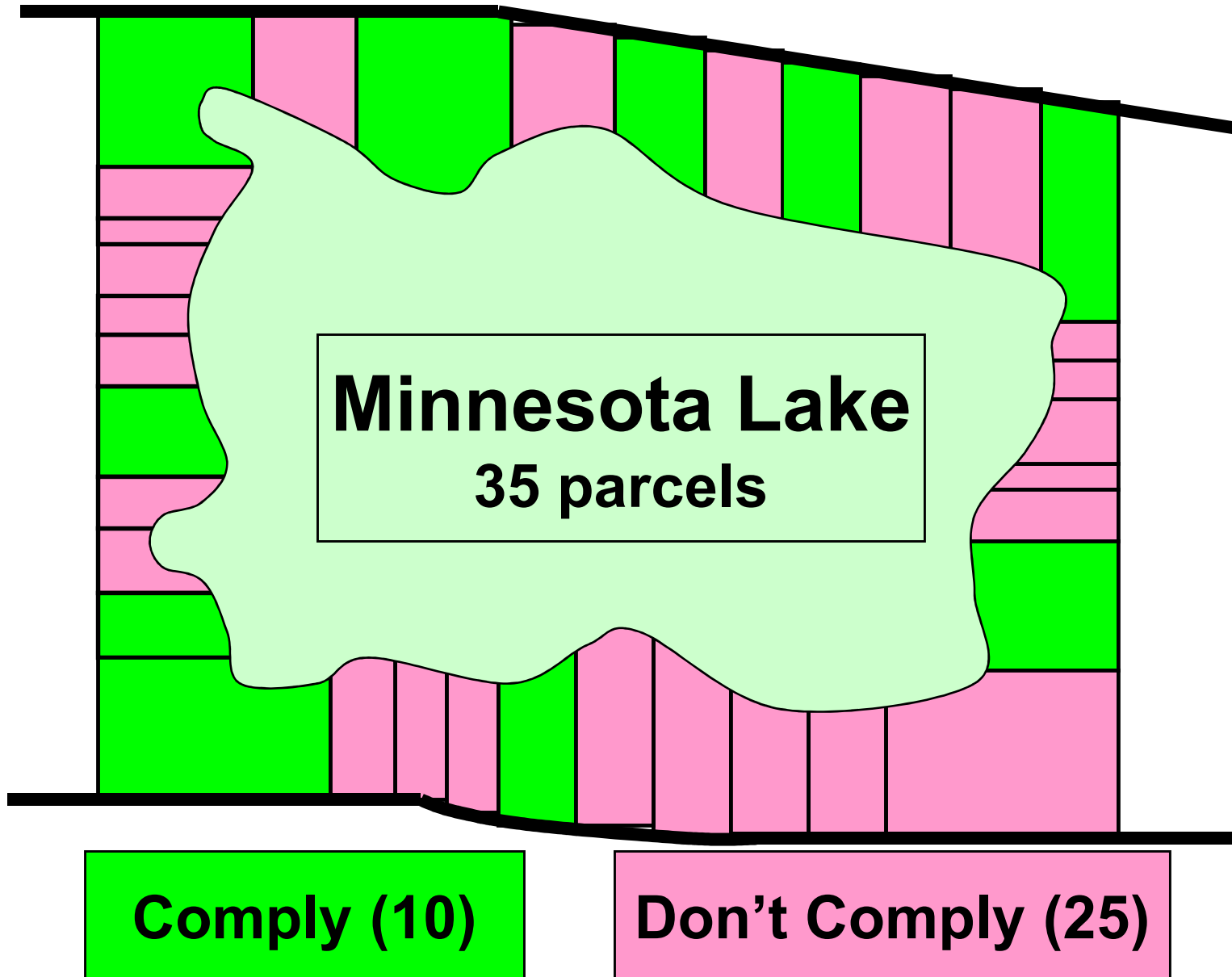
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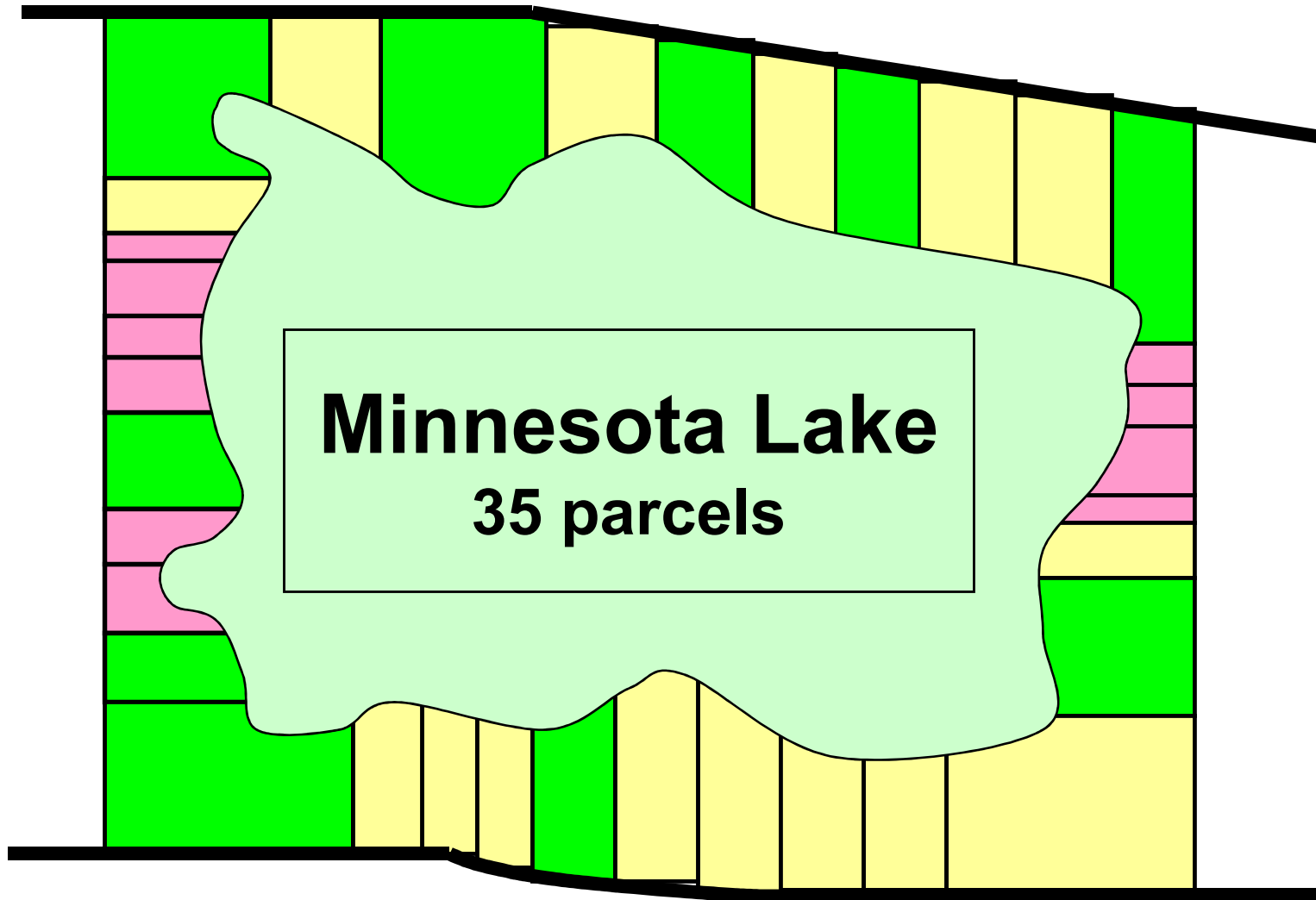
A Community Assessment Report

