# Source Water Protection Planning

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# Learning objectives

- Participants will be able to:
  - Identify the elements of a good source water plan and how each of the elements fits into the overall plan.
  - Explain the importance of source water protection planning in small communities.
  - Understand how to complete a source water protection plan, including working with stakeholder groups, involving the public, and managing potential contaminant sources, including wastewater.

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# Obtaining Information from Source Water Coordinator

- Names of communities that have wastewater as a potential threat

- Information on when a source water protection plan *may* be required
  - May be triggered by another rule

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# Obtaining Information from Source Water Coordinator

- List of activities that are prohibited in source water protection areas, if available

- List of incentives available to communities with approved source water protection plans

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# Obtaining Local Support

- Local officials should agree on the need for source water planning
- Planning efforts are voluntary in most cases
  - Utilizing social marketing concepts
    - Public places high importance on drinking water that is safe
    - Cost of contamination vs. prevention

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# Why You Can't Afford *Not* to Develop a Source Water Protection Plan


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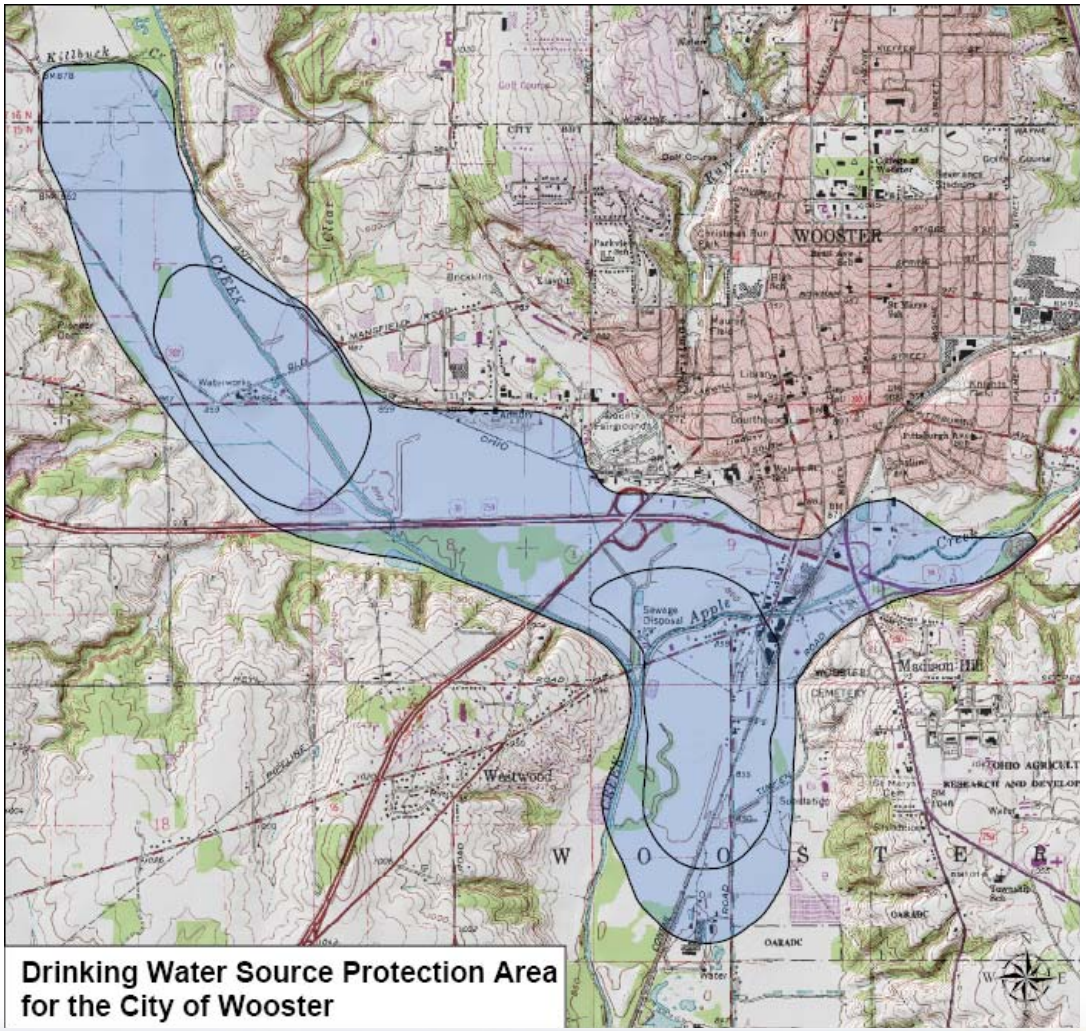
# Wooster, Ohio – population 25,000




