

# **STORMWATER MANAGEMENT:**

## **Overview of Phase I/II Program in Tennessee**

University of Tennessee

Municipal Technical Advisory Service (MTAS)

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# STORMWATER MANAGEMENT:

With Stormwater Management  
there are two critical issues:

WATER QUANTITY  
&  
WATER QUALITY



# Stormwater Management

◆ The original concern, and hence, the major design consideration of stormwater management was to remove water ASAP, water quality was not a consideration.





*Everything* that goes  
down here...



...comes out  
*here!*



*And here!*







# Types and Sources of Water Pollution

***Water pollution** is any chemical, biological, or physical change in water quality that has a harmful effect on living organisms or makes water unsuitable for desired uses.*

- **disease-causing agents:** bacteria, viruses, protozoa, and parasites;
- **oxygen demanding wastes:** organic wastes that can be decomposed by aerobic bacteria;
- **water-soluble inorganic chemicals:** acids, salts, and compounds with heavy metals;
- **organic chemicals:** oil, gasoline, plastics, pesticides, cleaning solvents, detergents, etc.
- **sediment:** suspended matter, insoluble particles of soil and other solids; biggest class of pollution by weight;
- **water-soluble radioactive isotopes:** ionizing radiation sources;
- **genetic pollution:** introduction of non-native species;
- **thermal pollution:** heat added to water.



# Point and Nonpoint Sources

*It is easier to control pollution that comes from a distinct source.*

- **point sources** discharge pollutants at specific locations through pipes, ditches, or sewers (e.g., factories, sewage treatment plants, mines, oil wells, oil tankers);
- **nonpoint sources** can not be traced to a single site of discharge (e.g., acid deposition, substances picked up in runoff, seepage into groundwater);
- nonpoint source water pollution from agriculture is largest source of water pollution in the U.S. (64% of pollutants into streams and 57% of pollutants entering lakes).



# Federal Storm Water Management Policy

- Clean Water Act of 1972 established NPDES (National Pollutant Discharge Elimination System)
- 1987 amendments to the Clean Water Act required EPA to develop phased approach to regulating storm water under NPDES
- **PHASE I:** Issued November 1990
- Applied to storm water discharges from medium and large municipal over 100,000 pop) separate storm sewer systems (MS4s)
- Applied to storm water discharges from industrial activities, including discharges from construction projects where five acres or more are disturbed





## PHASE II OVERVIEW

### Phase II

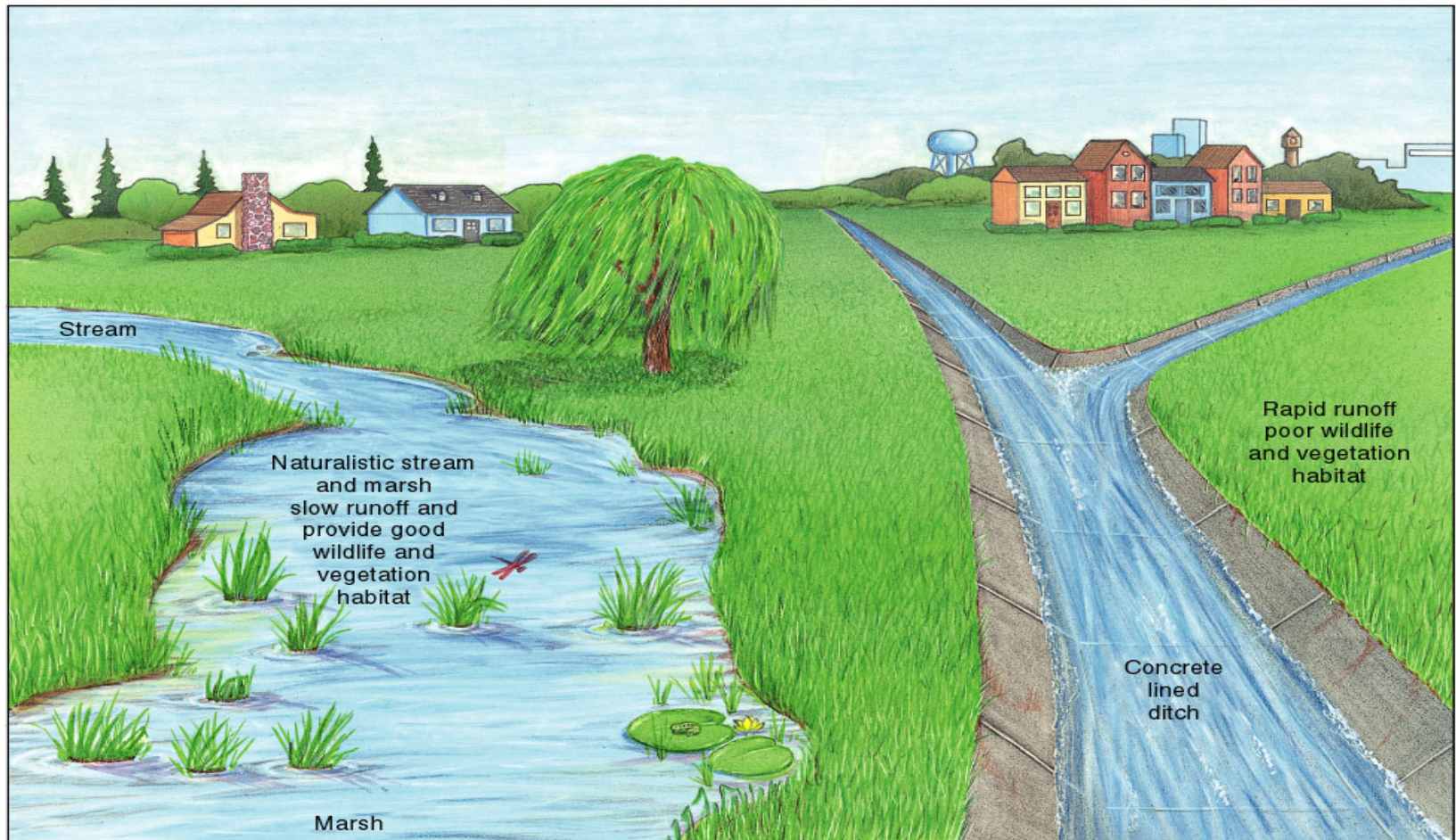
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- Draft rule signed December 1997 to cover discharges exempted in Phase I
- Construction disturbing less than 5 acres but more than one acre
- Light industrial activities not exposed to storm water
- Small MS4s located in a larger community regulated under Phase I, i.e.-a small municipality in a larger county
- Small MS4s in urbanized areas

### Phase II Goal

- Reduce discharge of pollutants from a regulated system to the maximum extent possible...and protect water quality

## How water drainage systems in a city can be modified to provide wildlife habitat.



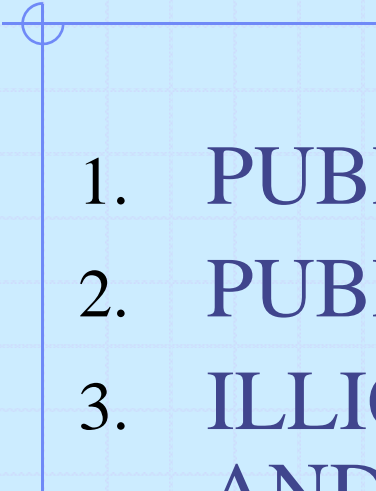


# Phase II Impacts

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- ◆ Public storm water systems
- ◆ Urbanized areas of 50,000 or more and min. population density of 1,000 persons/acre
- ◆ Entities whose discharge contributes to violations of water quality
- ◆ State or EPA designated MS4s not in urbanized areas

# 6 MINIMUM CONTROLS

- 
1. PUBLIC EDUCATION & OUTREACH
  2. PUBLIC PARTICIPATION
  3. ILLICIT DISCHARGE DETECTION  
AND ELIMINATION
  4. CONSTRUCTION SITE RUNOFF
  5. POST CONSTRUCTION RUNOFF
  6. POLLUTION PREVENTION & GOOD  
HOUSEKEEPING



# Legal Authority...

## III. Existing Legal Authority to Control Storm Water Discharges to MS4

You must review ordinances that apply to control of pollution that might enter the MS4. Extract those portions of your ordinances that do apply to control of the storm sewer system and attach a copy of those portions to this application.

☒ Copy of ordinances is attached.

Ordinances that deal with storm water issues might be found, for example, in conjunction with litter control, prohibition of dumping, clean up of spills, grading/building permits, sewer connection ordinances, erosion and sediment practices, subdivision regulations or other land use/development ordinances.

