

**Texas Nonpoint Source
Pollution Program**
and the
2010 Grant Cycle

Texas Commission on Environmental Quality
September, 2009

Clean Water Act §319(h) Grants

- Clean Water Act annual appropriation
- Funds administered by EPA
- States are grantees
 - TCEQ urban-related NPS
 - TSSWCB agriculture-related NPS
- Purpose - Implement the State's program for managing NPS pollution

**Texas NPS
Management Program**

- Updated every 5 years: December 2005
<http://www.tceq.state.tx.us/compliance/monitoring/nps/mgmt-plan/#management>
- Outlines Goals, Objectives, and Strategy
- Best Management Practices
- Implementation Programs

Texas NPS Program
Goals

- Long Term Goals
 - Protect and restore water quality from nonpoint source pollution through assessment, implementation, and education

- Short Term Goals
 - Coordinate with appropriate federal, state, regional entities and target CWA §319 grant funds towards water quality assessment activities in high priority, nonpoint source-impacted watersheds, vulnerable and impacted aquifers, or areas where additional information is needed

Texas NPS Program
Objectives

- Work with stakeholders to develop and implement programs and practices which:
 - focus NPS abatement efforts on priority watersheds (assessment)
 - use watershed planning as the basis for NPS management
 - provide technical assistance and public outreach to extend results
 - coordinate effectively with other state water quality programs

Texas NPS Program
Milestones

- Establish public/private partnerships
- Assess water quality and watershed conditions
- Develop watershed plans to address impairments and threats
- Implement the plans through cost effective management measures
- Evaluate and report progress

Texas NPS Program
Federal WQ & NPS Program Activity Measures

- **2.2.1 Protect Water Quality on a Watershed Basis:**
 - **SP-10** Number of watersheds moved from nonattainment to attainment (2002 baseline)
 - **SP-11** Remove the specific causes of water body impairment identified in 2002
 - **SP-12** Improve water quality conditions in impaired watersheds using the watershed approach
 - **WQ-09** Estimated annual reduction of N, P, and sediment loading from nonpoint sources to water bodies
 - **WQ-10** Number of water bodies identified in 2000 or subsequently as being primarily NPS-impaired that are partially or fully restored.

Texas NPS Program
TCEQ 2010 Project Selection Criteria

- A. Part of an Established Watershed Planning Process:**
1. Implements Best Management Practices (BMPs) proposed by a completed WPP or TMDL I-Plan
 2. Demonstrates effective partnership with an active local watershed stakeholder group and other partners
 3. Demonstrates and helps institutionalize Low Impact Development practices
 4. Develops a new WPP for an impaired water body
 5. Develops or implements a WPP for an unimpaired water body
 6. Fills critical information gaps regarding NPS sources and/or BMP effectiveness

Texas NPS Program
TCEQ 2010 Project Selection Criteria

- B. Implements NPS BMPs that address the following:**
1. In water bodies identified on the SP-12 list
 2. As identified in the Texas Coastal NPS Pollution Control Program
 3. In current priority watersheds identified in the 2005 Management Program pgs 196-202
 4. In impaired water bodies classified as 5c on the 2008 Texas 303(d) list
 5. Identified in the 2008 Texas Water Quality Inventory Sources of Impairments and Concerns
 6. In water bodies threatened with impairment or degradation due to new or growing nonpoint sources

Texas NPS Program
TCEQ 2010 Project Selection Criteria

C. Likely to result in measurable WQ improvement:

Documentation that the project will likely address specific NPS sources to do the following:

1. Reduce concentrations of one or more pollutants of concern in impaired water bodies by a statistically significant amount, particularly if attainment of water quality standards is likely (WQ-10), and/or
2. Reduce total pollutant loadings for nitrogen, phosphorus, and/or sediment in a water body impacted by such pollutants, by a statistically significant amount (WQ-9), and/or
3. Prevent increased loading of pollutants that threaten impairment, documented as a trend of increasing concentrations and/or a near non-attainment

Texas NPS Program
TCEQ 2010 Project Selection Criteria

Documentation for C will be evaluated according to the following:

- Is derived from credible sources
- Utilizes methods of calculation that provide accurate and precise results
- Accurately applies the methods to the proposed BMPs and to their site context
- Provides specific documentation for the proposed BMPs and their proposed locations, e.g., BMP type and dimensions, design details, size of catchment area to be treated, and the storm water volume and flow rate capacity of the BMP

Texas NPS Program
TCEQ 2010 Project Selection Criteria

D. Applicant/team qualifications:

- Has significant, ongoing accountability for the quality of the water body addressed by the project
- Has contributed significantly to water quality planning and knowledge of the project water body and the water quality challenge to be addressed by the project
- Has demonstrated in previous projects the capacity and intention to implement the proposed BMPs effectively and efficiently and to continue with their needed operation and maintenance
- Has demonstrated significant and broad stakeholder support for and participation in its planning and implementation activities, particularly for the project watershed

