

# Local Drinking Water Protection in the Upper Perkiomen Watershed



**SCHUYLKILL WATERSHED CONGRESS  
POTTSTOWN, PA**

**MARCH 13, 2010**

# Presenters



- **Matt Genchur**

- Source Water Protection Program Manager, Pennsylvania Rural Water Association
- Nearly 6 years of Source Water Protection project coordination
- Previous work experience in watershed planning
- Chair of Lower Susquehanna Regional Water Resources Committee (Act 220 – State Water Plan)

- **Jim Fry**

- East Greenville Borough Manager
- 20 years working for the Borough, Manager since 2006
- Volunteer Fireman in East Greenville for 30 years

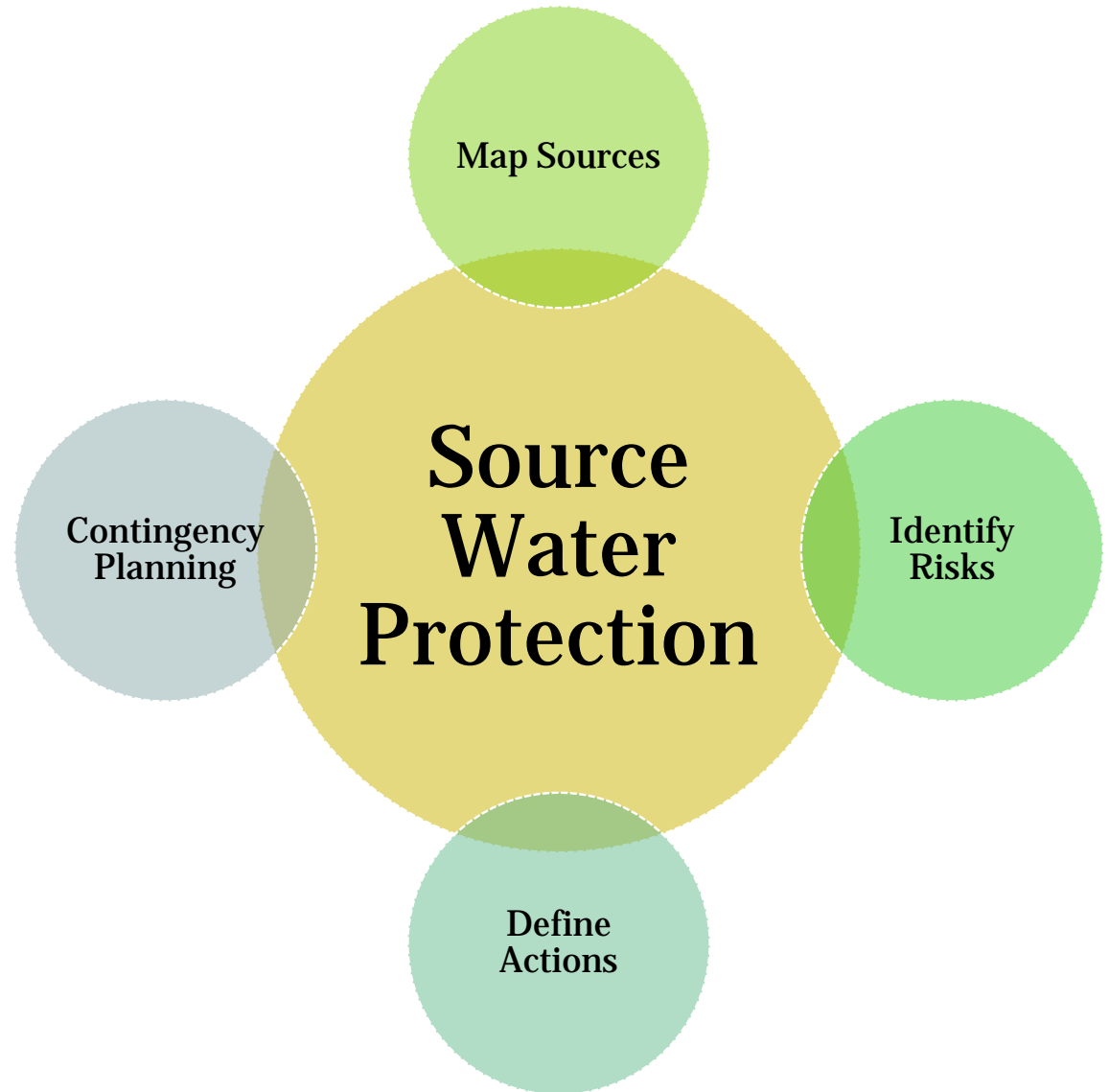


# Source Water Protection

**One Goal:** Protect your sources of drinking water

**Many Challenges:** multiple risks, multiple political jurisdictions, “unreachable” audiences, apathy, time, money

**Multiple Approaches:** communication, regulatory, non-regulatory, emergency response coordination



# Goals For This Session

*What makes a Source  
Water Protection effort  
successful?*



- **Time and Effort**
  - *Never underestimate the importance of strong local leadership*
- **Patience and Persistence**
  - *Staying on task over a number of years can be daunting*
- **Education**
  - *A little knowledge can go a long way*
- **Partnerships**
  - *Understand your limitations; Appreciate the work of others*
- **Environmental Leadership**
  - *Lead by example; send a message*



