



GREEN INFRASTRUCTURE FUNDING MECHANISMS

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WHAT IS GREEN INFRASTRUCTURE?

- Natural and/or engineered systems that use or mimic natural processes to infiltrate, and evapo-transpirate rainfall
- Use vegetation, soils and natural processes to manage water close to where it falls.
- Includes approaches that capture and re-use rainfall



GREEN INFRASTRUCTURE PRACTICES



City of Austin ROW
Rain garden on 10th & Rio Grande



Lady Bird Johnson Wildflower Center
Rainwater cistern

- Innovative development and redevelopment designs
- Alternative parking/street designs
- Permeable/porous pavements
- Rainwater harvesting/reuse
- Bioretention (rain gardens, swales)
- Green roofs and green walls
- Open spaces, parks, greenways, trails
- Trees, including tree boxes and riparian and maritime forests
- Wetlands, marshes, dunes, beaches
- Xeriscaping

GI IN SUSTAINABLE COMMUNITIES



- Human health, quality of life benefits
- Economic benefits
- Ecological benefits
- Resilient infrastructure



GI FOR URBAN HEAT ISLAND IMPACTS



Weston Design Consultants study

GI ENHANCES STREET AND ROADWAY DESIGNS

- Rain gardens within curb bump-outs, roundabouts
- Porous walkways, trails
- Swales, tree pits



GI FOR PARKING DESIGNS

Porous areas such as:

- bioretention islands
- pervious pavements
- infiltration trenches
- zero curbs or curb cuts

allow MORE or the same number of parking spaces on smaller land areas



South Texas College – McAllen, TX
Parking lot infiltration island



Public Park – Cameron County, TX
Pervious parking and infiltration trench





Porous Asphalt

Standard Asphalt

GI IN COMMERCIAL AREAS

Starbucks – Austin, TX
Rainwater Cistern



WalMart – McKinney, TX
Porous Pavement & Infiltration Islands



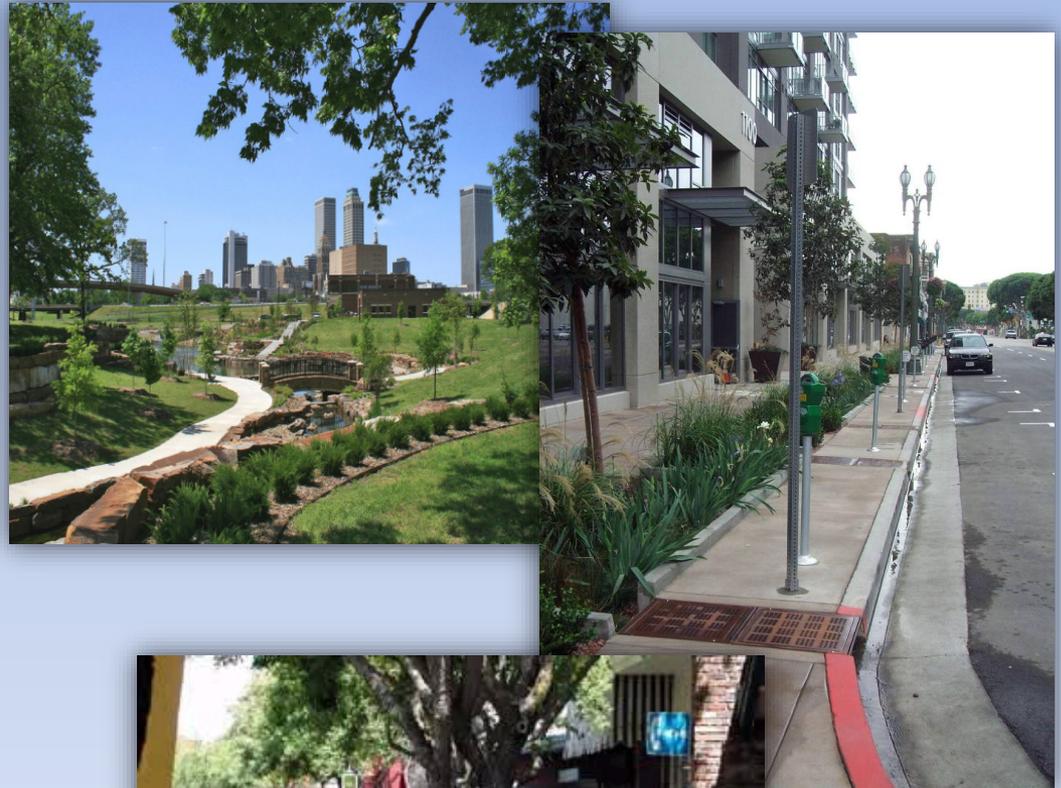
Reliant Stadium – Houston, TX
Green Parking