Drinking Water Source Protection Area for the City of Wooster

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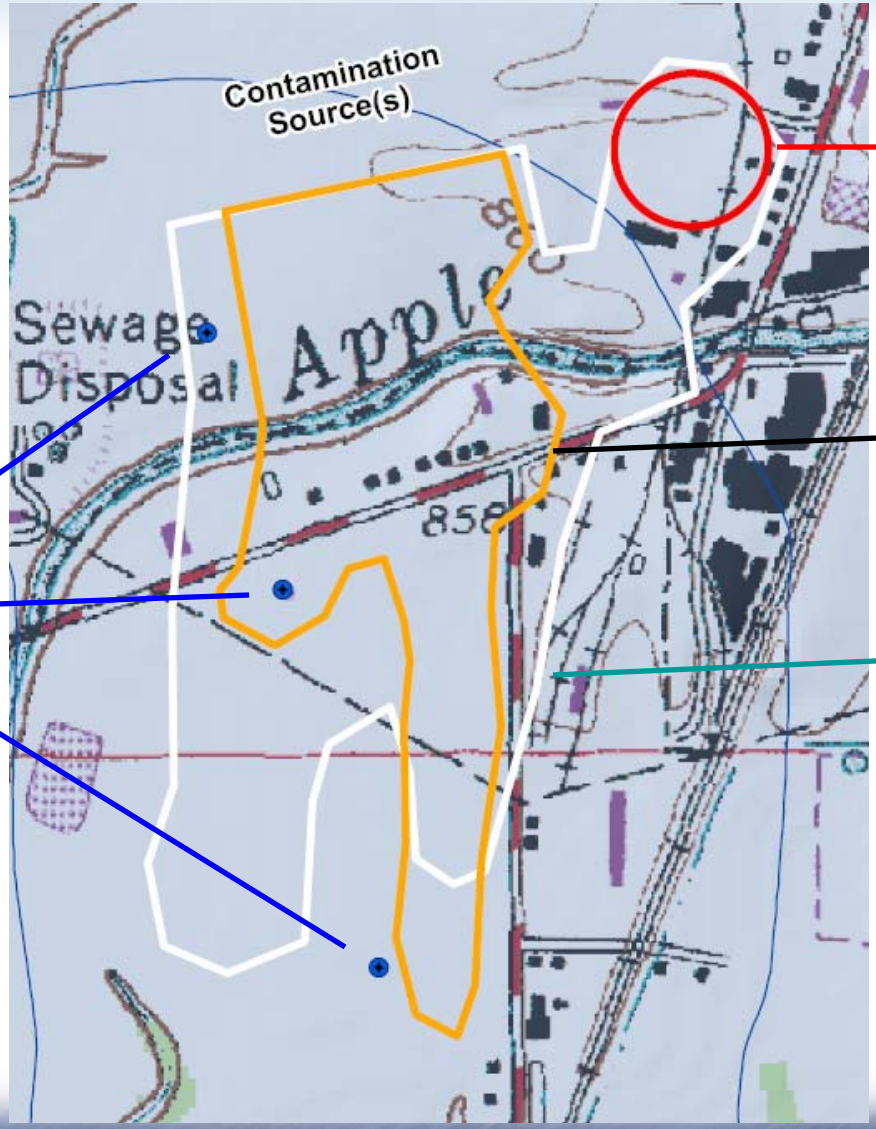
# Contaminant Plumes