# East Greenville Borough Water Department

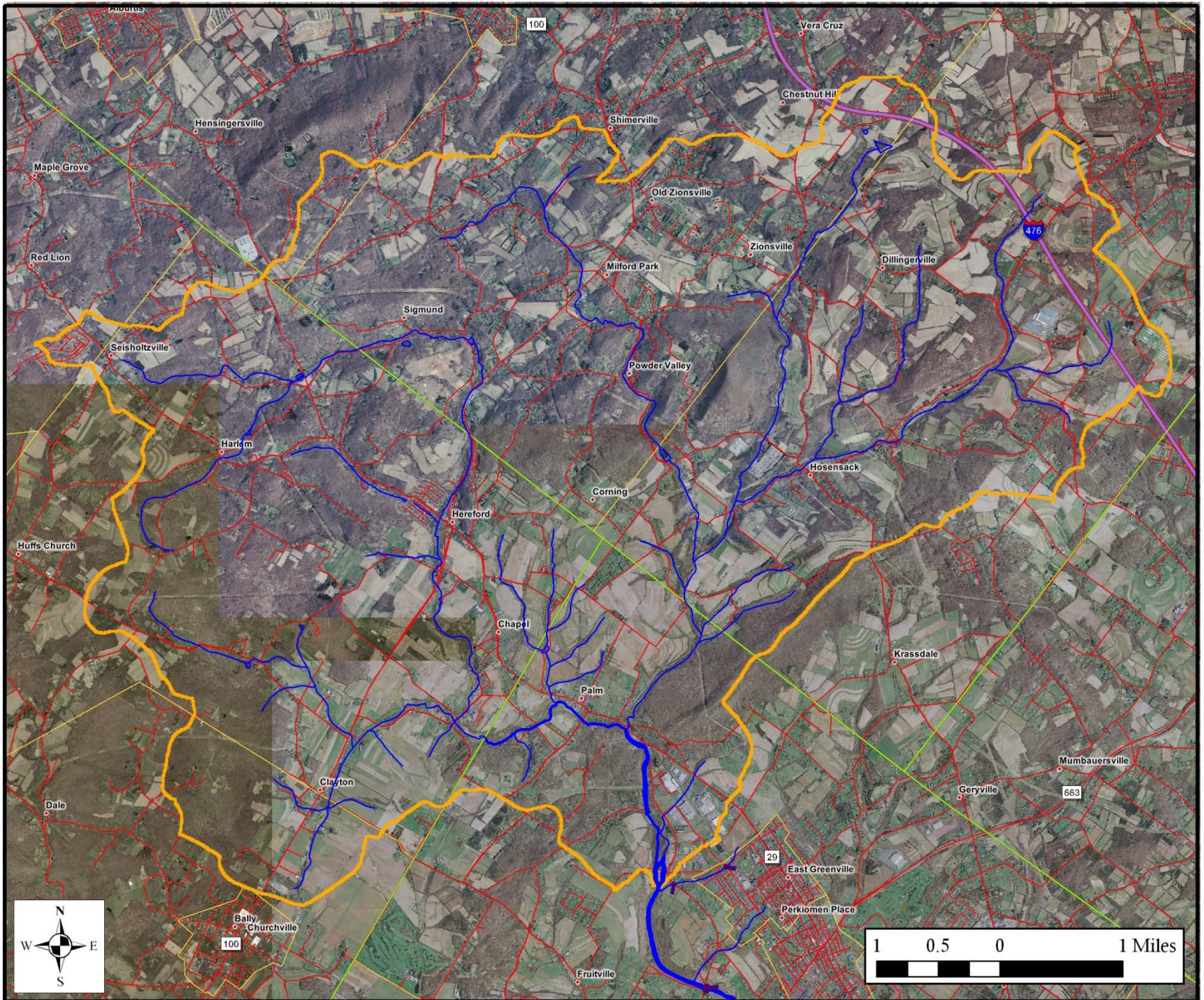
Established in 1895

Population Served:  
3,100

Sources of Drinking  
Water: primary -  
Perkiomen Creek,  
secondary – 1 well

Average Daily System  
Demand: 220,000 gpd





# At First Glance



## Challenges

- Source Water Area does not match water service area
- Multiple Jurisdictions
  - 3 counties
  - 9 municipalities
- Varied Land Uses
  - Mainly wooded and agriculture, some residential, industrial

## Positives

- Few known threats; relatively rural
- Not much new development occurring
- Smaller watershed area allows for good local knowledge



## Project Beginnings

East Greenville Borough began working on source water protection efforts in 1993.

Initial work was delineations of wells for East Greenville and Upper Hanover Township

Early PRWA work followed the standard process of EPA's "Minimum Elements" of source water protection.

1999 – PRWA begins work with East Greenville Borough in Upper Perkiomen watershed

2000-2001 – Early work includes contaminant source inventory and basic committee meetings

2002 – East Greenville and other regional systems apply for and receive DEP SWP grant



# Further Study – DEP Grant Deliverables



- Gilmore and Associates hired to perform the following:
  - Delineate recharge zones for well source
  - Complete contaminant source inventory
  - Enhance previous riparian buffer study in Perkiomen watershed
  - Evaluate local ordinances for wellhead protection

# More DEP Grant Deliverables



- Establish Formal Steering Committee
- Field Verify Contaminant Inventory
- Identify Management Options, Including Education
- Establish Contingency & Emergency Response Plans
- Develop a Source Water Protection Program



# Key Players



**Municipal  
Partners**

**PA DEP**

**East  
Greenville  
Borough**

**PRWA**

**Gilmore  
and  
Associates**

**Perkiomen  
Watershed  
Conservancy**