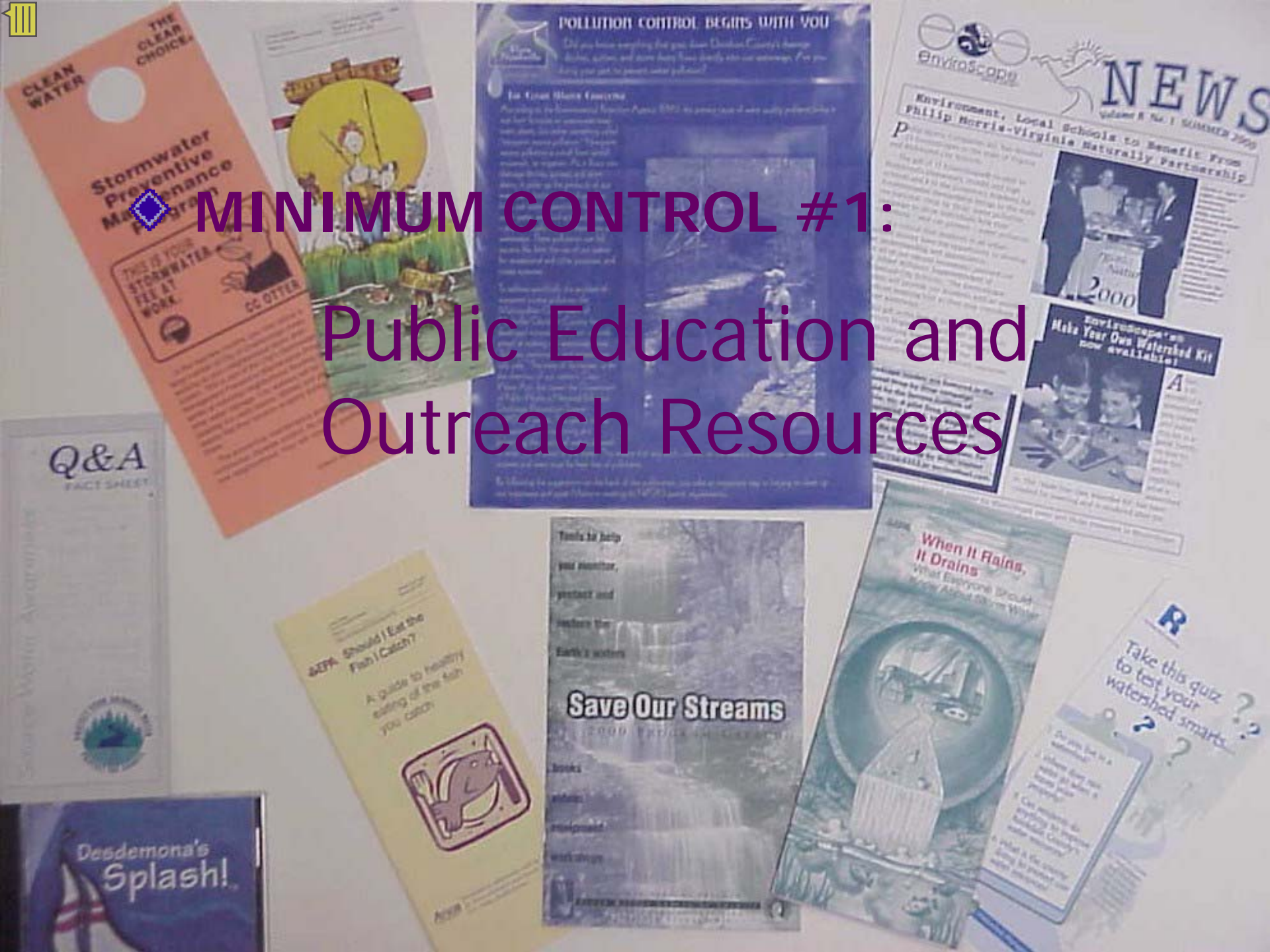
(Go to next page.)

# Legal Authority

- ◆ MTAS has developed models of such ordinances. The development was funded through the US Department of Agriculture, and the ordinances were approved by the USDA, TDEC, and the Water Resources Department of the University of Tennessee. The ordinances are also included in the Statewide BMP manual developed by the University of Tennessee for TDEC. Copies of the Model Storm Water Ordinance and the Model Storm Water Utility Ordinance are available online at the MTAS website's BMP Toolkit.



# MINIMUM CONTROL #1: Public Education and Outreach Resources





## (2) Public Participation and Involvement- Your Partners....



Two Native Americans on horseback  
by George Catlin, 1845



# Your Partners- Working with you to protect our water resources!





# (3) Illicit Discharge Detection and Elimination Resources

## REGULAR DROP-OFF CENTERS

There are also an additional six unstaffed recycling drop-off centers which are available for use 24 hours a day. The following materials are accepted at these centers:

### Food City Centers:

- Newspaper
- Aluminum Cans
- Plastic (#1 & #2)

### Kroger Centers:

- Newspaper
- Aluminum and Steel Cans
- Plastic (#1 & #2)
- Glass (clear, brown, green)

## Recycling in Knoxville is Easy!

### Kroger

- 1 2217 Broadway (Broadway Shopping Center)
- 2 5003 Broadway (Fountain City)\*
- 3 4501 Asheville Highway \*
- 4 Western Ave. at Hinton (I-640 Plaza)
- 5 5425 Clinton Highway \*
- 6 4913 Kingston Pike (Knox Plaza) \*
- 7 9305 Kingston Pike
- 8 4409 Chapman Highway (Chapman Square)

