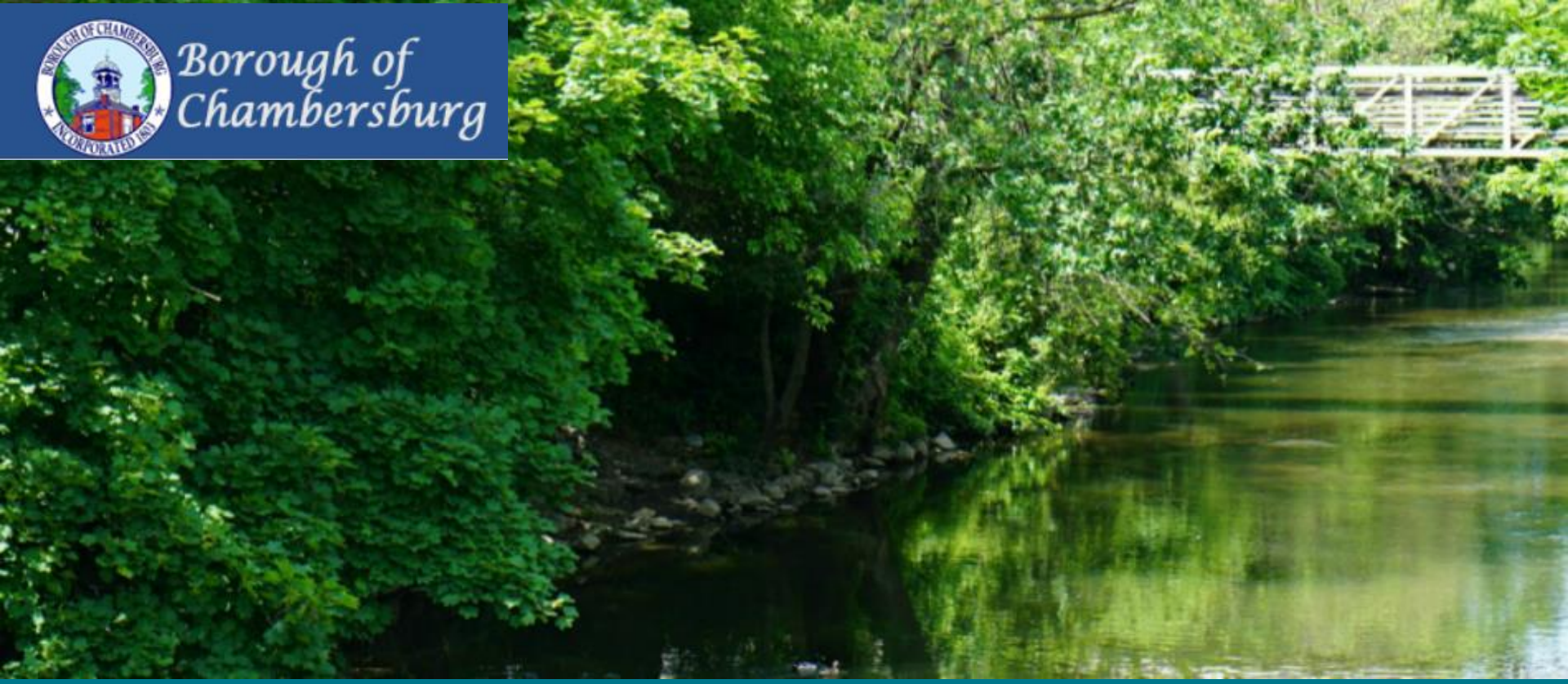

CHAMBERSBURG BOROUGH WATER SYSTEM

SOURCE WATER PROTECTION PROGRAM

PENNSYLVANIA SOURCE WATER PROTECTION
Safe Drinking Water Starts at the Source!

This Presentation is funded by the PA Department of Environmental Protection's Source Water Protection Technical Assistance Program