**Other Water  
Suppliers**

# Local Leadership



## East Greenville Borough

- Dave Raedler, water operator until 2007
- Grant Boyer, current water operator
- Jim Fry, current Borough Manager



# Project Outcomes



**WHAT DID EAST GREENVILLE FIND?  
AND WHAT, THEREFORE, DID THEY DO?**

# Task 1: Identify where your water comes from



- Gilmore and Associates performed a groundwater model analysis for the well
- Used current and historical pumping data
- Also gathered information from neighboring wells
- Integrates local geology with water data to create a 3 dimensional look at water movement
- Established primary and secondary zones of influence for the East Greenville well
- Surface intake on Perkiomen Creek – topographic watershed

# Task 2: Identify Contamination Risks

- Looking for known and potential contamination risks
- Original Gilmore study found 65 locations (now up to 75)
- Included storage tanks, auto repair shops, permitted discharges, other unknown threats/businesses
- Ranked based on threat to system



# Task 3: Establish Management Approaches



- Flexibility
- Creativity
- Ability to Educate and to be Educated
- Partnerships
- Opportunities
- Realistic Goals
- Vision and Idealism
- Time and Money



# Specific Management Actions



- **Expand and Update the Local Steering Committee**
  - Importance: Volunteering over time can burn out people
  - As priorities and projects change/evolve, new people need to be involved
- **Riparian Buffer Restoration/Prioritization**
  - Importance: For surface water, riparian areas are extremely vital to water quality and quantity
  - Secondary point: better water quality equals lower treatment costs for the Water Department
  - Gilmore and previous studies helped to identify target areas for implementation projects



## Riparian Buffer Projects

In 2005 and 2006, East Greenville Borough engaged in riparian enhancement projects on their own property.