### Food City

- 9 5941 Kingston Pike
- 10 2939 Alcoa Highway

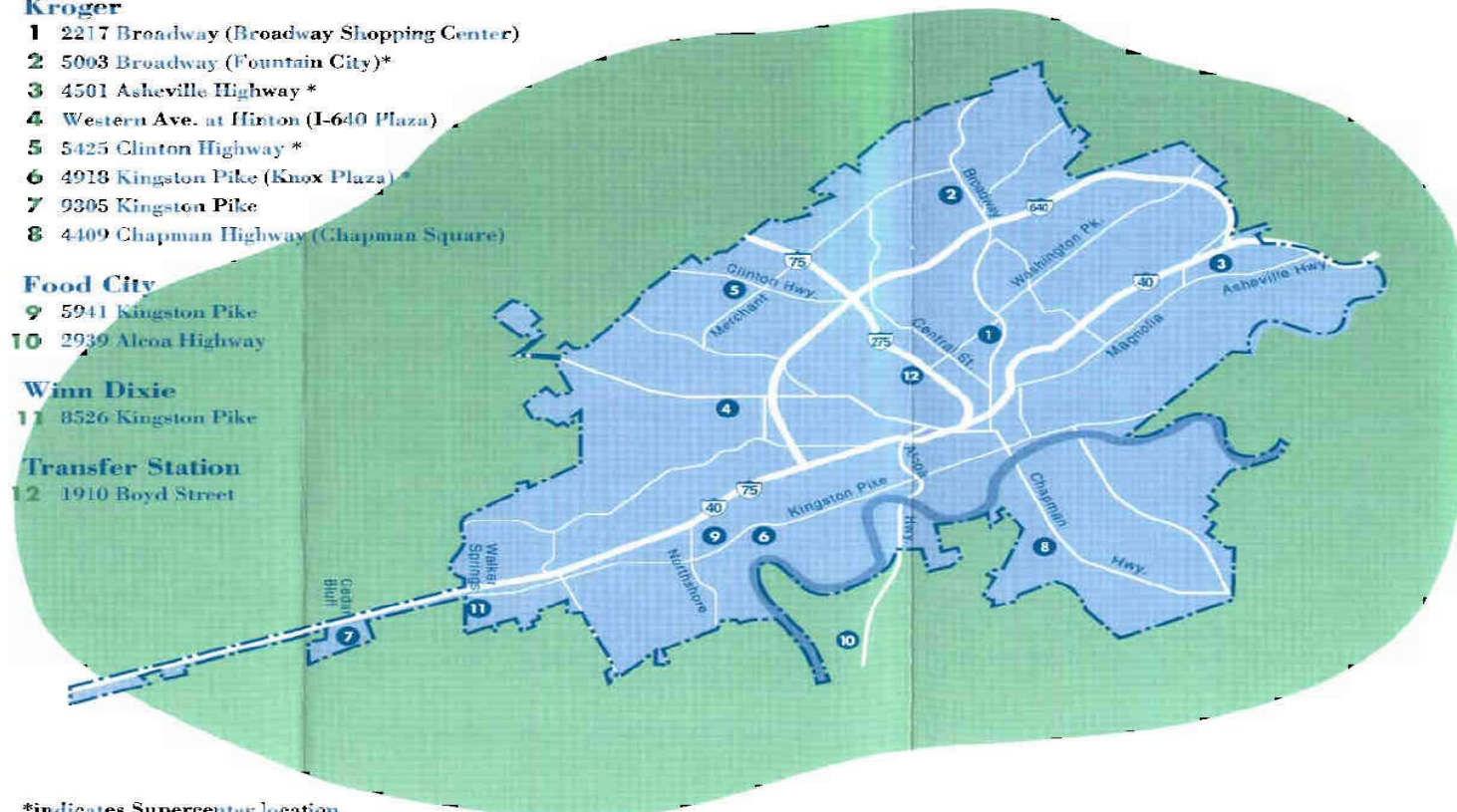
### Winn Dixie

- 11 8526 Kingston Pike

### Transfer Station

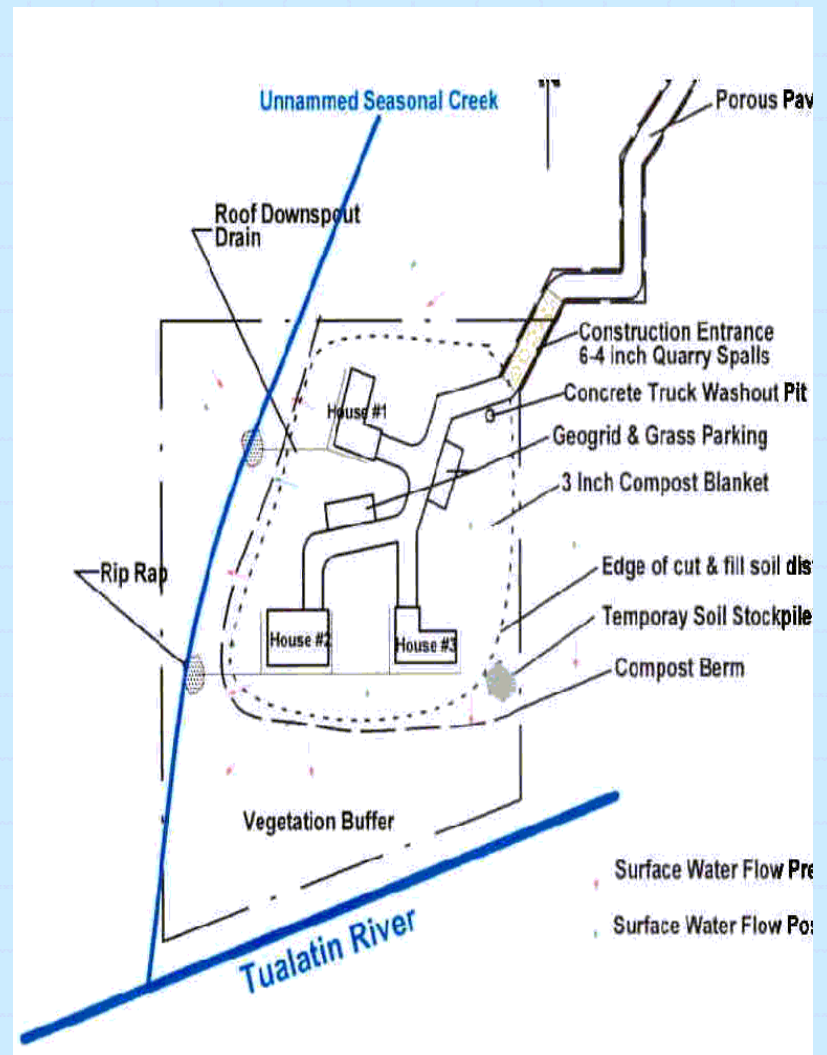
- 12 1910 Boyd Street

\*indicates Supercenter location

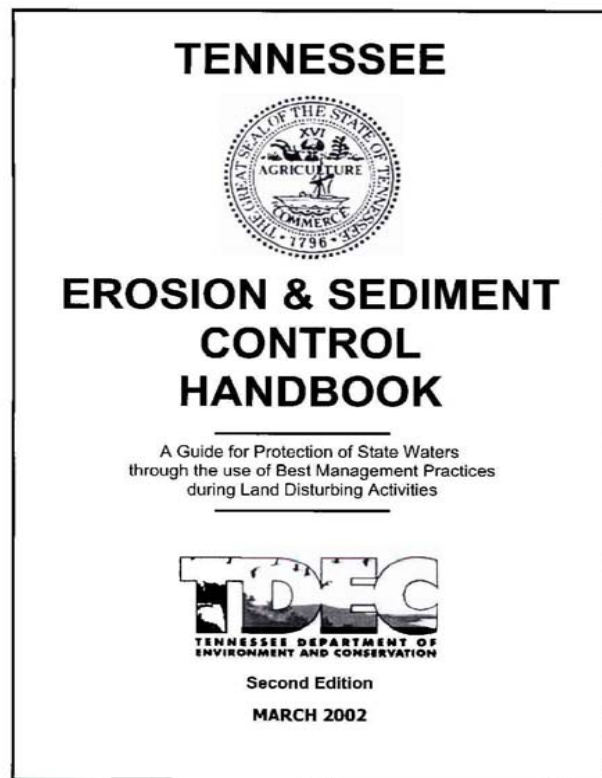




# (4) Construction Site Runoff Program Resources



# Construction Site Runoff Program Resources



## **TENNESSEE EROSION AND SEDIMENT CONTROL HANDBOOK**

A Guide for Protection of State Waters  
through the use of Best Management Practices  
during Land Disturbing Activities

prepared by

John C. Price  
Environmental Specialist  
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and

Robert Karesh  
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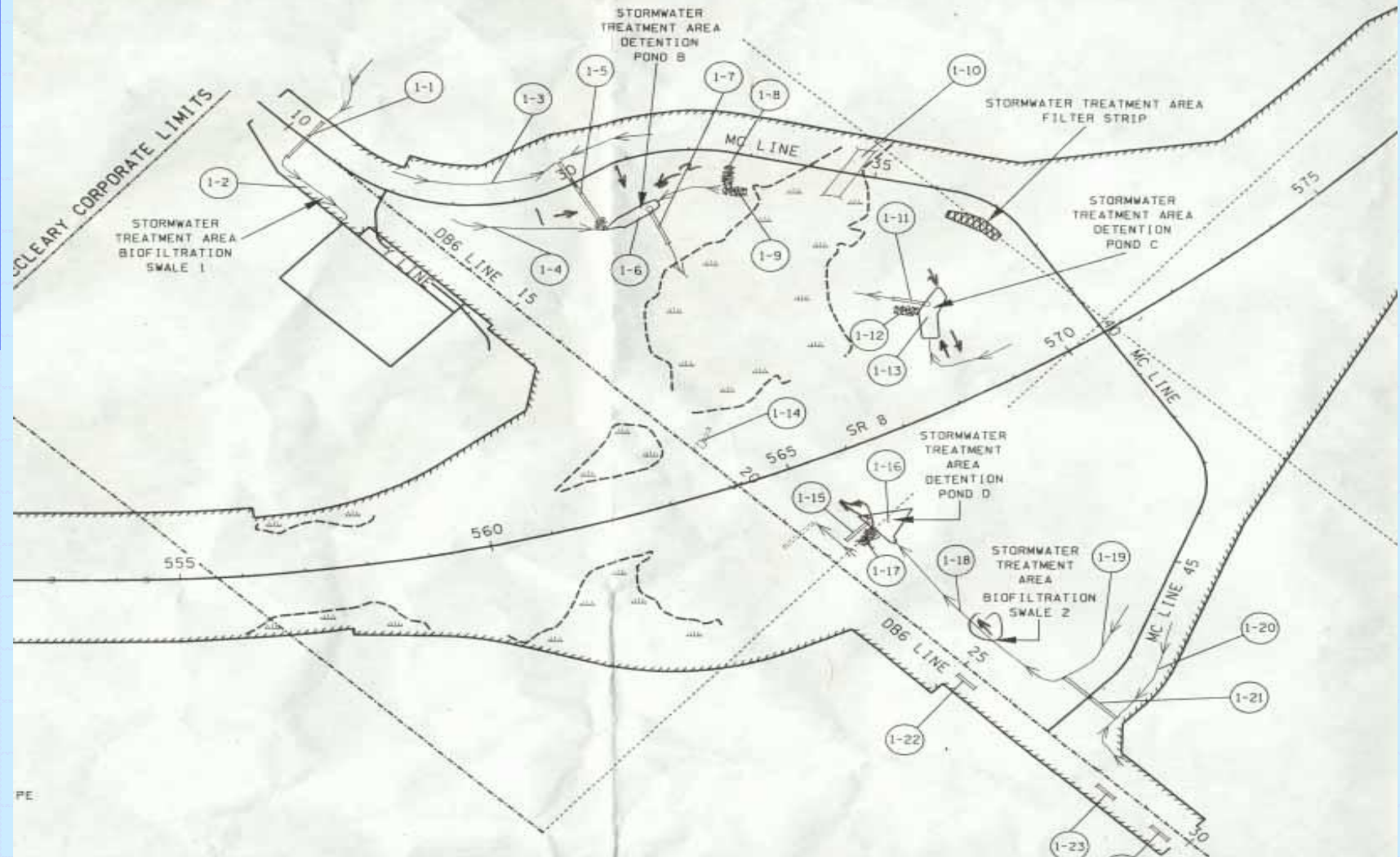
Second Edition

March 2002

Tennessee Department of Environment and Conservation  
Division of Water Pollution Control



# (5) Post Construction Runoff Control



## (6) Pollution Prevention and Good Housekeeping: Scheduled Maintenance, Employee Training, etc.



A TYMCO street sweeper is an important part of the Porter Environmental fleet.



