Helping Small Communities Solve Their Wastewater Issues
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Thanks!
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• 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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- 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

University of Minnesota Extension

A special thanks To Valerie Prax Extension Educator Mora, Minnesota 320-225-5054 malmq002@umn.edu
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)
   - Central treatment facility(ies)
   - Discharge – surface requires a Pollution Control Agency (PCA) permit

2) **Decentralized:**
   - Individual or small group of homes
   - On-site treatment facilities (near site)
   - 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
Minnesota Pollution Control Agency
Hierarchy for Funding
(ISTS = Individual Sewage Treatment System)

- Replace failed system(s) with ISTS plus management.
- Replace failed system(s) with cluster plus management.
- Connect failed system(s) with existing treatment plant
- Connect failed system(s) with new treatment plant.
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

Minnesota Lake
35 parcels

Comply (10)  Don’t Comply (25)
More Complete Assessment

Minnesota Lake
35 parcels

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)
Small Community Wastewater Education Program

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

Utilize University of Minnesota Extension Products to Complete a Community Assessment Report
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For more information, contact the University of Minnesota Extension Small Community Wastewater Education Program (SCWEP) at 800-322-8642 or septic@umn.edu.

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SCWEP is a program of UM Extension & the

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EXTENSION

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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
Stage community is at in its wastewater treatment upgrade process

- Earlier is better (consultant hired?)
- 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 (boundaries)
- 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
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
8. SCWEP and Designer conducted community meeting
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)
North cluster site – All parcels north of Laurel

Option 2
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)

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of Communities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northwest</td>
<td>374</td>
</tr>
<tr>
<td>North central</td>
<td>195</td>
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<tr>
<td>Southeast</td>
<td>162</td>
</tr>
<tr>
<td>Metro area</td>
<td>126</td>
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<tr>
<td>Northeast</td>
<td>108</td>
</tr>
<tr>
<td>Southwest</td>
<td>78</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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</tr>
</tbody>
</table>

Communities w/ Wastewater Needs
Flow (gal / yr)
- 0 - 1.59 million gallons
- 1.59 - 4.71 million gallons
- 4.71 - 11.25 million gallons
- 11.25 - 23.95 million gallons
- 23.95 - 47.91 million gallons

County w/ Number of Communities

Flow (gal / yr)
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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Typical Cost Range per Connection in Low Density Areas

Design & Installation
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- Centralized - $20,000 to $40,000+
Determining ‘decentralized’ feasibility

Typical assessment:
• Complying
• Non-complying

More complete assessment:
• Complying
• ‘Could be’ Complying
• ‘Can’t be’ Complying
More Complete Assessment

Minnesota Lake
35 parcels

Comply (10)  Could Comply (15)  Can’t Comply (10)
Typical Assessment w/Central Treatment

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$25,000 per parcel
Total Cost = $875,000
Complete Assessment w/ Decentralized Treatment

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Conducting a more complete assessment: Preliminary Evaluation

• Develop accurate large scale map of community showing following information
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