In 2005, about a dozen trees were planted at the water plant adjacent to the stream and intake. There are plans in place to further enhance this area in 2010.

In 2006, the Borough joined forces with the Perkiomen Watershed Conservancy through the *TreeVitalize* program to plant nearly 500 trees in a meadow area just upstream of the water plant.





## Riparian Projects Continued

In 2009, an in-stream and riparian enhancement project occurred in the upper reaches of the watershed. This project included the creation of riffle features, J-hooks, and riparian plantings.



# Specific Management Actions



- **Education and Outreach**

- Importance: Knowledge is often underrated as a key to success
- Most common management action that PRWA promotes
- Usually the easiest to accomplish
- Does not strictly mean education in the sense of school based learning
- COMMUNICATION



## Groups to Target

Reaching each group creates very specific challenges and takes varying levels of effort.

Also, the goals and preferred outcomes are different and need to be considered when creating a plan for education efforts.



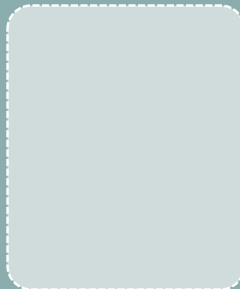
## Public

- Customer base
- Watershed residents



## School

- Classroom activities
- Field trips



## Political/Agency

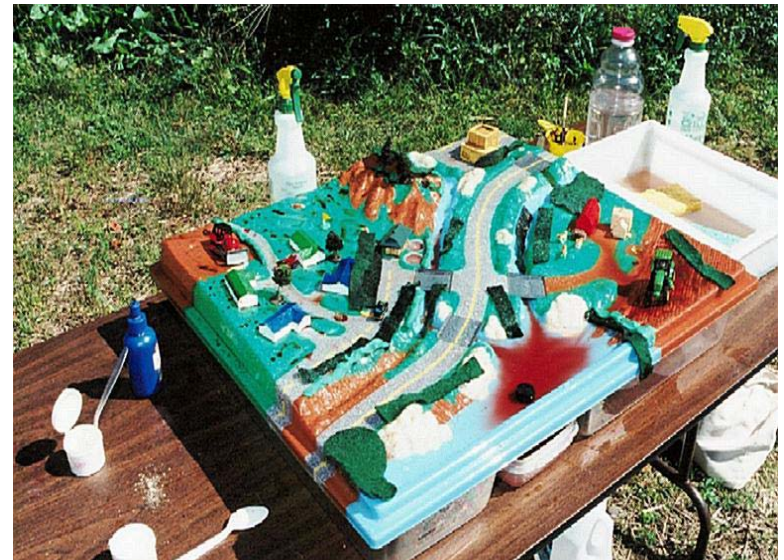
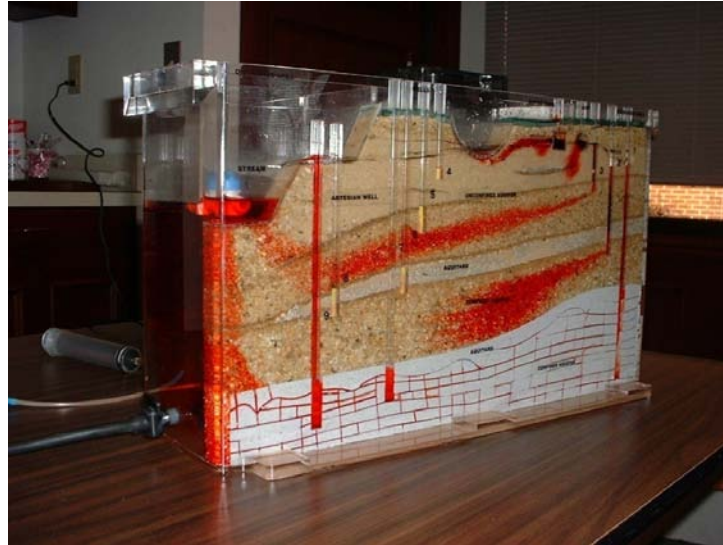
- Municipal Partners
- Watershed Groups, Planning, Conservation District



## Specific Outreach Efforts

In the DEP SWP Grant, the Borough received monies to purchase environmental models, both groundwater and surface water based.