SSM
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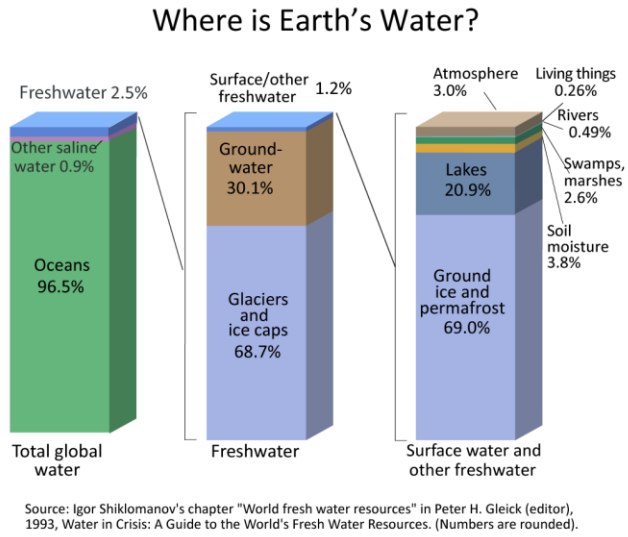
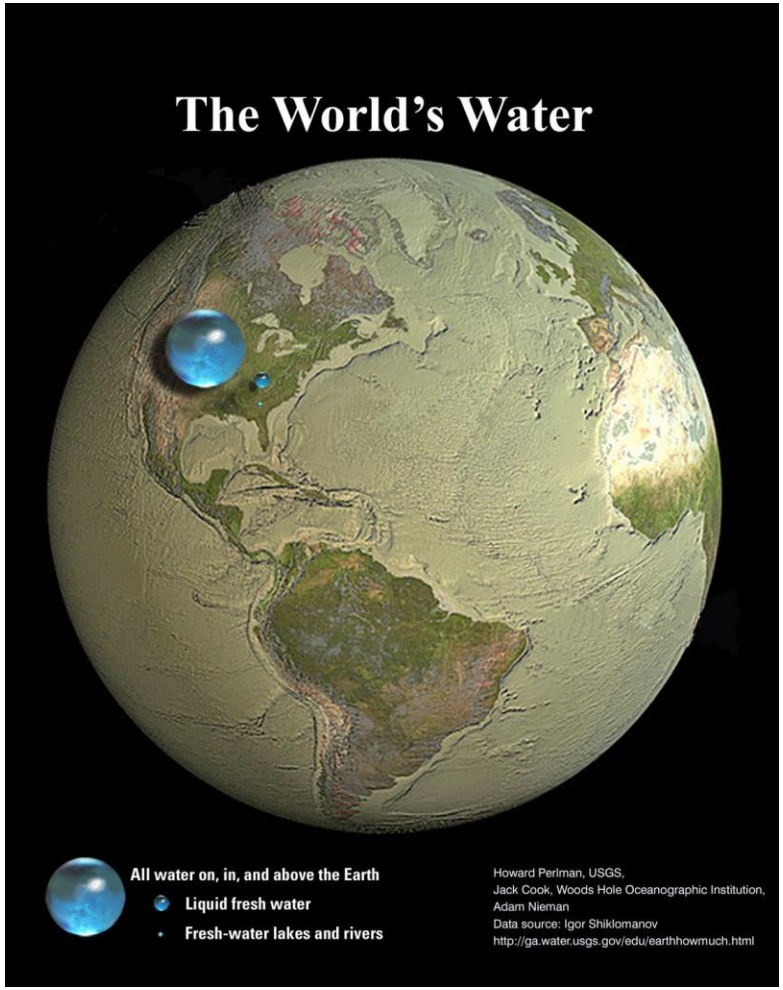
What is Source Water Protection?

- Taking proactive measures to prevent the pollution of lakes, rivers, streams and groundwater that serve as sources of drinking water.

"Water from the ground may be free, but getting it to people's homes and making sure it is safe costs money!"
Windber Area Authority



Source: Igor Shiklomanov's chapter "World fresh water resources" in Peter H. Gleick (editor), 1993, Water in Crisis: A Guide to the World's Fresh Water Resources. (Numbers are rounded).



Could This Happen To You?

January 2014 – The chemical spill into the Elk River in WV affected 300,000 people in nine counties – banning water use for days.

August 2014 - Toledo, Ohio water ban due to massive algal blooms in Lake Erie. Authorities are blaming agricultural runoff, septic failures, and sludge from sewage treatment plants building up for a decade.

February 2015 – Train carrying crude oil derails and explodes in West Virginia, sending the oil into the Kanawha River, causing a temporary closure of two water treatment plants.

June 2015 – An industrial fire in Adams County created 4 million gallons of contaminated stormwater, which flowed into a nearby creek, and shut down the water system for nearly 3 months.

January 2016 – Flint, MI has high lead levels in their finished water, leached from corroded pipes throughout the distribution system.

Pennsylvania Case Study

In 2015, an Adams County chemical plant making water-soluble fertilizer caught fire during the night.

15 fire companies assisted with controlling the fire, generating ***4,000,000 gallons*** of contaminated runoff.

Stream modeling was done to predict plume reaching surface intakes downstream. However, the flow did not take the predicted path, and found its way through field ditches.

Multiple insurance companies involved – contradicting goals of property protection and spill cleanup costs.