- Integrate preliminary and field evaluations results for each parcel in the community
- Formulate soil-based treatment options for the entire community (holding tanks, ISTS, cluster, combination)
- Estimate costs for each of the options (construction, management, repair, replacement)
- Identify preferred alternative with rationale
- Integrate CAR into Preliminary Engineering Report if desired or required

Typical Assessment



More Complete Assessment



Comply (10)

Could Comply (15)

Can't Comply (10)

Conducting a more complete assessment: Preliminary Evaluation

Develop accurate large scale map of community showing

- Homeowner survey information (on CD)
 - Number of bedrooms and residents
 - Business?
 - Water using devices
 - System components location
 - System maintenance
- Search government records:
 - Permits (or not)
 - Age of systems
 - System design and modifications
 - Well locations
 - Soil survey information

Conducting a more complete assessment: Field Evaluation

- **Locate and map utilities**
- **Properties to be checked**
 - **No records or old systems (XX years old)**
 - **Suspected problems**
 - **Spot check compliant systems?**
- **Map of findings (on CD)**
 - **Well location**
 - **Property boundaries**
 - **Setbacks**
 - **Soils**
- **Utilize U of MN Extension spreadsheet to record evaluations information (on CD)**

Funding Agencies Requests

- USDA Rural Development had access to Pre-development Grants funds that were under utilized
- MN Public Facilities Authority working with MN Pollution Control Agency secured legislative general funds for Technical Assistance Grants

Viola, A Community Assessment Report is Born!

- Integrate preliminary and field evaluations
- Formulate soil-based treatment options based upon those evaluations (holding tanks, ISTS, cluster, combination)
- Estimate costs for each of the options (construction, management, repair, replacement)
- Identify preferred alternative with rationale
- Utilize U of MN Extension Table of Contents (on CD)

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SCWEP is a program of UM Extension & the



Challenges Associated with Creating a CAR

- Cost: how much?

Cost of Community Assessment Report

- Varies by size of community
- Depends upon current treatment
 - straight pipe
 - availability of records
 - types of systems to be checked
- Location in state
- Septic professional's level of comfort with the process and ultimate products
- Type of company hired
- To date from \$75 to \$400 per parcel

Challenges Associated with Creating a CAR

- Cost
- Stage community is at in its wastewater treatment upgrade process

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- Community hasn't been through the process before
- Enforcement entity is willing to take action
- Funding availability
- Support of local unit of government

Challenges Associated with Creating a CAR

- Cost
- Stage community is at in its wastewater treatment upgrade process
- Very small communities, especially unincorporated areas, are new at hiring consultants
- Participation rate within the community

Participation rate within the community

- Enforcement entity is willing to take action is a key
- What participation rate yields a “community” solution?
- Is fixing some problems, especially imminent public health threats, better than nothing?
- Theory versus reality