These models are housed at the Borough office and are made available to schools on an “as needed” basis.

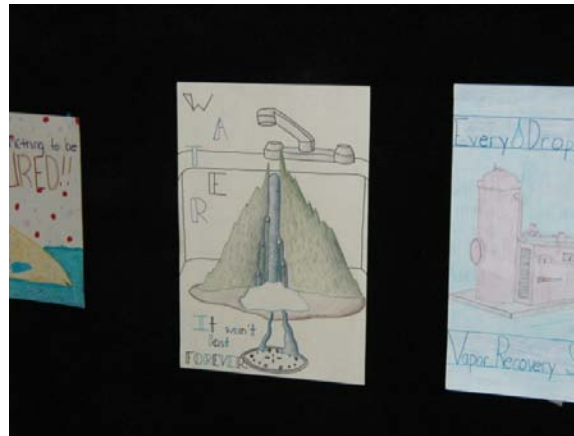




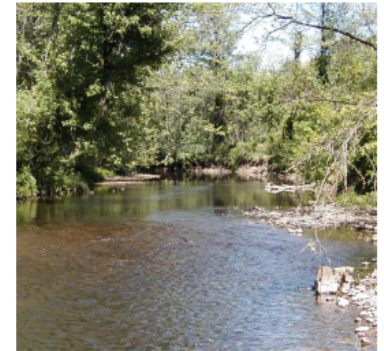
## 2005 WREN Grant

### Deliverables:

- Create a display board about source water protection
- Purchase 4 AWWA TAPWater Kits
- Create a tri-fold brochure for East Greenville residents
- Sponsor a local poster contest



### East Greenville Borough Water Department



### Source Water Protection Program

With assistance from



This brochure has been funded by the League of Women Voters of Pennsylvania Citizen Education Fund under a grant from the Pennsylvania Department of Environmental Protection.

# Specific Management Actions



- **Model Ordinance/Zoning Review**
  - Wellhead Protection Overlay Zone
  - Watershed Protection Overlay Zone
  - Riparian Buffer Overlay Zone
- **Municipal Actions**
  - Codes and Ordinances Worksheet (COW)
  - Land Conservation/Acquisition
  - Join the Schuylkill Action Network







# Codes and Ordinances Worksheet

The reason for using this tool is to review the standards, ordinances, and codes that shape development in your community.

Developed by the Center for Watershed Protection  
([www.cwp.org](http://www.cwp.org))

More applicable to developing townships versus boroughs

Hereford Township: 54  
East Greenville: 34  
(2007 scores)

## CODE AND ORDINANCE WORKSHEET

The Code and Ordinance Worksheet allows an in-depth review of the standards, ordinances, and codes (i.e., the development rules) that shape how development occurs in your community. You are guided through a systematic comparison of your local development rules against the model development principles. Institutional frameworks, regulatory structures and incentive programs are included in this review. The worksheet consists of a series of questions that correspond to each of the model development principles. Points are assigned based on how well the current development rules agree with the site planning benchmarks derived from the model development principles.

The worksheet is intended to guide you through the first two steps of a local site planning roundtable.

Step 1: Find out what the Development Rules are in your community.

Step 2: See how your rules stack up to the Model Development Principles.

The homework done in these first two steps helps to identify which development rules are potential candidates for change.

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### USING THE WORKSHEET: HOW DO YOUR RULES STACK UP TO THE MODEL DEVELOPMENT PRINCIPLES?