Texas NPS Program TCEQ 2010 Project Selection Criteria

E. Cost effectiveness:

1. Results will be accomplished at relatively low cost and within the proposed budget & time frame.
2. CWA 319(h) funds are a good fit for this project, are critical for its success, and/or leverage other funds

Texas NPS Program Best Management Practices

BMPs address NPS pollution along the entire storm water pathway:

- Reduction of runoff through low impact development practices
- Preventive practices reduce contact of pollutants with storm water
- Cleanup practices recapture exposed pollutants
- Erosion control practices stabilize the soil surface against runoff
- Sediment control practices capture pollutants suspended in runoff
- Channel protection measures reduce stream bed & bank erosion
- Habitat restoration restores natural communities that minimize erosion and remove water pollutants in the riparian zone
- In-stream remediation removes pollutants already in the waterway

Texas NPS Program Best Management Practices

Emphasis on Preventive Practices and Policies

- Low Impact Development (LID) and Green Infrastructure
 - Rain water harvesting/retention for building use or irrigation
 - On-site bioretention, bioswales, rain gardens
 - Permeable paving for walkways and parking
 - Vegetated drainage systems with infiltration features
- Institutionalizing LID Practices through Development Codes
 - Include LID measures as standard options rather than variances
 - Establish design criteria for effective LID measures
 - Provide credit for LID measures as offset to higher density

Reduce Runoff Conceptual Approach

Developing land
increases:

- Imperviousness
- Volume and rate of runoff
- Pollutant loads

NPS BMPs correct these effects:

- Surfaces allow infiltration
- Retain and redistribute runoff
- Capture pollutants on-site

Reduce Runoff Low Impact Development (LID)



LID Conceptual Site Design

LID site design objectives are to preserve site hydrology, reduce runoff volumes and rates and reduce pollutant loads.

LID practices include: infiltration, retention and storage



Conventional Drainage Plan

LID Drainage Plan

Reduce Runoff Green Infrastructure

Green infrastructure is an approach to wet weather management that seeks to maintain or restore natural hydrologies.

USEPA entered into a *Green Infrastructure Statement of Intent* to promote the use of green infrastructure as a prominent component of municipal stormwater programs.

USEPA states that green infrastructure can be both a cost effective and an environmentally preferable alternative to centralized hard (gray) infrastructure.



Reduce Runoff – BMPs Site Planning & Design



	Conventional Design
Site (Ac)	220
Housing Units (#)	660
Park/Open Space (Ac)	0
Creek Setback (ft)	0
Impervious Cover (Ac)	28
Piping (ft)	15,000
Swale (ft)	0

	Mixed Use Design
Site (Ac)	220
Housing Units (#)	660
Park/Open Space (Ac)	52
Creek Setback (ft)	500
Impervious Cover (Ac)	15
Piping (ft)	10,000
Swale (ft)	4,700

Reduce Runoff – BMPs Infiltration

Bio-retention – Parking Lots



- Runoff velocity reduction
- Filtration by soils and plants
- Ponded water infiltrates to subsoil

Reduce Runoff – BMPs Infiltration

Bio-retention – Parking Lots
(continued)



Reduce Runoff – BMPs Infiltration



Bio-retention – City Streets



Infiltration practices can:

- Augment base flow in surface streams
- Recharge ground water supplies

Reduce Runoff – BMPs Infiltration



Bio-retention – City Streets
(continued)



Reduce Runoff – BMPs Infiltration

Roof Runoff Controls

Roof runoff directed to:

- Bio-retention areas
- Infiltration trenches



Reduce Runoff – BMPs Infiltration Trench



An infiltration trench is a long, narrow, rock-filled trench with no outlet that receives stormwater runoff. Runoff is stored in the void space between the stones and infiltrates through the bottom and into the soil matrix. The natural filtering ability of soils remove pollutants in stormwater runoff.

This practice has high pollutant removal efficiency and can also help recharge groundwater, thus helping to maintain low flows in stream systems.

Reduce Runoff – BMPs Rain Water Harvesting

Rainwater harvesting can supply water for household, landscape, and livestock uses. Rainwater harvesting is desirable because of escalating environmental and economic costs of providing water by centralized water systems.

- Texas Water Development Board



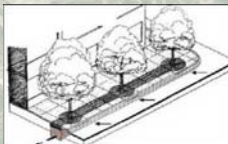
Reduce Runoff – BMPs Tree Canopy




Leaves and branches intercept rainwater

- Dissipates rainwater by evapotranspiration
- Increases soil infiltration
- Reduce volume of stormwater
- Increases time of concentration


A study in Washington D.C. calculated that tree cover over an acre of impervious cover reduced storm water runoff by over 100,000 gallons per year




Reduce Runoff – BMPs Porous Pavements




Porous Pavement Over Infiltration Facility



Standing Water on Standard Asphalt



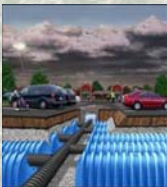

Parking Pavers Installed with Gaps




Pavers in Parking Bays

Reduce Runoff – BMPs Retention/Irrigation

- Storm water runoff is captured and retained.
- Water is used for irrigation of landscapes and other purposes.
- High stormwater constituent removal efficiencies.
- Applicable in areas with low permeability soils.