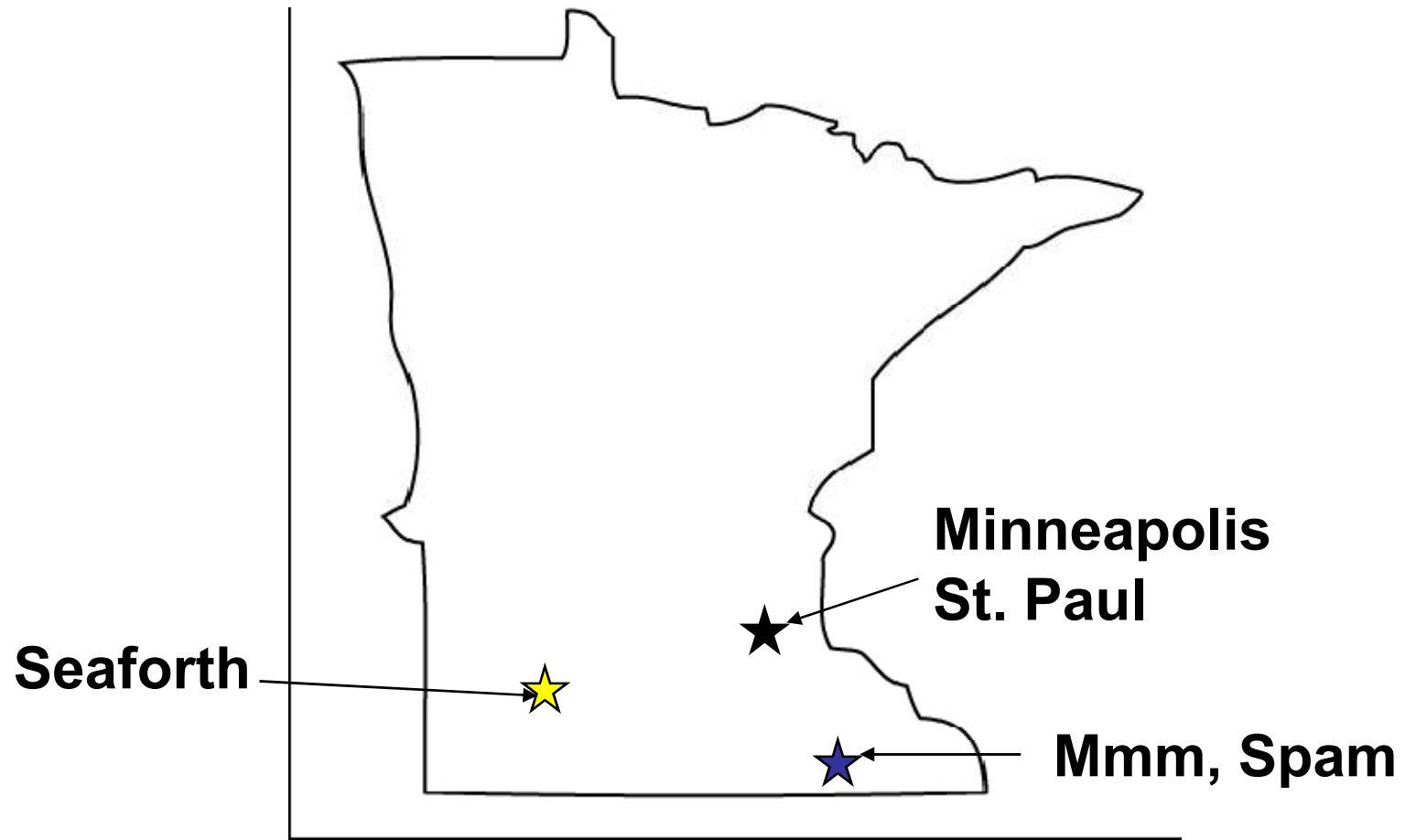
Benefits of completing a CAR

- Community gets a complete picture of its current wastewater treatment or disposal
- A clear definition of problem (boundries)
- Better ensures soil-based wastewater treatment options are assessed in detail
- Provides preferred treatment option and estimated costs
- Information can become part of a Preliminary Engineering Report



Questions???

Rural Development/Extension Project in Seaforth, Minnesota



- **2005 population: 85 (134 in 1940)**
- **Forty-seven homes and businesses**
- **Median household income about \$30,000, many retirees**

2005 Preliminary Engineering Report

- Recommended option of transporting sewage 8 miles to neighboring city
- \$1,400,000 (\$1,527,000 in 2008 dollars or about \$32,500 per parcel)
- Community members and Rural Development staff thought it too costly

SCWEP/Community Assessment Report

Process followed in Seaforth

- 1. MN Pollution Control Agency contacted City Council**
 - 2. SCWEP staff discussed treatment options and process with city (task force)**
 - 3. City developed detailed map of parcels and best guess current treatment with county support**
 - 4. City applied for Project Priority List**
 - 5. SCWEP conducted community meeting to discuss CAR process/timeline with residents**
 - 6. Request for Proposals for Designer published**
 - 7. Interviews, review, and hiring of Designer**
- SCWEP and Designer conducted community meeting**

SCWEP/Community Assessment Report Process Followed in Seaforth (continued)

- 9. Designer conducted preliminary evaluations (county records, homeowner survey, soil survey)**
- 10. Designer conducted field evaluations**
- 11. Designer compiled data into CAR detailing onsite options for each parcel**
- 12. Designer developed range of soil-based options and preferred option including all estimated costs**
- 13. Designer and SCWEP conducted community meeting to discuss CAR results**
- 14. City chose, with resident input, its preferred option (from CAR versus PER)**