- Curb cuts into parking islands allow infiltration
- Green parking lots
- Permeable pavements
- Water harvesting

GI IN REDEVELOPMENT & INFILL DEVELOPMENT

- Already served by transportation and infrastructure
- Opportunity to reduce impervious surface and manage stormwater
- Accommodates development that may otherwise be developed on greenfield sites



GI IN RESIDENTIAL AREAS

- Pervious walkways, alleys, driveways
- Bio-swales, rain gardens
- Curb cuts, green streets
- Narrower streets, roads
- Narrower and/or shared driveways, less pavement



STATE REVOLVING FUND (SRF) PROGRAMS

ADMINISTERED BY TEXAS WATER DEVELOPMENT BOARD

Clean Water SRF program may fund a wide variety of water quality projects such as:

- stormwater pollution control
- nonpoint source pollution control
- estuary management projects
- eligible green project reserve (GPR) components
- wastewater recycling & reuse improvements
- wastewater treatment facilities
- collection systems

Drinking Water SRF program may fund a variety of drinking water infrastructure projects such as:

- water treatment facilities
- distribution systems
- upgrade/replace water infrastructure
- address SDWA standards
- source water protection projects
- consolidation of systems
- purchasing additional capacity
- eligible GPR components

www.twdb.texas.gov/financial/



GREEN PROJECT RESERVE (GPR) PROJECTS

Guides TWDB SRF funding toward projects that:

- utilize green or soft-path practices to complement and augment hard or gray infrastructure,
- adopt practices that reduce the environmental footprint of water and wastewater treatment, collection, and distribution,
- help utilities adapt to climate change,
- adopt more sustainable solutions to wet weather flows,
- provide mechanisms to reinvest savings from reductions in water loss and energy conservation,
- promote innovative approaches to water management problems.

Can be used for planning, design, and/or construction activities that advance one or more objectives in four categories (Green Infrastructure, Water Efficiency, Energy Efficiency, and Environmentally Innovative).



ELIGIBLE SRF PROJECTS

CWSRF examples

- Stormwater pipes, storage and treatment
- Green infrastructure
- Pervious pavement
- Planting trees and shrubs
- Wetland restoration
- Conservation easement
- Energy-efficiency POTW upgrades
- Water conservation education
- Water-efficient fixtures
- Water meters

DWSRF examples

- Pervious pavement
- Bioretention
- Green roof
- Rain water harvesting
- Gray water recycling/distribution
- Xeriscaping
- Water efficient irrigation
- Water efficient plumbing fixtures
- Water meters
- Leak detection
- Water conservation programs
- Riparian buffers
- Public education/outreach



SECTION 319 NONPOINT SOURCE GRANTS

ADMINISTERED BY TCEQ AND TSSWCB

“An integral component and funding source for the Texas NPS management programs which aim to control NPS pollution to achieve and maintain beneficial uses of waters throughout Texas.”