A Porter Environmental Vac-Con machine performs catch basin cleaning at Cumberland County Social Services, one of the company's many government customers.





Tennessee Department of Environment  
and Conservation  
Division of

# *Water Pollution Control*

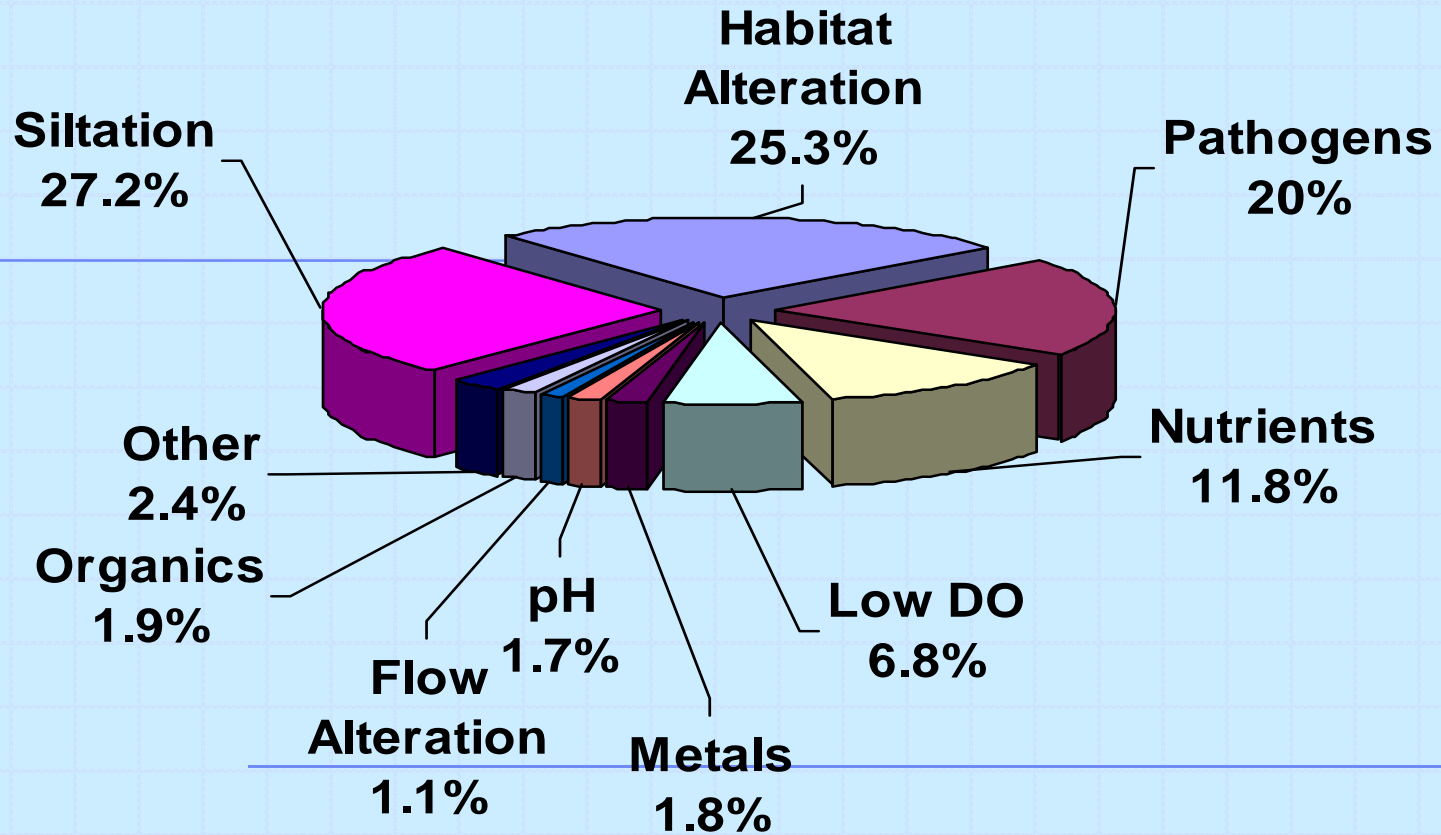
## General NPDES Permit for Storm Water Discharges Associated with Construction Activity (CGP)



# Are silt and suspended solids a problem in Tennessee?

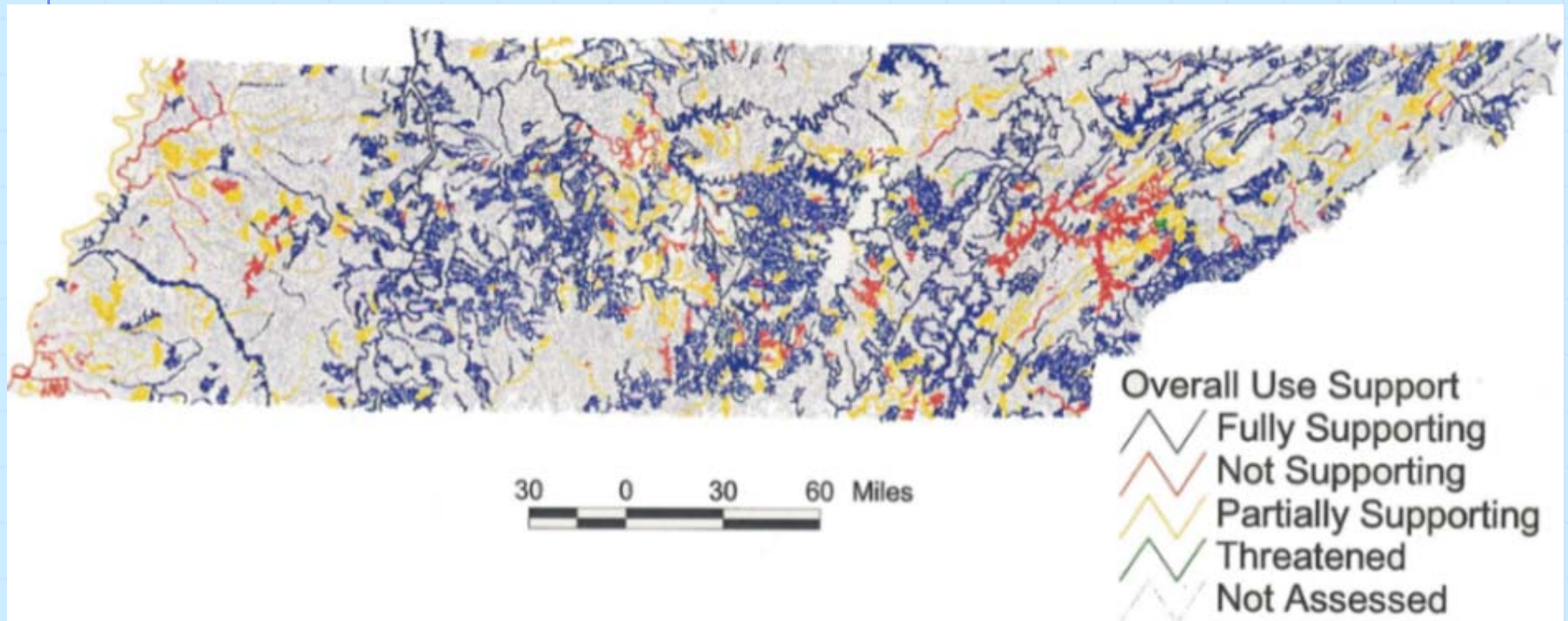


According to the State's 2004 305(b) water quality report, siltation is the **largest** cause of impairment to water quality in Tennessee streams.





Siltation effects currently impact  
4,163.5 stream miles and 2,686 lake  
acres in TN







Siltation causes impairment by altering the physical, chemical, and biological properties of streams and wetlands.

# Silt alters the physical properties of waters by:

- ◆ Restricting or preventing light penetration
- ◆ Altering temperature pattern
- ◆ Decreasing the depth of pools or lakes
- ◆ Changing flow patterns.