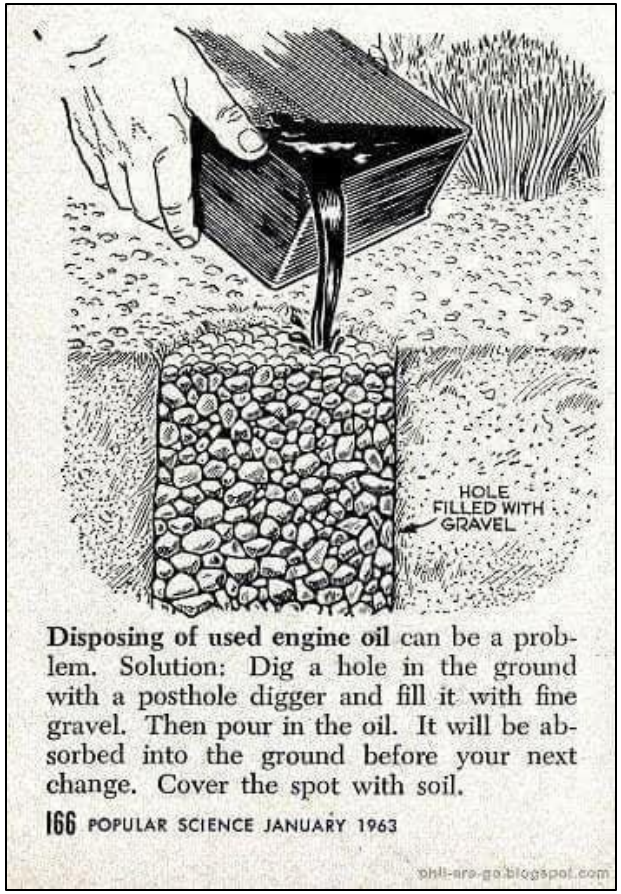
Water use restrictions in place for 2.5 months, water provided by another supplier.


Photo courtesy of Ivey DeJesus/Pennlive

Estimated cost of incident >$20M

Why Have a Source Water Protection Plan?

"Conventional Wisdom"



Support for Source Water Protection

SWPTAP = ***S****ource* ***W****ater* ***P****rotection* ***T****echnical* ***A****ssistance* ***P****rogram*

- Administered by the PA Department of Environmental Protection, through Environmental Protection Agency funding
- Currently, 297 community water systems have signed up for program, and an additional 218 small systems.

A Source Water Protection Plan:

- Points out possible contamination issues.
- Provides some help with education and information for customers and residents.
- Improves water quality through local management practices and other partnerships.
- Can help with keeping costs down by reducing the amount of treatment needed.
- The plan is funded by the DEP, and **free-of-charge** to the water system.

Developing a Source Water Protection Plan

Five Step Process

1. Form a steering committee with local partners.
2. Protection Areas were developed for the groundwater and surface water sources and provided to the system.
3. Steering Committee identifies & prioritizes potential pollution sources.
4. Steering Committee chooses management and protection strategies.
5. Considers contingency and new source planning.

STEP 1: CREATE YOUR TEAM

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Developing a Steering Committee

The Steering Committee is an advisory group for the water system, which represents different aspects of the community.

The County Conservation District, Planning Commission, environmental organizations, schools, local businesses, and municipal staff can be considered for the committee.

Members provide local knowledge, make recommendations to the water system, and convey source water protection information back to the customers and the community.