TCE Plume

Vinyl Chloride Plume

DCE Plume

Drinking Water Supply Wells

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# Cost of contamination

- Pretreatment Equipment = $2 million
- Consulting Fees = $1 million
- Annual Maintenance = $50,000 to $100,000
  - Includes $40,000 to $50,000 in Hazardous Waste Disposal
- Monitoring Well installation = $150,000
- Full Round of Sampling = $20,000

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# Costs of Contamination

- Direct costs include:
  - Cost of obtaining temporary source
  - Soil and water investigations cost
  - Cleanup and remediation costs
  - Legal fees
  - Development of new water source
  - Consulting fees

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# Costs of Contamination

- Indirect costs include:
  - Loss of customer confidence in water supply
  - Increased monitoring costs
  - Real estate devaluation
  - Potential loss of jobs
  - Potential lawsuits from real or alleged consumption of contaminated water

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# Getting Started

- Obtain a copy of the PWS's source water assessment
  - They should have on-site, or your state primacy agency should have a copy
- Review information thoroughly to understand source, delineated protection area, possible contaminants, etc.

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# The Planning Process Overview

- Form Stakeholder Committee
- Identify Public Input Strategies
- Update/Review Potential Contaminant Source Inventory & Prioritize
- I.D. Management Strategies & Prioritize

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# The Planning Process

- Review/Revise Contingency Plan
- Identify Need for Monitoring Program
- Develop Continuing Public Education & Involvement Strategies
- Complete Action Plan
- Implement The Plan

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# Working with Watershed Groups

- If there is a watershed group in your SWAP area that is already active, meet with them first
  - Is there a watershed action plan?
  - Can it be modified to include source water protection?
  - Easier to merge with established group

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# Step One - Form Stakeholder Committee

- **Diverse Interests**

Public Water Supplier
Watershed Group
Business Owners
Local Officials/CIC
Extension Agents
Concerned Citizens
Educators
Farmers/SWCD
Health Department
Civic Groups
Septic Professionals
Homeowners
Representatives of any potential contaminant sources

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# Stakeholder Committee

- Recruiting the group
  - Brainstorm list of members with local officials
  - Personal appeal from the mayor or other well-known local officials works well (letter or visit)
  - Help them understand the importance from their perspective
  - Let them know they may be impacted by decisions made

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# Stakeholder Committee Meetings

- Let them know the extent of commitment you need up front

- Plan to spend at least the first two or three meetings educating the committee & allowing them to bond as a group

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# Group Formation

- Effective patterns of interaction established
- Clarification about task, communication, and procedures
- Relationships to other persons and group determined
- Standards for participation set
- Ground rules or behavioral norms established
- A respected “place” for each member secured
- Trust established among members

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# Educate Stakeholder Committee

- Review source water assessment data
  - What is the critical protection area & how was it determined?
  - What are the potential contaminant sources within this area?
  - How vulnerable is our water source to contamination?
- Why is source water protection important & what are the benefits?

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# Building Consensus in the Group

- Consensus – what is it?
  - an “agreement in opinion, testimony, or belief – a collective opinion”
  - Everyone can live with the decision
  - Effort to ensure that diverse interests met

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# Preconditions for Consensus

- Group enlists facilitation assistance
  - Need someone to manage the process
- Group formalizes its commitment with by-laws or ground rules
- Need time to build capacity of group
- A clear map outlining how to build consensus

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# Publicizing the Planning Process

- Local newspaper articles
- Stuffers in utility bills
- Presentations at senior centers, civic groups, chambers of commerce and other venues
- Presentations at community events