# Silt alters the chemical properties of waters by:

- ◆ Interfering with photosynthesis
- ◆ Reducing dissolved oxygen by causing an increase in sediment oxygen demand
- ◆ Increasing nutrient levels, which can accelerate eutrophication
- ◆ Transport organic chemicals and metals into the water column.



# Silt alters the **biological** properties of waters by:

- ◆ Smothering eggs and nests of fish
- ◆ Clogging gills of fish and other forms of aquatic life
- ◆ Interfering with the feeding of fish species that find food by sight
- ◆ Covering habitat for bottom dwelling organisms that provide food for fish.



# Pollution due to siltation also has a significant **economic** impact due to:



- ◆ Increased water treatment costs
- ◆ Increased maintenance
- ◆ Direct impacts to navigation
- ◆ Increased possibility of flooding.



# Where is silt coming from?





# Construction Sites



# Stream Bank Erosion



# Agriculture





# Mining





How is the State/TDEC working to address the problems associated with sediment?

- NPDES Construction General Permit
- Updated Erosion and Sediment Handbook
- Training and Certification Program
- **The Fundamentals Course**
- **Design Principles for Erosion Prevention and Sediment Control for Construction Sites**

# “Tennessee Sediment and Erosion Handbook”

- ◆ Has been updated to include the most effective vegetative and structural sediment and erosion controls,
- ◆ Shall be used as core material for the “Tennessee Erosion and Sediment Control Training & Certification Program.”

# Tennessee Construction General Permit (TN CGP)

- ◆ Tennessee's first general construction discharge permit went into effect in 1992
- ◆ The permit was reviewed, modified, and reissued July 1, 2000
- ◆ The new CGP was issued June 16, 2005
- ◆ Valid for 5 years

# Who must have coverage?

- ◆ Construction activities including clearing, grading and excavation for any soil disturbance  $> 1$  acre of total land area
- ◆ Disturbances of  $< 1$  acre have to obtain coverage if part of a larger common plan of development or sale (Refer to 1.2.1.)



CGP Coverages  
from June 17,  
2005:

968 NOIs received  
629 NOCs issued

VERY HIGH figures  
highlight potential  
for more sediment  
damage to occur.



# Procedures

- ◆ Develop a site-specific Storm Water Pollution Prevention Plan (SWPPP), (Refer to 1.4.2)
- ◆ Submit a Notice of Intent (NOI) and the SWPPP to local EFO office at least 30 days prior to any disturbance (Refer to 1.4.1)
- ◆ Permit coverage DOES NOT begin until the Notice of Coverage (NOC) is issued.

# Existing Site

- ◆ Division will notify permittees regarding extension of coverage. Refer to 2.4.1
- ◆ No new fees.
- ◆ Division may require permittees to confirm their intent to be covered under the new permit.
- ◆ SWPPP changes must be implemented no later than June 17, 2006. (Refer to 3.2.1)

# Who's Responsible?

- ◆ The NOI includes spaces for both the developer and contractors to sign
- ◆ New operators must submit a NOI, which can supplement the original NOI
- ◆ Operators who conclude their responsibility can be deleted
- ◆ Refer to 2.5



# What About the SWPPP?

- ◆ A site-specific SWPPP must be developed and implemented (Refer to Part IV).
- ◆ All erosion and sediment controls must be designed to function properly in a two-year, 24-hour storm event (Refer to 3.5.3.3)
- ◆ **OR** for a five-year, 24-hour storm event when discharging to a high quality or impacted waters (Refer to 4.4.1)

# Registered engineer or landscape architect requirement

- ◆ Narrative portion of the SWPPP may be prepared by an individual that has a working knowledge of erosion prevention and sediment controls (e.g. CPESC)
- ◆ Any building or structure, including the design of sediment basins or other sediment controls involving structural, hydraulic, hydrologic or other engineering calculations, shall be prepared by a licensed professional engineer or landscape architect (Refer to 3.1.1)

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# Phasing

- ◆ Sites over 50 acres are required to be phased.
- ◆ No more than 50 acres of active soil disturbance is allowed at any time during construction.
- ◆ Refer to 3.5.3.1- k)

# Inspections

- ◆ Inspect disturbed areas and areas of material storage for evidence of pollutants entering drainage system.
- ◆ Inspect outfall points (or downstream locations), to ascertain effectiveness of sediment and erosion controls.
- ◆ Twice per week, 72 hours apart
- ◆ Document inspections!

# Inspector Training and Certification

- ◆ Must be performed by personnel who have completed the Fundamentals of Erosion Prevention and Sediment Control Course (deadline is June 17, 2007)
- ◆ Some local MS4s already require certification
- ◆ Refer to 3.5.8.1

# Details

- ◆ All sites must have a SWPPP available on-site
- ◆ All erosion prevention and sediment controls must be inspected two times per week
- ◆ Notice of Coverage (NOC) must be posted at the site.



# SWPPP shall be kept current

- ◆ When there are changes in design, construction, operation, maintenance with significant affect on discharges,
- ◆ When inspections show ineffectiveness,
- ◆ When there are changes in contractors/subcontractors who are implementing measures.

# Structural Practices

- ◆ An outfall in a drainage area totaling 10 or more acres, requires a sediment basin or equivalent control measure. (Refer to 3.5.3.3)
- ◆ An outfall to high quality or impaired waters in a drainage area totaling 5 or more acres, requires a sediment basin or equivalent control measure. (Refer to 4.4.1)

# Special requirements for impaired or high quality streams

- ◆ Sixty-foot buffer (on average, 25' minimum) or equivalent during construction (Refer to 4.4.2)
- ◆ Equivalent BMPs can be used if buffer must be breached
- ◆ Permittee must use form found in Appendix C to certify weekly inspections of erosion and sediment controls. Record of certifications must be kept on site. (Refer to 4.4.1)

# Notice of Termination

- ◆ Notice of Termination (NOT) shall be submitted to EFO, certifying that all storm water discharges have been eliminated. (Refer to 7.1.3)



# TNCGP compliance



Most investigations revealed that the construction-related problems were a result of:

- Poorly designed controls,
- Improperly installed controls,
- Unmaintained controls.



# HOW TO DO Pollution Prevention & Good Housekeeping



**MTAS**  
**Municipal Technical  
Advisory Service**

*In cooperation with the  
Tennessee Municipal League*

**NC STATE UNIVERSITY**



**STATE UNIVERSITY  
A&T STATE UNIVERSITY  
COOPERATIVE  
EXTENSION**  
*Helping People Put Knowledge to Work*

## **Measure 6: Pollution Prevention & Good Housekeeping Permit Requirements**



- (a) Develop an operation and maintenance program,
- (b) Inspection and evaluation of facilities and operations,
- (c) Conduct staff training, and
- (d) Review of municipality owned or operated regulated industrial activities.



## Step 2: Develop Inspection Forms & Tracking System

Sample inspection forms are available for:

- Storage areas

- Vehicle fueling, storage and maintenance areas

- Water and sewer treatment systems

- Animal shelters/pounds

- Parking lots

- Streets

- Stormwater structures and conveyances

- Parks and open space





# STORAGE AREA INSPECTION FORM

Building/Area: \_\_\_\_\_

Address: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

	Yes	No	N/A
<b>A. Materials Identification</b>			
1. Is a system in place to identify materials that could leak or spill potential pollutants that could enter the stormwater system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Are materials stored in original containers with original labels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>B. Preventative Maintenance</b>			
1. Are there material containers regularly inspected for leaks and spills?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the storage area secured to prevent unauthorized entrances?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Are materials kept dry?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Is a list of names and telephone numbers of appropriate responders kept with procedures for notifying personnel in case of a leak or spill?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Note: Materials that should be inspected include, but are not limited to: fertilizers, sand/salt, antifreeze, paints, solvents, oil, and lubricants.			
<b>Comments:</b>			

Yes: Compliance

No: Non-Compliance

N/A: Not Applicable

# PARKING LOT INSPECTION FORM

Building/Area: \_\_\_\_\_

Address: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

	Yes	No	N/A
<b>A. Facility Operation and Maintenance</b>			
1. Are trash and litter removed from catch basins and other portions of the stormwater drainage system on a regular basis?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Are areas subject to erosion stabilized with grass, mulch, or other appropriate sediment control measures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is the lot regularly swept or vacuumed to clean up sediment and trash?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are there timely inspections and maintenance of stormwater management devices (e.g., cleaning catch basins and clogged inlets)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Are sediment traps installed in storm drains or sewer systems operating and being maintained properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>B. Painting and Sealing</b>			
1. When repainting stall lines, is paint properly handled to prevent excess from reaching curb and gutter?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. When sealing is done on the lot, is the sealer properly handled to prevent any spills or excess from going to outfalls?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Are painting/sealing activities performed within designated areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Is paint/sealant waste isolated from contact with stormwater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. With regard to new and used paint, sealants, and solvents, are proper storage procedures being followed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Are paints, paint thinners, sealants, and solvents recycled, reused, or disposed properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>			

