

Illicit Discharge Detection and Elimination: Pollution Prevention



What are Hotspots?

Transportation-Related
Operations
Commercial Operations
Industrial Operations
Institutional Operations
Municipal Operations
Residential Sites?



Produce **higher levels of pollutants**

AND / OR

Present **higher potential risk for spills, leaks, or illicit discharges**



Hot Spot Pollutants

- Sediment
- Nutrients
- Metals
- Oil/Grease
- Toxics



Commercial Operations

- Gas stations
- Automotive repair shops
- Car washes
- Nurseries
- Dry cleaners
- Restaurants
- Hotels



Industrial Operations



- Vehicle/Equipment Storage and Maintenance Yards
- Landfills
- Solid Waste Handling and Transfer Facilities
- Shipyards, Ports
- Recycling Plants
- Other Industrial Sites



Institutional Operations

- Golf Courses
- Parks
- Schools
- Other Public Buildings



Municipal Operations



- Public Works Yards
- Water/Wastewater Treatment Facilities
- Public Swimming Pools



Exercise



1. Is it a hot spot?
2. Pollutant(s) of concern?
3. How do we fix it?
4. Any sites like this in SE PA?
5. What can be done about them?







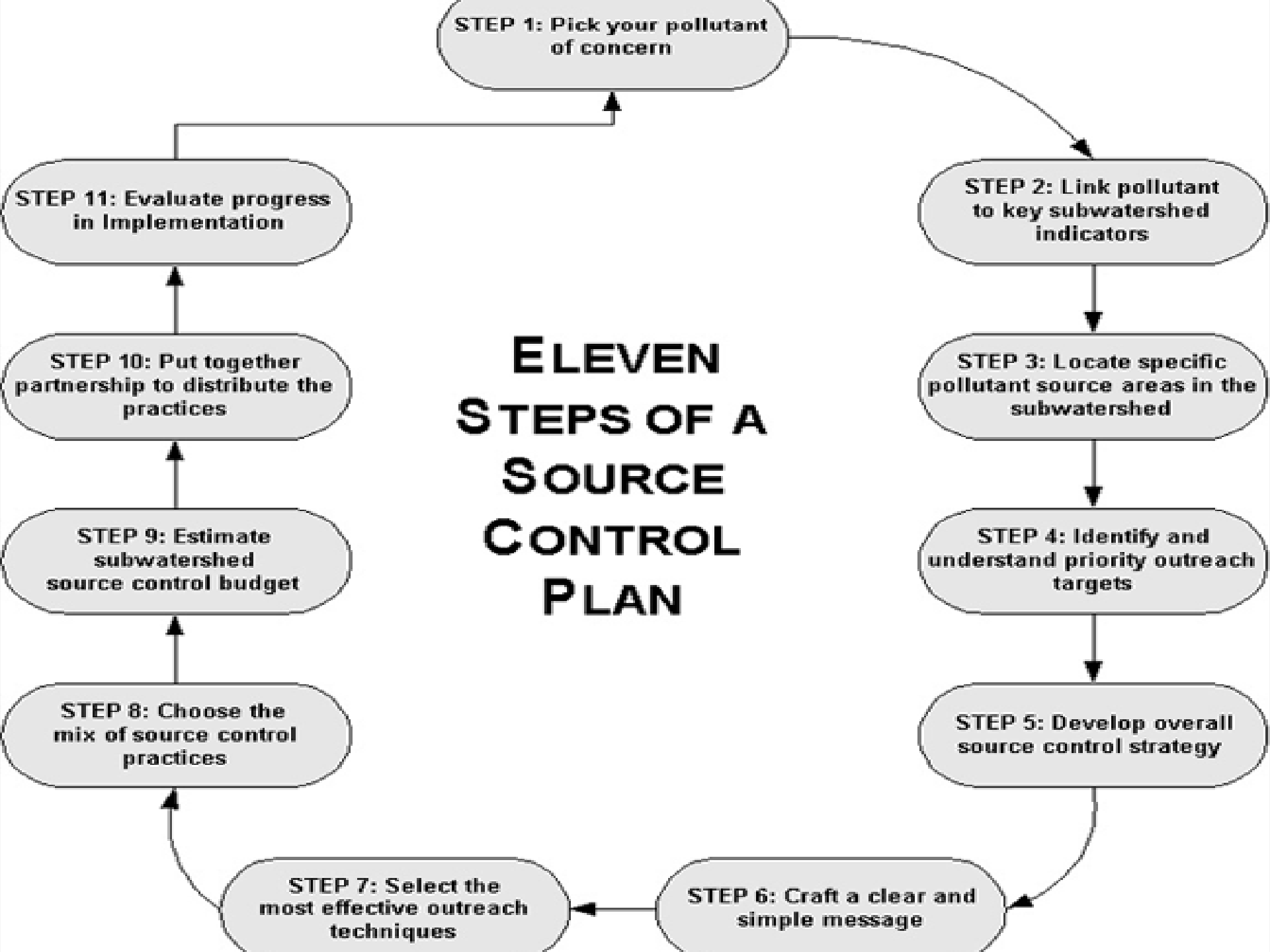












Within Chosen Subwatershed Select Pollutant(s) of Concern

Possible Target Pollutants:

- ❖ Nutrients
- ❖ Turbidity
- ❖ Oil & Grease
- ❖ Bacteria
- ❖ Color
- ❖ Detergents

Link Pollutant to Key Subwatershed Generating Sites

Example Residential Generating Site Activities:

- ❖ Presence of septic systems
- ❖ Evidence of pet wastes
- ❖ Presence of hobby farms
- ❖ High density of RVs

Can you think of any others?

Locate Specific Source Areas

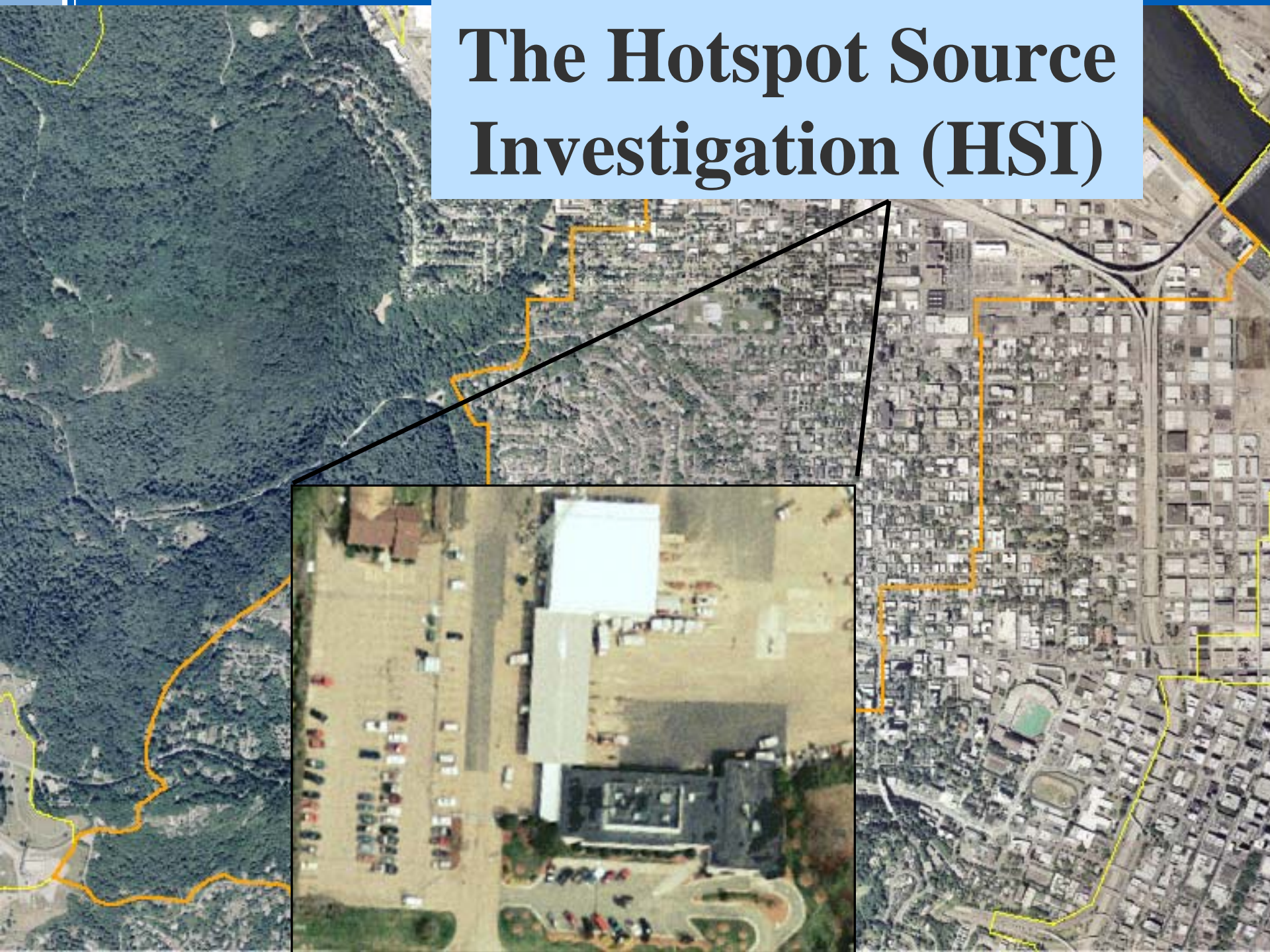
Conduct a Unified Subwatershed and Site Reconnaissance (USSR)