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# Step Two – Identify Public Input Strategies

- Community Survey
  - Residents rank potential sources in order of risk
  - Residents rank management options

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# Public Input Strategies

- Benefits of Community Survey
  - use as educational tool
  - allows all residents to feel sense of "ownership" in plan
  - allows committee to gauge level of support for options

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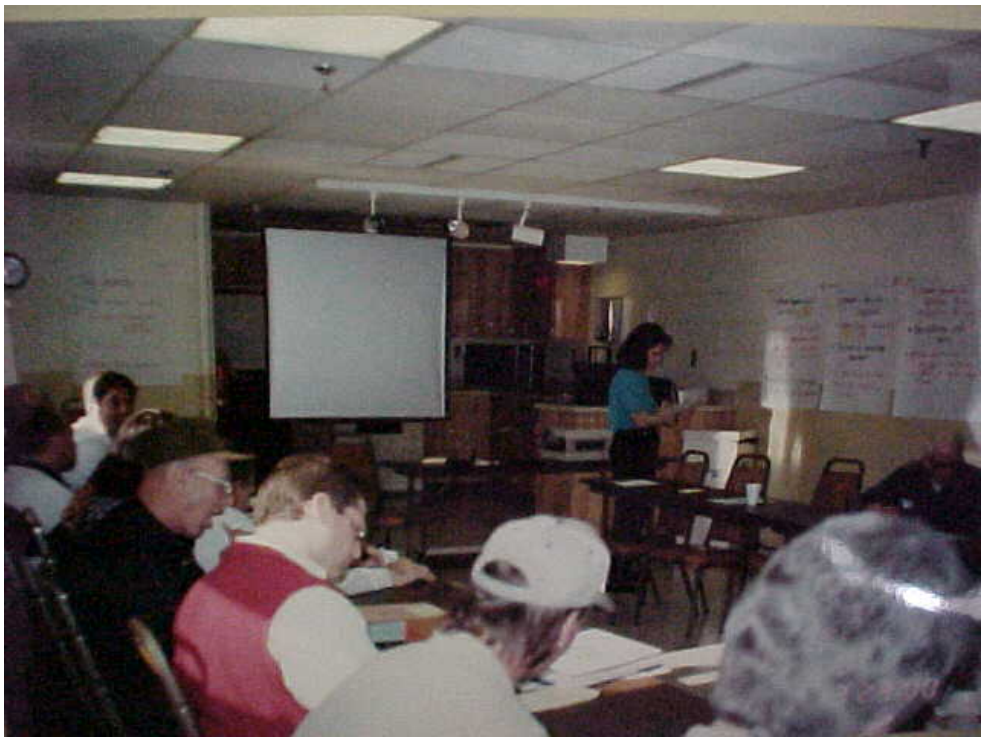
# Public Input Strategies

- Community Forum
  - Residents discuss concerns
  - Public education opportunity
  - Solicit volunteers to work on issues



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# Involving the Public

- Critical to the long-term success of the plan
  - Remember that it is behavioral change you're after
  - Ask their opinions and use them

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# Working with volunteers

- Give them specific tasks
- Make your expectations clear
- Respect their time by having clear agendas and focused meetings or activities
- Reward their successes

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# Step Three - Update Potential Contaminant Source Inventory

- Identify new or missed potential contaminant sources
  - In many states no on-site verification
  - Most inventories are dated – things have probably changed

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# Potential Contaminant Sources

- Categories of sources:
  - Residential
  - Municipal
  - Commercial
  - Industrial
  - Agricultural

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# Doing an Inventory

- Windshield survey
- Database search
- Interviews with local residents
- Local emergency planning agency data
- Site visits

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# Doing an Inventory

- State & Federal Regulatory Databases
  - CERCLIS (superfund sites)
  - RCRIS (hazardous waste handlers)
  - RCRA Subtitle 1 (USTs containing petroleum & hazardous substances)
  - Underground Injection Control
  - National Pollution Discharge Elimination Sys.
  - Underground storage tanks
  - TRI database (toxic chemicals released)