Funding Agencies Interest in Wastewater Education

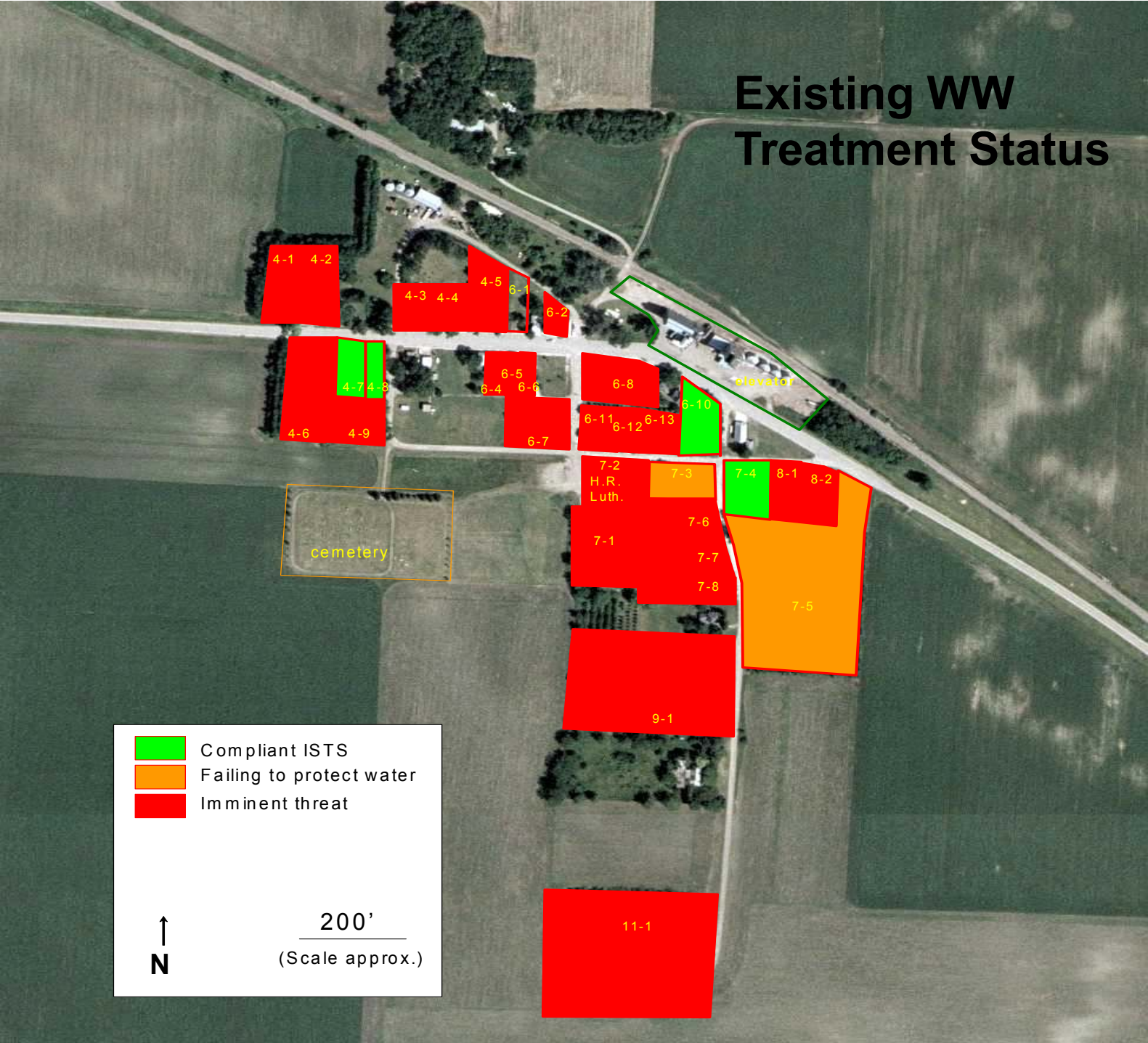
(USDA Rural Development and MN Public Facilities Authority)

- Only the smallest communities remained (200 people or less, few resources)
- Wastewater consultants often recommended expensive, technical fixes that residents and tax payers can't afford and communities can't manage
- Cheaper systems means more systems can be funded

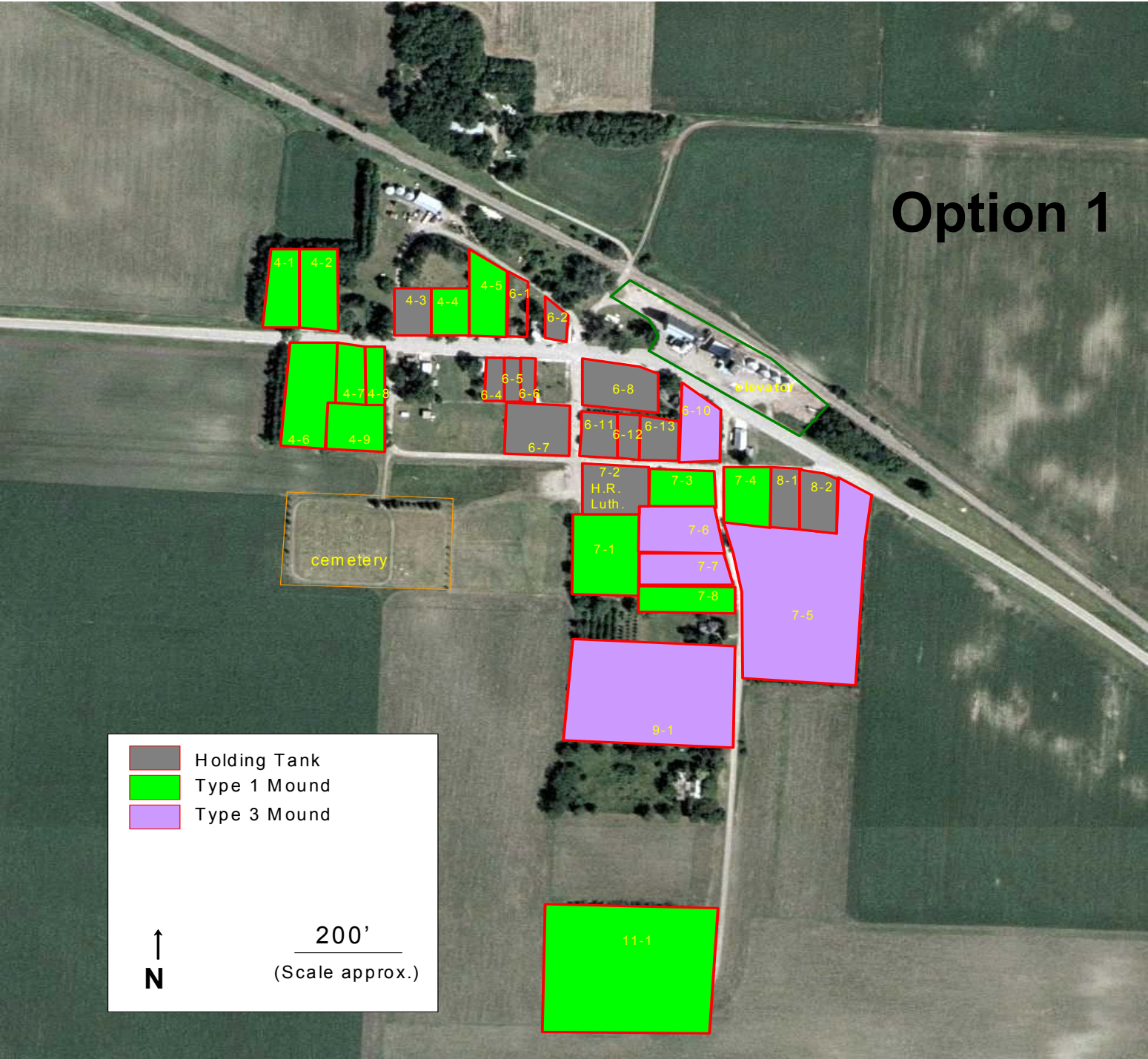
Results from SCWEP Community Assessment Report Process in Seaforth

- City chose a soil-based option
- Combination of ISTS and two large clusters
- Cost in 2008 dollars \$890,000 (versus \$1.5 M for municipal hook-up)
- RD now has money to provide municipal water supply and wastewater for less than original wastewater cost
- RD and PFA have continued funding for CAR process in other communities
- About 20 communities currently in CAR process (some will prepare Preliminary Engineering Reports)

Existing WW Treatment Status



Option 1



Option 2

North cluster site 2-1 (west) parcels north of Laurel





Questions???