Methods to Identify Opportunities for Illicit Discharge Prevention

- ❖ Unified Subwatershed and Site Reconnaissance (USSR)
 - ❖ Hotspot Site Investigation (HSI)
 - ❖ Neighborhood Source Assessment (NSA)

The Hotspot Source Investigation (HSI)



HSI: Field Forms

Portions of the HSI field form applicable to IDDE:

Site Data and Basic Classification

Vehicle Operations

Outdoor Materials

Waste Management

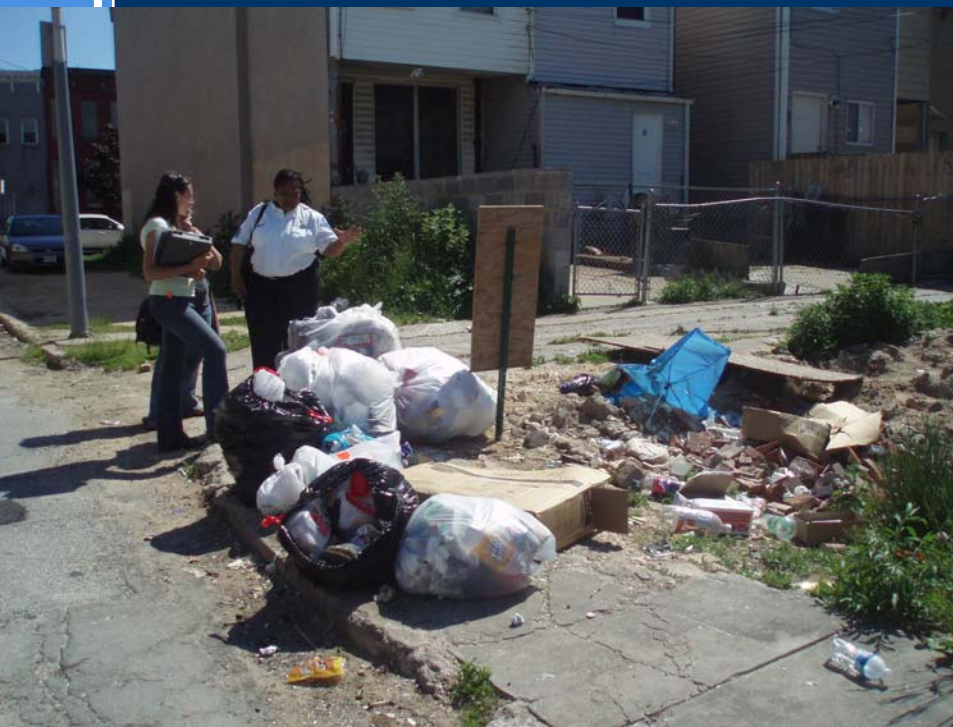
Physical Plant

Turf/Landscaping Areas

Neighborhood Source Assessment (NSA)