Yes: Compliance

No: Non-Compliance

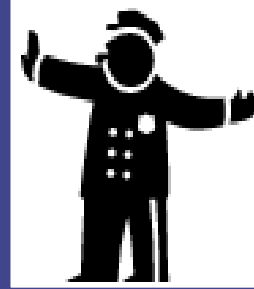
N/A: Not Applicable

## 1b. Inspection and evaluation of facilities and operations



*“Develop an inventory of facilities and operations owned and operated by the permittee with the potential for generating polluted runoff. Specifically inspect the potential sources of polluted runoff, the stormwater controls, and conveyance systems. Evaluate the sources, document deficiencies, plan corrective actions and document the accomplishment of corrective actions.”*

## 1d. Review municipality owned/operated regulated industrial activities



*“Conduct annual review of the industrial activities with a Phase I NPDES permit owned and operated by the permittee. Specifically review the following aspects: the Stormwater Pollution Prevention Plan where one is required, the timeliness of any monitoring reports required by the Phase I permit and the results of inspections and subsequent follow-up actions.”*



## 1d. Review municipality owned/operated regulated industrial activities



It is your responsibility to:

- Find out if your local government owns or operates any regulated industrial facilities,
- Locate the permit and the SWPPP,
- Review the SWPPP to make sure it is still up to date,
- Make sure that the staff responsible for the facility are implementing the SWPPP correctly.



# 1d. Review municipality owned/operated regulated industrial activities



What regulated facilities does your Local Government own and operate?

TDEC has a list of active industrial permits at:

<http://www.state.tn.us/environment/wpc/permit/TmspPerm.pdf>



List of Sites with Coverage under the Tennessee Storm Water Multi-Sector General Permits for Industrial Activities  
February 2004

Permit No.	County	Site City	Permittee Name	Site Location	Permitting Action*	Receiving Stream
TNR053284	Anderson	Andersonville	Clinton Pallet Co.	213 Beechwood Ln	N	unnamed tributary at mile 1.0 to Melton Hill Lake
TNR051923	Anderson	Andersonville	Clayton Homes - Appalachia	1420 Mountain Road	N	Duffalo Creek via Unnamed Tributaries
TNR051336	Anderson	Clinton	Secor of America, Inc.	350 J. D. Yarnell Industrial Parkway	N	Clinch River - mile 64.4
TNR053201	Anderson	Clinton	Carlisle Tire	820 J. D. Yarnell Industrial Park	N	Clinch River
TNR050171	Anderson	Clinton	CH Compounding Company	1260 Carden Farm Drive	N	Clinch River
TNR056464	Anderson	Clinton	Durakon Industries Plant #1	1330 Carden Farm Drive	N	Clinch River
TNR056465	Anderson	Clinton	Durakon Industries Plant #2	1365 Carden Farm Drive	N	Clinch River
TNR050016	Anderson	Clinton	Eagle Bend Manufacturing	1000 J. D. Yarnell Road	N	Clinch River
TNR053389	Anderson	Clinton	East Resumes, Inc. - East Ridge Business Park	16 Hay 25th North of Yarnell Rd	N	Unnamed tributary to Clinch River
TNR056456	Anderson	Clinton	MAG USA, Inc.	105 Matthew Warren Drive	N	Hinds Creek at mile 7.2 to Clinch River
TNR050535	Anderson	Clinton	Modine Manufacturing Company - Clinton	320 J. D. Yarnell Industrial Parkway	N	Clinch River
TNR056677	Anderson	Clinton	Omega Cabinetry	Hay 25 North	N	Doe Creek at mile 2.4 to Cane Creek at mile 1.9
TNR056534	Anderson	Clinton	Rexford Corp. - Link-Belt bearing division	250 Yarnell Industrial Parkway	N	Clinch river @ mile 64.8
TNR053185	Anderson	Clinton	TVA Bull Run Fossil Plant	1265 Edgemore Road	N	Outfall F01 - Clinch River - mile 48.1; Outfall F02 - Clinch River - mile 47.9 (Outfall F02 does not usually flow); Outfall F05 - Clinch River - mile 47.9; Outfall F09 - Clinch River - mile 47.9; Outfall F11 - Clinch River - mile 47.9; Outfall F12 - Clinch
TNR051248	Anderson	Helskell	Chestnut Ridge Landfill and Recycling Center	140 Fleenor Mill Road	R	Andy Branch (5 outfalls) and Foster Branch (1 outfall)
TNR054049	Anderson	Lake City	Yallmotor	135 Hulsey Lane	N	Eight Fork local creek
TNR054164	Anderson	Lake City	Ultimate Tool & Die, Inc.	2905 Lake City Highway	N	Cane Creek
TNR053814	Anderson	Lenoir City	Tru Waste Remediation Facility	100 WIPP Access Road	N	White Oak Creek
TNR054323	Anderson	Oak Ridge	Atomic City Tool Inc	104 Flint Rd	N	Flow through open ditch & drainage culverts one mile into Emory Valley Creek (per Oak Ridge City Engineer)
TNR050950	Anderson	Oak Ridge	Boeing Defense & Space Group	767 Boeing Road	N	Clinch River
TNR053322	Anderson	Oak Ridge	Coorstek	1100 Commerce Park Dr	N	Melton Hill Lake Via Oak Ridge Potw System (?)
TNR050694	Anderson	Oak Ridge	Fox Auto Salvage	110 Melton Lake Drive	N	Clinch River to Melton Hill Lake
TNR050388	Anderson	Oak Ridge	Manufacturing Sciences Corp	861 South Illinois Ave	N	East Fork Poplar Creek
TNR051332	Anderson	Oak Ridge	Senior Flexionics Pathways Division	115 Franklin Road	N	Melton Lake
TNR053933	Anderson	Oak Ridge	Tate Service Center and Auto Salvage	70 Jefferson Avenue	N	East Fork Poplar Creek
TNR053196	Anderson	Oak Ridge	Waste Connections - Oak Ridge	400 Warehouse Road	N	Melton Hill Lake
TNR051110	Anderson	Powell	European Import Auto Parts	2412 Clinton Hwy	N	Unnamed tributary to Clinch river
TNR050814	Anderson	Powell	Lambert Auto Parts	3319 Clinton Hwy	N	Bull Run Creek
TNR050291	Anderson	Powell	Red Johnson Auto Parts	2329 Clinton Highway	N	Denning Branch to Nelson Branch to Melton Lake
TNR050015	Anderson	Soddy Daisy	TVA Belpoyan Nuclear Plant	Shelbyville Access Road	N	Tennessee River
TNR056349	Bedford	Bedford	Bedford County Asphalt	1200 Stanley Blvd	N	Bomar Creek at mile 2.3 to Duck River at mile 227
TNR053010	Bedford	Bedford	Pechiney Plastic Packaging, Inc.-Ceol America	1209 New Tullahoma Highway	N	Holland Branch
TNR053664	Bedford	Bedford	Shelbyville Municipal Airport	Bomar Field, 2825 Hwy 231 No	N	Unnamed tributary leading to Hurricane Creek, 5 mi s.w.
TNR050777	Bedford	Bel Buckle	Haskins Auto Salvage	Highway 52	N	West weather conveyance to Unnamed Stream to Kelly Crouch Branch
TNR050609	Bedford	Bel Buckle	Sanders Auto Salvage/Rep	406 Smith Rd	N	West weather conveyance to Unnamed Stream to Alexander Creek to North Fork Creek
TNR050309	Bedford	Shelbyville	Alchem Aluminum Shelbyville Inc.	1605 Railroad Avenue	N	Bomar Creek to Duck River
TNR051823	Bedford	Shelbyville	Calsonic North America	305 Stanley Boulevard	N	Bomar Creek
TNR051824	Bedford	Shelbyville	Calsonic North America	1 Calsonic Way	N	Little Hurricane Creek
TNR051851	Bedford	Shelbyville	Cospar Steel Fabricating Inc	205 N. Highway 52	N	Hopkins Creek
TNR056542	Bedford	Shelbyville	Goose Creek	1365 Goose Creek Road, Shelbyville, TN	N	Possum Trail road stream
TNR051123	Bedford	Shelbyville	James Auto Salvage	219 El Bethel Rd	N	West weather conveyance to Unnamed Stream to Duck River
TNR055933	Bedford	Shelbyville	Jimmy's Bowtie Supply	403 Ernest Campbell Road	N	Flat Creek
TNR056394	Bedford	Shelbyville	Lopez Deason Plant	190 Squire Hall Road	N	North Fork Creek

## 1d. Review municipality owned/operated regulated industrial activities



They must have and implement an SWPPP (Stormwater Pollution Prevention Plan). These plans evaluate the site and operations to reduce pollutant sources and prevent pollutant discharge.