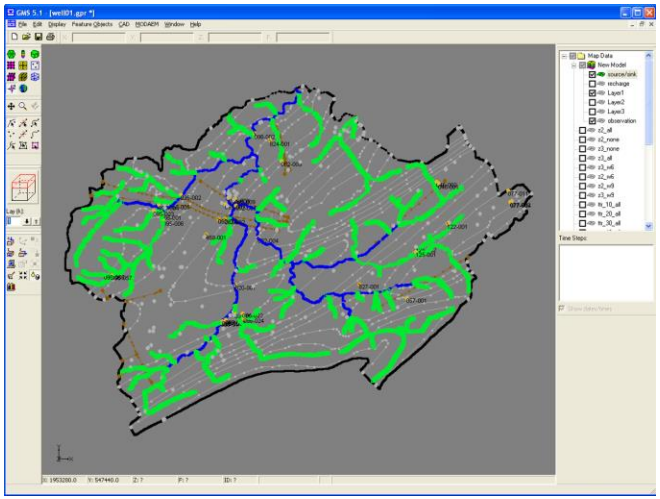


STEP 2: DELINEATION OF WATER SOURCES

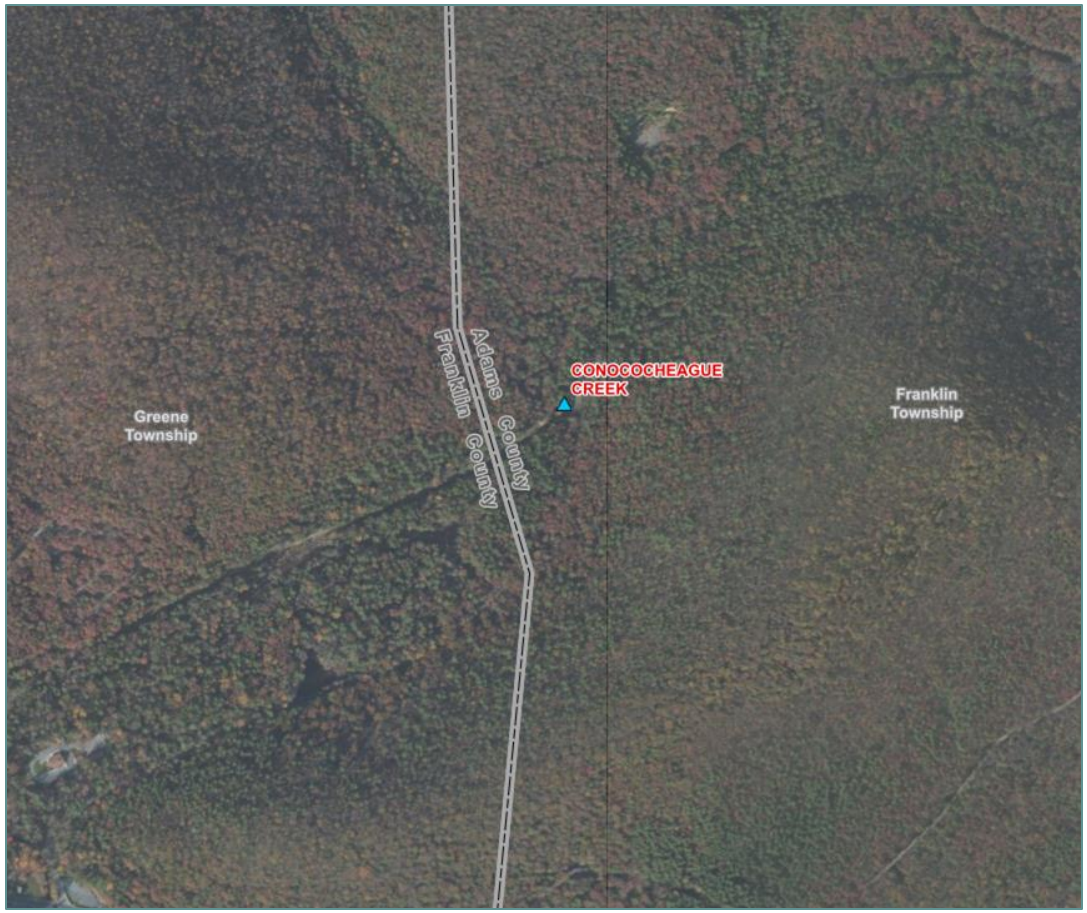
Evaluating the Water Sources

Previous studies, field data, water system reports and interviews, and Geographical Information Systems (GIS) mapping is used to delineate water sources.

Computer and hydrogeologic modeling and stream velocity can be used for this process.



Surface Water Source



Chambersburg obtains its drinking water from an intake in the Conococheague Creek.

Summary of Surface Water Intake Protection Areas

Surface Water

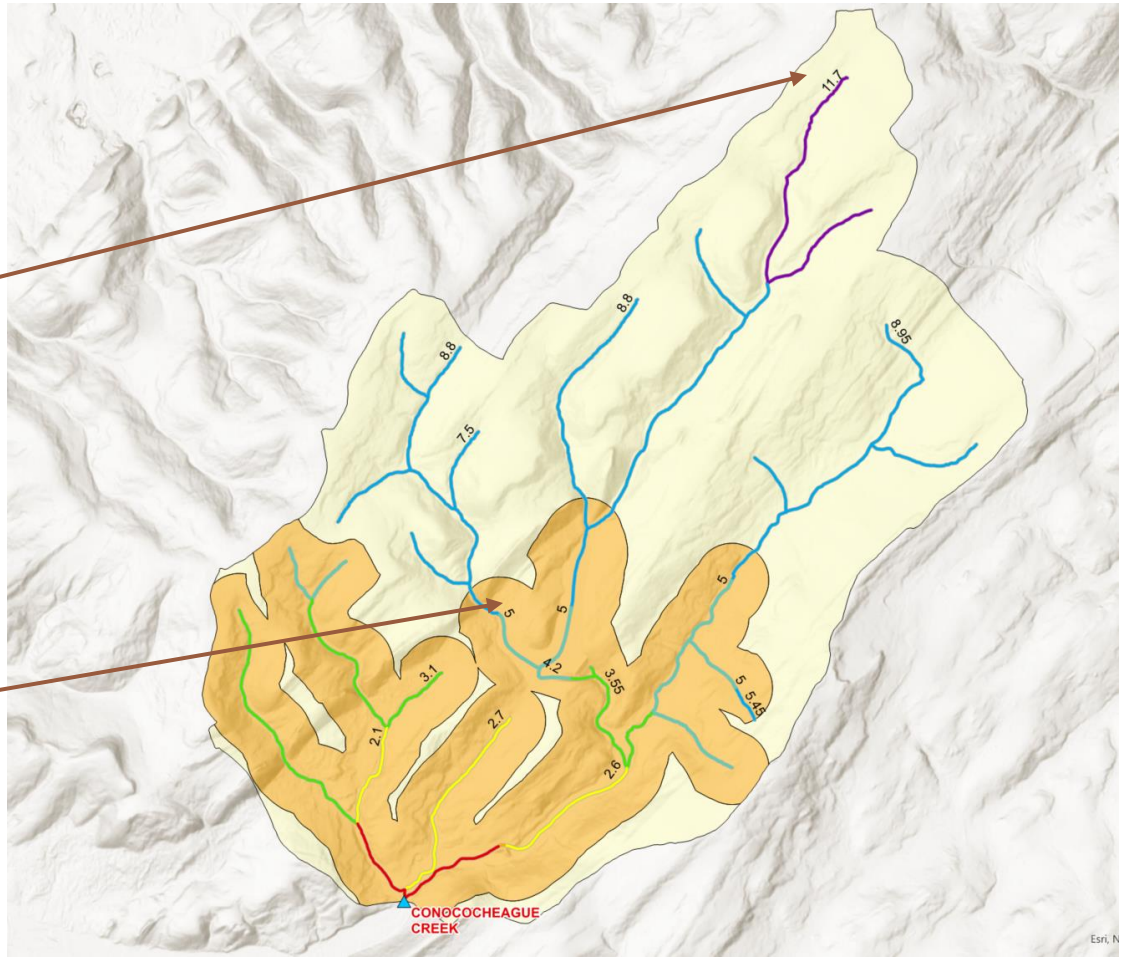
- Zone A
  - ¼ mile buffer; 5-hour Time-of-Travel
- Zone B
  - 5 - 25 hours TOT
- Zone C
  - Over 25 hours to extent of Watershed