Program Elements:

- NPS Assessment Reports – Identify NPS problems & sources
- NPS Management Programs – State-adopted management program to control NPS pollution
- Watershed Protection Plans (WPPs) – voluntary, stakeholder-driven plans to address all sources/causes of impairments; given priority

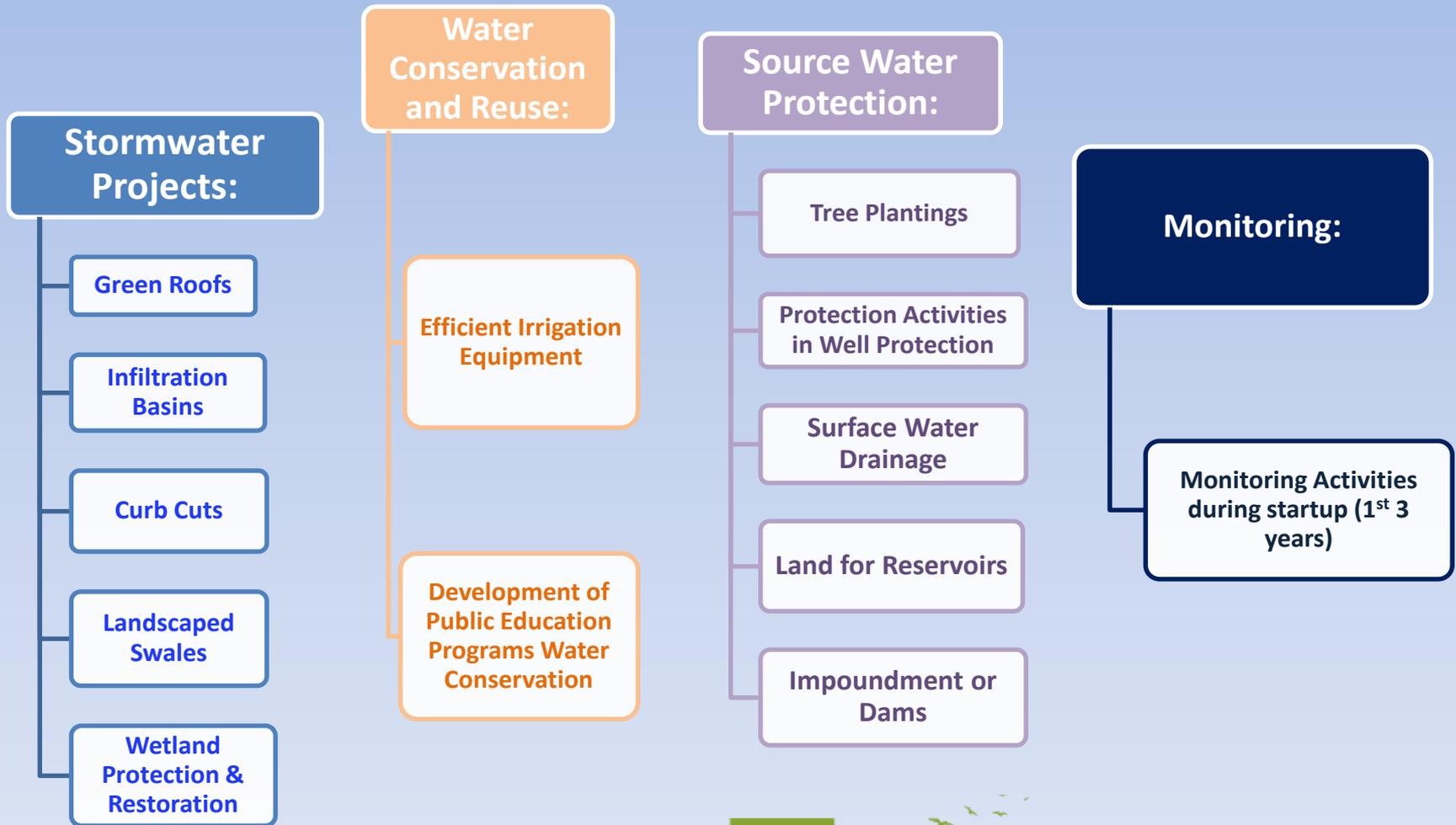
Project Types:

- Demonstration Project
- Watershed Project (WPP Development & WPP Implementation)

Additional details available at <https://www.tceq.texas.gov/waterquality/nonpoint-source/>



FUNDABLE 319 NPS PROJECTS



INTEGRATING HUMAN HEALTH AND WELL-BEING WITH ECOSYSTEM SERVICES

Seeking collaborative, community-based research applications that foster a better understanding of how ecosystems support human health and well-being. [Due April 21, 2016.](#)

- May examine beneficial forces, or buffers, that reduce risk, e.g., vegetative buffers reduce near-road pollution; access to green space improves quality of life, outdoor activities, and general wellness; etc.
- Ecosystem services include: clean water for drinking, recreation & aquatic habitat; adequate water supply; recreation, cultural and aesthetic amenities; contributions to climate stability; protection from hazardous weather; habitat & maintenance of biodiversity; clean air; etc.
- Additional details available at <https://www.epa.gov/research-grants/integrating-human-health-and-well-being-ecosystem-services#SUMMARY>



URBAN WATERS SMALL GRANTS

- 2015/2016 UWSG program goal – address urban runoff pollution through diverse partnerships that produce multiple community benefits, with emphasis on underserved communities.
 - expect to award approx. 25 projects \$40K - \$60K
 - submissions under review
- 2013/2014 UWSG competition – awarded 37 organizations to receive \$40,000 - \$60,000 each, totaling approx. \$2.1M
- 2011/2012 UWSG competition – awarded 55 projects in 36 states and Puerto Rico. Organizations received grants of \$30,000-\$60,000 for a total of \$3.2M.

<https://www.epa.gov/urbanwaters>

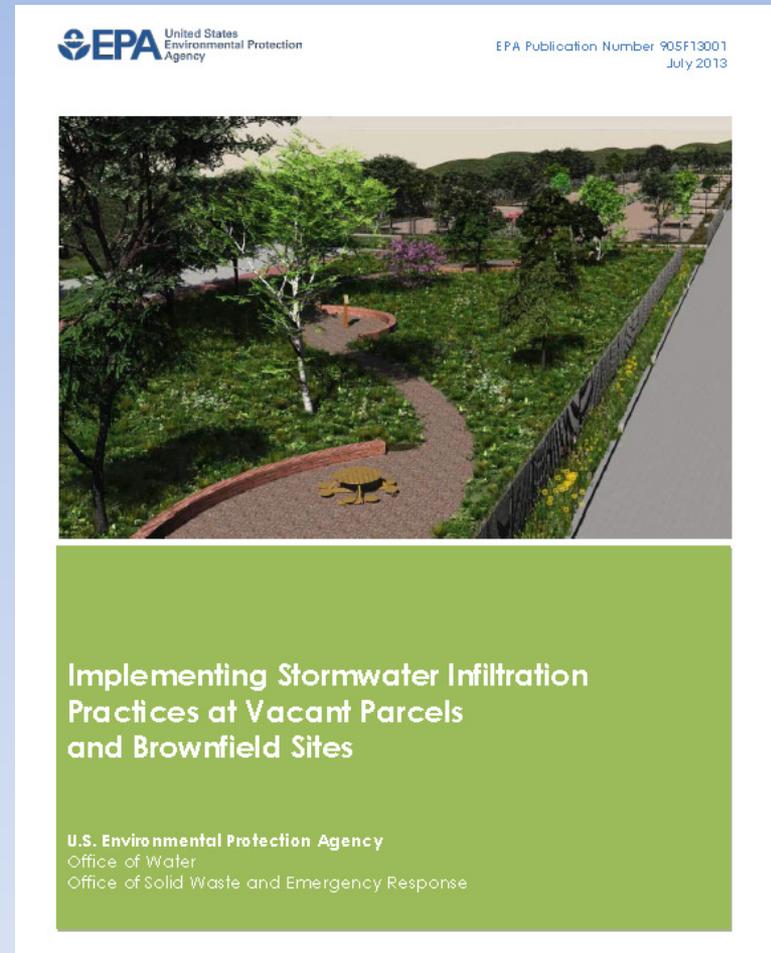


BROWNFIELDS PROGRAM

Direct funding for brownfields assessment, cleanup, revolving loans and environmental job training