SWPPPs must include a:

- Site plan.
- Stormwater management plan.
- Spill prevention and response plan.
- Preventive maintenance plan and good housekeeping plan.
- Training schedule.



## 1d. Review municipality owned/operated regulated industrial activities



Municipalities are already required to review their regulated industrial facilities for compliance with the SWPPP on an annual basis. Putting this measure in the Phase II permit underscores the existing requirement.







## **Storm Watch: Municipal Stormwater Pollution Prevention**

Regulated municipalities are required to train their employees on stormwater pollution prevention and BMPs. This 20-minute video training kit helps regulated municipalities (Phase I and Phase II) train their employees as required under their Permit. The video focuses on BMPs that are important to many municipal operations such as good housekeeping, spill response, materials storage and handling, landscape maintenance and street maintenance. Employees working in fleet maintenance, garages, parks, recreation facilities, street maintenance and other departments can all benefit from this training video. The video also shows employees how to spot potential "illicit discharges" occurring around town.

**(Price:\$495.00)** Available in English

# MTAS STORMWATER BMP TOOLKIT

- ◆ Model Ordinances
- ◆ Application Forms and Procedures
- ◆ Best Management Practices (BMPs)
- ◆ Sample Brochures
- ◆ Guides on Erosion Control
- ◆ See **[www.mtas.utk.edu](http://www.mtas.utk.edu)**

# Annual Reporting



**TDEC Small MS4 Annual Report**  
**3rd Year, July 1, 2005 – June 30, 2006**  
**Report due September 30, 2006**

# Current Enforcement Climate



The following notes and table of enforcement actions might be enlightening for others in your organization and/or your elected officials.

For questions about specific case number, such as the identity, violation details, etc., contact TDEC.



## **Current Enforcement Climate**

Mr. Mark McAdoo TDEC-Water Pollution Control sent the following to me:

Between November 1992 and April 2005, TDEC-WPC issued, at least, 670 formal enforcement actions that had either a construction and/or a stormwater component. The civil penalties associated with these enforcement actions are over 8 million dollars.

However, you should be aware that TDEC-WPC was not consistently using the Enforcement Tracking Database until the year 1998. Therefore, you may want to sift through the attached spreadsheet from the Enforcement Tracking Database and re-calculate more representative numbers starting in 1998.

The statutory maximum for civil penalties is \$10,000 per day per violation and we have used the maximum calculation in some cases. A couple of the larger enforcement actions were 1) TDOT & Vaughn Contractors, Inc. for \$800,000 and 2) Chattanooga - MS4 Program for \$635,500.

Mark told me that this year, TDEC is mainly:

Looking for programs to have their stormwater ordinances implemented.

Conducting on-site file audits to verify documentation for the information supplied by MS4's in their annual reports.

Conducting field inspections for construction permit violations and illicit discharges.

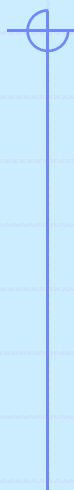
All other aspects of the program, of course, are still actively being monitored.

The following is a spreadsheet reflecting the enforcement data referenced above:

Case Number	Order Type	Civil Penalty	Date Issued	Violation Type
05-003D	Director's Order	\$9,150.00	21-Apr-05	ARAP
05-008D	Director's Order	\$10,500.00	21-Apr-05	NPDES Stormwater
04-044D	Director's Order	\$15,000.00	31-Mar-05	NPDES Stormwater
05-0038	Commissioner's Order	\$159,500.00	18-Mar-05	Multiple
05-010D	Director's Order	\$12,150.00	11-Mar-05	ARAP
05-004D	Director's Order	\$10,500.00	03-Mar-05	ARAP
04-015a	Formal Complaint		24-Jan-05	NPDES Stormwater
04-014a	Formal Complaint		06-Jan-05	ARAP
04-013a	Formal Complaint		06-Jan-05	NPDES Stormwater
04-019D	Director's Order	\$11,500.00	29-Dec-04	NPDES Stormwater
04-042D	Director's Order	\$10,500.00	16-Dec-04	ARAP
04-030D	Director's Order	\$7,125.00	16-Dec-04	NPDES Stormwater
04-011a	Formal Complaint		09-Dec-04	NPDES Stormwater
04-051D	Director's Order	\$3,000.00	23-Nov-04	NPDES Stormwater

04-010a	Formal Complaint		18-Nov-04	Multiple
04-038D	Director's Order	\$2,600.00	02-Nov-04	ARAP
04-0302	Consent Order	\$20,000.00	18-Oct-04	NPDES Stormwater
04-039D	Director's Order	\$3,150.00	14-Oct-04	ARAP
04-0218	Commissioner's Order	\$78,000.00	05-Oct-04	NPDES Stormwater
04-027D	Director's Order	\$5,000.00	22-Sep-04	ARAP
03-0215	Agreed Order	\$11,000.00	21-Sep-04	Multiple
04-026D	Director's Order	\$12,500.00	08-Sep-04	NPDES Stormwater, ARAP
04-007a	Formal Complaint		02-Sep-04	ARAP
04-032D	Director's Order	\$15,000.00	31-Aug-04	Multiple
03-0061	Agreed Order	\$4,750.00	21-Jul-04	NPDES Stormwater
04-0114	Commissioner's Order	\$114,500.00	06-Jul-04	NPDES Stormwater
03-0709	Agreed Order	\$5,000.00	02-Jul-04	Multiple
03-0555	Agreed Order	\$11,000.00	22-Jun-04	ARAP
03-0757	Agreed Order	\$1,125.00	22-Jun-04	NPDES Stormwater
04-022D	Director's Order	\$15,000.00	22-Jun-04	NPDES Stormwater
04-018	Director's Order	\$1,650.00	16-Jun-04	ARAP
04-018D	Director's Order	\$1,650.00	16-Jun-04	ARAP
04-0138	Commissioner's Order	\$71,000.00	14-Jun-04	NPDES Stormwater
04-021D	Director's Order	\$3,000.00	14-Jun-04	NPDES Stormwater
04-023D	Director's Order	\$1,000.00	14-Jun-04	NPDES Stormwater

04-020D	Director's Order	\$15,000.00	12-Jun-04	ARAP
03-0218	Agreed Order	\$3,750.00	03-Jun-04	ARAP
04-005D	Director's Order	\$15,000.00	01-Jun-04	Multiple
03-087D	Director's Order	\$4,500.00	01-Jun-04	NPDES Stormwater
04-011D	Director's Order	\$3,050.00	24-May-04	ARAP
03-102D	Director's Order	\$15,000.00	24-May-04	Multiple
03-0756	Agreed Order	\$11,000.00	18-May-04	NPDES Stormwater
03-0800	Agreed Order	\$2,300.00	18-May-04	NPDES Stormwater
04-002D	Director's Order	\$12,000.00	17-May-04	Multiple
03-101D	Director's Order	\$3,150.00	07-May-04	ARAP
03-0057	Agreed Order	\$10,000.00	20-Apr-04	ARAP
03-0168	Agreed Order	\$2,500.00	20-Apr-04	NPDES Stormwater
04-003a	Formal Complaint		15-Apr-04	Multiple
04-005a	Formal Complaint		07-Apr-04	ARAP
04-002a	Formal Complaint		07-Apr-04	Multiple
03-106D	Director's Order	\$12,000.00	06-Apr-04	ARAP
04-001a	Formal Complaint		06-Apr-04	Multiple
03-103D	Director's Order	\$3,500.00	30-Mar-04	ARAP
03-0798	Commissioner's Order	\$104,000.00	18-Mar-04	Multiple
03094D	Director's Order	\$7,500.00	17-Mar-04	Multiple

	03-0798	Commissioner's Order	\$104,000.00	18-Mar-04	Multiple
	03094D	Director's Order	\$7,500.00	17-Mar-04	Multiple
	03-094D	Director's Order	\$7,500.00	17-Mar-04	Multiple
	02-0720	Consent Order	\$800,000.00	10-Mar-04	NPDES Stormwater
	03-0533	Commissioner's Order	\$178,271.00	02-Mar-04	Multiple
	03-0534	Agreed Order	\$7,375.00	13-Feb-04	Multiple
	03-097D	Director's Order	\$15,000.00	05-Feb-04	Multiple
	03-092D	Director's Order	\$15,000.00	29-Jan-04	ARAP
	02-0651	Agreed Order	\$400.00	20-Jan-04	ARAP
	03-0217	Agreed Order	\$3,150.00	20-Jan-04	ARAP
	03-091D	Director's Order	\$7,650.00	16-Jan-04	ARAP
	03-093D	Director's Order	\$3,000.00	31-Dec-03	NPDES Stormwater
	03-0492	Agreed Order	\$3,200.00	23-Oct-03	Multiple
	03-081D	Director's Order	\$15,000.00	15-Oct-03	NPDES Stormwater
	03-079D	Director's Order	\$6,000.00	13-Oct-03	NPDES Stormwater
	03-090D	Director's Order	\$12,000.00	13-Oct-03	NPDES Stormwater
	03-095D	Director's Order	\$7,500.00	08-Oct-03	NPDES Stormwater
	03-0062	Agreed Order	\$2,000.00	25-Sep-03	Multiple
	03-086D	Director's Order	\$12,000.00	05-Sep-03	Multiple
	03-085D	Director's Order	\$4,500.00	05-Sep-03	NPDES Stormwater
	02-0017	Agreed Order	\$6,200.00	27-Aug-03	ARAP
	03-005a	Formal Complaint		27-Aug-03	ARAP





# Financial Opportunities

Tennessee Funding Opportunities

NPDES Phase I & Phase II

Designated MS4's



# Financial Opportunities

Your City is a designated MS4. Your Mayor signed an NOI. So, basically, your city has contracted with the State to implement an approved program.