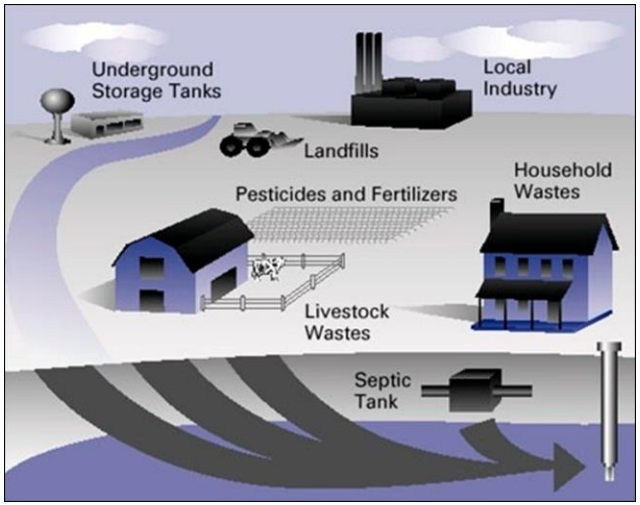
Surface Water Intake Time-of-Travel

Time to intake:

<12 hours

<5 hours





STEP 3: POTENTIAL SOURCES OF CONTAMINATION

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Non-Point Sources of Pollution

Agricultural activities can contribute animal waste or sediment from barnyards, crops, and pastures into local waterways.

Residential/Stormwater – Developed areas can contribute sediment, chemicals, litter, and septic system failures.

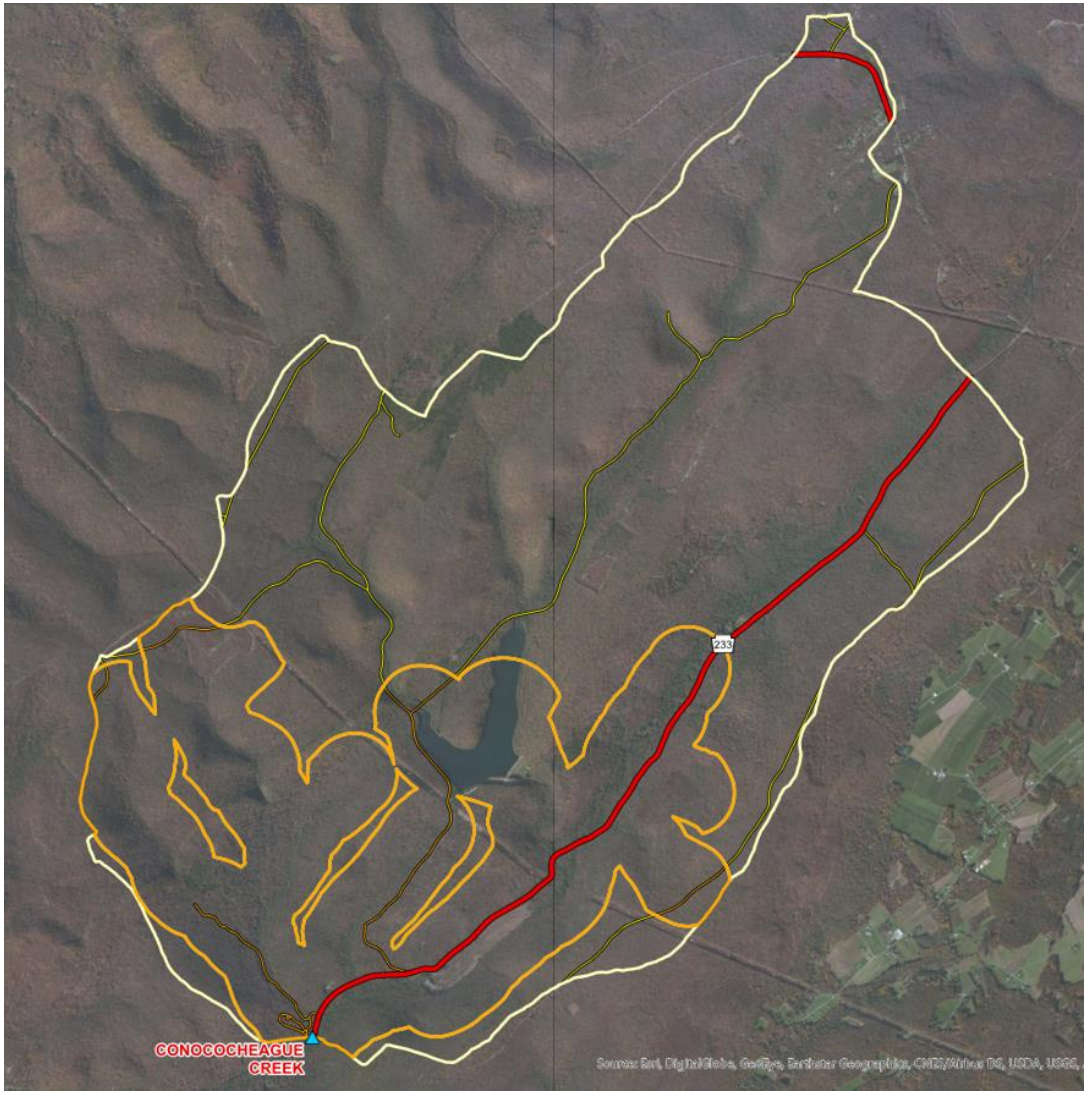
Roads can add salt, dirt, and vehicle fluids from accidents to the rain or snow melt. Transportation corridors include local & state roads, railroads, and pipelines.