- Area-Wide Planning
- Targeted Brownfields Assessment
- Sustainability Pilots
- Revolving Loan Funds
- others

www.epa.gov/brownfields/grant_info



SMART GROWTH IMPLEMENTATION ASSISTANCE

Technical Assistance addresses either:

- **Policy analysis** – reviewing state and local codes, school siting guidelines, transportation policies, or
- **Public participatory processes** – visioning, design workshops, alternative analysis, build-out analysis

Since 2005, EPA's Office Sustainable Communities has provided direct technical assistance to 34 communities

Final reports are available at:

www.epa.gov/smartgrowth



BUILDING BLOCKS PROGRAM

Targeted technical assistance to stimulate discussions about growth and development and strengthen local capacity to implement sustainable approaches such as:

- Bikeshare planning
- Walking Audit
- Parking Audit
- Infill Development
- Complete Streets
- Sustainable Land Use Code Audit
- More...
- Equitable Development
- Neighborhood Planning
- Preferred Growth Areas
- Smart Growth Guidelines
- Green Streets Strategy

www2.epa.gov/smartgrowth/building-blocks-sustainable-communities



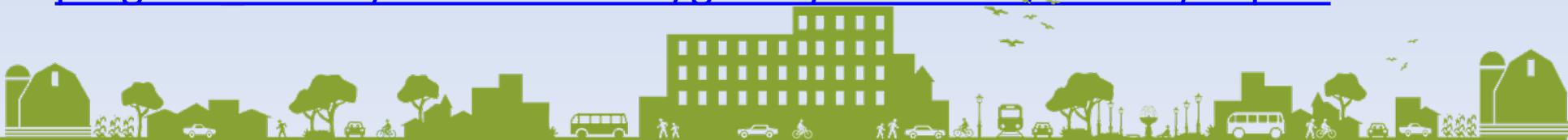
HUD's HOPE VI MAIN STREET PROGRAM

Assists small communities in the renovation of an historic or traditional central business district or “Main Street” area by replacing unused commercial space in buildings with affordable housing units. [Applications due April 12, 2016.](#)

Program objectives:

- Redevelop central business districts (Main Street areas);
- Preserve Historic or traditional Main Street area properties by replacing unused commercial space in buildings with affordable housing units;
- Enhance economic development efforts in Main Street areas; and
- Provide affordable housing in Main Street areas.

Additional details available at http://portal.hud.gov/hudportal/HUD?src=/program_offices/administration/grants/fundsavail/nofa16/hopevi



USDOT'S FASTLANE GRANT PROGRAM

A new program in the Fixing America's Surface Transportation (FAST) Act to fund critical freight and highway projects across the country. Applications due April 14, 2016.

NOFO states DOT “will *prioritize* projects that also enhance personal mobility and accessibility. Such projects include:

- investments that better connect people to essential services;
- remove physical barriers to access;
- strengthen communities through neighborhood redevelopment;
- mitigate negative impacts of freight movement on communities; and
- support workforce development, particularly for disadvantaged groups...”

Additional details available at <https://www.transportation.gov/FASTLANEgrants>



USDOT'S TIGER DISCRETIONARY GRANT PROGRAM

In 2016, will fund capital investments in surface transportation infrastructure and focus on capital projects that generate economic development and improve access to reliable, safe and affordable transportation for communities, both urban and rural. Applications due April 29, 2016.

A primary selection criterion specifically mentions:

- addressing environmental sustainability including avoiding adverse environmental impacts to water quality;
- providing environmental benefits such as ground water recharge in areas of water scarcity; and,
- stormwater mitigation, including green infrastructure.

Additional details available at <https://www.transportation.gov/tiger>