Small Community Wastewater Education Program

Advocates communities follow a five-step process when exploring wastewater treatment upgrades:

1. Understanding the Situation
2. Exploring the Options
3. Making Informed Decisions
4. Implementing the Decisions
5. Managing the System

Process should be based upon vision, open, task force led, and community directed

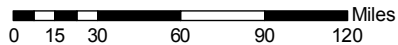
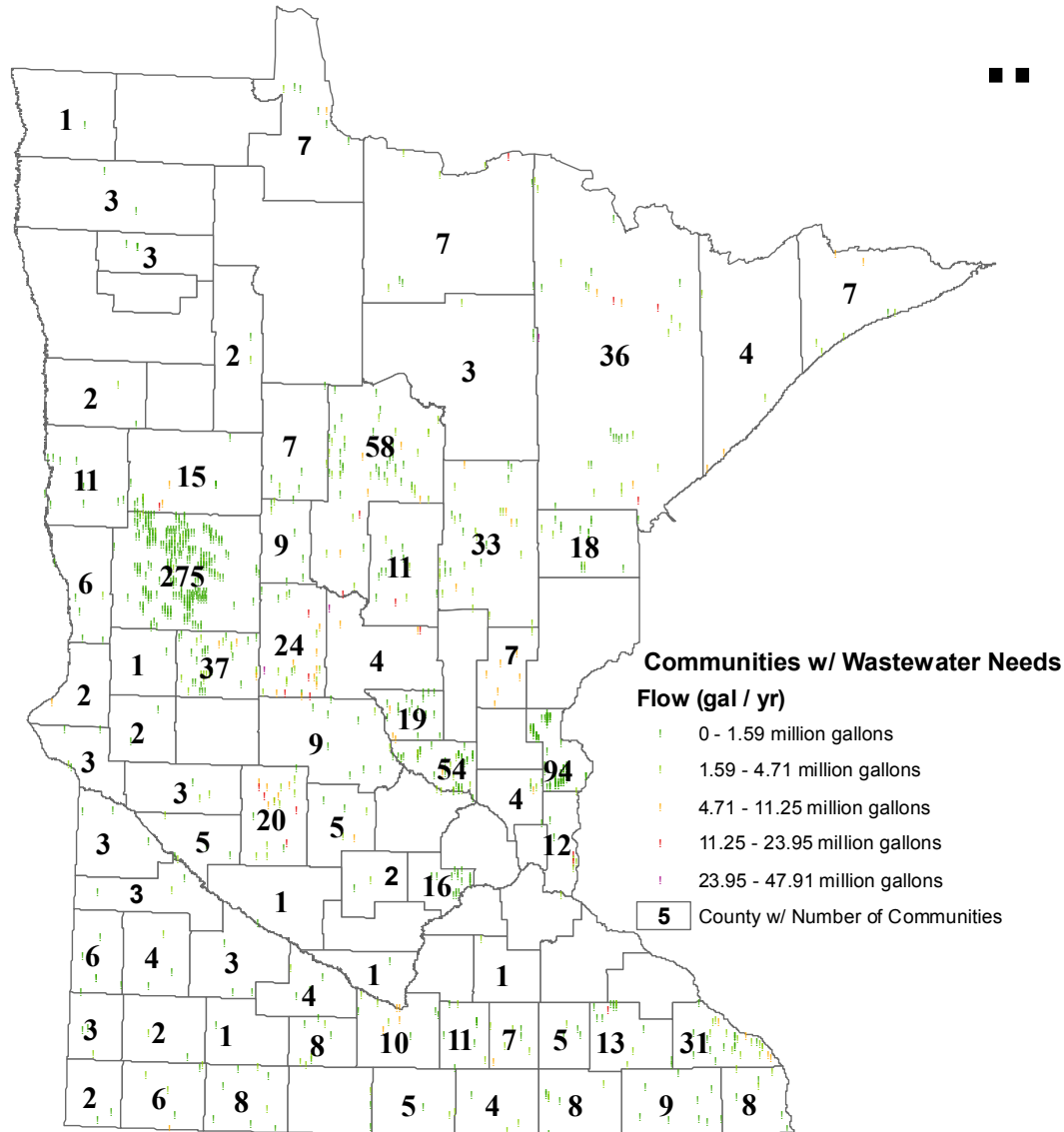
History of Small Community Wastewater Education Program

- 2000: Pilot six session workshop series (treatment, funding, and management options; community process; working with professionals)
- 2001: Refined five session workshop series (partners)
- 2002: *Small Community Wastewater Solutions* textbook published
- 2002-03: Twelve regional seminars conducted across the state (guest speakers included PCA and funding agency staff; communities sought assistance)
- 2003-06: SCWEP staff assisted communities throughout the state on an individual basis
- 2003-06: SCWEP staff formulated Community Assessment Report process

Funding Agencies Requests

- USDA Rural Development had access to Pre-development Grants funds that were under utilized
- MN Public Facilities Authority working with MN Pollution Control Agency secured legislative general funds for Technical Assistance Grants

Small Communities in Minnesota with Wastewater Needs



MN Pollution Control Agency Survey 2008 (1,043 identified)

Region	Number of Communities
Northwest	374
North central	195
Southeast	162
Metro area	126
Northeast	108
Southwest	78
Total	1,043