Runoff Reduction – BMPs Dry Well



Dry wells consist of small excavated pits backfilled with aggregate.

Dry wells function as infiltration systems.

Dry wells provide treatment by processes related to soil infiltration, including adsorption, trapping, filtering, and bacterial degradation.



Source Controls

Source controls are operational and structural practices that reduce pollution at the source.

Source control BMPs are guided by two general principles:

- Prevent the generation of pollutants
- Prevent pollutants from coming into contact with storm water

There is little quantitative data on the environmental benefits of certain source control practices.



Source Control - BMPs



Pet Waste Management



Lawn Care Practices



On-Site Wastewater System Maintenance



Automotive Maintenance

What 319(h) Grants May Fund Even in Urbanized Areas

- Watershed planning
- Monitoring and modeling to determine effectiveness of management measures
- Low Impact Development
- Retrofit of previously developed areas
- Demonstration of advanced or innovative measures, including model ordinances
- Special public education and involvement programs
- Must not be required by the MS4 permit

Urban Areas and 319-funded work

- 319 Funds can be used to address the quality of stormwater before it enters the MS4 conveyance system

Even if the stormwater has to pass through a grate or catch basin to enter the BMP, 319 grants can still potentially be used



Urban Areas and 319-funded work

- 319 Funds can be used to address the quality of stormwater after it leaves the MS4 Conveyance System

To be eligible for 319 funding, such a project must address pollution picked up by the storm water after leaving the MS4 conveyance system



Examples of BMPs that Have Been or Are Being Implemented within Urbanized Areas with Section 319 Funds

- Riparian management, streambank rehabilitation, and in-stream measures to eliminate/reduce channel instability;
- Wetland creation, restoration and/or enhancement for water quality purposes;
- Source area management/pollution prevention
- New technologies and approaches, such as green roofs;
- Information and education related to new approaches and technology;
- Alternative road and parking pavements;
- BMPs such as rain gardens and rain barrels in residential and governmental projects.

Developing an Incentive Program

Goal of Incentive	Mechanism for Fee Reduction	Process for Implementation
Reduce Imperviousness	<ul style="list-style-type: none"> •Percent fee reduction •Per-square-foot credit 	<ul style="list-style-type: none"> •Percent reduction in imperviousness •Square feet of pervious surfaces
On-site Management	<ul style="list-style-type: none"> •Percent fee reduction •Quantity/Quality credits (performance-based) 	<ul style="list-style-type: none"> •List of practices with various credits •Total area (square feet) managed
Volume Reduction	<ul style="list-style-type: none"> •Percent fee reduction •Performance-based quantity reduction 	<ul style="list-style-type: none"> •Percent reduction in imperviousness •Performance-based •Total area (square feet) managed •Practices based on pre-assigned performance values
Use of Specific Practices	<ul style="list-style-type: none"> •Percent fee reduction •One time credit 	List of practices with various credits

TCEQ 319 Grant Cycle - 2010

- ~ \$4 million in federal funds
- Up to 3-year project terms
- Requires 40% non-federal match
 - Cash, In-kind contributions, SRF grants
- Competitive & direct award process
- Governmental and non-profit organizations
- Cannot be used to comply with NPDES permit requirements

Grant Cycle Schedule

Sept 2009	Solicitation issued
Nov 2009	Applications due
March 2010	TCEQ selects projects
July 2010	EPA awards funds
Sept 2010	Contracts executed, project start

Project Examples

- Partnership Building
 - USAR
- Planning
 - Arroyo Colorado
- Assessment
 - Killeen, Cypress Creek
- BMP Implementation
 - Compost, well plugging, wetlands, San Angelo, Osso Creek OSSF
 - City of Houston residential redevelopment with LID (UDC connection)
- Outreach/education
 - Stream Team, River Walk
- Water Quality Improvements
 - Aquilla, Lake Como
- Groundwater
 - Onion Creek, Salado Creek
- Coastal
 - Dickenson Bayou LID, Orange County OSSF

More Resources for Nonpoint Source Grants and BMPs

National Menu of Stormwater BMPs
<http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm>

Stormwater BMP Database: <http://www.bmpdatabase.org/>

NPDES Training Courses and Workshops
http://cfpub2.epa.gov/npdes/outreach.cfm?program_id=0&otype=1

Nonpoint Source Outreach Toolkit
<http://www.epa.gov/owow/wtr1/NPS/eduinfo.html>

List of 319 Projects Currently Funded by TCEQ
<http://www.tceq.state.tx.us/compliance/monitoring/nps/projects/index.html>

City of Austin Innovative Storm Water Quality Control Criteria
http://www.amlegal.com/austin_nxt2/gateway.dll?f=templates&fn=default.htm&vid=amlegal:austin_environment

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