Land Cover

A Land Cover analysis was performed in order to determine non-point source PSOCs in the protection areas. Total acreage for the combined areas covers 11,700 acres.

Undeveloped and forested land for the combined areas covers 96% of the protection areas. Developed areas covered the remaining 4%.

Transportation Corridors

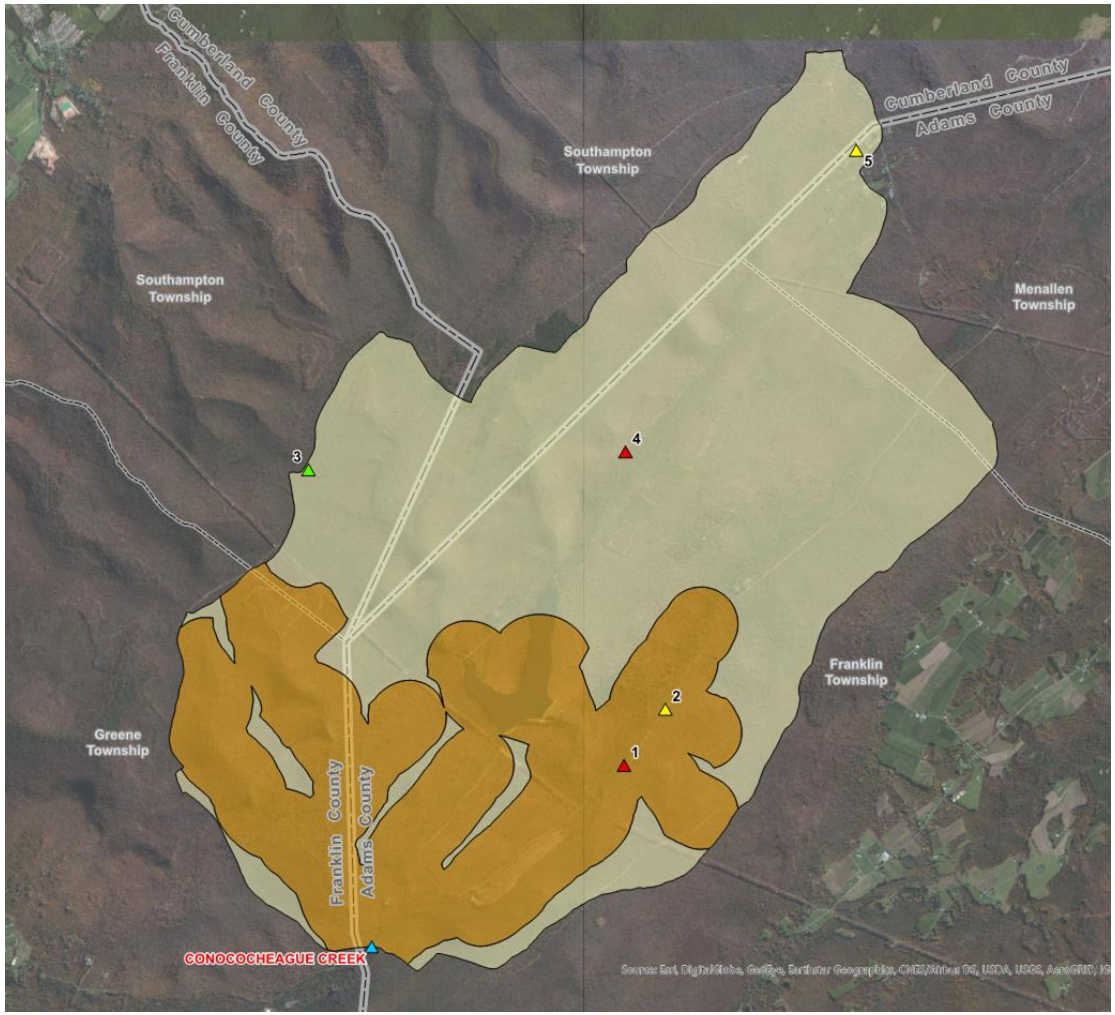


Route 233 is the major roadway through Zone A and Zone B.