Challenges Facing the SCWEP Process

1. Inertia from communities (current system is fine)
2. Lax local or state enforcement
3. Lack of financial incentives
4. Lack of other incentives (shoreland, point of sale, structure upgrade)
5. Limited SCWEP staff

Challenges Facing the Community Assessment Report Process

1. Lack of financial incentives (adds cost above PER costs)
2. Lack of full community involvement (what percentage is necessary for community fix?)
3. Limited number of personnel to assist communities

Community Wastewater Treatment: The Preparation and Use of a Community Assessment Report



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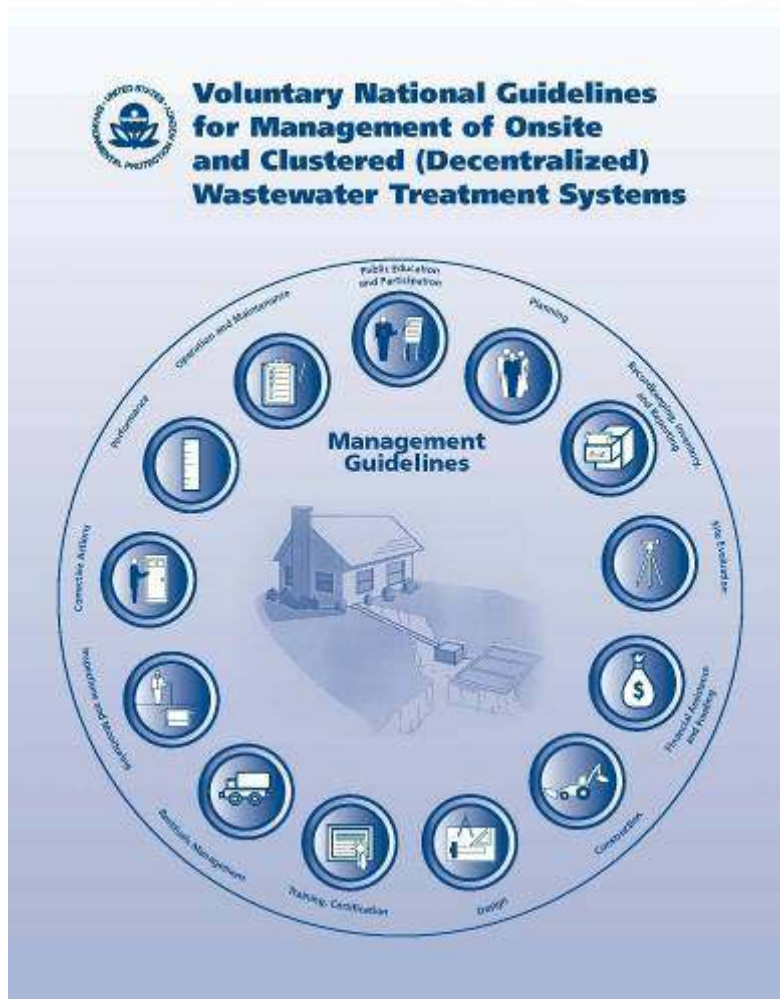
Objectives

- Discuss rationale for conducting a complete assessment of soil-based treatment as a community sewage treatment option
- What constitutes a “complete assessment”?
- What is a Community Assessment Report (CAR)?
- Challenges Associated with Creating a CAR

Three approaches to wastewater treatment -

- 1) **Centralized:**
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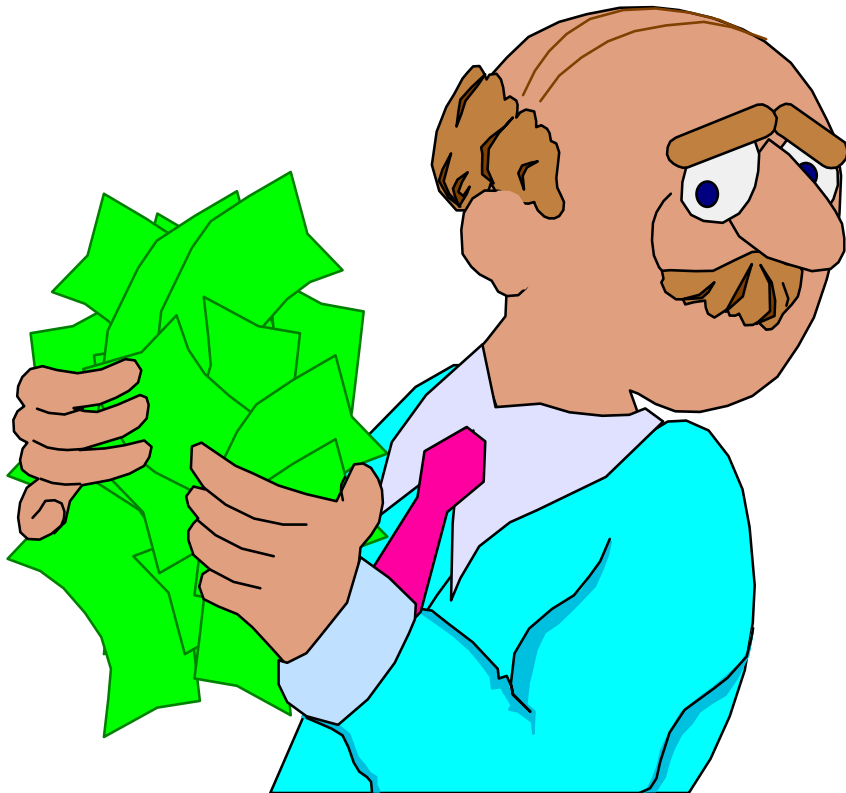


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Typical Cost Range **per Connection** in Low Density Areas



Design & Installation

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- **Centralized -**
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Determining 'decentralized' feasibility