Assess for each neighborhood:

- ▶ Yards and Lawns
- ▶ Driveways, Sidewalks and Curbs
- ▶ Common Areas



USSR Summary

After completing the HSI and/or NSA:

- Compile indices and rank pollution severity and restoration potential
- Make initial recommendations for restoration and stewardship actions – **Be Specific**

F. INITIAL NEIGHBORHOOD ASSESSMENT AND RECOMMENDATIONS	
Based on field observations, this neighborhood has significant indicators for the following: (check all that apply)	
<input checked="" type="checkbox"/> Nutrients <input type="checkbox"/> Oil and Grease <input type="checkbox"/> Trash/Litter <input type="checkbox"/> Bacteria <input checked="" type="checkbox"/> Sediment <input type="checkbox"/> Other _____	
Recommended Actions	Describe Recommended Actions:
<i>Specific Action</i> <input type="checkbox"/> Onsite retrofit potential? <input checked="" type="checkbox"/> Better lawn/landscaping practice? <input type="checkbox"/> Better management of common space? <input checked="" type="checkbox"/> Pond retrofit? - possible conversion to wet pond <input checked="" type="checkbox"/> Multi-family Parking Lot Retrofit? <input checked="" type="checkbox"/> Other action(s) <u>clean-up of dry pond</u>	 - parking lot could have bioretention - mowed grass to edge of stream

Analysis of USSR Results

Who is engaging in poor practice and why?

- ❖ Lack of training?
- ❖ Economics?
- ❖ Interference with business operations?
- ❖ Inconvenient?
- ❖ Low wage and high turnover employees?

Develop Overall Source Control Strategy

Choose the right mix of carrots and sticks to change behaviors, based on:

- ❖ Receptivity of population
- ❖ Hit rate
- ❖ Adoption rate
- ❖ Start-up cost
- ❖ Ongoing cost
- ❖ Expertise needed

Craft a clear and simple message

- ❖ Link it to recognized business problem
- ❖ Never presume much awareness
- ❖ Keep it uncluttered and jargon free
- ❖ Make it direct, simple, and humorous
- ❖ Package in small, slick and durable units
- ❖ Make sure its in the right language



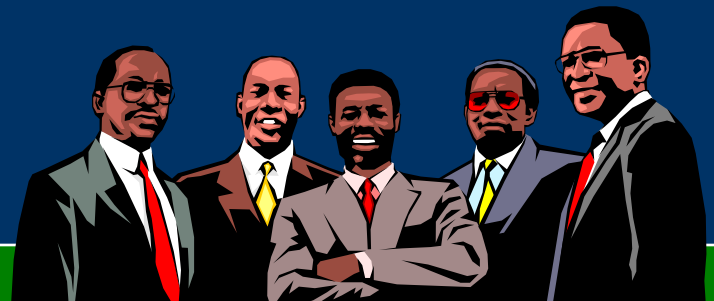
Develop source control budget for the subwatershed

- ❖ How long should the campaign be (x years)
- ❖ How much are direct outreach costs (advertising)
- ❖ How much does each source control practice cost
- ❖ What staff costs are needed to administer/coordinate the plan

Assemble Partnership to Deliver the Practices

A single person can't do much— need partners:

- ❖ **Business groups**
- ❖ **State NPDES enforcement agency**
- ❖ **Watershed Groups**
- ❖ **Chamber of Commerce**
- ❖ **Trade Associations**
- ❖ **Water/Sewer Utilities**
- ❖ **Local Media**



Evaluate Progress in Implementation

Need to quantify changes in behavior, and hopefully, pollutant reductions, through:

- ❖ Employee surveys
- ❖ Follow-up inspections
- ❖ Plan compliance
- ❖ Site monitoring

Q/A