Point-Source Inventory

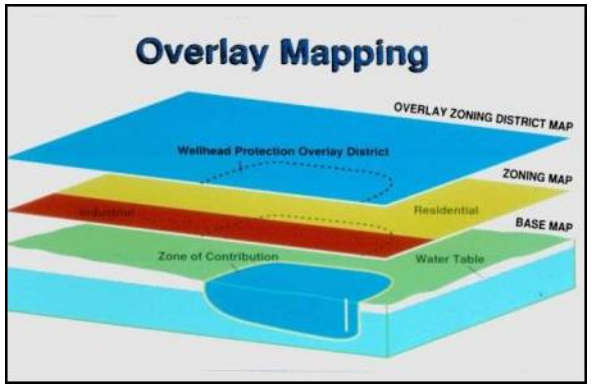
- Potential contamination problems are researched through computer databases and the Steering Committee's local knowledge.
- A list is compiled to assist the Steering Committee in setting priorities for source water protection efforts.

Point Source Potential Sources of Contamination



Due to the undeveloped nature of the protection areas, only 5 point source PSOCs were identified in the preliminary database search.

These PSOCs include 2 illegal dump cleanup sites, 2 storage tanks, and an EPA Regulated facility, which were ranked and mapped for committee review.



STEP 4: CONSIDER MANAGEMENT STRATEGIES

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Management and Protection Strategies

Regulatory Tools

- Legal directives that require compliance, usually by the municipality or other agency.
- Can be expensive to develop and enforce

Non-Regulatory Tools

- Don't have any enforcement rules to require people to do something
- Less expensive to carry out; but requires voluntary effort

Photo courtesy of R. Zerbe

Photo courtesy of L. O'Hare

DEP Database Subscriptions

- Subscribe to the DEP database eNOTICE
- Determine locations on eMAP
- Search for permit and inspection information on eFACTS

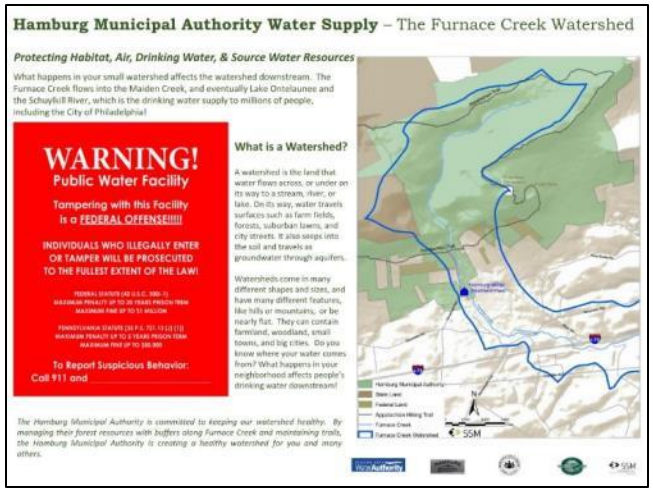
Watershed Awareness Signs

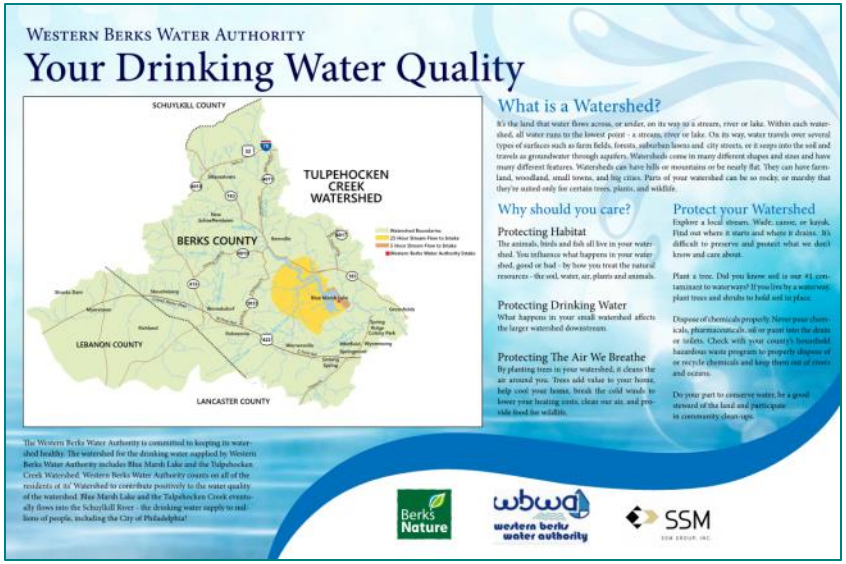
Local signs for community roads

PennDOT Signs for major highways

Notification of Protection Areas

- Educate residents, recreation users, and local landowners that they are in a protection area.