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# Doing an Inventory

- Local Resources
  - Zoning Maps
  - Building Permits
  - Sewered & Unsewered Areas
  - Transportation Routes and Transmission Lines
  - Home Fuel Oil Tanks
  - Agricultural Information
  - Historical Records Searches
  - Characteristics of the water body/resource & features of surrounding landscape

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# Additional Resources

- Floodplain Management Initiatives
- USGS Studies
- Dept. of Natural Resources Maps
- TMDL Data
- Biological & Water Quality Reports
- Monitoring Data
  - Water Quality & Aquatic Life
- Solid Waste Information – open dumps, landfills

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# Step Four - Prioritize Potential Contaminant Sources

- Sources can be prioritized using a variety of methods
  - Distance from drinking water source
  - Presence of existing contaminants
  - Toxicity of potential contaminants
  - Existing regulations
  - Likelihood of contamination, i.e. past or existing practices

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# Step Five - Identify Management Strategies

- Search existing sources for ideas
  - "standard" tools found in many publications
- Stakeholder committee brainstorm ideas
- Be creative, but don't reinvent the wheel
- The "meat" of the planning process


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# Sample strategies for wastewater (septic systems)

- Determine systems that have failed or likely to fail
- Develop incentive program for system replacement
- Ordinance requiring minimum setbacks from wells
- Work with Health Department to set up regular inspection program
- Conduct education campaign for homeowners in area
- Extend central sewers to the area

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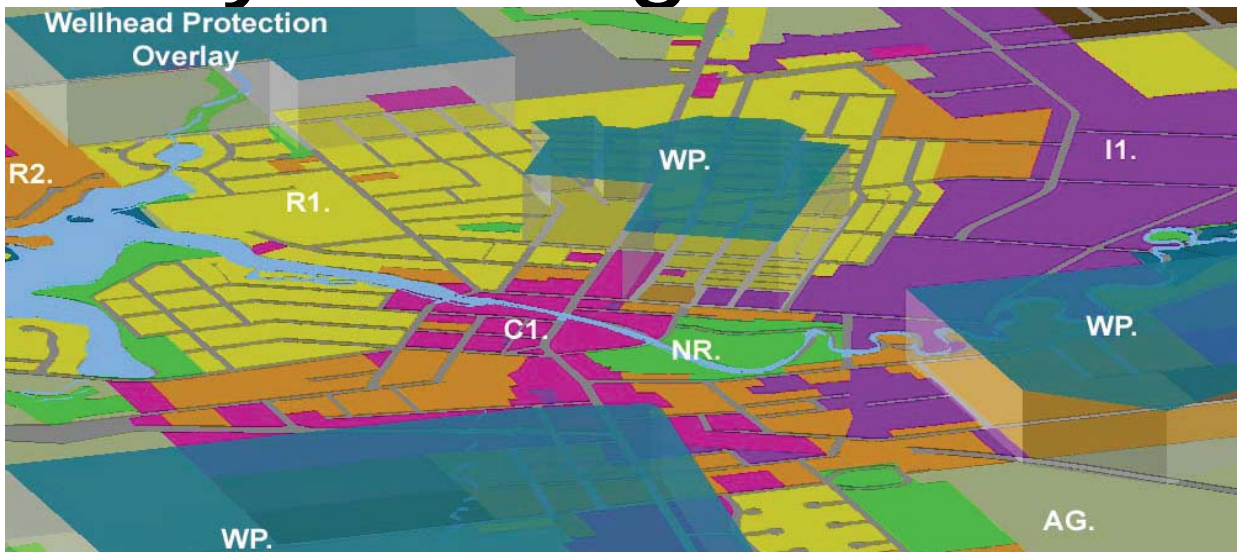
# Regulatory Strategies