*How will you fund your City's program?*

# Financial Opportunities

Some of the possibilities:

1. Do nothing.
2. Use Grants and Loans.
3. Fund the program with existing General Fund dollars.
4. Dedicate a property tax increase to your program and fund from General Fund.
5. Let development fund your program.
6. Make your program user funded; set up a Stormwater Utility.

*Let's discuss these possibilities...*

# 1. Do Nothing



# 1. Do nothing.

“O.K., we got our permit, do what you can on the program without spending any money. After all, I don’t think they’ll really do anything. We’ll wait and see before we spend a bunch of money.”

While this approach appears to be economical on the face of it, let’s look at how the State may respond:



# 1. Do nothing.

Your City has basically signed a contract with the State, committing to accomplish certain program elements in accordance with agreed milestones. By failing to adequately fund the program, these milestones are not achieved. Possible State response:

*These regulations are mandated by the Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC).*

# 1. Do nothing.

*Penalties for non-compliance with the regulations could be as harsh as \$10,000 per day in civil penalties. A TDEC Director's Order could also result in spot fines of \$1,000 or \$2,000 for non-compliance and an order to complete the program anyway.*

*Stormwater permit applications for new development in an MS4 that is non-compliant can be held without approval until the program is judged to be in compliance; **EFFECTIVELY PLACING A MORATORIUM ON DEVELOPMENT.***



## 2. Grants and Loans

# Grant- 319 (h) Non Point Source

The expectation would be that once developed, the plan would be implemented in a subsequent project. Beginning in FY 2005, no watershed restoration project can be funded with 319 money unless it is based on a watershed plan developed for that particular watershed.

# State Revolving Loan Fund

- ◆ State Revolving Loan Fund (SRF) Money is available for designated MS4's for stormwater program:
  - Planning
  - Mapping
  - Construction
  - Equipment (integral and dedicated to stormwater program)



# State Revolving Loan Fund

- ◆ Eligibility: To be determined on a case by case basis.
- ◆ Application deadline: Open cycle.
- ◆ Loan Amount: Loans from \$100,000 into the millions.
- ◆ Interest rate: Below market, on a sliding scale based on ability to pay index.

# State Revolving Loan Fund

## ◆ Loan period:

- Construction and/or Equipment: 20 years
- Planning and/or Mapping: 5 years

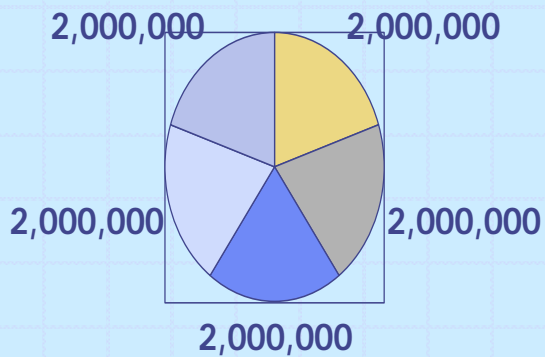


# 3. Existing General Fund

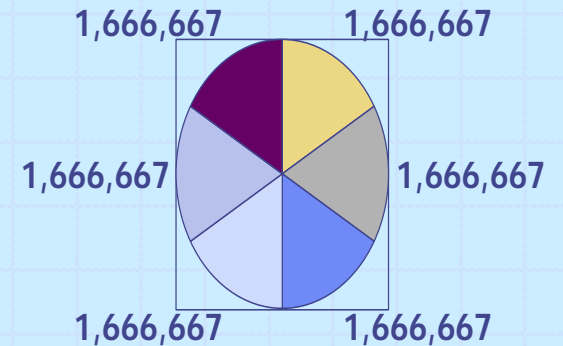


# 3. Existing General Fund

Existing General Fund  
\$10 Million Annual Budget



Existing General Fund  
\$10 Million Annual Budget





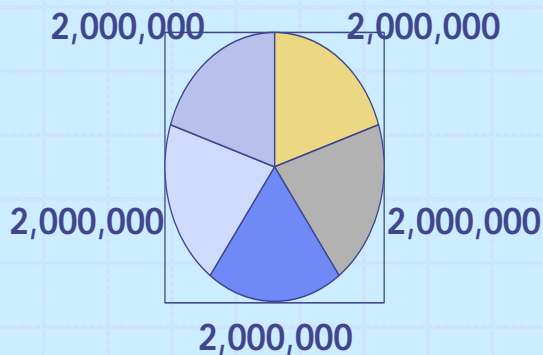
## 4. General Fund with a Tax Increase



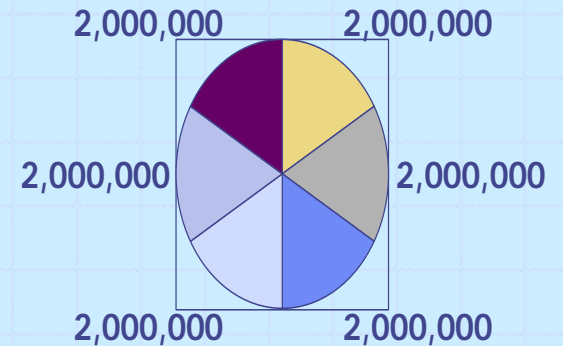


# General Fund with a Tax Increase

Existing General Fund  
\$10 Million Annual Budget



General Fund with Tax Increase  
\$12 Million Annual Budget





## 5. Funding Program with Development



# Funding Program with Development

Development funding mechanisms are o.k. as a secondary funding source for dedicated program expenses...

But it is short sighted to use development fees to fund the total O&M budget for a program.

Sooner or later, development won't fund the program, and/or development will be negatively impacted.



## 6. User Funding: A Stormwater Utility



# Stormwater Utility

Tennessee Code Annotated, § 68-221-1101, provides that the purpose of the stormwater management statute is to facilitate municipal compliance with the Water Quality Act of 1977, and applicable EPA regulations, particularly those arising from § 405 of the Water Quality Act of 1987, and § 402(p) of the Clean Water Act of 1977, and to enable municipalities to regulate stormwater discharges, establish a system of drainage facilities, construct and operate a system of stormwater management and flood control facilities, and to “fix and require payment of fees for the privilege of discharging stormwater



# Stormwater Utility

**Funding for Phase II Stormwater Management  
A Telephone Survey Conducted by the MTAS Library  
October 2005  
(63 cities surveyed)**

43 of 63 Cities surveyed funded with General Fund \$\$\$

14 of 63 Cities surveyed funded with Stormwater Utility

5 of 63 Cities surveyed establishing a Stormwater Utility

6 of 63 Cities surveyed use combination of General Fund \$\$\$  
and Development Fees.

# Financial Opportunities

## *We discussed these possibilities...*

- Do nothing- *not a viable solution.*
- Use Grants and Loans- *grants unpredictable and loans must be repaid, neither good for O&M.*
- Fund the program with existing General Fund dollars-*do your existing budgets have that much “fat” in them?*
- Dedicate a property tax increase to your program and fund from General Fund-*a good solution if the political will exists.*
- Let development fund your program-*not a reliable long term solution for total program budget.*
- Make your program user funded; set up a Stormwater Utility-*equitable and dependable, a dedicated revenue stream with no general fund budget battles.*

# Financial Opportunities

## General Fund

- Not a new concept
- Can be implemented comparatively quickly
- Negligible overhead involved in tax increase/collection-more of each dollar collected goes to program costs.

## Stormwater Utility Fee

- New idea, citizen education required
- Fast-track would be 18 months
- Significant new overhead associated with implementing and administering utility fee
- Dedicated revenue stream-no competing for general fund \$\$\$

# THANK YOU

PLEASE CONTACT THE PUBLIC WORKS  
CONSULTANTS AT MTAS IF YOU HAVE  
QUESTIONS

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