Watershed Forums and Partnerships

Partner with other water systems, businesses, schools, environmental groups, and civic organizations in the region to discuss common PSOCs, typical issues, and potential solutions in Source Water Protection.

Community Involvement

Participate in local community activities for sharing your message:

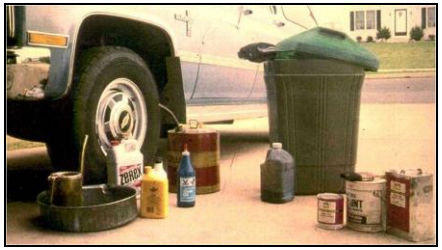
- Earth Day
- Fairs, Carnivals
- Cleanup Events
- Recreational activities

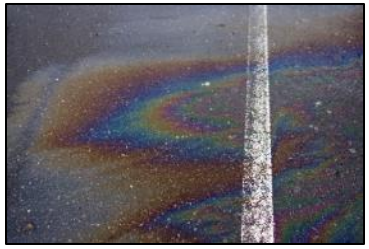

Photo courtesy of Schuylkill Action Network


Photo courtesy of L. O'Hare

Public Education and Outreach

- Partner with the Franklin and Adams County Conservation Districts and other organizations in educating customers on how their activities affect the source water.
- Post information on the Source Water Protection Plan on the Borough website or social media. Use the template brochures in your plan.
- Provide information via Consumer Confidence Reports, newsletters, and plant tours.





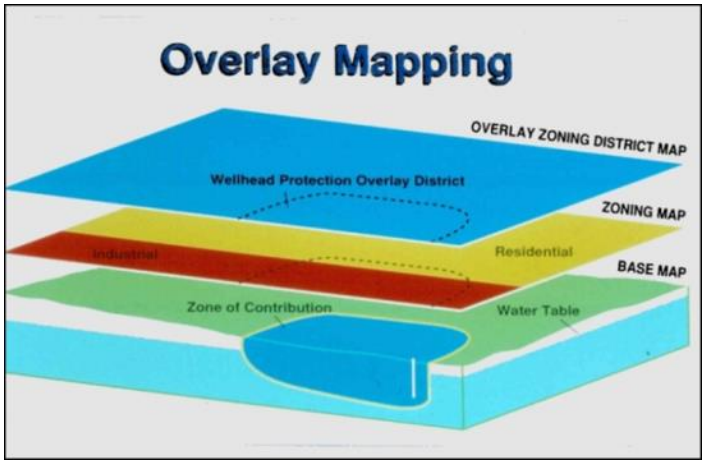
Municipality Partnerships

Removing litter from stormdrains

Stenciled stormdrains or decals

Zoning and Comprehensive Planning

- New development must meet established standards.
- Provide the GIS shapefiles of the protection areas to the Planning Commission for use in comprehensive planning.



Emergency Management Planning

- Cooperate with the Emergency Management Agency
  - Attend meetings for the Local Emergency Planning Committee
  - Provide mapping files for emergency responders
- Participation in Early Warning or other Mutual Aid Systems


Photo courtesy of noaa.gov

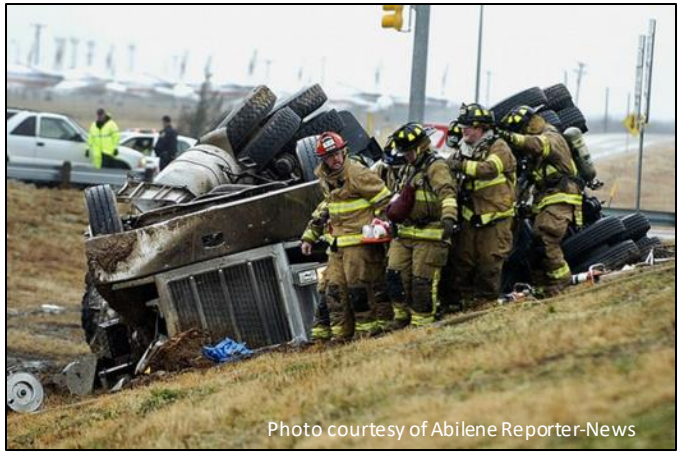


Photo courtesy of Abilene Reporter-News

STEP 5: CONTINGENCY AND NEW SOURCE PLANNING

Contingency and Emergency Response

If you have interconnections with other water systems, are they exercised regularly to ensure operation?

What is the contingency in an emergency if the system cannot provide demand? How is bulk water distributed?

Are agreements with other systems, vendors, and responders current?

Contingency and Emergency Response

The water system's Contingency Plan should be reviewed annually to update procedures and personnel.

Potential threats to water supply are identified.

Short and long-term water supply options are considered in case of contamination.

New Sources

- The water system also considers the potential for new water sources in case of contamination.

PENNSYLVANIA SOURCE WATER PROTECTION

Safe Drinking Water Starts at the Source!

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

@ssmgroup.com