#### Completing the Worksheet

Once you have located the documents that outline your development rules and identified the authorities responsible for development in your community, you are ready for the next step. You can now use the worksheet to compare your development rules to the model development principles. The worksheet is presented at the end of this chapter. The worksheet presents seventy-seven site planning benchmarks. The benchmarks are posed as questions. Each benchmark focuses on a specific site design practice, such as the minimum diameter of cul-de-sacs, the minimum width of streets, or the minimum parking ratio for a certain land use. You should refer to the codes, ordinances, and plans identified in the first step to determine the appropriate development rule. The questions require either a yes or no response or specific numeric criteria. If your development rule agrees with the site planning benchmark, you are awarded points.

#### Calculating Your Score

A place is provided on each page of the worksheet to keep track of your running score. In addition, the worksheet is subdivided into three categories:

- Residential Streets and Parking Lots (Principles No. 1 - 10)
- Lot Development (Principles No. 11 - 16)
- Conservation of Natural Areas (Principles No. 17 - 22).

For each category, you are asked to subtotal your score. This "Time to Assess" allows you to consider which development rules are most in line with the site planning benchmarks and what rules are potential candidates for change.

# Specific Management Actions

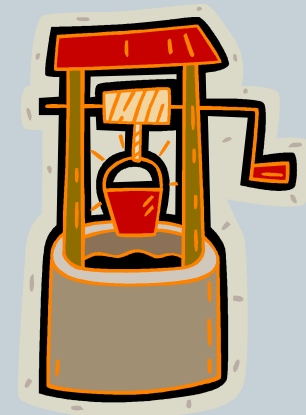


- **GIS Data Management**
  - DEP Grant supplied money for computer to maintain project data
  - GIS Software obtained via DEP training received by East Greenville employees
- **Update Emergency Response Plan/Discuss Contingency Plan**
  - Required by DEP to be updated/reviewed annually

# Specific Management Actions



- **Update Contaminant Source Inventory**
  - Original work done in 1999, then in 2003 enhanced by Gilmore and Associates
  - Reviewed again in 2008 and 2009
- **Evaluate the Need for New Sources**
  - Evaluation is required as part of the minimum elements
  - Not required to install a new source





## Contaminant Source Inventory

Trying to identify known and potential risks to the water supplier.

It is important to continually evaluate and update the map.

Review cycle is dependent on amount of change and/or development occurring in SWP area.

EGB would only need to review every 2 years.

Update Map/Data



Evaluate Paper Map



Database Search



Field Verify



# Recognition and Recent Developments



# The End...and the Beginning



- **Received DEP “Approval” for their Source Water Protection Efforts in 2007**
  - Plan and Program meets the minimum elements, as reviewed by DEP staff
- **With Success Comes Expectations for Continued Progress**
  - Continued work on the Management Actions is expected
  - Required to complete an Annual Report Form; highlights changes and progress related to effort
  - East Greenville holds an annual meeting to gather partners

# Goals For This Session

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# Partnerships



- **Perkiomen Watershed Conservancy**
  - Responsible for identifying the *TreeVitalize* project and potential applications for East Greenville (in both 2005 and 2006)
  - Presented East Greenville with their annual Municipal Environmental Award for 2006.
  - Has continued to work closely with East Greenville to identify project areas in the Upper Perkiomen; the Borough has helped in efforts with manpower and equipment
- **Upper Perkiomen School District**
  - Use models in classrooms
  - Assisted with large tree planting in 2006





## Environmental Leadership

Planted trees on Borough property in 2005 and 2006, enhancing riparian buffer

Replaced existing Borough parking lot with pavers in 2005 (picture right)

Completed COW in 2007 – they do not affect their own water source, but do affect downstream intakes

Currently reviewing parking lot size requirements in Borough

Have a design submitted for improved riparian enhancements at water plant



# Final Thoughts





## **Future Efforts**

The key is to continue to build on past successes and take advantage of opportunities when they present themselves.

Prominent efforts in PA are those that make SWP a part of daily decision making and thought processes.

- **Continue to lead by example**
- **Continue to partner with the Perkiomen Conservancy on projects**
- **Become more active in SAN initiatives**
- **Work on establishing COW scores for other major municipalities**
- **Establish a stronger working relationship with local schools**

# Questions?



**THANK YOU FOR ATTENDING THIS SESSION!**