- Zoning
- Overlay zoning
  - Land use controls
  - Subdivision regulations
  - Special permitting
  - Growth controls
- Septic system ordinances

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# Voluntary Strategies

- Land acquisition
- Conservation easements
- Comprehensive land use planning that incorporates protected areas
- Utilizing best management practices
- Household hazardous waste collection
- Public education

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# Structural Strategies

- Catch basins
- Storm water retention ponds
- Leak detection devices, such as on underground storage tanks
- Containment structures

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# Non-Structural Strategies

- Planning and zoning
- Land acquisition
- Working with small businesses
  - Proper storage and handling of chemicals
  - Switch to “greener” products,

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# Step Six - Prioritizing Management Strategies

- Once you've brainstormed options for management strategies; they need to be prioritized.
- Discuss process for decision making, i.e. voting, consensus.
- Prioritize strategies for potential pollution sources.

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# Brainstorming with the Group

- All on the Wall activity (from the Groundwater Foundation)
  - Objective is to develop a list of protection activities
  - Ask the following question, allowing each participant five responses:
    - If you had no limitations, what would you do to protect your community's drinking water source?

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# Decision Grid

**EFFORT**

| **IMPACT** | Difficult to Do | Easy to Do |
|---|---|---|
| Major Improvement | | |
| Minor Improvement | | |

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# Resources

- Groundwater Foundation
  - Mobilizing for Community Action
    - http://www.groundwater.org/shop/proddetail.asp?prod=1030
  - Groundwater Guardian Profiles
    - http://www.groundwater.org/gg/docs_archive/2006_Groundwater_Guardian_Profiles.pdf

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# Step Seven – Action Planning

- Determine action tasks for selected management strategies.
- Identify time frame for completion of each task.
- Identify point person, person responsible, others involved.
- Identify resources needed to complete task.

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# Step Eight – Update Contingency Plan

- Most PWSs already required to have
- Many don't include specific source water protection information
  - Emergency response procedures
  - Identify short and long-term alternative sources

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# Step Nine – Determine the Need for Additional Monitoring

- Monitoring may be required for some types of contaminant sources
- Community may choose to establish an early detection system
  - Particularly useful for very sensitive aquifers
- Stream monitoring programs using volunteers

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# Step Ten – Ongoing Public Education & Involvement

- Find ways to keep the public and the stakeholder group active
- Educating the public is an ongoing process
- Be creative and use every available opportunity
- The stakeholder group is the best tool you have, so use them!

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# Working with Volunteers

- Requires a continuing commitment to:
  - Recruiting them
  - Training them
  - Directing them
  - Celebrating them

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# Step Eleven – Write the Plan!

- Now is the time to put it all together
- Check your state's guidance documents to see what is required
- Be sure to include specific action plans for your management strategies

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# Writing the Plan

- Plan should generally include:
  - Updated contaminant source inventory
  - Management strategies for each source
    - Action plan detailing what will be done, when, and by whom
  - Education and outreach plan
  - Contingency plan
  - Monitoring plan

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# Step Twelve - Implementation

- Determine how often stakeholder committee will meet to review implementation progress.
- How will information be disseminated on successes, challenges.
- Evaluate progress.
- Determine need for updates, revisions.
- Celebrate Success!

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# Source Water Protection Planning

- ✓ Forming Stakeholder Committee
- ✓ Involving the Public
- ✓ Updating the PCSI
- ✓ Prioritizing the PCSI
- ✓ Identifying Management Strategies
- ✓ Prioritizing Management Strategies
- ✓ Action Planning
- ✓ Contingency Planning
- ✓ Monitoring
- ✓ Ongoing Public Education/Involvement
- ✓ Writing the Plan
- ✓ Implementing

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# Thanks to the following:

- Ohio EPA
- Groundwater Foundation
- Kristin Woodall, GLRCAP

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