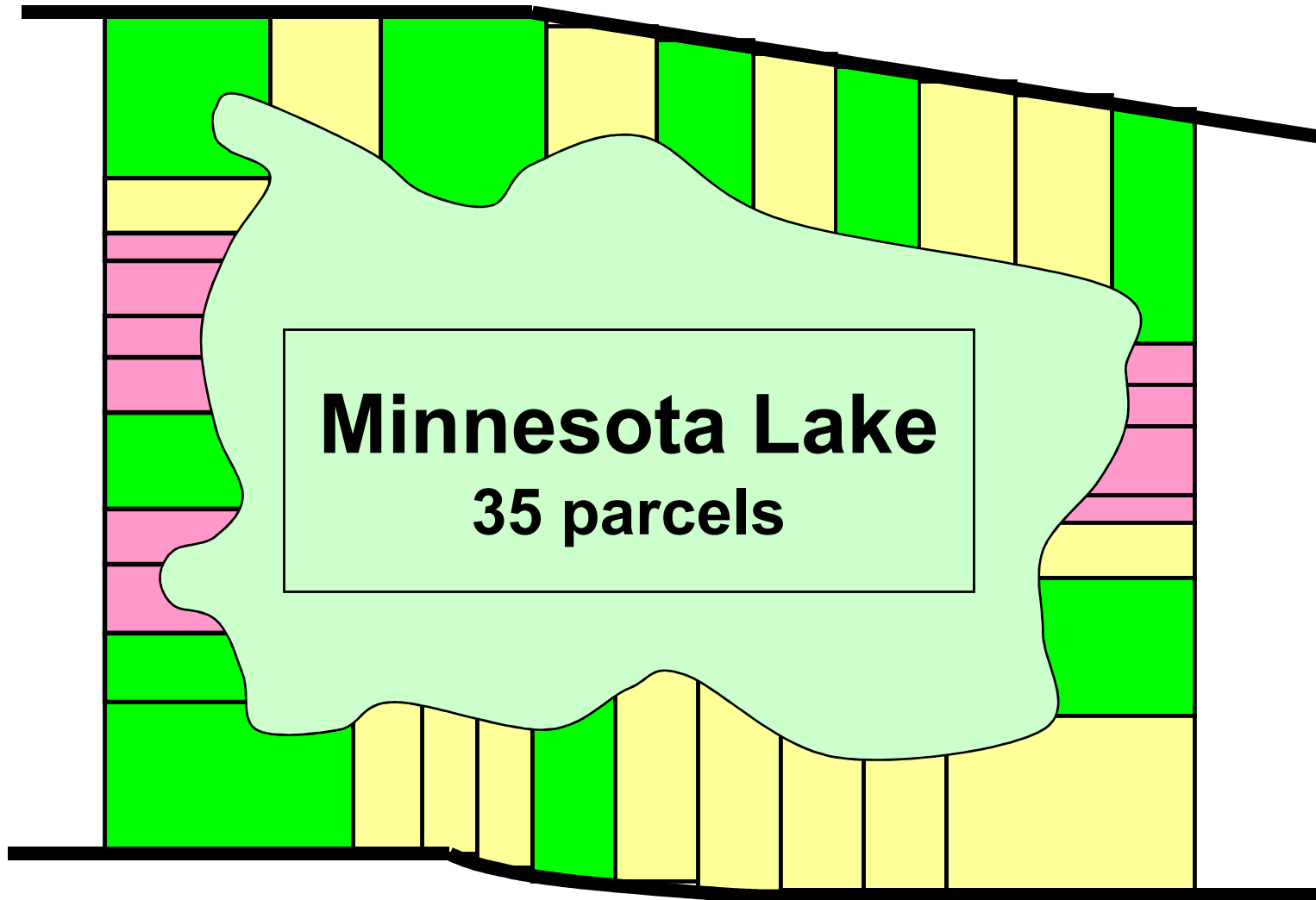
Typical assessment:

- Complying
- Non-complying

More complete assessment:

- Complying
- 'Could be' Complying
- 'Can't be' Complying

More Complete Assessment

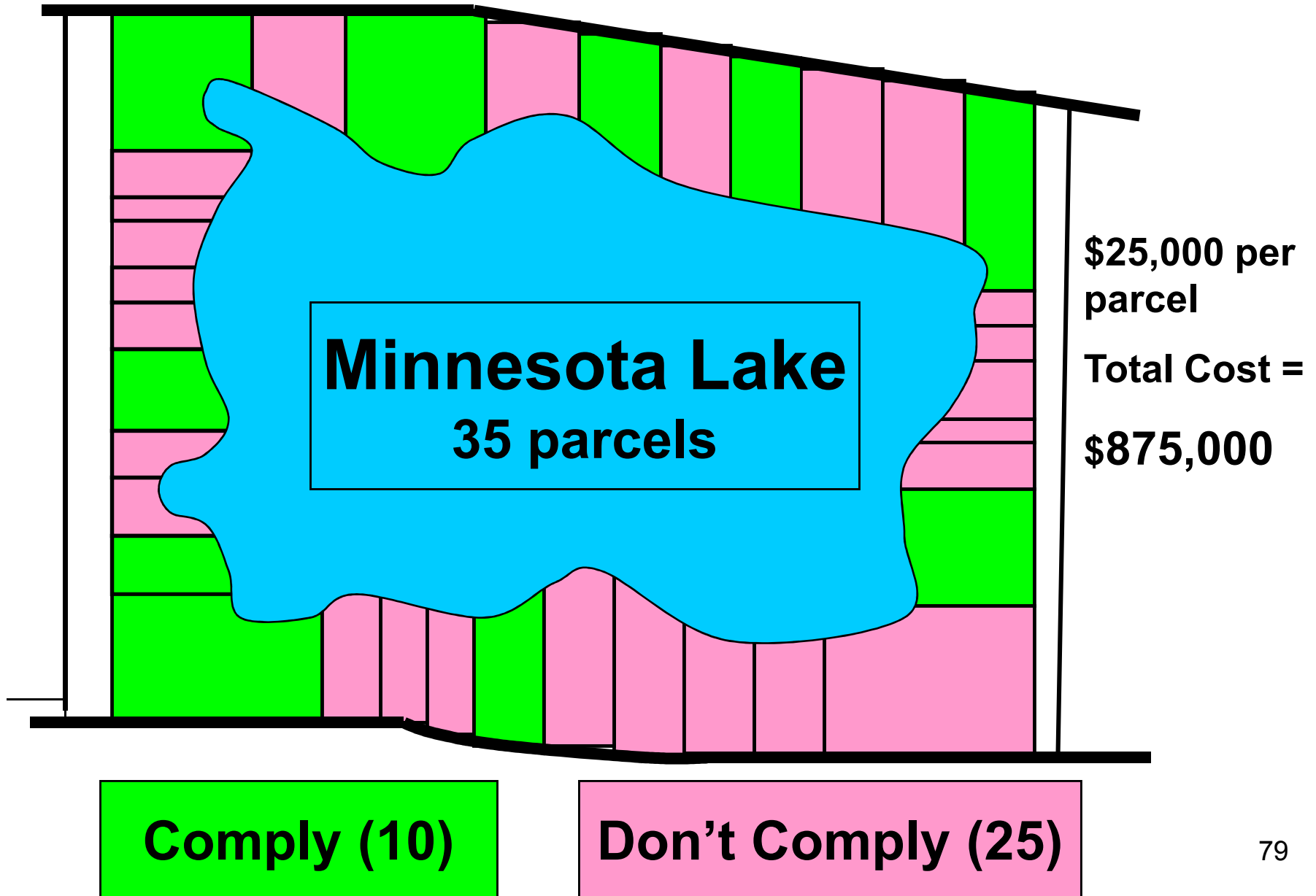


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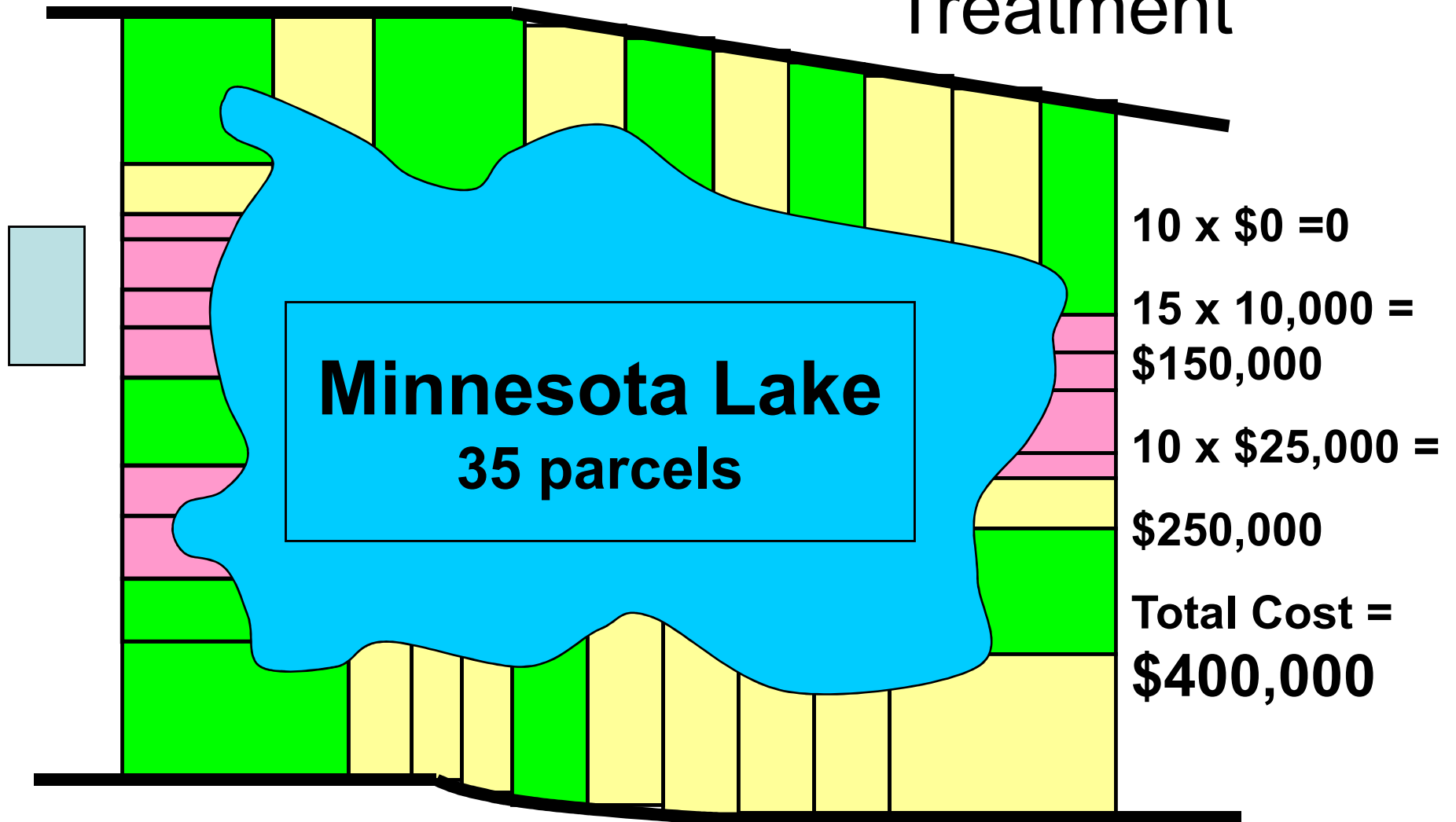
Could Comply (15)

Can't Comply (10)

Typical Assessment w/Central Treatment



Complete Assessment w/Decentralized Treatment



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Conducting a more complete assessment: Preliminary Evaluation

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Benefits of completing a CAR

- Community gets a complete picture of its current wastewater treatment or disposal
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- Better ensures soil-based wastewater treatment options are assessed in detail
- Provides preferred treatment option and estimated costs
- Information can become part of a Preliminary Engineering Report

Typical Assessment

